

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. 24

[Period from 1 to 31 August 2014]

(September 2014)

Verified by: Fredrick Leong



Position: Independent Environmental Checker

Date: 12 September 2014

MTR Corporation Limited

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Certified by: Richard Kwan



Position: Environmental Team Leader

Date: 12 September 2014

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. 24****[Period from 1 to 31 August 2014]**

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Table of Contents

	Page
1 INTRODUCTION	1
1.1 Background	1
1.2 Project Programme.....	1
1.3 Purpose of the Report.....	2
2 ENVIRONMENTAL MONITORING AND AUDIT	2
3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS	12

List of Tables

Table 1.1	Summary of Awarded Works Contracts
Table 2.1	Summary of Major Construction Activities in the Reporting Period
Table 2.2	Summary of 24-Hour TSP Monitoring Results in the Reporting Period
Table 2.3	Summary of Construction Noise Monitoring Results in the Reporting Period
Table 2.4	Summary of Continuous Noise Monitoring Results in the Reporting Period
Table 2.5	Cumulative Log for Environmental Complaints, Notification of Summons and Successful Prosecutions
Table 3.1	Summary of Status of Required Submissions for EP-438/2012/F & EP-438/2012/G
Table 3.2	Summary of Status of Required Submissions for EP-437/2012

List of Appendices

Appendix A	24 th Monthly EM&A Report for Works Contract 1108A – Kai Tak Barging Point Facilities
Appendix B	24 th Monthly EM&A Report for Works Contract 1109 – Stations and Tunnels of Kowloon City Section
Appendix C	21 st Monthly EM&A Report for Works Contract 1101 – Ma On Shan Line Modification Works
Appendix D	20 th Monthly EM&A Report for Works Contract 1111 – Hung Hom North Approach Tunnels
Appendix E	19 th Monthly EM&A Report for Works Contract 1103 – Hin Keng to Diamond Hill Tunnels
Appendix F	18 th Monthly EM&A Report for Works Contract 1106 – Diamond Hill Station
Appendix G	16 th Monthly EM&A Report for Works Contract 1107 – Diamond Hill to Kai Tak Tunnels
Appendix H	15 th Monthly EM&A Report for Works Contract 1112 – Hung Hom Station and Stabling Sidings
Appendix I	15 th Monthly EM&A Report for Works Contract 1108 – Kai Tak Station and Associated Tunnels
Appendix J	11 th Monthly EM&A Report for Works Contract 1102 – Hin Keng Station and Approach Structures

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/G) was issued by Director of Environmental Protection (DEP) on 14 August 2014.

1.2 Project Programme

- 1.2.1 Ten civil construction works contracts of the Project have been awarded since July 2012. The construction of the Project commenced in September 2012 and is expected to complete in 2018. **Table 1.1** summarises the information of the awarded Works Contracts.

Table 1.1 Summary of Awarded Works Contracts

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
1101	Ma On Shan Line Modification Works ⁽¹⁾	December 2012	Sun Fook Kong Joint Venture (SFKJV)	ANewR Consulting Ltd. (ANewR)
1102	Hin Keng Station and Approach Structures	October 2013	Penta-Ocean Construction Co. Ltd.	Cinotech Consultants Ltd. (Cinotech)
1103	Hin Keng to Diamond Hill Tunnels	February 2013	Vinci Construction Grands Projets	Ove Arup & Partners Hong Kong Ltd.
1106	Diamond Hill Station	March 2013	Sembawang – Leader Joint Venture	Cinotech Consultants Ltd. (Cinotech)
1107	Diamond Hill to Kai Tak Tunnels	May 2013	Chun Wo - SELI Joint Venture	Cinotech Consultants Ltd. (Cinotech)
1108	Kai Tak Station and Associated Tunnels	June 2013	Kaden -Chun Wo Joint Venture	Environmental Pioneers & Solutions Ltd.
1108A	Kai Tak Barging Point Facilities	September 2012	Concentric – Hong Kong River Joint Venture (CCL-HKR JV)	Cinotech Consultants Ltd. (Cinotech)

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

Note:

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

1.3 Purpose of the Report

1.3.1 The Environmental Monitoring and Audit (EM&A) programme for the Project commenced in September 2012. This is the twenty third EM&A Report for the Project which summarises the EM&A works undertaken by the respective Contractor's ETs during the period from 1 to 31 August 2014.

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/F and EP-438/2012/G. 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/F & EP-438/2012/G
1102	Hin Keng Station and Approach Structures	EP-438/2012/F & EP-438/2012/G
1103	Hin Keng to Diamond Hill Tunnels	EP-438/2012/F & EP-438/2012/G
1106	Diamond Hill Station	EP-438/2012/F & EP-438/2012/G
1107	Diamond Hill to Kai Tak Tunnels	EP-438/2012/F & EP-438/2012/G
1108	Kai Tak Station and Associated Tunnels	EP-438/2012/F & EP-438/2012/G
1108A	Kai Tak Barging Point Facilities	EP-438/2012/F & EP-438/2012/G
1109	Stations and Tunnels of Kowloon City Section	EP-438/2012/F & EP-438/2012/G
1111	Hung Hom North Approach Tunnels	EP-437/2012, EP-438/2012/F & EP-438/2012/G
1112	Hung Hom Station and Stabling Sidings	EP-437/2012, EP-438/2012/F & EP-438/2012/G

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

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

Table 2.1 Summary of Major Construction Activities in the Reporting Period

Works Contract	Site	Construction Activities
1101 ⁽¹⁾	Tai Wai Mei Tin Road	<ul style="list-style-type: none"> • N/A
1102	Hin Keng Station and Approach Structures	<ul style="list-style-type: none"> • Slope improvement works; • Pipe Pile Wall; • Cap Excavation; • ELS construction; • Diversion of Underground Utilities: and • Modification of Retaining Wall.
1103	Diamond Hill Area	<ul style="list-style-type: none"> • Excavation and ELS for launching shaft and machinery assembly
	Hin Keng Area	<ul style="list-style-type: none"> • Pipe Piling, Mucking Out, Tunnel Excavation and Drill and Blast for Tunnel
	Fung Tak Area	<ul style="list-style-type: none"> • Platform erection, diaphragm wall and shaft excavation
	Ma Chai Hang Area	<ul style="list-style-type: none"> • Diaphragm wall and shaft excavation
1106	Diamond Hill Station Area	<ul style="list-style-type: none"> • D-wall construction; • Interchange Adit – construct barrette; • Capping beam construction works and sheet piling; • Gas main diversion works; • Construction of planter for tree transplantation and tree transplanting works; • Bored piling works; • Excavation and ELS works; and • West Unpaid Adit- site work formation.
1107	Tunnel section next to Kai Tak Station	<ul style="list-style-type: none"> • Site investigation works; • Investigation and removal of old foundation works; • Shaft excavation; • Site preparation works; • Grouting works; and • TBM excavation
1108	Kai Tak Station	<ul style="list-style-type: none"> • Excavation; • Wall and top slab construction; • Shoring for access shaft • Station structure: concourse slab rebar fixing, base slab concreting, base slab rebar fixing; • Nullah diversion: plastering for shotcrete surface • Mined tunnel: launching shaft, waler installation, receiving shaft, jet grouting, sheet piling
1108A	Kai Tak Barging Point Facilities	<ul style="list-style-type: none"> • Daily operation and maintenance of the Barging Point Facilities; • Loading and disposal of excavated marine sediments to designated dumping facilities; • Marine transportation of received spoil to receptor sites
1109	Ma Tau Wai (MTW) Works Area	<ul style="list-style-type: none"> • TKW – Operation of bentonite plant and Pier 15 underpinning works; • Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, and trial pits for location of utilities; and • Tam Kung Road – Pipe piling.

Works Contract	Site	Construction Activities
	To Kwa Wan (TKW) Works Area	<ul style="list-style-type: none"> • Olympic Garden – Pre-bored H; • TKW Station – Archaeological survey cum excavation, construction of grout curtain, shaft excavation, pre-bored H piling, sheet piling and TBM and STP setup; and • Nam Kok Road – Installation of pipe pile and construction of grout curtain.
1111	Mong Kok Freight Terminal	<ul style="list-style-type: none"> • Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.
	Hung Hom Area	<ul style="list-style-type: none"> • Excavation work, site clearance, site formation, slope work, cable detection, road diversion; • Construction of drainage, reinforced concrete structure, emergency vehicular access, temporary pedestrian walkway, decking; • Trial pit, trial trench, pre-drilling, pilling works, grouting, post-grouting, backfilling, abutment works; • Erection of hoarding, temporary bridge, scaffolding platform; • Trimming of retaining wall; • Tie back installation; • Demolition of overhead line, asbestos pipe: and • Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.
1112	Hong Hom (HUH and HHS) Works Area	<ul style="list-style-type: none"> • Piling for HUH, NAT and SAT; • Diaphragm wall construction at HUH; • Initial excavation at HUH and HHS; • Barging point operation at Hung Hom Freight Pier; • Operation of Material Receiving Hopper at Hung Hom Freight Pier; • Marine transportation and disposal of spoil to designated dumping ground(s); • Modification works at Concourse Level; • Underpinning works at HUH; and • Reconstruction of Cheong Wan Road Viaduct.

Note:

(1) Construction works were completed.

N/A Not applicable

2.1.4 Impact monitoring for air quality and construction noise were conducted in accordance with the EM&A Manual in the reporting period. Under Works Contract 1109, continuous noise monitoring was conducted according to the Continuous Noise Monitoring Plan (CNMP) in the reporting period. The air quality, construction noise and continuous noise monitoring results for this reporting month are summarised in **Tables 2.2 to 2.4**. Details of the monitoring requirements, locations, equipment, methodology and QA/QC procedures are presented in the EM&A Reports as provided in **Appendices A to J**.

2.1.5 The monitoring results indicated that no exceedance of the Action/Limit Levels of 24-hr TSP, construction noise. Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 1, 4, 5, 7, 15, 16, 18, 21, 22, 23, 25, 26, 27, 29 and

30 August 2014 during the reporting month. Investigation reports for exceedances recorded on 22, 23, 25, 26, 27, 29 and 30 August 2014 are under process. They will be reported in 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 ETs on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-conformance was identified in the reporting period.

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

Monitoring Station ID	Location	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Exceedance due to the Project Construction (Yes/No)
Works Contract 1101⁽⁵⁾					
Works Contract 1102 and 1103					
DMS-1	C.U.H.K.A.A. Thomas Cheung School	15.3 – 34.3	148.7	260	No
Works Contract 1103					
DMS-2	Price Memorial Catholic Primary School	16.7 – 68.5	167.4	260	No
Works Contracts 1103 and 1106					
DMS-3	Hong Kong S.K.H Nursing Home ⁽¹⁾	18.0 – 35.3	159.1	260	No
Works Contract 1106 and 1107					
DMS-4	Block 1, Rhythm Garden	22.0 – 51.4	160.4	260	No
Works Contract 1108⁽⁵⁾					
Works Contract 1108A⁽⁵⁾					
Works Contract 1109					
DMS-6	Katherine Building ⁽²⁾	69 – 88	156.8	260	No
DMS-7	Parc 22 ⁽³⁾	68 – 97	166.7	260	No
DMS-8	SKH Good Shepherd Primary School	67 – 93	152.2	260	No
DMS-9	No. 12 Pau Chung Street ⁽⁴⁾⁽⁹⁾	76 – 100	160.9	260	No
DMS-10	Chat Ma Mansion	67 – 93	170.4	260	No
Works Contract 1111					
AM1 ⁽⁶⁾	No. 234 – 238 Chatham Road North ⁽⁷⁾	22.7 – 35.5	183.9	260	No
Works Contract 1112					
AM2	Site Boundary of Finger Pier Adjacent To Harbourfront Horizon ⁽⁸⁾	16.7 – 37.0	182	260	No

Note:

- (1) Alternative monitoring location to Shek On House
- (2) Alternative monitoring location to Prosperity House
- (3) Alternative monitoring location to Skytower Tower 2
- (4) Alternative monitoring location to Lucky Building
- (5) No TSP monitoring is required under this contract
- (6) AM1 named as HUH-1-3 in SCL(TAW-HUH) and SCL(HHS) EIA Reports.
- (7) Alternative monitoring location to Wing Fung Building
- (8) Alternative monitoring location to Harbourfront Horizon
- (9) 24-hour averaged dust monitoring at DMS-9 No. 26 Kowloon City Road (alternative location of Lucky Building) has been suspended since March 2014 due to denied access by the occupant of the premise. However, No. 12 Pau Chung Street, as an alternative monitoring location, was formally approved by EPD on 19 May 2014. Impact dust monitoring was resumed on 12 June 2014.

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

Monitoring Station ID	Location	Noise Level ($L_{Aeq,30mins}$, dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected ⁽⁷⁾		
Works Contract 1101⁽⁶⁾						
Works Contract 1102 and 1103						
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School	57.5 – 58.5	57.0	47.9 – 53.2	70 (65 during examination period)	No
Works Contract 1103						
NMS-CA-2	Price Memorial Catholic Primary School	68.7 – 69.7	66.0	65.4 – 67.3	70 (65 during examination period)	No
Works Contracts 1103 and 1106						
NMS-CA-3	Hong Kong S.K.H Nursing Home ⁽¹⁾	67.6 – 68.4	73.0	< baseline	70	No
Works Contract 1106 and 1107						
NMS-CA-4	Block 1, Rhythm Garden (north-eastern façade)	72.3 – 74.5	71.0	66.4 – 71.9	75	No
NMS-CA-5	Block 1, Rhythm Garden (northern façade) ⁽²⁾	68.8 – 74.7	74.0	< baseline – 66.4	70 (65 during examination period)	No
Works Contract 1108⁽⁶⁾						
Works Contract 1108A⁽⁶⁾						
Works Contract 1109						
NMS-CA-6	No. 16-23 Nam Kok Road ⁽³⁾	62.9 – 64.1	76.1	< baseline	75	No
NMS-CA-7	Skytower Tower 2	66.8 – 67.1	70.0	< baseline	75	No
NMS-CA-8	SKH Good Shepherd Primary School	78.2 – 80.5	75.4	74.9 – 78.9	70 (65 during examination period) (79 during the period of conducting the continuous noise monitoring) ⁽⁸⁾	No
NMS-CA-9	Kong Yiu Mansion ⁽⁴⁾	74.1 – 75.8	69.2	72.4 – 74.7	75	No
NMS-CA-10	Chat Ma Mansion	76.6 – 76.9	76.6	= baseline – 65.1	75	No
Works Contract 1111						

Monitoring Station ID	Location	Noise Level ($L_{Aeq,30mins}$, dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected ⁽⁷⁾		
NM1	Carmel Secondary School (South Block)	67.6 - 69.5	68.0	< baseline – 64.2	70 (65 during examination period) (68 during the period of conducting the continuous noise monitoring) ⁽⁹⁾	No
NM2	No. 234 – 238 Chatham Road North ⁽⁵⁾	70.2 – 73.9	79.0	< baseline	75	No
Works Contract 1112⁽⁶⁾						

Note:

- (1) Alternative monitoring location to Shek On House.
- (2) Alternative monitoring location to Canossa Primary School (San Po Kong).
- (3) Alternative monitoring location to Prosperity House.
- (4) Alternative monitoring location to Lucky Building.
- (5) Alternative monitoring location to Wing Fung Building.
- (6) No construction noise monitoring is required under this contract.
- (7) The measured noise levels are corrected against the corresponding baseline noise levels.
- (8) The Limit Level of 79 dB(A) was updated on 22 Aug 2013 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) which were approved by EPD.
- (9) The Limit of 68 dB(A) was updated on 20 Jan 2014 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) which were approved by EPD.

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

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

NSR ID	NSR Description	Continuous Noise Monitoring Location	Noise Level ($L_{Aeq,30mins}$, dB(A))			Action/Limit Level ⁽³⁾ dB(A)	Exceedance due to the Project Construction (Yes/No)
			Measured	Baseline	Corrected ⁽²⁾		
MTW-12-10	Lucky Building (South Façade)	MTW-12-10 Lucky Building (South Façade)	(4)	(4)	(4)	84	(4)
MTW-12-10-1	Lucky Building (East Façade)	MTW-12-10-1 Lucky Building (East Façade)	(4)	(4)	(4)	80	(4)
MTW-12-11	Jing Ming Building	MTW-12-11 Jing Ming Building	(4)	(4)	(4)	81	(4)
MTW-16-1	SKH Good Shepherd Primary School	MTW-16-1 SKH Good Shepherd Primary School	73.1 – 85.1	75.4	<baseline – 84.6	79	Yes ⁽⁹⁾
MTW-18-2 ⁽⁸⁾	No. 2 Kowloon City Road	MTW-18-2(A) No. 20 Kowloon City Road	N/A	N/A	N/A	N/A	N/A
HOM-2-1--A ⁽¹⁾	Faerie Court (East Façade)	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1111							
OM4a	Carmel Secondary School (South Block)	NM1 Carmel Secondary School (South Block)	(4)	(4)	(4)	69 ⁽⁷⁾	(4)
HH2 ⁽⁶⁾	Wing Fung Building	NM2 No. 234-238 Chatham Road North ⁽⁵⁾	(4)	(4)	(4)	77	(4)
Works Contract 1112⁽¹⁾							

Note:

- (1) No continuous noise monitoring is required under this contract.
- (2) Measured noise level (above the baseline noise level) was corrected against the corresponding baseline level.
- (3) Reference to the predicted maximum noise level as contained in the corresponding CNMMP.
- (4) According to the CNMMP and CNMP, continuous noise monitoring is not required during this reporting month.
- (5) Alternative monitoring location to Wing Fung Building.
- (6) HH2 named as HUH-1-3 in SCL (TAW-HUH) and SCL(HHS) EIA Reports.
- (7) Action/Limit level will only be applicable during the examination period.
- (8) The building at MTW-18-2 has been demolished. During the period of residual noise impact exceeding criteria predicted in the corresponding CNMMP, there will be no NSR occupied at this location. It is therefore not necessary carry out continuous noise monitoring at this location.
- (9) Investigations for some exceedances are being conducted and detail investigation results will be provided in next reporting month.
- (10) MTW-12-3 (Lucky Mansion) and MTW-12-4 (352-354 Ma Tau Wai Road (East Façade)) are inaccessible and identification of potential alternative continuous noise monitoring locations to replace MTW-12-3 and MTW-12-4 is underway with EPD. Continuous noise monitoring data for August 2014 of aforementioned locations are therefore not available in this reporting month.

N/A Not applicable

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

Works Contract	Environmental Complaints		Notification of Summons		Successful Prosecutions	
	Reporting Month	Cumulative Number	Reporting Month	Cumulative Number	Reporting Month	Cumulative Number
1101	0	0	0	0	0	0
1102	0	0	0	0	0	0
1103	0	0	0	0	0	0
1106	0	0	0	0	0	0
1107	0	0	0	0	0	0
1108	0	0	0	0	0	0
1108A	0	0	0	0	0	0
1109	0	0	0	0	0	0
1111	0	0	0	0	0	0
1112	0	0	0	0	0	0

3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 The respective Contractors have implemented all mitigation measures and requirements as stated in the EIA Reports, EM&A Manuals and EP (EP-438/2012/F, EP-438/2012/G 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/F & EP-438/2012/G

EP Condition (EP-438/2012/F & EP-438/2012/G)	Submission	Submission date
Condition 1.12	Notification of Commencement Date of Construction of the Project	1 Aug 2012
Condition 2.3	Notification of Information of Community Liaison Groups	13 Jul 2012 (1 st submission) 31 Aug 2012 (2 nd submission) 30 Nov 2012 (3 rd submission)
Condition 2.7	Management Organisation of Main Construction Companies	27 Jul 2012 (1 st submission) 21 Aug 2012 (2 nd submission) 19 Dec 2012 (3 rd submission) 22 Jan 2013 (4 th submission) 30 Apr 2013 (5 th submission) 21 May 2013 (6 th submission)
Condition 2.8	Construction Programme and EP Submission Schedule	27 Jul 2012
Condition 2.9	Construction Noise Mitigation Measures Plan (CNMMP)	1 Aug 2012 (1 st submission) 28 Sep 2012 (2 nd submission) 30 Nov 2012 (3 rd submission) 11 Jan 2013 (4 th submission) 8 Feb 2013 (Approved for Contracts 1109, 1111 and 1103) 8 Feb 2013 (5 th submission) 26 Apr 2013 (6 th submission) 11 Jun 2013 (7 th submission) 12 July 2013 (Approved) 26 July 2013 (8 th submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9 th submission) 13 Sept 2013 (Approved) 20 Jan 2014 (10 th submission) 26 Feb 2014 (Approved)
Condition 2.10	Continuous Noise Monitoring Plan (CNMP)	1 Aug 2012 (1 st submission) 28 Sep 2012 (2 nd submission) 30 Nov 2012 (3 rd submission) 11 Jan 2013 (4 th submission) 8 Feb 2013 (Approved for Contracts 1109, 1111 and 1103) 8 Feb 2013 (5 th submission) 26 Apr 2013 (6 th submission) 11 Jun 2013 (7 th submission) 12 July 2013 (Approved) 26 July 2013 (8 th submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9 th submission) 13 Sept 2013 (Approved) 20 Jan 2014 (10 th submission) 26 Feb 2014 (Approved)
Condition 2.11	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission) 10 Oct 2012 (Approved)
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission)

EP Condition (EP-438/2012/F & EP-438/2012/G)	Submission	Submission date
		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) 18 Mar 2013 (6 th submission) 18 June 2013 (7 th submission) 12 July 2013 (Approved)
Condition 2.14	Transplantation Proposal for Plant Species of Conservation Importance	22 Aug 2012 (1 st submission) 5 Oct 2012 (2 nd submission) 26 Nov 2012 (3 rd submission) 4 Dec 2012 (Approved)
Condition 2.15	Conservation Plan	31 Jan 2013 (1 st submission) 18 Mar 2013 (2 nd submission) 24 Apr 2013 (Approved)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1109	10 Aug 2012 (1 st submission) 3 Sep 2012 (2 nd submission) 21 Sep 2012 (Approved) 11 Oct 2013 (3 rd submission) 1 Nov 2013 (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 Reports No. 1 - 22 Monthly EM&A Report No. 23	Reported in previous Monthly EM&A Reports 14 August 2014

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)

EP Condition (EP-437/2012)	Submission	Submission date
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) 27 Aug 2013 (Approved) 20 Jan 2014 (4 th 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) 20 Jan 2014 (3 rd submission)
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 Reports No. 5 - 22 Monthly EM&A Report No. 23	Reported in previous Monthly EM&A Reports 14 August 2014

Appendix A

**24th EM&A Report for Works Contract 1108A –
Kai Tak Barging Point Facilities**

MTR Corporation Limited

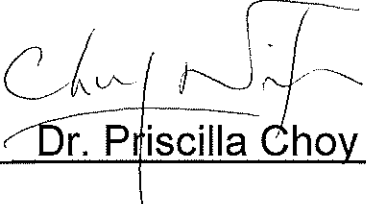
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No.24

[Period from 1 to 31 August 2014]

Works Contract 1108A – Kai Tak Barging Point
Facilities

(September 2014)

Certified by: 
_____ Dr. Priscilla Choy _____

Position: Environmental Team Leader

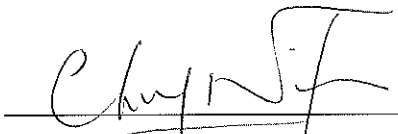
Date: 11th September 2014

Concentric – Hong Kong River Joint Venture

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

Monthly Environmental Monitoring and Audit Report for August 2014

(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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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
Introduction	1
Summary of Site Activities undertaken during Reporting Month.....	1
Environmental Monitoring and Audit Progress.....	1
Water Quality	1
Waste Management	1
Environmental Site Inspection	1
Ecology/Landscape and Visual	1
Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution.....	1
Future Key Issues	2
1 INTRODUCTION	3
Purpose of the report	3
Structure of the report.....	3
2 PROJECT INFORMATION.....	4
Background	4
General Site Description.....	4
Construction Programme and Activities.....	4
Project Organisation	4
Status of Environmental Licences, Notification and Permits.....	6
3 ENVIRONMENTAL MONITORING REQUIREMENTS.....	8
Water Quality Monitoring	8
Cultural Heritage	10
Landscape and Visual.....	11
Ecology.....	11
4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS	12
5 MONITORING RESULTS.....	13
Water Quality	13
Waste Management	13
Landscape and Visual.....	13
Ecology.....	13
6 ENVIRONMENTAL SITE INSPECTION	14
Site Audits	14
Implementation Status of Environmental Mitigation Measures.....	14
7 ENVIRONMENTAL NON-CONFORMANCE	19
Summary of Exceedances.....	19
Summary of Environmental Non-Compliance	19
Summary of Environmental Complaint.....	19
Summary of Environmental Summon and Successful Prosecution	19
8 FUTURE KEY ISSUES.....	20
Key Issues in the Coming Month	20
Site Activities for the Next Month	20
9 CONCLUSIONS AND RECOMMENDATIONS.....	21
Conclusions	21
Recommendations	21

LIST OF TABLES

Table I	Summary Table for Events Recorded in the Reporting Month
Table II	Summary Table for Key Information in the Reporting Month
Table 2.1	Key Contacts of the Project
Table 2.2	Status of Environmental Licences, Notification and Permits
Table 3.1	Water Quality Monitoring Stations
Table 3.2	Water Quality Impact Monitoring Programme
Table 3.3	Laboratory analysis for SS
Table 4.1	Status of Required Submissions under EP
Table 5.1	Quantities of Waste Generated from the Project
Table 6.1	Observations and Recommendations of Site Audit

LIST OF FIGURES

Figure 1	Site Layout Plan
Figure 2	Locations of Water Quality Monitoring Stations

LIST OF APPENDICES

Appendix A	Action and Limit Levels
Appendix B	Summary of Exceedance
Appendix C	Site Audit Summary
Appendix D	Event and Action Plans
Appendix E	Updated Environmental Mitigation Implementation Schedule
Appendix F	Waste Generation in the Reporting Month
Appendix G	Complaint Log
Appendix H	Tentative Construction Programme

EXECUTIVE SUMMARY

Introduction

1. This is the 24th 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 August 2014.

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;
 - Loading and disposal of excavated marine sediments to designated dumping facilities
 - 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.....4 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. No inert C&D materials were generated, and 5m³ of non-inert C&D materials were generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials

Environmental Site Inspection

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

Ecology/Landscape and Visual

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

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

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

Table I Summary Table for Events Recorded in the Reporting Month

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

Table II Summary Table for Key Information in the Reporting Month

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

Future Key Issues

9. Major site activities for the coming reporting month will include:
- Daily operation and maintenance of the Barging Point Facilities;
 - Loading and disposal of excavated marine sediments to designated dumping facilities
 - Marine transportation of received spoil to receptor sites for beneficial reuse

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 24th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 August to 31 August 2014.

Structure of the report

- 1.3 The structure of the report is as follows:

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

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

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

Section 4: **Implementation Status on Environmental Protection Requirements** - 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**.

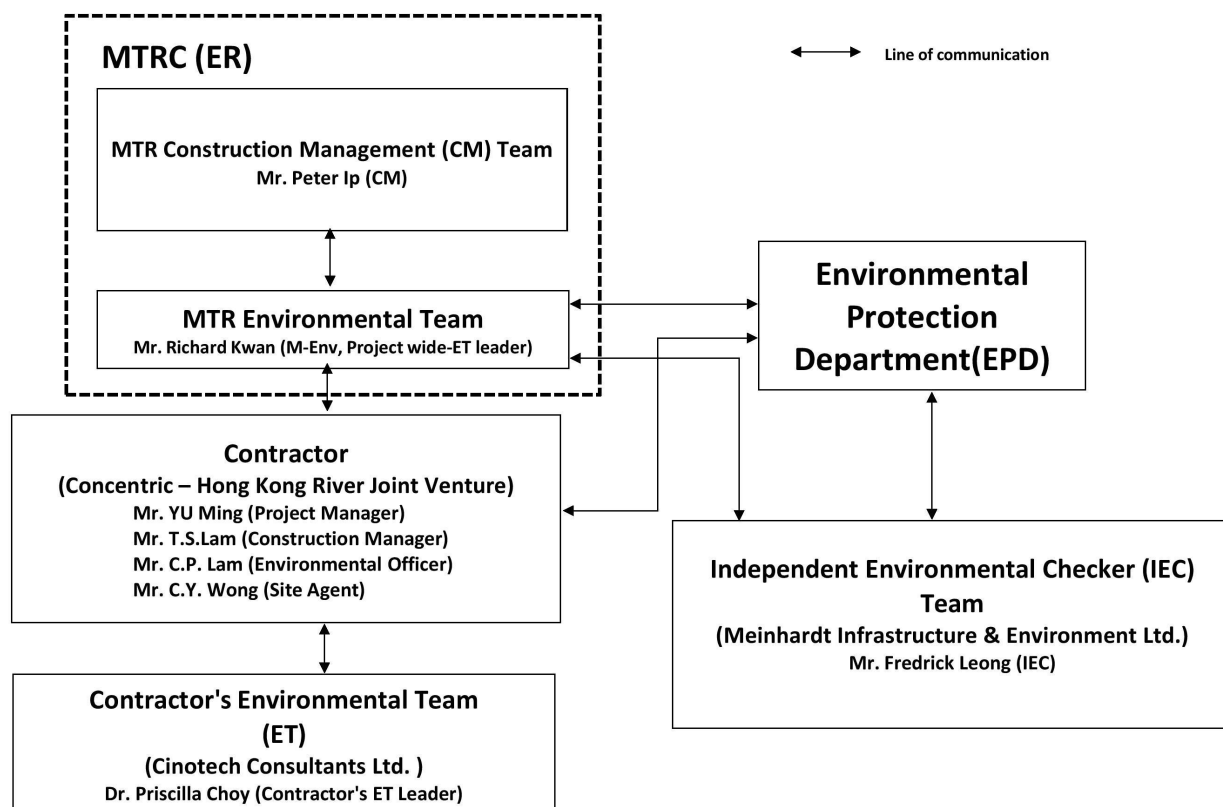
Construction Programme and Activities

- 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;
 - Loading and disposal of excavated marine sediments to designated dumping facilities
 - 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	
		Mr. C.Y. WONG	Site Agent	9199 3188	

Status of Environmental Licences, Notification and Permits

- 2.9 The Environmental Permit (EP-438/2012) of SCL (Tai Wai to Hung Hom Section) was first issued on 22 March 2012 and it was updated throughout the Project. The latest Environmental Permit (EP No. EP-438/2012/G) was granted on 14th August 2014.
- 2.10 The 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	22/3/2012	11/07/2012	Superseded by EP-438/2012/A
EP-438/2012/A	12/07/2012	25/10/2012	Superseded by EP-438/2012/B
EP-438/2012/B	26/10/2012	29/04/2013	Superseded by EP-438/2012/C
EP-438/2012/C	30/04/2013	12/09/2013	Superseded by EP-438/2012/D
EP-438/2012/D	13/09/2013	03/04/2014	Superseded by EP-438/2012/E
EP-438/2012/E	04/04/2014	14/07/2014	Superseded by EP-438/2012/F
EP-438/2012/F	15/07/2014	13/08/2014	Superseded by EP-438/2012/G
EP-438/2012/G	14/08/2014	N/A	Valid
Construction Noise Permit (CNP)			
GW-RE0754-12	24/09/2012	23/03/2013	Expired
GW-RE0272-13	26/03/2013	23/09/2013	Expired
GW-RE0969-13	24/09/2013	23/03/2014	Expired
GW-RE0321-14	29/03/2014	28/09/2014	Valid
Marine Dumping Permits			
EP/MD/13-074	26/10/2012	25/11/2012	Expired
EP/MD/13-075	10/10/2012	09/11/2012	Expired
EP/MD/14-077	27/11/2013	26/05/2014	Expired
EP/MD/14-083	16/12/2013	15/01/2014	Expired
EP/MD/14-117	24/02/2014	23/03/2014	Expired
EP/MD/14-158	25/03/2014	24/04/2014	Expired
EP/MD/14-168	10/04/2014	30/04/2014	Expired
EP/MD/15-003	25/04/2014	24/05/2014	Expired
EP/MD/15-021	27/05/2014	26/11/2014	Valid
EP/MD/15-073	14/08/2014	13/09/2014	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			

Permit / License No.	Valid Period		Status
	From	To	
EPD reference no. 348913	22/08/2012	N/A	Receipt acknowledged by EPD
Billing Account for Construction Waste Disposal			
A/C# 7015860	29/08/2012	N/A	Valid
Registration of Chemical Waste Producer			
WPN5213-286-C3752-01	17/09/2012	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00014328-2012	07/11/2012	30/11/2017	Valid

Summary of EM&A Requirements

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

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Water Quality Monitoring

Monitoring Location

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

Table 3.1 Water Quality Monitoring Stations

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

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

Monitoring Parameters, Frequency and Programme

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

Table 3.2 Water Quality Impact Monitoring Programme

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

Monitoring Equipment and Methodology

Dissolved Oxygen and Temperature Measuring Equipment

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

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

Turbidity Measurement Instrument

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

Water Sampler

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

Water Depth Detector

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

Salinity Measuring Equipment

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

pH Measuring Equipment

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

Sample Containers and Storage

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

Position Equipment

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

Calibration of In-Situ Instruments

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

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

Back-up Equipment and Vessels

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

Laboratory Measurement / Analysis

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

Table 3.3 Laboratory analysis for SS

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

Action and Limit Levels

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

Event and Action Plan

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

Cultural Heritage

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

Landscape and Visual

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

Ecology

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

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submissions under EP

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Status of submissions under EP	1	Monthly EM&A Report (July 2014)	Submitted to EPD on 14 th August 2014 (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
August 2014	0 m ³	5 m ³	0 m ³	0 kg	0 kg	0 kg	0 kg

Notes:

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

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

Landscape and Visual

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

Ecology

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

6 ENVIRONMENTAL SITE INSPECTION

Site Audits

- 6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix C**.
- 6.2 Site audits were conducted on 5, 14, 19 and 26 August 2014 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 14 August 2014. 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>	14 August 2014	<u>Reminder:</u> Mud was observed on the side of the deck of the barge at floating jetty no.3. The Contractor was reminded to clear the mud accordingly to prevent potential falling into the sea.	The item was observed to be improved/rectified by the Contractor during the site inspection on 19 August 2014.
	19 August 2014	<u>Reminder:</u> Mud was observed on the ground under the conveyor belt no.2, and near the ramp of floating jetty no.4. Contractor was reminded to clear them.	Follow up action will be reported in next reporting period.
	26 August 2014	<u>Reminder:</u> Sand was observed accumulated on the ground near the ramp of floating jetty no.4. Contractor was reminded to clear it.	
<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>	24 June 2014	<u>Observation:</u> Dust curtain and water spray system of floating jetty no.4 were damaged. The	Water spray system was observed to be rectified by the Contractor during the audit

Parameters	Date	Observations and Recommendations	Follow-up
		Contractor was reminded to repair it a.s.a.p.	session on 8 July 2014. Follow-up action for the dust curtain will be reported in the next reporting period.
	2 July 2014	<u>Observation:</u> Dust curtain of tipping hall for floating jetty no.4 was observed damaged. The Contractor was reminded to repair it	
	8 July 2014	<u>Reminder:</u> The dust curtains of floating jetty no.4 and no.3 were observed damaged while the jetties were not in operation. Contractor was reminded to repair them.	
	17 July 2014 23 July 2014	<u>Observation:</u> Dust curtain of floating jetty no.4 was observed damaged, while unloading of excavated material was in process. The Contractor was reminded to repair it.	
	29 July 2014	<u>Reminder:</u> The dust curtain of floating jetty no.4 was observed damaged while it was not in operation. Contractor was reminded to repair it.	
	5 August 2014	<u>Reminder:</u> The dust curtains of floating jetties no.4 and 3 were observed damaged while the jetties were not in operation. Contractor was reminded to repair them.	

Parameters	Date	Observations and Recommendations	Follow-up
	14 August 2014 19 August 2014 26 August 2014	<p><u>Reminder:</u> Small gaps were observed between the tipping hall and dust curtains of floating jetty no.4. Contractor was reminded to install the dust curtains properly to minimize the gaps.</p> <p><u>Reminder:</u> Small gaps were observed between the tipping hall and dust curtain of floating jetty no.4, and damage was observed on the dust curtain of floating jetty no.3 while the jetties were not in operation. Contractor was reminded to properly install the dust curtain of floating jetty no.4 and repair the one of floating jetty no.3.</p>	
	17 July 2014 23 July 2014 29 July 2014 5 August 2014 14 August 2014	<p><u>Reminder:</u> Tipping hall of floating jetty no.3 was observed damaged. Contractor was reminded to repair the cracks and holes of tipping hall near the dust curtain.</p> <p><u>Reminder:</u> There were holes and cracks observed on tipping halls no.4 and no.3 while the holes and cracks on tipping hall no.3 were covered with tarpaulin sheet. Contractor was reminded to repair them properly.</p> <p><u>Reminder:</u> The tipping halls of floating jetties no.3 and no.4 were observed damaged while the jetties were not in operation. Contractor was reminded to repair the cracks and holes.</p> <p><u>Reminder:</u> Tipping halls of floating jetties no.3 and no.4 were observed damaged with cracks and holes, while floating jetty</p>	<p>Follow up action will be reported in next reporting period.</p>

Parameters	Date	Observations and Recommendations	Follow-up
	19 August 2014	no.4 was not in operation and the cracks and holes of floating jetty no.3 were covered with tarpaulin sheet. Contractor was reminded to repair them properly.	
	26 August 2014	<u>Reminder:</u> Cracks and holes were observed on the tipping halls of floating jetties no.3 and no.4 while the jetties were not in operation. Contractor was reminded to repair them properly.	
	17 July 2014	<u>Reminder:</u> Conveyor belt no.1 should be enclosed properly with tarpaulin sheet.	
	23 July 2014	<u>Reminder:</u> Conveyor belt no.1 and 2 were observed not enclosed properly while not operating. The Contractor was reminded to properly enclose both conveyor belts and clear the mud found below conveyor belt no.2.	The item was observed to be improved/rectified by the Contractor during the site inspection on 5 August 2014.
	29 July 2014	<u>Reminder:</u> The loading ramp of conveyor belt no.2 should be enclosed tightly with tarpaulin sheet.	
	19 August 2014	<u>Reminder:</u> A dump truck was observed not passing through the wheel washing facilities before leaving the site even though its wheels were seemingly cleaned. The Contractor was reminded that all vehicles should be cleaned before leaving the site.	This item was not inspected during the site inspection on 26 August 2014 since no dump truck was observed during the site inspection. It will be inspected during the future site inspections when available.
Waste / Chemical Management	14 August 2014	<u>Observation:</u> Oil stain was observed on the ground near the chemical storage area. Contractor was reminded to clear the oil stain as chemical waste.	This item was observed to be improved/rectified during the site inspection on 19 August 2014.
	19 August 2014	<u>Observation:</u> Oil was observed on the water pond near chemical storage area. Contractor was reminded to clear the oil as	This item was observed to be improved/rectified during the site inspection on 26 August 2014.

Parameters	Date	Observations and Recommendations	Follow-up
		chemical waste.	
<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 temporary stockpiling of C&D material during full operation of the Barging Point Facilities.
- Potential water pollution problem due to the discharge of site runoff during rainfall events.
- Potential environmental impacts arising from unloading and handling of C&D material to the barge.
- Potential splashing of spoils into the surrounding seawater arising from handling/unloading of the spoil at the discharge points.

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;
- Loading and disposal of excavated marine sediments to designated dumping facilities
- Marine transportation of received spoil to receptor sites for beneficial reuse

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 August 2014 to 31 August 2014 in accordance with EM&A Manual and the requirement under EP-438/2012/G.
- 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

- Excess muddy materials on the barging platforms should be cleared to prevent them from entering to seawater.

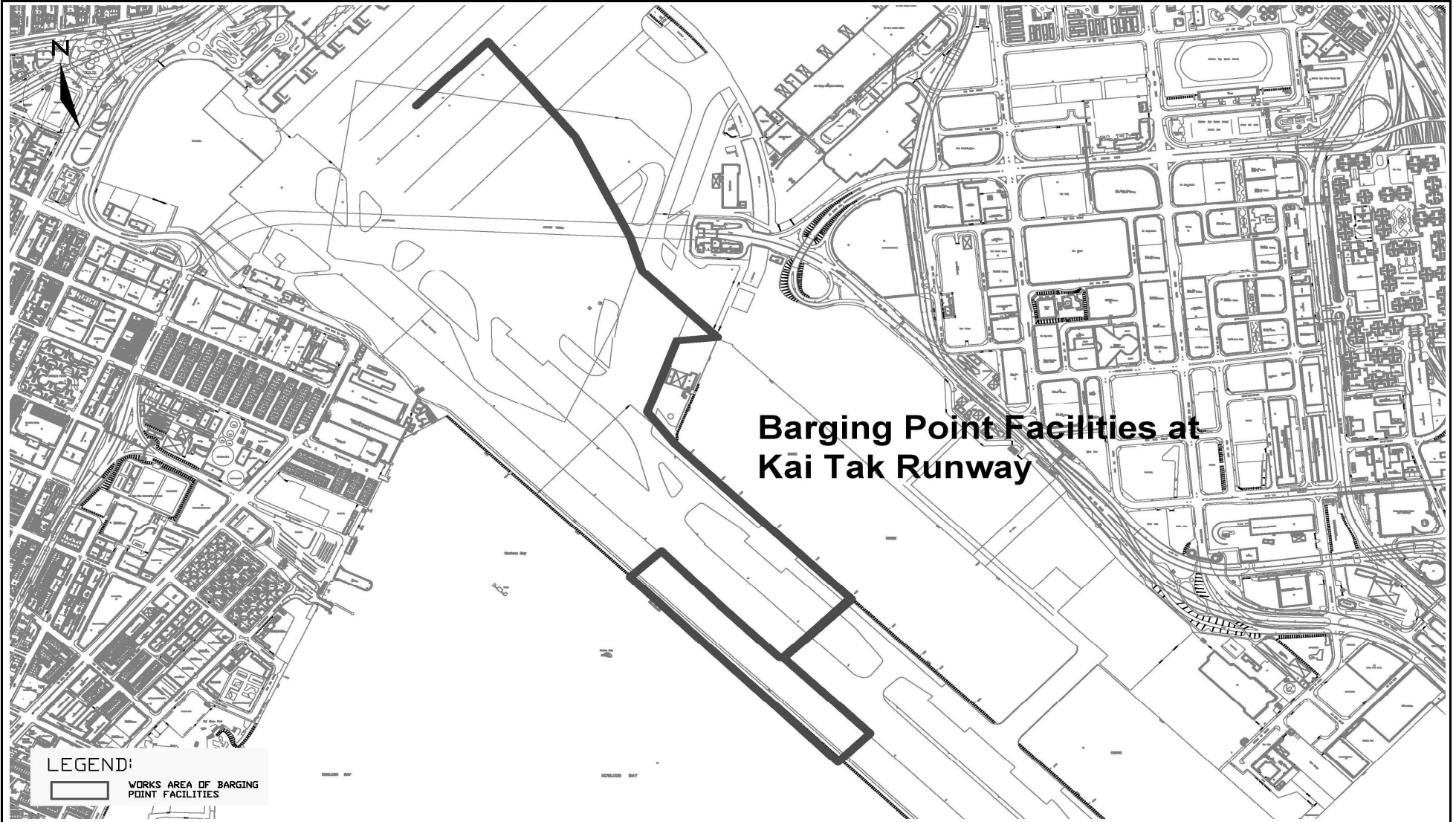
Air Quality

- The dust curtain and tipping hall of floating jetty should be properly maintained.
- Site vehicles should be cleaned at the wheel washing facilities before leaving the site.

Waste / Chemical Management

- Mitigation measures should be provided to prevent oil spillage at the chemical storage area.

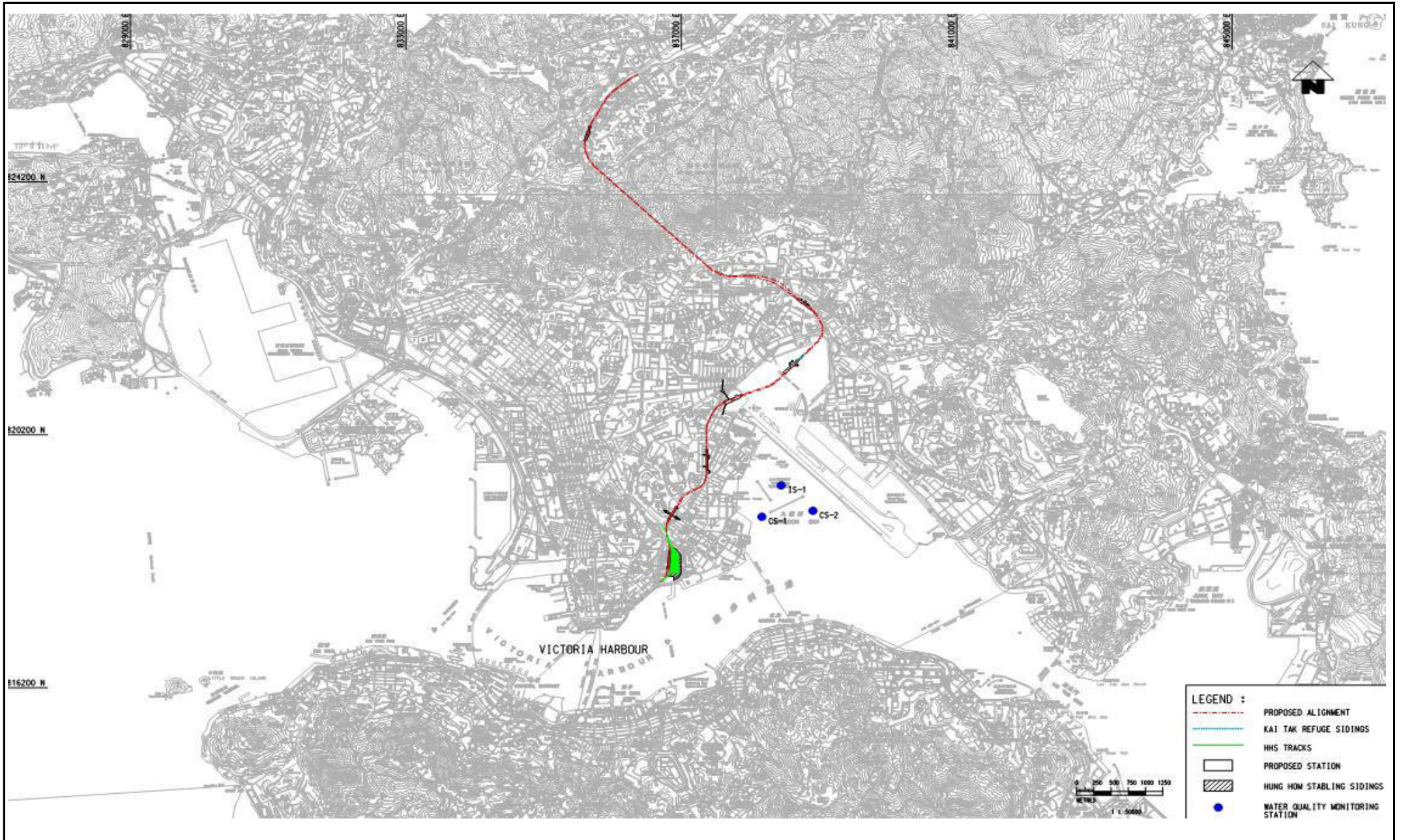
FIGURES



LEGEND:
 [Thick black line symbol] WORKS AREA OF BARGING POINT FACILITIES

Title	SCL Contract 1108A The Shatin to Central Link - Kai Tak Barging Point Facilities Site Layout Plan		Scale	Project No.
			N.T.S	MA12028
			Date	Figure
			Apr-14	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: August 2014

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	140805
Date	5 August 2014 (Tuesday)
Time	10:30 – 11:35

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

Ref. No.	Remarks/Observations	Related Item No.
140805-R01	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	D 18
140805-R02	<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"> The tipping halls of floating jetties no.4 and 3 were observed damaged while the jetties were not in operation. Contractor was reminded to repair the cracks and holes. The dust curtains of floating jetties no.4 and 3 were observed damaged while the jetties were not in operation. Contractor was reminded to repair them. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:140729). Follow-up action is required for items 140729- R02 and R03, which are remarked as 140805-R02 and R01 respectively. 	D 18

	Name	Signature	Date
Recorded by	Harris Wong		5 August 2014
Checked by	Dr. Priscilla Choy		5 August 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140814
Date	14 August 2014 (Thursday)
Time	14:30 – 15:30

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

Ref. No.	Remarks/Observations	Related Item No.
140814-R04	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> Mud was observed on the side of the deck of the barge at floating jetty no.3. The Contractor was reminded to clear the mud accordingly to prevent potential falling into the sea. 	B 25
	<p>Part C - Ecology/Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
140814-R02	<p>Part D - Air Quality</p> <ul style="list-style-type: none"> Tipping halls of floating jetties no.3 and no.4 were observed damaged with cracks and holes, while floating jetty no.4 was not in operation and the cracks and holes of floating jetty no.3 were covered with tarpaulin sheet. Contractor was reminded to repair them properly. 	D 18
140814-R03	<ul style="list-style-type: none"> Small gaps were observed between the tipping hall and dust curtains of floating jetty no.4. Contractor was reminded to install the dust curtains properly to minimize the gaps. 	D 18
	<p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
140814-O01	<p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> Oil stain was observed on the ground near the chemical storage area. Contractor was reminded to clear the oil stain as chemical waste. 	F 8
	<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.:140805). Follow-up action is required for items 140805-R01 and R02, which are remarked as 140814-R02 and R03 respectively. 	

	Name	Signature	Date
Recorded by	Harris Wong		14 August 2014
Checked by	Dr. Priscilla Choy		14 August 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140819
Date	19 August 2014 (Tuesday)
Time	16:00 – 17:10

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

Ref. No.	Remarks/Observations	Related Item No.
140819-R04	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> Mud was observed on the ground under the conveyor belt no.2, and near the ramp of floating jetty no.4. Contractor was reminded to clear them. 	B 25
140819-R02	<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"> Tipping halls of floating jetties no.3 and no.4 were observed damaged with cracks and holes, while floating jetty no.4 was not in operation and there was tarpaulin sheet covering the cracks and holes of floating jetty no.3. Contractor was reminded to repair them properly. 	D 18
140819-R03	<ul style="list-style-type: none"> Small gaps were observed between the tipping hall and dust curtains of floating jetty no.4. Contractor was reminded to install the dust curtains properly to minimize the gaps. 	D 18
140819-R05	<ul style="list-style-type: none"> A dump truck was observed not passing through the wheel washing facilities before leaving the site even though its wheels were seemingly cleaned. The Contractor was reminded that all vehicles should be cleaned before leaving the site. 	D 8
140819-O01	<p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> Oil was observed on the water pond near chemical storage area. Contractor was reminded to clear the oil as chemical waste. <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.:140814). Follow-up action is required for items 140814-R02 and R03, which are remarked as 140819-R02 and R03 respectively. 	F 8

	Name	Signature	Date
Recorded by	Harris Wong		19 August 2014
Checked by	Dr. Priscilla Choy		19 August 2014

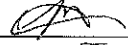

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140826
Date	26 August 2014 (Tuesday)
Time	15:45 – 16:45

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

Ref. No.	Remarks/Observations	Related Item No.
140826-R01	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> Sand was observed accumulated on the ground near the ramp of floating jetty no.4. Contractor was reminded to clear it. 	B 25
140826-R02	<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"> Small gaps were observed between the tipping hall and dust curtain of floating jetty no.4, and damage was observed on the dust curtain of floating jetty no.3 while the jetties were not in operation. Contractor was reminded to properly install the dust curtain of floating jetty no.4 and repair the one of floating jetty no.3. 	D 18
140826-R03	<ul style="list-style-type: none"> Cracks and holes were observed on the tipping halls of floating jetties no.3 and no.4 while the jetties were not in operation. Contractor was reminded to repair them properly. <p>Part E – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:140819). Follow-up actions are required for items 140819-R02 and R03, which are remarked as 140826-R03 and R02 respectively. 	D 18

	Name	Signature	Date
Recorded by	Harris Wong		26 August 2014
Checked by	Dr. Priscilla Choy		26 August 2014

**APPENDIX D
EVENT AND ACTION PLANS**

Event and Action Plan for Water Quality

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

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

Event and Action Plan for Landscape and Visual during Construction Stage

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

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer/Engineer’s Representative

**APPENDIX E
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

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

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		<ul style="list-style-type: none"> Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value. No on-site burning of waste; Waste and refuse in appropriate receptacles. 						^ ^ ^ ^
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> <ul style="list-style-type: none"> For soil conservation, existing topsoil shall be re-used where 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	N/A ⁽²⁾

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		<p>possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary.</p> <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. 						<p>^</p> <p>^</p>

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

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/	A2	Open burning shall be prohibited.	Reduce air pollution emission from work site.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the air quality to meet HKAQO and TM-EIA criteria 	^
Construction Dust Impact								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	^
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m ² to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	^

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

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

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

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S7.6.5	D4	The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point: <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	^ ^ * ^
S7.6.5	D5	<ul style="list-style-type: none"> • For the unloading of spoil from trucks at barging point, installation of 3-sided screen with top tipping hall and operating water spraying and flexible dust curtains at the discharge point for dust suppression 	Minimize dust impact at the nearby sensitive receivers	Contractor	Barging Points	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria •EP Condition 2.18 (c)	*
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	N/A ⁽¹⁾

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

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

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

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

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		<p>weather and the reduction of surface sheet flows.</p> <ul style="list-style-type: none"> • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. • Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage 						<p>^</p> <p>^</p> <p>N/A⁽¹⁾</p> <p>^</p>

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

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

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		<p>plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers</p> <ul style="list-style-type: none"> If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater. 						N/A ⁽¹⁾

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

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		transportation; <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. 						^ ^ *
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following is recommended: <ul style="list-style-type: none"> All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	^ ^ ^

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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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 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. 	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> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation 						^
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimize the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	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 	^ N/A ⁽²⁾

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

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

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

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

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

**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.	Total Float	2014																							
								JUL			AUG			SEP			OCT			NOV			DEC								
								30	07	14	21	28	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	01	08
COMMENCEMENT & COMPLETION																															
Time for Completion																															
1108ADC04C	Completion of The Whole of the Works	1477	13AUG12 A	28AUG16	51	2	0	[Gantt bar: blue from 13AUG12 to 28AUG16, red from 28AUG16 to 01SEP14]																							
MILESTONES SCHEDULE																															
Milestones for Cost Centre A																															
1108AMSA61	Satisfactory Impl'n of Risk Mgt. req'ts.	0		27SEP14	0	2	701d	[Milestone: diamond at 27SEP14]																							
1108AMSA62	Satisfactory Impl'n of Prog. Mgt. System	0		27SEP14	0	2	701d	[Milestone: diamond at 27SEP14]																							
Milestones for Cost Centre B																															
1108AMSB60	Mgt., Maint., & Operation of BPF	0		28DEC14	0	2	609d	[Milestone: diamond at 28DEC14]																							
Engineer's Instruction																															
Addition of Floating Landing Barge in WA3																															
1108AVE391	Operation of Additional Floating Jetty	359	06JAN14 A	31DEC14	66	2	0	[Gantt bar: blue from 06JAN14 to 31DEC14, red from 31DEC14 to 01SEP14]																							
+Realignment of Existing RoW																															
		30	11JUN14 A	22JUL14 A	100	1		[Gantt bar: blue from 11JUN14 to 22JUL14]																							
Cost Centre A																															
Preliminaries																															
1108AA6010	Satisfactory Impl'n of Risk Mgt. req'ts.	780	13AUG12 A	27SEP14	96	2	701d	[Gantt bar: blue from 13AUG12 to 27SEP14, green from 27SEP14 to 01SEP14]																							
1108AA6020	Satisfactory Impl'n of Prog. Mgt. System	780	13AUG12 A	27SEP14	96	2	701d	[Gantt bar: blue from 13AUG12 to 27SEP14, green from 27SEP14 to 01SEP14]																							
Cost Centre B																															
Kai Tak BPF - Mgt., Maintenance & Operation																															
1108AB6010	Manage, Maintain & Operate the BPF	182	30JUN14 A	28DEC14	34	2	59d	[Gantt bar: blue from 30JUN14 to 28DEC14, green from 28DEC14 to 01SEP14]																							

◆ Satisfactory Impl'n of Risk Mgt. req'ts.
◆ Satisfactory Impl'n of Prog. Mgt. System

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

Appendix B

**24th 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. 24

[Period from 1 to 31 August 2014]

Works Contract 1109 - Stations and Tunnels of
Kowloon City Section

(12 September 2014)

Certified by: 
_____ Winnie Ko _____

Position: Environmental Team Leader

Date: 12 September 2014

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.24

August 2014

Environmental Resources Management

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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.24

August 2014

Reference 0171181

For and on behalf of
ERM-Hong Kong, Limited

Approved by: Frank Wan

Signed:



Position: Partner

Date: 12 September 2014

CONTENTS

1	INTRODUCTION	1
1.1	<i>PURPOSE OF THE REPORT</i>	1
1.2	<i>STRUCTURE OF THE REPORT</i>	1
2	PROJECT INFORMATION	3
2.1	BACKGROUND	3
2.2	<i>GENERAL SITE DESCRIPTION</i>	3
2.3	<i>CONSTRUCTION PROGRAMME AND ACTIVITIES</i>	3
2.4	<i>PROJECT ORGANISATION</i>	4
2.5	<i>STATUS OF ENVIRONMENTAL LICENCES, NOTIFICATION AND PERMITS</i>	4
3	ENVIRONMENTAL MONITORING REQUIREMENTS	6
3.1	REGULAR CONSTRUCTION NOISE MONITORING	6
3.1.1	<i>Monitoring Location</i>	6
3.1.2	<i>Monitoring Parameter and Frequency</i>	6
3.1.3	<i>Monitoring Equipment and Methodology</i>	7
3.1.4	<i>Action and Limit Levels</i>	7
3.2	CONTINUOUS NOISE MONITORING	8
3.2.1	<i>Monitoring Location</i>	8
3.2.2	<i>Monitoring Parameter and Frequency</i>	9
3.2.3	<i>Monitoring Equipment and Methodology</i>	9
3.2.4	<i>Action and Limit Levels</i>	9
3.3	CONSTRUCTION DUST MONITORING	10
3.3.1	<i>Monitoring Location</i>	10
3.3.2	<i>Monitoring Parameter and Frequency</i>	11
3.3.3	<i>Monitoring Equipment</i>	11
3.3.4	<i>Monitoring Methodology</i>	12
3.3.5	<i>Action and Limit Levels</i>	14
3.4	CULTURAL HERITAGE	14
3.5	LANDSCAPE AND VISUAL MITIGATION MEASURES	15
4	IMPLEMENTATION STATUS OF THE ENVIRONMENTAL PROTECTION REQUIREMENTS	16
5	MONITORING RESULTS	17
5.1	REGULAR CONSTRUCTION NOISE MONITORING	17
5.2	CONTINUOUS NOISE MONITORING	17
5.3	CONSTRUCTION DUST MONITORING	17
5.4	CULTURAL HERITAGE	18
5.5	WASTE MANAGEMENT	18
5.6	LANDSCAPE AND VISUAL MITIGATION MEASURES	19
6	ENVIRONMENTAL SITE INSPECTION	20

7	ENVIRONMENTAL NON-CONFORMANCE	22
7.1	SUMMARY OF MONITORING EXCEEDANCE	22
7.2	SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE	22
7.3	SUMMARY OF ENVIRONMENTAL COMPLAINT	22
7.4	SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION	22
8	FUTURE KEY ISSUES	23
8.1	KEY ISSUES FOR THE COMING MONTH	23
8.2	MONITORING SCHEDULE FOR THE NEXT MONTH	23
8.3	CONSTRUCTION PROGRAMME FOR THE NEXT MONTH	23
9	CONCLUSIONS	24

LIST OF ANNEXES

<i>Annex A</i>	<i>The Alignment and Works Area for Works Contract</i>
<i>Annex B</i>	<i>Construction Programme for the Reporting Month and Coming Month</i>
<i>Annex C</i>	<i>Project Organisation Chart and Contact Detail</i>
<i>Annex D</i>	<i>Locations of Monitoring Stations for Noise and Dust Monitoring</i>
<i>Annex E</i>	<i>Monitoring Schedule of the Reporting Period and the Next Month</i>
<i>Annex F</i>	<i>Calibration Reports</i>
<i>Annex G</i>	<i>Summary of Event/Action Plans</i>
<i>Annex H</i>	<i>Summary of Implementation Status of Environmental Mitigation</i>
<i>Annex I-1</i>	<i>Regular Noise Monitoring Results</i>
<i>Annex I-2</i>	<i>Continuous Noise Monitoring Results</i>
<i>Annex J</i>	<i>Construction Dust Monitoring Results</i>
<i>Annex K</i>	<i>Waste Flow Table</i>
<i>Annex L</i>	<i>Investigation Reports</i>
<i>Annex M</i>	<i>Environmental Complaint, Environmental Summon and Prosecution Log</i>

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 twenty-fourth monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 August 2014 to 31 August 2014 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 – Operation of bentonite plant and Pier 15 underpinning works;
- Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, and trial pits for location of utilities; and
- Tam Kung Road – Pipe piling.

Works in To Kwa Wan (TKW)

- Olympic Garden – Pre-bored H piling;
 - TKW Station – Archaeological survey cum excavation, construction of grout curtain, shaft excavation, pre-bored H piling, sheet piling and TBM and STP setup; and
 - Nam Kok Road – Installation of pipe pile and construction of grout curtain.
-

Regular Construction Noise and Construction Dust Monitoring

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

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

Continuous Noise Monitoring

During the reporting period, continuous noise monitoring is required at MTW-16-1, MTW-12-3 and MTW-12-4 according to the schedule presented in CNMP. However, continuous noise monitoring was only conducted at MTW-16-1 as MTW-12-3 (Lucky Mansion) and MTW-12-4 (352-354 Ma Tau Wai Road (East Façade)) are inaccessible and identification of potential alternative continuous noise monitoring locations to replace MTW-12-3 and

MTW-12-4 is underway with EPD. Continuous noise monitoring data for August 2014 of aforementioned locations are therefore not available in this reporting month.

Cultural Heritage

A License 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 and additional investigation at the Sacred Hill (North) commenced on 1 November 2012 and was conducted in accordance with the License and the approved Archaeological Action Plan (AAP). An updated AAP was submitted to AMO for renewal of the 1 year archaeological license. The license was renewed and granted by AMO on 24 October 2013. The updated AAP was submitted to EPD for approval on 11 October 2013 and it was approved on 1 November 2013. The fieldworks of the archaeological survey-cum-excavation and additional investigation were completed on 27 December 2013. The Interim Archaeological Report was provided to AMO in April 2014.

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

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 1,446 m³ of inert C&D materials were generated from the Project, which were sent to 1108A Kai Tai Barging Facilities during the reporting month. 584 kg of plastics was generated and sent to recyclers for recycling during the reporting period. About 129 m³ of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. No metal waste was generated during this reporting month. 189 kg of paper/cardboard packaging was generated and sent to recyclers for recycling during the reporting period. No chemical waste was generated during this reporting month.

Landscape and Visual

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 4 and 18 August 2014. 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 4, 11, 18 and 25 August 2014. The representative of the IEC joined the site inspection on 11 August 2014. 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 on 1, 4, 5, 7, 15, 16, 18, 21, 22, 23, 25, 26, 27, 29 and 30 August 2014 at MTW-16-1. Investigation of the exceedances recorded on 1, 4, 5, 7, 15, 16, 18 and 21 August 2014 had been completed and the investigation reports are presented in *Annex L*. The exceedances recorded on 22, 23, 25, 26, 27, 29 and 30 are still under investigation. The findings will be reported in next reporting period.

No environmental complaint, summon or prosecution 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)

- TKW - Operation of bentonite plant and pier 15 underpinning works; and
- Along Ma Tau Wai Road - Predrilling for D wall, D wall panel construction, and trial pits for location of utilities.

Work in To Kwa Wan (TKW)

- Olympic Garden - Pre-bored H pilling;
 - TKW Station - Archaeological survey cum excavation, construction of grout curtain, TBM & STP site setup, shaft excavation; and
 - Nam Kok Road - Installation of pipe pile and construction of grout curtain.
-

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 twenty-fourth EM&A report which summarises the monitoring results and audit findings during the reporting period from 1 August to 31 August 2014.

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 organisation 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 the Environmental Protection Requirements

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

Section 5 : Monitoring Results

It summarises the monitoring results obtained in the reporting period.

Section 6 : Environmental Site Inspection

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

Section 7 : Environmental Non-conformance

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

Section 8 : **Future Key Issues**

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

Section 9 : **Conclusions**

2 PROJECT INFORMATION

2.1 BACKGROUND

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

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

2.2 GENERAL SITE DESCRIPTION

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

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

2.3 CONSTRUCTION PROGRAMME AND ACTIVITIES

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

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

Construction Activities undertaken
<u><i>Works in Ma Tau Wai (MTW)</i></u>
<ul style="list-style-type: none">• TKW – Operation of bentonite plant and Pier 15 underpinning works;• Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, and trial pits for location of utilities; and• Tam Kung Road – Pipe piling.
<u><i>Works in To Kwa Wan (TKW)</i></u>
<ul style="list-style-type: none">• Olympic Garden – Pre-bored H piling;• TKW Station – Archaeological survey cum excavation, construction of grout curtain, shaft excavation, pre-bored H piling, sheet piling and TBM and STP setup; and• Nam Kok Road – Installation of pipe pile and construction of grout curtain.

2.4 PROJECT ORGANISATION

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

2.5 STATUS OF ENVIRONMENTAL LICENCES, NOTIFICATION AND PERMITS

A summary of the valid permits, licences, and/or notifications on environmental protection for this Project is presented in *Table 2.2*.

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

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-438/2012/F	Throughout the Contract	Permit granted on 15 July 2014 and superseded by EP-438/2012/G on 14 August 2014
	EP-438/2012/G	Throughout the Contract	Permit granted on 14 August 2014
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)	348516	13 August 2012 – 30 April 2017	-
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation (Form NB)	351125	16 October 2012 – 30 April 2017	-
Wastewater Discharge Licence			
Site at TKW	WT00014390-2012	30-September-2017	-
Site at MTW	WT00016348-2013	30-September-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 in TKW Garden	GW-RE0096-14	21 February 2014 – 19 August 2014	Expired
- PME in SUW Olympic Playground	GW-RE0281-14	24 March 2014 – 18 September 2014	-
- PME at Kai Tak New Land	GW-RE0395-14	14 April 2014 – 9 October 2014	-
- PME on MTW Road north bound & E3-E6 works areas	GW-RE0588-14	1 June 2014 – 26 November 2014	-
- PME on Tam Kung Road	GW-RE0679-14	17 June 2014 to 4 December 2014	-
- PME in SUW works area	GW-RE0652-14	11 June 2014 to 27 November 2014	-
- PME on SUW Road	GW-RE0696-14	27 June 2014 to 9	Expired

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
<i>between Ma Tau Chung Road and Pak Tai Street</i>		<i>August 2014</i>	
- <i>PME in Pier 15 works area and EEP</i>	<i>GW-RE0726-14</i>	<i>2 July 2014 to 31 December 2014</i>	-
- <i>PME in Pier 15 works area (Bridge Jacking)</i>	<i>GW-RE0773-14</i>	<i>20 July 2014 to 31 August 2014</i>	<i>Expired</i>
- <i>PME at Kai Tak New Land 2</i>	<i>GW-RE0827-14</i>	<i>25 July 2014 to 23 January 2015</i>	-
- <i>PME on TKW Lok Shan Road TTMS</i>	<i>GW-RE0828-14</i>	<i>17 August 2014 - 14 September 2014</i>	-
- <i>PME in TKW Garden</i>	<i>GW-RE0914-14</i>	<i>21 August 2014 - 31 January 2015</i>	-
Licence to Excavate and Search for Antiquities	363	Till 21 October 2014	-
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 designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was either rejected or unavailable; alternative locations were proposed and agreed by the ER (Engineer's Representative), IEC (Independent Environmental Checker) and EPD (Environmental Protection Department). The construction noise monitoring locations are listed in *Table 3.1* and shown in *Annex D*. The noise sensitive receivers (NSRs) related to this Works Contract are also shown in *Annex D*.

Table 3.1 Regular Construction Noise Monitoring Location

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

Notes:

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

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

3.1.2 Monitoring Parameter and Frequency

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

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

3.1.3 *Monitoring Equipment and Methodology*

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

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

Table 3.2 *Noise Monitoring Equipment*

Monitoring Stations	Monitoring Equipment (Sound Level Meter and Calibrator)
NMS-CA-6, NMS-CA-7, ,	Calibrator: NC 73 (Serial No. 10997142)
NMS-CA-9 and NMS-CA-10	Sound Level Meter: NL 18 (Serial No. 00360030)
NMS-CA-8	Calibrator: NC-73 (Serial No. 10997142) Sound Level Meter: NL-31 (Serial No. 00320533)

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

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

3.1.4 *Action and Limit Levels*

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

Table 3.3 Action and Limit Levels for Noise Monitoring

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

Notes:

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

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

3.2 CONTINUOUS NOISE MONITORING

3.2.1 Monitoring Locations

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

Continuous Noise Monitoring Location ^(a)	Description
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 from 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. The sound level meter and calibrator used for continuous noise measurement are listed in **Table 3.5**.

Table 3.5 *Noise Monitoring Equipment*

Monitoring Station	Monitoring Equipment (Sound Level Meter and Calibrator)
MTW-16-1	Calibrator: NC-73 (Serial No. 10997142) Sound Level Meter: NL-31 (Serial No. 00320533)

Note:

- (a) During the reporting period, continuous noise monitoring is required at MTW-16-1, MTW-12-3 and MTW-12-4 according to the schedule presented in CNMP. However, continuous noise monitoring was only conducted at MTW-16-1 as MTW-12-3 (Lucky Mansion) and MTW-12-4 (352-354 Ma Tau Wai Road (East Façade)) are inaccessible and identification of potential alternative continuous noise monitoring locations to replace MTW-12-3 and MTW-12-4 is underway with EPD. Continuous noise monitoring data for August 2014 of aforementioned locations are therefore not available in this reporting month.

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	September 2014 – December 2014
MTW-12-3	Lucky Mansion	80	August 2014 – January 2015 ^(b) , March 2015 – June 2015
MTW-12-4	352-354 Ma Tau Wai Rd (East Façade)	80	August 2014 – June 2015 ^(b)
MTW-12-4-1(A)	59 Maidstone Road	82	October 2014, December 2014 – June 2015
MTW-12-10	Lucky Building (South Façade)	84	March 2015 – April 2015, September 2015 – January 2016
MTW-12-10-1	Lucky Building (East Façade)	80	December 2014 – May 2015, September 2015 – January 2016
MTW-12-11	Jing Ming Building	81	September 2014 – June 2015
MTW-16-1	SKH Good Shepherd Primary School	78 79 ^(c)	December 2012 – January 2013; April 2013 – 21 August 2013, 22 August 2013 – December 2013, August 2014 – March 2016

Notes:

- (a) The A/L Levels and Measurement Periods will be subject to the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP).
- (b) During the reporting period, continuous noise monitoring is required at MTW-16-1, MTW-12-3 and MTW-12-4 according to the schedule presented in CNMP. However, continuous noise monitoring was only conducted at MTW-16-1 as MTW-12-3 (Lucky Mansion) and MTW-12-4 (352-354 Ma Tau Wai Road (East Façade)) are inaccessible and identification of potential alternative continuous noise monitoring locations to replace MTW-12-3 and MTW-12-4 is underway with EPD. Continuous noise monitoring data for August 2014 of aforementioned locations are therefore not available in this reporting month.
- (c) The A/L Level of 79 dB(A) was updated on 22 August 2013 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) which were approved by EPD.

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

3.3 CONSTRUCTION DUST MONITORING

3.3.1 Monitoring Location

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

Table 3.7 Construction Dust Monitoring Location

Proposed Construction Dust Monitoring Location	Description
DMS-6 (a)	Katherine Building
DMS-7	Parc 22
DMS-8	SKH Good Shepherd Primary School
DMS-9 (b)	No. 12 Pau Chung Street
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. However, 24-hour averaged dust monitoring has been suspended at DMS-9 No. 26 Kowloon City Road since March 2014 due to denied access by the occupant of the premise. No. 12 Pau Chung Street, as an alternative monitoring location, was formally approved by EPD on 19 May 2014. Impact dust monitoring at No. 12 Pau Chung Street commenced on 12 June 2014.

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 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 2421)

Monitoring Location	Monitoring Equipment (HVS and Calibrator)
DMS-7	TE-5170 (Serial No. 3574), CM-AIR-43 (Orifice ID 2421)
DMS-8	TE-5170 (Serial No. 3572), CM-AIR-43 (Orifice ID 2421)
DMS-9 (a)	TE-5170 (Serial No. 0814), CM-AIR-43 (Orifice ID 2454)
DMS-10	TE-5170 (Serial No. 3573), CM-AIR-43 (Orifice ID 2421)

Note:

- (a) 24-hour averaged dust monitoring at DMS-9 No. 26 Kowloon City Road had been suspended since March 2014 due to denied access by the occupant of the premise. However, No. 12 Pau Chung Street, as an alternative monitoring location, was formally approved by EPD on 19 May 2014. Impact dust monitoring at No. 12 Pau Chung Street commenced on 12 June 2014.

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

Maintenance and Calibration

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

Wind Data Monitoring

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

3.3.5 Action and Limit Levels

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

Table 3.10 Action and Limit Levels for Dust Monitoring

Parameters	Dust Monitoring Station	Action Level ($\mu\text{g m}^{-3}$) ^(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 ^(c)	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 ^(c)	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.
- (c) 24-hour averaged dust monitoring at DMS-9 No. 26 Kowloon City Road had been suspended since March 2014 due to denied access by the occupant of the premise. However, No. 12 Pau Chung Street, as an alternative monitoring location, was formally approved by EPD on 19 May 2014. Impact dust monitoring at No. 12 Pau Chung Street commenced on 12 June 2014.

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

3.4 CULTURAL HERITAGE

A License 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 was conducted in accordance with the Licence and the approved Archaeological Action Plan (AAP). An updated AAP was submitted to AMO for renewal of the 1 year archaeological license. The license was renewed and granted by AMO on 24 October 2013. The updated AAP was submitted to EPD for approval on 11 October 2013 and it was approved on 1 November 2013. The fieldworks of the archaeological survey-cum-excavation and additional investigation were completed on 27 December 2013. The Interim Archaeological Report was provided to AMO in April 2014.

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 summarised 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	Twenty-third Monthly EM&A Report	14 August 2014

5.1 REGULAR CONSTRUCTION NOISE MONITORING

A total of 20 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period. After baseline-level corrected, no exceedance of the limit level was recorded at all five monitoring locations during the whole reporting period.

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

5.2 CONTINUOUS NOISE MONITORING

During the reporting period, continuous noise monitoring is required at MTW-16-1, MTW-12-3 and MTW-12-4 according to the schedule presented in CNMP. However, continuous noise monitoring was only conducted at MTW-16-1 as MTW-12-3 (Lucky Mansion) and MTW-12-4 (352-354 Ma Tau Wai Road (East Façade)) are inaccessible and identification of potential alternative continuous noise monitoring locations to replace MTW-12-3 and MTW-12-4 is underway with EPD. Continuous noise monitoring data for August 2014 of aforementioned locations are therefore not available in this reporting month.

Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 1, 4, 5, 7, 15, 16, 18, 21, 22, 23, 25, 26, 27, 29 and 30 August 2014. The monitoring results are presented in *Annex I-2*.

5.3 CONSTRUCTION DUST MONITORING

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

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

Monitoring Station	24-hour TSP Monitoring Results measured, μgm^{-3} (a)		Action Level, μgm^{-3}	Limit Level, μgm^{-3}
	Average	Range		
DMS-6	79	69 - 88	156.8	260
DMS-7	80	68 - 97	166.7	260
DMS-8	84	67 - 93	152.2	260
DMS-9 (a)	84	76 - 100	160.9	260
DMS-10	81	67 - 93	170.4	260

Monitoring Station	24-hour TSP Monitoring Results		Action Level, μgm^{-3}	Limit Level, μgm^{-3}
	measured, μgm^{-3} (a)			
	Average	Range		
Note:				
(a) 24-hour averaged dust monitoring at DMS-9 No. 26 Kowloon City Road has been suspended since March 2014 due to denied access by the occupant of the premise. However, No. 12 Pau Chung Street, as an alternative monitoring location, was approved by EPD. 24-hour averaged dust monitoring commenced on 12 June 2014.				

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

5.4

CULTURAL HERITAGE

A License 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 and additional investigation at the Sacred Hill (North) commenced on 1 November 2012 and was conducted in accordance with the License and the approved Archaeological Action Plan (AAP). An updated AAP was submitted to AMO for renewal of the 1 year archaeological license. The license was renewed and granted by AMO on 24 October 2013. The updated AAP was submitted to EPD for approval on 11 October 2013 and it was approved on 1 November 2013. The fieldworks of the archaeological survey-cum-excavation and additional investigation were completed on 27 December 2013. The Interim Archaeological Report was provided to AMO in April 2014.

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

5.5

WASTE MANAGEMENT

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

Table 5.2 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	Inert C&D Materials (a) (b)	Chemical Waste	Non-inert C&D Materials			
			General		Recycled materials	
			Refuse/Vegetative Waste	Paper/cardboard	Plastics	Metals
August 2014	1,446 m ³	0 kg	129 m ³	189 kg	584 kg	0 kg

Reporting	Quantity
Notes:	
(a)	Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil.
(b)	About 1,446 m ³ of inert C&D materials were generated from the Project, and sent to 1108A Kai Tai Barging Facilities during the reporting month.
(c)	Chemical waste includes waste oil. It is assumed density of waste oil to be 0.8 kg/L.

5.6

LANDSCAPE AND VISUAL MITIGATION MEASURES

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 4 and 18 August 2014. Most of the mitigation measures given in *Annex H* have been implemented. Required Actions that were found are listed below:

4 August 2014

- No observation was reported during the site inspection.

18 August 2014

- 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 4, 11, 18 and 25 August 2014. The representative of the IEC joined the site inspection on 11 August 2014. No non-compliance was recorded during the site inspections. Following up on the observation made in previous site inspection on 28 July 2014, the chemical containers in Olympic Garden of TKW works area have been removed.

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

4 August 2014

- The Contractor was reminded to provide sufficient drip trays for chemical containers in TKW works area. As observed in subsequent inspection on 11 August 2014, the chemical containers in TKW works area had been removed.

11 August 2014

- The Contractor was reminded to provide sufficient drip trays for chemical containers in TKW works area. As observed in subsequent inspection on 18 August 2014, chemical containers had been removed from TKW works area.
- The Contractor was reminded to enhance the mitigation measures in cleaning the mud fallen on ground to keep the place clean. As observed in subsequent inspection on 18 August 2014, the Lok Shan Road works area was kept clean.

18 August 2014

- The Contractor was reminded to provide sufficient drip trays for chemical containers in Pier 15 works area in MTW and works area next to the slurry treatment plan in TKW. As observed in subsequent inspection on 25 August 2014, chemical containers in Pier 15 works area had been banded. The Contractor had also provided sufficient drip trays for the chemical containers.
- An air compressor in SUW Playground Works Area did not contain noise emission label while it was in operation. As observed in subsequent inspection on 25 August 2014, the air compressor had been removed from the Olympic Garden works area.

25 August 2014

- Filled oil tanks were stored without drip tray below gantry crane and next to STP at TKW works area. The Contractor was reminded to provide sufficient drip trays for the chemical containers.

All follow-up actions requested by Contractor's ET and IEC during the site inspections were undertaken as reported by the Contractor. The abovementioned environmental issues had been addressed and mitigated 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 on 1, 4, 5, 7, 15, 16, 18, 21, 22, 23, 25, 26, 27, 29 and 30 August 2014 at MTW-16-1. Investigation of the exceedances recorded on 1, 4, 5, 7, 15, 16, 18 and 21 August 2014 had been completed and the investigation reports are presented in *Annex L*. The exceedances recorded on 22, 23, 25, 26, 27, 29 and 30 are still under investigation. The findings will be reported in 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 summon/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 summarised in *Table 8.1*.

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

Construction Activities to be undertaken
<i>Work in Ma Tau Wai (MTW)</i>
<ul style="list-style-type: none"> • TKW – Operation of bentonite plant and pier 15 underpinning works; and • Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, and trial pits for location of utilities.
<i>Work in To Kwa Wan (TKW)</i>
<ul style="list-style-type: none"> • Olympic Garden – Pre-bored H pilling; • TKW Station – Archaeological survey cum excavation, construction of grout curtain, TBM & STP site setup, shaft excavation; and • Nam Kok Road – Installation of pipe pile and construction of grout curtain.

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.

8.3 *CONSTRUCTION PROGRAMME FOR THE NEXT MONTH*

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

This 24th monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 August 2014 to 31 August 2014 in accordance with the EM&A Manual and the requirement under EP-438/2012/F and EP-438/2012/G.

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.

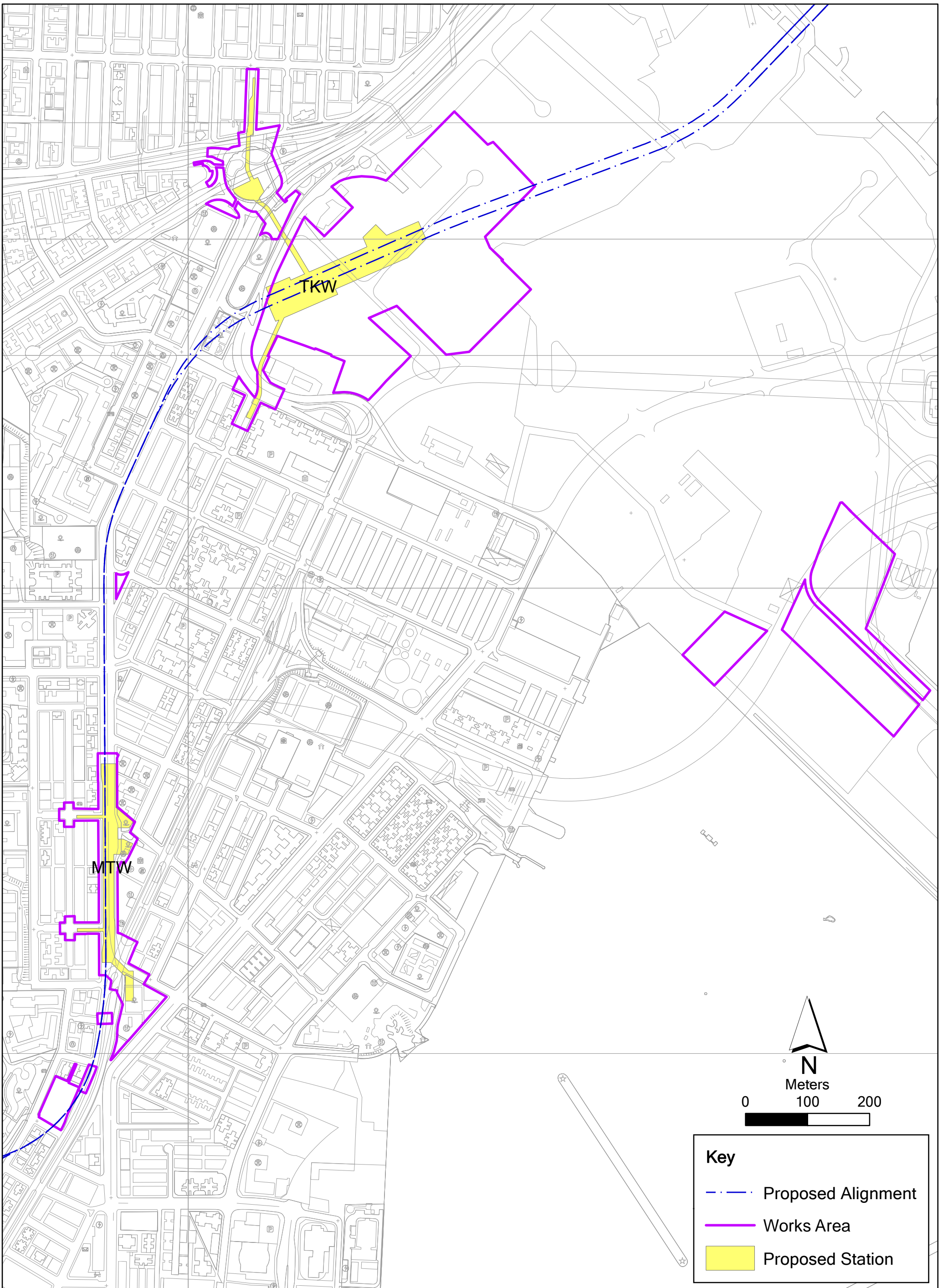
Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded on 1, 4, 5, 7, 15, 16, 18, 21, 22, 23, 25, 26, 27, 29 and 30 August 2014 at MTW-16-1. Investigation of the exceedances recorded on 1, 4, 5, 7, 15, 16, 18 and 21 August 2014 had been completed and the investigation reports are presented in *Annex L*. The exceedances recorded on 22, 23, 25, 26, 27, 29 and 30 are still under investigation. The findings will be reported in next reporting period.

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

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

Annex A

The Alignment and Works Area for Works Contract



Annex A

Alignment, Stations and Works Area of SCL Works Contract 1109

Name: 0171181_Works_Area_Annex.mxd
Date: 12/08/2014

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 - AUGUST 2014

Activity ID	Activity Name	Physical % Complete	Start	Finish	2014			
					Aug	Sep	Oct	Nov
1109 - SUW & TKW Stations and Tunnels AUGUST 14 (UWP R5)								
PROJECT DATES								
Specified Milestone Dates								
CC-A Milestones								
01109.MSA9	A9 - Engr's confirmation of satisfactory implementation of Programming Management System (1).(Wk41/14;12Oct14)	0%		12-Oct-14*			◆	
CC-B Milestones								
01109.MSB06i	B6(ii) - All pre-bored H piles complete #.(Revised IPS 17 Aug 14)	100%		14-Aug-14 A	◆			
01109.MSB08i	B8i-Prelim Permanent Works Material Control Schedule (CL G4.16.1). (Revised IPS 19 Oct 14)	0%		19-Oct-14*			◆	
01109.MSB08ii	B8ii-Pump test complete & accepted by the Engineer & ready for open cut excavation at SUW.(Revised IPS 19 Oct 14)	0%		13-Nov-14				◆
CC-C Milestones								
01109.MSC08	C8 - Prel Permanent Wrks Mat Control Schedules (in accor w/ Clause G14.16.1 of Gen.Specs) appr by Engr(Wk46/14; 16Nov14)	0%		16-Nov-14*				◆
CC-D Milestones								
01109.MSD06iii	D5(iii)-Underpinning at EKW Pier 15 complete & ready for removal of existing piles (Wk37/14;14Sep14)	0%		03-Oct-14		▼	◆	
CC-A - PRELIMINARIES AND GENERAL REQUIREMENTS								
Design and Approvals								
Temporary Traffic Arrangements								
SUW Station, Entrances and Adits								
TTMS Design & Approval								
01109.PDA1340	SUW - Sung Wong Toi & Pak Tai St - TTM Stage 1 - Design & Approval by SLG	67%	04-Dec-13 A	02-Jan-15				
01109.PDA1320	SUW - TTM for Kln City Interchange - Design & Approval by SLG	65%	26-Apr-14 A	31-Oct-14				
TTMS Gazette Notice								
01109.PDA1450	SUW - TTM for Kln City Interchange - Gazette Notice	0%	01-Nov-14	20-Dec-14				
Procurement								
Concrete Construction Materials								
Precast supplies								
01109.PDA3970A	Submission and Approval for revised detailed design to tunnel lining (EI 000053)	80%	28-Nov-13 A	30-Oct-14				
01109.PDA4020	Precast concrete segment manufacture (2nd and subsequent batches)	30%	25-Jan-14 A	20-Dec-15				
CC-B - SUW STATION, ENTRANCES AND ADITS								
Implementation of TTA at SUW								
01109.PDB1591	SUW - Olympic Avenue - Implement TTM Stage 2	0%	01-Sep-14*	15-Sep-14				
SUW Station Construction Works								



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5P, Page 1 of 14
THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP
Dates, MTRC 1109 - 3MRP.
Printed:03-Sep-14

- Actual Work
- Remaining Work
- Master Programme Rev.1
- Last Month Update (Jul 2014)
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Activity ID	Activity Name	Physical % Complete	Start	Finish	2014			
					Aug	Sep	Oct	Nov
Site Preparation								
Archaeological Survey								
01109.PDB14450A	AWB Within Launching Shaft (Additional Work) - EI 67	92%	20-Dec-13 A	13-Sep-14				
Station - Excavation and Foundation								
Pre-bored H- Piling for Permanent Works								
Part 3 (GL 12 - 18)								
01109.PDB2210	Rig 1 - H- Piling - 35Nr - (BD approved drawings 07 Mar 13)	100%	02-Jan-14 A	14-Aug-14 A				
01109.PDB2271A	Rig A- H-Piling - 43 Nr - Piles with founding level >75m)	100%	16-Apr-14 A	14-Aug-14 A				
01109.PDB2130A10	H- Piling; (GL12 - 18) - Complete	100%		14-Aug-14 A				
Part 4 (GL 18 - 23)								
01109.PDB2360	Rig 2 - H- Piling - 30Nr - (BD approved drawings 07 Mar 13)	100%	17-Jan-14 A	13-Aug-14 A				
01109.PDB2130A20	H- Piling; (GL18 - 23) - Complete	100%		13-Aug-14 A				
TBM Launch Shaft Works								
Excavation TBM Shaft Area								
Excavation and lateral Support - TBM Shaft								
01109.PDB3100	TBM Launch shaft - Install Temporary Shoring (S1) - EGL to +5.0mPD	100%	03-Jan-14 A	08-Aug-14 A				
01109.PDB19260	TBM Launch shaft - Install Temporary Shoring (S2) - +5mPD to 0.0mPD	100%	03-Feb-14 A	21-Aug-14 A				
01109.PDB3110	TBM Launch shaft - Excavate 0mPD to -5mPD	85%	18-Apr-14 A	02-Sep-14				
01109.PDB3211C	Design Approval for revised ELS work including Strut & Waler S2a - EI 68	100%	25-Apr-14 A	01-Aug-14 A				
01109.PDB3120	TBM Launch shaft - Install Temporary Shoring (S3) - 0.0mPD to -5mPD	0%	02-Sep-14	29-Sep-14				
01109.PDB3130	TBM Launch shaft - Excavate -5mPD to -10mPD	0%	29-Sep-14	11-Oct-14				
01109.PDB3140	TBM Launch shaft - Install Temporary Shoring (S4) - -5mPD to -10mPD	0%	11-Oct-14	31-Oct-14				
01109.PDB3150	TBM Launch shaft - Excavate -10mPD to -15mPD	0%	31-Oct-14	11-Nov-14				
01109.PDB3160	TBM Launch shaft - Install Temporary Shoring (S5) - -10mPD to -15mPD	0%	11-Nov-14	02-Dec-14				
Earthworks								
Curtain Grout Works								
01109.PDB3480	Grout Curtain complete	0%		26-Sep-14				
North of SUW								
01109.PDB3430A	Grout Curtain; Part 2- GL 9 to 10	0%	13-Sep-14	26-Sep-14				
01109.PDB3240A	Grout Curtain; Part 3- GL 10 to 11	0%	13-Sep-14	26-Sep-14				
01109.PDB19360B	Grout Curtain completed on North of Station	0%		26-Sep-14				
South of SUW								
01109.PDB19330B	Grout Curtain; Part 2- GL 9 to 10	50%	19-May-14 A	19-Sep-14				
01109.PDB19290B	Grout Curtain; Part 2- GL 6 to 7	10%	22-Aug-14 A	17-Sep-14				



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5P, Page 2 of 14

THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.

Printed:03-Sep-14

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Activity ID	Activity Name	Physical % Complete	Start	Finish	2014			
					Aug	Sep	Oct	Nov
01109.PDB19350B	Grout Curtain completed on South of Station	0%		19-Sep-14				
Install Observation Wells								
01109.PDB3630	Observation Wells; GL 7.5 to 24	50%	11-May-14 A	30-Sep-14				
01109.PDB3610	Pumping Wells; GL 7.5 to 24	50%	11-May-14 A	30-Sep-14				
01109.PDB3650	Recharge Wells;GL 7.5 to 24	50%	19-May-14 A	30-Sep-14				
01109.PDB3790	Observation Wells complete	0%		30-Sep-14				
Pumping Tests								
01109.PDB3800	Pumping Test Works Stage 1a	0%	03-Oct-14	23-Oct-14				
01109.PDB3820	Pumping Test Works Stage 2a	0%	03-Oct-14	23-Oct-14				
01109.PDB3840	Pumping Test Works Stage 3a	0%	03-Oct-14	23-Oct-14				
01109.PDB3850	Pumping Test Works Stage 3b	0%	24-Oct-14	13-Nov-14				
01109.PDB3810	Pumping Test Works Stage 1b	0%	24-Oct-14	13-Nov-14				
01109.PDB3830	Pumping Test Works Stage 2b	0%	24-Oct-14	13-Nov-14				
Stage 1 Excavation EGL to + 1.0mPD & form 1.5m berm								
01109.PDB4090	Stg 1 - Excavation; Part 2- GL 8 to 9	0%	14-Nov-14	21-Nov-14				
01109.PDB3900	Stg 1 - Excavation; Part 2- GL 4 to 5	0%	14-Nov-14	21-Nov-14				
01109.PDB3980	Stg 1 - Excavation; Part 2- GL 5 to 6	0%	22-Nov-14	29-Nov-14				
01109.PDB4120	Stg 1 - Excavation; Part 2- GL 9 to 10	0%	22-Nov-14	29-Nov-14				
Install dewatering wells & monitoring ins / take readings 1								
01109.PDB4180	Wells, instruments, readings 1; Part 2- GL 4 to 5	0%	22-Nov-14	25-Nov-14				
Entrance C and Associated Adits								
Entrance C - Part 1- GL 7 to GL 14								
Entrance C - Part 1- ELS Works								
Entrance C - Part 1- Piling & Toe Grouting Works								
GL12 to GL 14								
01109.PDB14450A10	AWB Within Adit C Area (Additional Work) - EI 71	80%	03-Jun-14 A	13-Sep-14				
01109.PDB14450A30	MTR to advise pile for testing	0%		12-Sep-14*				
01109.PDB14410A	Pre Bored H pile testing	0%	13-Sep-14	14-Oct-14				
01109.PDB10410A	All Piling Works for Ent C & Adits complete	0%		14-Oct-14				
01109.PDB14420A	Pump Test	0%	14-Oct-14	25-Oct-14				
Entrance C - Part 1-Excavation Works								
01109.PDB10430	Excavation & Lateral Support Works; GL C14 to C12	0%	25-Oct-14	19-Nov-14				
01109.PDB10460	ELS Works; GL C7 to C14; complete	0%		19-Nov-14				
GL 7 to GL 12								



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5P, Page 3 of 14

THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.

Printed:03-Sep-14

- Actual Work
- Remaining Work
- Master Programme Rev.1
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Activity ID	Activity Name	Physical % Complete	Start	Finish	2014			
					Aug	Sep	Oct	Nov
01109.PDB10440	Excavation & Lateral Support Works; GL C7 to C9	65%	21-Mar-14 A	09-Oct-14				
01109.PDB10450	Excavation & Lateral Support Works; GL C9 to C12	58%	02-Apr-14 A	11-Oct-14				
Entrance C - Part 1- Concrete Structure Works								
01109.PDB10510	Concrete Structure GL C12 to C11	0%	09-Oct-14	13-Nov-14				
01109.PDB10520	Concrete Structure GL C11 to C10	0%	16-Oct-14	20-Nov-14				
01109.PDB10530	Concrete Structure GL C10 to C9	0%	23-Oct-14	27-Nov-14				
01109.PDB10540	Concrete Structure GL C9 to C8	0%	31-Oct-14	05-Dec-14				
01109.PDB10550	Concrete Structure GL C8 to C7	0%	07-Nov-14	12-Dec-14				
01109.PDB10470	Prepare area for concrete Works	0%	19-Nov-14	27-Nov-14				
Entrance C - Part 2- GL 3 to GL 7								
Entrance C - Part 2- GL 3 to GL 7; Segment 1								
Entrance C - Part 2- Seg 1; ELS Works								
Entrance C - Part 2- Seg 1; Sheet Piling & Toe Grouting Works								
01109.PDB10730	Sheet Piling & Toe grouting Works; GL C5 to C7; Segment 1; East Side	0%	13-Sep-14	20-Oct-14				
01109.PDB10740	Sheet Piling & Toe grouting Works; GL C5 to C7; Segment 1; West Side	0%	20-Oct-14	21-Nov-14				
01109.PDB10750	All Sheet piling Works for Ent C; GL C5 to C7; Segment 1 complete	0%		21-Nov-14				
Entrance C - Part 2- Seg 1; Excavation Works								
01109.PDB10770	Excavation & Lateral Support Works for Ent C; GL C5 to C7; Segment 1	0%	21-Nov-14	29-Nov-14				
Entrance B and Associated Adits								
Entrance B - Olympic Avenue and SUW playground Works								
Stage 1								
01109.PDB11800	Sheet piling & Toe grouting Works;GL B1 to B5 (2x24m sheetpiles)	73%	22-Feb-14 A	10-Oct-14				
01109.PDB14450A40	AWB Within Adit B area (Additional Work) - EI 71	80%	03-Jun-14 A	13-Sep-14				
01109.PDB11790	Load test according to drawing number 1109/T/302/OAP/C19/201	0%	20-Sep-14	10-Oct-14				
01109.PDB11810	Sheet piling & Toe grouting Works;GL B5 to B7 (South bound lane areas)(2x18m sheetpiles)	0%	10-Oct-14	04-Nov-14				
01109.PDB11820	Pumping test	0%	04-Nov-14	18-Nov-14				
01109.PDB11830	Excavate and Install struts & waling	0%	18-Nov-14	19-Jan-15				
Stage 2								
01109.PDB11980	Excavate and Install struts & waling	77%	10-May-14 A	26-Sep-14				
01109.PDB11990	Construct the Adit structure	0%	27-Sep-14	02-Dec-14				
Entrance B - Kowloon City Interchange								
Entrance B - Underpinning of KNEC Piers								
Pier P75								
01109.PDB13080	Stitch up and grout underpinning beam and existing cap	0%	17-Sep-14	18-Sep-14				



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5P, Page 4 of 14
THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP
Dates, MTRC 1109 - 3MRP.
Printed:03-Sep-14

- Actual Work
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Activity ID	Activity Name	Physical % Complete	Start	Finish	2014			
					Aug	Sep	Oct	Nov
01109.PDB13090	Dismantle temporary steel frame	0%	19-Sep-14	26-Sep-14				
01109.PDB13100	Backfill & remove codfferdam wall	0%	27-Sep-14	10-Oct-14				
Pier P76								
01109.PDB13250	Dismantle temporary steel frame	0%	10-Sep-14	16-Sep-14				
01109.PDB13260	Backfill & remove codfferdam wall	0%	17-Sep-14	29-Sep-14				
Pier P74								
01109.PDB12900	Breakout concrete from existing pile cap	84%	21-Jul-14 A	30-Aug-14				
01109.PDB12910	Set up threaded end rebars to connect underpinning beam to pile cap	0%	01-Sep-14	04-Sep-14				
01109.PDB12920	Stitch up and grout underpinning beam and existing cap	0%	05-Sep-14	06-Sep-14				
01109.PDB12930	Dismantle temporary steel frame	0%	10-Sep-14	16-Sep-14				
01109.PDB12940	Backfill & remove codfferdam wall	0%	17-Sep-14	29-Sep-14				
Entrance B - Pipe Piling & Toe Grouting Works								
01109.PDB12580	Pipe piling & Grout Curtain Works; GL B17 to B20 (67 Nos - Zone 1)	80%	16-Apr-14 A	16-Sep-14				
01109.PDB12590	Pipe piling & Grout Curtain Works; GL B20 to B22 (76 Nos) some under bypass	52%	19-Jun-14 A	20-Oct-14				
01109.PDB12600	Pipe piling & Grout Curtain Works; GL B11 to B17 (336 pipe piles- 3 teams)	0%	20-Oct-14	24-Apr-15				
Entrance B - Excavation Works								
01109.PDB13300	Excavation & Lateral Support Works; GL B14 to B20 - Part 1 of 3	0%	20-Oct-14	17-Dec-14				
Entrance B - Nam Kok Road Works - (Detailed Programme)								
Entrance B - Nam Kok Road Works (Portion 3)								
Nam Kok Road - TTMS - Stage 1 and 2								
TTMS - Stage 1 (Phase 2)								
01109.PDB15130A	Install 410mm dia pipe pile wall. 105nr (assume 3 piles/2 days). 1PR	33%	20-May-14 A	28-Feb-15				
01109.PDB19210A	Install grout curtain	15%	10-Jul-14 A	24-Mar-15				
CC-C - TKW STATION, ENTRANCES AND ADITS								
TKW Station								
Existing Utility Diversion Works								
Drainage and Sewerage								
01109.PDC1560	TKW-FD501/501P - Divert 150 & 225dia sewer	0%	26-Aug-14	08-Sep-14				
Power Supply								
01109.PDC26950A	TKW-CLP - P63 - 11kV Supply - slewing	100%	23-Jul-14 A	31-Jul-14 A				
01109.PDC26950	TKW-CLP503 - P61 - 11kV Supply - slewing	90%	07-Aug-14 A	26-Aug-14				
Diaphragm Wall Stage 2 Phase 1 TTMS (W1-W3 + Ent D)								
Ent D								
Area E1 (Ent D) - BC Cutter No 2								



MTR Corporation Limited
Shatin to Central Link Contract 1109

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

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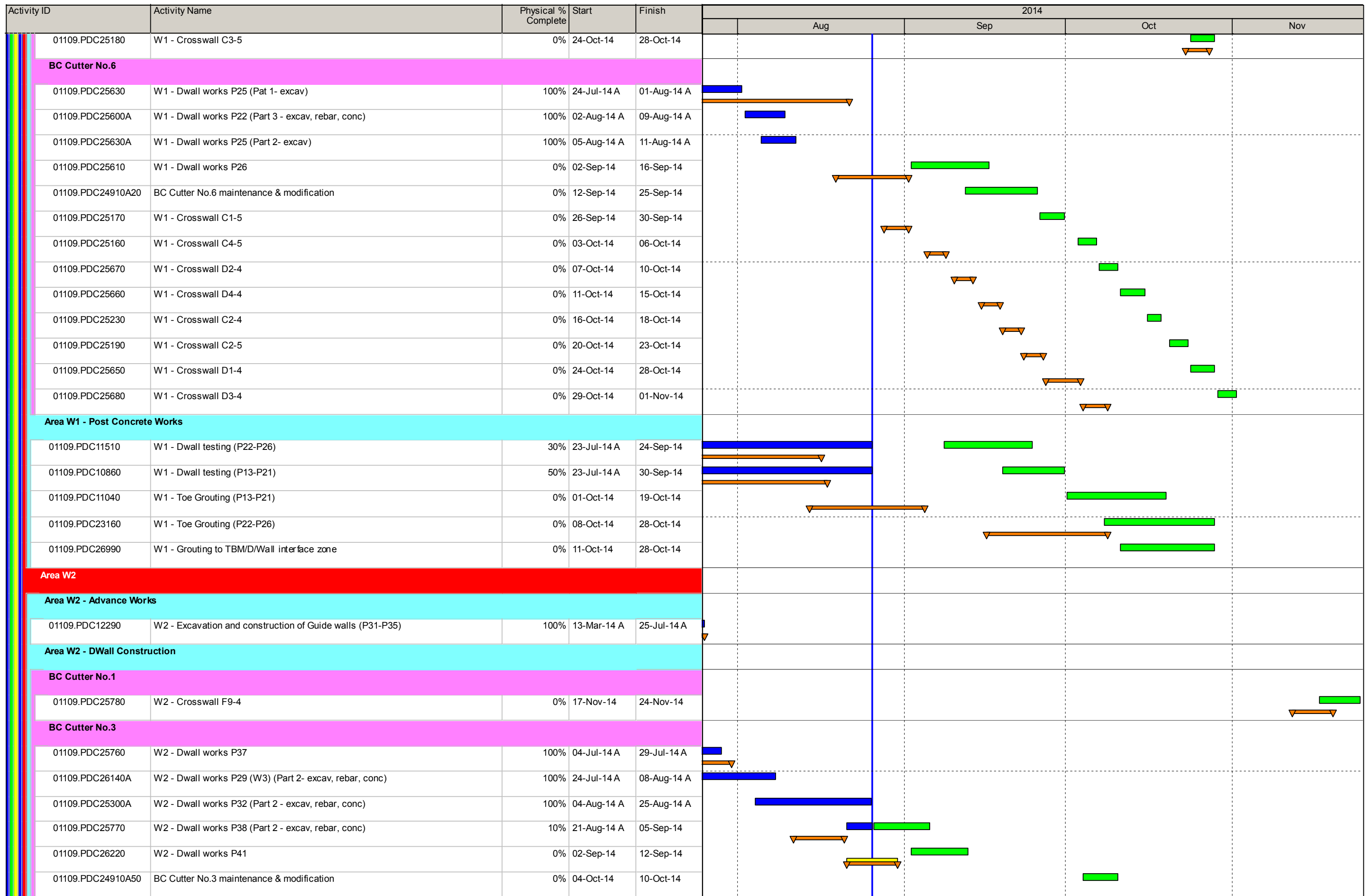
Activity ID	Activity Name	Physical % Complete	Start	Finish	2014				
					Aug	Sep	Oct	Nov	
01109.PDC24020A	Move BC 2 to Ent D	0%	29-Oct-14	09-Nov-14					
01109.PDC26660	E1 (Ent D) - Dwall works P144	0%	10-Nov-14	19-Nov-14					
01109.PDC26610	Stg 3 Ent D - Dwall works - P147	0%	17-Nov-14	26-Nov-14					
01109.PDC26620	Stg 3 Ent D - Dwall works - P151	0%	24-Nov-14	02-Dec-14					
Area W1									
Area W1 - Advance Works									
01109.PDC10980	W1 - Remove decommissioned Water Pipes SW+FW502 (P22-P26)	80%	15-Mar-14 A	28-Aug-14					
01109.PDC29216A	W1 - Excavation and construction of Guide walls (P22-P26)	80%	07-Apr-14 A	28-Aug-14					
01109.PDC10190	W1 - Excavation and construction of Guide walls (P13-P21)	89%	24-Apr-14 A	27-Aug-14					
Area W1 - Founding Level Predrill									
01109.PDC10290	W1 - P: 14,21,15,20,17,16,19,18 - GI Report & Confirmation of Founding Levels	100%	13-Mar-14 A	25-Aug-14 A					
01109.1000A	W1 (MTW Rd) - Trial Pits & Predrill to P13 & Confirmation of Founding Level	100%	03-Jul-14 A	22-Aug-14 A					
Area W1 - DWall Construction									
BC Cutter No.2									
01109.PDC25130	W1 - Dwall works P16	100%	05-Jul-14 A	28-Jul-14 A					
01109.PDC25600	W1 - Dwall works P22 (Part 1 - excav)	100%	24-Jul-14 A	01-Aug-14 A					
01109.PDC25100	W1 - Dwall works P15	100%	02-Aug-14 A	19-Aug-14 A					
01109.PDC25260	W1 - Crosswall C3-3	100%	13-Aug-14 A	16-Aug-14 A					
01109.PDC25220	W1 - Crosswall C3-4	100%	13-Aug-14 A	16-Aug-14 A					
01109.PDC25630B	W1 - Dwall works P25 (Part 3- trim, rebar, conc)	100%	16-Aug-14 A	22-Aug-14 A					
01109.PDC25270	W1 - Crosswall C4-3	100%	19-Aug-14 A	21-Aug-14 A					
01109.PDC23390	W1 - Dwall works P13 (P13B)	38%	22-Aug-14 A	29-Aug-14					
01109.PDC25690	W1 - Crosswall D1-3	0%	29-Aug-14	01-Sep-14					
01109.PDC25200	W1 - Crosswall C4-4	0%	02-Sep-14	04-Sep-14					
01109.PDC26050A	W1 - Crosswall E1-2 (E1-3)	0%	05-Sep-14	11-Sep-14					
01109.PDC25080	W1 - Dwall works P14	0%	11-Sep-14	22-Sep-14					
01109.PDC26060A	W1 - Crosswall E1-1 (E1-4)	0%	19-Sep-14	24-Sep-14					
01109.PDC24910A40	BC Cutter No.2 maintenance & modification	0%	24-Sep-14	09-Oct-14					
01109.PDC25240	W1 - Crosswall C1-3	0%	10-Oct-14	13-Oct-14					
01109.PDC25720	W1 - Crosswall D3-3	0%	13-Oct-14	15-Oct-14					
01109.PDC25250	W1 - Crosswall C2-3	0%	15-Oct-14	17-Oct-14					
01109.PDC25710	W1 - Crosswall D2-3	0%	17-Oct-14	20-Oct-14					
01109.PDC25700	W1 - Crosswall D4-3	0%	20-Oct-14	22-Oct-14					
01109.PDC25210	W1 - Crosswall C1-4	0%	22-Oct-14	24-Oct-14					



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5P, Page 6 of 14
 THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
 Printed:03-Sep-14

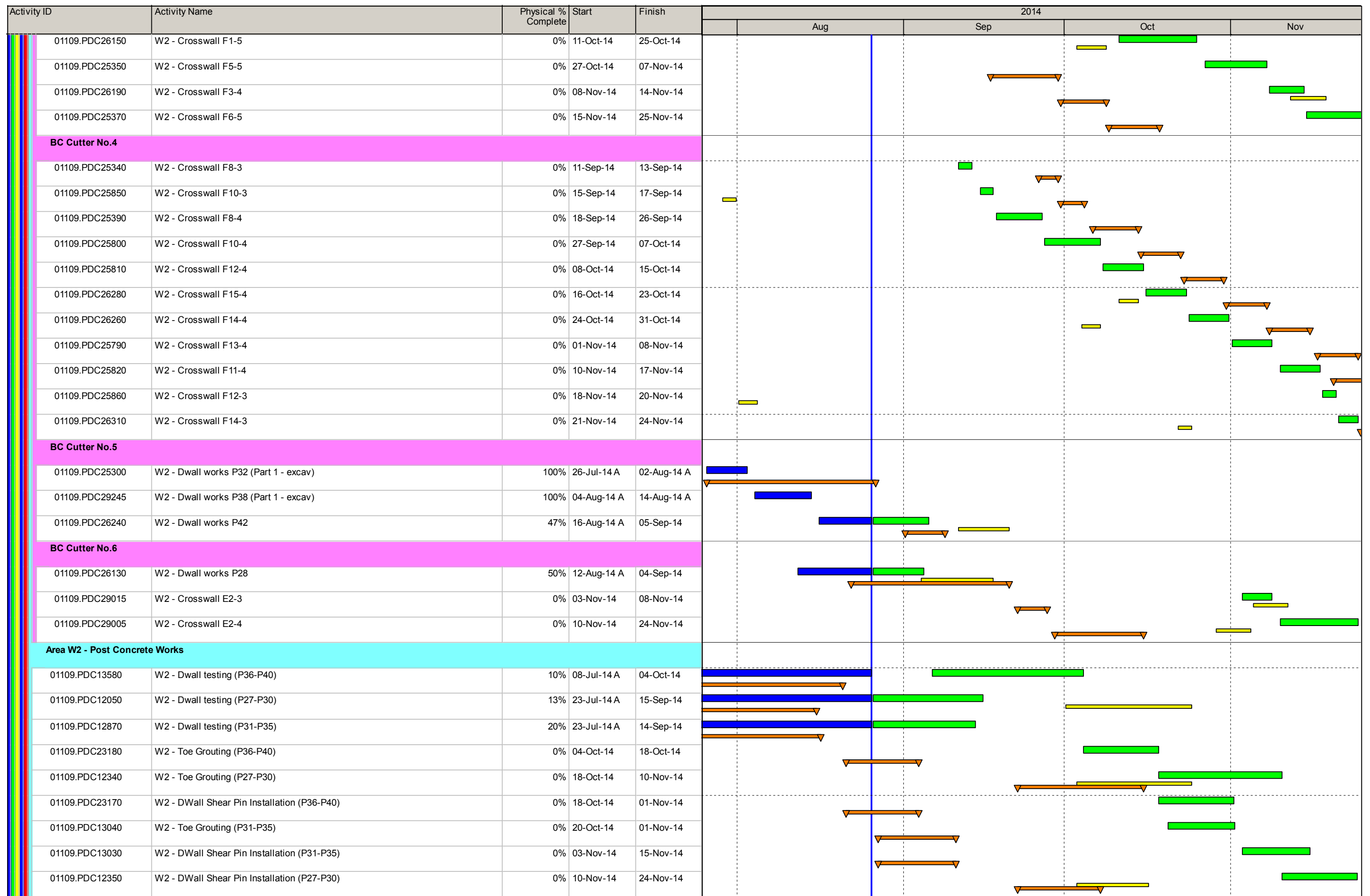
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MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5P, Page 7 of 14
 THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
 Printed:03-Sep-14

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MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5P, Page 8 of 14

THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.

Printed:03-Sep-14

- Actual Work
- Remaining Work
- Master Programme Rev.1
- Last Month Update (Jul 2014)
- Milestone
- MP Rev.1 Milestone
- Jul 2014 Milestone

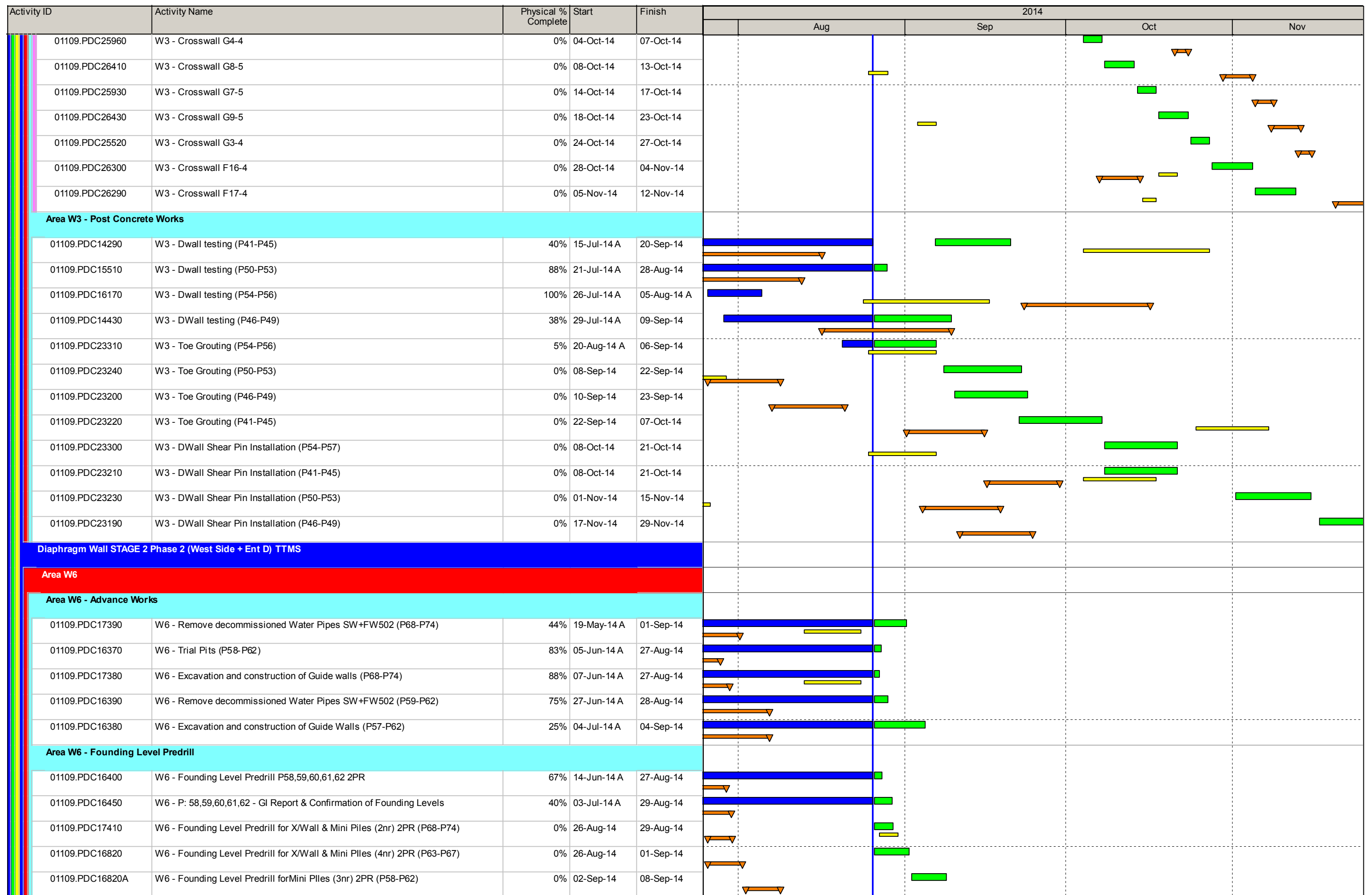
Activity ID	Activity Name	Physical % Complete	Start	Finish	2014			
					Aug	Sep	Oct	Nov
Area W3								
Area W3 - Advance Works								
01109.PDC14450	W3 - Excavation and construction of Guide walls (P46-P49)	100%	29-Mar-14 A	28-Jul-14 A				
Area W3 - Founding Level Pre-drill								
01109.PDC15710	W3 - P: 55,56,57 - GI Report & Confirmation of Founding Levels	66%	22-Mar-14 A	28-Aug-14				
01109.PDC13780	W3 - P: ,42,43,44, - GI Report & Confirmation of Founding Levels	100%	01-Apr-14 A	22-Aug-14 A				
Area W3 - DWall Construction								
BC Cutter No.4								
01109.PDC25460	W3 - Dwall works P48	100%	12-Jul-14 A	26-Jul-14 A				
01109.PDC25450	W3 - Dwall works P47	100%	29-Jul-14 A	20-Aug-14 A				
01109.PDC24910A60	BC Cutter No.4 maintenance & modification	100%	12-Aug-14 A	18-Aug-14 A				
01109.PDC25940	W3 - Crosswall G5-5	100%	19-Aug-14 A	25-Aug-14 A				
01109.PDC26270	W3 - Crosswall F18-4	50%	23-Aug-14 A	28-Aug-14				
01109.PDC25490	W3 - Crosswall G1-5	0%	29-Aug-14	03-Sep-14				
01109.PDC25950	W3 - Crosswall G6-5	0%	04-Sep-14	10-Sep-14				
BC Cutter No.1								
01109.PDC25510	W3 - Crosswall F19-4	0%	10-Oct-14	13-Oct-14				
01109.PDC26340	W3 - Crosswall F17-3	0%	14-Oct-14	16-Oct-14				
01109.PDC25540	W3 - Crosswall G2-4	0%	16-Oct-14	18-Oct-14				
01109.PDC26350	W3 - Crosswall F18-3	0%	18-Oct-14	21-Oct-14				
01109.PDC26330	W3 - Crosswall F16-3	0%	22-Oct-14	24-Oct-14				
01109.PDC25530	W3 - Crosswall G1-4	0%	25-Oct-14	28-Oct-14				
01109.PDC25480	W3 - Crosswall G3-5	0%	28-Oct-14	31-Oct-14				
01109.PDC25920	W3 - Crosswall G4-5	0%	01-Nov-14	06-Nov-14				
01109.PDC25500	W3 - Crosswall G2-5	0%	06-Nov-14	11-Nov-14				
01109.PDC25470	W3 - Crosswall F19-5	0%	11-Nov-14	15-Nov-14				
BC Cutter No.5								
01109.PDC26250	W3 - Dwall works P43	100%	02-Jul-14 A	31-Jul-14 A				
01109.PDC24916A	BC Cutter No.5 maintenance & modification	0%	06-Sep-14	13-Sep-14				
01109.PDC26470	W3 - Crosswall G9-4	0%	15-Sep-14	17-Sep-14				
01109.PDC25990	W3 - Crosswall G7-4	0%	18-Sep-14	20-Sep-14				
01109.PDC25970	W3 - Crosswall G5-4	0%	22-Sep-14	24-Sep-14				
01109.PDC26450	W3 - Crosswall G8-4	0%	25-Sep-14	27-Sep-14				
01109.PDC25980	W3 - Crosswall G6-4	0%	29-Sep-14	03-Oct-14				



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5P, Page 9 of 14
 THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
 Printed:03-Sep-14

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MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5P, Page 10 of 14
 THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP
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Activity ID	Activity Name	Physical % Complete	Start	Finish	2014			
					Aug	Sep	Oct	Nov
Area W6 - DWall Construction								
BC Cutter No. 1								
01109.PDC26020	W6 - Dwall works P67	100%	15-Jul-14 A	30-Jul-14 A				
01109.PDC26490A	W6 - Dwall works P69 (Part 2 - excav, rebar, conc)	100%	31-Jul-14 A	07-Aug-14 A				
01109.PDC26030	W6 - Dwall works P65	100%	04-Aug-14 A	18-Aug-14 A				
01109.PDC26000A	W6 - Dwall works P63A	100%	11-Aug-14 A	20-Aug-14 A				
01109.PDC26010	W6 - Dwall works P64	60%	22-Aug-14 A	05-Sep-14				
01109.PDC25570A	W6 - Dwall works P61B	0%	03-Sep-14	13-Sep-14				
01109.PDC26000	W6 - Dwall works P63B	0%	11-Sep-14	19-Sep-14				
01109.PDC25570	W6 - Dwall works P61A	0%	17-Sep-14	25-Sep-14				
01109.PDC26400	W6 - Dwall works P58	0%	23-Sep-14	04-Oct-14				
01109.PDC26420	W6 - Crosswall G11-5	0%	30-Sep-14	09-Oct-14				
BC Cutter No. 3								
01109.PDC25580	W6 - Dwall works P60	0%	10-Sep-14	29-Sep-14				
01109.PDC26370	W6 - Dwall works P57	0%	25-Sep-14	07-Oct-14				
BC Cutter No. 4								
01109.PDC26440	W6 - Crosswall G10-5	100%	23-Jul-14 A	30-Jul-14 A				
01109.PDC26480	W6 - Crosswall G10-4	100%	09-Aug-14 A	12-Aug-14 A				
BC Cutter No. 7								
01109.PDC26490	W6 - Dwall works P69 (Part 1 - excav)	100%	24-Jul-14 A	30-Jul-14 A				
01109.PDC26550	W6 - Dwall works P72	100%	31-Jul-14 A	23-Aug-14 A				
01109.PDC26530	W6 - Dwall works P68A	75%	12-Aug-14 A	27-Aug-14				
01109.PDC26520	W6 - Dwall works P73	5%	25-Aug-14 A	03-Sep-14				
01109.PDC26560	W6 - Dwall works P68	0%	01-Sep-14	20-Sep-14				
01109.PDC26500	W6 - Dwall works P74	0%	17-Sep-14	06-Oct-14				
01109.PDC25560	W6 - Dwall works P59	0%	30-Sep-14	09-Oct-14				
01109.PDC26460	W6 - Crosswall G11-4	0%	07-Oct-14	10-Oct-14				
Top Slab, Utility, & Backfill WEST side during STAGE 2B TTMS								
Area W2 - Span 2 - GL 3 to GL 6								
01109.PDC29055	W2 - Steelwork; Installation of sheet piles 30lm (centre only) 1PR	0%	03-Nov-14	15-Nov-14				
01109.PDC11530	W2 - Earthwork; Excavation for roof slab concrete	0%	17-Nov-14	26-Nov-14				
01109.PDC11540	W2 - Steelwork; Installation of struts and walers (ELS works)	0%	17-Nov-14	26-Nov-14				
Area W6 - Span 7 - GL 12/13 to GL 15								
01109.PDC29095	W6 - Steelwork; Installation of sheet piles 30lm (centre only) 1PR	0%	13-Nov-14	26-Nov-14				



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5P, Page 11 of 14
THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.
Printed:03-Sep-14

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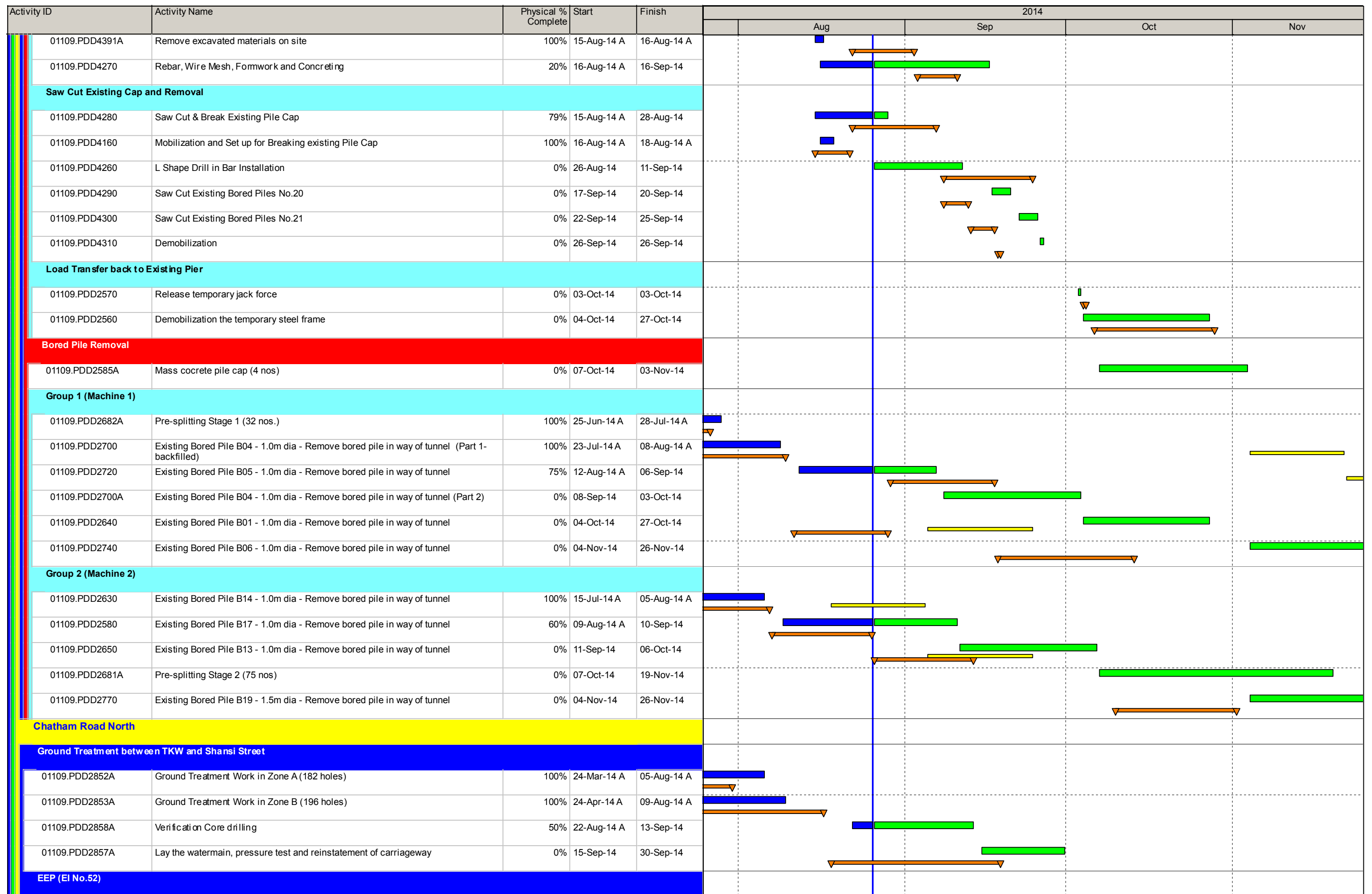
Activity ID	Activity Name	Physical % Complete	Start	Finish	2014			
					Aug	Sep	Oct	Nov
Area W10 - Span 11 - GL 21 to GL 23								
01109.PDC29135	W10 - Steelwork; Installation of sheet piles 30lm (centre only) 1PR	0%	08-Oct-14	21-Oct-14				
01109.PDC16680	W10 - Earthwork; Excavation for roof slab concrete	0%	22-Oct-14	31-Oct-14				
01109.PDC16690	W10 - Steelwork; Installation of struts and walers (ELS works)	0%	01-Nov-14	11-Nov-14				
01109.PDC16700	W10 - Structure; Roof slab	0%	12-Nov-14	28-Nov-14				
Area W11 - Span 12 - GL 23 to GL 25								
01109.PDC29145	W11 - Steelwork; Installation of sheet piles 30lm (centre only) 1PR	0%	21-Oct-14	03-Nov-14				
Area W12 - Span 13 - GL 25 to GL 28								
01109.PDC29155	W12 - Steelwork; Installation of sheet piles 30lm (centre only) 1PR	0%	07-Oct-14	20-Oct-14				
01109.PDC17950	W12 - Earthwork; Excavation for roof slab concrete	0%	21-Oct-14	30-Oct-14				
01109.PDC29035	W12 - Steelwork; Installation of struts and walers (ELS works)	0%	31-Oct-14	10-Nov-14				
01109.PDC17960	W12 - Structure; Roof slab	0%	11-Nov-14	01-Dec-14				
Entrance A & Vent Shaft A								
Vent Shaft A								
Foundation								
01109.PDC27310A	Vent Shaft A - Demobilise Desander	0%	10-Oct-14	03-Nov-14				
01109.PDC27310	Vent Shaft A - Trial Pits	0%	04-Nov-14	17-Nov-14				
01109.PDC27290	Vent Shaft A - Founding Level predrill & verify founding levels	0%	19-Nov-14	02-Dec-14				
Entrance A								
Foundation								
01109.PDC27350A	Ent A - Sheet piling (part 2 -remaining)	55%	11-Aug-14 A	13-Sep-14				
01109.PDC29327A	bus stop preparation and Demobilise Silo	0%	15-Sep-14	03-Nov-14				
01109.PDC29328A	Implement TTMS	0%		03-Nov-14				
CC-D - BORED TUNNELS FROM SUW STATION TO HOM STATION								
Underpinning of EKW Pier 15 and Foundation Removal								
TTA Stage 1: Phase 3								
Underpinning works								
Stitching Existing Pile Cap								
01109.PDD4182A	Site clearance and setting up	100%	21-Jul-14 A	25-Jul-14 A				
01109.PDD4150	Breaking Stitching Joint A	100%	26-Jul-14 A	14-Aug-14 A				
01109.PDD4230	Breaking Stitching Joint B	100%	26-Jul-14 A	14-Aug-14 A				
01109.PDD4240	Breaking Stitching Joint C	100%	26-Jul-14 A	14-Aug-14 A				
01109.PDD4250	Breaking Stitching Joint D	100%	26-Jul-14 A	14-Aug-14 A				
01109.PDD4220	Non-shrink Grouting	100%	04-Aug-14 A	05-Aug-14 A				



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5P, Page 12 of 14
THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.
Printed:03-Sep-14

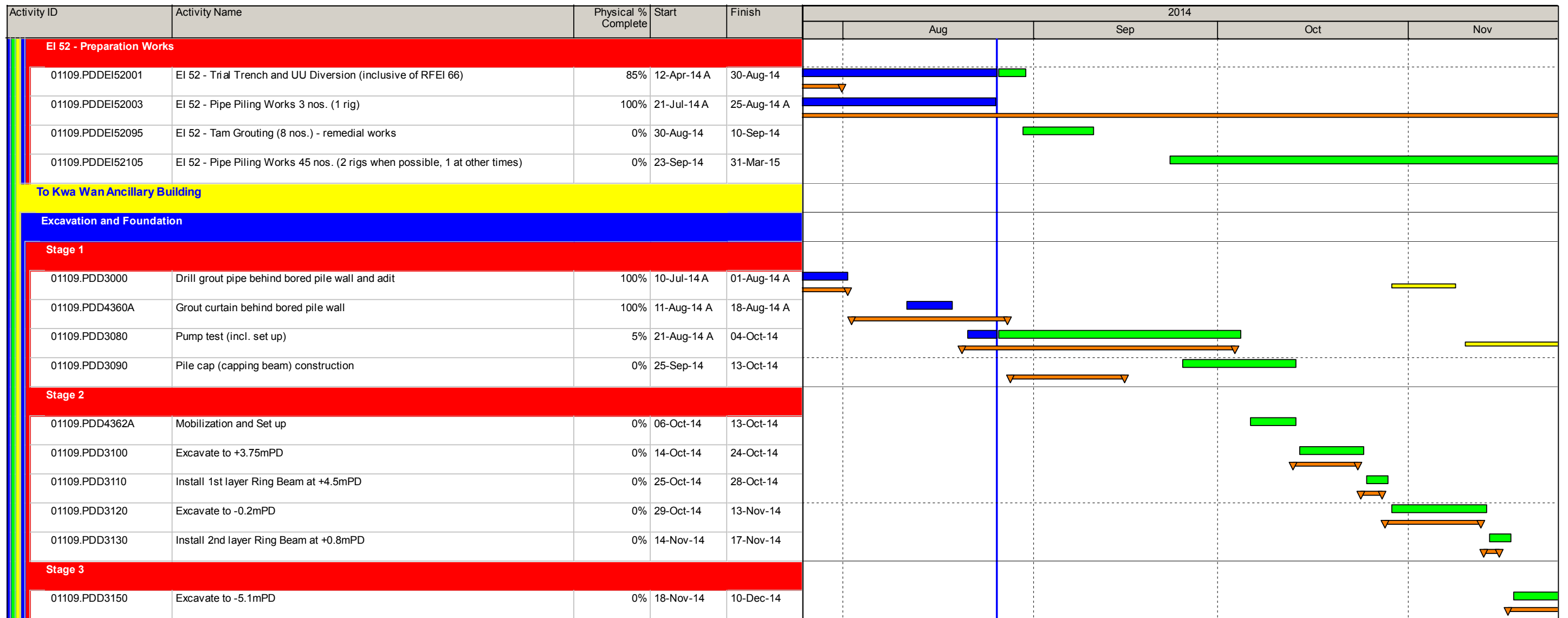
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- Milestone
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MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5P, Page 13 of 14
THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.
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MTR Corporation Limited
Shatin to Central Link Contract 1109

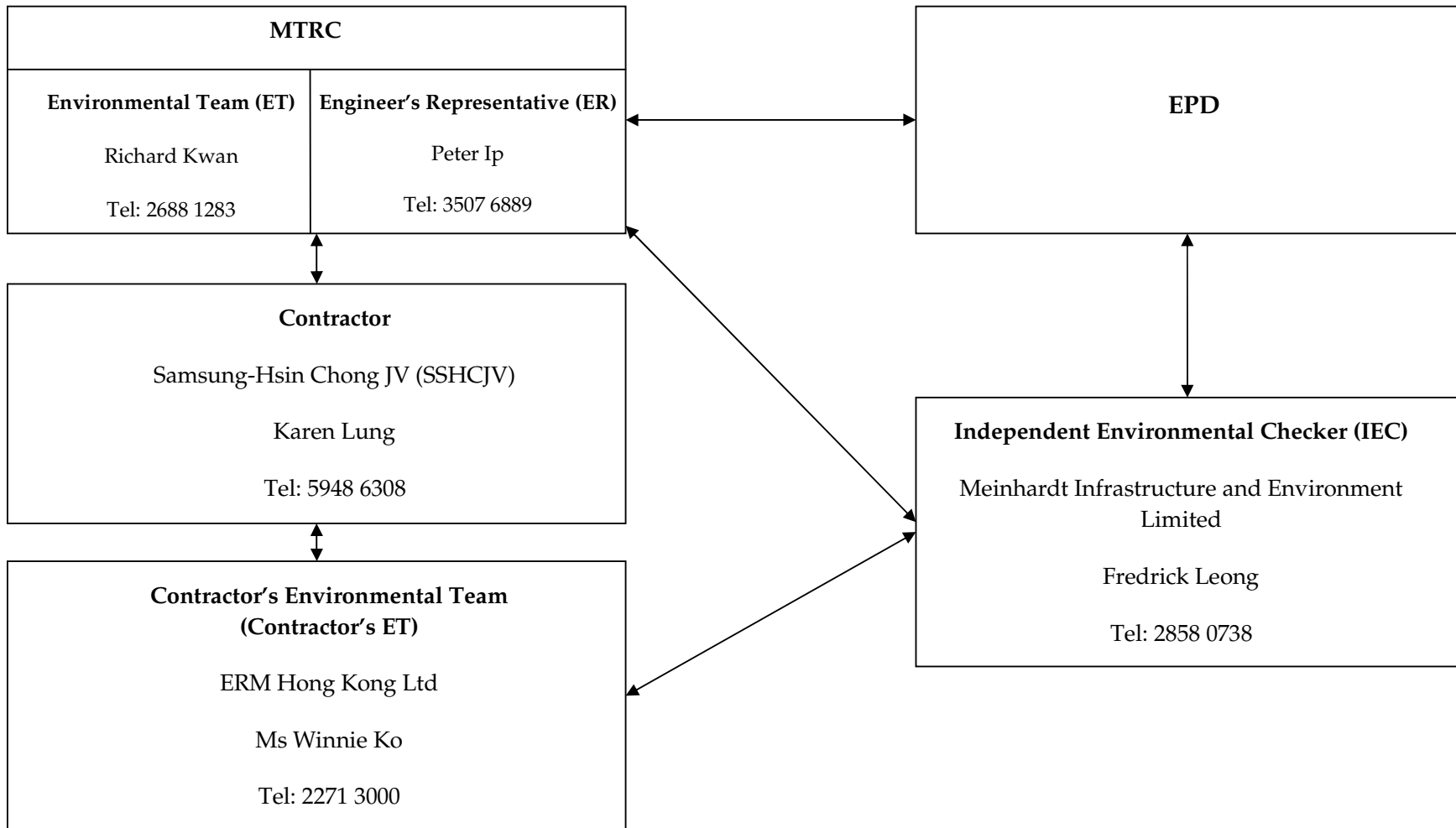
1109-UWP-5P, Page 14 of 14
 THREE MONTH ROLLING PROGRAMME - Aug 14 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.
 Printed:03-Sep-14

- Actual Work
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Annex C

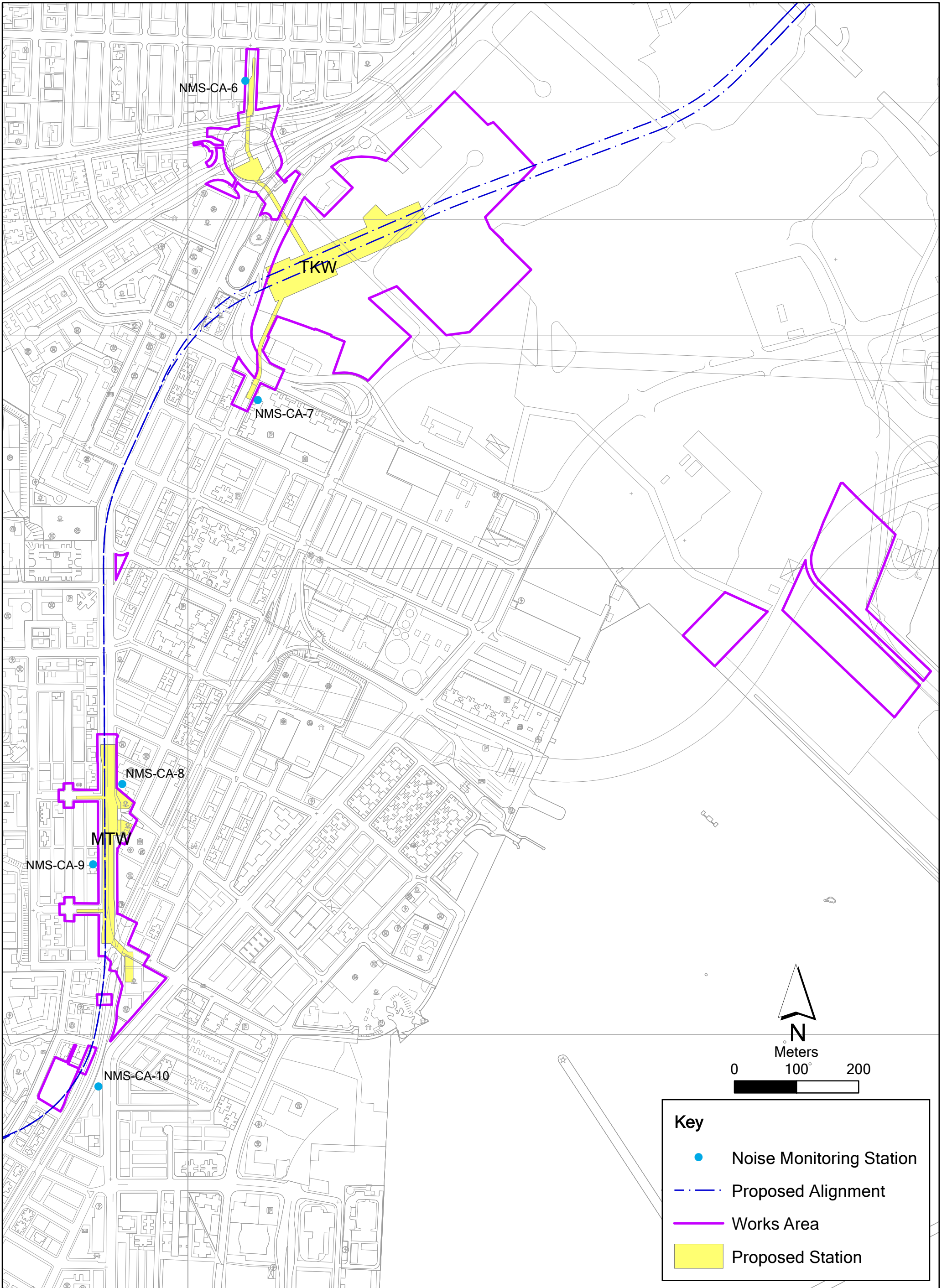
Project Organization Chart and Contact Detail

Annex C Project Organization of SCL Works Contract 1109



Annex D

Locations of Noise and Dust Monitoring Stations



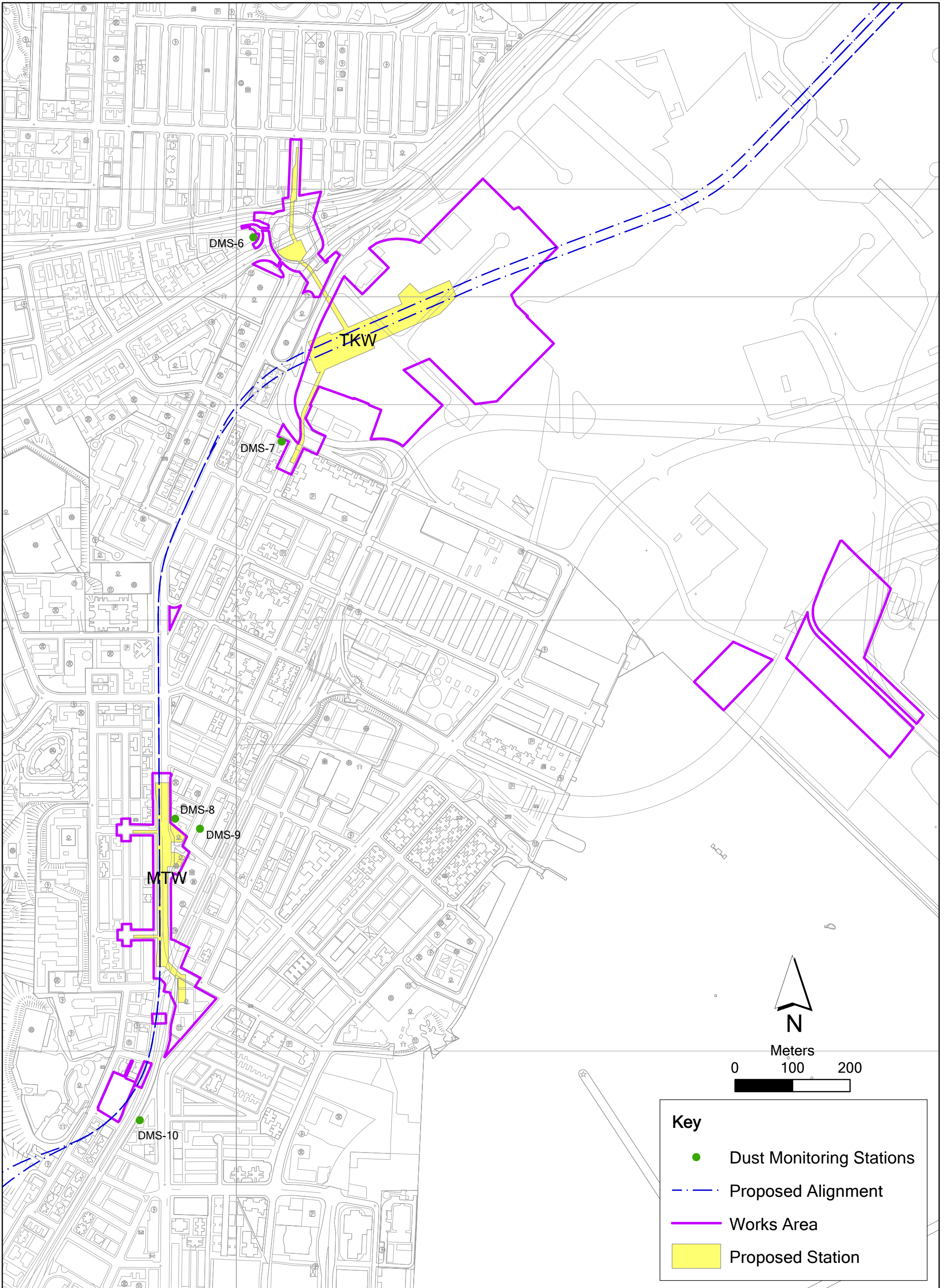
Annex D1

Location of Regular Construction Noise Monitoring Stations

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Date: 12/08/2014

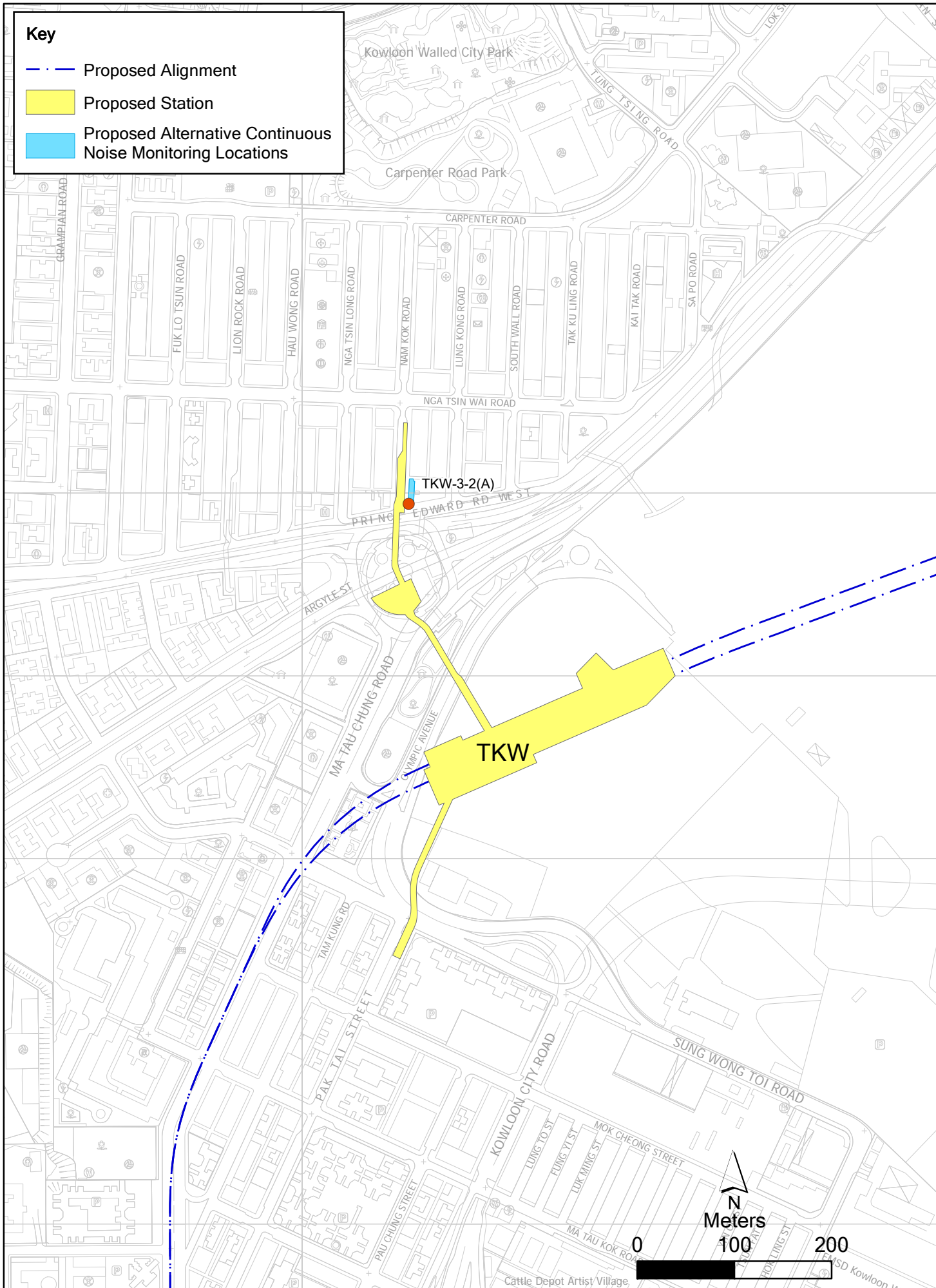
Environmental
Resources
Management





Key

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

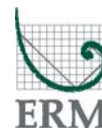


Annex D3

Proposed Continuous Noise Monitoring Locations

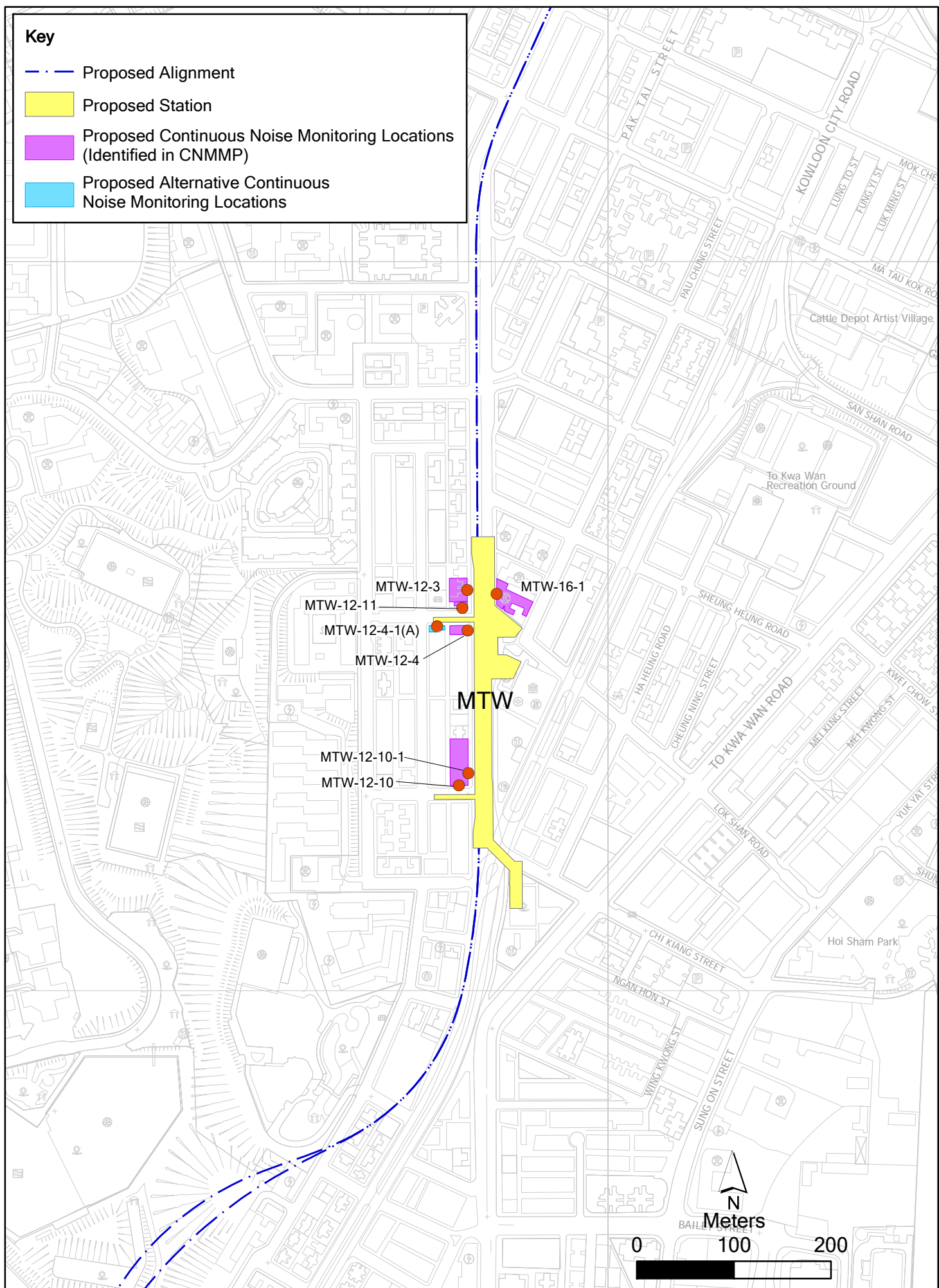
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**Environmental
Resources
Management**



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
Regular Noise Monitoring Schedule**

**Noise Monitoring Stations:
NMS-CA-6, NMS-CA-7, NMS-CA-8, NMS-CA-9 and NMS-CA-10
Monitoring Month : August 2014**

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
	Noise Monitoring					
10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug
					Noise Monitoring	
17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug
				Noise Monitoring		
24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug
			Noise Monitoring			
31-Aug						

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

**Noise Monitoring Stations:
NMS-CA-6, NMS-CA-7, NMS-CA-8, NMS-CA-9 and NMS-CA-10
Monitoring Month : September 2014**

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

**Shatin to Central Link
Works Contract 1109
Stations and Tunnels of Kowloon City Section
Regular Dust Monitoring Schedule**

**24-hr TSP Monitoring Stations:
DMS-6, DMS-7, DMS-8, DMS-9 and DMS-10
Monitoring Month : August 2014**

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
	24-hr TSP Monitoring					24-hr TSP Monitoring
10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug
					24-hr TSP Monitoring	
17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug
				24-hr TSP Monitoring		
24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug
			24-hr TSP Monitoring			
31-Aug						

**Shatin to Central Link
Works Contract 1109
Stations and Tunnels of Kowloon City Section
Regular Dust Monitoring Schedule**

**24-hr TSP Monitoring Stations:
DMS-6, DMS-7, DMS-8, DMS-9 and DMS-10
Monitoring Month : September 2014**

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

Annex F

Calibration Reports

Annex F Calibration Reports

Dust Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment	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. 2421)	6 March 2014
DMS-7	Parc 22	TE-5170 (S/N 3574)	CM-AIR-43 (Orifice I.D. 2421)	6 March 2014
DMS-8	SHK Good Shepherd Primary School	TE-5170 (S/N 3572)	CM-AIR-43 (Orifice I.D. 2421)	6 March 2014
DMS-9	No. 12 Pau Chung Street	TE-5170 (S/N 0814)	CM-AIR-43 (Orifice I.D. 2454)	11 June 2014
DMS-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. 2421)	6 March 2014

Noise Monitoring Equipment

Monitoring Station ID	Monitoring Equipment	Model & Serial No.	Last Calibration Date	Next Calibration Date
NMS-CA-6, NMS-CA-7, NMS-CA-9 and NMS-CA-10	Calibrator	Rion NC-73 (S/N 10997142)	28 June 2014	28 June 2015
	Sound Level Meter	Rion NL-18 (S/N 00360030)	19 July 2014	19 July 2015
NMS-CA-8, MTW-16-1	Calibrator	Rion NC-73 (S/N 10997142)	28 June 2014	28 June 2015
	Sound Level Meter	Rion NL-31 (S/N 00320533)	28 June 2014	28 June 2015

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-6(Katherine Building)
Calibrated by : K.T.Ho
Date : 06/03/2014

Sampler

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

Calibration Office and Standard Calibration Relationship

Serial Number : 2421
Service Date : 27 Jan 2014
Slope (m) : 2.06238
Intercept (b) : -0.02415
Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1017
Ta(K) : 289

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1 18 holes	12.7	3.627	1.752	54	54.94
2 13 holes	9.7	3.169	1.530	47	47.82
3 10 holes	7.5	2.786	1.344	40	40.70
4 7 holes	4.6	2.182	1.051	30	30.52
5 5 holes	2.9	1.733	0.832	22	22.38

Sampler Calibration Relationship (Linear Regression)

Slope(m): 35.532 Intercept(b): -6.991 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan

Date: 10/03/2014

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-7(Parc 22)
 Calibrated by : P.F.Yeung
 Date : 06/03/2014

Sampler

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

Calibration Office and Standard Calibration Relationship

Serial Number : 2421
 Service Date : 27 Jan 2014
 Slope (m) : 2.06238
 Intercept (b) : -0.02415
 Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1017
 Ta(K) : 289

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1 18 holes	12.5	3.597	1.738	62	63.08
2 13 holes	9.7	3.169	1.530	55	55.96
3 10 holes	7.7	2.823	1.362	48	48.84
4 7 holes	4.8	2.229	1.074	38	38.66
5 5 holes	3.0	1.762	0.847	28	28.49

Sampler Calibration Relationship (Linear Regression)

Slope(m): 38.609 Intercept(b): -3.584 Correlation Coefficient(r): 0.9990

Checked by: Magnum Fan

Date: 10/03/2014

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-8(SKH Good Shepherd Primary School)
 Calibrated by : P.F.Yeung
 Date : 06/03/2014

Sampler

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

Calibration Office and Standard Calibration Relationship

Serial Number : 2421
 Service Date : 27 Jan 2014
 Slope (m) : 2.06238
 Intercept (b) : -0.02415
 Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1017
 Ta(K) : 289

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1 18 holes	12.4	3.583	1.731	63	64.10
2 13 holes	9.7	3.169	1.530	56	56.98
3 10 holes	7.6	2.805	1.353	49	49.86
4 7 holes	5.0	2.275	1.096	38	38.66
5 5 holes	3.0	1.762	0.847	28	28.49

Sampler Calibration Relationship (Linear Regression)

Slope(m):40.716 Intercept(b): -5.786 Correlation Coefficient(r): 0.9994

Checked by: Magnum Fan

Date: 10/03/2014

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-9 (No. 12 Pau Chung Street)
 Calibrated by : K.T.Ho
 Date : 11/06/2014

Sampler

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

Calibration Office and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 24 Mar 2014
 Slope (m) : 2.07593
 Intercept (b) : -0.00102
 Correlation Coefficient(r) : 0.99996

Standard Condition

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

Calibration Condition

Pa (hpa) : 1002
 Ta(K) : 299

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1 18 holes	12.2	3.468	1.671	64	63.55
2 13 holes	9.5	3.060	1.475	56	55.60
3 10 holes	7.2	2.664	1.284	48	47.66
4 7 holes	4.5	2.106	1.015	38	37.73
5 5 holes	2.7	1.631	0.786	28	27.80

Sampler Calibration Relationship (Linear Regression)

Slope(m):40.063 Intercept(b): -3.459 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan

Date: 20/06/2014

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-10(Chat Ma Mansion)
 Calibrated by : P.F.Yeung
 Date : 06/03/2014

Sampler

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

Calibration Office and Standard Calibration Relationship

Serial Number : 2421
 Service Date : 27 Jan 2014
 Slope (m) : 2.06238
 Intercept (b) : -0.02415
 Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1017
 Ta(K) : 289

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1 18 holes	11.8	3.495	1.689	62	63.08
2 13 holes	9.6	3.152	1.522	54	54.94
3 10 holes	7.5	2.786	1.344	47	47.82
4 7 holes	4.9	2.252	1.085	36	36.63
5 5 holes	2.1	1.474	0.707	20	20.35

Sampler Calibration Relationship (Linear Regression)

Slope(m):43.166 Intercept(b): -10.234 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan

Date: 10/03/14



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jan 27, 2014 Rootsmeter S/N 0438320 Ta (K) - 293
 Operator Tisch Orifice I.D. - 2421 Pa (mm) - 754.38

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORIFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4360	3.2	2.00
2	NA	NA	1.00	1.0120	6.4	4.00
3	NA	NA	1.00	0.9090	7.9	5.00
4	NA	NA	1.00	0.8650	8.8	5.50
5	NA	NA	1.00	0.7140	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0052	0.7000	1.4209	0.9957	0.6934	0.8814
1.0010	0.9891	2.0095	0.9915	0.9798	1.2464
0.9989	1.0989	2.2467	0.9894	1.0885	1.3936
0.9977	1.1535	2.3564	0.9883	1.1426	1.4616
0.9925	1.3901	2.8419	0.9831	1.3769	1.7627
Qstd slope (m) = 2.06238			Qa slope (m) = 1.29142		
intercept (b) = -0.02415			intercept (b) = -0.01498		
coefficient (r) = 0.99994			coefficient (r) = 0.99994		

x axis = $\text{SQRT}[\text{H2O}(\text{Pa}/760)(298/\text{Ta})]$

y axis = $\text{SQRT}[\text{H2O}(\text{Ta}/\text{Pa})]$

CALCULATIONS

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

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

For subsequent flow rate calculations:

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



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
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 513.467.9000
 877.263.7610 TOLL FREE
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ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 24, 2014 Rootsmeter S/N 0438320 Ta (K) - 293
 Operator Tisch Orifice I.D. - 2454 Pa (mm) - 758.19

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	1.4740	3.2	2.00
2	NA	NA	1.00	1.0340	6.4	4.00
3	NA	NA	1.00	0.9240	7.9	5.00
4	NA	NA	1.00	0.8820	8.8	5.50
5	NA	NA	1.00	0.7270	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0103	0.6854	1.4245	0.9958	0.6755	0.8791
1.0061	0.9730	2.0146	0.9916	0.9590	1.2433
1.0040	1.0866	2.2524	0.9895	1.0709	1.3900
1.0028	1.1370	2.3623	0.9884	1.1206	1.4579
0.9976	1.3722	2.8491	0.9832	1.3524	1.7583
Qstd slope (m) = 2.07593			Qa slope (m) = 1.29991		
intercept (b) = -0.00102			intercept (b) = -0.00063		
coefficient (r) = 0.99996			coefficient (r) = 0.99996		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

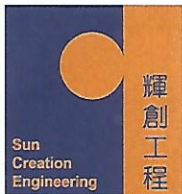
CALCULATIONS

Vstd = Diff. Vol [(Pa-Diff. Hg)/760] (298/Ta)
 Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
 Qa = Va/Time

For subsequent flow rate calculations:

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



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. : C143980

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-1497)

Date of Receipt / 收件日期 : 23 June 2014

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

Relative Humidity / 相對濕度 : (55 ± 20)%

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 28 June 2014

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

All results are within manufacturer's specification.

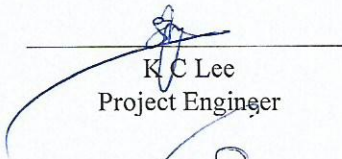
The results are detailed in the subsequent page(s).

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

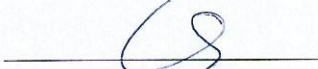
Tested By :

測試


K C Lee
Project Engineer

Certified By :

核證


K M Wu
Engineer

Date of Issue :

簽發日期

2 July 2014

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

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Sun Creation Engineering Limited - Calibration & Testing Laboratory

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輝創工程有限公司 - 校正及檢測實驗室

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Certificate of Calibration

校正證書

Certificate No. : C143980
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	C143868
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

- 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	0.987	1 kHz ± 2 %	± 1

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

Note :

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

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

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Certificate of Calibration

校正證書

Certificate No. : C144281
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-1719) Date of Receipt / 收件日期 : 11 July 2014
Description / 儀器名稱 : Precision Integrating Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-18
Serial No. / 編號 : 00360030
Supplied By / 委託者 : Envirotech Services Co.
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong


TEST CONDITIONS / 測試條件
Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

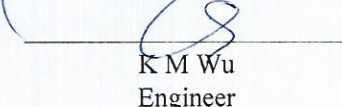
TEST SPECIFICATIONS / 測試規範
Calibration check

DATE OF TEST / 測試日期 : 19 July 2014

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
Project Engineer

Certified By : 
核證 : K M Wu
Engineer

Date of Issue : 23 July 2014
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. : C144281

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 was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

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

- 6.1.2 Linearity

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

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

- 6.2 Time Weighting

- 6.2.1 Continuous Signal

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

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Certificate No. : C144281

證書編號

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
50 - 110	LA	A	Fast	106.00	Continuous	106.0	Ref.
	LAmx				200 ms	105.1	-1.0 ± 1.0
	LA		Slow		Continuous	106.0	Ref.
	LAmx				500 ms	102.5	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

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

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 110	LC	C	Fast	94.00	31.5 Hz	90.9	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	94.0	-0.2 ± 1.0
					250 Hz	94.1	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

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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6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
50 - 110	LAeq	A	10 sec.	4	1	1/10	110	100	99.9	± 0.5
						1/10 ²		90	89.9	± 0.5
			60 sec.			1/10 ³		80	79.5	± 1.0 [*]
			5 min.			1/10 ⁴		70	69.8	± 1.0

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

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

- Uncertainties of Applied Value :

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

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

Note :

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

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Sun Creation Engineering Limited - Calibration & Testing Laboratory

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

輝創工程有限公司 - 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel 電話: 2927 2606

Fax 傳真: 2744 8986

E-mail 電郵: callab@suncreation.com

Website 網址: www.suncreation.com



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. : C143981

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-1497)

Date of Receipt / 收件日期 : 23 June 2014

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 check

DATE OF TEST / 測試日期 : 28 June 2014

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
Project Engineer

Certified By :

核證


K M Wu
Engineer

Date of Issue :

簽發日期

2 July 2014

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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輝創工程有限公司 – 校正及檢測實驗室

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Tel/電話: 2927 2606

Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C143981

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 was performed before the test.
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	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

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	93.7	± 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	93.7 (Ref.)
				104.00		103.7
				114.00		113.7

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

- 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	93.7	Ref.
			Slow			93.6	± 0.1

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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	102.0	-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	54.2	-39.4 ± 1.5
					63 Hz	67.5	-26.2 ± 1.5
					125 Hz	77.5	-16.1 ± 1.0
					250 Hz	85.0	-8.6 ± 1.0
					500 Hz	90.4	-3.2 ± 1.0
					1 kHz	93.7	Ref.
					2 kHz	94.9	+1.2 ± 1.0
					4 kHz	94.8	+1.0 ± 1.0
					8 kHz	92.6	-1.1 (+1.5; -3.0)
					12.5 kHz	89.7	-4.3 (+3.0; -6.0)

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	90.5	-3.0 ± 1.5
					63 Hz	92.8	-0.8 ± 1.5
					125 Hz	93.5	-0.2 ± 1.0
					250 Hz	93.6	0.0 ± 1.0
					500 Hz	93.7	0.0 ± 1.0
					1 kHz	93.7	Ref.
					2 kHz	93.6	-0.2 ± 1.0
					4 kHz	93.0	-0.8 ± 1.0
					8 kHz	90.7	-3.0 (+1.5; -3.0)
					12.5 kHz	87.9	-6.2 (+3.0; -6.0)

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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	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.

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 of Environmental Mitigation

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 minimise water quality impact from construction site runoffs and general construction activities	Contractor	All construction sites where practicable	Construction stage	<>

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

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

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

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

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>of suspended solids should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove oil, lubricants and grease from the wastewater.</p> <ul style="list-style-type: none"> • Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. The slurry should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities have been completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 					
S10.7.1	W3	<p><u>Sewage Effluent</u> 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
		<p>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.</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. 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	<p><u>On-site sorting of C&D (Construction and Demolition) 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 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
04-Aug-14	10:55	11:25	Cloudy	63.4	76.1	-(b)	-	Traffic noise	29	0.5	NL-18 00360030	NC-73 10997142
15-Aug-14	11:00	11:30	Sunny	64.1	76.1	-(b)	-	Traffic noise	30	0.5	NL-18 00360030	NC-73 10997142
21-Aug-14	11:00	11:30	Fine	62.9	76.1	-(b)	-	Traffic noise	27	0.5	NL-18 00360030	NC-73 10997142
27-Aug-14	11:00	11:30	Fine	63.9	76.1	-(b)	-	Traffic noise	30	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-7 Skytower Tower 2

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
04-Aug-14	9:55	10:25	Cloudy	66.9	70.0	-(b)	-	Traffic noise	29	0.5	NL-18 00360030	NC-73 10997142
15-Aug-14	9:55	10:25	Sunny	67.1	70.0	-(b)	-	Traffic noise	30	0.5	NL-18 00360030	NC-73 10997142
21-Aug-14	10:02	10:32	Fine	66.8	70.0	-(b)	-	Traffic noise	27	0.5	NL-18 00360030	NC-73 10997142
27-Aug-14	10:00	10:30	Fine	67.0	70.0	-(b)	-	Traffic noise	30	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-8 SKH Good Shepherd Primary School

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
04-Aug-14	14:16	14:46	Cloudy	80.5	75.4	78.9	-	Traffic noise	29	0.5	NL-31 00320533	NC-73 10997142
15-Aug-14	14:01	14:31	Sunny	80.5	75.4	78.9	-	Traffic noise	30	0.5	NL-31 00320533	NC-73 10997142
21-Aug-14	14:15	14:45	Fine	78.2	75.4	74.9	-	Traffic noise	27	0.5	NL-31 00320533	NC-73 10997142
27-Aug-14	14:13	14:43	Fine	79.3	75.4	77.0	-	Traffic noise	30	0.5	NL-31 00320533	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
04-Aug-14	8:00	8:30	Cloudy	75.4	69.2	74.2	Crane operation	Traffic noise	29	0.5	NL-18 00360030	NC-73 10997142
15-Aug-14	8:00	8:30	Sunny	74.1	69.2	72.4	Crane operation	Traffic noise	30	0.5	NL-18 00360030	NC-73 10997142
21-Aug-14	8:00	8:30	Fine	75.8	69.2	74.7	Crane operation	Traffic noise	27	0.5	NL-18 00360030	NC-73 10997142
27-Aug-14	8:00	8:30	Fine	75.7	69.2	74.6	Crane operation	Traffic noise	30	0.8	NL-18 00360030	NC-73 10997142

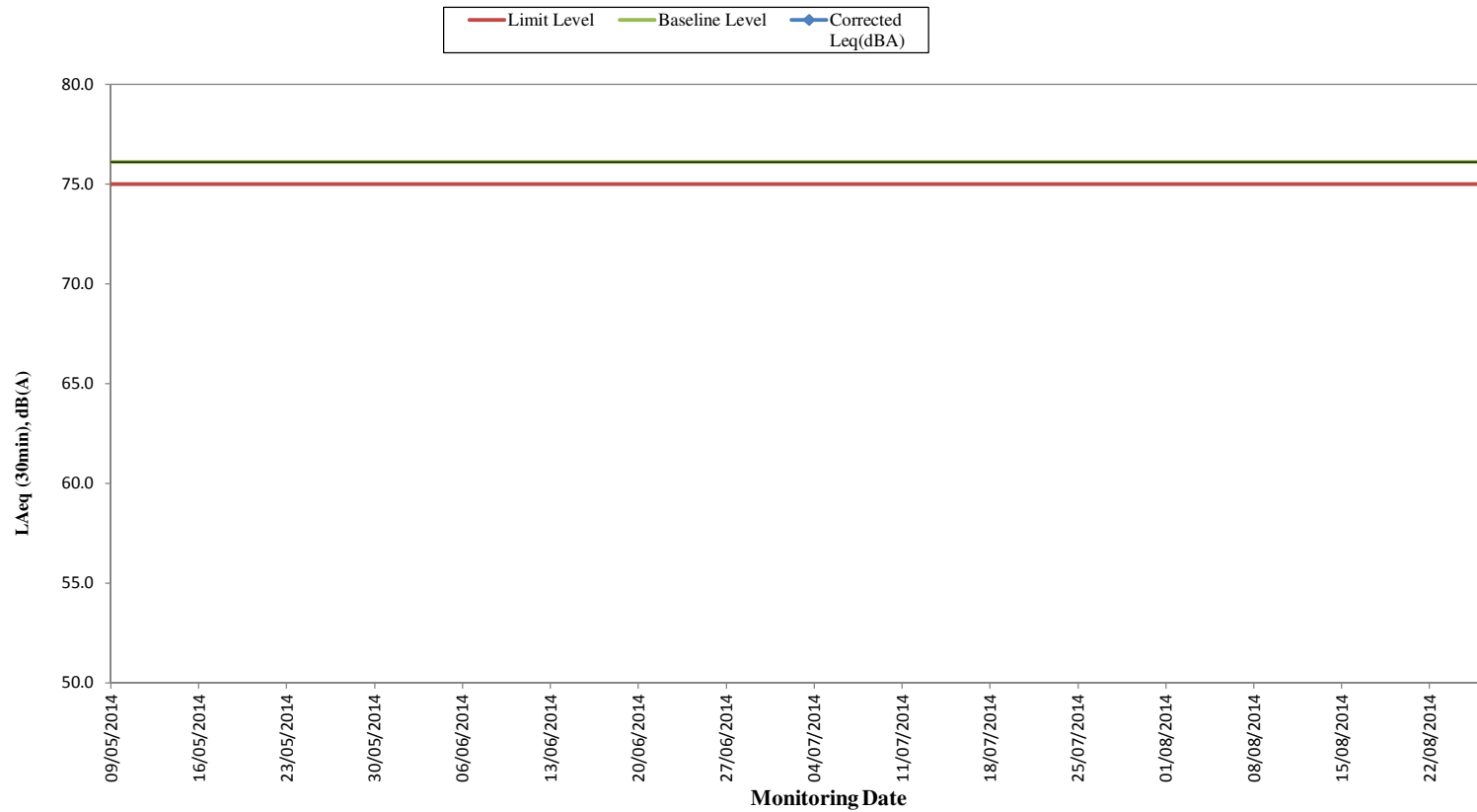
Station NMS-CA-10 Chat Ma Mansion

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min) ^(c)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
04-Aug-14	8:40	9:10	Cloudy	76.6	76.6	(b)	Backhoe	Traffic noise	29	0.5	NL-18 00360030	NC-73 10997142
15-Aug-14	8:40	9:10	Sunny	76.7	76.6	60.3	Backhoe	Traffic noise	30	0.5	NL-18 00360030	NC-73 10997142
21-Aug-14	8:40	9:10	Fine	76.9	76.6	65.1	Backhoe	Traffic noise	27	0.5	NL-18 00360030	NC-73 10997142
27-Aug-14	8:40	9:10	Fine	76.8	76.6	63.3	Backhoe	Traffic noise	30	0.5	NL-18 00360030	NC-73 10997142

Remarks:

- (a) The Measured LAeq is corrected against the corresponding Baseline Level.
- (b) No correction was made as the measured noise levels were equal to or below the baseline noise levels.
- (c) The noise monitoring results of the measurements carried out at NMS-CA-8 and on 4 and 15 August 2014 are higher than the daytime construction noise criterion. Furthermore, the noise monitoring results of the measurements carried out at NMS-CA-9 on 21 and 27 August 2014 are also higher than the daytime construction noise criterion. Meanwhile, the noise monitoring results carried out at NMS-CA-10 on 4, 15, 21 and 27 August 2014 are also higher than the daytime construction noise criterion. However, those results are not considered as exceedances as they are below the limit level after deducting the baseline noise level.

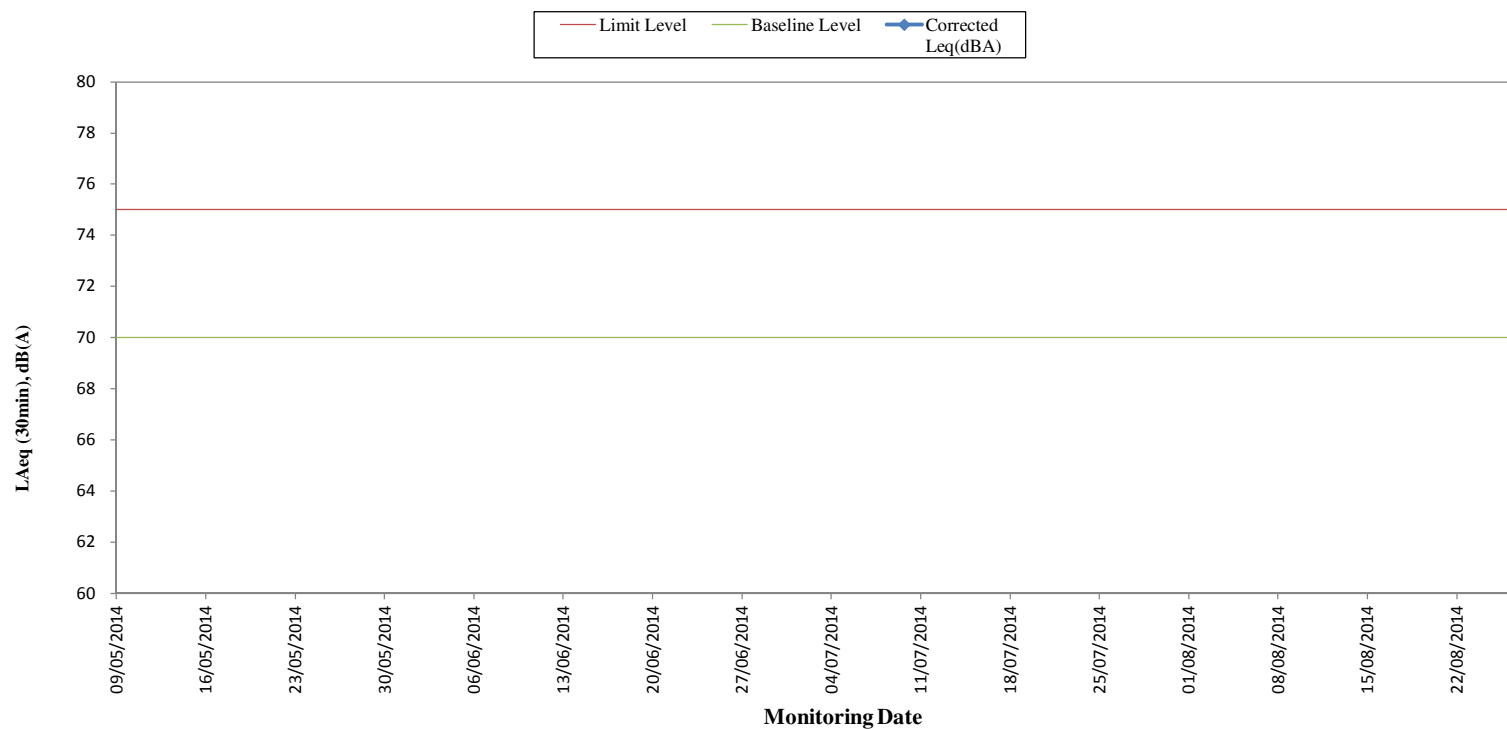
Regular Noise Monitoring Results at NMS-CA-6 (No. 16-23 Nam Kok Road) (LAeq, 30min) for the Past 4 Months



Remarks:

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

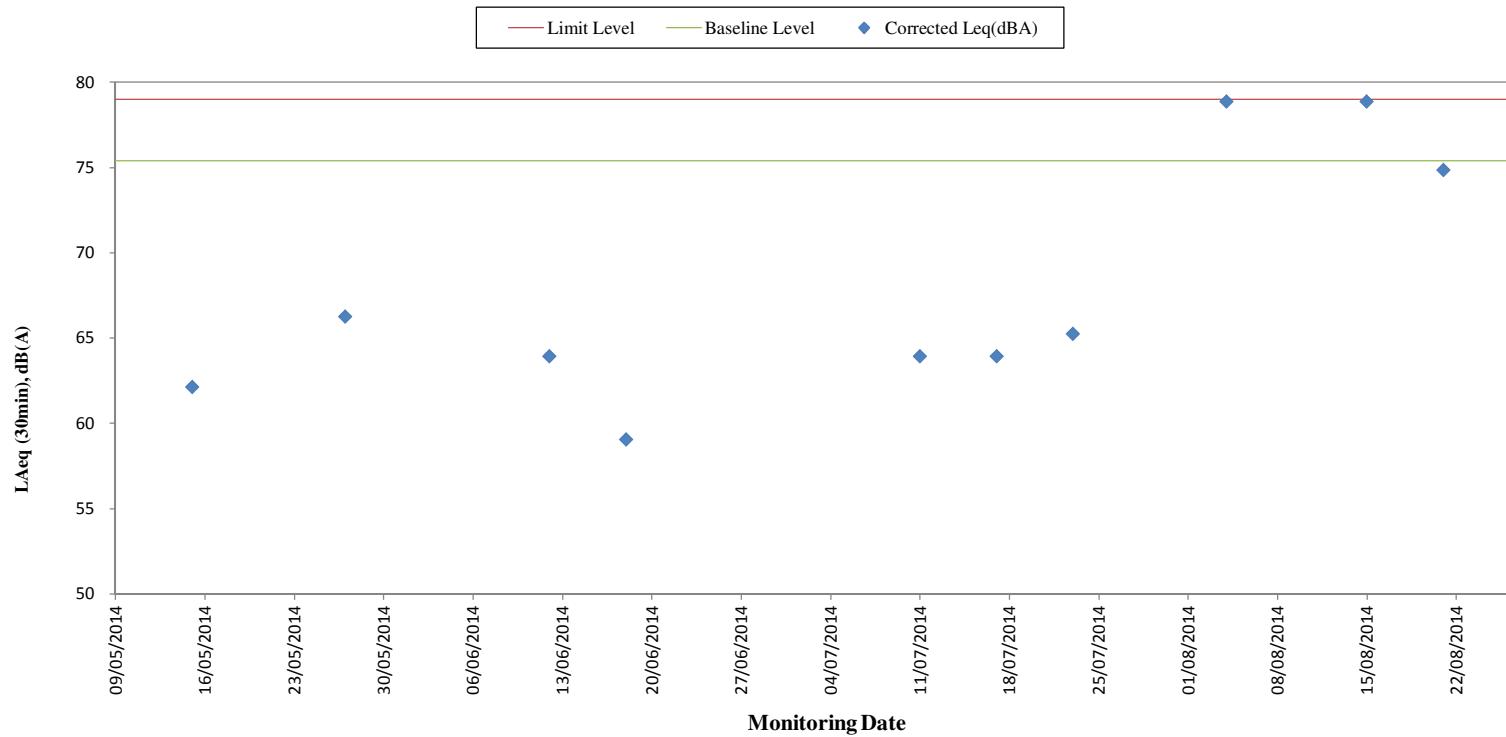
Regular Noise Monitoring Results at NMS-CA-7 (Skytower Tower 2) (LAeq, 30min) for the Past 4 Months



Remarks:

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

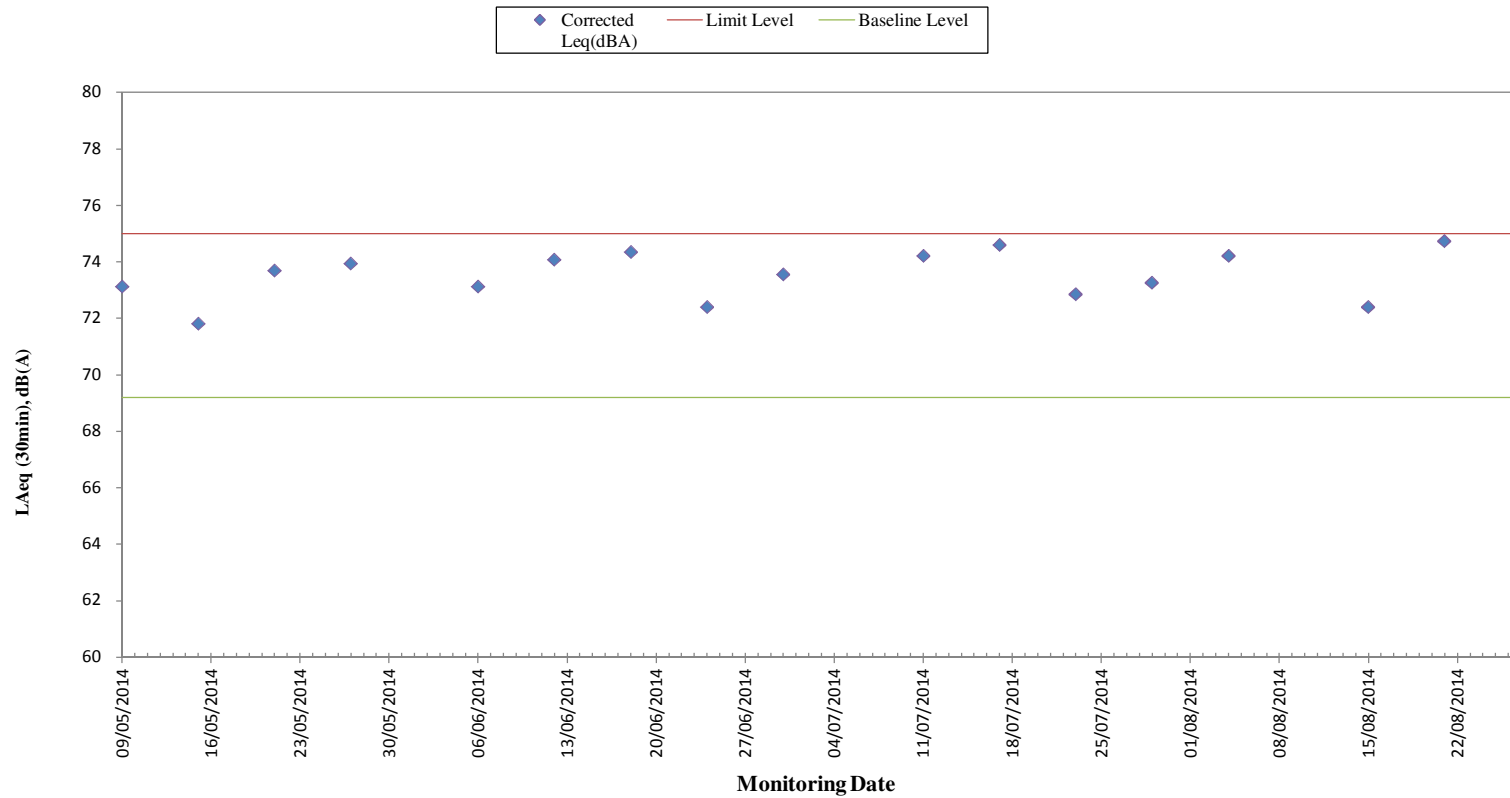
**Regular Noise Monitoring Results at NMS-CA- 8 (SKH Good Shepherd Primary School)
(LAeq, 30min) for the Past 4 Months**



Remarks:

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

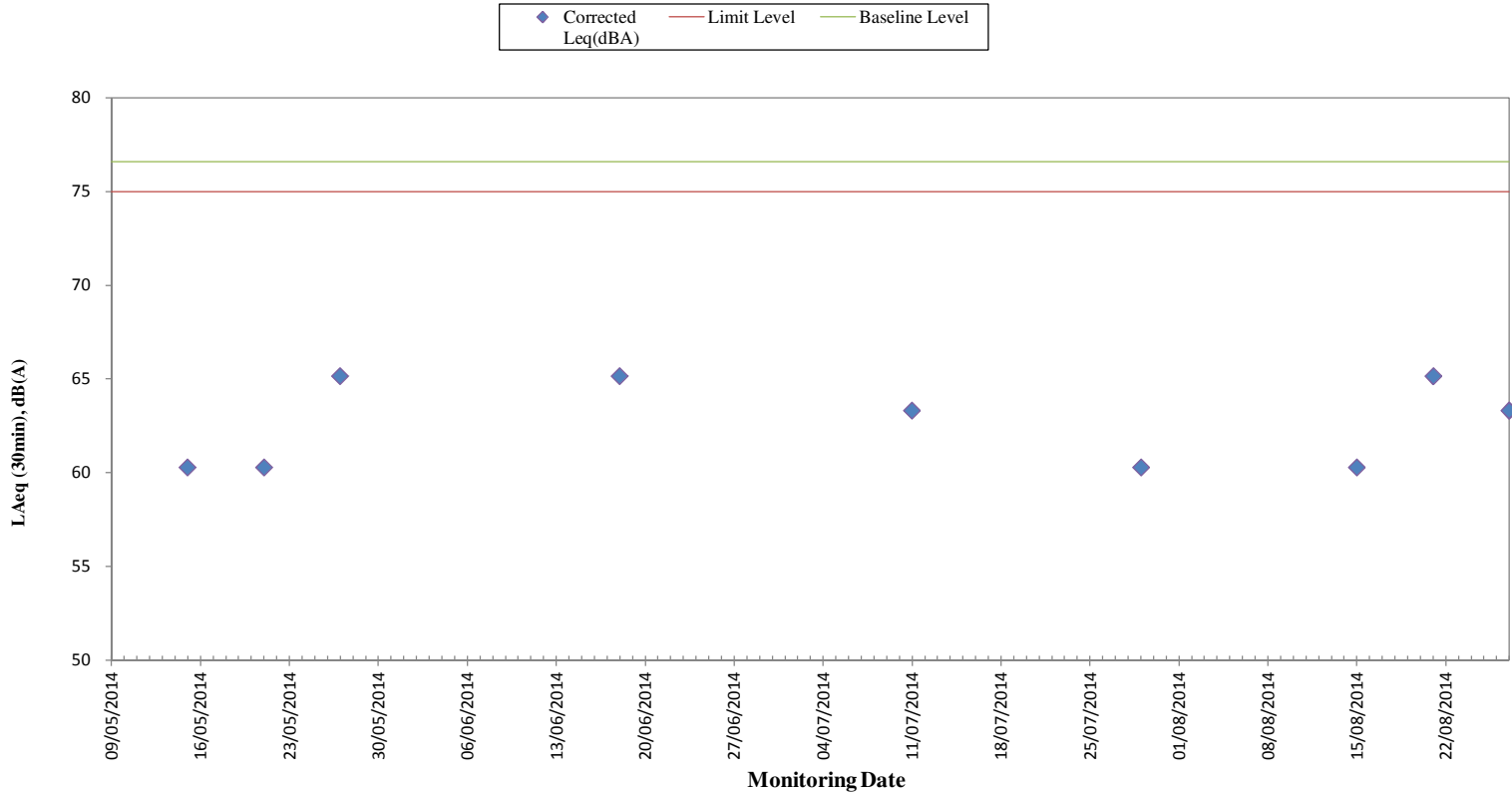
Regular Noise Monitoring Results at NMS-CA-9 (Kong Yiu Mansion) (L_{Aeq}, 30min) for the Past 4 Months



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-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	Date	Hour	Minutes	Measured LAeq,30m	Baseline Lev	Corrected Results	Action/Limit	Exceedance	
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	7 0	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	7 30	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	8 0	77.0	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	8 30	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	9 0	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	9 30	79.4	75.4	77.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	10 0	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	10 30	80.0	75.4	78.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	11 0	80.9	75.4	79.5	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	11 30	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	12 0	76.0	75.4	67.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	12 30	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	13 0	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	13 30	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	14 0	84.4	75.4	83.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	14 30	82.0	75.4	80.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	15 0	78.2	75.4	75	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	15 30	79.5	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	16 0	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	16 30	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	17 0	79.4	75.4	77.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	17 30	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	18 0	76.4	75.4	69.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	1	18 30	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	7 0	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	7 30	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	8 0	79.7	75.4	77.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	8 30	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	9 0	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	9 30	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	10 0	81.1	75.4	79.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	10 30	80.4	75.4	78.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	11 0	80.2	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	11 30	77.2	75.4	72.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	12 0	75.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	12 30	75.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	13 0	78.0	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	13 30	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	14 0	80.4	75.4	78.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	14 30	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	15 0	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	15 30	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	16 0	80.6	75.4	79	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	16 30	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	17 0	80.3	75.4	78.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	17 30	79.3	75.4	77	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	18 0	75.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	2	18 30	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	7 0	76.5	75.4	70	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	7 30	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	8 0	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	8 30	78.2	75.4	75	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	9 0	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	9 30	81.6	75.4	80.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	10 16	79.9	75.4	77.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	10 46	80.8	75.4	79.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	11 16	81.8	75.4	80.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	11 46	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	12 16	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	12 46	79.3	75.4	77	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	13 16	81.0	75.4	79.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	13 46	82.2	75.4	81.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	14 16	80.5	75.4	78.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	14 46	81.4	75.4	80.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	15 16	81.5	75.4	80.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	15 46	82.6	75.4	81.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	16 16	79.5	75.4	77.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	16 46	80.1	75.4	78.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	17 16	79.7	75.4	77.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	17 46	80.2	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	18 16	77.6	75.4	73.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	4	18 46	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	6 46	76.4	75.4	69.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	7 16	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	7 46	78.1	75.4	74.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	8 16	81.8	75.4	80.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	8 46	80.8	75.4	79.3	79	N

Location ID	Name	Date	Hour	Minutes	Measured LAeq,30m	Baseline Lev	Corrected Results	Action/Limit	Exceedance	
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	9 16	77.6	75.4	73.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	9 46	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	10 16	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	10 46	79.7	75.4	77.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	11 16	77.6	75.4	73.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	11 46	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	12 16	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	12 46	75.9	75.4	66.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	13 16	76.8	75.4	71.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	13 46	77.1	75.4	72.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	14 16	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	14 46	79.9	75.4	78	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	15 16	81.3	75.4	80.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	15 46	81.8	75.4	80.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	16 16	82.2	75.4	81.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	16 46	82.3	75.4	81.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	17 16	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	17 46	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	18 16	78.0	75.4	74.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	5	18 46	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	6 56	76.3	75.4	69	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	7 26	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	7 56	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	8 26	81.5	75.4	80.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	8 56	80.8	75.4	79.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	9 26	79.5	75.4	77.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	9 56	80.9	75.4	79.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	10 26	80.9	75.4	79.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	10 56	79.7	75.4	77.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	11 26	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	11 56	75.8	75.4	65.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	12 26	76.5	75.4	70.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	12 56	79.4	75.4	77.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	13 26	80.6	75.4	79	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	13 56	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	14 26	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	14 56	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	15 26	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	15 56	78.0	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	16 26	78.0	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	16 56	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	17 26	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	17 56	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	18 26	75.6	75.4	61.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	6	18 56	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	6 46	76.2	75.4	68.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	7 16	78.9	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	7 46	80.1	75.4	78.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	8 16	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	8 46	80.5	75.4	78.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	9 16	79.4	75.4	77.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	9 46	79.0	75.4	76.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	10 16	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	10 46	77.9	75.4	74.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	11 16	77.2	75.4	72.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	11 46	76.3	75.4	68.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	12 16	76.5	75.4	70	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	12 46	79.2	75.4	76.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	13 16	79.5	75.4	77.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	13 46	80.6	75.4	79	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	14 52	80.3	75.4	78.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	15 22	80.3	75.4	78.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	15 52	82.1	75.4	81.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	16 22	81.1	75.4	79.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	16 52	81.1	75.4	79.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	17 22	77.0	75.4	72.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	17 52	77.1	75.4	72.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	18 22	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	7	18 52	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	6 52	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	7 22	78.2	75.4	75.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	7 52	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	8 22	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	8 52	76.8	75.4	71.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	9 22	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	9 52	80.5	75.4	78.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	10 22	77.6	75.4	73.5	79	N

Location ID	Name	Date	Hour	Minutes	Measured LAeq,30m	Baseline Lev	Corrected Results	Action/Limit	Exceedance	
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	10 52	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	11 22	77.0	75.4	72.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	11 52	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	12 22	76.1	75.4	67.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	12 52	79.4	75.4	77.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	13 22	80.5	75.4	78.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	13 52	79.7	75.4	77.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	14 22	77.6	75.4	73.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	14 52	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	15 22	79.4	75.4	77.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	15 52	79.2	75.4	76.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	16 22	78.6	75.4	75.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	16 52	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	17 22	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	17 52	77.5	75.4	73.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	18 22	75.6	75.4	62.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	8	18 52	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	6 52	74.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	7 22	77.7	75.4	73.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	7 52	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	8 22	78.6	75.4	75.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	8 52	77.2	75.4	72.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	9 22	77.7	75.4	73.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	9 52	78.3	75.4	75.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	10 22	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	10 52	78.7	75.4	76.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	11 22	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	11 52	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	12 22	75.6	75.4	62.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	12 52	78.2	75.4	75.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	13 22	80.4	75.4	78.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	13 52	79.2	75.4	76.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	14 22	79.1	75.4	76.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	14 52	77.8	75.4	74.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	15 22	77.5	75.4	73.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	15 52	78.3	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	16 22	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	16 52	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	17 22	76.4	75.4	69.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	17 52	75.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	18 22	74.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	9	18 52	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	6 52	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	7 22	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	7 52	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	8 22	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	8 52	78.1	75.4	74.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	9 22	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	9 52	80.3	75.4	78.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	10 22	77.8	75.4	74.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	10 52	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	11 22	78.2	75.4	75.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	11 52	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	12 22	75.6	75.4	61.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	13 27	79.4	75.4	77.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	13 57	79.6	75.4	77.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	14 27	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	14 57	81.6	75.4	80.5	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	15 27	80.8	75.4	79.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	15 57	79.5	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	16 27	80.1	75.4	78.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	16 57	79.1	75.4	76.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	17 27	78.9	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	17 57	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	18 27	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	11	18 57	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12	6 57	75.9	75.4	66.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12	7 27	78.0	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12	7 57	76.7	75.4	70.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12	8 27	78.1	75.4	74.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12	8 57	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12	9 27	79.6	75.4	77.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12	9 57	79.8	75.4	77.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12	10 27	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12	10 57	78.4	75.4	75.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12	11 27	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12	11 57	75.5	75.4	56.6	79	N

Location ID	Name	Date	Hour	Minutes	Measured LAeq,30m	Baseline Lev	Corrected Results	Action/Limit	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 12 27	77.5	75.4	73.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 12 57	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 13 27	78.9	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 13 57	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 14 27	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 14 57	78.3	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 15 27	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 15 57	79.1	75.4	76.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 16 27	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 16 57	78.9	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 17 27	79.0	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 17 57	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 18 27	78.3	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	12 18 57	77.6	75.4	73.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 6 57	76.9	75.4	71.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 7 27	79.1	75.4	76.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 7 57	79.5	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 8 27	79.5	75.4	77.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 8 57	79.4	75.4	77.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 9 27	80.2	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 9 57	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 10 27	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 10 57	77.8	75.4	74.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 11 27	77.8	75.4	74.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 11 57	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 12 27	75.9	75.4	66.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 12 57	76.2	75.4	68.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 13 27	77.4	75.4	73.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 13 57	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 14 27	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 14 57	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 15 27	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 15 57	78.0	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 16 27	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 16 57	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 17 27	77.1	75.4	72.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 17 57	75.9	75.4	66.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 18 27	75.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	13 18 57	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 6 57	75.7	75.4	63.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 7 27	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 7 57	78.4	75.4	75.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 8 27	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 8 57	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 9 27	78.7	75.4	76.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 10 31	79.5	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 11 1	77.7	75.4	73.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 11 31	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 12 1	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 12 31	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 13 1	79.4	75.4	77.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 13 31	81.7	75.4	80.5	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 14 1	80.2	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 14 31	80.9	75.4	79.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 15 1	80.4	75.4	78.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 15 31	81.2	75.4	79.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 16 1	80.8	75.4	79.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 16 31	82.2	75.4	81.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 17 1	80.4	75.4	78.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 17 31	80.8	75.4	79.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 18 1	79.1	75.4	76.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	14 18 31	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 6 31	74.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 7 1	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 7 31	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 8 1	80.7	75.4	79.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 8 31	80.3	75.4	78.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 9 1	79.7	75.4	77.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 9 31	80.2	75.4	78.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 10 1	81.4	75.4	80.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 10 31	81.4	75.4	80.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 11 1	81.3	75.4	80.0	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 11 31	78.3	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 12 1	76.4	75.4	69.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 12 31	76.8	75.4	71.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 13 1	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 13 31	80.2	75.4	78.5	79	N

Location ID	Name	Date	Hour	Minutes	Measured LAeq,30m	Baseline Lev	Corrected Results	Action/Limit	Exceedance
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 14 1	80.5	75.4	78.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 14 31	80.9	75.4	79.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 15 1	80.0	75.4	78.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 15 31	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 16 1	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 16 31	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 17 1	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 17 31	79.4	75.4	77.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 18 1	79.4	75.4	77.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	15 18 31	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 6 31	73.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 7 1	78.0	75.4	74.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 7 31	79.8	75.4	77.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 8 1	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 8 31	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 9 1	79.8	75.4	77.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 9 31	80.2	75.4	78.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 10 1	79.3	75.4	77.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 10 31	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 11 1	80.6	75.4	79.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 11 31	79.5	75.4	77.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 12 1	75.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 12 31	76.2	75.4	68.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 13 1	78.7	75.4	76.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 13 31	79.9	75.4	78.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 14 1	78.0	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 14 31	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 15 1	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 15 31	79.3	75.4	77.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 16 1	80.9	75.4	79.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 16 31	81.2	75.4	79.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 17 1	81.8	75.4	80.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 17 31	81.4	75.4	80.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 18 1	78.2	75.4	75.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	16 18 31	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 6 31	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 7 1	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 7 31	80.3	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 8 1	80.9	75.4	79.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 8 31	80.3	75.4	78.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 9 1	80.2	75.4	78.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 9 31	79.9	75.4	78.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 10 1	77.5	75.4	73.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 10 31	78.6	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 11 1	77.5	75.4	73.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 11 31	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 12 1	78.0	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 12 45	77.2	75.4	72.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 13 15	81.8	75.4	80.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 13 45	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 14 15	81.5	75.4	80.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 14 45	80.5	75.4	78.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 15 15	81.2	75.4	79.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 15 45	81.3	75.4	80.0	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 16 15	77.9	75.4	74.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 16 45	78.3	75.4	75.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 17 15	79.5	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 17 45	79.7	75.4	77.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 18 15	79.6	75.4	77.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	18 18 45	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 6 45	76.0	75.4	67.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 7 15	78.7	75.4	76.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 7 45	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 8 15	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 8 45	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 9 15	79.5	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 9 45	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 10 15	80.5	75.4	78.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 10 45	79.5	75.4	77.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 11 15	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 11 45	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 12 15	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 12 45	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 13 15	80.6	75.4	79.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 13 45	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 14 15	78.7	75.4	76.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19 14 45	79.2	75.4	76.9	79	N

Location ID	Name	Date	Hour	Minutes	Measured LAeq,30m	Baseline Lev	Corrected Results	Action/Limit	Exceedance		
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19	15	15	78.2	75.4	75.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19	15	45	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19	16	15	78.4	75.4	75.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19	16	45	79.8	75.4	77.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19	17	15	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19	17	45	79.6	75.4	77.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19	18	15	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	19	18	45	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	6	45	76.3	75.4	69.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	7	15	79.6	75.4	77.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	7	45	80.1	75.4	78.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	8	15	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	8	45	79.6	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	9	15	80.0	75.4	78.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	9	45	80.4	75.4	78.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	10	15	80.9	75.4	79.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	10	45	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	11	15	80.3	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	11	45	78.9	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	12	15	77.3	75.4	72.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	12	45	79.5	75.4	77.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	13	15	79.9	75.4	78.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	13	45	79.2	75.4	76.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	14	15	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	14	45	79.7	75.4	77.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	15	15	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	15	45	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	16	15	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	16	45	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	17	15	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	17	45	78.5	75.4	75.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	18	15	77.1	75.4	72.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	20	18	45	75.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	6	45	75.5	75.4	56.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	7	15	80.3	75.4	78.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	7	45	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	8	15	81.0	75.4	79.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	8	45	79.3	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	9	15	77.0	75.4	71.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	9	45	83.7	75.4	83.0	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	10	15	83.2	75.4	82.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	10	45	81.8	75.4	80.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	11	15	80.3	75.4	78.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	11	45	76.0	75.4	67.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	12	15	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	12	45	76.5	75.4	70.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	13	15	77.1	75.4	72.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	13	45	76.8	75.4	71.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	14	15	78.2	75.4	74.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	14	45	76.5	75.4	70.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	15	15	77.8	75.4	74.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	16	7	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	16	37	76.9	75.4	71.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	17	7	76.6	75.4	70.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	17	37	76.2	75.4	68.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	18	7	75.5	75.4	60.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	21	18	37	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	6	37	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	7	7	75.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	7	37	76.0	75.4	67.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	8	7	76.0	75.4	67.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	8	37	76.4	75.4	69.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	9	7	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	9	37	77.7	75.4	73.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	10	7	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	10	37	76.5	75.4	70.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	11	7	77.5	75.4	73.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	11	37	76.0	75.4	67.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	12	7	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	12	37	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	13	7	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	13	37	80.1	75.4	78.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	14	7	83.7	75.4	83.0	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	14	37	83.4	75.4	82.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	15	7	77.1	75.4	72.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	15	37	77.3	75.4	72.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	16	7	77.2	75.4	72.6	79	N

Location ID	Name	Date	Hour	Minutes	Measured LAeq,30m	Baseline Lev	Corrected Results	Action/Limit	Exceedance		
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	16	37	79.0	75.4	76.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	17	7	78.2	75.4	75.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	17	37	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	18	7	77.4	75.4	73.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	22	18	37	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	6	37	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	7	7	77.6	75.4	73.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	7	37	78.1	75.4	74.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	8	7	78.3	75.4	75.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	8	37	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	9	7	78.9	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	9	37	79.3	75.4	77.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	10	7	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	10	37	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	11	7	78.9	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	11	37	77.0	75.4	72.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	12	7	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	12	37	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	13	7	81.8	75.4	80.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	13	37	82.1	75.4	81.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	14	7	82.0	75.4	81.0	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	14	37	80.8	75.4	79.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	15	7	81.7	75.4	80.5	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	15	37	84.9	75.4	84.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	16	7	80.3	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	16	37	80.4	75.4	78.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	17	7	78.3	75.4	75.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	17	37	75.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	18	7	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	23	18	37	73.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	6	37	73.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	7	7	78.0	75.4	74.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	7	37	78.5	75.4	75.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	8	7	83.6	75.4	82.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	8	37	84.8	75.4	84.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	9	7	83.2	75.4	82.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	9	37	79.2	75.4	76.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	10	7	84.2	75.4	83.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	10	37	80.6	75.4	79.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	11	7	81.2	75.4	79.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	11	37	75.9	75.4	66.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	12	7	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	12	37	77.4	75.4	73.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	13	7	79.3	75.4	77.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	13	37	81.7	75.4	80.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	14	7	80.5	75.4	78.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	14	43	80.2	75.4	78.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	15	13	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	15	43	82.1	75.4	81.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	16	13	81.8	75.4	80.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	16	43	81.9	75.4	80.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	17	13	78.1	75.4	74.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	17	43	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	18	13	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	25	18	43	75.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	6	43	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	7	13	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	7	43	82.6	75.4	81.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	8	13	84.0	75.4	83.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	8	43	82.9	75.4	82.0	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	9	13	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	9	43	79.9	75.4	78.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	10	13	79.6	75.4	77.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	10	43	83.2	75.4	82.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	11	13	81.9	75.4	80.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	11	43	78.0	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	12	13	77.1	75.4	72.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	12	43	81.2	75.4	79.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	13	13	82.3	75.4	81.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	13	43	81.4	75.4	80.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	14	13	81.2	75.4	79.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	14	43	79.4	75.4	77.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	15	13	81.3	75.4	80.0	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	15	43	80.8	75.4	79.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	16	13	80.1	75.4	78.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	16	43	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	17	13	78.6	75.4	75.8	79	N

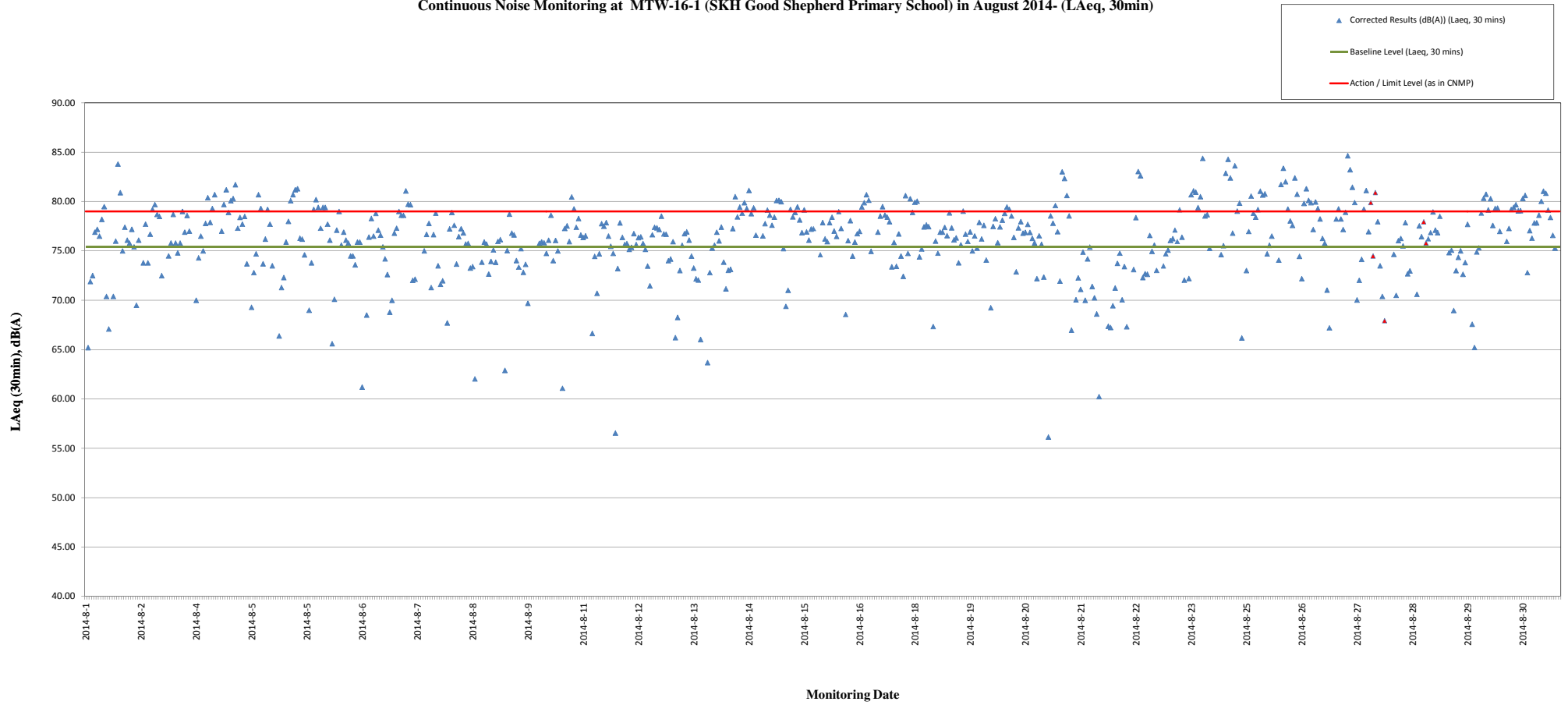
Location ID	Name	Date	Hour	Minutes	Measured LAeq,30m	Baseline Lev	Corrected Results	Action/Limit	Exceedance		
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	17	43	76.8	75.4	71.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	18	13	76.0	75.4	67.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	26	18	43	74.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	6	43	74.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	7	13	80.1	75.4	78.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	7	43	80.8	75.4	79.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	8	13	80.1	75.4	78.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	8	43	79.4	75.4	77.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	9	13	80.5	75.4	78.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	9	43	85.1	75.4	84.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	10	13	83.9	75.4	83.2	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	10	43	82.4	75.4	81.5	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	11	13	81.2	75.4	79.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	11	43	76.5	75.4	70.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	12	13	77.0	75.4	72.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	12	43	77.8	75.4	74.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	13	13	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	13	43	82.2	75.4	81.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	14	13	79.3	75.4	77.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	14	43	81.2	75.4	79.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	15	13	78.0	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	15	43	82.0	75.4	80.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	16	13	79.9	75.4	78.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	16	43	77.6	75.4	73.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	17	13	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	17	43	76.1	75.4	67.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	18	13	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	27	18	43	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	6	43	74.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	7	13	78.1	75.4	74.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	7	43	76.6	75.4	70.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	8	13	78.7	75.4	76.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	8	43	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	9	13	78.5	75.4	75.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	9	43	79.8	75.4	77.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	10	13	77.3	75.4	72.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	11	14	77.4	75.4	73.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	11	44	74.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	12	14	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	12	44	76.6	75.4	70.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	13	14	79.6	75.4	77.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	13	44	79.0	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	14	14	79.9	75.4	77.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	14	44	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	15	14	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	15	44	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	16	14	80.5	75.4	79.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	16	44	79.3	75.4	77.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	17	14	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	17	44	80.2	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	18	14	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	28	18	44	74.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	6	44	73.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	7	14	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	7	44	78.3	75.4	75.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	8	14	76.3	75.4	69.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	8	44	77.4	75.4	73.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	9	14	77.9	75.4	74.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	9	44	78.2	75.4	75.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	10	14	77.2	75.4	72.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	10	44	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	11	14	79.7	75.4	77.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	11	44	74.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	12	14	76.1	75.4	67.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	12	44	75.8	75.4	65.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	13	14	78.2	75.4	74.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	13	44	78.4	75.4	75.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	14	14	80.5	75.4	78.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	14	44	81.6	75.4	80.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	15	14	81.9	75.4	80.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	15	44	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	16	14	81.5	75.4	80.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	16	44	79.6	75.4	77.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	17	14	80.8	75.4	79.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	17	44	80.8	75.4	79.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	18	14	79.3	75.4	77.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	29	18	44	73.8	75.4	<Baseline Level	79	N

Location ID	Name	Date	Hour	Minutes	Measured LAeq,30m	Baseline Lev	Corrected Results	Action/Limit	Exceedance	
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	6 44	75.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	7 14	78.7	75.4	76.0	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	7 44	79.4	75.4	77.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	8 14	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	8 44	80.9	75.4	79.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	9 14	81.1	75.4	79.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	9 44	80.6	75.4	79.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	10 14	80.6	75.4	79.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	10 44	81.5	75.4	80.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	11 14	81.8	75.4	80.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	11 44	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	12 14	79.3	75.4	77.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	12 44	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	13 14	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	13 44	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	14 14	80.3	75.4	78.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	14 44	81.3	75.4	80.0	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	15 14	82.1	75.4	81.0	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	15 44	81.9	75.4	80.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	16 14	80.7	75.4	79.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	16 44	80.2	75.4	78.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	17 14	79.0	75.4	76.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	17 44	78.4	75.4	75.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	18 14	73.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2014	8	30	18 44	73.1	75.4	<Baseline Level	79	N

Note:

Baseline corrected level (79.5 dB(A)) recorded on 15 August (14:31); 18 August 2014 (08:01) and 20 August 2014(10:15) are not considered as exceedances as when taking into account more significant figures, the corrected levels are 79.46 dB(A); 79.49 dB(A); and 79.46 dB(A) respectively for the aforementioned dates. These values are lower than 79.5 dB(A) and therefore not regarded as exceedances.

Continuous Noise Monitoring at MTW-16-1 (SKH Good Shepherd Primary School) in August 2014- (L_{Aeq}, 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							
04-Aug-14	10:40	05-Aug-14	10:40	Cloudy	2.7346	2.8661	13016.30	13040.30	24.00	1.33	1.33	1.33	69	156.8	260	-	0107	3923
09-Aug-14	8:45	10-Aug-14	8:45	Sunny	2.7380	2.8966	13040.30	13064.30	24.00	1.33	1.33	1.33	83	156.8	260	-	0107	3966
15-Aug-14	10:40	16-Aug-14	10:40	Sunny	2.7336	2.9015	13064.30	13088.30	24.00	1.33	1.33	1.33	88	156.8	260	-	0107	3983
21-Aug-14	10:45	22-Aug-14	10:45	Fine	2.7107	2.8600	13088.30	13112.30	24.00	1.33	1.33	1.33	78	156.8	260	-	0107	4106
27-Aug-14	10:45	28-Aug-14	10:45	Fine	2.7191	2.8711	13112.30	13136.30	24.00	1.33	1.33	1.33	79	156.8	260	-	0107	4123
													Minimum	69				
													Average	79				
													Maximum	88				

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							
04-Aug-14	9:45	05-Aug-14	9:45	Cloudy	2.7362	2.8686	3203.17	3227.17	24.00	1.25	1.25	1.25	74	166.7	260	-	3574	3922
09-Aug-14	8:40	10-Aug-14	8:40	Sunny	2.7362	2.9102	3227.17	3251.17	24.00	1.25	1.25	1.25	97	166.7	260	-	3574	3965
15-Aug-14	9:45	16-Aug-14	9:45	Sunny	2.7384	2.8966	3251.17	3275.17	24.00	1.25	1.25	1.25	88	166.7	260	-	3574	3982
21-Aug-14	9:50	22-Aug-14	9:50	Fine	2.7220	2.8449	3275.17	3299.17	24.00	1.25	1.25	1.25	68	166.7	260	-	3574	4105
27-Aug-14	9:45	28-Aug-14	9:45	Fine	2.7339	2.8680	3299.17	3323.17	24.00	1.25	1.25	1.25	74	166.7	260	-	3574	4122
													Minimum	68				
													Average	80				
													Maximum	97				

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							
04-Aug-14	9:30	05-Aug-14	9:30	Cloudy	2.7423	2.8871	3163.11	3187.11	24.00	1.24	1.24	1.24	81	152.2	260	-	3572	3920
09-Aug-14	8:25	10-Aug-14	8:25	Sunny	2.7397	2.9066	3187.11	3211.11	24.00	1.24	1.24	1.24	93	152.2	260	-	3572	3964
15-Aug-14	9:30	16-Aug-14	9:30	Sunny	2.7417	2.9048	3211.11	3235.11	24.00	1.24	1.24	1.24	91	152.2	260	-	3572	3981
21-Aug-14	9:35	22-Aug-14	9:35	Fine	2.7249	2.8441	3235.11	3259.11	24.00	1.24	1.24	1.24	67	152.2	260	-	3572	4104
27-Aug-14	9:30	28-Aug-14	9:30	Fine	2.7306	2.8871	3259.11	3283.11	24.00	1.24	1.24	1.24	88	152.2	260	-	3572	4121
													Minimum	67				
													Average	84				
													Maximum	93				

Station DMS-9 No. 12 Pau Chung Street

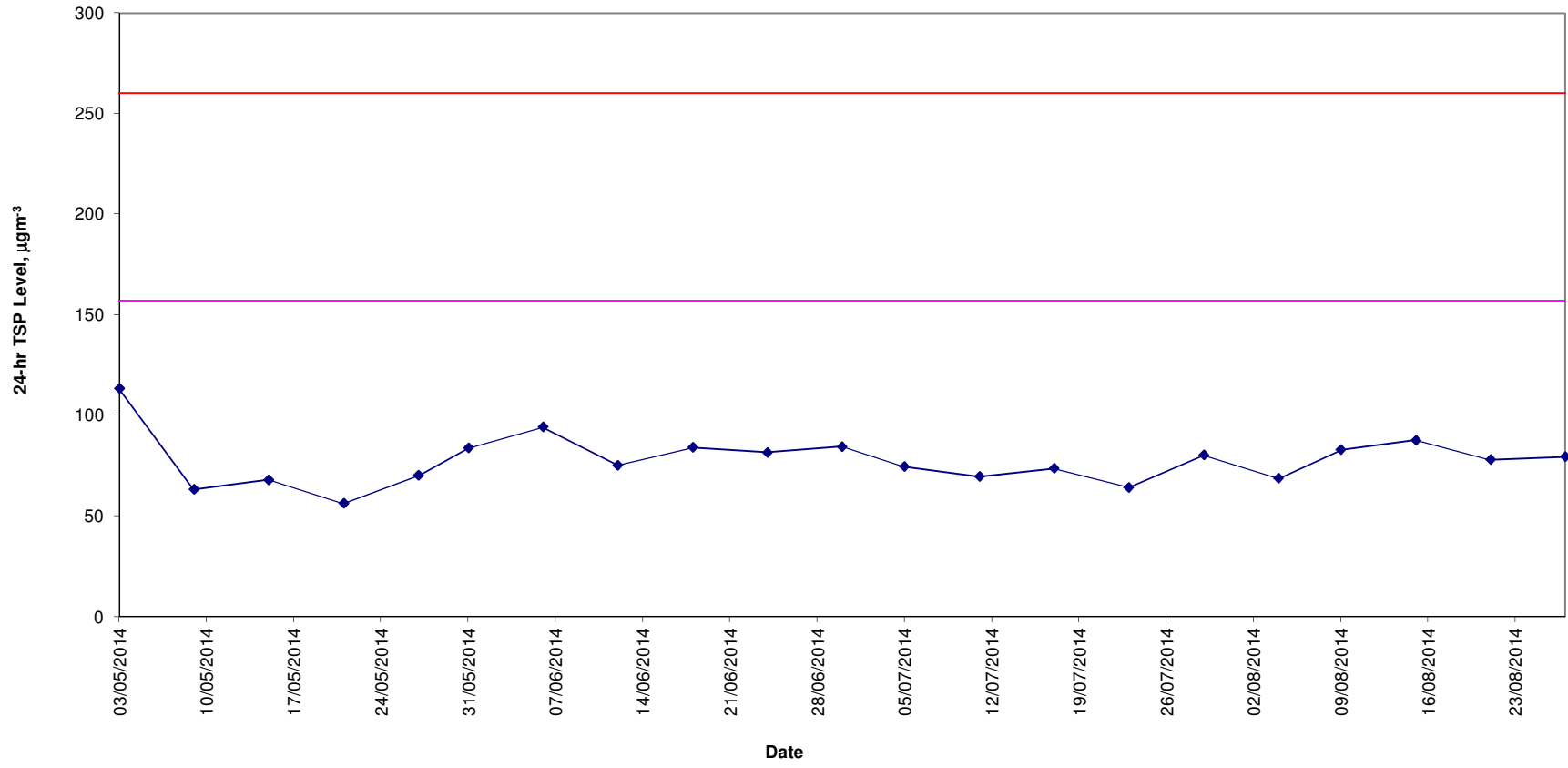
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
04-Aug-14	9:22	05-Aug-14	9:22	Cloudy	2.7565	2.9006	13449.40	13473.40	24.00	1.22	1.22	1.22	82	160.9	260	-	0814	3921
09-Aug-14	8:15	10-Aug-14	8:15	Sunny	2.7334	2.9088	13473.40	13497.40	24.00	1.22	1.22	1.22	100	160.9	260	-	0814	3963
15-Aug-14	9:22	16-Aug-14	9:22	Sunny	2.7495	2.8960	13497.40	13521.40	24.00	1.22	1.22	1.22	83	160.9	260	-	0814	3980
21-Aug-14	9:25	22-Aug-14	9:25	Fine	2.7184	2.8511	13521.40	13545.40	24.00	1.22	1.22	1.22	76	160.9	260	-	0814	4103
27-Aug-14	9:20	28-Aug-14	9:20	Fine	2.7209	2.8600	13545.40	13569.40	24.00	1.22	1.22	1.22	79	160.9	260	-	0814	4120
													Minimum	76				
													Average	84				
													Maximum	100				

Station DMS-10 Chat Ma Mansion

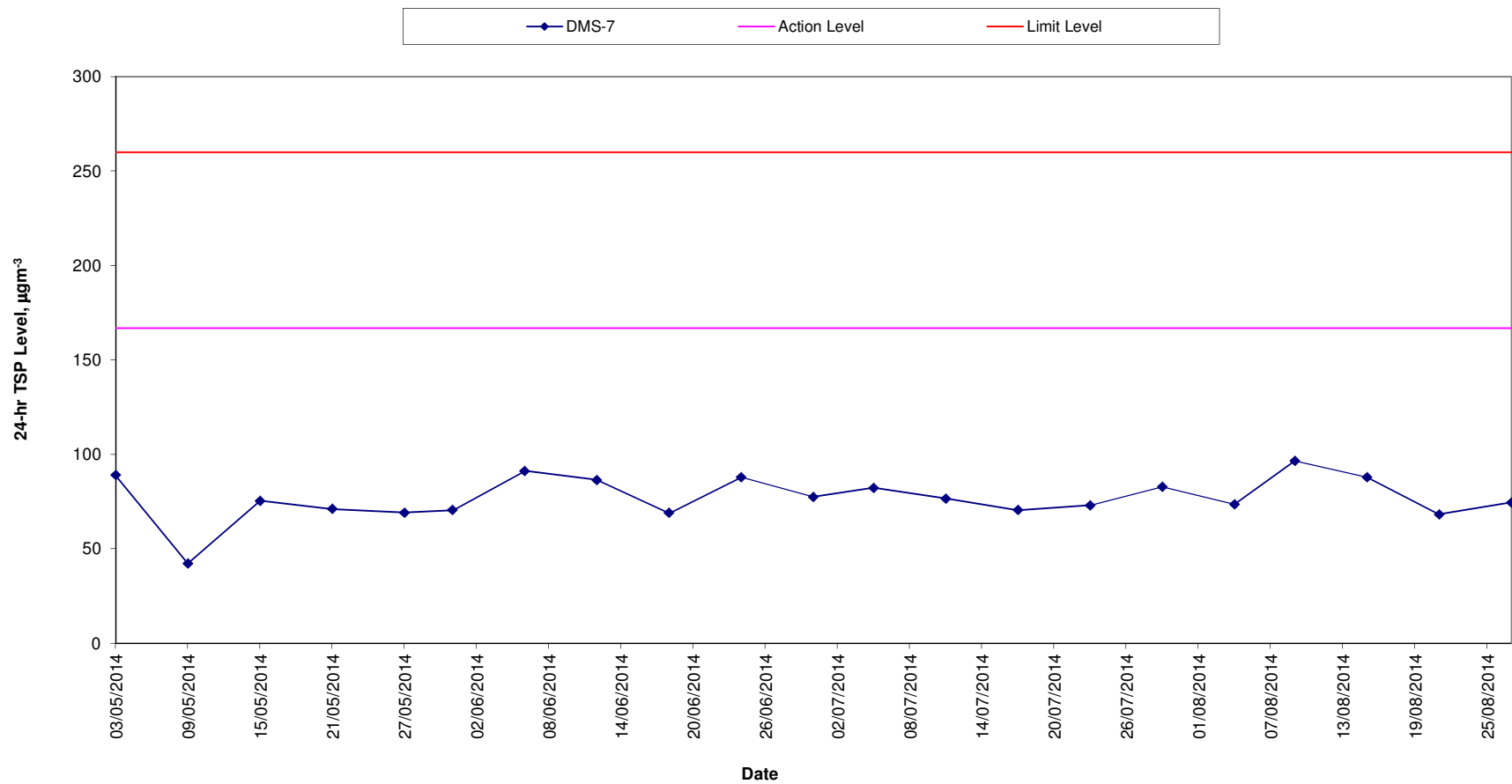
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
04-Aug-14	8:45	05-Aug-14	8:45	Cloudy	2.7336	2.8711	3781.20	3805.20	24.00	1.23	1.23	1.23	78	170.4	260	-	3573	3919
09-Aug-14	8:00	10-Aug-14	8:00	Sunny	2.7497	2.9117	3805.20	3829.20	24.00	1.23	1.23	1.23	91	170.4	260	-	3573	3962
15-Aug-14	8:43	16-Aug-14	8:43	Sunny	2.7347	2.9000	3829.20	3853.20	24.00	1.23	1.23	1.23	93	170.4	260	-	3573	3979
21-Aug-14	8:43	22-Aug-14	8:43	Fine	2.7402	2.8592	3853.20	3877.20	24.00	1.23	1.23	1.23	67	170.4	260	-	3573	4102
27-Aug-14	8:45	28-Aug-14	8:45	Fine	2.7202	2.8499	3877.20	3901.2	24.00	1.23	1.23	1.23	73	170.4	260	-	3573	4119
													Minimum	67				
													Average	81				
													Maximum	93				

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

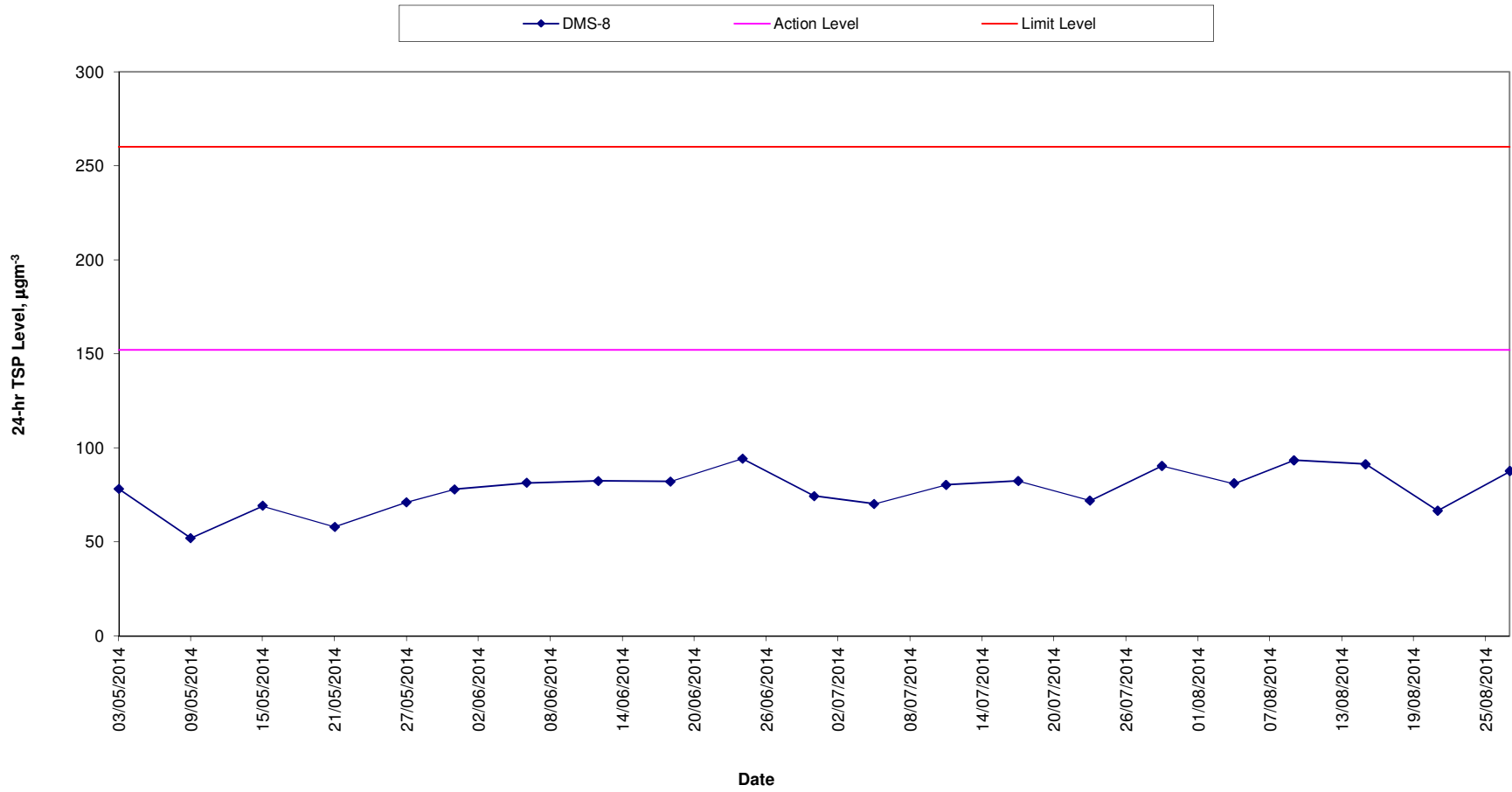
◆ DMS-6 ◆ Action Level ◆ Limit Level



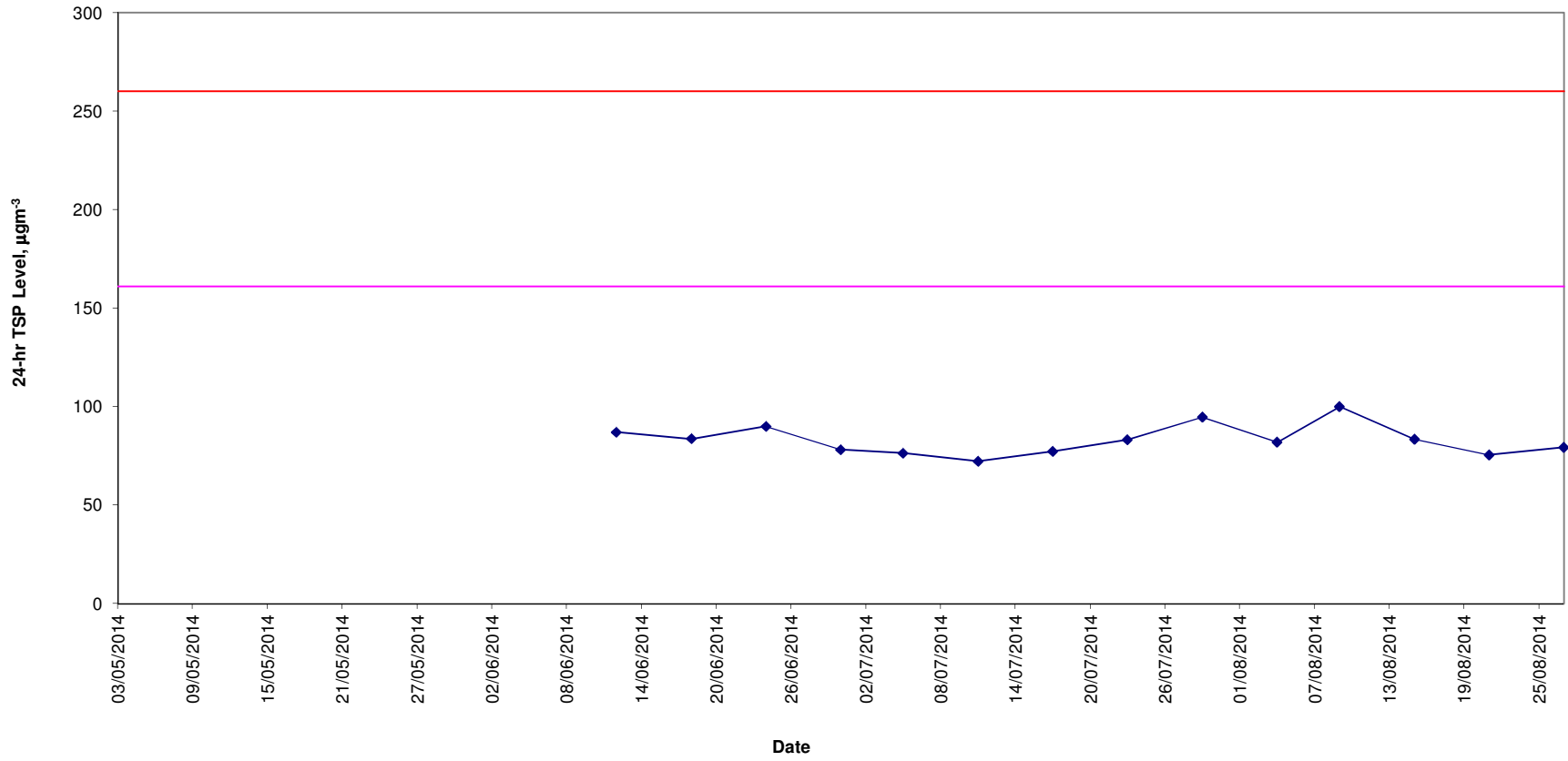
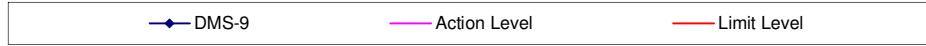
Construction Dust Monitoring Results for the Past 4 Months DMS- 7 (Parc 22)



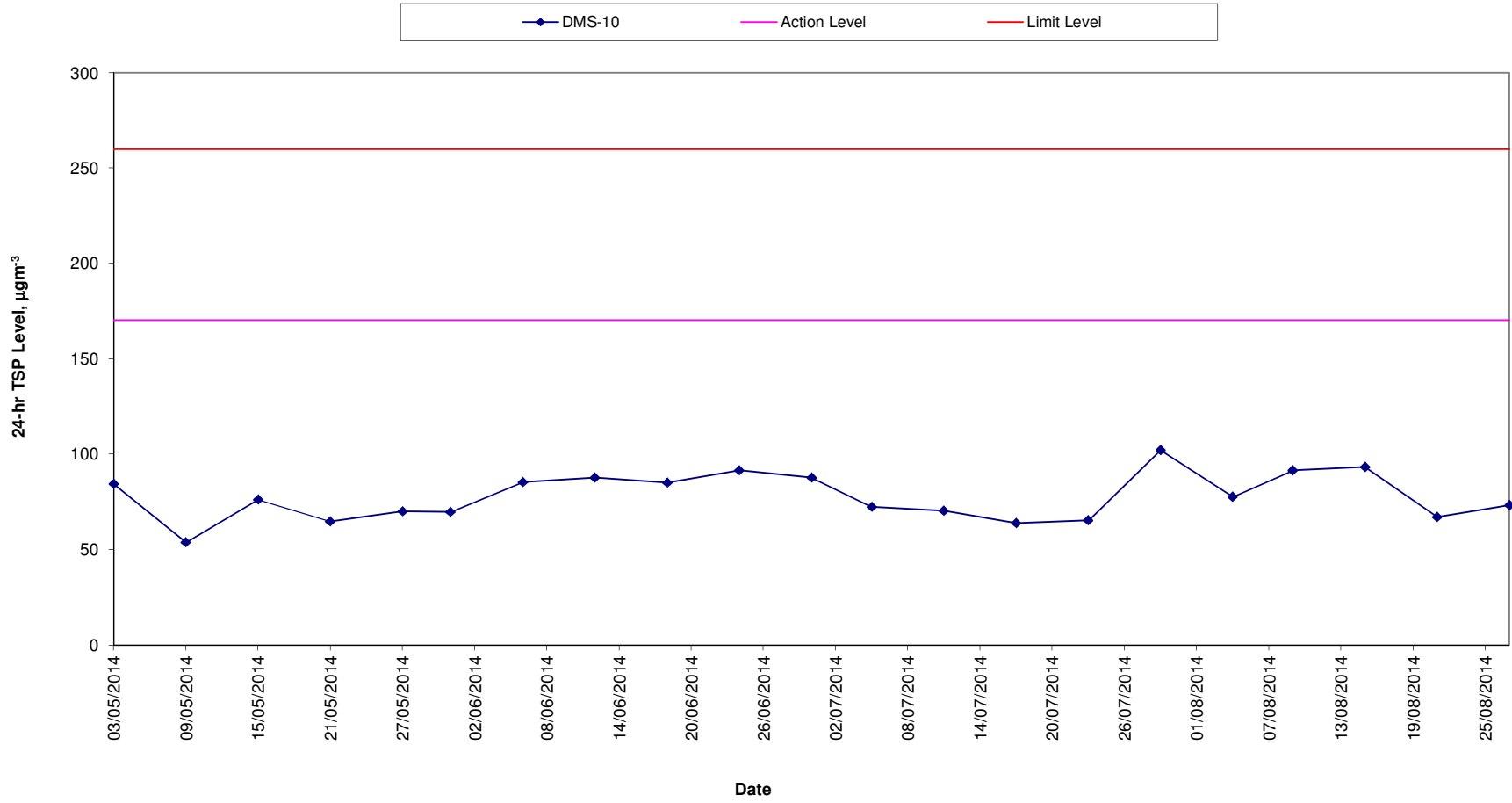
**Construction Dust Monitoring Results for the Past 4 Months
DMS-8 (SKH Good Shepherd Primary School)**



**Construction Dust Monitoring Results for the Past 4 Months
DMS-9 (No. 12 Pau Chung Street)**



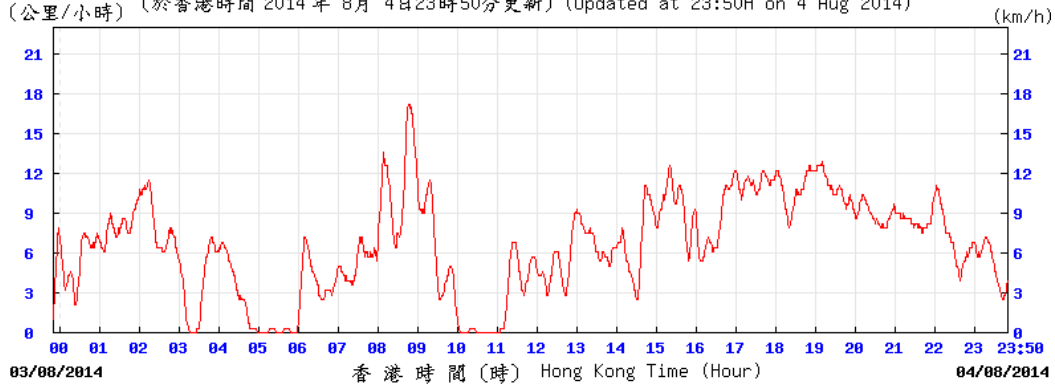
Construction Dust Monitoring Results for the Past 4 Months DMS-10 (Chat Ma Mansion)



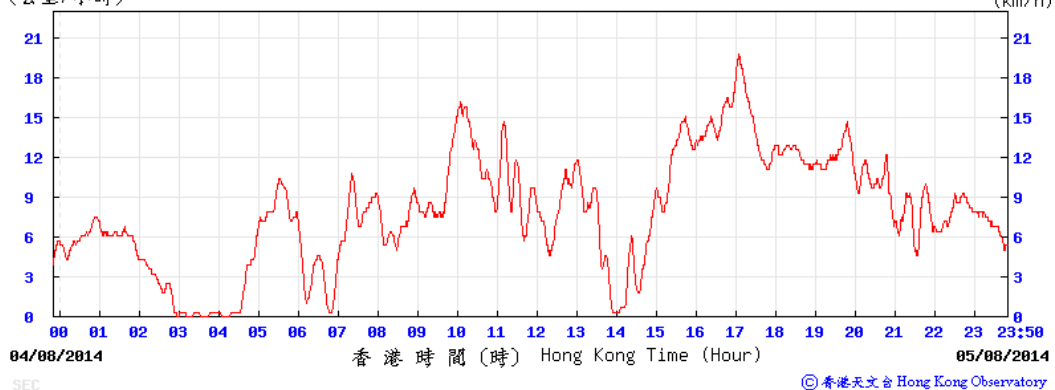
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

4-5 August 2014

(公里/小時) (於香港時間 2014 年 8 月 4 日 23 時 50 分更新) (Updated at 23:50H on 4 Aug 2014)



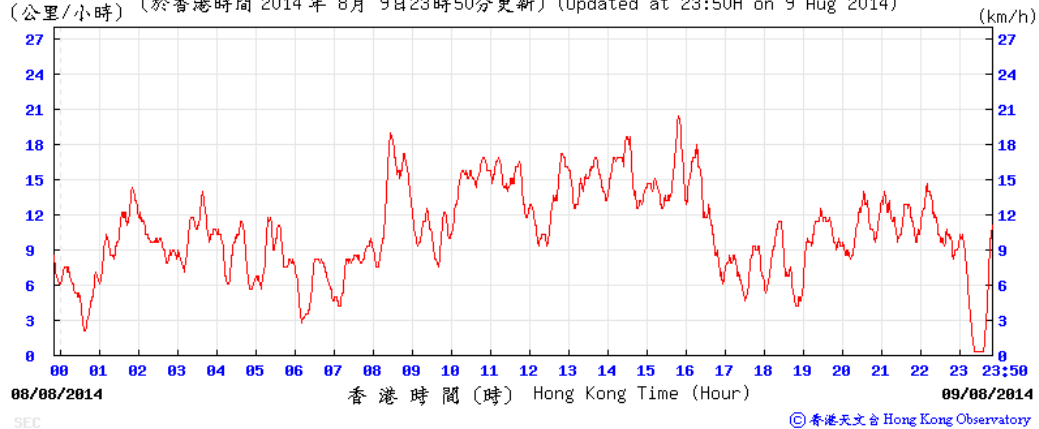
(公里/小時) (於香港時間 2014 年 8 月 5 日 23 時 50 分更新) (Updated at 23:50H on 5 Aug 2014)



9-10 August 2014

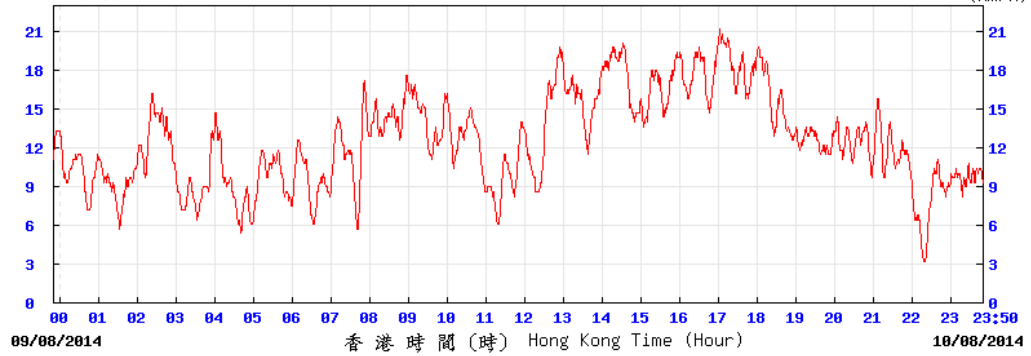
Wind Speed:

(公里/小時) (於香港時間 2014 年 8 月 9 日 23 時 50 分更新) (Updated at 23:50H on 9 Aug 2014)



Wind Speed

(公里/小時) (於香港時間 2014 年 8月10日23時50分更新) (Updated at 23:50H on 10 Aug 2014) (km/h)



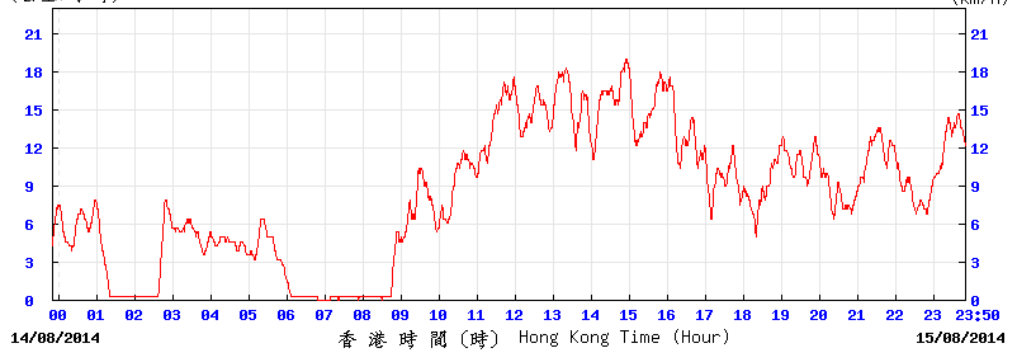
.SEC

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15-16 August 2014

Wind Speed

(公里/小時) (於香港時間 2014 年 8月15日23時50分更新) (Updated at 23:50H on 15 Aug 2014) (km/h)

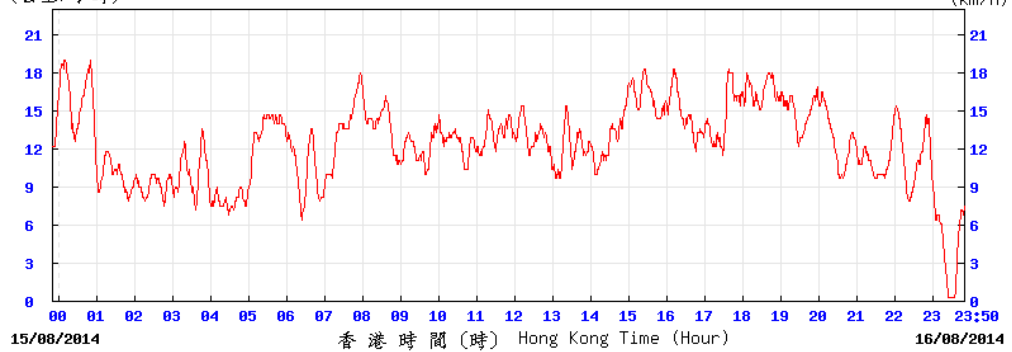


.SEC

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Wind Speed

(公里/小時) (於香港時間 2014 年 8月16日23時50分更新) (Updated at 23:50H on 16 Aug 2014) (km/h)



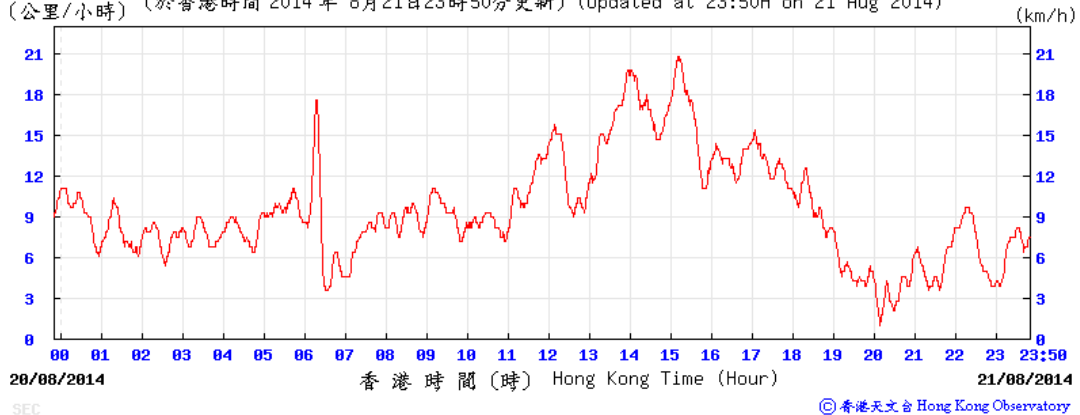
.SEC

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21-22 August 2014

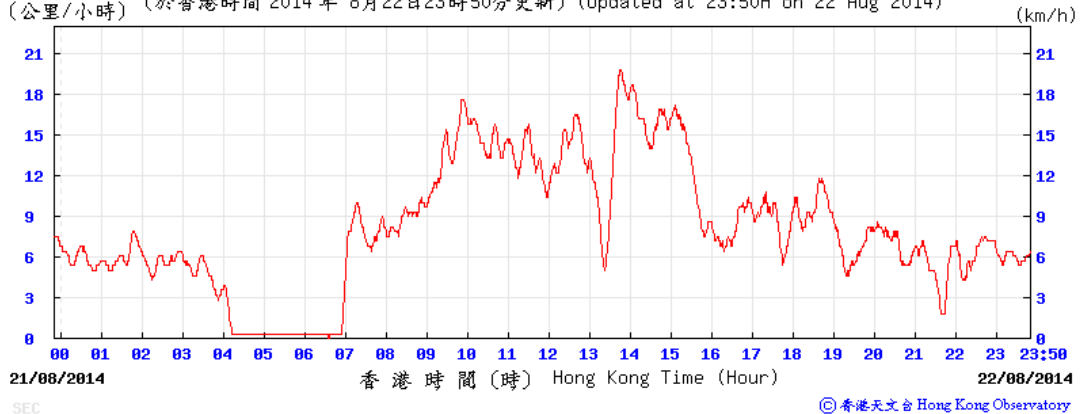
Wind Speed:

(公里/小時) (於香港時間 2014 年 8月21日23時50分更新) (Updated at 23:50H on 21 Aug 2014)



Wind Speed:

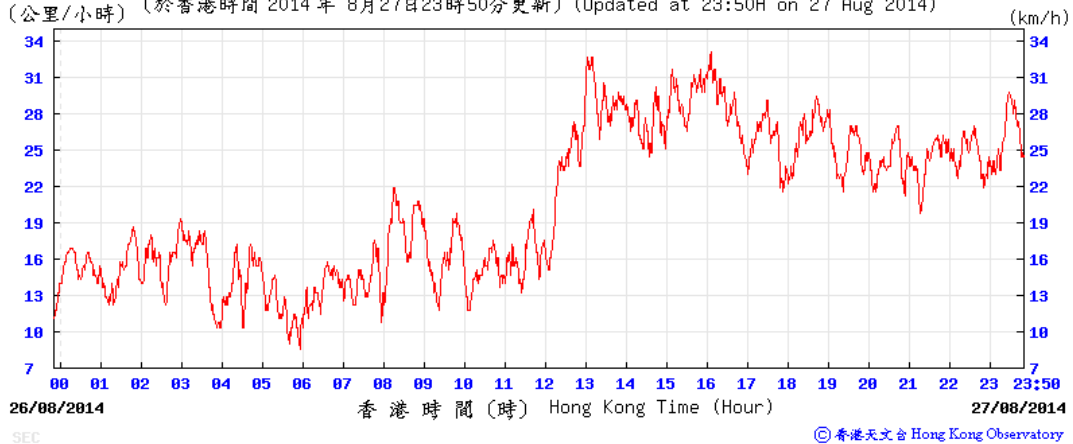
(公里/小時) (於香港時間 2014 年 8月22日23時50分更新) (Updated at 23:50H on 22 Aug 2014)



27-28 August 2014

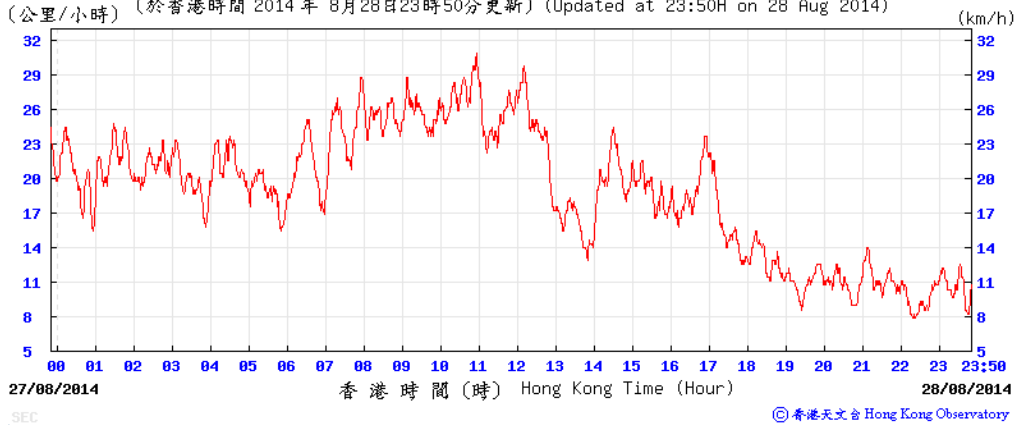
Wind Speed:

(公里/小時) (於香港時間 2014 年 8月27日23時50分更新) (Updated at 23:50H on 27 Aug 2014)



Wind Speed

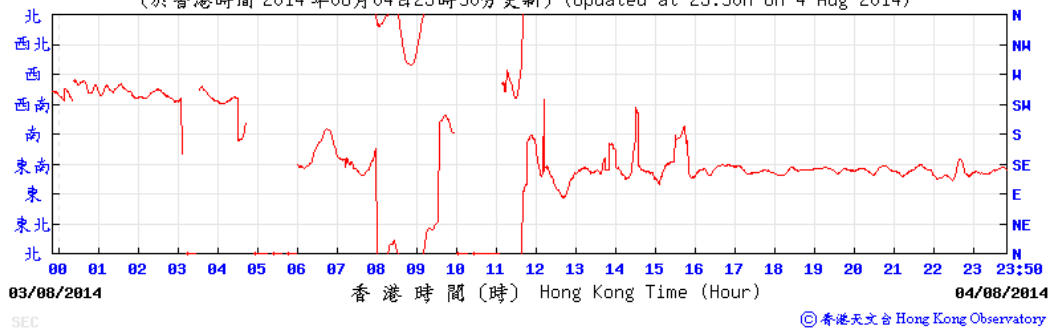
(於香港時間 2014 年 8月28日23時50分更新) (Updated at 23:50H on 28 Aug 2014)



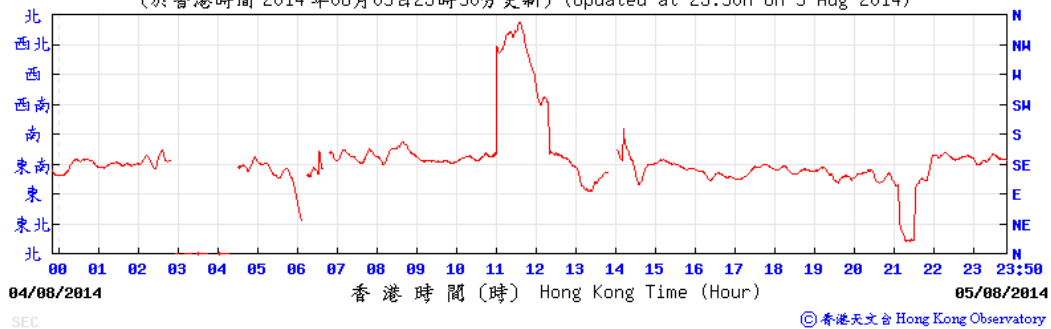
Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

4-5 August 2014

(於香港時間 2014 年08月04日23時50分更新) (Updated at 23:50H on 4 Aug 2014)

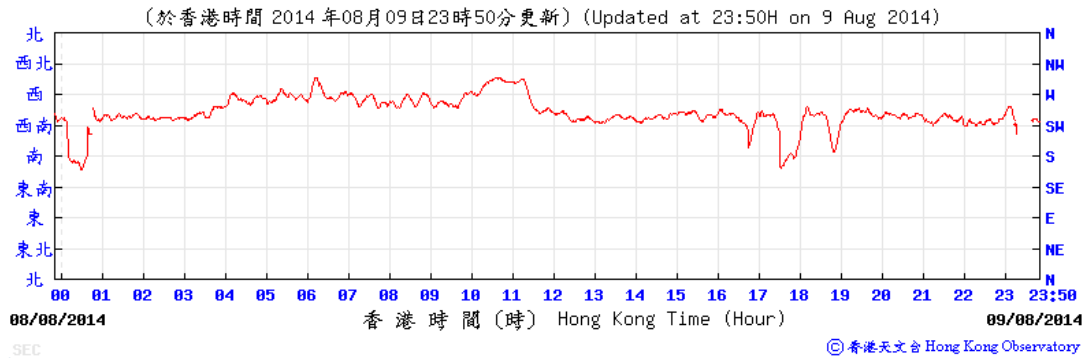


(於香港時間 2014 年08月05日23時50分更新) (Updated at 23:50H on 5 Aug 2014)

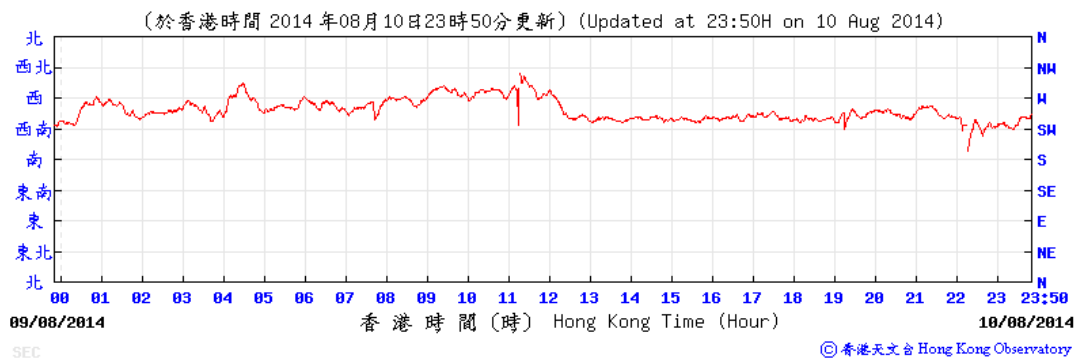


9-10 August 2014

Wind Direction:

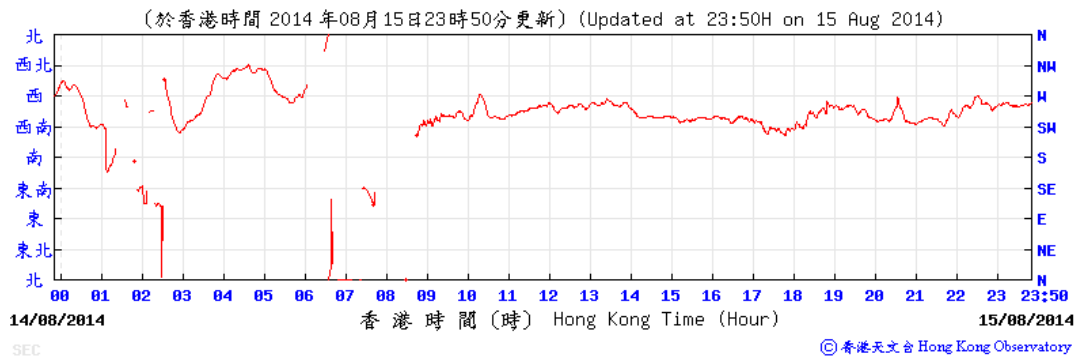


Wind Direction:

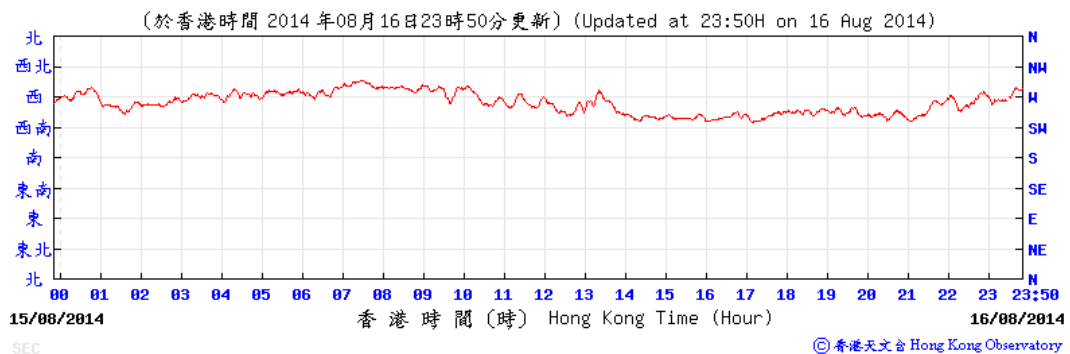


15-16 August 2014

Wind Direction:

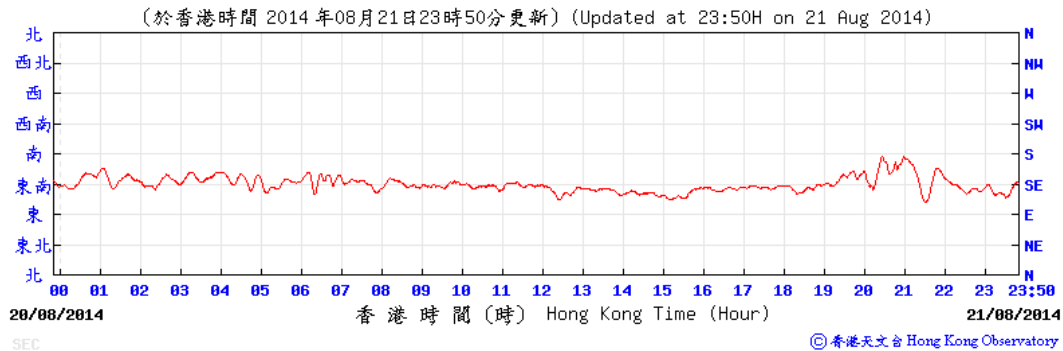


Wind Direction:

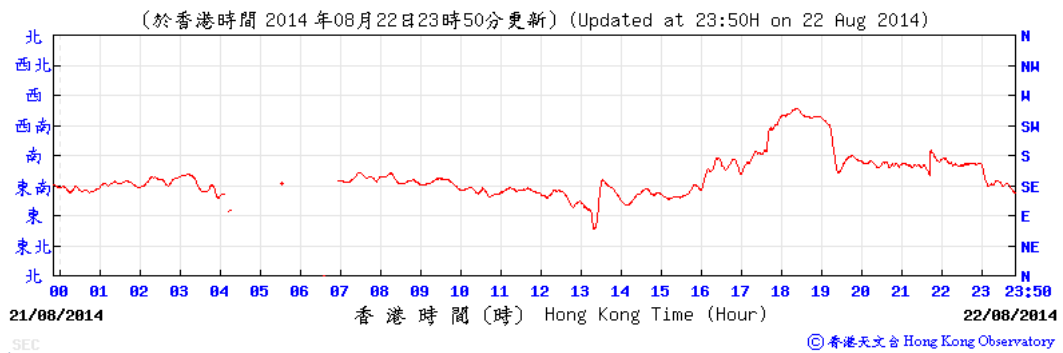


21-22 August 2014

Wind Direction:

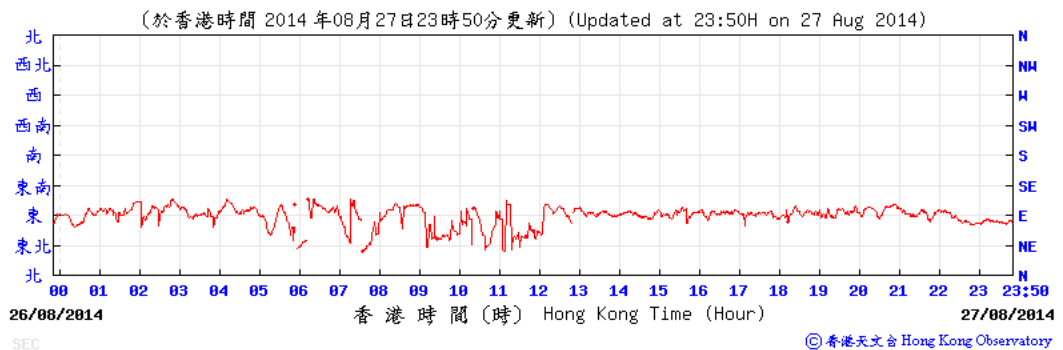


Wind Direction:

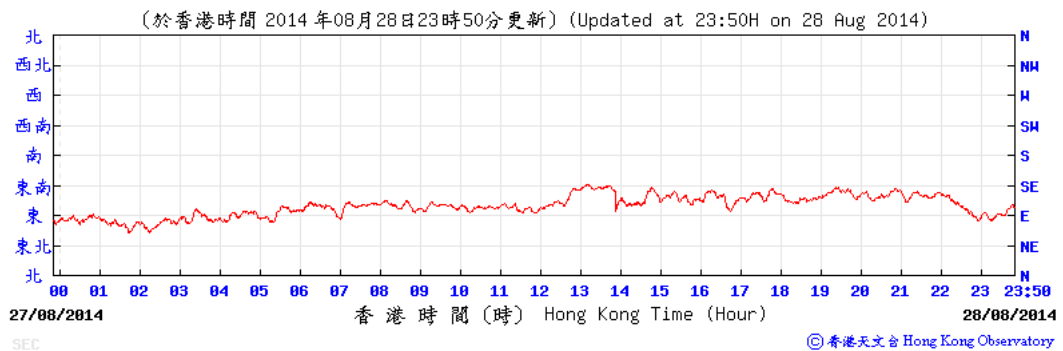


27-28 August 2014

Wind Direction:



Wind Direction:



Annex K – Waste Flow Table

Monthly Summary Waste Flow Table for the year 2012-2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Imported Fill (in '000m ³)
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill (See Note 5)	Inert C&D Materials Delivered to 1108A Kai Tai Barging Facilities (See Note 6)	Metals	Paper/ cardboard packaging	Plastics (See Note 2)	Chemical Waste (See Note 10)	Others, e.g. general refuse (See Note 5)	
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)	
Sep 2012	0.004	0.000	0.000	0.000	0.004	-	0.000	0.000	5.300	0.000	0.144	0.000
Oct 2012	0.000	0.000	0.000	0.000	0.000	-	12.800	0.242	0.013	0.000	0.514	0.000
Nov 2012	0.624	0.000	0.605	0.000	0.019	-	0.000	0.154	0.002	0.000	0.172	6.804
Dec 2012	16.844	0.000	0.000	0.000	0.005	16.839	0.000	0.000	0.000	0.000	0.057	0.000
Sub-total	17.472	0.000	0.605	0.000	0.028	16.839	12.800	0.396	5.315	0.000	0.887	6.804
Jan 2013	19.828	0.000	0.000	0.000	0.006	19.822	0.000	0.036 (See Note 7)	0.416	0.000	0.081 (See Note 8)	0.000
Feb 2013	8.372	0.000	0.000	0.000	0.005	8.366	0.000	0.036	0.443	0.000	0.021	0.000
Mar 2013	14.673	0.000	0.000	0.000	0.000	14.673	0.000	0.036	0.463	0.000	0.064 (See Note 9)	0.000
Apr 2013	13.557	0.000	0.000	0.000	0.025	13.533	0.000	0.036	0.148	0.000	0.086	0.000
May 2013	9.969	0.000	0.000	0.000	0.000	9.969	0.000	0.000	0.481	0.000	0.065	0.000
Jun 2013	5.538	0.000	0.000	0.000	0.000	5.538	0.000	0.045	0.784	0.32 (See Note 11)	0.065	0.000
Jul 2013	6.116	0.000	0.000	0.000	0.000	6.116	0.000	0.063	0.868	0.400	0.058	0.000
Aug 2013	11.537	0.000	0.000	0.000	0.000	11.537	0.000	0.068	0.464	0.000	0.071	0.000
Sep 2013	4.641	0.000	0.000	0.000	0.000	4.641	0.000	0.027	0.522	0.000	0.110	0.000
Oct 2013	9.708	0.000	0.000	0.000	0.000	9.708	0.000	0.036	0.348	0.000	0.086	0.000
Nov 2013	7.199	0.000	0.000	0.000	0.000	7.199	0.000	0.068	0.506	0.000	0.678	0.000
Dec 2013	6.973	0.000	0.000	0.000	0.000	6.973	0.000	0.090	0.383	0.000	1.344	0.000
Sub-total	118.111	0.000	0.000	0.000	0.036	118.075	0.000	0.541	5.826	0.720	2.729	0.000
Jan 2014	11.870	0.000	0.000	0.000	0.000	11.870	0.000	0.121	0.270	0.400	0.100	0.000
Feb 2014	15.316	0.000	0.000	0.000	0.000	15.316	0.000	0.067	0.396	0.000	0.095	0.000
Mar 2014	18.734	0.000	0.000	0.000	0.000	18.734	0.000	0.067	0.320	0.200	0.107	0.000
Apr 2014	23.539	0.000	0.000	0.000	0.000	23.539	0.000	0.000	0.344	0.415	0.064	0.000
May 2014	11.327	0.000	0.000	0.000	0.000	11.327	0.000	0.000	0.371	0.000	0.130	0.000
Jun 2014	10.440	0.000	0.000	0.000	0.000	10.440	0.000	0.090	0.332	0.000	0.164	0.000
Jul 2014	2.103	0.000	0.000	0.000	0.000	2.103	0.000	0.099	0.544	0.200	0.131	0.000
Aug 2014	1.446	0.000	0.000	0.000	0.000	1.446	0.000	0.189	0.584	0.000	0.129	0.000
Sub-total	94.775	0.000	0.000	0.000	0.000	94.775	0.000	0.633	3.161	1.215	0.920	0.000
Total	230.359	0.000	0.605	0.000	0.064	229.689	12.800	1.570	14.302	1.935	4.536	6.804

Notes:

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

Annex L

Investigation Reports

Investigation Report of Environmental Quality Limit Exceedance

Date	01 August 2014
Time	14:00 - 14:30; and 14:30 - 15:00.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	83.8 dB(A) (14:00 - 14:30); and 80.9 dB(A) (14:30 - 15:00).
Possible reason	<p>Based on site record on 1 August 2014, the potential noise sources from the Project works identified included trench excavation in W3 and W6 works areas as well as pre-drill works in W3 works area.</p> <p>The construction equipment used during the exceedance period included six backhoes in E3, W3 and W6 works areas; two BC cutters in W6 works area; two crawler cranes in W3 and W6 works areas and a drill rig in W3 works area.</p> <p>The above-mentioned construction works were continuously operating on 1 August (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Besides, concurrent works conducted in the vicinity of the 1109 works areas included floor tiles replacement conducted in ELCHK Hung Hom Lutheran Primary School. This was also identified as a potential noise source which contributed to the measured noise levels during the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> 1. Noise fabrics as barrier had been erected on the site hoarding. 2. Noise fabrics had been provided for BC cutters. 3. The Contractor has conducted site inspections

	<p>twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measures is needed. The site records prepared by the Contractor are attached to supplement this investigation.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Daily briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will adhere strictly to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to minimise the noise generation as far as possible and avoid exceedance of the Action/Limit Level or causing noise nuisance where practicable.</p>
Remarks	

Prepared by: Winnie Ko, 1109 ET Leader

Date 8-Aug-2014

Investigation Report of Environmental Quality Limit Exceedance

Date	04 August 2014
Time	13:16 - 13:46; 13:46 - 14:16; 14:46 - 15:16; 15:16 - 15:46; and 15:46 - 16:16.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}(30mins)$
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	79.7 dB(A) (13:16 - 13:46); 81.2 dB(A) (13:46 - 14:16); 80.1 dB(A) (14:46 - 15:16); 80.3 dB(A) (15:16 - 15:46); and 81.7 dB(A) (15:46 - 16:16).
Possible reason	<p>Based on site record on 4 August 2014, the potential noise sources from the Project works included site preparation for sheet piling in E3 works area; trench excavation by BC cutter in W3 works area. Besides, there were also trench excavation and exposed ACM pipe removal works and electric cable for removal and diversion in W6 works area. Works undertaken in Lok Shan Road works area included CLP cable diversion as well as trail pit excavation.</p> <p>The construction equipment used during the exceedance period included six backhoes, three BC cutters; two mobile cranes and a drill rig.</p> <p>Concurrent works conducted in the vicinity of the 1109 works areas included renovation work of floor tiles replacement in ELCHK Hung Hom Lutheran Primary School. This concurrent work was also identified as a potential noise source contributing to the measured noise levels during the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> Noise fabrics as barrier had been erected on the site hoarding. Noise fabrics had been provided for BC

	<p>cutters.</p> <p>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measures is needed. The site records prepared by the Contractor are attached to supplement this investigation.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Daily briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will adhere strictly to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to minimise the noise generation as far as possible and avoid exceedance of the Action/Limit Level or causing noise nuisance where practicable.</p>
Remarks	

Prepared by: Winnie Ko, 1109 ET Leader
 Date 14-Aug-2014

Investigation Report of Environmental Quality Limit Exceedance

Date	05 August 2014
Time	15:16-15:46; 15:46-16:16; 16:16-16:46; and 16:46-17:16
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, L_{Aeq} (30mins)
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	80.1 dB(A) (15:16-15:46); 80.7 dB(A) (15:46-16:16); 81.2 dB(A) (16:16-16:46); and 81.3 dB(A) (16:46-17:16).
Possible reason	<p>Based on site record on 5 August 2014, the potential noise sources from the Project works included site preparation for sheet piling and concrete casting in E3 works area; watermain works in W3 works area; trench excavation and ACM pipes removal in W6 works area. Works undertaken in Lok Shan Road works area included CLP cable diversion as well as trail pit excavation.</p> <p>The construction equipment used during the exceedance period included five backhoes, three BC cutters; two mobile cranes and a drill rig.</p> <p>Besides, concurrent works conducted in the vicinity of the 1109 works areas included renovation work of floor tiles replacement in ELCHK Hung Hom Lutheran Primary School. This concurrent work was also identified as a potential noise source contributing to the measured noise levels during the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> Noise fabrics as barrier had been erected on the site hoarding. Noise fabrics had been provided for BC cutters.

	<p>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measures is needed. The site records prepared by the Contractor are attached to supplement this investigation.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Daily briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will adhere strictly to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to minimise the noise generation as far as possible and avoid exceedance of the Action/Limit Level or causing noise nuisance where practicable.</p>
Remarks	

Prepared by: Winnie Ko, 1109 ET Leader
 Date: 13-Aug-2014

Investigation Report of Environmental Quality Limit Exceedance

Date	07 August 2014
Time	15:52-16:22; 16:22-16:52; and 16:52-17:22.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	81.1 dB(A) (15:52-16:22); 79.7 dB(A) (16:22-16:52); and 79.7 dB(A) (16:52-17:22).
Possible reason	<p>Based on site record on 7 August 2014, the potential noise sources from the Project works included site preparation for sheet piling in E3 works area; trench excavation by BC cutter in W3 works area. In W6 works area, there were trench excavation, concrete casting and electric cable diversion works. Works undertaken in Lok Shan Road works area comprised CLP cable diversion as well as trail pit excavation.</p> <p>The construction equipment used during the exceedance period included five backhoes, three BC cutters; two mobile cranes and a drill rig.</p> <p>Concurrent works conducted in the vicinity of the 1109 works areas included renovation work of tile replacement in ELCHK Hung Hom Lutheran Primary School. This concurrent work was also identified as a potential noise source contributing to the measured noise levels during the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> 1. Noise fabrics as barrier had been erected on the site hoarding. 2. Noise fabrics had been provided for BC cutters. 3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in

	<p>vicinity to the concerned works area and to check if any further mitigation measures is needed. The site records prepared by the Contractor are attached to supplement this investigation.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Daily briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will adhere strictly to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to minimise the noise generation as far as possible and avoid exceedance of the Action/Limit Level or causing noise nuisance where practicable.</p>
Remarks	

Prepared by: Winnie Ko, 1109 ET Leader

Date 13-Aug-2014

Investigation Report of Environmental Quality Limit Exceedance

Date	15 August 2014
Time	10:01 - 10:31; 10:31 - 11:01; and 11:01 - 11:31.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	80.1 dB(A) (10:01 - 10:31); 80.1 dB(A) (10:31 - 11:01); and 80.0 dB(A) (11:01 - 11:31).
Possible reason	<p>Based on site record on 15 August 2014, the potential noise sources from the Project works identified included trench excavation by BC cutter in W3 and W6 works areas; CLP cable diversion in Lok Shan Road works area; and sheet piling works by silent piler in E3 works area.</p> <p>The construction equipment used during the exceedance period included 4 backhoes; 3 BC cutters; 2 mobile cranes; and 1 silent piler. .</p> <p>The above-mentioned construction works were continuously operating on 15 August (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Besides, concurrent works conducted in the vicinity of the 1109 works areas included floor tiles replacement conducted in ELCHK Hung Hom Lutheran Primary School. This was also identified as a potential noise source which contributed to the measured noise levels during the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> Noise fabrics as barrier had been erected on the site hoarding. Noise fabrics had been provided for BC cutters.

	<p>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measures is needed. The site records prepared by the Contractor are attached to supplement this investigation.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Daily briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly adhere to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise nuisance where practicable.</p>
Remarks	--

Prepared by: Winnie Ko, 1109 ET Leader
 Date 22-Aug-2014

Investigation Report of Environmental Quality Limit Exceedance

Date	16 August 2014
Time	16:31 - 17:01; 17:01 - 17:31; and 17:31 - 18:01.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	79.9 dB(A) (16:31 - 17:01); 80.7 dB(A) (17:01 - 17:31); and 80.1 dB(A) (17:31 - 18:01).
Possible reason	<p>Based on site record on 16 August 2014, the potential noise sources from the Project works identified included trench excavation by BC cutter in W3 and W6 works areas; CLP cable diversion in Lok Shan Road works area; and sheet piling works by silent piler in E3 works area.</p> <p>The construction equipment used during the exceedance period included 4 backhoes; 4 BC cutters; 2 mobile cranes; and 1 silent piler. .</p> <p>The above-mentioned construction works were continuously operating on 16 August (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Besides, concurrent works conducted in the vicinity of the 1109 works areas included floor tiles replacement conducted in ELCHK Hung Hom Lutheran Primary School. This was also identified as a potential noise source which contributed to the measured noise levels during the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	<ol style="list-style-type: none"> Noise fabrics as barrier had been erected on the site hoarding. Noise fabrics had been provided for BC cutters.

	<p>3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measures is needed. The site records prepared by the Contractor are attached to supplement this investigation.</p> <p>4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>5. Daily briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly adhere to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to minimise the noise generation as far as possible and avoid exceedance of the Action/Limit Level or causing noise nuisance where practicable.</p>
Remarks	--

Prepared by: Winnie Ko, 1109 ET Leader
 Date 22-Aug-2014

Investigation Report of Environmental Quality Limit Exceedance

Date	18 August 2014
Time	15:15 - 15:45; and 15:45 - 16:15.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq}(30mins)$
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	79.9 dB(A) (15:15 - 15:45); and 80.0 dB(A) (15:45 - 16:15).
Possible reason	<p>Based on site record on 18 August 2014, the potential noise sources from the Project works identified included D-wall construction including trench excavation by BC cutter; and road works for TTMS in W3 works area; D-wall construction including trench excavation by BC cutter; and CLP cabling works in W6 works area; CLP cable diversion and traffic light diversion in Lok Shan Road works area; and sheet piling works by silent piler in E3 works area.</p> <p>The construction equipment used during the exceedance period included 2 backhoes; 3 BC cutters; 2 mobile cranes; and a silent piler.</p> <p>The above-mentioned construction works were continuously operating on 18 August (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Besides, concurrent works conducted in the vicinity of the 1109 works areas included renovation works of floor tiles replacement conducted in ELCHK Hung Hom Lutheran Primary School. This was also identified as a potential noise source which contributed to the measured noise levels during the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	1. Noise fabrics as barrier had been erected on the site hoarding.

	<ol style="list-style-type: none"> 2. Noise fabrics had been provided for BC cutters. 3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measures is needed. The site records prepared by the Contractor are attached to supplement this investigation. 4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level. 5. Daily briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures. <p>The Contractor will adhere strictly to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to minimise the noise generation as far as possible and avoid exceedance of the Action/Limit Level or causing noise nuisance where practicable.</p>
Remarks	

Prepared by: Winnie Ko, 1109 ET Leader
 Date 28-Aug-2014

Investigation Report of Environmental Quality Limit Exceedance

Date	21 August 2014
Time	09:45 - 10:15; 10:15 - 10:45; and 10:45 - 11:15.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, $L_{Aeq(30mins)}$
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	83.0 dB(A) (09:45 - 10:15); 82.4 dB(A) (10:15 - 10:45); and 80.6 dB(A) (10:45 - 11:15).
Possible reason	<p>Based on site record on 21 August 2014, the potential noise sources from the Project works identified included D-wall construction including trench excavation by BC cutter; road works for TTMS; and toe grouting works in W3 works area; D-wall construction including trench excavation by BC cutter; and CLP cabling works in W6 works area; CLP cable diversion and traffic light diversion in Lok Shan Road works area; sheet piling works by a silent piler in E3 works area.</p> <p>The construction equipment used during the exceedance period included 2 backhoes; 3 BC cutters; 2 mobile cranes; 1 silent piler and 1 drill rig.</p> <p>The above-mentioned construction works were continuously operating on 21 August (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Besides, concurrent works conducted in the vicinity of the 1109 works areas included renovation works of floor tiles replacement conducted in ELCHK Hung Hom Lutheran Primary School. This was also identified as a potential noise source which contributed to the measured noise levels during the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>

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

Action Taken / Action to be Taken	<ol style="list-style-type: none"> 1. Noise fabrics as barrier had been erected on the site hoarding. 2. Noise fabrics had been provided for BC cutters. 3. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measures is needed. The site records prepared by the Contractor are attached to supplement this investigation. 4. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level. 5. Daily briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures. <p>The Contractor will adhere strictly to the Construction Noise Mitigation Measure Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to minimise the noise generation as far as possible and avoid exceedance of the Action/Limit Level or causing noise nuisance where practicable.</p>
Remarks	

Prepared by: Winnie Ko, 1109 ET Leader
 Date: 28-Aug-2014

Annex M

Environmental Complaint,
Environmental Summon
and Prosecution

Annex M Environmental Complaint, Environmental Summon and Prosecution Log

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

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
January 2014	0	0
February 2014	0	0
March 2014	0	0
April 2014	0	0
May 2014	0	0
June 2014	0	0
July 2014	0	0
August 2014	0	0
Overall Total	0	0

Appendix C

**21st 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

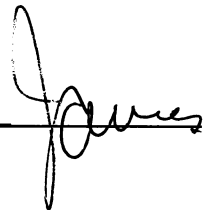
[Period from 1 to 31 August 2014]

Works Contract 1101

Ma On Shan Modification Works

(September 2014)

Certified by: James Choi

A handwritten signature in black ink, appearing to read 'James', written over a horizontal line.

Position: Environmental Team Leader

Date: 12 September 2014

SCL Contract No. 1101

Ma On Shan Line Modification Works

Monthly EM&A Report (SCL) (August 2014)

for

Sun Fook Kong Joint Venture

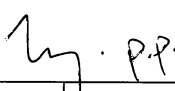

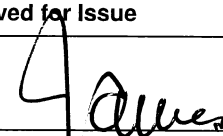
Prepared By	Checked By	Approved for Issue
F So 	A Lee 	J Choi 
Version	0	Date
		3 September 2014
<p>The information contained in this report is, to the best of our knowledge, correct at the time of printing. The interpretation and recommendations in the report are based on our experience, using reasonable professional skill and judgment, and based upon the information that was available to us. These interpretations and recommendations are not necessarily relevant to any aspect outside the restricted requirements of the brief. This report has been prepared for the sole and specific use of our client and ANewR Consulting Limited accepts no responsibility for its use by others.</p> <p>This report is copyright and may not be reproduced in whole or in part without prior written permission. All rights reserved.</p>		

Table of Contents

EXECUTIVE SUMMARY	1
1. INTRODUCTION.....	2
1.1 Background	2
1.2 Description of the Construction Works.....	2
1.3 Purpose of this Report	2
2. PROJECT INFORMATION	3
2.1 Project Organization and Management Structure.....	3
2.2 Construction Activities.....	3
2.3 Status of License, Permit and Submissions under Environmental Protection Requirements..	3
3. WASTE MANAGEMENT	4
4. SITE INSPECTION	5
5. ENVIRONMENTAL COMPLAINT	6
6. SUMMARY OF NOTIFICATION OF SUMMONS, SUCCESSFUL PROSECUTIONS AND CORRECTIVE ACTIONS.....	7
7. FUTURE KEY ISSUES	8

List of Tables

Table 3.1	Waste Generated in the Reporting Month
Table 4.1	Summary of Major Environmental Deficiencies in the Reporting Month
Table 5.1	Cumulative Statistic of Environmental Complaint

List of Appendices

Appendix A	Location Plan of Works Area and Storage Yard
Appendix B	Updated Construction Programme
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	Mitigation Measures Implementation Schedule for Construction Stage
Appendix G	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). ANewR Consulting Limited (ANewR) 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/F) and (EP-438/2012/G) for the SCL Tai Wai to Hung Hom Section (TAW-HUH) included works sites at Tai Wai Mei Tin Road, To Shek Storage Yard and Shek Mun Storage Yard of which EM&A programme according to the EM&A Manual of SCL (TAW-HUH) should be implemented.

Construction Activities

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

Air Quality and Noise Monitoring

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

Environmental Auditing

Weekly site inspections were carried out by ET to ensure proper implementation of environmental mitigation measures and compliance with environmental legislation. During the reporting month, a total of 4 site inspections were conducted and the joint site inspection with IEC was conducted on 26 August 2014. 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

6.50 m³ of general refuse and 71.5 m³ inert C&D materials were disposed of to NENT Landfill and Tseung Kwan O Area 137 Public Fill Bank respectively in the reporting month. 500.00 kg of chemical waste was collected by licenced collector 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

No construction activity is scheduled in the upcoming months.

Reporting Changes

No reporting change was observed during the reporting month.

1. INTRODUCTION

1.1 Background

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

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

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

1.2 Description of the Construction Works

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

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

1.3 Purpose of this Report

This is the 21th 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 August 2014.

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

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

2. PROJECT INFORMATION

2.1 Project Organization and Management Structure

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

2.2 Construction Activities

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

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

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

A summary of relevant permits and licences related to environmental protection for the Construction Works and submission under EP-438/2012/F and EP-438/2012/G 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	Cumulative-to-Date
Inert C&D materials disposed	71.50 m ³	123.50 m ³
Inert C&D materials recycled	0	0
Non-inert C&D materials disposed	0	0
Non-inert C&D materials recycled	26.00 m ³	29.00 m ³
General waste disposed of to NENT Landfill	6.50 m ³	257.00 m ³
Chemical waste disposed of to CWTC or collected by licenced collector	500.00 kg	1010.00 kg

4. SITE INSPECTION

Weekly site inspections were carried out at the sites on 6, 11, 18 and 26 August 2014. The joint site inspection with IEC was carried out on 26 August 2014. All observations together with the appropriate recommended mitigation measures where necessary were recorded in the site inspection checklists that were passed to the Contractor. Major environmental deficiencies observed during the site inspection and recommendations made by the ET are given in *Table 4.1*.

Table 4.1 Summary of Major Environmental Deficiencies in the Reporting Month

Date	Item	ET's Observations and Recommendations	Follow-up Action
6 August 2014	--	No site observation	NA
11 August 2014	--	No site observation	NA
18 August 2014	--	No site observation	NA
26 August 2014	--	No site observation	NA

Remark:

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

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

5. ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting month.

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

Table 5.1 Cumulative Statistic of Environmental Complaint

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

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

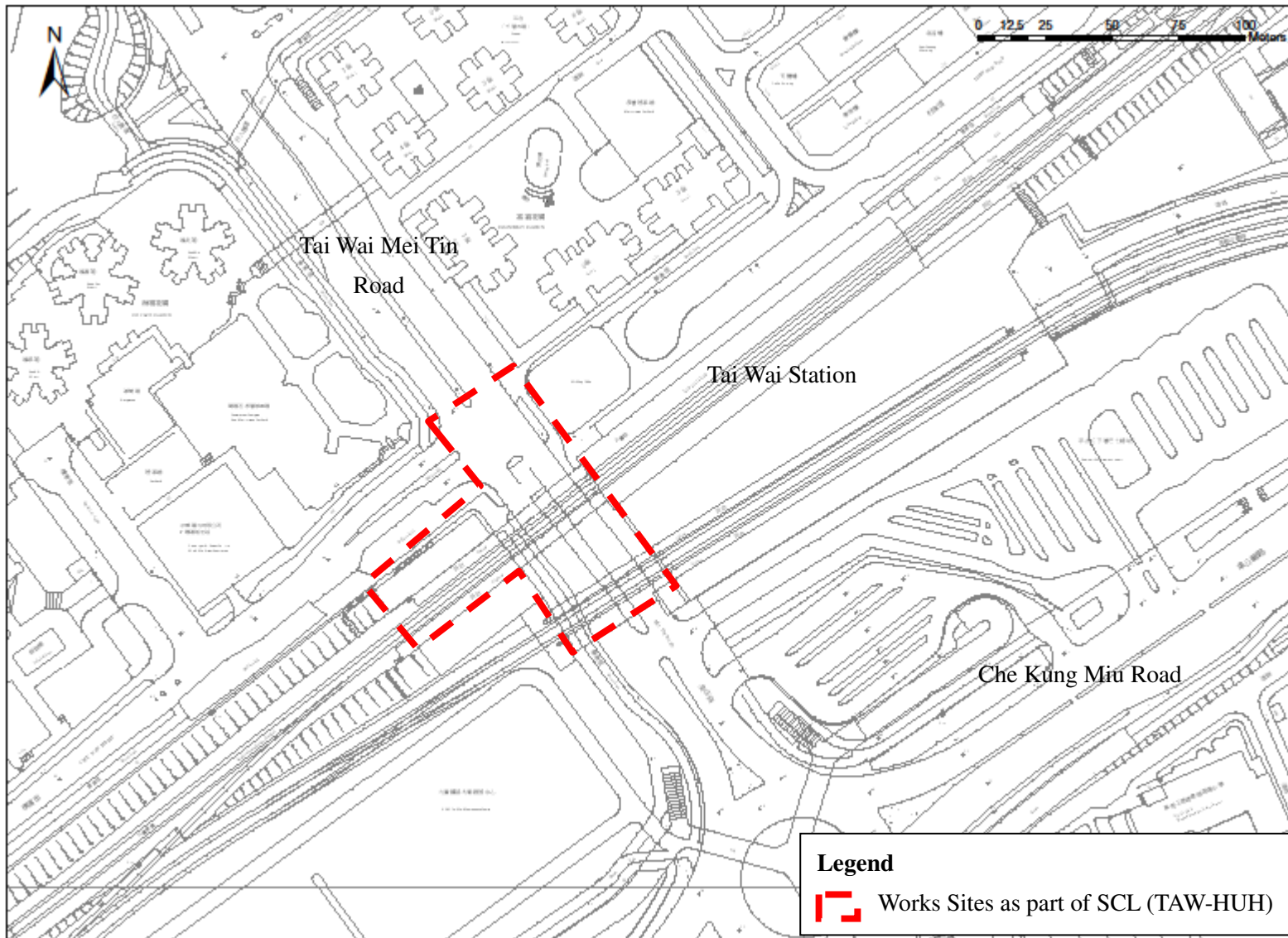
Neither Notification of Summon nor successful prosecution was received by the Contractor during the reporting month.

7. FUTURE KEY ISSUES

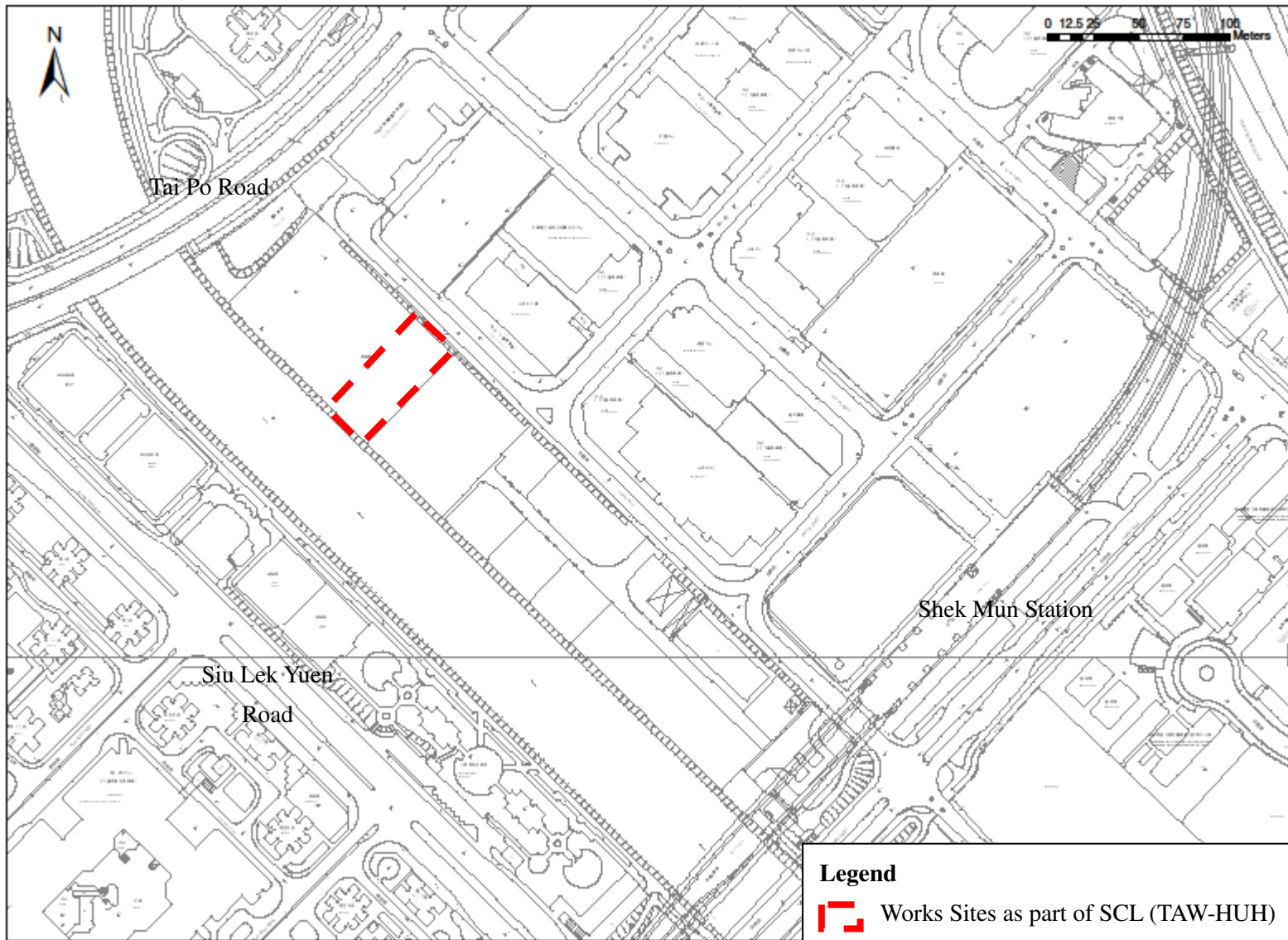
Construction works were completed at Tai Wai Mei Tin Road in September 2013.


APPENDIX A

LOCATION PLAN OF WORKS AREA AND STORAGE YARD

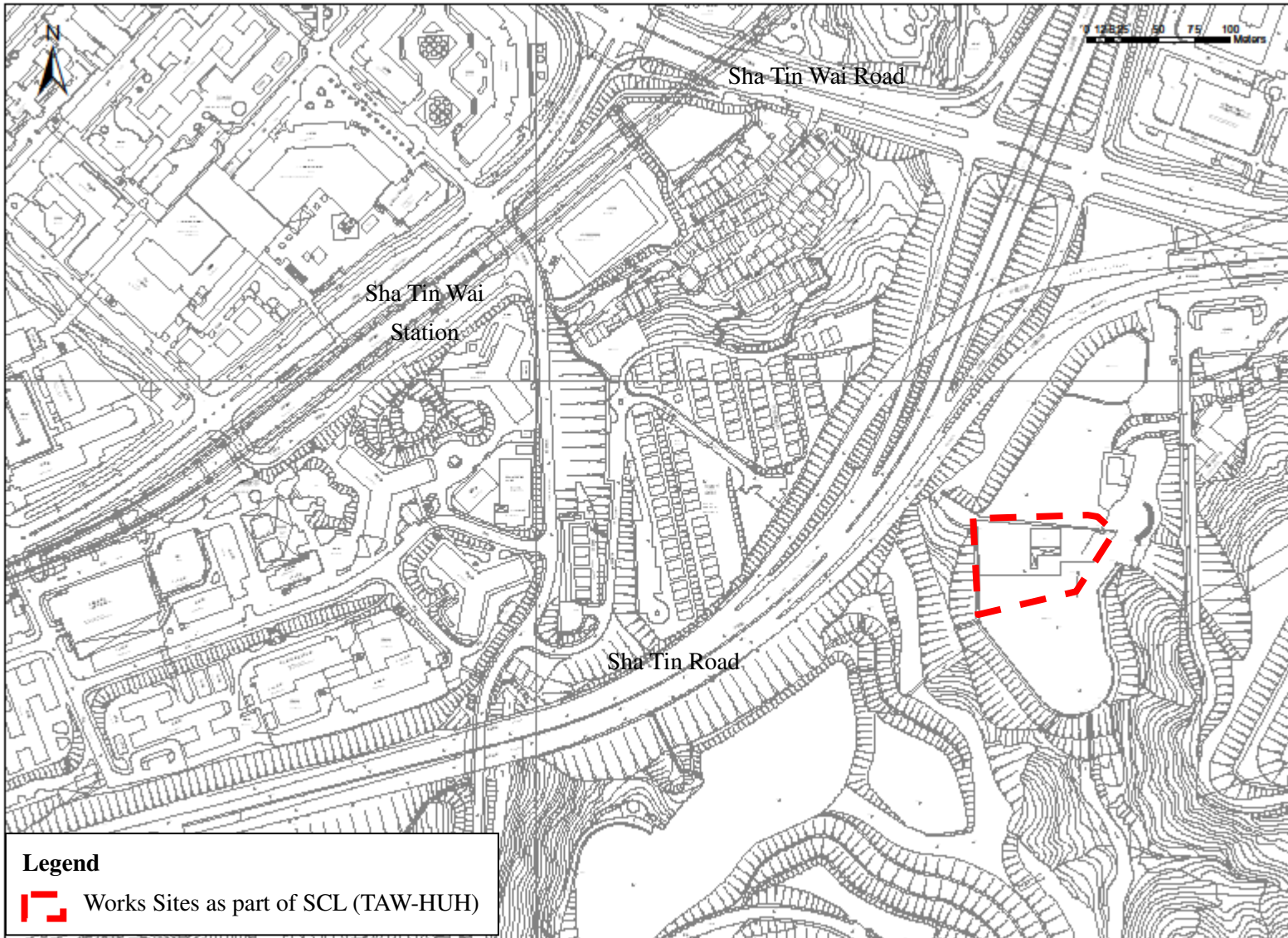


SCALE	N.T.S.	DATE	4 June 2013
CHECK	LYMA	DRAWN	YSWE
Ref.	FIGURE NO.		REV
SCL Contract No.1101	App A (Sheet 1 of 3)		1



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

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



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

APPENDIX B

UPDATED CONSTRUCTION PROGRAMME

Construction Programme (SCL)

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

Note:

1. Abbreviation:

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

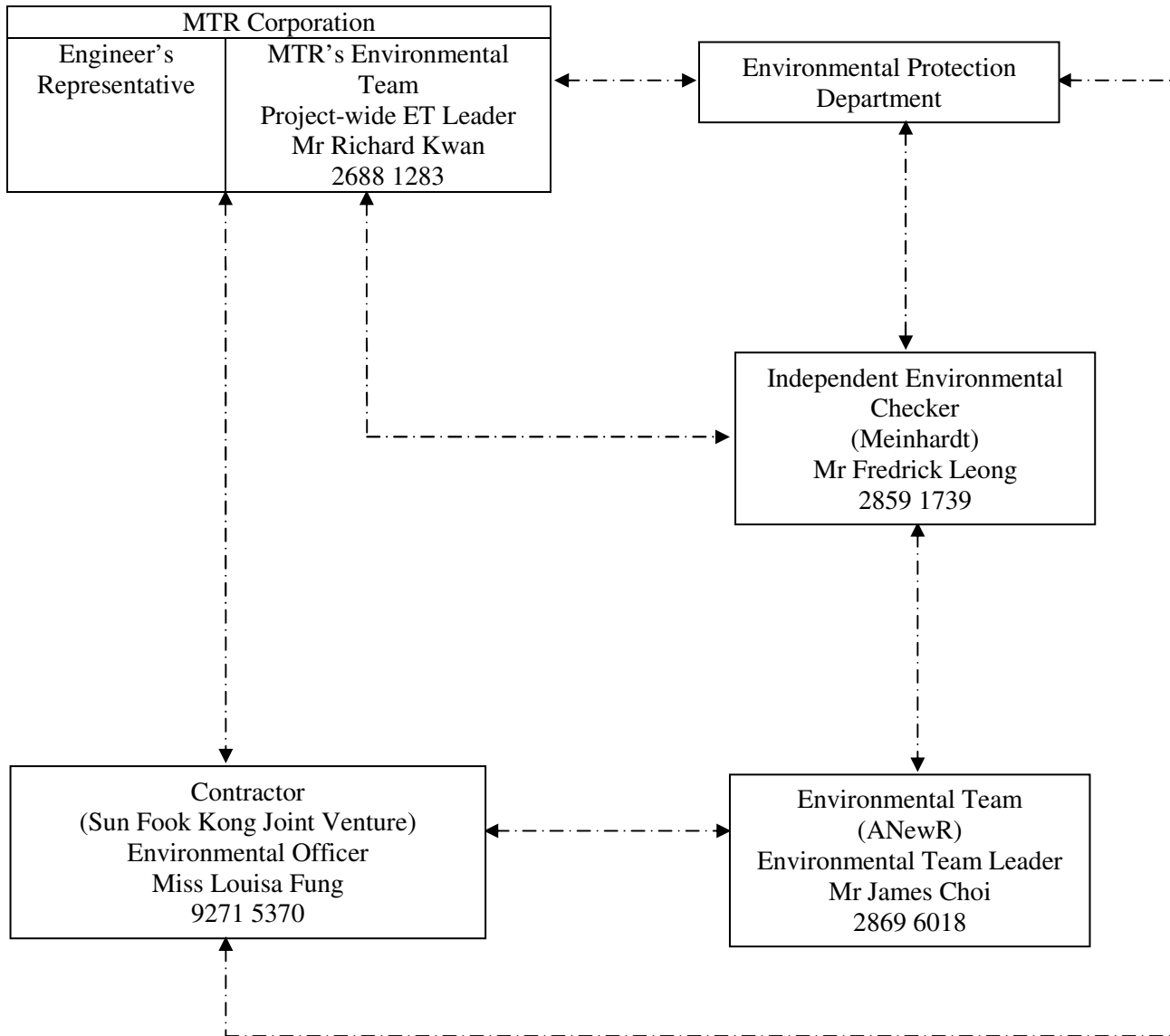
2 No construction activity had been carried out at To Shek Storage Yard and Shek Mun Storage Yard.

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/F	20 June 2014	15 July 2014	15 July 2014	13 August 2014
Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section	EP-438/2012/G	29 July 2014	14 August 2014	14 August 2014	N/A
Construction Noise Permit					
Tai Wai Station (At Tai Wai Mei Tin Road)	GW-RN0804-13	16 December 2013	13 January 2014	18 February 2014	17 August 2014
Tai Wai Station (At Tai Wai Mei Tin Road)	GW-RN0379-14	10 June 2014	27 June 2014	18 August 2014	17 February 2015
To Shek Storage Yard	GW-RN0508-14	7 August 2014	25 August 2014	27 August 2014	26 February 2015
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					

Subject	Reference No.	Application Date	Issued Date	Effective Date	Expired Date
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/F and EP-438/2012/G

EP Condition	Submission	Date of Submission
Condition 3.4	Monthly EM&A Report (July 2014)	14 August 2014

APPENDIX E
WASTE FLOW TABLE

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

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

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

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

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
		Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste (in kg)
January	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
February	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.00
March	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.00
April	0.00	0.00	0.00	0.00	0.00	3.00	16.25	0.00
May	0.00	0.00	0.00	0.00	0.00	0.00	35.75	0.00
June	0.00	0.00	0.00	0.00	0.00	0.00	22.75	0.00
Sub-total	13.00	0.00	0.00	0.00	13.00	3.00	107.50	0.00
July	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.00
August	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.00
September	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
October	0.00	0.00	0.00	0.00	0.00	0.00	58.50	0.00
November	19.50	0.00	0.00	0.00	19.50	0.00	48.75	0.00
December	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cumulative Total	32.50	0.00	0.00	0.00	32.50	3.00	224.50	0.00

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

Waste Flow Table for 2014 (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	Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste (in kg)
January	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
February	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
March	0.00	0.00	0.00	0.00	0.00	0.00	0.00	120.00
April	0.00	0.00	0.00	0.00	0.00	0.00	0.00	120.00
May	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
June	0.00	0.00	0.00	0.00	0.00	0.00	6.50	270.00
Sub-total	32.50	0.00	0.00	0.00	32.50	3.00	231.00	510.00
July	19.50	0.00	0.00	0.00	19.50	0.00	19.50	0.00
August	71.50	0.00	0.00	0.00	71.50	26.00	6.50	500.00
September								
October								
November								
December								
Cumulative Total	123.50	0.00	0.00	0.00	123.50	29.00	257.00	1010.00

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

APPENDIX F

MITIGATION MEASURES IMPLEMENTATION SCHEDULE FOR CONSTRUCTION STAGE

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

Remarks:

^ Implement mitigation measure in the reporting month

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> Trees of high to medium survival rate would be affected 	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

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
		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; When there are open excavation and reinstatement 	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
		<p>works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</p> <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; • 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; • Every stock of more than 20 bags of cement or by 						

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>pulverized fuel ash (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 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	<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 	Control construction airborne noise	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^

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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
		<p>in intermittent use should be shut down between work periods or should be throttled down to a minimum;</p> <ul style="list-style-type: none"> 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	^
S8.3.6	N4	Use “Quiet plants”	Reduce the noise	Contractor	All	Construction	• Annex 5, TM-EIA	^

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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
			levels of plant items		construction sites where practicable	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	• 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 the contractor prior to the commencement of 	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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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>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. The overall slope of the site should be kept to a 						

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

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x Non-compliance of mitigation measure

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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
		<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 and drains. 						

Remarks:

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		<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	<u>Sewage Effluent</u> <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 	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:

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x Non-compliance of mitigation measure

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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
		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 from delivering to crushing facilities. The crushing plant operator should also be reminded to set up 	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:

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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
		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 purpose, where possible; Implement a trip-ticket system for each works contract 	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>to ensure that the disposal of C&D materials are properly documents and verified; and</p> <ul style="list-style-type: none"> Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction; In addition, disposal of the C&D materials onto 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. 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 	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
		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. Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

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* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly 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 	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:

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

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

* Not satisfactory but rectified by the contractor

APPENDIX G

ENVIRONMENTAL COMPLAINT LOG

Appendix G Environmental Complaint Log

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

Appendix D

**20th 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
August 2014**

September 2014

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

Version: 0

Date: 11 September 2014

Disclaimer

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

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Table of Contents

	Page
EXECUTIVE SUMMARY	1
1 INTRODUCTION.....	3
1.1 Purpose of the Report	3
1.2 Report Structure.....	3
2 PROJECT INFORMATION.....	4
2.1 Background	4
2.2 Site Description	4
2.3 Construction Programme and Activities	5
2.4 Project Organisation.....	5
2.5 Status of Environmental Licences, Notification and Permits	6
3 ENVIRONMENTAL MONITORING REQUIREMENTS.....	8
3.1 Construction Dust Monitoring.....	8
3.2 Regular Construction Noise Monitoring	11
3.3 Continuous noise monitoring	13
3.4 Landscape and Visual.....	14
4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES.....	15
5 MONITORING RESULTS	15
5.1 Construction Dust Monitoring.....	15
5.2 Regular Construction Noise Monitoring	15
5.3 Continuous Noise Monitoring.....	15
5.4 Waste Management.....	16
5.5 Landscape and Visual.....	16
6 ENVIRONMENTAL SITE INSPECTION AND AUDIT.....	17
7 ENVIRONMENTAL NON-CONFORMANCE.....	19
7.1 Summary of Monitoring Exceedances	19
7.2 Summary of Environmental Non-Compliance.....	19
7.3 Summary of Environmental Complaints.....	19
7.4 Summary of Environmental Summon and Successful Prosecutions.....	19
8 FUTURE KEY ISSUES	20
8.1 Construction Programme for the Next Month	20
8.2 Key Issues for the Coming Month.....	20
8.3 Monitoring Schedule for the Next Month.....	20
9 CONCLUSIONS AND RECOMMENDATIONS.....	21
9.1 Conclusions.....	21
9.2 Recommendations	22

List of Tables

Table 1.1	Contact Information of Key Personnel
Table 2.1	Status of Environmental Licenses, Notifications and Permits
Table 3.1	Air Quality Monitoring Equipment
Table 3.2	Locations of Air Quality Monitoring Stations
Table 3.3	Air Quality Monitoring Parameters, Frequency and Duration
Table 3.4	Noise Monitoring Parameters, Frequency and Duration
Table 3.5	Noise Monitoring Equipment for Regular Noise Monitoring
Table 3.6	Locations of Impact Noise Monitoring Stations
Table 3.7	Summary of Proposed Continuous Noise Monitoring Location
Table 3.8	Noise Monitoring Equipment for Continuous Noise Monitoring
Table 3.9	Summary of Proposed Continuous Noise Monitoring Plan
Table 4.1	Status of Required Submission under Environmental Permit
Table 5.1	Summary of 24-hour TSP Monitoring Results in the Reporting Period
Table 5.2	Summary of Impact Noise Monitoring Results in the Reporting Period
Table 6.1	Observations and Recommendations of Site Audit

List of Figures

Figure 1.1	General Layout Plan
Figure 2.1	Location of Air Quality Monitoring Station
Figure 3.1	Locations of Impact Noise Monitoring Stations

List of Appendices

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

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 August 2014. As informed by the Contractor, major activities in the reporting period were:

Hung Hom Area

- Excavation work, site clearance, site formation, slope work, cable detection, road diversion,
- Construction of drainage, reinforced concrete structure, emergency vehicular access, temporary pedestrian walkway, decking,
- Trial pit, trial trench, pre-drilling, pilling works, pre-grouting, grouting, post-grouting, backfilling, abutment works,
- Erection of hoarding, temporary bridge, scaffolding platform,
- Trimming of retaining wall,
- Tie back installation,
- Demolition of overhead line, asbestos pipe,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Mong Kok Freight Terminal

- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Breaches of Action and Limit Levels for Air Quality

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

Breaches of Action and Limit Levels for Noise

Regular Noise Monitoring

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

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

Continuous Noise Monitoring

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

Complaint, Notification of Summons and Successful Prosecution

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

Future Key Issues

Key issues to be considered in the coming month included:

Hung Hom Area

- Excavation works, site clearance, site formation, slope work, foul water and towngas diversion, removal of pipe,
- Construction of man hole, drainage, reinforced concrete structure, emergency vehicular access, haul road,
- Trial pit, trial trench, pre-drilling, pilling works, pre-grouting, grouting, post-grouting, pre-boring, pipe pilling, sheet pilling, abutment works,
- Erection of hoarding, overhead line, temporary bridge, scaffolding platform, backfilling,
- Trimming of retaining wall,
- Tie back installation,
- Demolition of overhead line, scaffolding walkway,
- Provisioning of overhead line portal,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Mong Kok Freight Terminal

- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (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 twentieth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 31 August 2014.

1.2 Report Structure

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

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection
- 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/G) was issued by Director of Environmental Protection (DEP) on 14 August 2014.
- 2.1.3 The construction of the SCL is divided into different civil construction works contracts and Works Contract 1111 – Hung Hom North Approach Tunnels (hereafter referred to as “the Project”) covers construction activities at Mong Kok Freight Terminal and part of the construction activities located at Hung Hom under the two EPs.

2.2 Site Description

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

2.3 Construction Programme and Activities

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

Hung Hom Area

- Excavation work, site clearance, site formation, slope work, cable detection, road diversion,
- Construction of drainage, reinforced concrete structure, emergency vehicular access, temporary pedestrian walkway, decking,
- Trial pit, trial trench, pre-drilling, pilling works, pre-grouting, grouting, post-grouting, backfilling, abutment works,
- Erection of hoarding, temporary bridge, scaffolding platform,
- Trimming of retaining wall,
- Tie back installation,
- Demolition of overhead line, asbestos pipe,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Mong Kok Freight Terminal

- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (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/F	15 Jul 2014	-	Valid	Valid until cancellation on 14 Aug 2014
EP-438/2012/G	14 Aug 2014	-	Valid	-
Construction Noise Permit				
GW-RE0226-14	10 Mar 2014	09 Sep 2014	Valid	For Grouting Station Works at EWL8
GW-RE0403-14	12 Apr 2014	11 Oct 2014	Valid	Extension Hour for Works at NSL3-5
GW-RE0432-14	17 Apr 2014	16 Oct 2014	Valid	For Cross Track Duct Installation at Oi Sen Path near Workfronts No. 5&6
GW-RE0590-14	28 May 2014	27 Nov 2014	Valid	For E&M Works at PolyU Phase 8 in Homantin
GW-RE0702-14	20 Jun 2014	20 Aug 2014	Valid	For Hoarding Erection at NSL 3-5
GW-RE0699-14	24 Jun 2014	23 Aug 2014	Valid until cancellation on 12 Aug 2014	For 6m Hoarding Erection at NSL 9
GW-RE0744-14	05 Jul 2014	06 Sep 2014	Valid	For Cross Track Duct Installation in Homantin Siding
GW-RE0753-14	12 Jul 2014	30 Aug 2014	Valid until cancellation on 05 Aug 2014	For TB1 & TB2 Installation at Chatham Road North
GW-RE0812-14	22 Jul 2014	30 Sep 2014	Valid	For Scaffolding and Hoarding Erection at Homantin and Oi Sen Path
GW-RE0768-14	30 Jul 2014	29 Jan 2015	Valid	For General and Reprovisioning Works at Hung Hom Station
GW-RE0829-14	31 Jul 2014	30 Aug 2014	Valid	For 6m Hoarding Erection in NSL6
GW-RE0821-14	01 Aug 2014	31 Jan 2015	Valid	For E&M Works at Mong Kok East Station Concourse
GW-RE0851-14	12 Aug 2014	11 Oct 2014	Valid	For 6m Hoarding Erection in NSL9 and Demolition of Scaffolding Platform at Oi Sen Path
GW-RE0870-14	05 Aug 2014	30 Aug 2014	Valid	For TB1 and TB2 Installation at Chatham Road North
GW-RE0889-14	20 Aug 2014	30 Sep 2014	Valid	For lifting Travelling Formwork at Homantin near Princess Margaret Road
GW-RE0915-14	21 Aug 2014	31 Oct 2014	Valid	For Hoarding Erection at NSL3-5

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
GW-RE0926-14	23 Aug 2014	22 Oct 2014	Valid	For Scaffolding and 2.4m Hoarding Erection at Homantin and Oi Sen Path
GW-RE0917-14	24 Aug 2014	23 Sep 2014	Valid	For 6m Hoarding Erection in NSL6
GW-RE0985-14	30 Aug 2014	31 Oct 2014	Valid	For TB1 and TB2 Installation at Chatham Road North
Wastewater Discharge License				
WT00015148-2013	20 Feb 2013	28 Feb 2018	Valid	For Winslow Street Works
WT00015644-2013	16 Apr 2013	30 Apr 2018	Valid	For Homantin Sidings Works
WT00015606-2013	25 Apr 2013	30 Apr 2018	Valid	For Mong Kok Freight Terminal Works
WT00016090-2013	14 Jun 2013	30 Jun 2018	Valid	For Hung Hom Station Works
WT00016108-2013	14 Jun 2013	30 Jun 2018	Valid	For Slip Road Works from Chatham Road North and underneath Princess Margaret Road Link (Discharge Point near Hong Chong Road)
WT00015859-2013	14 May 2013	31 May 2018	Valid	For Works in EWL8 and Oi Sen Path Garden
WT00016447-2013	24 Jul 2013	31 Jul 2018	Valid	For Winslow Street Slope Works Between Chatham Road North and Wai Fung Street
WT00016435-2013	23 Jul 2013	31 Jul 2018	Valid	For Slip Road Works from Chatham Road North and underneath Princess Margaret Road Link (Discharge Point near Oi Sen Path)
WT00018688-2014	14 Apr 2014	30 Apr 2019	Valid	For Hung Hom Freight Terminal Works
WT00019068-2014	25 Jun 2014	30 Jun 2019	Valid	For Oi Sen Path Works
Chemical Waste Producer Registration				
5213-213-G2618-01	22 Mar 2013	-	Valid	For Winslow Street Works
5213-213-G2618-03	08 Apr 2013	-	Valid	For Hung Hom Station Re provisioning Works
5213-222-G2618-05	25 Apr 2013	-	Valid	For Mong Kok Freight Terminal Works
5213-213-G2618-06	16 Apr 2013	-	Valid	For Homantin Sidings Works
5213-236-G2618-10	14 Jun 2013	-	Valid	For Slip Road Works from Chatham Road North and underneath Princess Margaret Road Link
5213-236-G2618-11	27 May 2013	-	Valid	For Works near Chatham Road North
5213-213-G2618-12	14 Apr 2014	-	Valid	For Hung Hom Freight Terminal Works
5213-236-G2618-14	08 May 2014	-	Valid	For Oi Sen Path Works
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	-
Clinical Waste Producer Premises Code				
PC01/RE/00362644	30 Jan 2014	-	Valid	For Hung Hom Freight Yard Works

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:8259))
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 August 2014 is provided in **Appendix F**.

3.2 Regular Construction Noise Monitoring

Monitoring Requirements

- 3.2.1 In accordance with the EM&A Manuals, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.4** summarises the monitoring parameters, frequency and duration of impact noise monitoring. The Action and Limit level of the noise monitoring is provided in **Appendix D**.

Table 3.4 Noise Monitoring Parameters, Frequency and Duration

Parameter and Duration	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. Leq, L10 and L90 would be recorded.	At least once per week

Monitoring Equipment

- 3.2.2 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.5**.

Table 3.5 Noise Monitoring Equipment for Regular Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	B&K (Model No. 2238 (S/N: 2285692), (S/N: 2800927) & (S/N: 2800930)) Rion (Model No. NL-31 (S/N: 00320528))
Acoustic Calibrator	Rion (Model No. NC-73 (S/N: 10307223))

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 August 2014 is provided in **Appendix F**.

Continuous noise monitoring**Monitoring Requirements**

- 3.2.7 According to EP conditions under EP-437/2012 (Condition 2.8) and EP-438/2012/G (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 CNMMP and Continuous Noise Monitoring Plan (CNMP) were submitted to EPD on 20 January 2014.

Monitoring Locations

- 3.2.8 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

- 3.2.9 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	B&K (Model No. 2238 (S/N: 2800927))
Acoustic Calibrator	Rion (Model No. NC-73 (S/N: 10307223))

Monitoring Parameters, Frequency and Duration

- 3.2.10 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

- 3.2.11 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

- 3.2.12 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)	68 ⁽¹⁾	Feb and Jun 2014, Jan and Feb 2015 ⁽³⁾⁽⁴⁾
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) Based on 2013-2014 Calendar of Carmel Secondary School, the examination periods are assumed to be January, February and June.
 (4) The continuous noise monitoring periods will be reviewed and updated based on the latest calendar of Carmel Secondary School.

3.3 Landscape and Visual

- 3.3.1 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/F)	Monthly EM&A Report for July 2014	14 August 2014

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

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

Table 5.1 Summary of 24-hour TSP Monitoring 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	29.5	22.7 – 35.5	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 and 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⁾	<Baseline – 64.2	70 (65) ⁽¹⁾
NM 2 ⁽²⁾	<Baseline	75

Note:

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

(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 and action plan is annexed in **Appendix I**.

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

5.3 Continuous Noise Monitoring

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

5.4 Waste Management

- 5.4.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 5.4.2 As advised by the Contractor, 1,540m³ of inert C&D material was generated. 1,107m³ and 3m³ was disposed as public fills at TKO137 and TM38 respectively. 64m³ of public fills was delivered to Hung Hom Barging Point and handled by other project. While 44,750kg of general refuse was disposed at NENT landfill in the reporting month. 120kg of paper/cardboard packaging material, no metals and plastic was collected by recycling contractor in the reporting month. 366m³ of inert C&D materials were reused in other project. 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 Bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted on 14 and 28 August 2014. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.
- 5.5.2 The event and action plan is annexed in **Appendix I**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

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

6.1.2 In the reporting month, 4 site inspections were carried out on 7, 14, 21 and 28 August 2014. The one held on 14 August 2014 was a joint inspection with the IEC, ER, the Contractor and the ET. No site inspection was conducted by EPD during the reporting month. No non-compliance was recorded during the site inspections. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	07 Aug 2014	<ul style="list-style-type: none"> Insufficient effluent intercepting measures were provided at Tai Pau Mei, Winslow Street and Hong Chong Road. The Contractor should enhance the effluent intercepting mechanism onsite. 	The item was rectified by the Contractor on 13 Aug 2014.
		<ul style="list-style-type: none"> Deposit of silt was observed in a gully at Hong Chong Road. The Contractor should clear the deposited silt and provide proper measure to avoid the accumulation of silt in public drainage system. 	
	21 Aug 2014	<ul style="list-style-type: none"> Public drainage was observed exposing to effluent at Hong Chong Road. The Contractor should clear the effluent in the gully and provide adequate intercepting measure to prevent runoff from crossing the site and entering the public drainage. 	The item was observed to be rectified on 28 Aug 2014.
	28 Aug 2014	<ul style="list-style-type: none"> Inadequate effluent intercepting mechanism was provided at Winslow Street Slope Work and Hong Chong Road. The Contractor should provide sand bag bunding and effluent intercepting measures to prevent any non-complied discharge. 	The item will be follow-up in Sep 2014.
Air Quality	28 Aug 2014	<ul style="list-style-type: none"> Mud trail was found at the vehicle entrance at Hong Chong Road. The Contractor should clean the wheel thoroughly before leaving the construction site. 	The item will be follow-up in Sep 2014.
Noise	21 Aug 2014	<ul style="list-style-type: none"> Inadequate noise abatement measure was provided at Winslow Street Slope Work. The Contractor should provide effective noise reducing mechanism to lessen noise impact to the NSRs. 	The item was rectified by the Contractor on 22 Aug 2014.
Waste/ Chemical Management	14 Aug 2014	<ul style="list-style-type: none"> Chemical waste labels were found missing on chemical waste containers at NSL9. The Contractor should properly label all chemical waste containers. 	The item was rectified by the Contractor on 20 Aug 2014.

Parameters	Date	Observations and Recommendations	Follow-up
	14 Aug 2014	<ul style="list-style-type: none"> Improper handling of accumulated water inside the drip tray was observed at EWL8. The Contractor should clear the accumulated stagnant water at drip tray regularly and dispose of as chemical waste. 	The item was rectified by the Contractor on 20 Aug 2014.
	28 Aug 2014	<ul style="list-style-type: none"> Oil leakage was observed from the drill rig at Winslow Street Slope Work. The Contractor should clear the oil stain and dispose of as chemical waste. Moreover, maintenance should be provided to the machinery onsite. 	The item will be follow-up in Sep 2014.
Landscape & Visual	N/A	N/A	N/A
Permits/ Licenses	07 Aug 2014	<ul style="list-style-type: none"> Expired EP was found posting at the entrance/exit at Tai Pau Mei. The Contractor should post update and relevant EP at the entrance/exit of each area. 	The item was rectified by the Contractor on 13 Aug 2014.
	14 Aug 2014	<ul style="list-style-type: none"> Expired EPs were observed posting at the entrance/exits at EWL8 and NSL8. The Contractor should post update and relevant EP at the entrance/exit of each works area. 	The item was observed to be rectified on 21 Aug 2014.

- 6.1.3 All the follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed into the following weekly site inspection conducted during the reporting period.
- 6.1.4 The items of which their inspection for follow-up actions were outstanding as recorded in the last reporting month have already been rectified by the Contractor as confirmed by the ET during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

- 7.1.1 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 September and October 2014 will be:

Hung Hom Area

- Excavation works, site clearance, site formation, slope work, foul water and towngas diversion, removal of pipe,
- Construction of man hole, drainage, reinforced concrete structure, emergency vehicular access, haul road,
- Trial pit, trial trench, pre-drilling, pilling works, pre-grouting, grouting, post-grouting, pre-boring, pipe pilling, sheet pilling, abutment works,
- Erection of hoarding, overhead line, temporary bridge, scaffolding platform, backfilling,
- Trimming of retaining wall,
- Tie back installation,
- Demolition of overhead line, scaffolding walkway,
- Provisioning of overhead line portal,
- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.

Mong Kok Freight Terminal

- Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (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, water quality impact and waste management.

8.3 Monitoring Schedule for the Next Month

8.3.1 The tentative schedule for environmental monitoring in September 2014 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 August 2014. 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 wheel washing mechanism to avoid potential dust impact.

Construction Noise Impact

- Implement proper noise abatement measure to lessen noise impact to the NSRs.

Water Quality Impact

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

Chemical and Waste Management

- Provide proper chemical and construction waste management.

Landscape and Visual Impact

- No specific observation was identified in the reporting month.

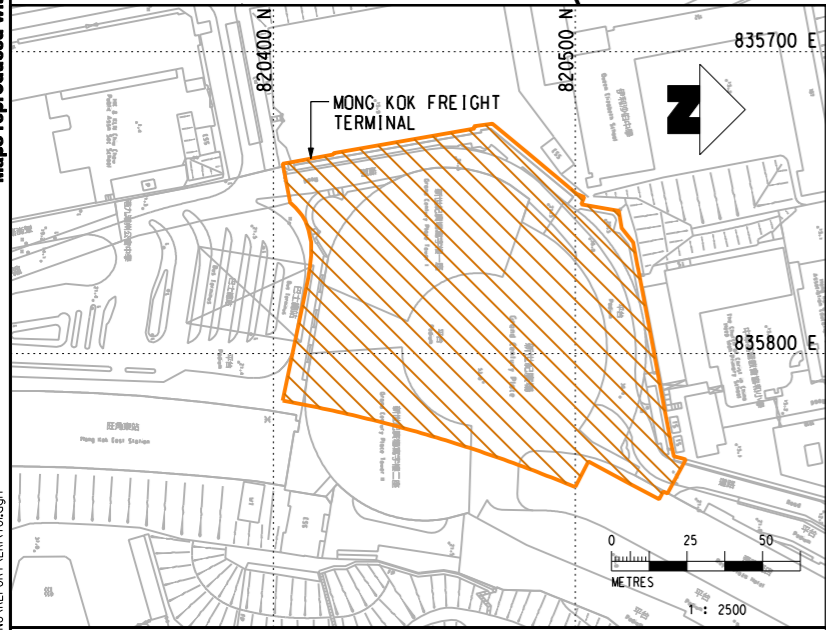
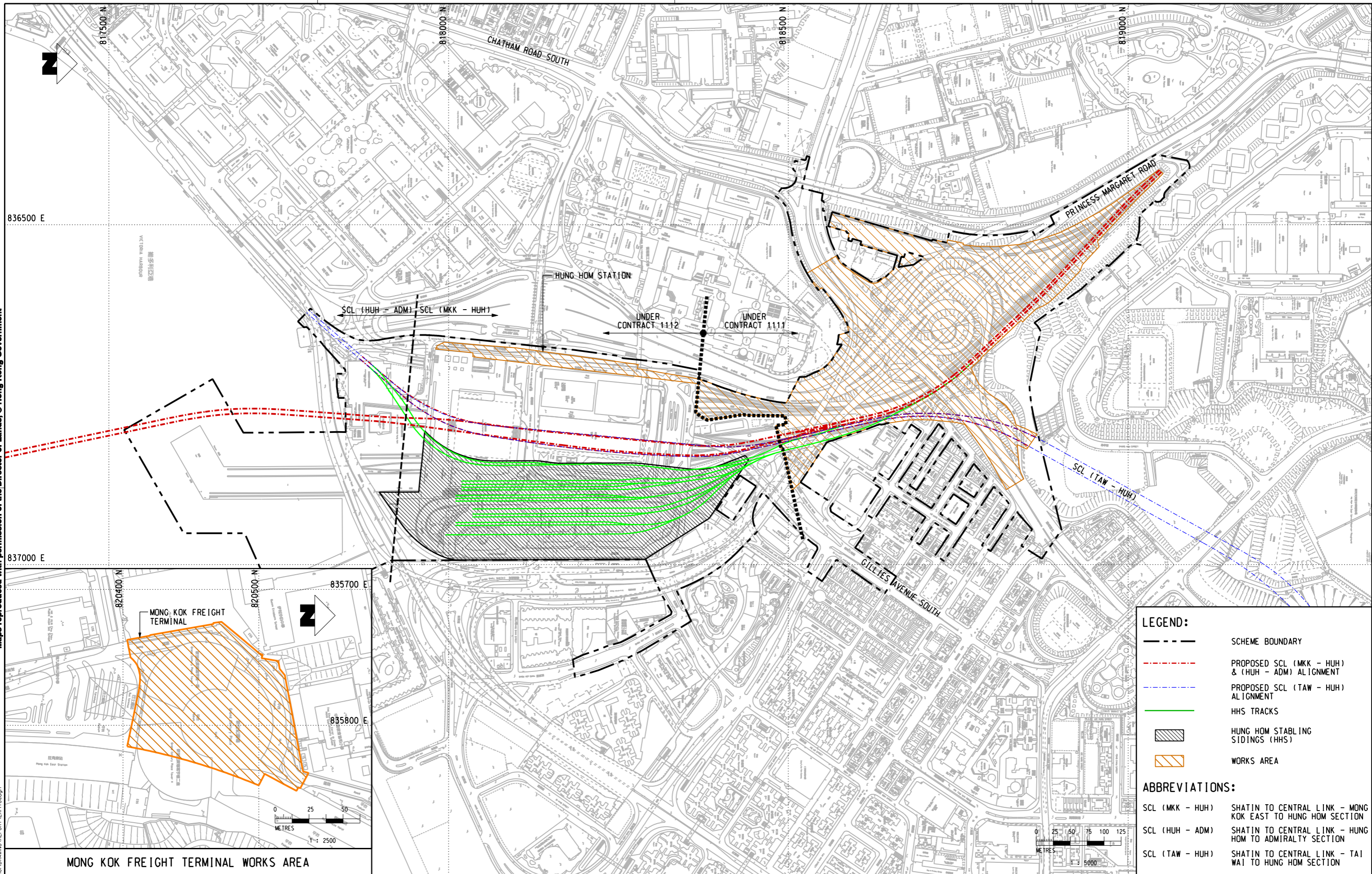
Permits/Licenses

- Post update and relevant EP at the site entrance.

FIGURES

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LEGEND:

- SCHEME BOUNDARY
- PROPOSED SCL (MKK - HUH) & (HUH - ADM) ALIGNMENT
- PROPOSED SCL (TAW - HUH) ALIGNMENT
- HHS TRACKS
- HUNG HOM STABLEING SIDINGS (HHS)
- WORKS AREA

ABBREVIATIONS:

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

<p>MONG KOK FREIGHT TERMINAL WORKS AREA</p>				<p>MONG KOK FREIGHT TERMINAL WORKS AREA</p>				<p>MONG KOK FREIGHT TERMINAL WORKS AREA</p>				<p>MONG KOK FREIGHT TERMINAL WORKS AREA</p>			
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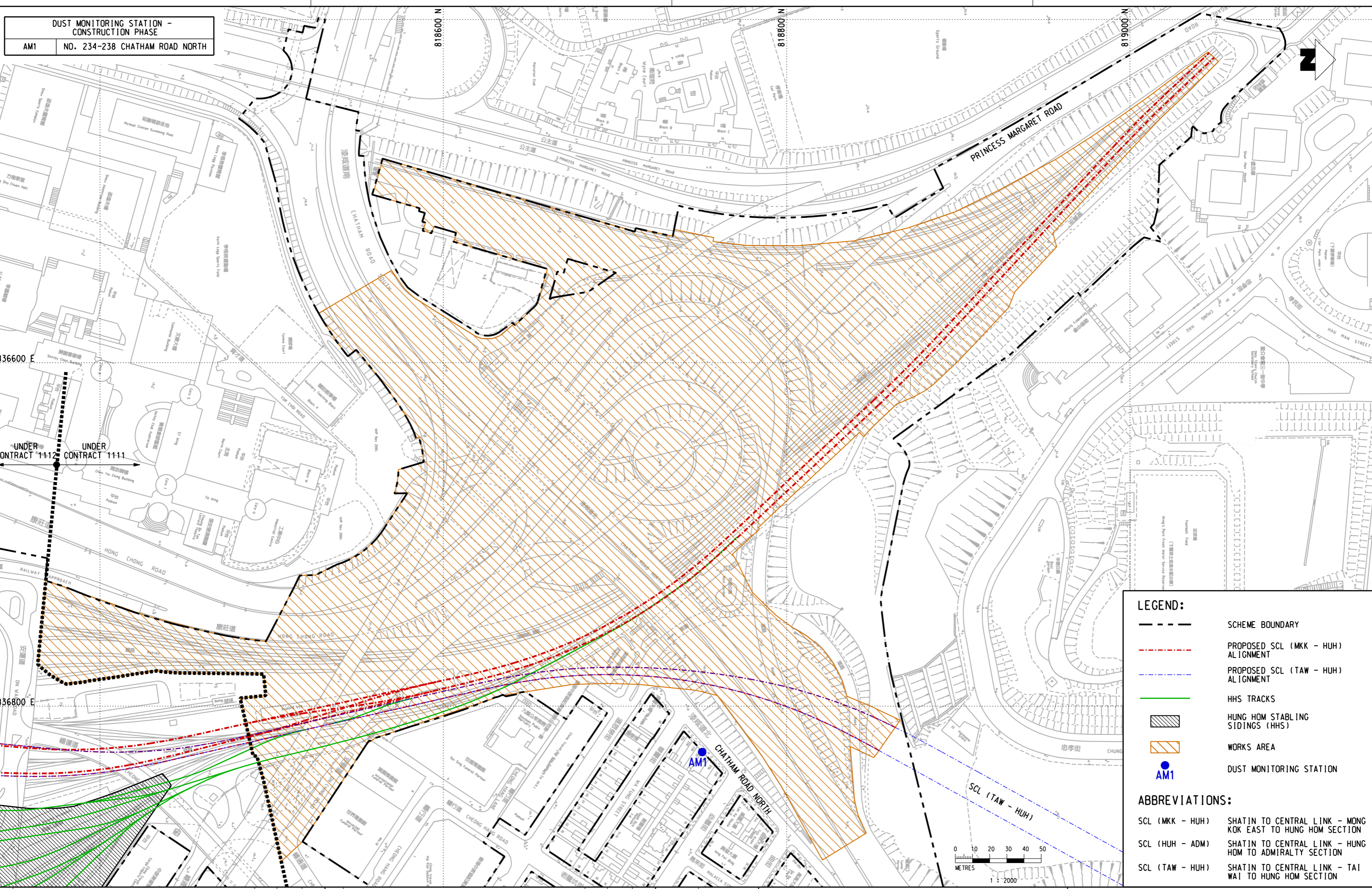
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DESIGNED	LCLL				
CHECKED	LCLL				
APPROVED	IMW				
DATE	08/FEB/2013				
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TITLE	<p>CONTRACT 1111 HUNG HOM NORTH APPROACH TUNNELS WORKS AREAS OF THE PROJECT</p>		
SCALE	A3 AS SHOWN	FIGURE NO.	FIGURE 1.1
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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
DESIGNED	LCLL
CHECKED	LCLL
APPROVED	IMW
DATE	08/JAN/2013

MTR

SHATIN TO CENTRAL LINK

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

ORIGINATOR: **AECOM**

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

SCALE: 1 : 2000 (A3)




FIGURE NO. **FIGURE 2.1**

REV. -

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																																																																	

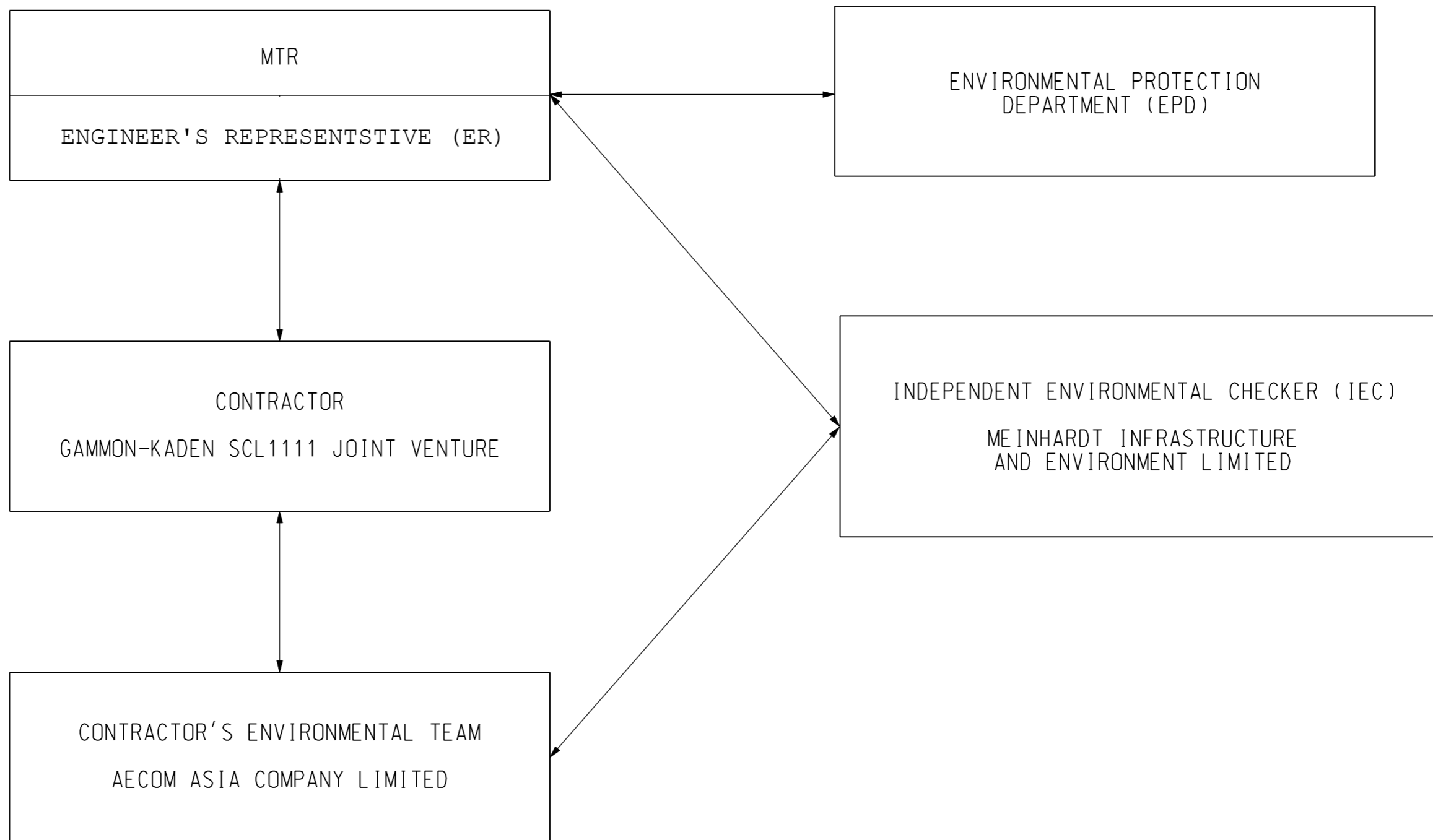
 Early Bar
 Progress Bar
 Critical Activity

**SCL 1111
SUMMARY PROGRAMME**

Date	Revision	Checked	Approved
19/09/12			

APPENDIX B

Project Organization Structure



REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

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

SHATIN TO CENTRAL LINK	
CONTRACTOR Gammon - Kaden SCL 1111 Joint Venture	ORIGINATOR
CADD REF. Appendix B	

TITLE CONTRACT 1111 HUNG HOM NORTH APPROACH TUNNELS PROJECT ORGANISATION	
SCALE N.T.S.	FIGURE NO. Appendix B
REV.	—

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	@
		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	V
		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	V
		Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads	All construction sites	V
		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
		Open burning shall be prohibited	All construction sites	N/A
/	Emission from Vehicles and Plants	All vehicles shall be shut down in intermittent use.	All construction sites	V
		Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.	All construction sites	V
		All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	All construction sites	V

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	@
		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	V
		Perimeter channels at site boundaries should be provided on site boundaries where necessary to intercept storm run-off from outside the site so that it will not wash across the site.	All works area	V
		Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly.	All construction sites	V
		Construction works should be programmed to minimize soil excavation works in rainy seasons.	All construction sites	N/A
		Temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds.	All construction sites	V
		Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried	All construction sites	N/A

		out immediately after the final surfaces are formed to prevent erosion caused by rainstorms.		
		Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms.	All construction sites	V
		Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities	All construction sites	V
		Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.	All construction sites	@
		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	V
		Waste should be removed in timely manner	All construction sites	V
			Waste collectors should only collect wastes prescribed by their permits.	All construction sites

	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	@
	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)	68 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: 7-Jul-14 Next Due Date: 7-Sep-14
 Equipment No.: --- Serial No. 8259

Ambient Condition			
Temperature, Ta (K)	303.5	Pressure, Pa (mmHg)	751.5

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99102	Intercept, bc	-0.00616
Last Calibration Date:	9-Dec-13	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	9-Dec-14				

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	8.1	2.80	1.41	46.0	45.33
13	6.7	2.55	1.28	39.0	38.43
10	5.4	2.29	1.15	33.0	32.52
7	4.2	2.02	1.02	27.0	26.60
5	3.0	1.71	0.86	20.0	19.71

By Linear Regression of Y on X

Slope, mw = 45.9896 Intercept, bw = -20.1546

Correlation Coefficient* = 0.9981

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m³/min

From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]^{1/2} = 40.22

Remarks: _____

QC Reviewer: WS CHAN

Signature: [Signature]

Date: 8/7/14



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 09, 2013 Rootsmeter S/N 0438320 Ta (K) - 290
 Operator Tisch Orifice I.D. - 0843 Pa (mm) - 755.65

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	1.4140	3.2	2.00
2	NA	NA	1.00	0.9940	6.4	4.00
3	NA	NA	1.00	0.8870	7.9	5.00
4	NA	NA	1.00	0.8450	8.8	5.50
5	NA	NA	1.00	0.6990	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0174	0.7195	1.4295	0.9957	0.7042	0.8761
1.0131	1.0192	2.0216	0.9915	0.9975	1.2390
1.0109	1.1397	2.2602	0.9894	1.1155	1.3852
1.0098	1.1950	2.3705	0.9883	1.1696	1.4528
1.0044	1.4369	2.8590	0.9830	1.4063	1.7522
Qstd slope (m) = 1.99102			Qa slope (m) = 1.24674		
intercept (b) = -0.00616			intercept (b) = -0.00378		
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:

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

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



CERTIFICATE OF CALIBRATION

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

Item tested

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

Item submitted by

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

Date of test: 07-Mar-2014

Reference equipment used in the calibration

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

Ambient conditions

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

Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of $\pm 20\%$.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure 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: 12-Mar-2014

Company Chop:



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



CERTIFICATE OF CALIBRATION

Certificate No.: 14CA0702 01-01

Page 1 of 2

Item tested

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

Item submitted by

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

Date of test: 03-Jul-2014

Reference equipment used in the calibration

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

Ambient conditions

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

Test specifications

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

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 04-Jul-2014

Company Chop:



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



CERTIFICATE OF CALIBRATION

Certificate No.: 14CA0702 01-02 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.:	2800930 / N.009.07	,	2250455
Adaptors used:	-	,	-

Item submitted by

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

Date of test: 03-Jul-2014

Reference equipment used in the calibration

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

Ambient conditions

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

Test specifications

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

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 04-Jul-2014

Company Chop:



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



CERTIFICATE OF CALIBRATION

Certificate No.: 13CA1107 01-01 Page 1 of 2

Item tested

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

Item submitted by

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

Date of test: 08-Nov-2013

Reference equipment used in the calibration

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

Ambient conditions

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

Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure 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: 11-Nov-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.: 13CA1107 01-02

Page: 1 of 2

Item tested

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

Item submitted by

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

Date of test: 08-Nov-2013

Reference equipment used in the calibration

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

Ambient conditions

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

Test specifications

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

Test results

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

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

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 11-Nov-2013

Company Chop:



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 August 2014**

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
	24-hour TSP (AM1)	Noise (NM1, NM2)				24-hour TSP (AM1)
10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug
		Noise (NM1, NM2)			24-hour TSP (AM1)	
17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug
				24-hour TSP (AM1)	Noise (NM1, NM2)	
24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug
			24-hour TSP (AM1)	Noise (NM1, NM2)		
31-Aug						

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels
Tentative Impact Monitoring Schedule for September 2014**

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

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

APPENDIX G

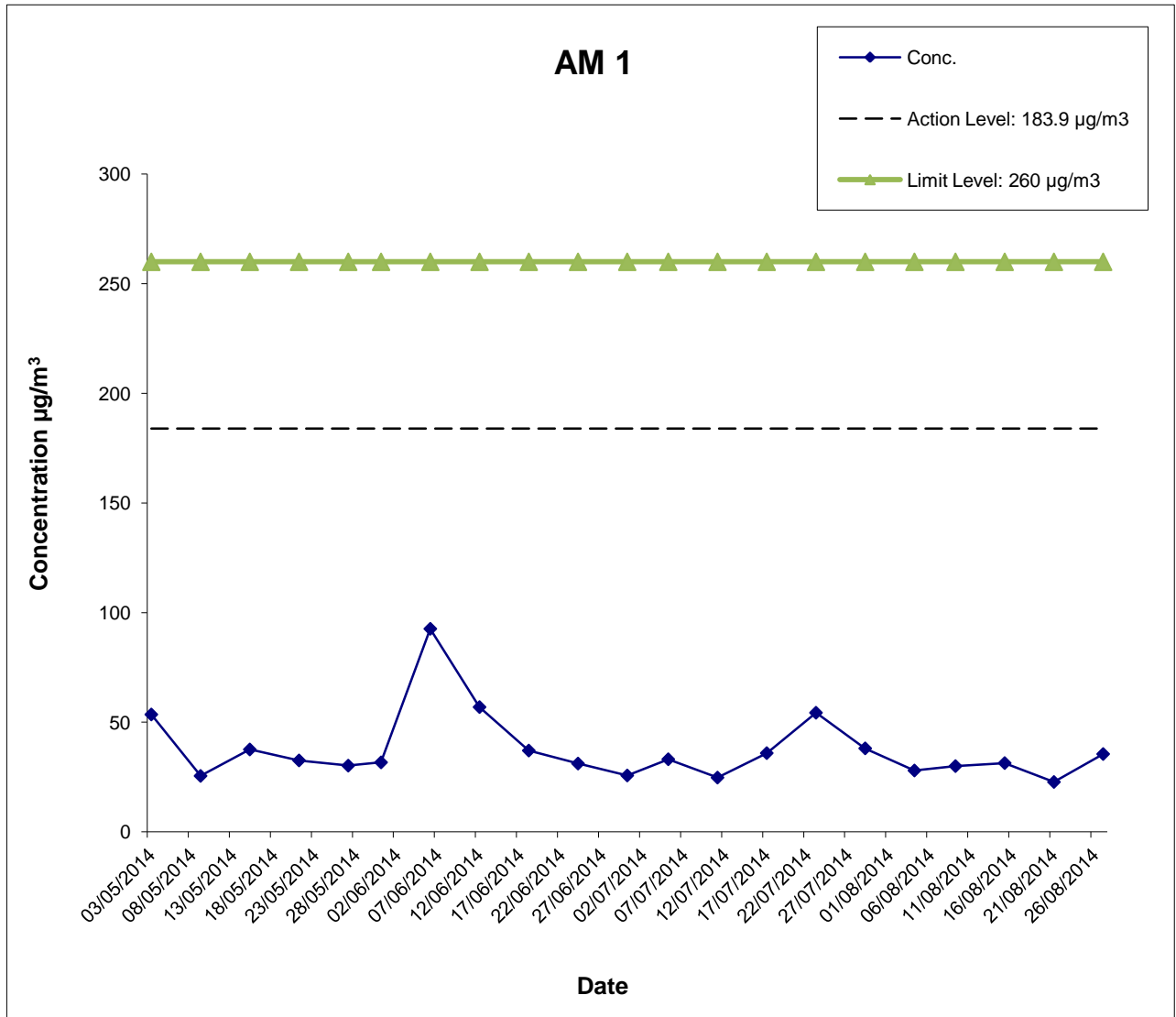
**Air Quality Monitoring Results and
their Graphical Presentations**

**Appendix G
Air Quality Monitoring Results**

24-hour TSP Monitoring Results at Station AM1 (No. 234 – 238 Chatham Road North)

Start		End		Weather Condition	Air Temp. (°C)	Atmospheric Pressure (hPa)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)
Date	Time	Date	Time				Initial	Final			Initial	Final		Initial	Final		
04-Aug-14	0:00	05-Aug-14	0:00	Sunny	30.2	1002.4	1.31	1.31	1.31	1890.7	2.7353	2.7882	0.0529	9040.06	9064.06	24.00	28.0
09-Aug-14	0:00	10-Aug-14	0:00	Cloudy	30.1	1004.4	1.37	1.37	1.37	1977.1	2.7063	2.7656	0.0593	9064.06	9088.06	24.00	30.0
15-Aug-14	0:00	16-Aug-14	0:00	Sunny	29.2	1010.1	1.31	1.31	1.31	1890.7	2.7259	2.7852	0.0593	9088.06	9112.06	24.00	31.4
21-Aug-14	0:00	22-Aug-14	0:00	Fine	26.9	1010.7	1.31	1.31	1.31	1890.7	2.7175	2.7605	0.0430	9112.06	9136.06	24.00	22.7
27-Aug-14	0:00	28-Aug-14	0:00	Sunny	29.4	1010.1	1.31	1.31	1.31	1890.7	2.7049	2.7721	0.0672	9136.06	9160.06	24.00	35.5
Average																29.5	
Minimum																22.7	
Maximum																35.5	

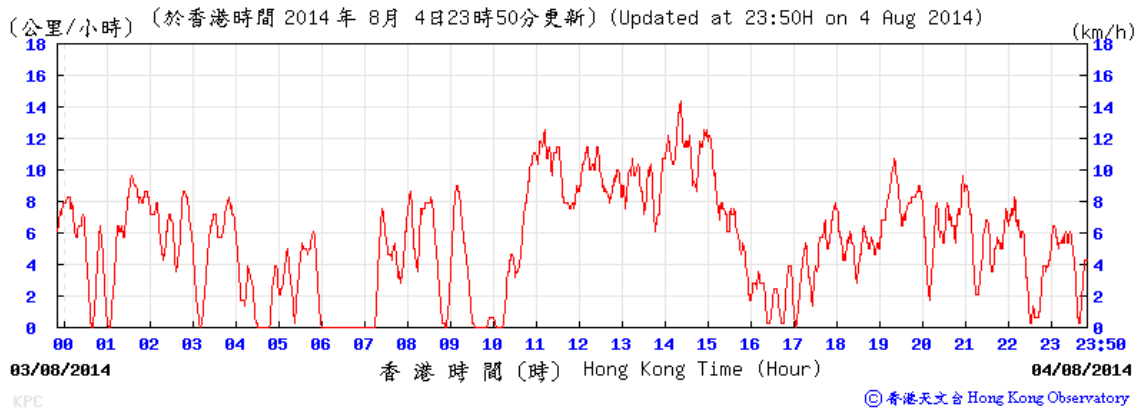
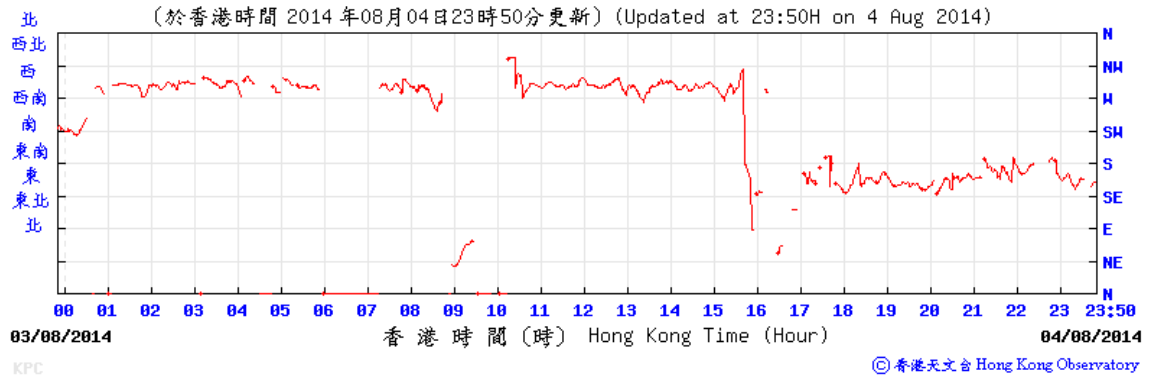
Appendix G Air Quality Monitoring Results



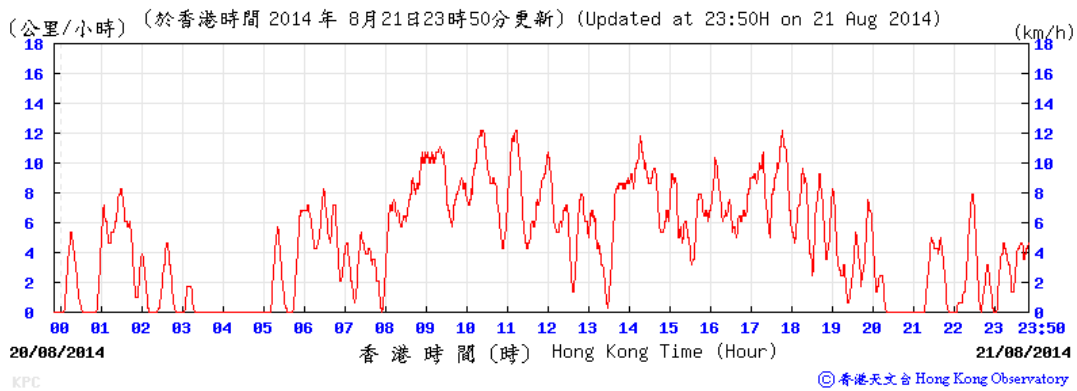
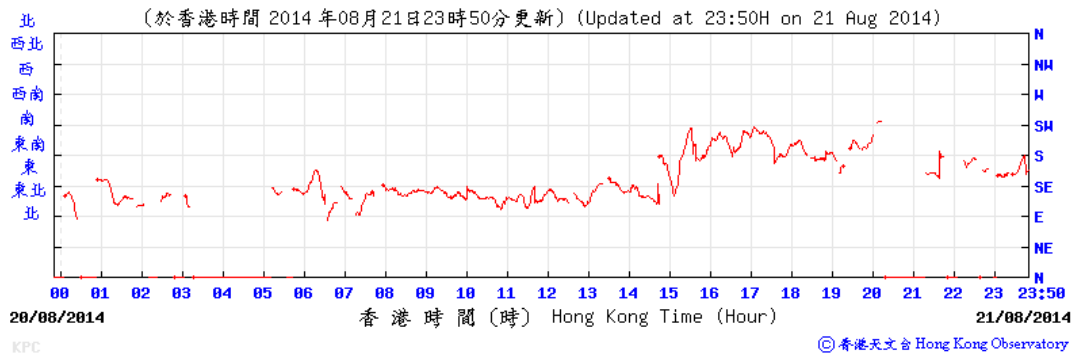
	Shatin to Central Link Works Contract 1111- Hung Hom North Approach Tunnels	SCALE	N.T.S.	DATE	Sep-14
		CHECK	TYUT	DRAWN	IYYS
	Graphical Presentations of Impact 24-hour TSP Monitoring Results	JOB NO.	60284101	APPENDIX No.	Rev.
			G	-	

**Appendix G – Extract of Meteorological Observations for King's Park*
 Automatic Weather Station, August 2014**

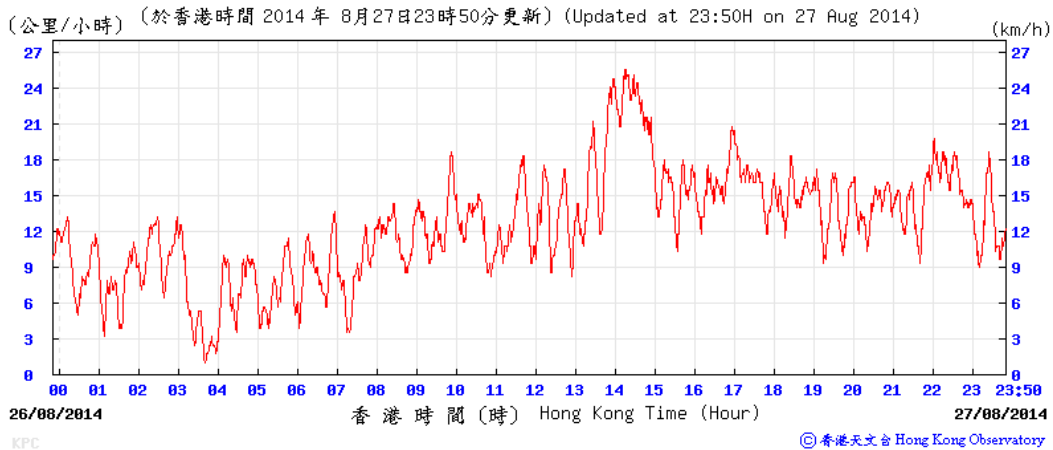
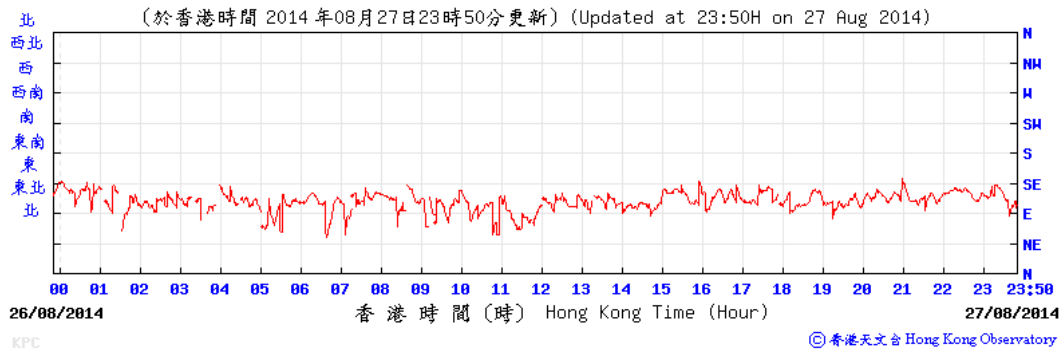
4 August 2014



21 August 2014



27 August 2014



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				
05-Aug-14	Sunny	10:12	66.3	70.7	68.9	61.6	68.0	70	N
12-Aug-14	Fine	10:00	65.4	69.8	67.6	<Baseline	68.0	70	N
22-Aug-14	Sunny	9:50	66.1	70.4	68.2	54.7	68.0	70	N
28-Aug-14	Fine	15:31	67.3	72.1	69.5	64.2	68.0	70	N

Daytime Noise Monitoring Results at Station NM 2 (No. 234 – 238 Chatham Road North)

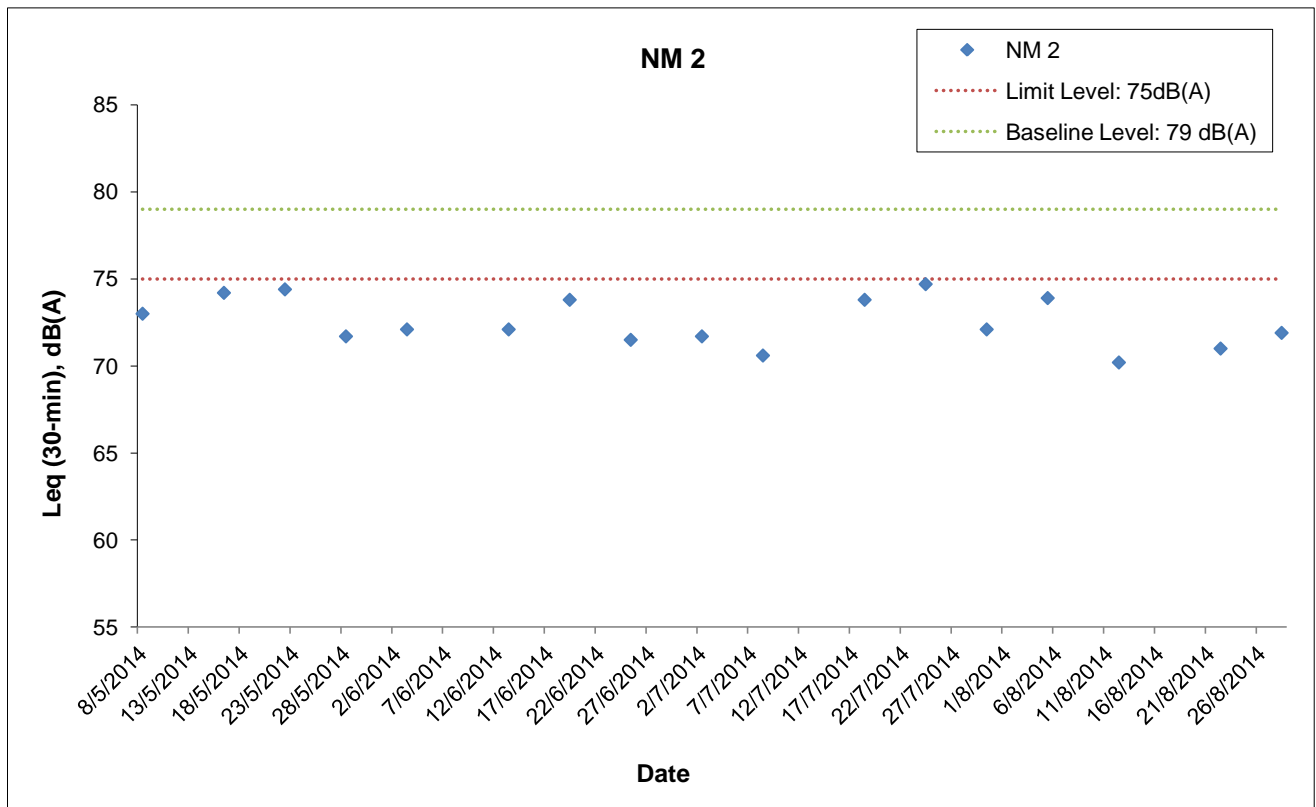
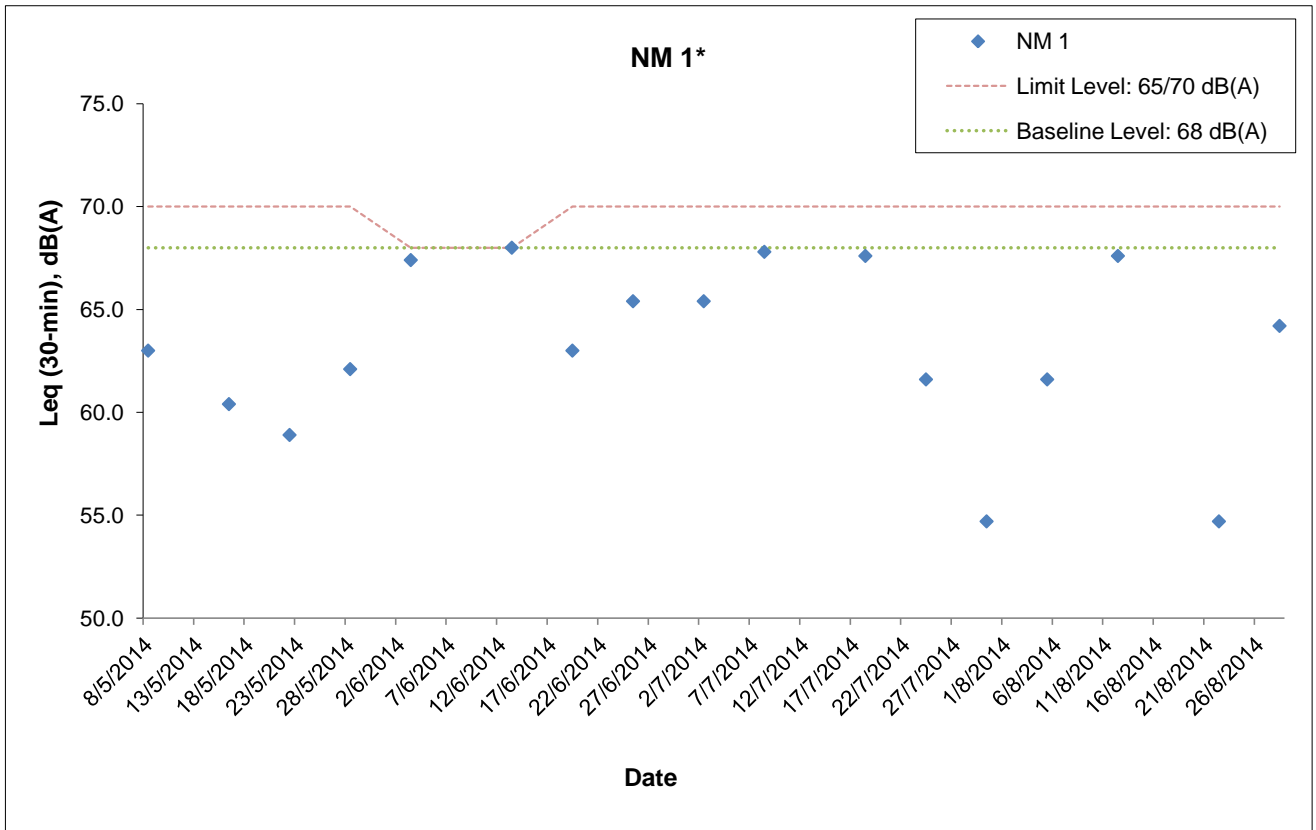
Date	Weather Condition	Noise Level for 30-min, dB(A) ⁺⁺				Baseline Corrected Level, dB(A)	Baseline Noise Level, dB(A)	Limit Level ^{***} , dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
05-Aug-14	Sunny	11:05	71.2	75.5	73.9	<Baseline	79.0	75	N
12-Aug-14	Fine	10:10	68.6	72.4	70.2	<Baseline	79.0	75	N
22-Aug-14	Sunny	10:00	69.2	73.6	71.0	<Baseline	79.0	75	N
28-Aug-14	Fine	15:50	69.7	73.5	71.9	<Baseline	79.0	75	N

⁺ - Façade measurement


⁺⁺ - Free field measurement

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

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	Sep-14
	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	<ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

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	<ol style="list-style-type: none"> 1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals.

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, investigation the cause of exceedance and take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET of notification; 4. Implement the agreed proposals; 5. Liaise with ER to optimize the effectiveness of the agreed mitigation; 6. Revise and resubmit proposals if problem still not under control; and 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Landscape and Visual during Construction Stage

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

APPENDIX J

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

Appendix J

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

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

APPENDIX K

Waste Flow Table

Appendix K Monthly Summary Waste Flow Table

Month	Actual Quantities of Inert C&D Materials Generated Monthly (Note 1)														Actual Quantities of Non-inert C&D Materials (i.e. C&D Wastes) Generated Monthly				
	Generated					Disposed				Reused					Recycled			Disposed	
	Fill Material	Artificial Material			Total Quantity Generated	Disposed as Public Fills at TKO137	Dispose d as Public Fills at TM38	Disposed as Public Fills at CWPFBP	Total Quantity Disposal	Reused in the Contract	Reused in other Projects		Delivered to HH Barging Point (Note 5)	Total Quantity Reused	Metals	Paper/ cardboard packaging (Note 3)	Plastics	Chemical Waste	General Refuse (Note 2)
		Soil and Rock	Broken Concrete	Asphalt							Building Debris	Tolo							
Unit	('000m ³)	('000m ³)	('000m ³)	('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	1.210	0.016	0.004	0.000	1.230	0.000	1.037	0.004	1.041	0.021	0.000	0.168	0.000	0.189	10.210	1.305	0.000	0.000	139.090
Feb	1.645	0.011	0.000	0.000	1.656	0.000	1.496	0.000	1.496	0.035	0.017	0.108	0.000	0.159	15.640	0.245	0.002	0.000	96.430
Mar	1.485	0.050	0.000	0.000	1.535	0.001	1.384	0.000	1.386	0.075	0.046	0.029	0.000	0.149	7.240	0.287	0.002	0.000	191.550
Apr	1.156	0.023	0.000	0.000	1.179	0.197	0.982	0.000	1.179	0.000	0.000	0.000	0.000	0.000	0.000	0.187	0.000	0.000	107.290
May	2.370	0.020	0.000	0.000	2.390	0.257	1.587	0.000	1.844	0.030	0.000	0.000	0.516	0.546	0.000	0.123	0.002	0.000	110.180
Jun	1.721	0.386	0.040	0.571	2.718	0.174	2.075	0.000	2.249	0.000	0.000	0.000	0.469	0.469	0.000	0.184	0.000	0.000	93.970
SUB-TOTAL	9.586	0.506	0.044	0.571	10.707	0.629	8.562	0.004	9.195	0.161	0.062	0.304	0.985	1.512	33.090	2.331	0.006	0.000	738.510
Jul	1.778	0.010	0.038	0.004	1.830	0.575	0.415	0.000	0.990	0.005	0.497	0.000	0.339	0.840	0.000	0.368	0.014	0.040	92.460
Aug	1.540	0.000	0.000	0.000	1.540	1.107	0.003	0.000	1.110	0.000	0.366	0.000	0.064	0.430	0.000	0.120	0.000	0.000	44.750
Sep																			
Oct																			
Nov																			
Dec																			
TOTAL	12.904	0.516	0.082	0.575	14.078	2.312	8.980	0.004	11.296	0.166	0.925	0.304	1.387	2.782	33.090	2.819	0.020	0.040	875.720

Note:

1. Assume the density of fill is 2 ton/m³.

2. Refuses disposed of at North East New Territories (NENT) Landfill.

3. Assume the weight of recycled papers is 7 kg/bag.

4. Public fills disposed of at Tseung Kwan O Area 137 Fill Bank (TKO137), Tuen Mun Area 38 Fill Bank (TM38) and Chai Wan Public Fill Barging Point (CWPFBP).

5. Public fills was delivered to Hung Hom Barging Point and handled by the Contractor of SCL1112.

Appendix E

**19th 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. 19

[Period from 1 to 31 August 2014]

Works Contract 1103 – Hin Keng to Diamond Hill Tunnels

(September 2014)

Certified by:  Coleman Ng _____

Position: Environmental Team Leader

Date: 11/09/2014

MTR Corporation Limited

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

**Monthly Environmental Monitoring
and Audit Report – August 2014**

228105-27

August 2014

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

Contents

	Page
1 Environmental Status	5
1.1 Project Background	5
1.2 Construction Programme	6
1.3 Work Undertaken During the Reporting Month	6
1.4 Project Organization	7
1.5 Project Area and Environmental Monitoring locations	7
1.6 Impact Monitoring Schedule	7
1.7 Status of Environmental Licensing and Permitting	8
1.8 Purpose of the Report	9
2 Implementation Status	10
2.1 Implementation Status of Mitigation Measures	10
2.2 Updated Implementation Schedule	10
3 Air Quality Monitoring	11
3.1 Air Quality Monitoring Requirements	11
3.2 Air Quality Monitoring Methodology	12
3.3 Monitoring Results and Observations	14
4 Noise Monitoring	15
4.1 Noise Monitoring Requirements	15
4.2 Noise Monitoring Methodology	16
4.3 Monitoring Results and Observations	17
5 Landscape and Visual Monitoring	19
5.1 Introduction	19
5.2 Mitigation Measures	19
6 Waste Disposal	20
7 Environmental Performance	21
7.1 Environmental Site Inspection	21
7.2 Summary of Environmental Complaint	22
7.3 Summary of Environmental Non-Compliance	23
7.4 Summary of Environmental Summon and Successful Prosecution	23
8 Future Key Issues	24
8.1 Key Issues for the Coming Month	24
8.2 Environmental Monitoring Program for the Coming Month	24

8.3	Construction Program for the Coming Month	24
9	Conclusions and Recommendations	25
9.1	Conclusions	25
9.2	Recommendations	25
10	Reference	27

Figures

- Figure 1.1: Locations of Project Works Areas – General Site Layout of Hing Keng Works Area (Sheet 1 of 6)
- Figure 1.2: Locations of Project Works Areas – General Site Layout of Diamond Hill Works Area (Sheet 2 of 6)
- Figure 1.3: Locations of Project Works Areas – Site layout Plan of Fung Tak EAP/EEP (Sheet 3 of 6)
- Figure 1.4: Locations of Project Works Areas – Site Layout Plan of Ma Chai Hang Shaft (Sheet 4 of 6)
- Figure 1.5: Locations of Project Works Areas – General Site Layout of Shui Chuen O Works Area (Sheet 5 of 6)
- Figure 1.6: Locations of Project Works Areas – General Alignment of Contract 1103 (Sheet 6 of 6)
- Figure 1.7: Project Organisation – Environmental Management
- Figure 1.8: Location of Dust Monitoring Stations (Sheet 1 of 3)
- Figure 1.9: Location of Dust Monitoring Stations (Sheet 2 of 3)
- Figure 1.10: Location of Dust Monitoring Stations (Sheet 3 of 3)
- Figure 1.11: Location of Noise Sensitive Receiver (Construction Airborne Noise) (Sheet 1 of 3)
- Figure 1.12: Location of Noise Sensitive Receiver (Construction Airborne Noise) (Sheet 2 of 3)
- Figure 1.13: Location of Noise Sensitive Receiver (Construction Airborne Noise) (Sheet 3 of 3)

Appendices

- Appendix A: Construction programme
- Appendix B: Environmental Monitoring Programme in the Reporting Month
- Appendix C: Environmental Mitigation Implementation Schedule (EMIS)
- Appendix D: Calibration Certificates for Air Monitoring Equipment
- Appendix E: Dust Results
- Appendix F: Wind Data
- Appendix G: Calibration Certificates of Noise Monitoring Equipment
- Appendix H: Noise Results
- Appendix I: Event/Action Plan for Air Quality, Airborne Noise and Landscape and Visual
- Appendix J: Monthly Waste Flow Table
- Appendix K: Environmental Monitoring Programme for Coming Month
- Appendix L: Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Executive Summary

This is the nineteenth 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 August 2014 (1 to 31 August 2014).

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

- Tunnel Boring Machine (TBM) tunneling and machinery site assembly at Diamond Hill;
- Pipe Piling, grouting and tunnel blasting at Hin Keng;
- Shaft Excavation and ELS and sheet piling for retaining wall at Fung Tak; and
- Shaft Excavation and ELS at Ma Chai Hang.

Air Quality and noise monitoring were performed and the results were checked and reviewed. Site audits were conducted on weekly basis. The implementation of the environmental mitigation measures, Event and Action Plans and environmental complaint handling procedures were checked.

Impact monitoring was carried out at 3 air quality and 3 noise monitoring stations during the reporting month.

Environmental Monitoring Works – Breaches of Action and Limit Levels

Air Quality

All measured 24-hour TSP concentrations in the reporting month were below the Action and Limit Levels.

Noise

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

No exceedance of Limit Level of regular construction noise was recorded during the reporting month.

Landscape and Visual Audit

Landscape and visual site audits in accordance with the requirements stipulated in the EM&A manual were conducted in the reporting month. Based on the site inspections, no substantial change of Landscape Resources, Landscape Character Areas and Visual Sensitive Receivers was noted.

Waste Disposal

Inert C&D Materials with an actual amount of 8,925m³ were generated and disposed of at public fill in TKO137FB and Kai Tak Barging Point Facility (Contract 1108A). 114m³ of general refuse was generated and disposed of at NENT landfill.

Environmental Auditing

A total of 4 environmental site audits were conducted on a weekly basis in the reporting month. The first site inspection was on 6 August 2014 and the final, an IEC joint site audit, was undertaken on 27 August 2014. 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 during 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.

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	Tunnel Boring Machine (TBM) tunneling and machinery site assembly.
Hin Keng	Pipe Piling, grouting and tunnel blasting.
Fung Tak	Shaft Excavation and ELS and sheet piling for retaining wall.
Ma Chai Hang	Shaft Excavation and ELS.

1.4 Project Organization

Contacts of key environmental staff of the Project and are shown in **Table 1.2**.

Table 1.2 Contacts of Key Environmental Staff

Organisation	Name	Telephone
Project Proponent: MTRC Engineer's Representative SCL Project-wide Environmental Team Leader	Thomas Barrett Richard Kwan	2163 6181 2688 1283
Independent Environmental Checker: Meinhardt Infrastructure & Environment Ltd. Independent Environmental Checker	Fredrick Leong	2859 1739
Contractor: VINCI Constructions Grand Projects Project Director IMS Manager	Francois Dudouit L K Mak	3765 5610 3765 5635
Contractor's Environmental Team: Ove Arup & Partners Hong Kong Ltd. Designated Environmental Team Leader for Works Contract 1103	Coleman Ng	2268 3097

1.5 Project Area and Environmental Monitoring locations

The Project area is shown in **Figures 1.1** to **1.6**, while **Table 1.3** and **Figures 1.8** to **1.13** show the names and locations of the monitoring stations.

Table 1.3 Summary of Air Quality and Noise Monitoring Stations

ID	Premise
Air Quality	
DMS-1	C.U.H.K.A.A. Thomas Cheung School
DMS-2	Price Memorial Catholic Primary School
DMS-3 ^(Note 2) / DMS-4 ^(Note 3)	Hong Kong Sheng Kung Hui Nursing Home ^(Note 1)
Noise	
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School
NMS-CA-2	Price Memorial Catholic Primary School
NMS-CA-3 ^(Note 2) / NMS-CA-4 ^(Note 3)	Hong Kong Sheng Kung Hui Nursing Home

Note:

Note 1: Hong Kong Sheng Kung Hui Nursing Home was selected as an alternative monitoring location to Shek On House.

Note 2: Station ID as identified in approved EM&A Manual / EIA Report for SCL (TAW - HUH).

Note 3: Station ID as identified in approved EM&A Manual / EIA Report for SCL (HHS).

1.6 Impact Monitoring Schedule

Environmental monitoring and audit was carried out in accordance with the requirements stipulated in the EM&A Manual. Air quality and noise monitoring as well as weekly site audit schedule for the reporting month with respect to the construction programme is shown in **Appendix B**.

1.7 Status of Environmental Licensing and Permitting

All permits/licences for the reporting month are summarised in **Table 1.4**. They are all properly kept by the contactor at their site office.

Table 1.4 Summary of Environmental Licensing Status

Types of Permits / Licenses	Reference No.	Site	Valid from	Valid to
Environmental Permit	EP-438/2012	All	22 Mar 2012	Superseded
	EP-438/2012A	All	12 July 2012	Superseded
	EP-438/2012/B	All	26 Oct 2012	Superseded
	EP-438/2012/C	All	30 Apr 2013	Superseded
	EP-438/2012/D	All	13 Sept 2013	Superseded
	EP-438/2012/E	All	4 April 2014	Superseded
	EP-438/2012/F	All	15 July 2014	Superseded
	EP-438/2012/G	All	14 Aug 2014	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 (CNP)	GW-RE0482-14	Ma Chai Hang	12 May 2014	11 Nov 2014
	GW-RE0195-14	Fung Tak	28 Feb 2014	Superseded
	GW-RE0779-14	Fung Tak	23 July 2014	31 Aug 2014
	GW-RE0924-14	Fung Tak	27 Aug 2014	26 Feb 2015
	GW-RN0384-14	Hin Keng	11 July 2014	10 Nov 2014
	GW-RN0344-14	Hin Keng	12 June 2014	11 Nov 2014
	GW-RN0627-14	Diamond Hill	13 June 2014	Superseded

Types of Permits / Licenses	Reference No.	Site	Valid from	Valid to
	GW-RE0886-14	Diamond Hill	18 Aug 2014	8 Nov 2014
	GW-RE0774-14	Diamond Hill	1 Aug 2014	31 Aug 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 nineteenth 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 August 2014.

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 (July 2014)	14 August 2014

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

High Volume Sampler

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

High Volume Sampler

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

August 2014 was characterised by gloomy and rainy conditions associated with low pressure. A red rainstorm signal was hoisted in the morning and early afternoon of 13 August 2014

Hot weather associated with anticyclone conditions was persistent throughout the month with temperatures in excess of 34°C recorded.

3.3.2 Quality Monitoring Results

Monitoring of 24-hour TSP was conducted on 1, 7, 13, 19, 25 and 30 August 2014. 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	22.9	18.4	148.7	260
DMS-2	46.5	51.8	167.4	260
DMS-3 / DMS-4	26.3	17.3	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 Tunnel Boring Machine (TBM) tunneling and machinery site assembly at Diamond Hill; Pipe Piling, grouting and tunnel blasting at Hin Keng; Shaft Excavation and ELS and Sheet piling for retaining wall at Fung Tak and Shaft Excavation and ELS at Ma Chai Hang.

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			70

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	2654435	IEC 651 Type 1 IEC 804 Type 1
Sound level calibrator	Rion NC-74	34304660	IEC 942 Type 1
	GA607	042977	

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

August 2014 was characterised by gloomy and rainy conditions associated with low pressure as well as persistent hot weather throughout the month. No adverse weather events occurred during any of the monitoring periods.

4.3.2 Noise Monitoring Results

Impact Monitoring

Monitoring of the construction noise level was conducted on 8, 14, 20, and 26 August 2014. 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)
8 Aug 14	09:20-09:50	58.0	57.0	51.1	70/65
14 Aug 14	10:00-10:30	58.5		53.2	
20 Aug 14	11:20-11:50	57.5		47.9	
26 Aug 14	14:20-14:50	58.5		53.2	

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)
8 Aug 14	12:50-13:20	68.7	66.0	65.4	70/65
14 Aug 14	12:40-13:10	69.2		66.4	
20 Aug 14	12:45-13:15	68.7		65.4	
26 Aug 14	12:50-13:20	69.7		67.3	

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 (Note 2)
		Leq (30min)	Leq (30min)	Leq (30min)	dB(A)
8 Aug 14	14:30-15:00	67.6	73.0	< Baseline Level	70/65
14 Aug 14	14:05-14:35	68.4		< Baseline Level	
20 Aug 14	14:15-14:45	67.9		< Baseline Level	
26 Aug 14	09:20-09:50	68.2		< Baseline Level	

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.

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 13 and 27 August 2014. No adverse impacts were identified with regards to landscape and visual.

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	8,925m ³	TKO137FB and Kai Tak Barging Point Facility (1108A)
Chemical Waste	0kg	Disposed of by a licensed collector
Paper / cardboard packaging	0kg	
Plastic	0kg	
Metal	0kg	
General Refuse	114m ³	

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 27 August 2014, to monitor environmental issues on the construction sites to ensure that all mitigation measures were implemented timely and properly. A summary of the site inspections in the reporting month is presented in **Table 7.1**.

Table 7.1 Key Findings of Weekly Environmental Site Audit

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
Water				
6, 13 and 20 August 2014	Hin Keng	The contractor is reminded to ensure that there is no muddy water seepage during rain/storm events.	Agreed with ET's Advice.	The contractor rectified the issue and ensured sufficient sand bags were placed. Closed 27 August 2014.
13 August 2014	Fung Tak	The contractor is reminded to ensure that the WWTP has sufficient capacity to operate without overflow during rain events.	Agreed with ET's Advice.	The contractor rectified the issue and ensured there was sufficient capacity. Closed 20 August 2014.
20 August 2014	Fung Tak	The contractor is reminded to practice proper housekeeping with regards to site drainage.	Agreed with ET's Advice.	The contractor rectified the issue and ensured the drainage system was organised. Closed 27 August 2014.
27 August 2014	Diamond Hill & Hin Keng	Water seepage from the internal drainage system to the public storm drain was observed. The contractor shall ensure that their drainage system has sufficient capacity and ensure that it meets WPCO requirements.	Agreed with ET's Advice.	The contractor will follow up. The status will be reported by the ET in the next reporting month.
Air				
27 August	Fung Tak	The contractor is reminded to	Agreed with	The contractor

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
2014		ensure that stockpiles are covered with a tarpaulin sheet.	ET's Advice.	will follow up. The status will be reported by the ET in the next reporting month.
Noise				
20 August 2014	Ma Chai Hang	The contractor is reminded to ensure that breakers have adequate acoustic jackets.	Agreed with ET's advice.	The contractor rectified the issue and ensured noise adequate acoustic jackets were provided. Closed 27 August 2014.
Waste				
13 August 2014	Diamond Hill	The contractor is reminded to ensure that chemical containers are placed in drip trays.	Agreed with ET's Advice.	The contractor rectified the issue and ensured drip trays were provided. Closed 20 August 2014.
27 August 2014	Diamond Hill & Hin Keng	Chemical containers were observed without the provision of a drip tray. The contractor shall ensure all chemical containers are provided with a drip tray and any accumulated water inside the drip tray is disposed of as chemical waste.	Agreed with ET's Advice.	The contractor will follow up. The status will be reported by the ET in the next reporting month.
Landscape and Visual				
30 July 2014	Hin Keng	The contractor is reminded to remove construction materials from the tree protection zone.	Agreed with ET's Advice.	The contractor rectified the issue and ensured that the tree protection zone was cleared of debris. Closed 7 August 2014

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			
01/08/14– 31/08/14	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	Tunnel Boring Machine (TBM) tunneling and machinery site assembly.
Hin Keng	Pipe Piling, grouting and tunnel blasting.
Fung Tak	Shaft Excavation and ELS and Sheet piling for retaining wall.
Ma Chai Hang	Shaft Excavation and ELS.

8.2 Environmental Monitoring Program for the Coming Month

Environmental monitoring and audit will be carried out in accordance with the requirements stipulated in the EM&A manual. Tentative air and noise monitoring as well as weekly site audit schedule for the coming month with respect to the construction programme is shown in **Appendix K**.

8.3 Construction Program for the Coming Month

The construction programme for the coming month is shown in **Appendix A**.

9 Conclusions and Recommendations

9.1 Conclusions

The construction phase of the project commenced on 14 February 2013. The EM&A programme has since been implemented, including air quality, noise and environmental site audits. Four environmental site audits were conducted in the reporting month.

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

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

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

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

The Contractor's ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

9.2 Recommendations

Impact monitoring will continue to be carried out in the following month and will follow the requirements stipulated in the EM&A manual. Attention will be paid to the environmental issues identified in the EIA report and weekly site audit. Mitigation measures recommended in EIA report and Implementation Schedule of Mitigation Measure will be fully implemented.

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.

Construction noise is also a key environmental issue. The implemented construction noise mitigation measures should also be maintained and improved as necessary. Especially in restricted hours, the conditions stipulated in the CNPs should be strictly followed when the construction works were carried out during restricted hours.

Construction dust is also key environmental issue. The implemented construction dust mitigation measures including covering of exposed slope / soil with tarpaulin sheet etc., should be maintained and improved as necessary. Adequate water spraying should be provided for the unpaved area to minimize dust disturbance.

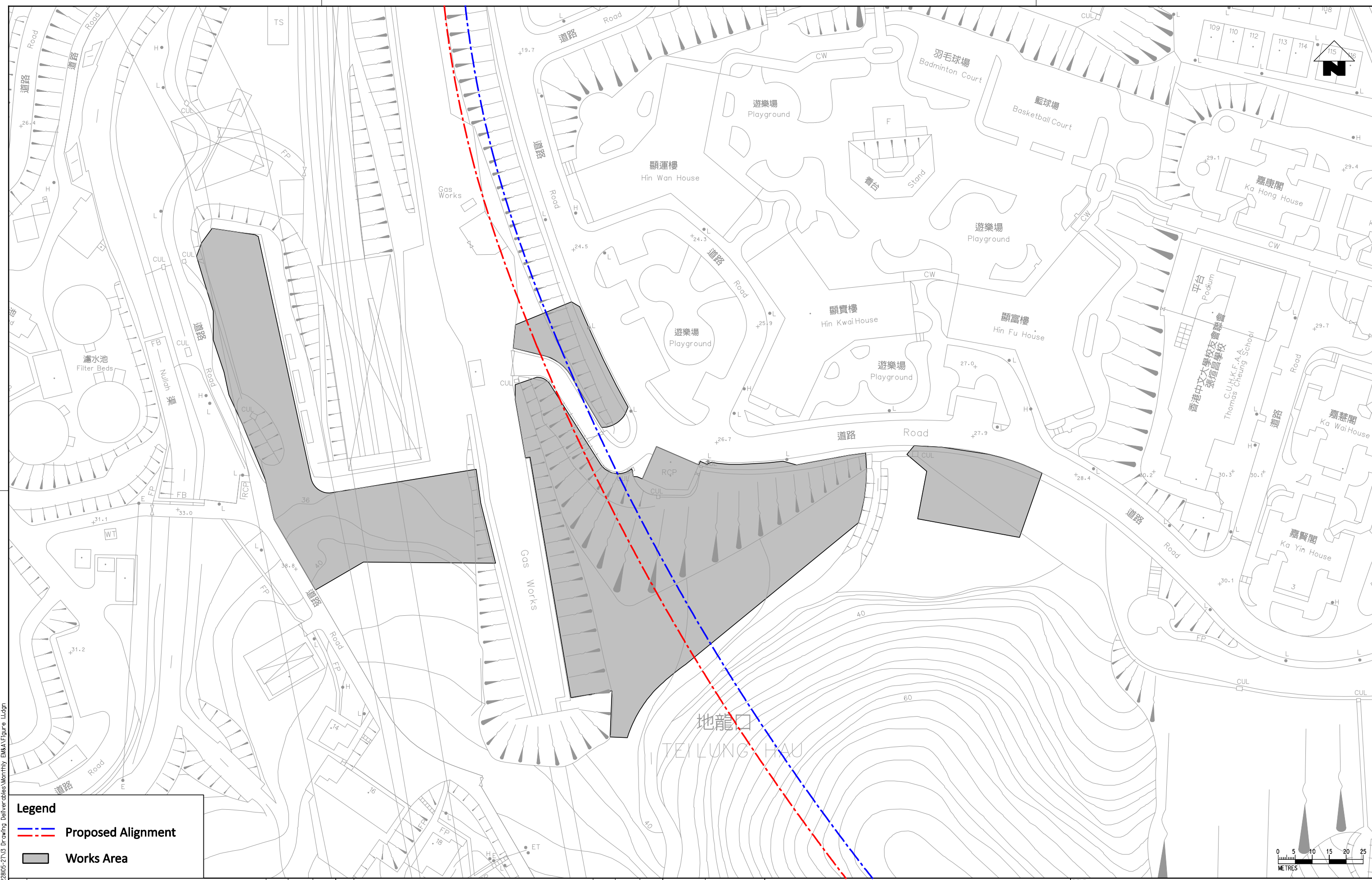
Landscape and Visual is another key environmental issue. The implemented landscape and visual mitigation measures such as the provision of tree protection zones should be maintained and improved as necessary.

10 Reference

- (1) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Tai Wai to Hung Hom Section. Final Environmental Impact Assessment Report. October 2011.
- (2) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Tai Wai to Hung Hom Section. Environmental Monitoring and Audit Manual. October 2011.
- (3) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Stabling Sidings at Hung Hom Freight Yard. Final Environmental Impact Assessment Report. October 2011.
- (4) MTR Corporation Limited. SCL - NEX/2206 EIA Study for Stabling Sidings at Hung Hom Freight Yard. Environmental Monitoring and Audit Manual. October 2011.

Figures

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- Works Area

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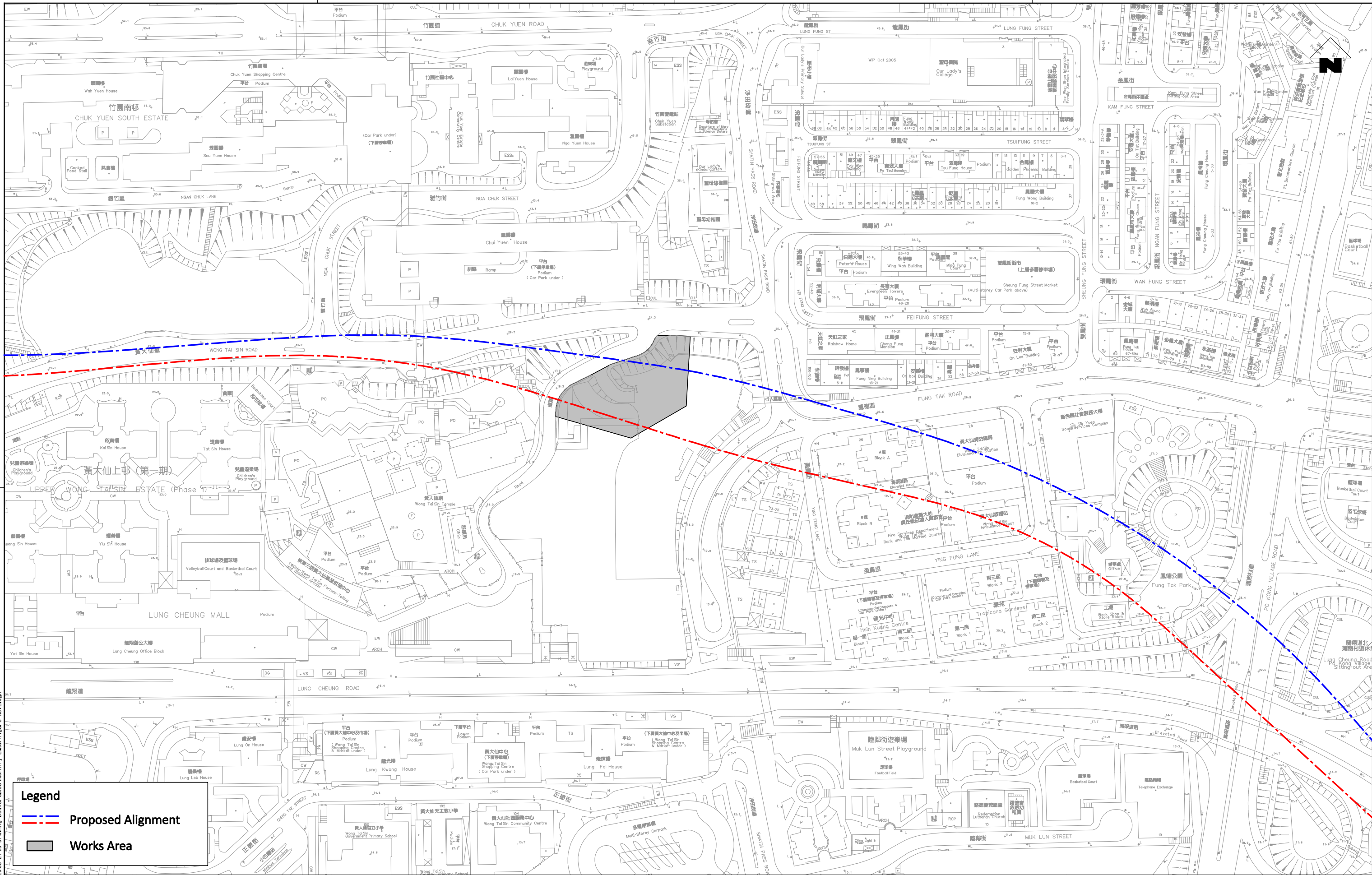
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CONTRACT 1103
 HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Project Works Areas
 - General Site Layout of Hin Keng Works Area
 (Sheet 1 of 6)

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- - - Proposed Alignment
- Works Area

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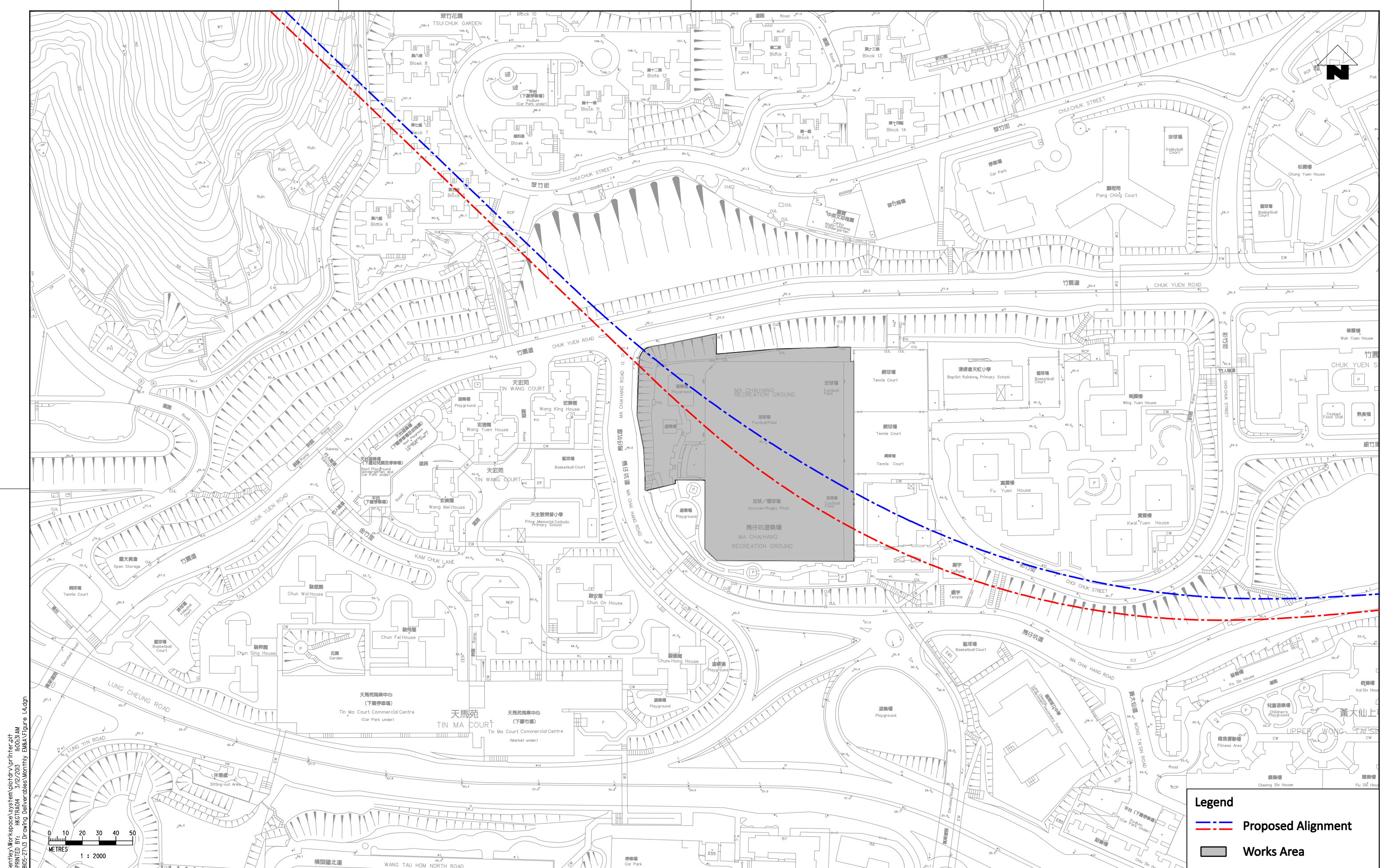
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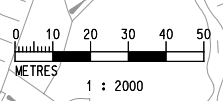
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- --- Proposed Alignment
- Works Area

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TITLE
 CONTRACT 1103
 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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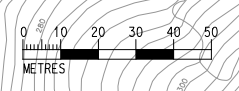
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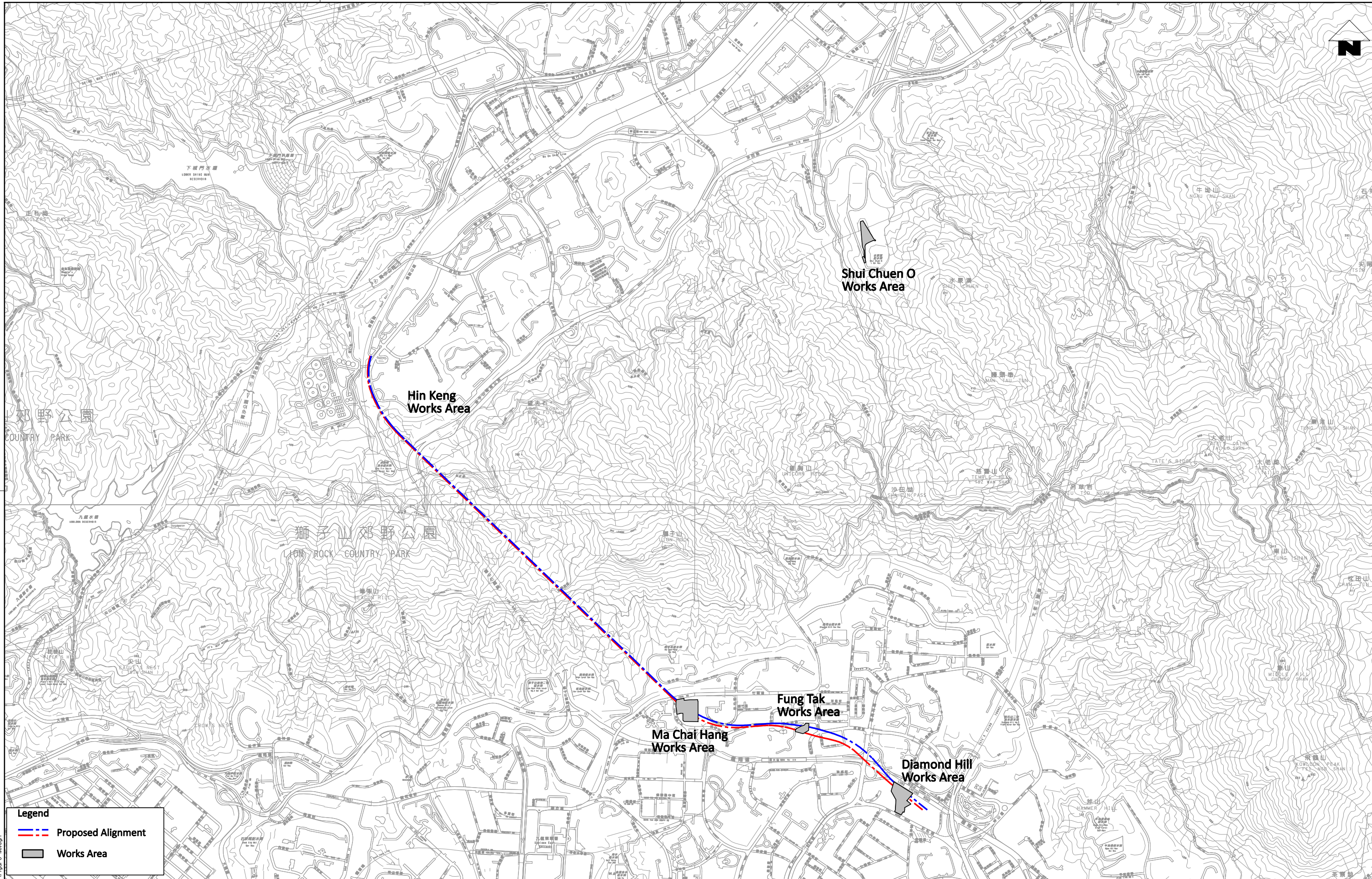
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Legend

Works Area



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				<small>DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHALL BE VERIFIED ON SITE. © MTR CORPORATION LIMITED 2008. COPYRIGHT IN RESPECT OF THIS DRAWING / DOCUMENT IS OWNED BY THE MTR CORPORATION LIMITED OF HONG KONG. NO REPRODUCTION OF THE DRAWING / DOCUMENT OR ANY PART BY WHATEVER MEANS IS PERMITTED WITHOUT THE PRIOR WRITTEN CONSENT OF THE MTR CORPORATION LIMITED.</small>			ARUP Ove Arup & Partners Hong Kong Limited				SCALE 1 : 2000 (A3)
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Legend

- --- Proposed Alignment
- Works Area

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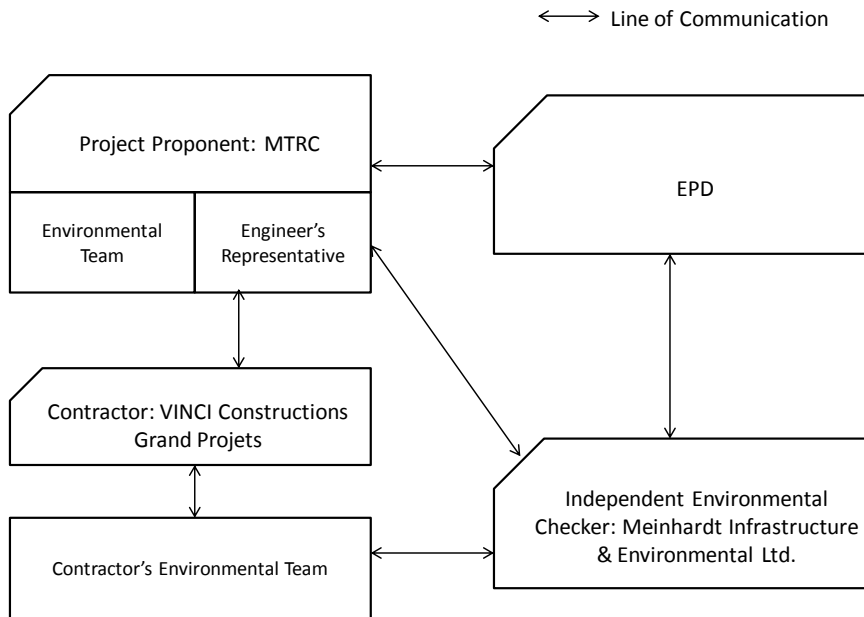
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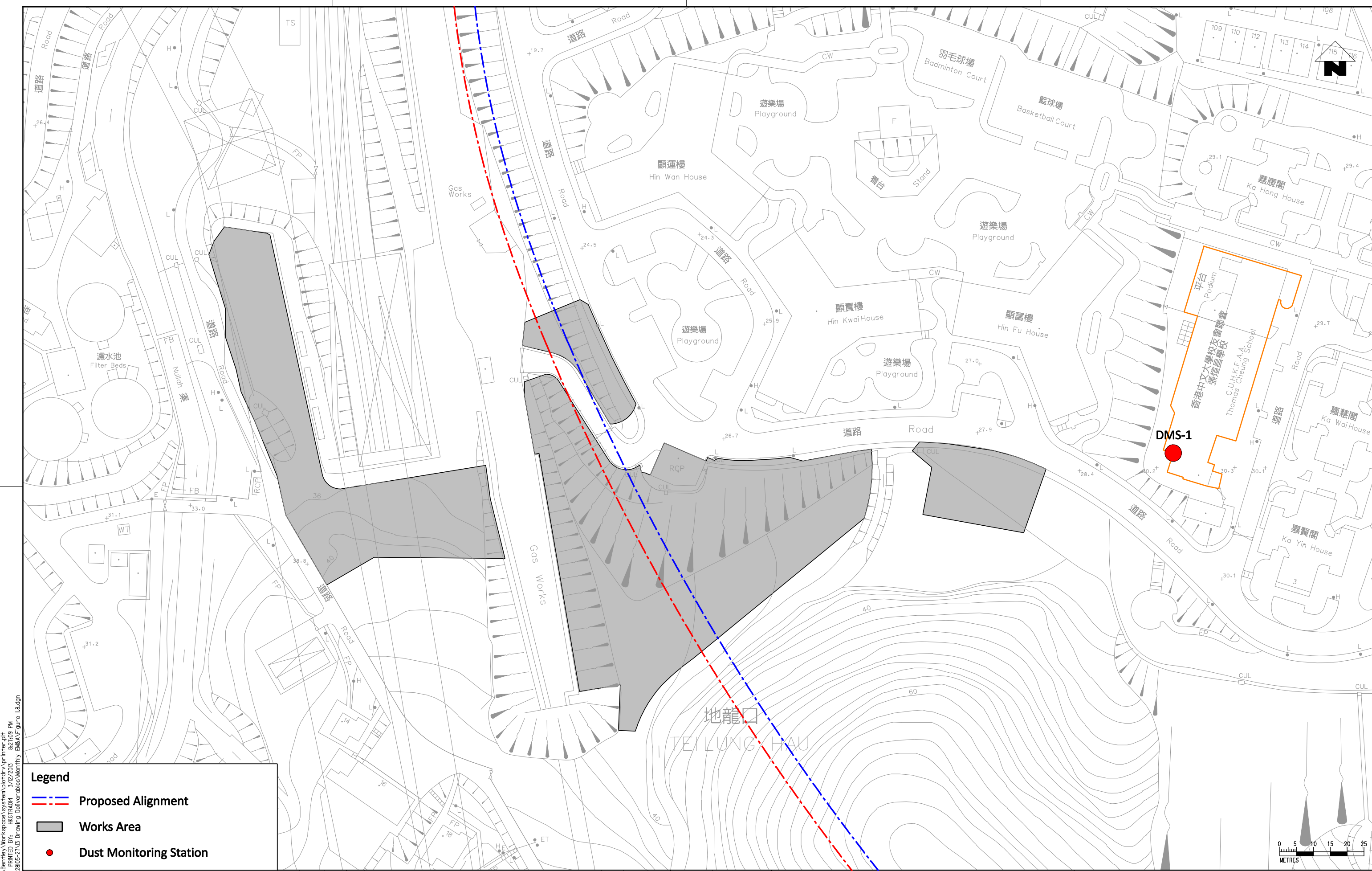
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Figure 1.7 - Project Organisation for Environmental Works

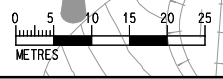




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Legend

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



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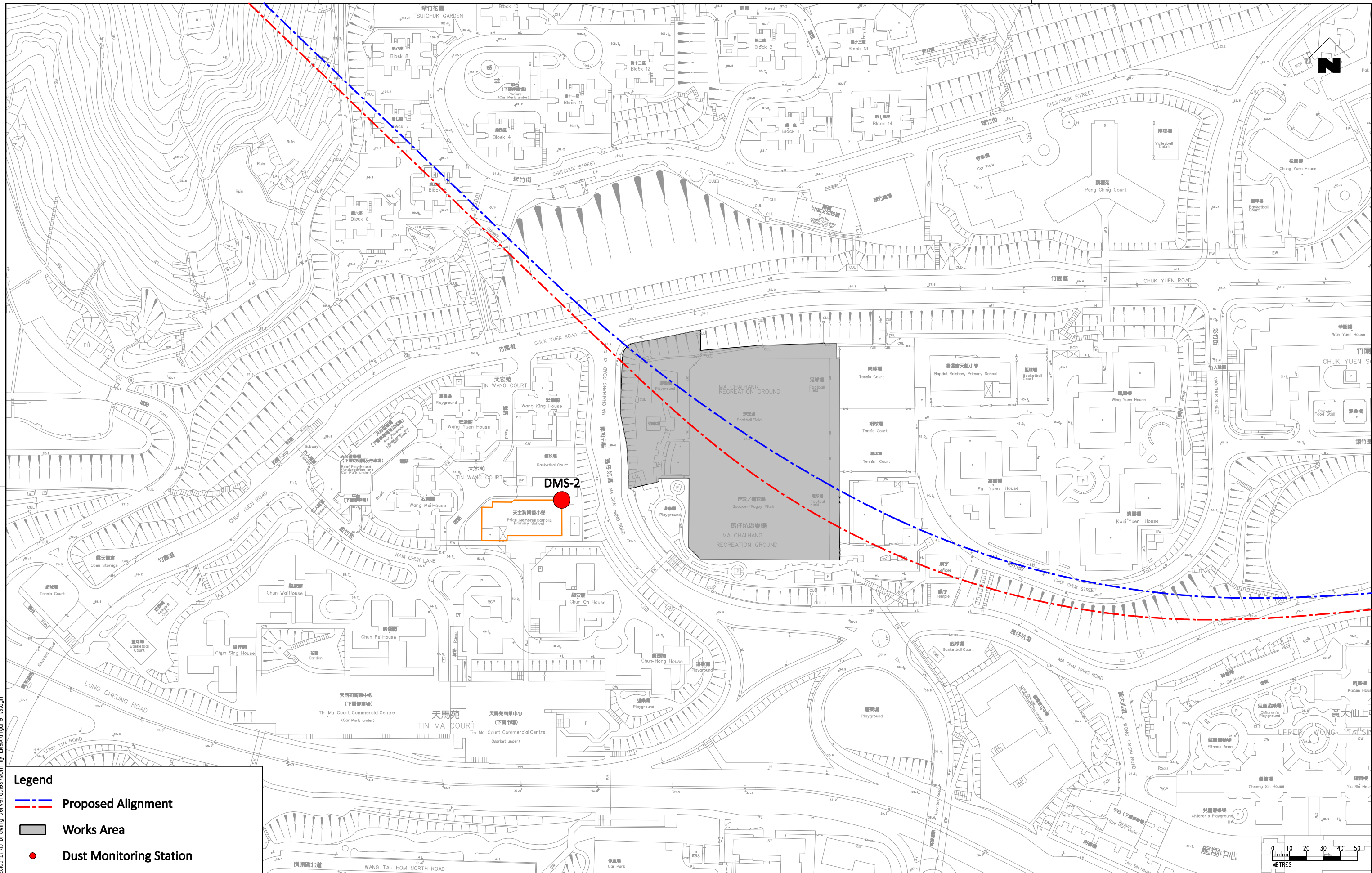
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TITLE

CONTRACT 1103
 HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Proposed Dust Monitoring Stations
 (Sheet 1 of 3)

SCALE 1:1000 (A3) **DRAWING NO.** Figure 1.8 **REV.** A



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

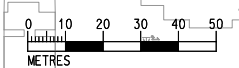
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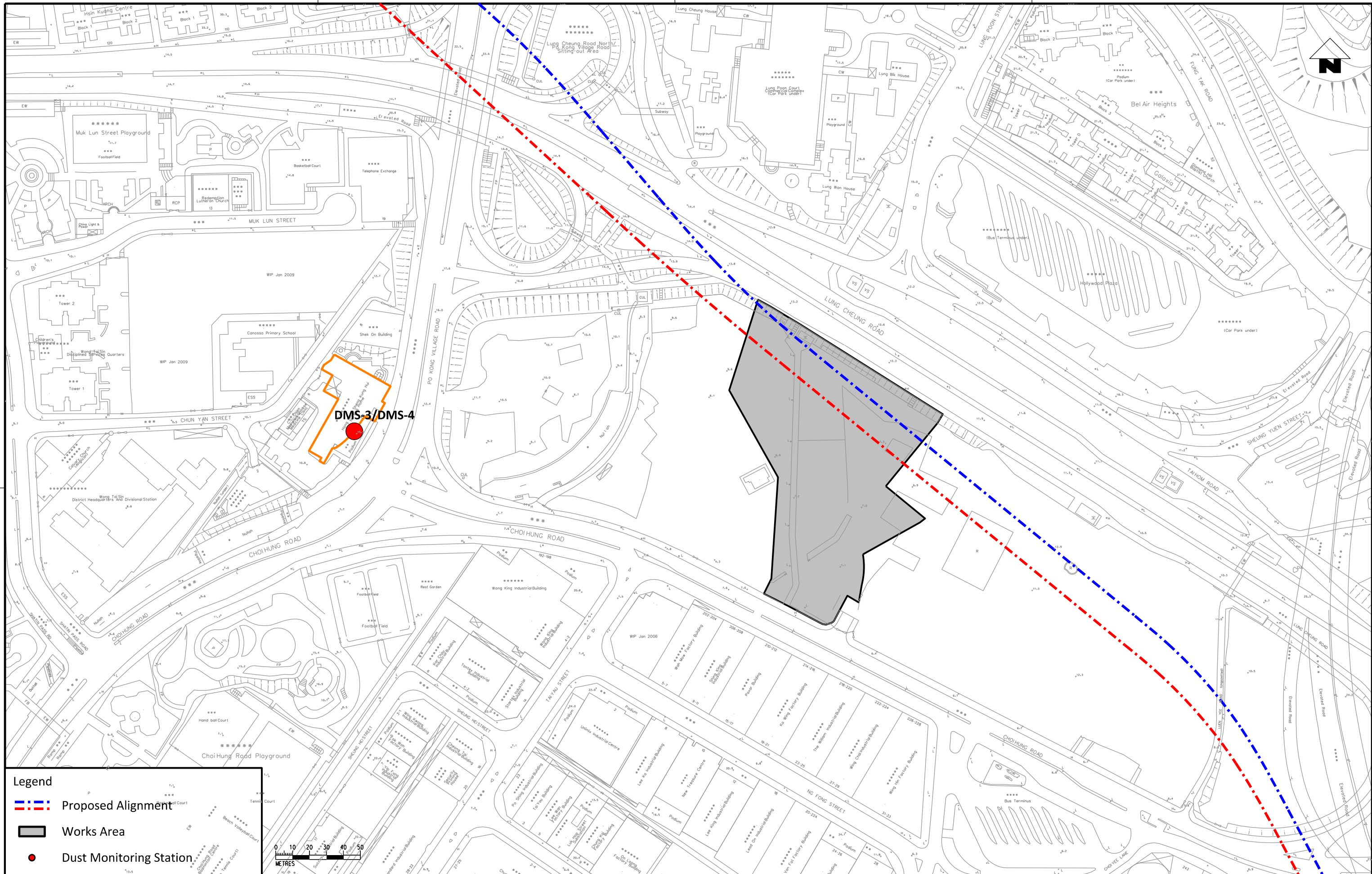
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		HIN KENG TO DIAMOND HILL TUNNELS	
		Locations of Proposed Dust Monitoring Stations	
		(Sheet 2 of 3)	
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DMS-3/DMS-4

Legend

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



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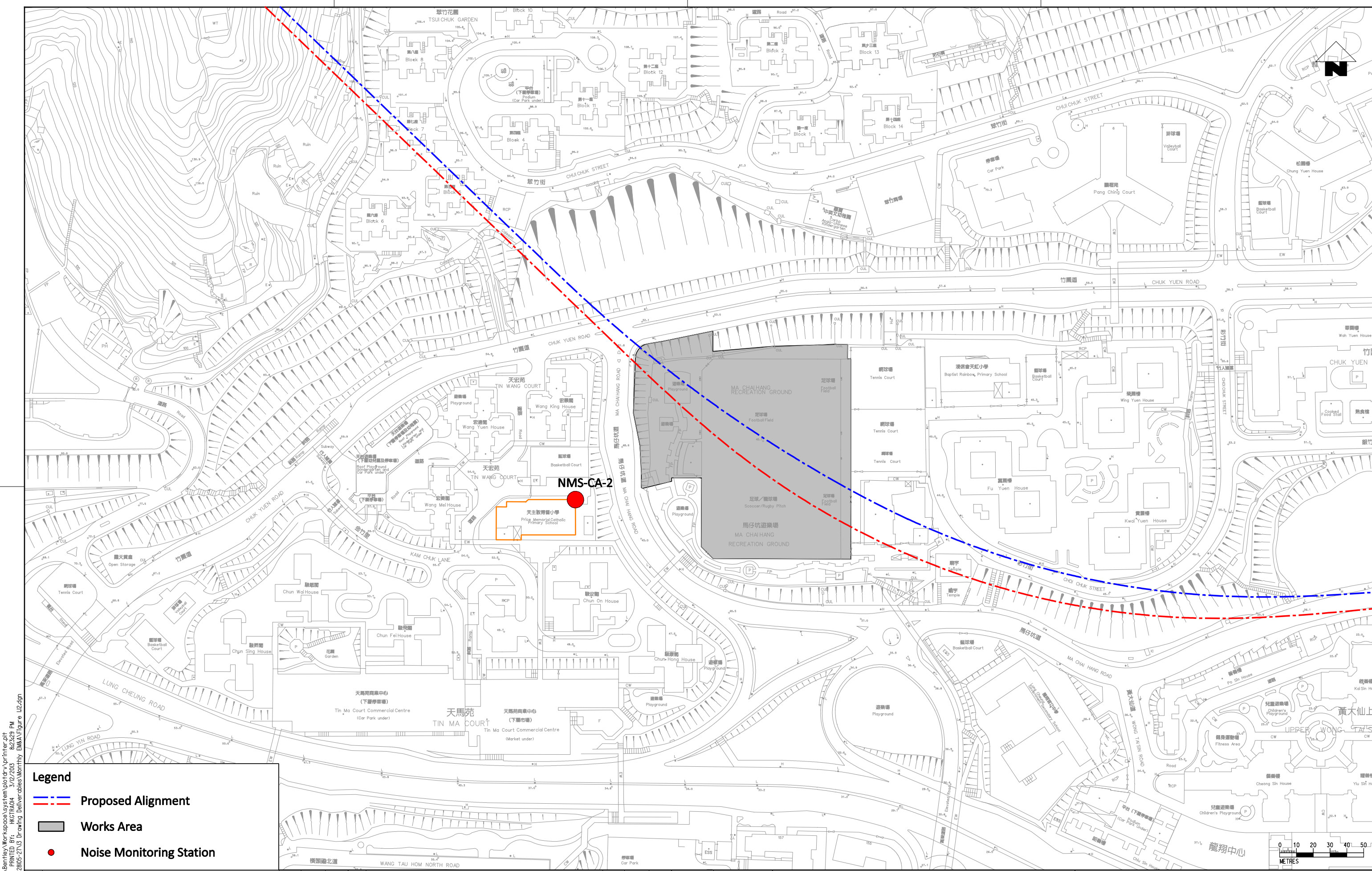
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CONTRACT 1103 HIN KENG TO DIAMOND HILL TUNNELS Locations of Proposed Dust Monitoring Stations (Sheet 3 of 3)	
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- Legend**
- --- Proposed Alignment
 - Works Area
 - Noise Monitoring Station

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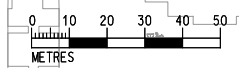
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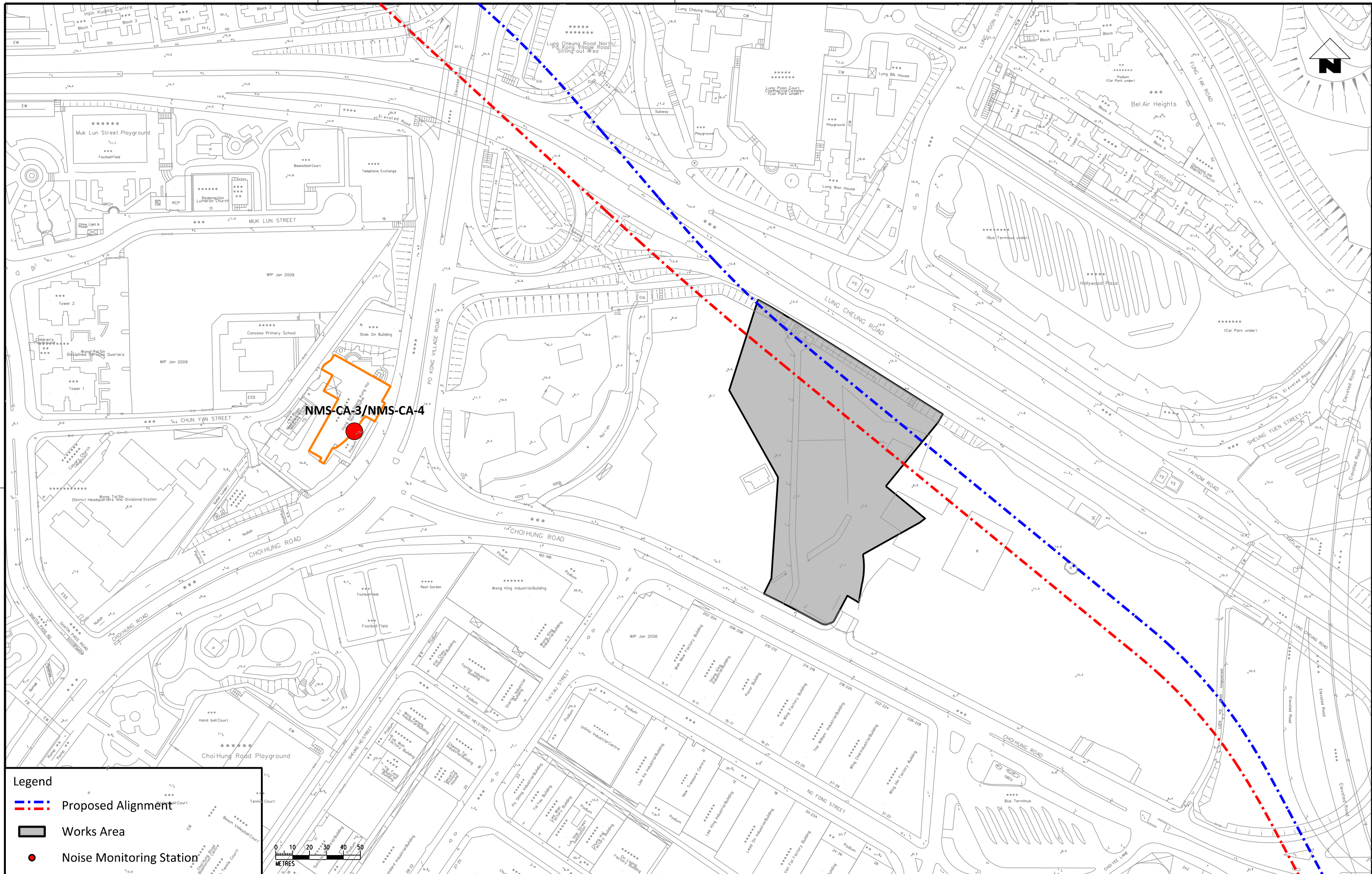
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TITLE
 CONTRACT 1103
 HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Noise Monitoring Stations
 (Construction Airborne Noise)
 (Sheet 2 of 3)

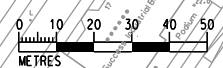
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- - - - - Proposed Alignment
- Works Area
- Noise Monitoring Station



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CONTRACT 1103
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 Locations of Noise Monitoring Stations
 (Construction Airborne Noise)
 (Sheet 3 of 3)

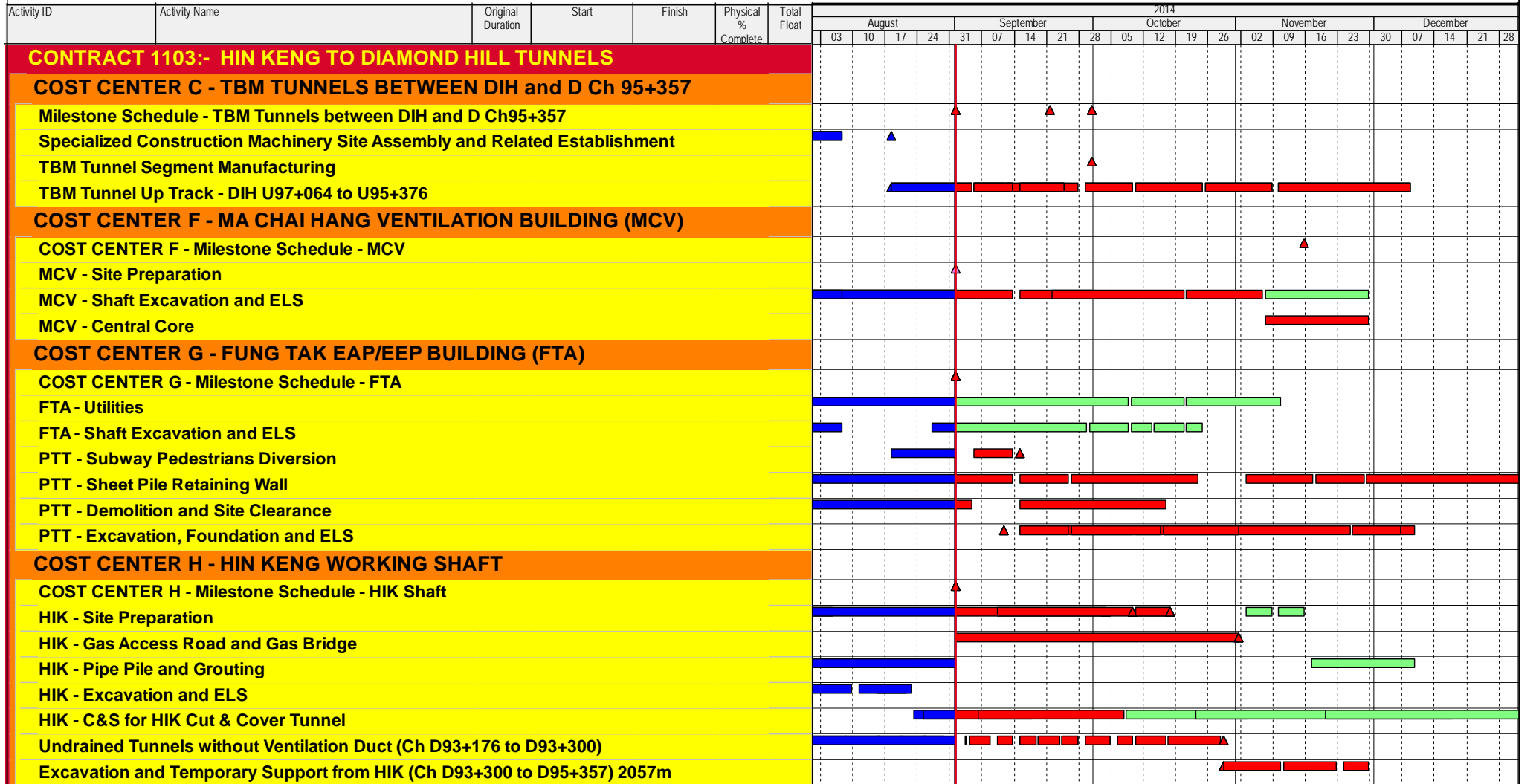
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Appendix A

Construction Programme



GRANDS PROJETS

**Three Month Rolling Programme
As of 1-Sep-2014**

Date	Revision	Checked	Approved
05-09-14	Submission for MTR Information	QT	RC

Appendix B

Environmental
Monitoring
Programme in
Reporting Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Impact Monitoring Schedule - August 2014**

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

	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	$L_{Aeq(30\text{ min})}$, 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 align="center">✓</p> <p align="center">✓</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
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">✓</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
<i>Landscape and Visual (Construction Phase)</i>							
S6.9.3	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees 	Minimize visual & landscape impact	Within Project Site	Construction stage	TM-EIAO	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

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="353 464 1037 635">• <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="353 659 1037 826">• <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="353 850 1037 1082">• <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
Air Quality (Construction Phase)							
-	A1	Emission from Vehicles and Plants <ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD) 	Reduce air pollution emission from construction vehicles and plants	All construction sites	Construction stage	• APCO	✓
		Open burning shall be prohibited	Reduce air pollution emission from work site	All construction sites	Construction stage	• APCO	✓
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	• 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 	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	✓

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
		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 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 	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 	<p align="center">✓</p> <p align="center">Rdr</p> <p align="center">✓</p> <p align="center">✓</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
		<p>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 (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> <p align="center">N/A</p> <p align="center">✓</p> <p align="center">✓</p>

Environmental Mitigation Implementation Schedule – Works Contract 1103

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		<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, turving, 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

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Construction Noise (Airborne)							
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	Control construction airborne noise	All construction sites	Construction stage	• Annex 5, TM-EIA	✓ Rdr ✓ ✓
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	✓

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Environmental Mitigation Implementation Schedule – Works Contract 1103

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		saw.					
S8.3.6	N4	Use “Quiet plants”	Reduce the noise levels of plant items	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	✓
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	✓
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Selected representative noise monitoring station	Construction stage	• TM-EIA	✓

Environmental Mitigation Implementation Schedule – Works Contract 1103

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Water Quality (Construction Phase)							
S10.7.1	W1	<p>In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:</p> <p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the 	To minimize water quality impact from construction site runoff and general construction activities	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

Environmental Mitigation Implementation Schedule – Works Contract 1103

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		<p>commencement of construction.</p> <ul style="list-style-type: none"> • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be 					<p align="center">✓</p> <p align="center">✓</p> <p align="center">Obs, Rdr</p> <p align="center">✓</p> <p align="center">✓</p>

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Environmental Mitigation Implementation Schedule – Works Contract 1103

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		<p>adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</p> <ul style="list-style-type: none"> • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks 					<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

Environmental Mitigation Implementation Schedule – Works Contract 1103

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		<p>and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.</p> <ul style="list-style-type: none"> All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Adopt best management practices 					<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S10.7.1	W2	<p><u>Tunnelling Works</u></p> <ul style="list-style-type: none"> Cut-&-cover/ open cut tunnelling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 	To minimize construction water quality impact from tunneling works	All tunneling portion	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN 1/94 TM-water TM-EIAO 	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</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 	

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Environmental Mitigation Implementation Schedule – Works Contract 1103

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		<p>will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.</p>					
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> • All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. • The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water 	<p align="center">Obs</p> <p align="center">✓</p> <p align="center">✓</p>

Environmental Mitigation Implementation Schedule – Works Contract 1103

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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 	✓ ✓

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Environmental Mitigation Implementation Schedule – Works Contract 1103

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		<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>

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Environmental Mitigation Implementation Schedule – Works Contract 1103

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		crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.					
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	All construction sites	Construction stage	• Waste Disposal Ordinance	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S11.5.1	WM5	<p><u>Excavated Contaminated Soils</u></p> <p>Details of the mitigation measures on handling of the contaminated soil shall be referred to Section on Land Contamination below.</p>	To remediate contaminated soil	Site L4 (Former Tai Hom Village)	Site remediation	• Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boat yards and Car Repair/Dismantling Workshop.	

Environmental Mitigation Implementation Schedule – Works Contract 1103

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

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S14.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	All construction sites	Construction stage	<ul style="list-style-type: none"> • EIAO Guidance Note No.4/2010 • TM-EIAO 	✓
S14.2 – 14.4	EM2	<p>1) An Environmental Team needs to be employed as per the EM&A Manual.</p> <p>2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.</p> <p>3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.</p>	Perform environmental monitoring & auditing	All construction sites	Construction stage	<ul style="list-style-type: none"> • EIAO Guidance Note No.4/2010 • TM-EIAO 	<p>✓</p> <p>✓</p> <p>✓</p>

Environmental Mitigation Implementation Schedule – Works Contract 1103

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Chapter 13.13	A13A.1 0.2.1 and A13A.1 0.2.4	The truck design should comply with the Requirements for Approval of an Explosives Delivery Vehicle (CEDD 2) and limit the amount of combustibles in the cabin. This should be combined with monthly vehicle inspection	To meet the ALARP requirement.	Explosive Magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.2	Blasting activities including storage, transport and use of explosives should be supervised and audited by competent site staff to ensure strict compliance with the blasting permit conditions.	To ensure that the risks from the proposed explosives storage, transport and use would not be unacceptable	Works areas at which explosives would be stored and/or used.	Construction phase	•Dangerous Goods Ordinance	✓
Chapter 13.13	A13A.1 0.2.1 and A13A.1 0.2.5	Only the required quantity of explosives for a particular blast should be transported to avoid the return of unused explosives to the temporary magazines. The number of return trips to the magazine should be minimized. If disposal is required for small quantities, disposal should be made in a controlled and safe manner by a Registered Shotfirer.	To reduce the risk during explosives transport.	Works areas at which explosives would be stored and/ or used.	Construction phase		✓
Chapter 13.13	A13A.1 0.2.1	A minimum headway between two consecutive truck conveys of at least 10 min is recommended.	To ensure that the risk from the proposed explosives transport would not be unacceptable	Along explosives transport route.	Construction phase.		✓
Chapter 13.13	A13A.1 0.2.1	The explosive truck accident frequency should be minimized by implementing a dedicated training programme for both the driver and his attendants, including regular briefing sessions, implementation of a defensive driving attitude. In addition, drivers should be selected based on good safety record, and medical checks.	To meet the ALARP requirement.	-	Construction phase		✓
Chapter 13.13	A13A.1 0.2.1	The explosive truck fire involvement frequency should be minimized by implementing a better emergency response and training to make	To meet the ALARP requirement.	-	Construction phase		

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Environmental Mitigation Implementation Schedule – Works Contract 1103

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		sure the adequate fire extinguishers are used and attempt is made to evacuate the area of the incident or securing the explosive load if possible. All explosive vehicles should also be equipped with the required amount and type of fire extinguishers and shall be agreed with Mines Division.					✓
Chapter 13.13	A13A.1 0.2.1	The contractor should as far as practicable combine the explosive deliveries for a given work area.	To meet the ALARP requirement.	-	Construction phase		✓
Chapter 13.13	A13A.1 0.2.1	The Contractor should as far as practicable use the preferred transport route.	To ensure that the risk from the proposed explosives transport would not be unacceptable	Along explosives transport route.	Construction phase		✓
Chapter 13.13	A13A.1 0.2.1	The Contractor should coordinate explosives deliveries with the delivery of chlorine to Shatin Water Treatment Works in order to avoid overlapping.	To ensure that the risk from the proposed explosives transport would not be unacceptable	Along explosives transport route.	Construction phase		✓
Chapter 13.13	A13A.1 0.2.4	Use only experienced driver(s) with good safety record for explosive vehicle(s). Training should be provided to ensure it covers all major safety subjects.	To ensure safe transport of explosives	At suitable location	Construction phase		✓
Chapter 13.13	A13A.1 0.2.4	Develop procedure to ensure that parking space on the site is available for the explosive truck. Confirmation of parking space should be communicated to truck drivers before delivery.	To ensure that the risks from the proposed explosives storage and transport would not be unacceptable	Explosive magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.3	Delivery vehicles shall not be permitted to remain unattended within the magazine site (or appropriately wheel-locked).	To reduce the risk of fire within the magazine	Explosive Magazine	Construction phase		✓

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
Chapter 13.13	A13A.1 0.2.3	Good house-keeping within and outside of the magazine to ensure that combustible materials (including vegetation) are removed and not allowed to accumulate.	To reduce the risk of fire within the magazine	Explosive Magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.4	Detonators shall not be transported in the same vehicle with other Class 1 explosives	To reduce the risk of explosion during the transport of cartridged emulsion	-	Construction phase		✓
Chapter 13.13	A13A.1 0.2.2	Emergency plan (ie magazine operational manual) shall be developed to address uncontrolled fire in magazine area. The case of fire near an explosive carrying truck in jammed traffic should also be covered. Drill of the emergency plan should be carried out at regular intervals.	To reduce the risk of fire	Explosive Magazine and along explosives transport route.	Construction phase		✓
Chapter 13.13	A13A.1 0.2.2	The magazine storage quantities need to be reported on a monthly basis to ensure that the two day storage capacity is not exceeded.	To reduce the risk within the magazine	Temporary explosives magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.2	Adverse weather working guideline should be developed to clearly define procedure for transport explosives during thunderstorm.	To ensure safe transport of explosives	Along explosives transport route.	Construction phase		✓
Chapter 13.13	A13A.1 0.2.4	During transport of the explosives within the tunnel, hot work should not be permitted	To ensure safe transport of explosives	Along explosives transport route.	Construction phase		✓

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
Chapter 13.13	A13A.1 0.2.4	Ensure that packaging of detonators remains intact until handed over at blasting site.	To reduce the risk of explosion during the transport of detonator	-	Construction phase		✓
Chapter 13.13	A13A.1 0.2.4	Steel vehicle tray welded to a steel vertical fire screen should be mounted at least 150 mm behind the drivers cab and 100 mm from the steel cargo compartment, the vertical screen shall protrude 150 mm in excess of all three (3) sides of the steel cargo compartment	To reduce the risk during explosives transport.	-	Construction phase		✓
Chapter 13.13	A13A.1 0.2.5	Ensure cartridge emulsion with high water content should be preferred. Also, the emulsion with perchlorate formulation should be avoided.	To ensure safe explosives to be used	-	Construction phase		✓
Chapter 13.13	A13A.1 0.2.3	Traffic Management should be implemented within the temporary magazine site, to ensure that no more than 1 vehicle will be loaded at any time, in order to avoid accidents involving multiple vehicles within the site boundary. Based on the construction programme, considering that 6 trucks could be loaded over a peak 2 hour period, this is considered feasible.	To ensure that the risks from the proposed explosives storage and transport would not be unacceptable	Temporary explosives magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.3	The design of the fill slope close to the temporary magazine site should consider potential washout failures and incorporate engineering measures to prevent a washout causing damage to the temporary magazine stores	To ensure that the risks from the proposed explosives storage would not be unacceptable	Temporary explosives magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.2	The security plan should address different alert security level to reduce opportunity for arson / deliberate initiation of explosives. The corresponding security procedure should be implemented with respect to prevailing security alert status announced by the	To ensure that the risks from the proposed explosives storage would not be unacceptable	Temporary explosives magazine	Construction phase		✓

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
		Government.					
Chapter 13.13	A13A.1 0.2.3	A suitable work control system should be introduced, such as an operational manual including Permit-to-Work system.	To ensure that the risks from the proposed explosives storage would not be unacceptable	Temporary explosives magazine	Construction phase		✓
Chapter 13.13	A13A.1 0.2.3	The magazine building shall be regularly checked for water seepage through the roof, walls or floor.	To ensure that the risks from the proposed explosives storage would not be unacceptable	Temporary explosives magazine	Construction phase		✓
Chapter 13.13	A13B.7 .2	Blast charge weight (MIC) should be within the maximum MIC as specified for the given section.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	Temporary mitigation measures such as blast doors or heavy duty blast curtains should be installed at the access adits, shafts/ portals and at suitable locations underground to prevent flyrock and control the air overpressure.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	Blasting from multiple faces as well as different locations will be carried out for this project. Good communication and control will need to be adopted in ensuring that the works are carried out safely.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	It is intended that complete evacuation of the underground tunnels need not be carried out and secure refuge areas should be identified to workers in the area.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	A Chief Shotfirer and a Blasting Coordinator shall be employed in addition to the normal blasting personnel to ensure that the works are safe and coordinated between blasting areas and between	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓

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
		adjacent contracts.					
Chapter 13.13	A13B.7 .2	Shotfirer to be provided with a lightning detector, and appropriate control measures should be in place.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	A speed limit for the diesel vehicle truck and bulk emulsion truck in the tunnel should be enforced. The truck may be escorted while underground to ensure route is clear from hazards and obstructions.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	Hot work should be suspended during passage of the diesel vehicle truck and bulk emulsion truck in the tunnel.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	For any construction works related to use of explosives near gas facilities and gas pipes, the requirements of the Code of Practice on Avoiding Danger from Gas Pipes must be respected, in particular, to ensure liaison/coordination with HKCG with sufficient notice of planned works and to follow prescribed emergency procedures in case of leaks.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	A detailed liaison between the contractor and HKCG should be established. HKCG should be notified about the blasting schedule in written format within a reasonable period of time prior to blasting in order to ensure the gas safety during the construction period. Also, liaison should be made with HKCG to develop an emergency plan.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13C.8	Installation of on-site gas monitors in all relevant SCL construction/operation areas;	To reduce the risks to the SCL staff, construction workers and passengers	-	Construction and operation phases		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
Chapter 13.13	A13C.8	Establishment of emergency response and evacuation plans (co-operation of various parties/departments required. For the operational phase the emergency plan should also include adequate procedures for controlling the tunnel ventilation system and stopping of the SCL train traffic in order to prevent the trains moving into the affected areas.)	To reduce the risks to the SCL staff, construction workers and passengers	-	Construction and operation phases		✓
Chapter 13.13	A13C.8	Safety/emergency response/evacuation training and drills for all personnel	To reduce the risks to the SCL staff, construction workers and passengers	-	Construction and operation phases		✓

Appendix D

Calibration
Certificates for Air
Monitoring
Equipment

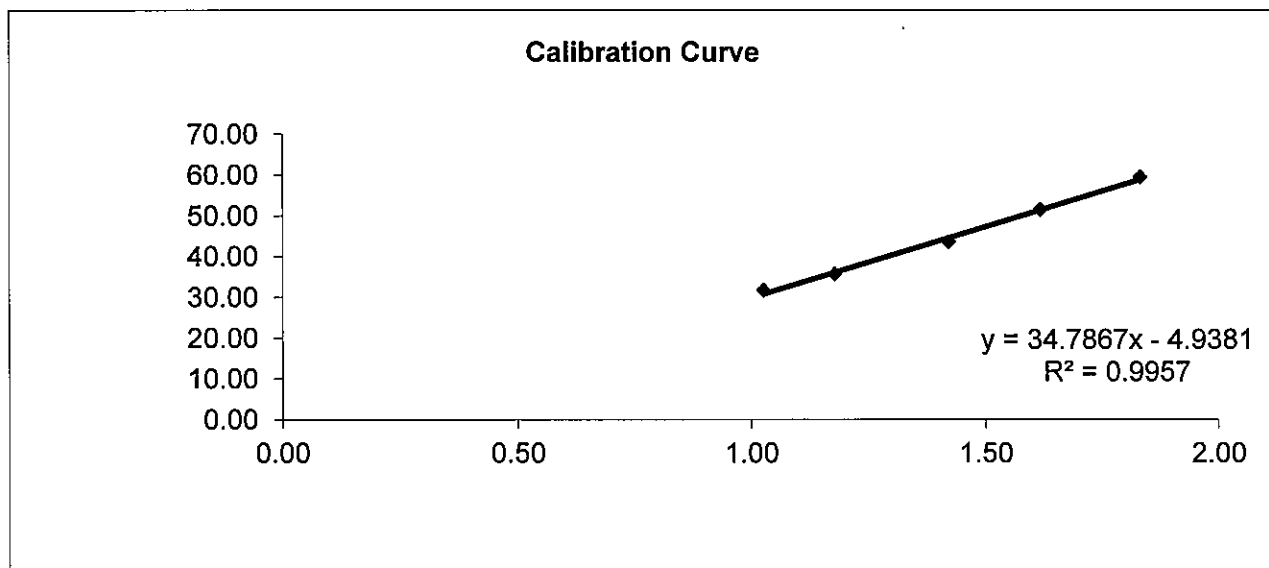
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	8-Jul-14	Barometric pressure	755 mm Hg
Next Calibration date	6-Sep-14	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	2.06238
Intercept of the standard curve, b _s	-0.2415

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	32.00	1.03	31.63
7	4.90	36.00	1.18	35.58
10	7.40	44.00	1.42	43.49
13	9.80	52.00	1.62	51.40
18	12.80	60.00	1.83	59.31



Linear Regression

Sampler slope (m) : **34.7867**
 Sampler intercept (b) : **-4.9381**
 Correlation coefficient (R²) : **0.9957**

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

Performed by: _____
 Checked by: _____

Date: 8-7-14
 Date: 8-7-14

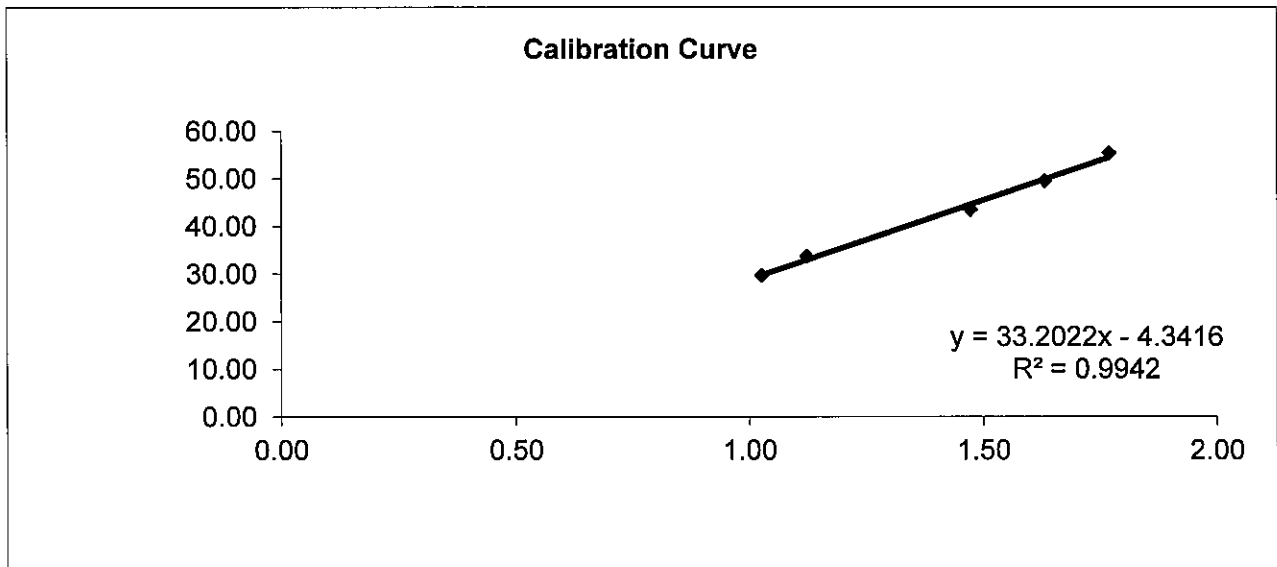
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	8-Jul-14	Barometric pressure	755 mm Hg
Next Calibration date	6-Sep-14	Temperature (°C)	30 °C
Sampler location	DMS2 - Price Memorial Catholic Pri	Temperature (K)	303 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	3761	T _{std}	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m _s	2.06238
Intercept of the standard curve, b _s	-0.2415

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	30.00	1.03	29.65
7	4.40	34.00	1.12	33.61
10	8.00	44.00	1.47	43.49
13	10.00	50.00	1.63	49.42
18	11.90	56.00	1.77	55.35



Linear Regression

Sampler slope (m) : **33.2022**
 Sampler intercept (b) : **-4.3416**
 Correlation coefficient (R²) : **0.9942**

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

Performed by:

Checked by:

Date: 8-7-14

Date: 8-7-14

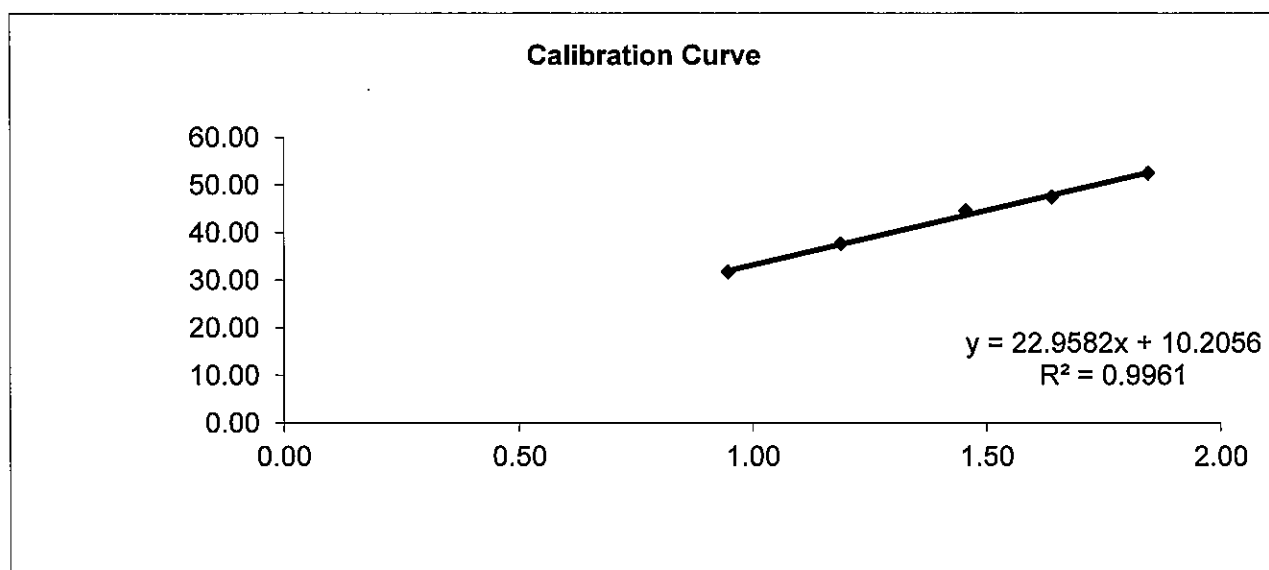
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	8-Jul-14	Barometric pressure	755 mm Hg
Next Calibration date	6-Sep-14	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	2.06238
Intercept of the standard curve, b _s	-0.2415

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	32.00	0.95	31.63
7	5.00	38.00	1.19	37.56
10	7.80	45.00	1.46	44.48
13	10.10	48.00	1.64	47.45
18	13.00	53.00	1.85	52.39



Linear Regression

Sampler slope (m) : **22.9582**
 Sampler intercept (b) : **10.2056**
 Correlation coefficient (R²) : **0.9961**

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

Performed by: _____
 Checked by: _____

Date: 8-7-14
 Date: 8-7-14



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jan 27, 2014 Rootmeter S/N 0438320 Ta (K) - 293
 Operator Tisch Orifice I.D. - 2421 Pa (mm) - 754.38

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	1.4360	3.2	2.00
2	NA	NA	1.00	1.0120	6.4	4.00
3	NA	NA	1.00	0.9090	7.9	5.00
4	NA	NA	1.00	0.8650	8.8	5.50
5	NA	NA	1.00	0.7140	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0052	0.7000	1.4209	0.9957	0.6934	0.8814
1.0010	0.9891	2.0095	0.9915	0.9798	1.2464
0.9989	1.0989	2.2467	0.9894	1.0885	1.3936
0.9977	1.1535	2.3564	0.9883	1.1426	1.4616
0.9925	1.3901	2.8419	0.9831	1.3769	1.7627
Qstd slope (m) = 2.06238			Qa slope (m) = 1.29142		
intercept (b) = -0.02415			intercept (b) = -0.01498		
coefficient (r) = 0.99994			coefficient (r) = 0.99994		
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 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		Start	Finish								
103095	Aug-14	1-Aug-14	00:00	00:00	DMS1	Fine	Normal Operation	754.0	752.0	30.0	30.0	41.0	40.0	2.7520	2.8014	0.0494	1.3062	1.2763	1.2913	2400.29	2424.29	1440.00	1859.40	26.6	148.7	260.0
103104	Aug-14	7-Aug-14	00:00	00:00	DMS1	Fine	Normal Operation	753.0	753.0	31.0	31.0	40.0	41.0	2.7864	2.8500	0.0636	1.2752	1.3035	1.2894	2424.29	2448.29	1440.00	1856.66	34.3	148.7	260.0
103098	Aug-14	13-Aug-14	00:00	00:00	DMS1	Rainy	Normal Operation	752.0	752.0	28.0	26.0	40.0	40.0	2.7571	2.8064	0.0493	1.2800	1.2839	1.2820	2448.29	2472.29	1440.00	1846.01	26.7	148.7	260.0
103103	Aug-14	19-Aug-14	00:00	00:00	DMS1	Rainy	Normal Operation	755.0	755.0	28.0	25.0	40.0	40.0	2.7826	2.8153	0.0327	1.2823	1.2880	1.2852	2472.29	2496.29	1440.00	1850.62	17.7	148.7	260.0
103110	Aug-14	25-Aug-14	00:00	00:00	DMS1	Fine	Normal Operation	755.0	755.0	29.0	30.0	40.0	40.0	2.7830	2.8111	0.0281	1.2804	1.2785	1.2795	2496.29	2520.29	1440.00	1842.41	15.3	148.7	260.0
103113	Aug-14	30-Aug-14	00:00	00:00	DMS1	Fine	Normal Operation	754.0	754.0	30.0	30.0	41.0	41.0	2.7549	2.7860	0.0311	1.3062	1.3062	1.3062	2520.29	2544.29	1440.00	1880.93	16.5	148.7	260.0

Average (µg/m3)	22.9
Max (µg/m3)	34.3
Min (µg/m3)	15.3

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		Start	Finish								
103096	Aug-14	1-Aug-14	00:00	00:00	DMS2	Fine	Normal Operation	754.0	752.0	30.0	30.0	42.0	42.0	2.7674	2.9034	0.1360	1.3803	1.3787	1.3795	1896.4	1920.4	1440.00	1986.5	68.5	167.4	260.0
103099	Aug-14	7-Aug-14	00:00	00:00	DMS2	Fine	Normal Operation	753.0	753.0	31.0	31.0	42.0	43.0	2.7490	2.8384	0.0894	1.3774	1.4071	1.3923	1920.4	1944.4	1440.00	2004.8	44.6	167.4	260.0
103101	Aug-14	13-Aug-14	00:00	00:00	DMS2	Rainy	Normal Operation	752.0	752.0	28.0	26.0	44.0	44.0	2.7662	2.8832	0.1170	1.4424	1.4468	1.4446	1944.39	1968.39	1440.00	2080.22	56.2	167.4	260.0
103105	Aug-14	19-Aug-14	00:00	00:00	DMS2	Rainy	Normal Operation	755.0	755.0	28.0	25.0	44.0	44.0	2.7602	2.8801	0.1199	1.4450	1.4516	1.4483	1968.39	1992.39	1440.00	2085.55	57.5	167.4	260.0
103108	Aug-14	25-Aug-14	00:00	00:00	DMS2	Fine	Normal Operation	755.0	755.0	29.0	30.0	44.0	42.0	2.7445	2.7784	0.0339	1.4428	1.3811	1.4120	1992.39	2016.39	1440.00	2033.21	16.7	167.4	260.0
103111	Aug-14	30-Aug-14	00:00	00:00	DMS2	Fine	Normal Operation	754.0	754.0	30.0	30.0	42.0	42.0	2.7878	2.8581	0.0703	1.3803	1.3803	1.3803	2016.39	2040.39	1440.00	1987.63	35.4	167.4	260.0

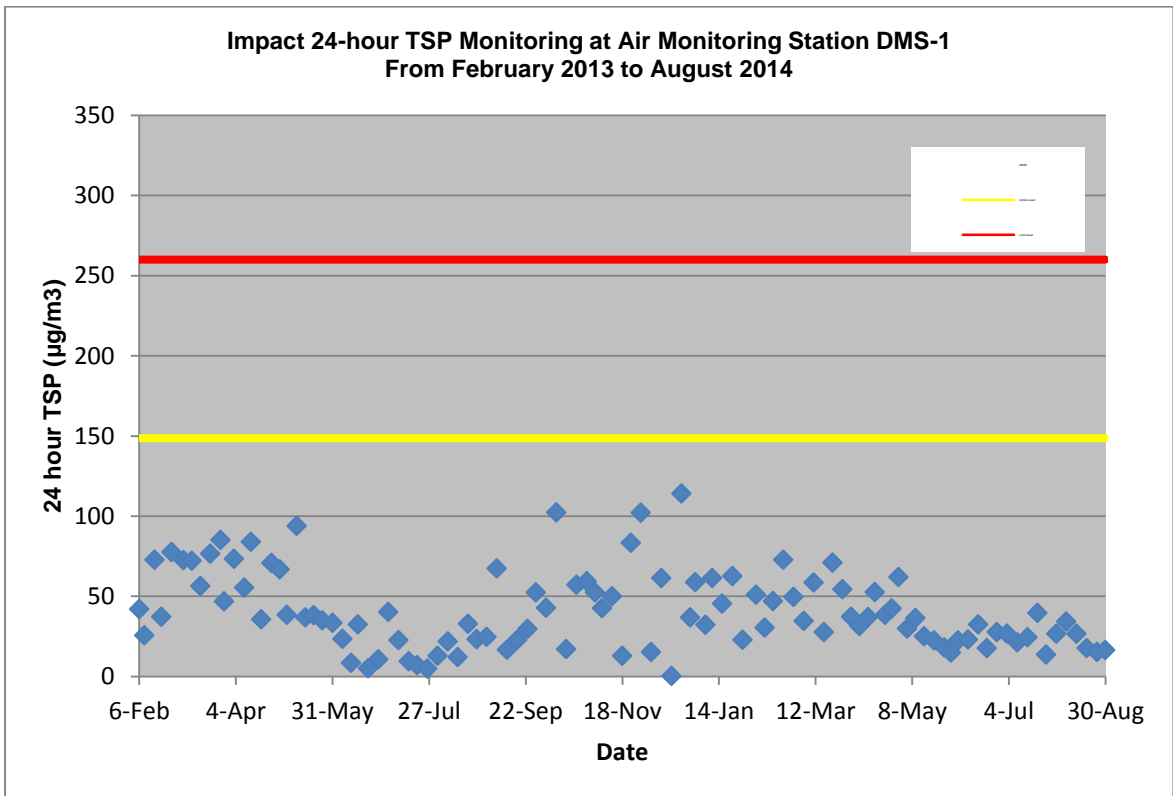
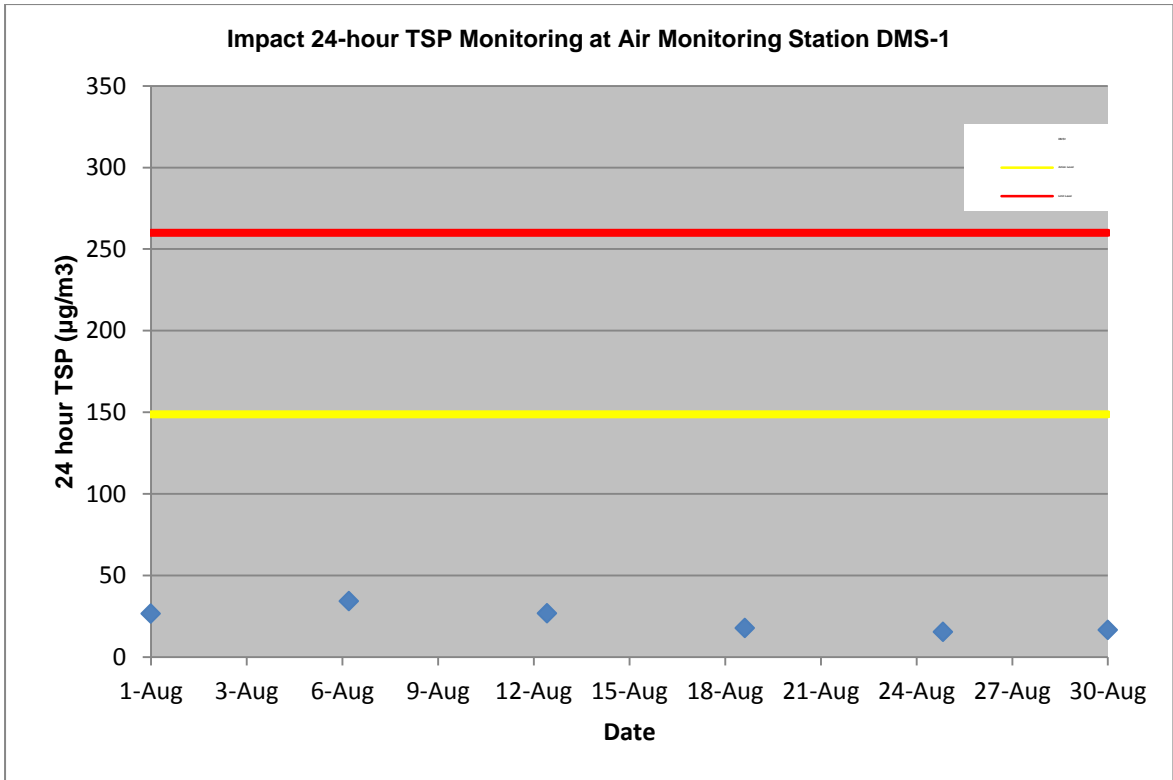
Average (µg/m3)	46.5
Max (µg/m3)	68.5
Min (µg/m3)	16.7

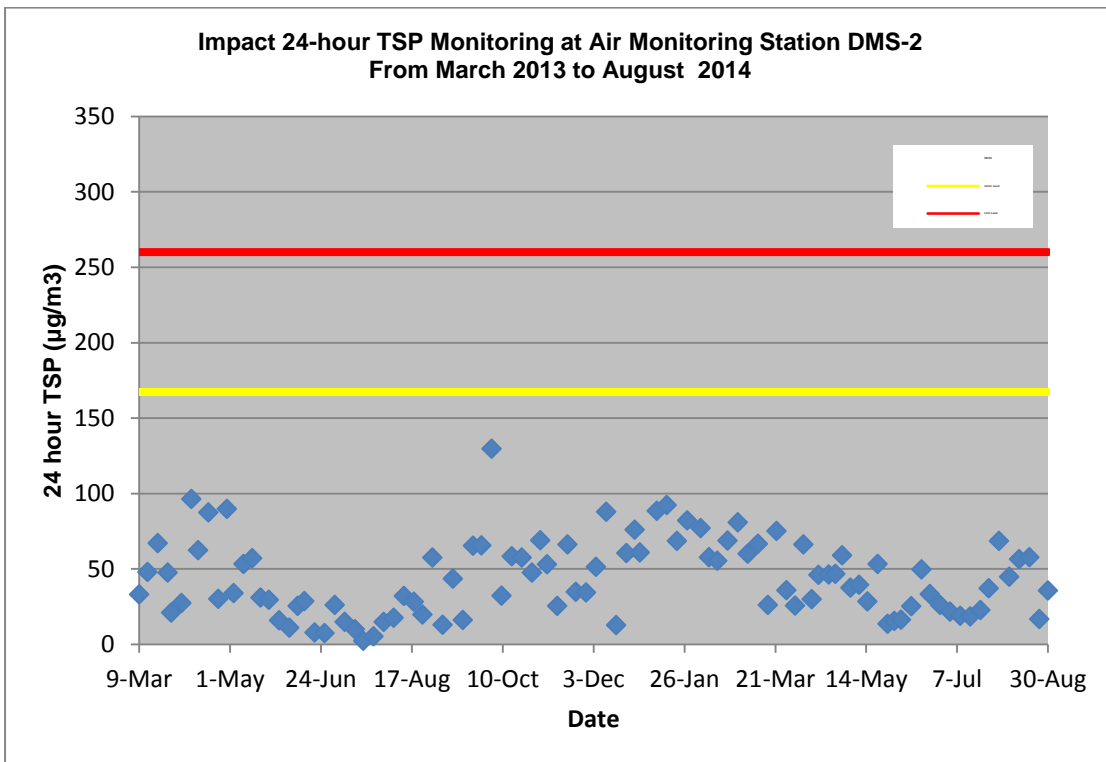
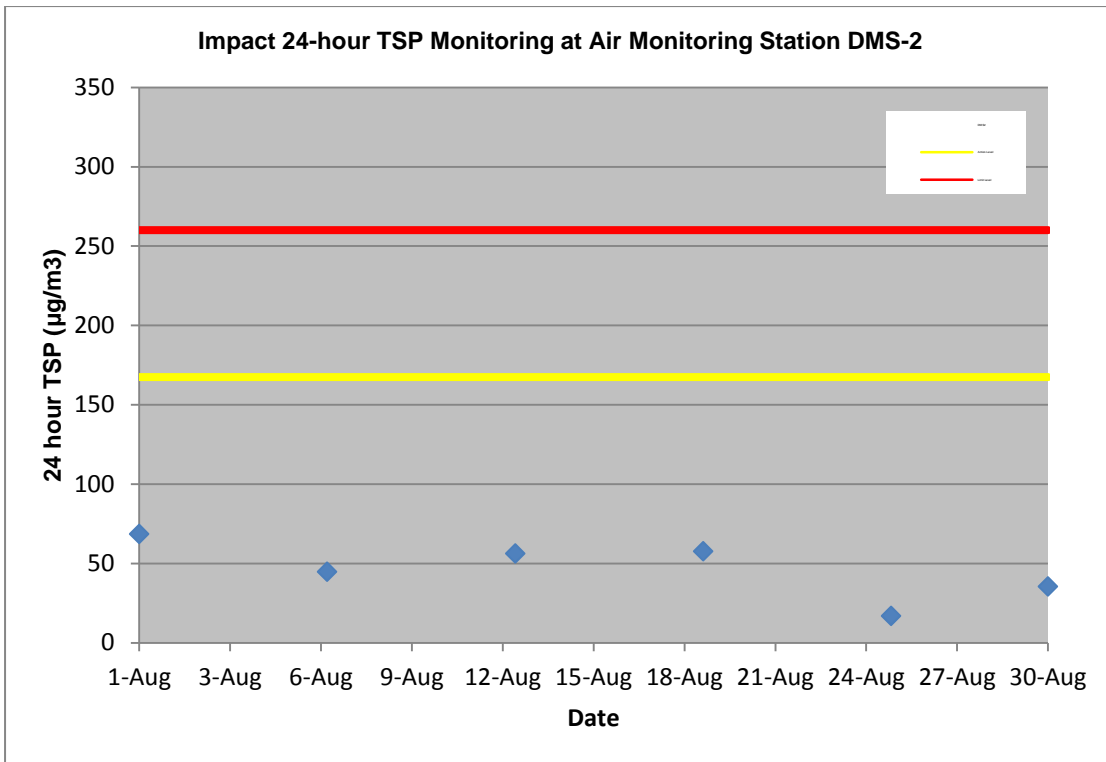
Location: DMS-3/DMS-4 - Hong Kong Sheng Kung Hui Nursing Home

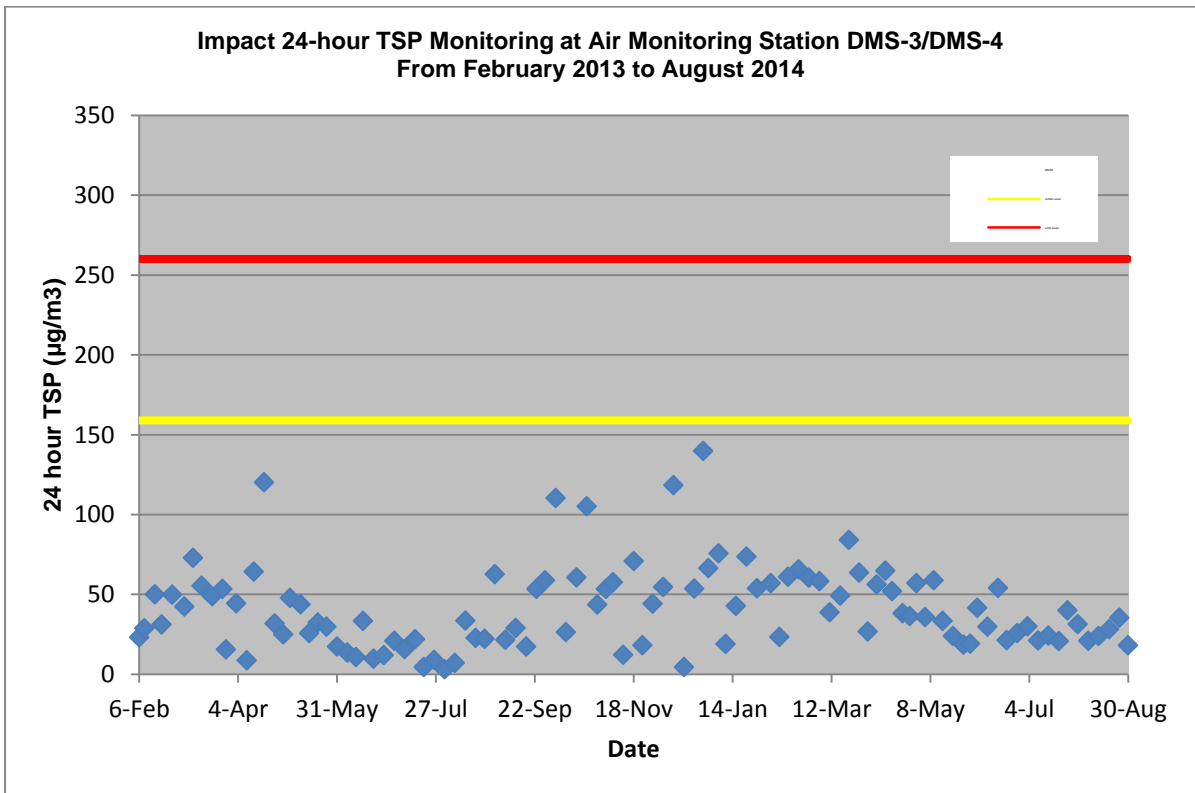
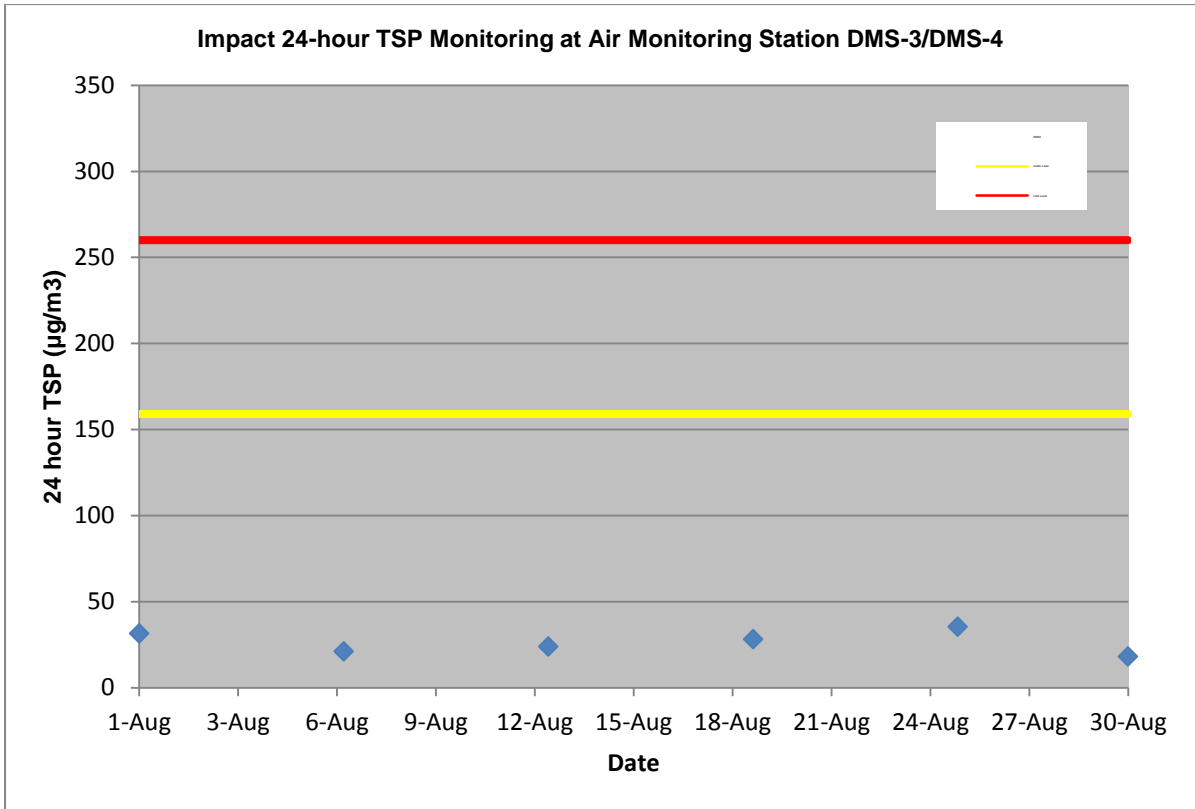
Details of 24-Hour TSP Monitoring

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		Start	Finish								
103097	Aug-14	1-Aug-14	00:00	00:00	DMS3	Fine	Normal Operation	754.0	752.0	30.0	30.0	42.0	41.0	2.7551	2.8157	0.0606	1.3625	1.3172	1.3399	2448.40	2472.40	1440.00	1929.38	31.4	159.1	260.0
103100	Aug-14	7-Aug-14	00:00	00:00	DMS3	Fine	Normal Operation	753.0	753.0	31.0	31.0	41.0	41.0	2.7680	2.8077	0.0397	1.3155	1.3155	1.3155	2472.40	2496.40	1440.00	1894.32	21.0	159.1	260.0
103102	Aug-14	13-Aug-14	00:00	00:00	DMS3	Rainy	Normal Operation	752.0	752.0	28.0	26.0	44.0	44.0	2.7726	2.8227	0.0501	1.4524	1.4588	1.4556	2496.40	2520.40	1440.00	2096.06	23.9	159.1	260.0
103106	Aug-14	19-Aug-14	00:00	00:00	DMS3	Rainy	Normal Operation	755.0	755.0	28.0	25.0	43.0	44.0	2.7838	2.8423	0.0585	1.4129	1.4657	1.4393	2520.40	2544.40	1440.00	2072.59	28.2	159.1	260.0
103107	Aug-14	25-Aug-14	00:00	00:00	DMS3	Fine	Normal Operation	755.0	755.0	29.0	30.0	42.0	41.0	2.7650	2.8334	0.0684	1.3668	1.3207	1.3438	2544.40	2568.40	1440.00	1935.00	35.3	159.1	260.0
103112	Aug-14	30-Aug-14	00:00	00:00	DMS3	Fine	Normal Operation	754.0	754.0	30.0	30.0	42.0	42.0	2.7591	2.7944	0.0353	1.3625	1.3625	1.3625	2568.40	2592.40	1440.00	1962.00	18.0	159.1	260.0

Average (µg/m3)	26.3
Max (µg/m3)	35.3
Min (µg/m3)	18.0





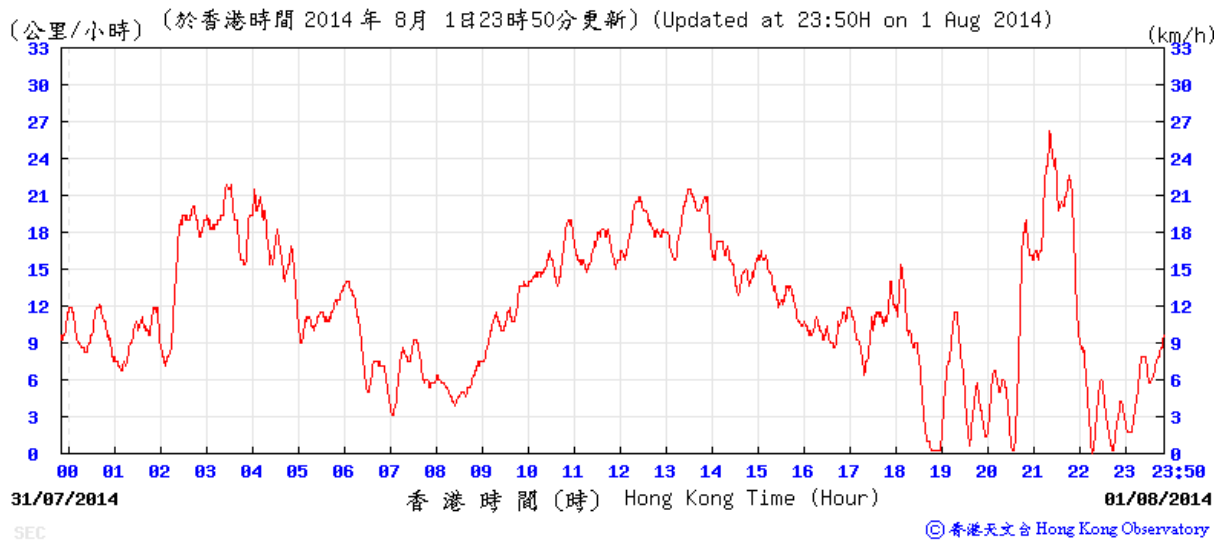


Appendix F

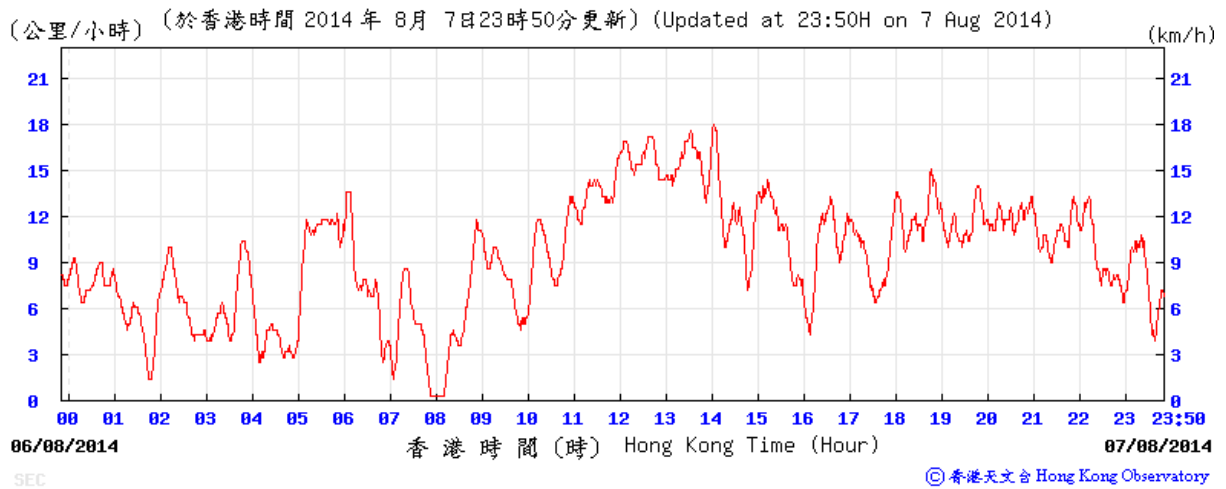
Wind data

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

1 August 2014

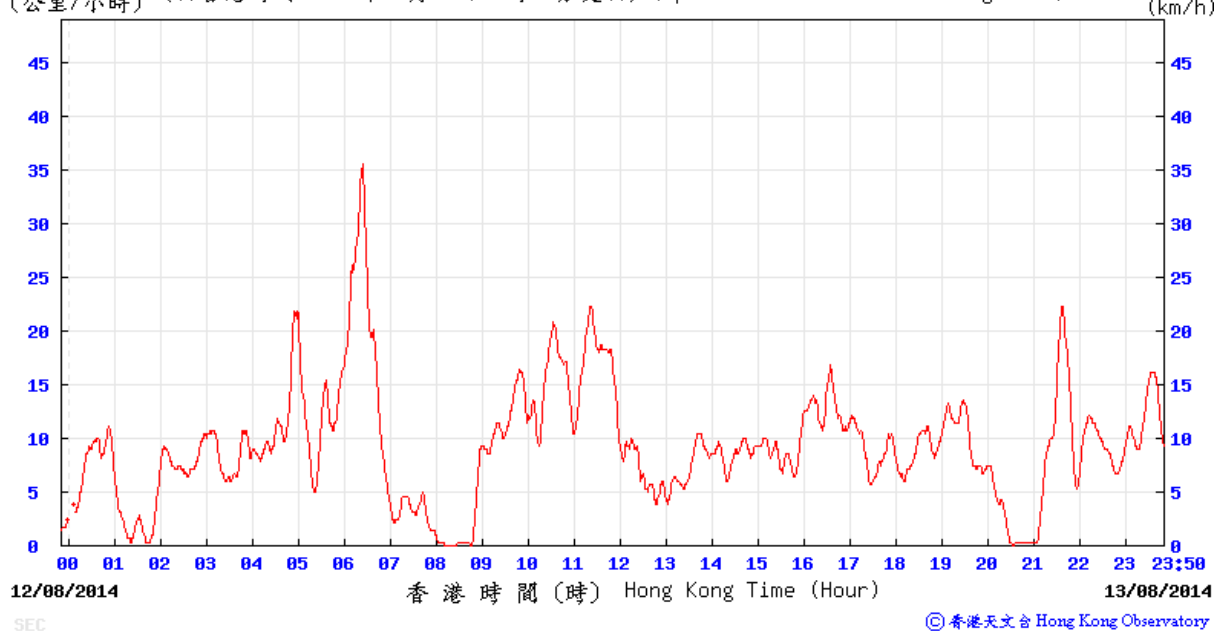


7 August 2014



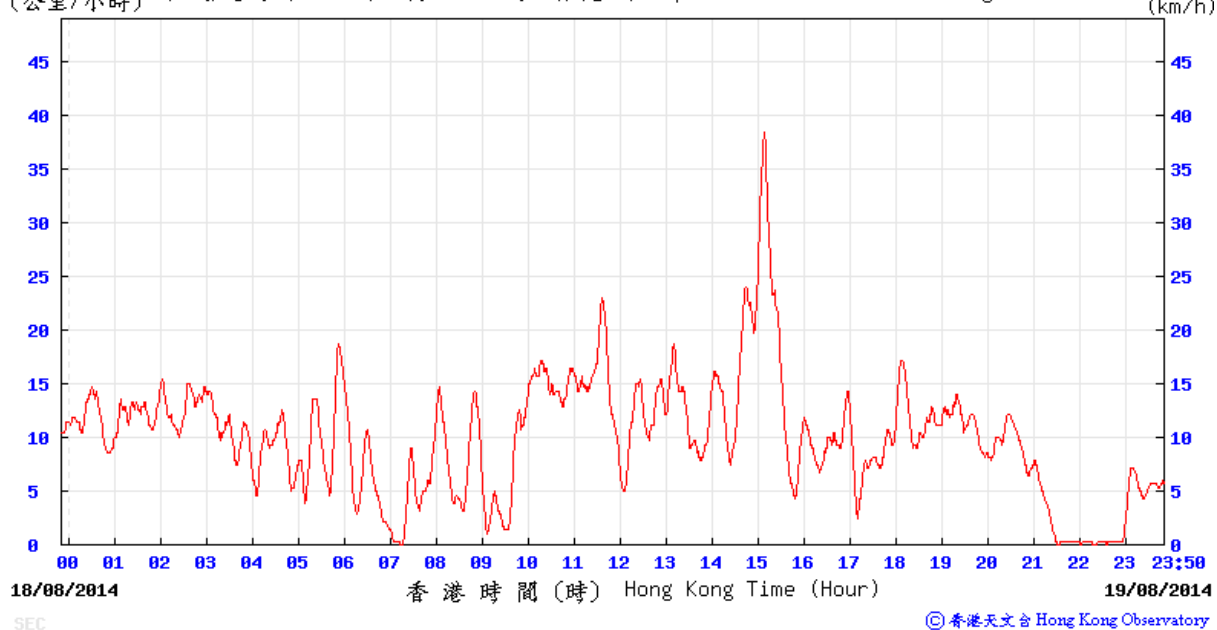
13 August 2014

(公里/小時) (於香港時間 2014 年 8 月 13 日 23 時 50 分更新) (Updated at 23:50H on 13 Aug 2014)



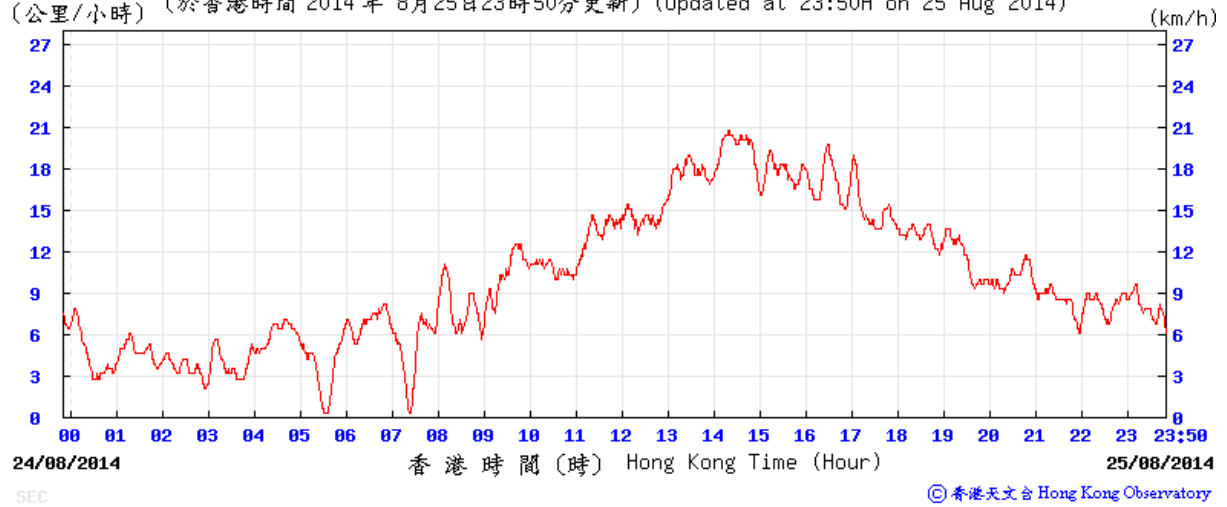
19 August 2014

(公里/小時) (於香港時間 2014 年 8 月 19 日 23 時 50 分更新) (Updated at 23:50H on 19 Aug 2014)



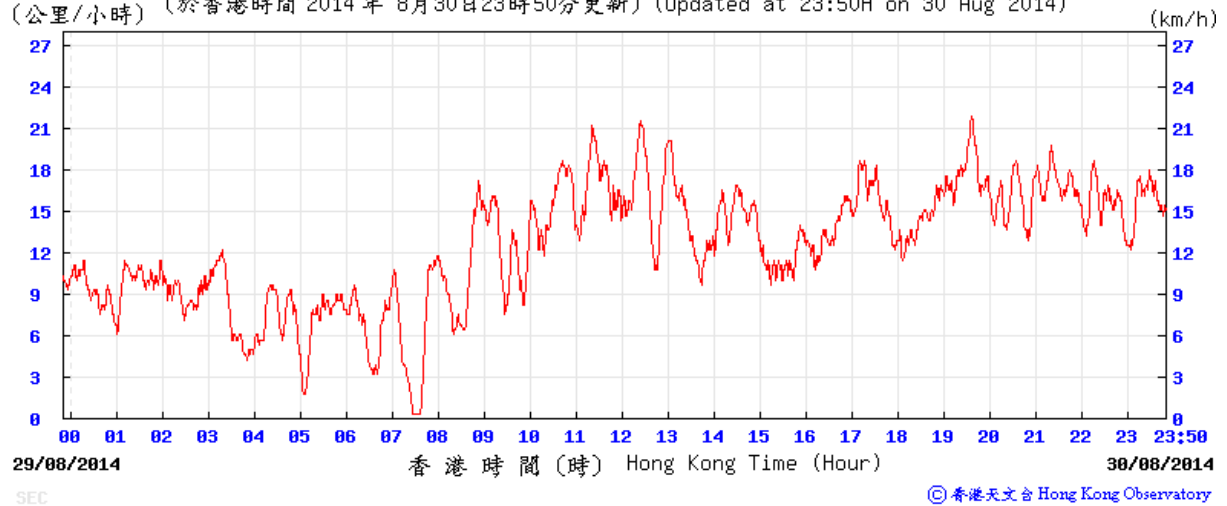
25 August 2014

(公里/小時) (於香港時間 2014 年 8月25日23時50分更新) (Updated at 23:50H on 25 Aug 2014)



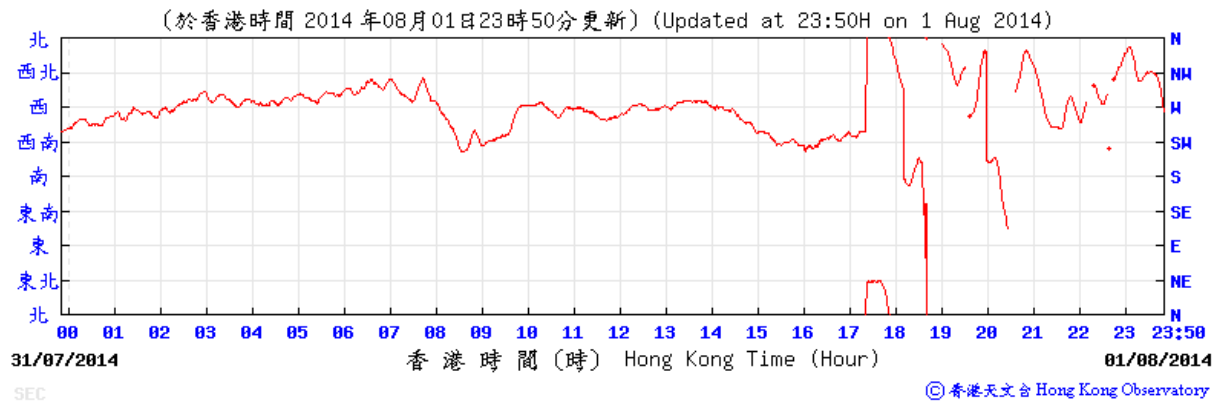
30 August 2014

(公里/小時) (於香港時間 2014 年 8月30日23時50分更新) (Updated at 23:50H on 30 Aug 2014)

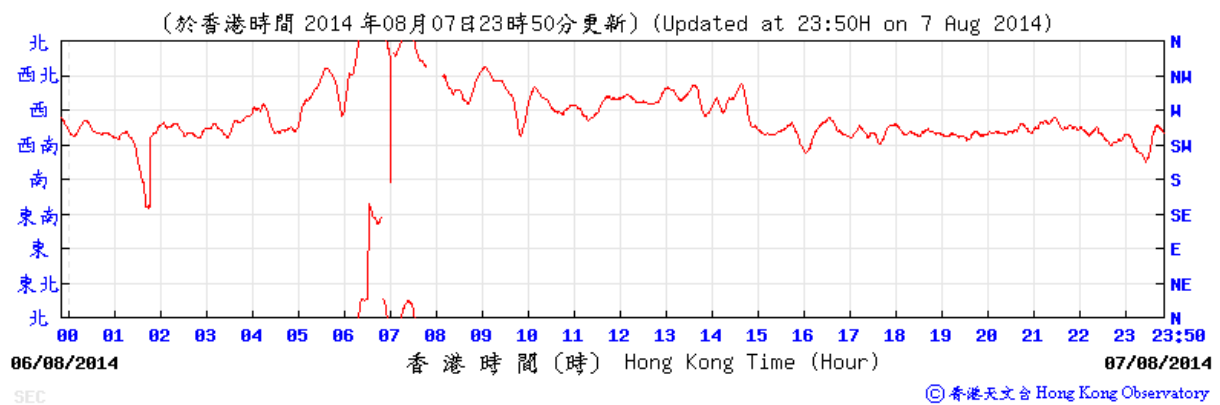


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

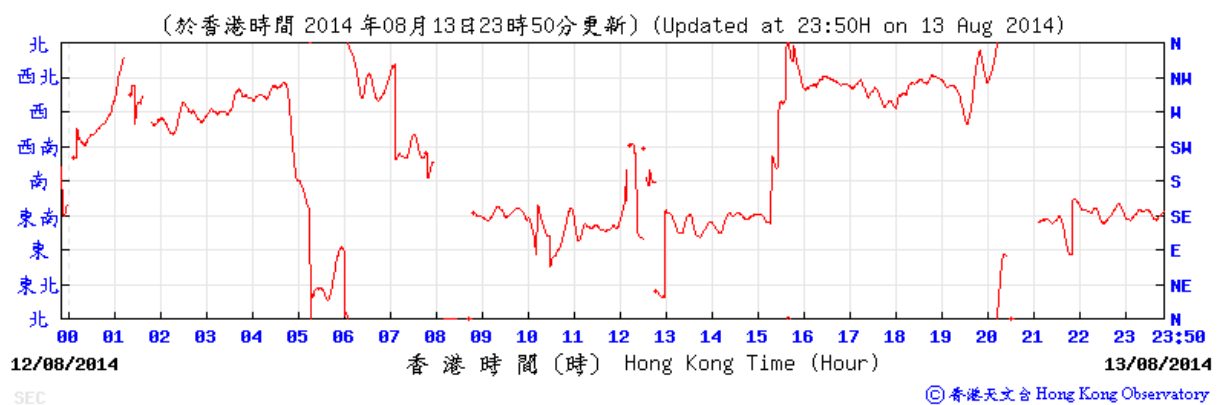
1 August 2014



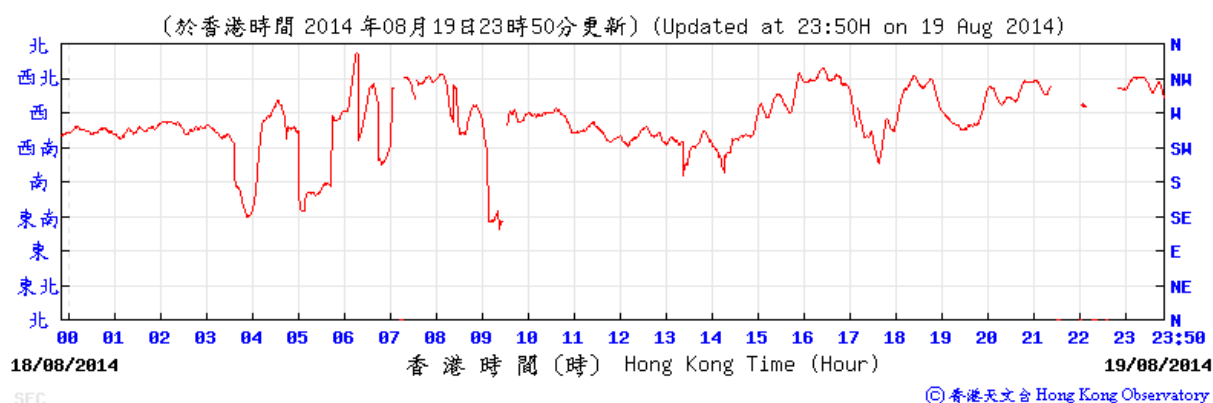
7 August 2014



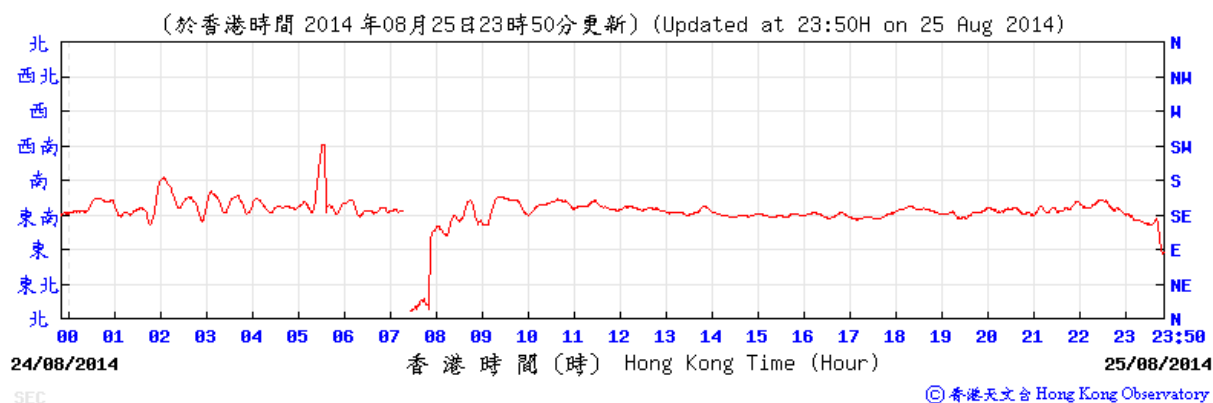
13 August 2014



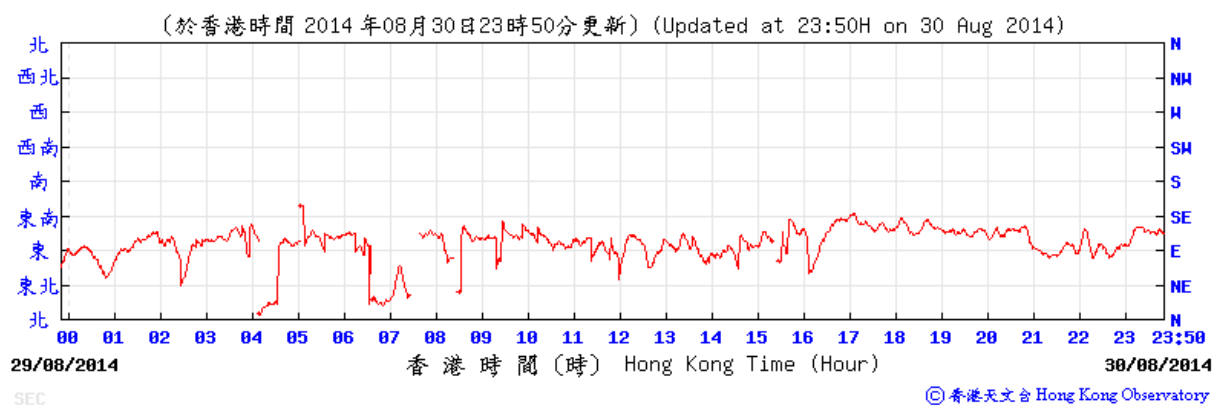
19 August 2014



25 August 2014

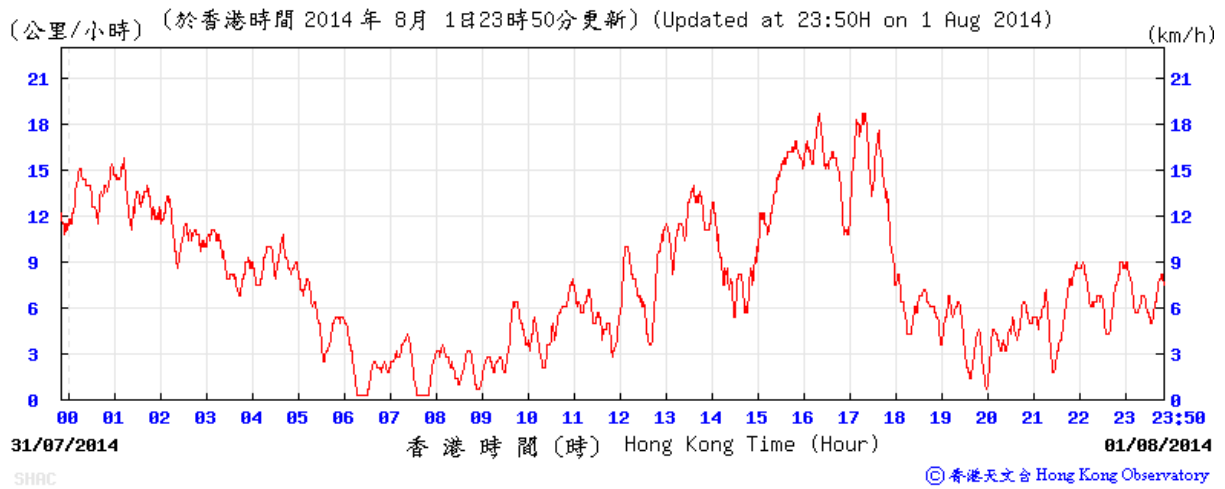


30 August 2014

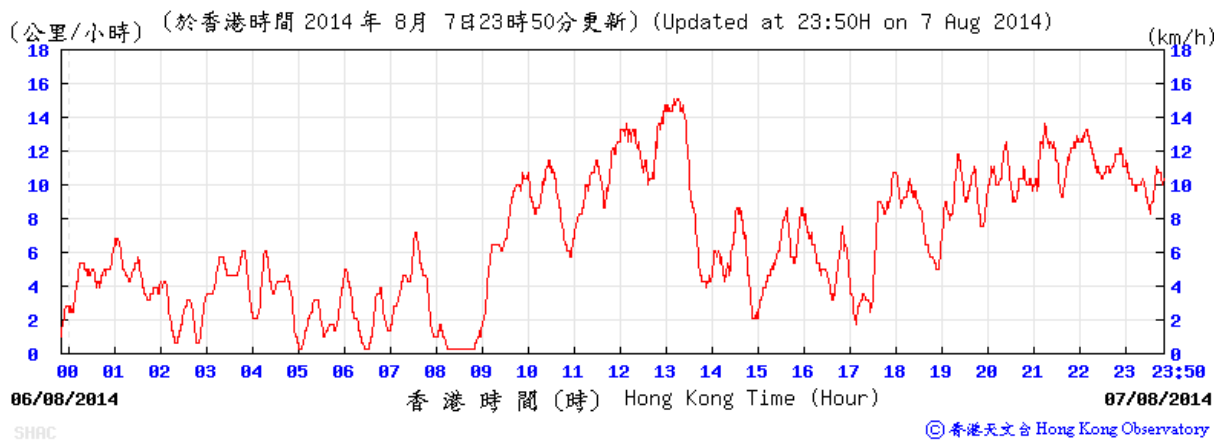


Average wind speed obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

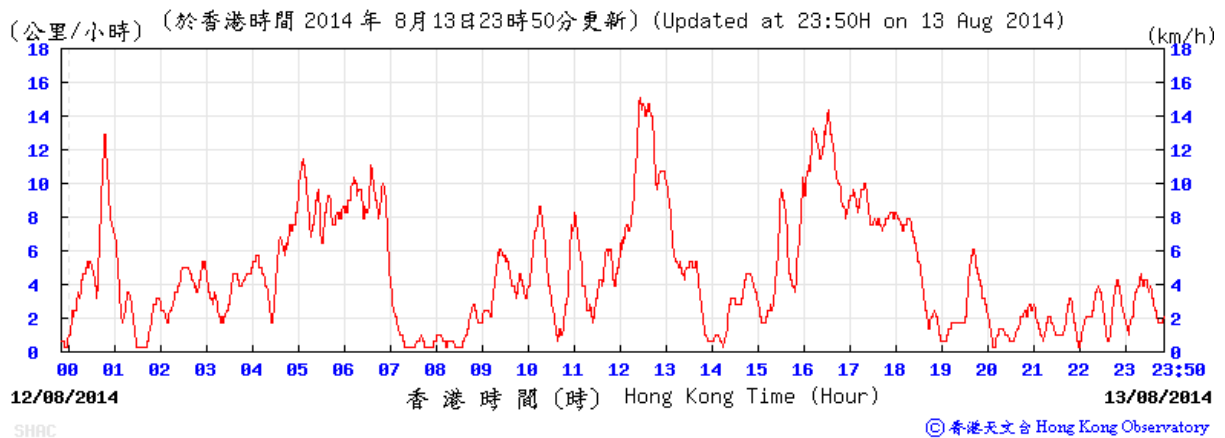
1 August 2014



7 August 2014

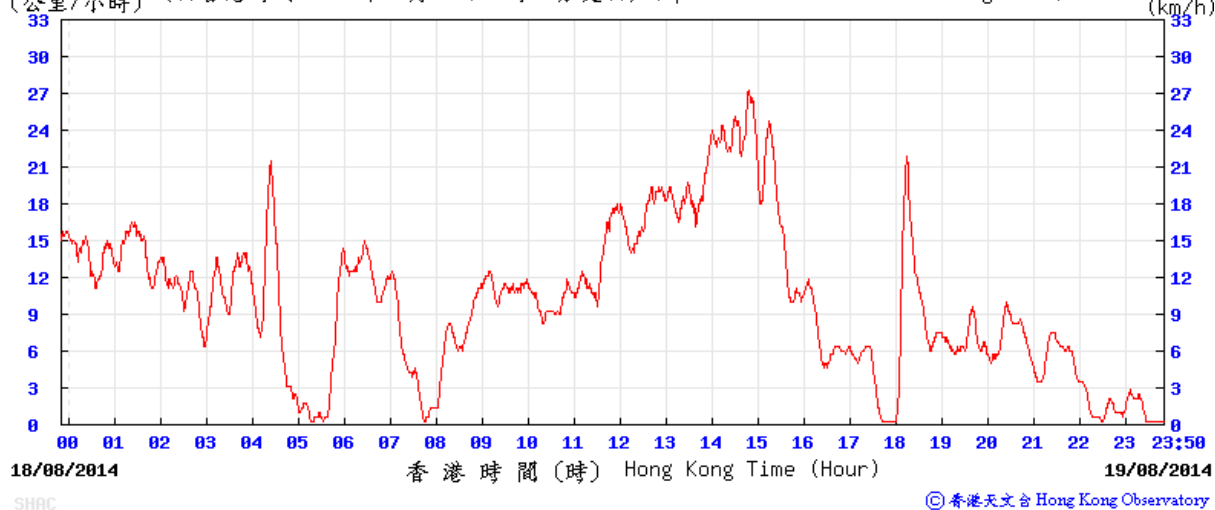


13 August 2014



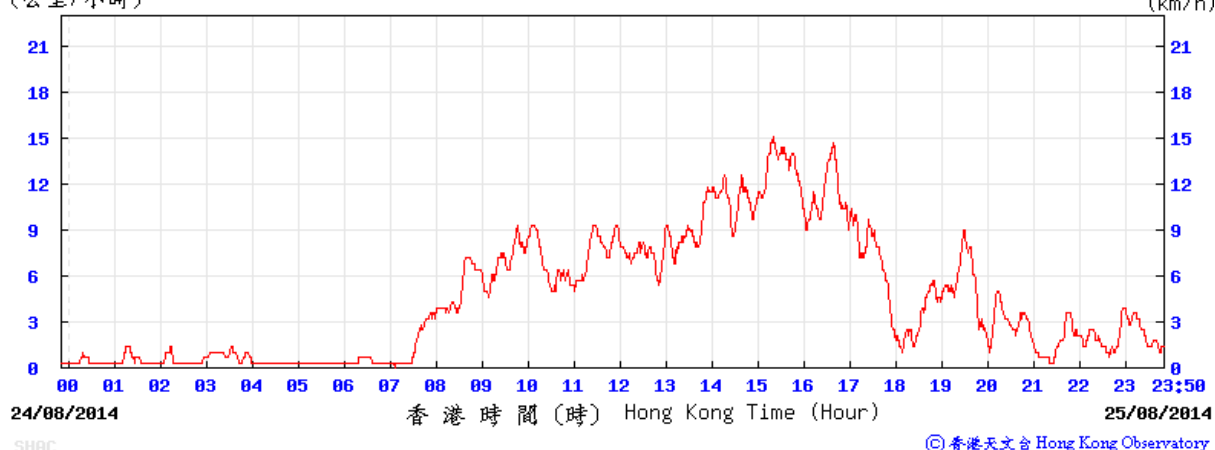
19 August 2014

(公里/小時) (於香港時間 2014 年 8 月 19 日 23 時 50 分更新) (Updated at 23:50H on 19 Aug 2014)



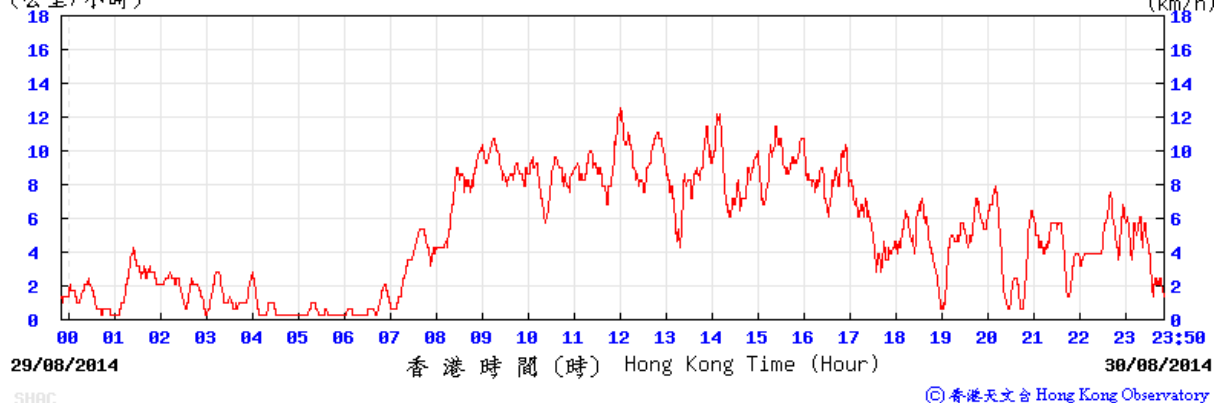
25 August 2014

(公里/小時) (於香港時間 2014 年 8 月 25 日 23 時 50 分更新) (Updated at 23:50H on 25 Aug 2014)



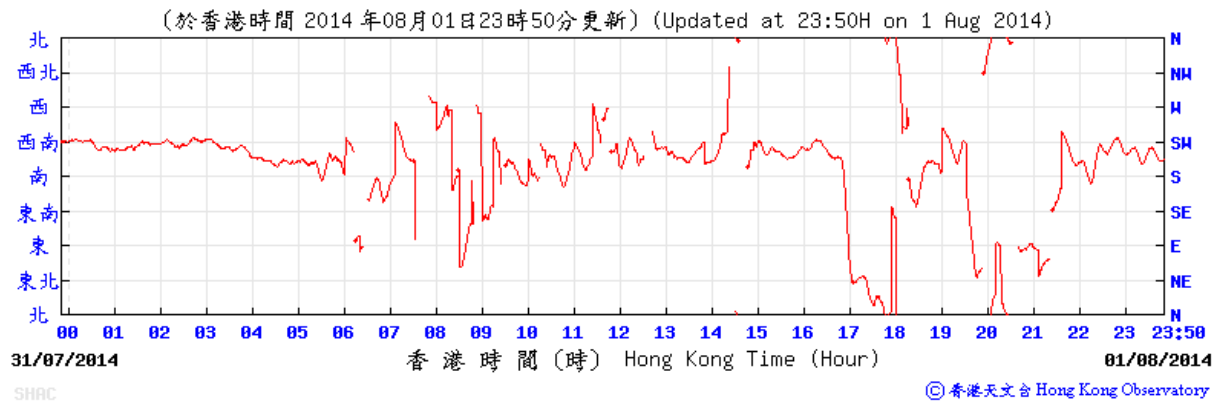
30 August 2014

(公里/小時) (於香港時間 2014 年 8 月 30 日 23 時 50 分更新) (Updated at 23:50H on 30 Aug 2014)

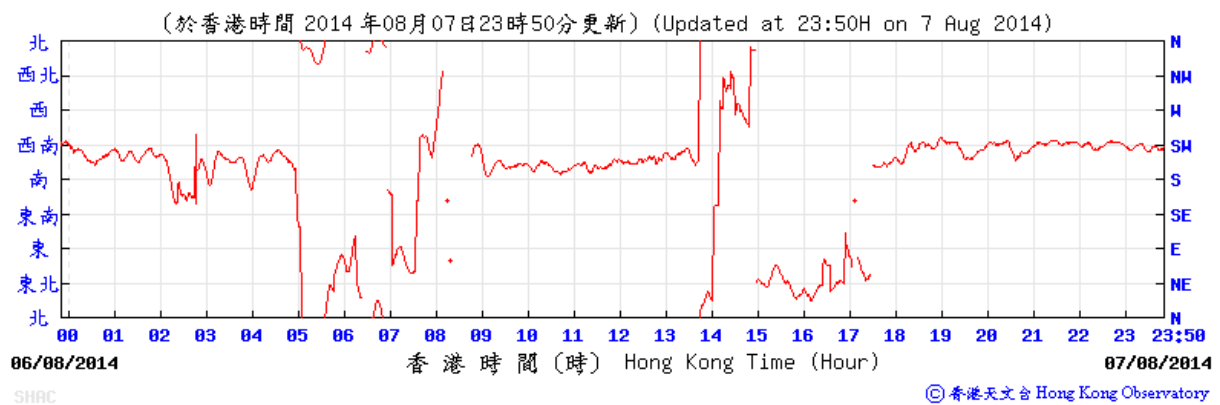


Average wind direction obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

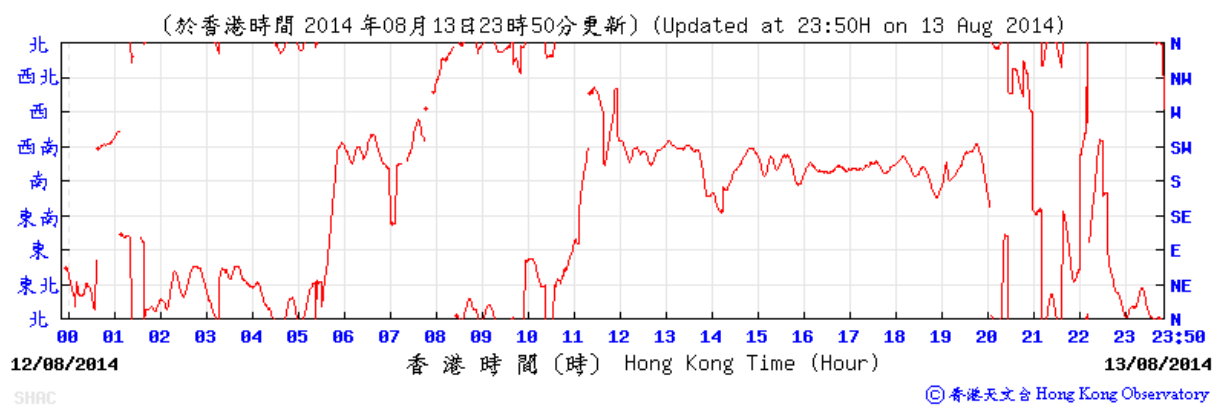
1 August 2014



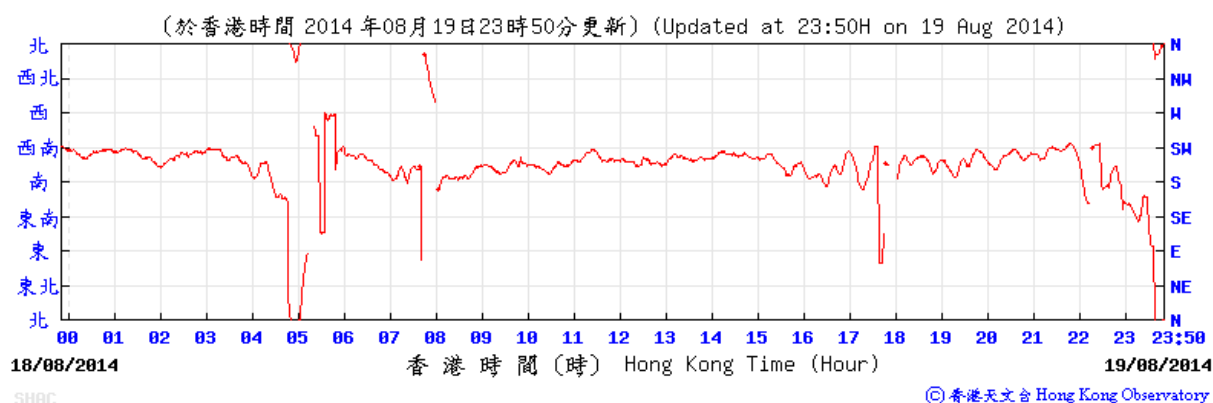
7 August 2014



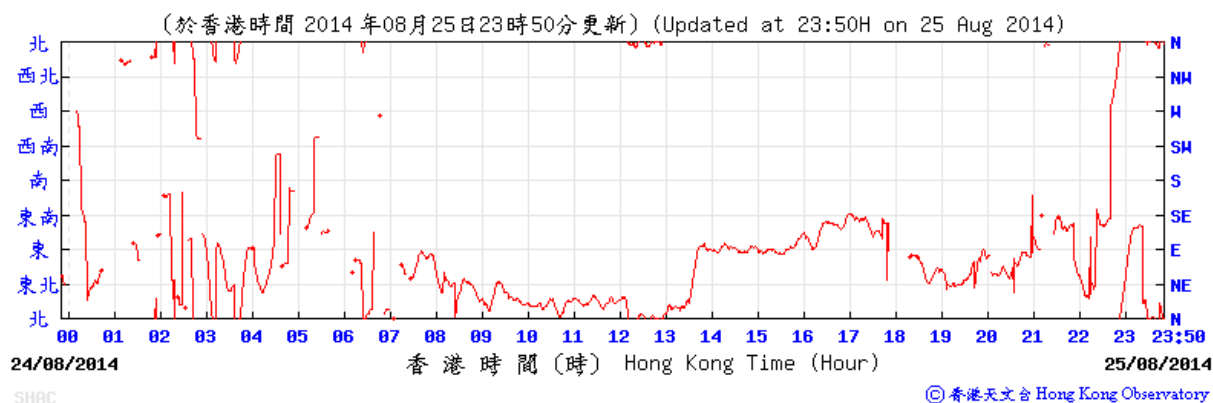
13 August 2014



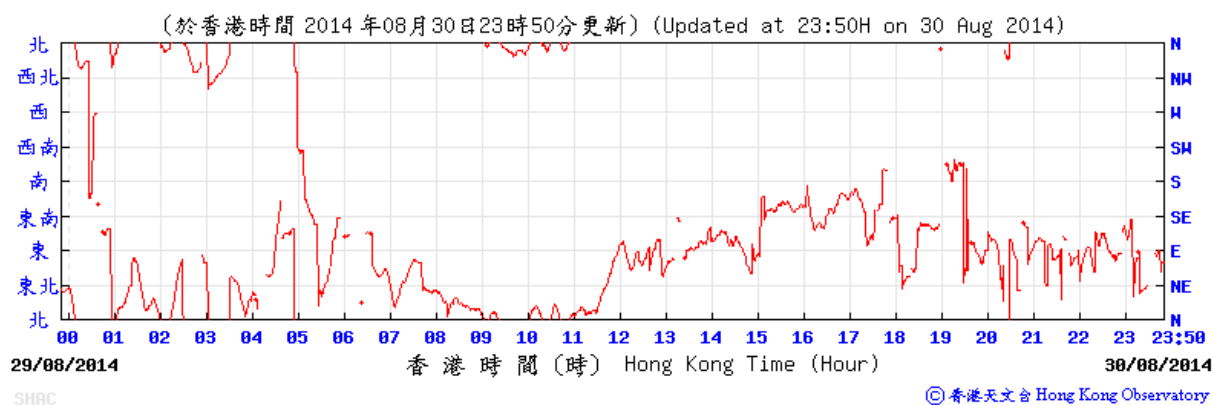
19 August 2014



25 August 2014



30 August 2014



Appendix G

Calibration
Certificates of Noise
Monitoring
Equipment

Certificate of Calibration

校正證書

Certificate No. : C135381

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-2171)

Description / 儀器名稱 : Integrating Sound Level Meter
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2654435
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 : 26 August 2013

TEST RESULTS / 測試結果

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

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

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

Tested By
測試


K C Lee

Certified By
核證


K M Wu

Date of Issue
簽發日期

28 August 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.

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. : C135381

證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

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

- Test procedure : MA101N.

- Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

- 6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFF}	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 _{AFF}	A	F	94.00	1	94.1	± 0.7

- 6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFF}	A	F	94.00	1	94.1 (Ref.)
				104.00		104.1
				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.

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. : C135381

證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.1	Ref.
	L _{ASP}		S			94.1	± 0.1
	L _{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L _{AFP}	A	F	106.0	Continuous	106.0	Ref.
	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 _{AFP}	A	F	94.00	31.5 Hz	55.0	-39.4 ± 1.5
					63 Hz	68.1	-26.2 ± 1.5
					125 Hz	78.0	-16.1 ± 1.0
					250 Hz	85.5	-8.6 ± 1.0
					500 Hz	90.9	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	93.0	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

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

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. : C135381
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	91.2	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	88.0	-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	99.9	± 0.5
			60 sec.					90	90.1	± 0.5
			5 min.					80	79.8	± 1.0
								70	69.7	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2793331

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

- Uncertainties of Applied Value :

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

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

Note :

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

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

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Certificate of Calibration

校正證書

Certificate No. : C135355

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-2171)

Description / 儀器名稱 : Sound Calibrator
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-74
Serial No. / 編號 : 34304660
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 : $(23 \pm 2)^{\circ}\text{C}$
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 : $(55 \pm 20)\%$

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 25 August 2013

TEST RESULTS / 測試結果

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

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

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

Tested By
測試

: 
K C Lee

Certified By
核證

: 
K M Wu

Date of Issue
簽發日期

: 27 August 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. : C135355
證書編號

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

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

- Test procedure : MA100N.

- Results :

5.1 Sound Level Accuracy

5.1.1 Before Adjustment

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.8	± 0.3	± 0.2

5.1.2 After Adjustment

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.3	± 0.2

5.2 Frequency Accuracy

5.2.1 Before Adjustment

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec. (Hz)	Uncertainty of Measured Value (Hz)
1	1.003	1 kHz ± 1 %	± 1

5.2.2 After Adjustment

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec. (Hz)	Uncertainty of Measured Value (Hz)
1	1.003	1 kHz ± 1 %	± 1

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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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. : C135355
證書編號

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.

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Sun Creation Engineering Limited – Calibration & Testing Laboratory

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

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606

Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com



CERTIFICATE OF CALIBRATION

Certificate No.: 14CA0120 02-02

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Castle Group Ltd.
Type/Model No.: GA607
Serial/Equipment No.: 042977
Adaptors used: -

Item submitted by

Customer: Gammon
Address of Customer: -
Request No.: TEPC140130A
Date of receipt: 21-Jan-2014

Date of test: 22-Jan-2014

Reference equipment used in the calibration

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

Ambient conditions

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

Test specifications

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

Test results

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

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

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 23-Jan-2014

Company Chop:

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

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}
08-Aug-14	09:20-09:50	58.0	70.0	59.5	54.5	57.0	51.1
14-Aug-14	10:00-10:30	58.5	70.0	59.5	51.0	57.0	53.2
20-Aug-14	11:20-11:50	57.5	70.0	58.5	52.5	57.0	47.9
26-Aug-14	14:20-14:50	58.5	70.0	59.5	51.0	57.0	53.2

Notes: (*) : Façade correction is included
 (#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average L _{Aeq,30min}	58.1
Max L _{Aeq,30min}	58.5
Min L _{Aeq,30min}	57.5

Location: NMS-CA-2 - Price Memorial Catholic Primary 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}
08-Aug-14	12:50-13:20	68.7	70.0	69.5	62.0	66.0	65.4
14-Aug-14	12:40-13:10	69.2	70.0	70.0	64.0	66.0	66.4
20-Aug-14	12:45-13:15	68.7	70.0	69.0	63.0	66.0	65.4
26-Aug-14	12:50-13:20	69.7	70.0	71.0	66.5	66.0	67.3

Notes: (*) : Façade correction is included
 (#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

Average L _{Aeq,30min}	69.1
Max L _{Aeq,30min}	69.7
Min L _{Aeq,30min}	68.7

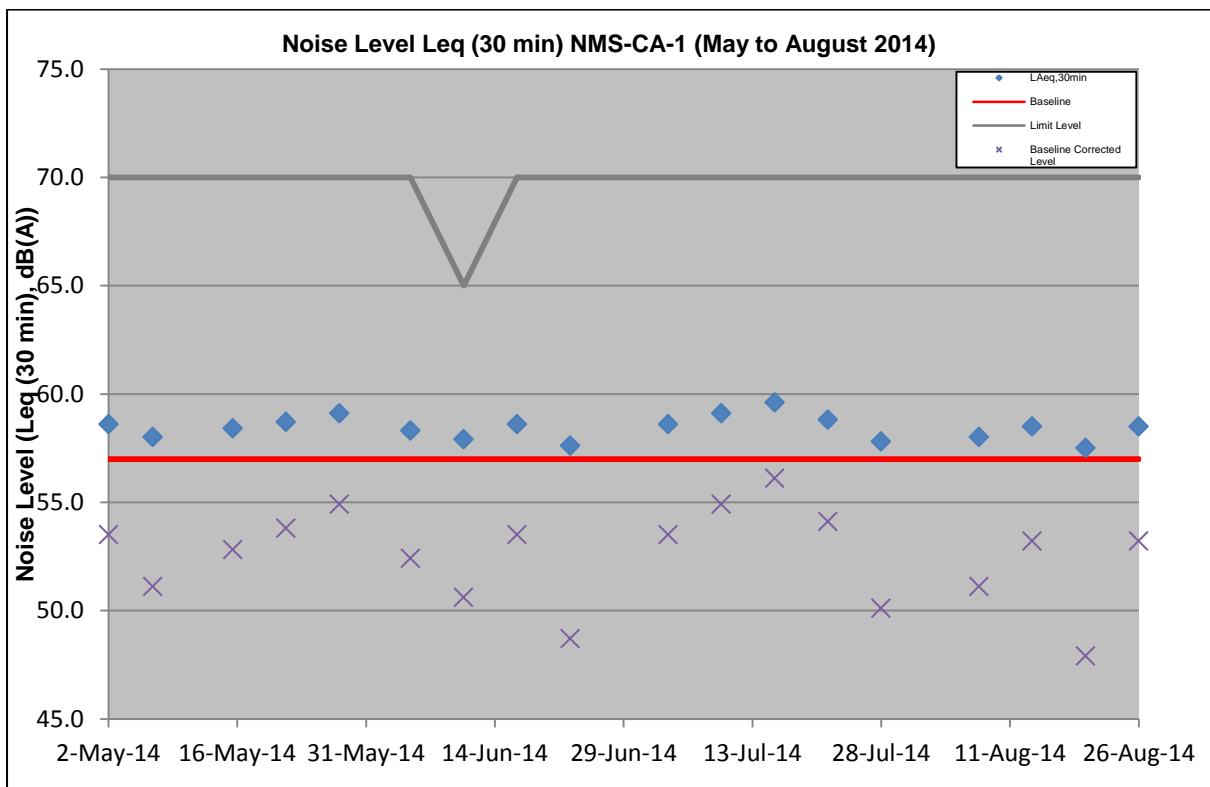
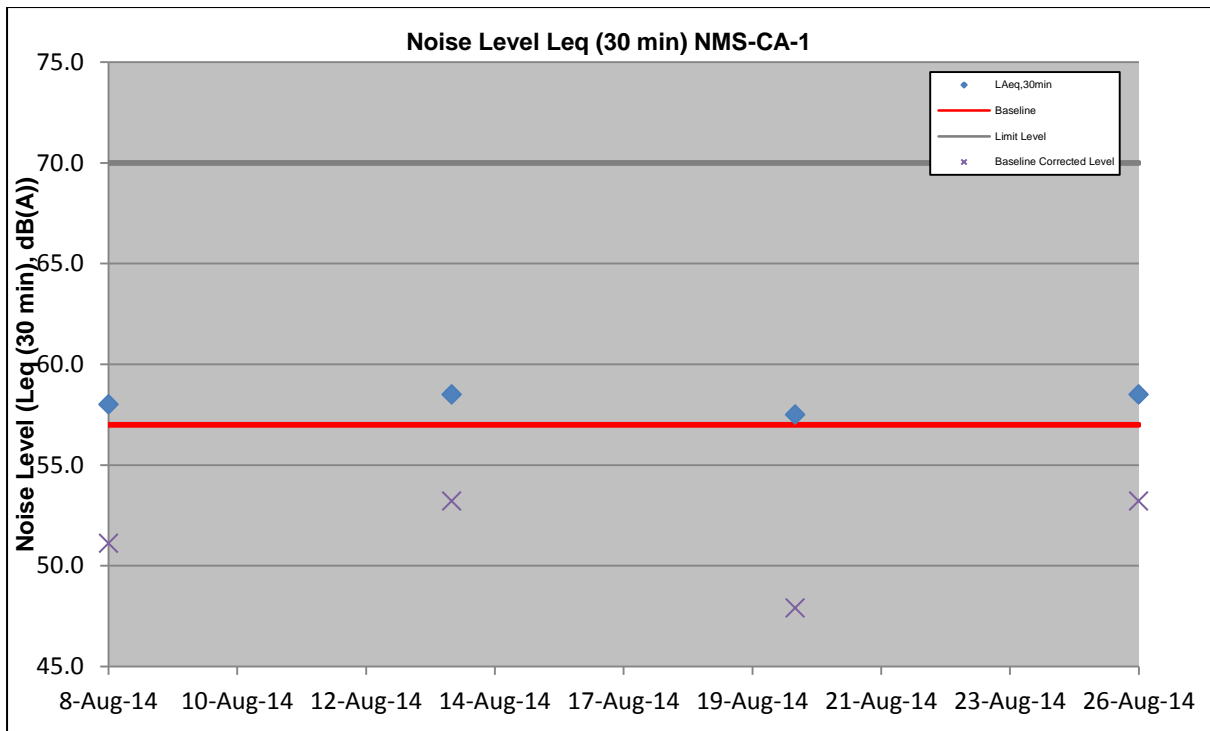
Location: NMS-CA-3 / NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home

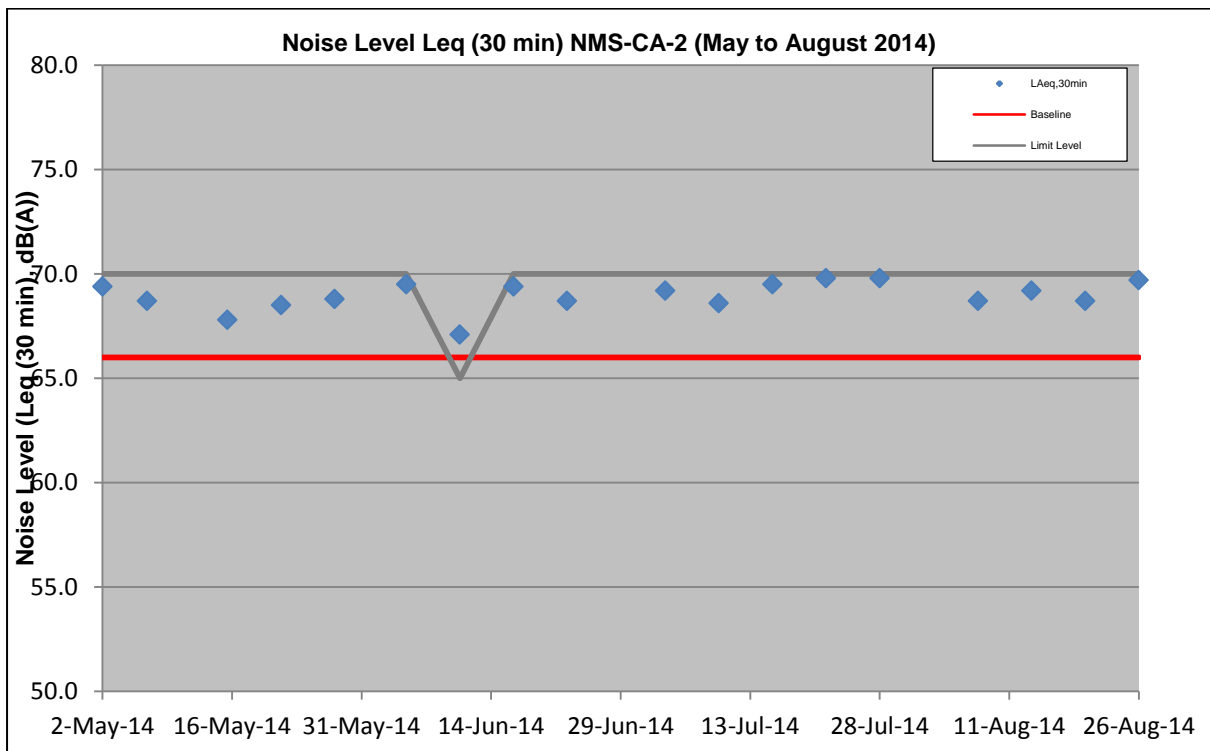
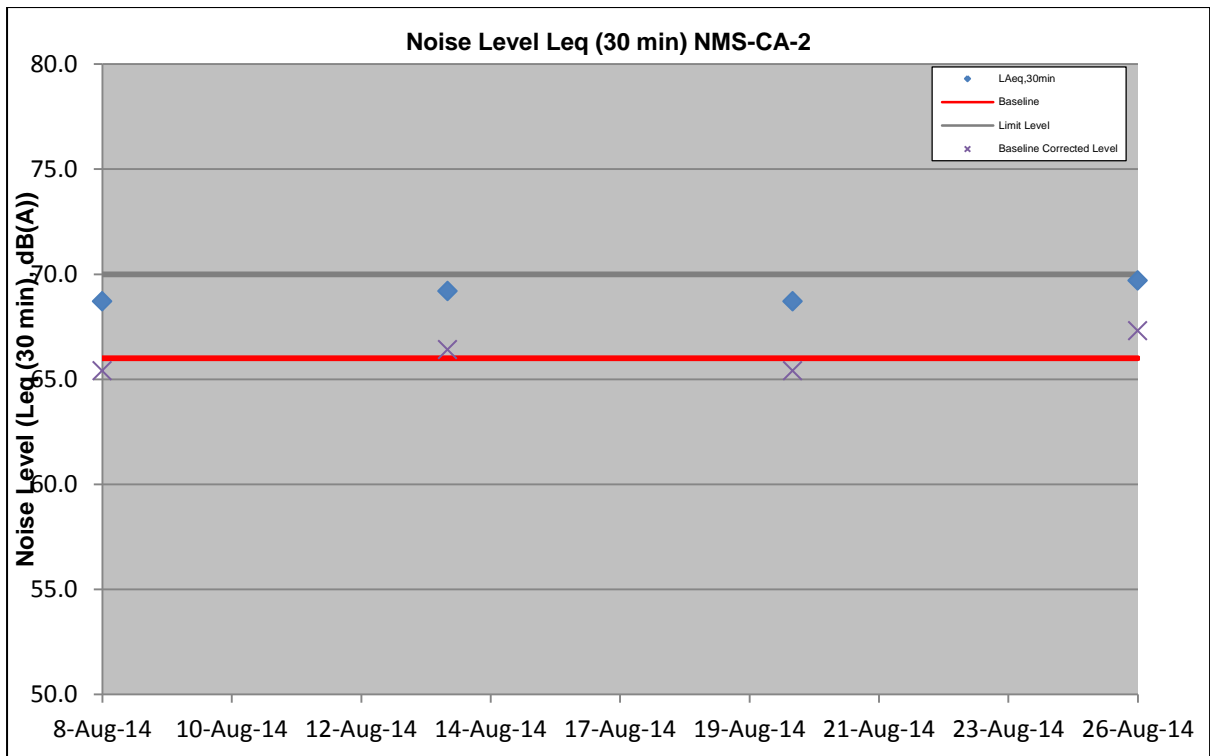
Daytime Noise Monitoring Results

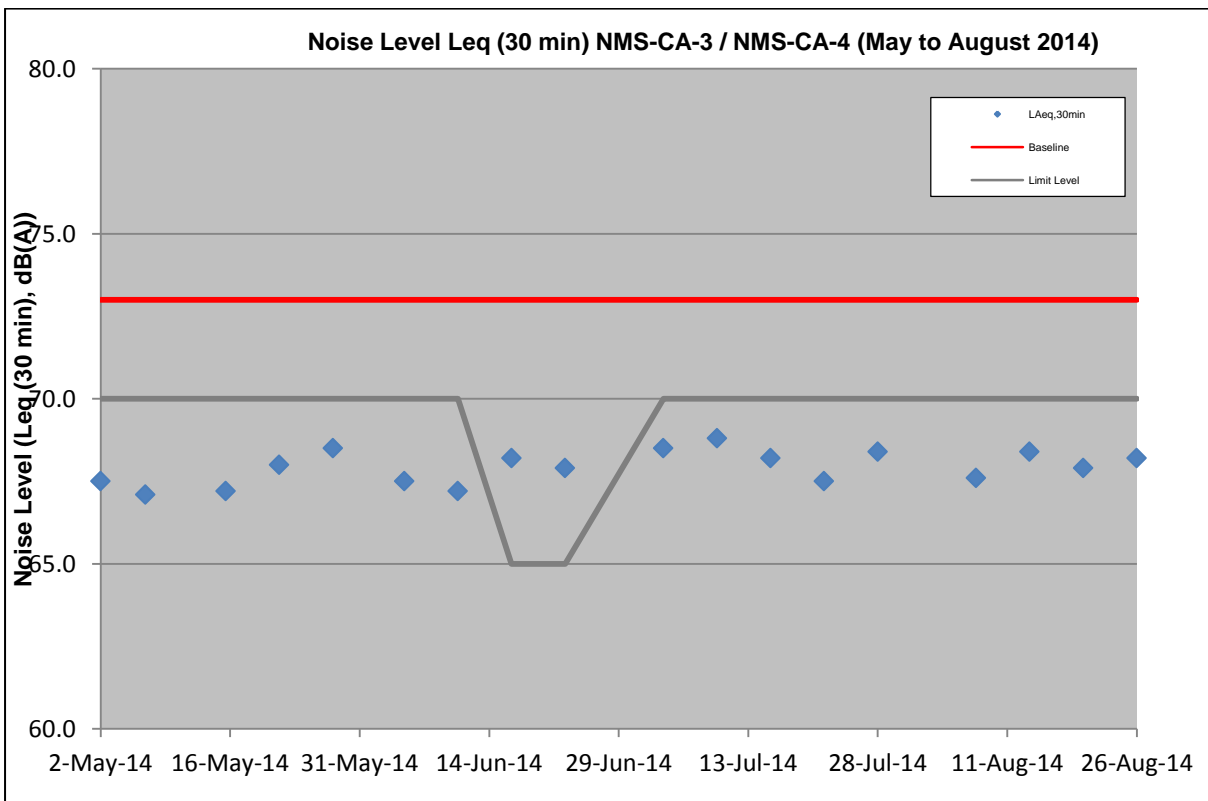
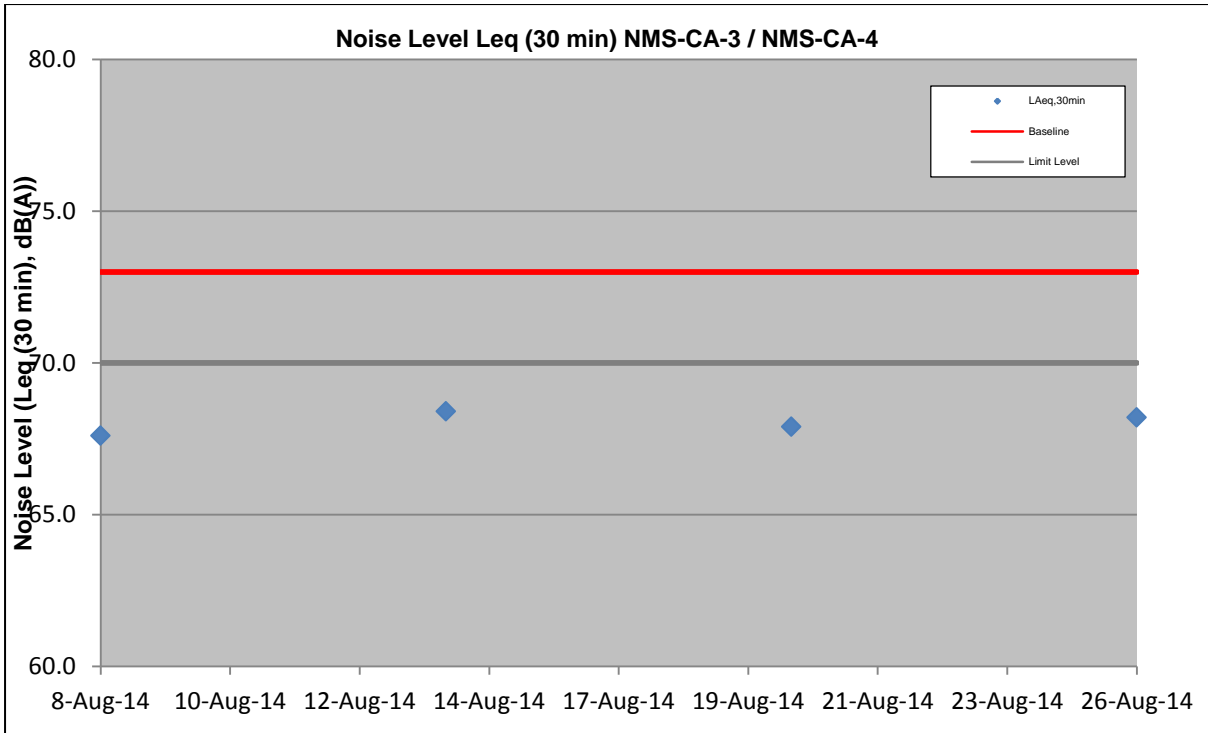
Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L _{Aeq,30min}	Limit	L _{10,30min}	L _{90,30min}	L _{Aeq,30min}	L _{Aeq,30min}
08-Aug-14	14:30-15:00	67.6	70.0	69.0	63.5	73.0	< Baseline Level
14-Aug-14	14:05-14:35	68.4	70.0	69.5	62.5	73.0	< Baseline Level
20-Aug-14	14:15-14:45	67.9	70.0	69.5	64.5	73.0	< Baseline Level
26-Aug-14	09:20-09:50	68.2	70.0	69.5	63.0	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}	68.4
Min L _{Aeq,30min}	67.6







Appendix I

Event/Action Plan for
Air Quality, Airborne
Noise and Landscape
and Visual

Event and Action Plan for Air Quality

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

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

Event and Action Plan for Airborne Noise

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

Event / Action Plan for Landscape and Visual

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

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer’s Representative

Appendix J

Waste Flow Table

MONTHLY SUMMARY WASTE FLOW TABLE

Name of Department: ENV

Contract No.:MTR-SCL1103

Monthly Summary Waste Flow Table for 2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	17.414	0.000	0.000	10.800	6.243	0.371	0.000	0.000	0.000	1.400	0.056
Feb	8.651	0.000	0.000	5.637	2.953	0.062	0.000	0.000	0.000	0.800	0.090
Mar	13.909	0.000	0.173	7.040	5.845	0.851	0.000	0.000	0.000	0.000	0.117
Apr	7.577	0.000	0.000	2.712	4.757	0.107	0.000	0.000	0.000	2.200	0.059
May	7.120	0.000	0.045	1.750	5.325	0.000	0.000	0.000	0.000	1.200	0.090
Jun	7.480	0.000	0.015	2.883	4.535	0.047	0.000	0.000	0.000	0.600	0.130
Sub-total	62.152	0.000	0.233	30.822	29.659	1.438	0.000	0.000	0.000	6.200	0.542
July	6.281	0.000	0.000	0.124	6.158	0.000	0.390	0.175	0.000	0.400	0.075
August	8.925	0.000	0.000	4.431	4.494	0.000	0.000	0.000	0.000	0.000	0.114
September											
October											
November											
December											
Total	77.358	0.000	0.233	35.377	40.310	1.438	0.390	0.175	0.000	6.600	0.731

Comments:

- 1) Assumption: The densities of Rock, Soil, Mix Rock and Soil, and Regular Spoil are 2.0 ton/m³; the density of general refuse is 1.0 ton/m³; the density of waste oil is 1.0 ton/m³.
- 2) The cut-off date of waste amount in Aug is 28/8/2014 for TKO137FB/TM38FB, NENT landfill and Kai Tak 1108A.
- 3) The amounts of waste in Aug are 113.54 tons for NENT Landfill, 8988.12 tons for TKO137FB/TM38 FB, 8861.15 tons for Kai Tak (Contract 1108A).
- 4) The amount of metal waste, paper waste and chemical waste in Aug is 0kg for cut-off date as 28/8/2014.

Appendix K

Environmental
Monitoring
Programme for
Coming Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Tentative Impact Monitoring Schedule - September 2014**

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

	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 (August 2014)

ET's Complaint Log Ref. no.	Incoming Complaint Ref no.	Name of Complainant	Date Complaint Received	Complaint Date/ Period	Complaint Location	Area of Concern	Details of Complaint	Date Complaint Received by ET	ET's Investigation Date	Investigation/Mitigation Measures	Validity to Project	Status
-	-	-	-	-	-	-	-	-	-	-	-	-

SCL 1103 Hin Keng to Diamond Hill Tunnels Construction Stage
Environmental Complaint Log (Cumulative)

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
February 2013	0	0	0
March 2013	0	0	0
April 2013	0	0	0
May 2013	0	0	0
June 2013	0	0	0
July 2013	0	0	0
August 2013	0	0	0
September 2013	0	0	0
October 2013	0	0	0
November 2013	0	0	0
December 2013	0	0	0
January 2014	0	0	0
February 2014	0	0	0
March 2014	0	0	0
April 2014	0	0	0
May 2014	0	0	0
June 2014	0	0	0
July 2014	0	0	0
August 2014	0	0	0
Total	0	0	0

Appendix F

**18th EM&A Report for Works Contract 1106 –
Diamond Hill Station**

MTR Corporation Limited

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

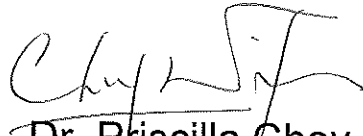
Monthly EM&A Report No. 18

[Period from 1 to 31 August 2014]

Works Contract 1106 – Diamond Hill Station

(September 2014)

Certified by:


Dr. Priscilla Choy

Position: Environmental Team Leader

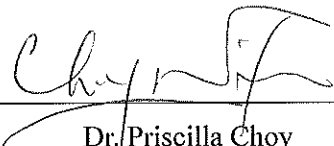
Date: 11th September 2014

Sembawang – Leader Joint Venture

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

**Monthly Environmental
Monitoring and Audit Report
For August 2014**

(Version 2.1)

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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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
Introduction	1
Summary of Construction Works undertaken during the Reporting Month	1
Environmental Monitoring and Audit Progress	1
Regular Construction Noise and Construction Dust Monitoring	1
Cultural Heritage	1
Waste Management	2
Landscape and Visual	2
Environmental Site Inspection	2
Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution	2
Future Key Issues	3
1 INTRODUCTION	4
Purpose of the Report	4
Structure of the Report	4
2 PROJECT INFORMATION.....	5
Background	5
General Site Description	5
Construction Programme and Activities	5
Project Organisation	5
Status of Environmental Licences, Notification and Permits.....	5
Summary of EM&A Requirements	6
3 ENVIRONMENTAL MONITORING REQUIREMENTS.....	7
Regular Construction Noise Monitoring	7
Monitoring Parameter and Frequency	7
Monitoring Equipment and Methodology	8
Field Monitoring.....	8
Monitoring Equipment	8
Maintenance and Calibration.....	9
Action & Limit Level for Construction Noise Monitoring	9
Continuous Noise Monitoring	9
Regular Construction Dust Monitoring	9
Monitoring Parameter and Frequency	10
Monitoring Equipment	10
Instrumentation.....	10
HVS Installation	10
Filters Preparation	11
Operating/Analytical Procedures	11
Maintenance/Calibration	12
Action and Limit Levels for Dust Monitoring	12
Cultural Heritage	12
Landscape and Visual.....	12
4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS	13
5 MONITORING RESULTS	14

Regular Construction Noise Monitoring	14
Regular Dust Monitoring.....	14
Cultural Heritage	15
Waste Management	15
Landscape and Visual.....	16
6 ENVIRONMENTAL SITE INSPECTION.....	17
Site Audits	17
Implementation Status of Environmental Mitigation Measures.....	17
7 ENVIRONMENTAL NON-CONFORMANCE	19
Summary of Exceedances	19
Summary of Environmental Non-Compliance.....	19
Summary of Environmental Complaint	19
Summary of Environmental Summon and Successful Prosecution	19
8 FUTURE KEY ISSUES	20
Construction Programme for the Next Month.....	20
Key Issues in the Next Month	20
Monitoring Schedule in the Next Month.....	20
9 CONCLUSIONS AND RECOMMENDATIONS	21
Conclusions	21
Recommendations	21

LIST OF TABLES

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

LIST OF FIGURES

Figure 1	The Alignment and Works Area for Works Contract 1106
Figure 2	Locations of Construction Noise Monitoring
Figure 3	Locations of Dust Monitoring
Figure 4	Organisation Chart and Key Contact of the Project

LIST OF APPENDICES

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

EXECUTIVE SUMMARY

Introduction

1. This is the 18th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1106 – Diamond Hill Station**. This report documents the findings of EM&A Works conducted from 1 to 31 August 2014.

Summary of Construction Works undertaken during the Reporting Month

2. The major site activities undertaken in the reporting month include:
 - D-wall construction;
 - Interchange Adit – Construct Barette;
 - Capping beam construction works and sheet piling;
 - Gas Main Diversion Works;
 - Construction of planter for tree transplanted and tree transplanting works;
 - Bored piling works;
 - Excavation and ELS works, and
 - West Unpaid Adit- site work formation.

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) | 4 times |
| • NMS-CA-4 ⁽¹⁾ /NMS-CA-3 ⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade)) | 4 times |
| • NMS-CA-5 ⁽¹⁾ /NMS-CA-2 ⁽²⁾ (Block 1, Rhythm Garden (northern façade)) | 4 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) | 6 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 the fieldwork had been completed in September 2013 in accordance with the Licence granted and the approved AAP. A draft Archaeological Survey-cum-Excavation Report was submitted to AMO for review in March 2014.

5. 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. Relocation works for the Old Pillbox had been completed in November 2013 in accordance with the approved Conservation Plan. Regular maintenance and inspection works of the two historic buildings were carried out in accordance with the approved Conservation Plan.

Waste Management

6. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 11,797m³ of inert C&D materials were generated from the Project and were sent to SCL1108A and Tuen Mun Area 38 Fill Bank during the reporting month. About 88m³ of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. 120kg of chemical waste was collected by licensed collector during the reporting month. No paper/cardboard packaging, plastics and steel material was collected by the recycler during this reporting month.

Landscape and Visual

7. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 14, and 28 August 2014. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

8. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 7, 14, 21 and 28 August 2014. The representative of the IEC joined the site inspection on 28 August 2014. Details of the audit findings and implementation status are presented in Section 6.

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

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

Future Key Issues

12. Major site activities for the coming reporting month will include:
- D-wall construction;
 - Interchange Adit – Prebored socketed H-piling work
 - Capping beam construction works and sheet piling;
 - Drive sheet pile for cofferdam;
 - Bored piling works;
 - Excavation and ELS works;
 - West Unpaid Adit – site work formation and Prebored socketed H-piling works;
 - Diversion of covered walkway at Luen Yee Road, and
 - Tree Transplanting 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 18th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 August 2014.

Structure of the Report

- 1.3 The structure of the report is as follows:

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

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

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

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

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

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

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

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

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 The Shatin to Central Link – 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;
 - Interchange Adit – Construct Barette;
 - Capping beam construction works and sheet piling;
 - Gas Main Diversion Works;
 - Construction of planter for tree transplantation and tree transplanting works;
 - Bored piling works;
 - Excavation and ELS works, and
 - West Unpaid Adit- site work formation.

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/F	15/07/2014	13/08/2014	Superseded by EP-438/2012/G since 14/08/2014
EP-438/2012/G ⁽¹⁾	14/08/2014	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
No.: 353668	19/12/2012	N/A	Valid
Billing Account for Construction Waste Disposal			
Account No.: 7016601	27/12/2012	N/A	Valid
Registration of Chemical Waste Producer			
5213-281-S3711-01	11/01/2013	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00014959-2012	14/01/2013	31/01/2018	Valid
WT00016920-2013	06/09/2013	30/09/2018	Valid
Construction Noise Permit (CNP)			
GW-RE0517-14	27/05/2014	26/11/2014	Valid
GW-RE0754-14	08/07/2014	02/01/2015	Valid
GW-RE0813-14	01/08/2014	30/09/2014	Valid

Note:

- (1) The Environmental Permit (EP) is amended because of the variation in condition 1.7 of EP-438/2012/F to include the installation and operation of a Mobile Batching Machinery Equipment at Diamond Hill during the construction of SCL (TAW-HUH).

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	SVAN 955 (Serial no.: 12553, 14303) SVAN 957 (Serial no.: 21459, 23853)
Calibrator	SV30A (Serial no.: 24780, 24803) B&K 4231 (Serial no.: 2326353)

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: 0993	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 shall be conducted in accordance with the Licence granted and the approved AAP.
- 3.21 The Conservation Plans for the two historic buildings, namely Former Royal Air Force Hangar and the Old Pillbox at the former Tai Hom Village site, were approved by EPD on 24 April 2013. Dismantling works on Former Royal Air Force Hangar and relocation work of the Old Pillbox shall be carried out in accordance with the approved Conservation Plan. Regular maintenance and inspection works of the two historic buildings shall be carried out in accordance with the approved Conservation Plan.

Landscape and Visual

- 3.22 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is given in **Appendix J**. The Event / Action Plan (EAP) for landscape and visual are presented in **Appendix I**.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (July 2014)	14 th August 2014

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 8 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. No exceedance of the limit level was recorded at designated monitoring stations.
- 5.2 The noise monitoring results recorded at NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) on 4, 15 and 20 August exceeded the daytime construction noise criterion. However, the results are not considered as exceedance as the results on 4 and 20 August were below the baseline noise level; and the result on 15 August was below limit level after baseline correction. The noise monitoring result on 26 August at NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) and all noise monitoring results at NMS-CA-4⁽¹⁾/NMS-CA-3⁽²⁾ did not exceed the daytime construction noise criterion.
- 5.3 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.4 The noise monitoring results together with their graphical presentations are presented in **Appendix F⁽³⁾**.
- 5.5 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period.

Regular Dust Monitoring

- 5.6 A total of 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⁾)	18.0	35.3	26.3	159.1	260
24-hr TSP (DMS-4 ⁽¹⁾ / DMS-3 ⁽²⁾)	22.0	51.4	29.3	160.4	260

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) The monitoring results and graphical presentation for H.K. Sheng Kung Hui Nursing Home are presented in Monthly EM&A Report for Contract 1103.
- (4) Dust monitoring on DMS-3⁽¹⁾/DMS-4⁽²⁾ (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103

- 5.7 Based on observation during the on-site monitoring, road traffic emission nearby is

considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.

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

Cultural Heritage

- 5.10 An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site was approved by EPD on 8 April 2013. A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been subsequently obtained from Antiquities and Monuments Office (AMO) on 19 April 2013. The archaeological survey-cum-excavation at Former Tai Hom Village commenced on 25 April 2013 and completed in September 2013 in accordance with the Licence granted and the approved AAP. A draft Archaeological Survey-cum-Excavation Report was submitted to AMO for review in March 2014.
- 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. Relocation works for the Old Pillbox had been completed in November 2013 in accordance with the approved Conservation Plan. Regular maintenance and inspection works of the two historic buildings were carried out 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**. 11,797m³ of C&D materials, 88m³ of general refuse and 120kg of chemical waste were generated. No paper/cardboard packaging, plastic, steel material was collected by the recycler during this reporting month. Detail of waste management data is presented in **Appendix K**.

Table 5.2 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/ cardboard	Plastics	Metals
August 2014	11,797m ³	88m ³	120kg	0 kg	0kg	0kg
Notes:						
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil, which were delivered to SCL 1108A and Tuen Mun Area 38 Fill Bank during the reporting month.						
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. General refuse was delivered to designated landfill for disposal.						

Landscape and Visual

- 5.13 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 14 and 28 August 2014. 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 7, 14, 21 and 28 August 2014. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 28 August 2014. Site visit was conducted by EPD on the 27 August 2014. The details of observations during site audit carried out by ET can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

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

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	14 August 2014	<u>Reminder</u> : Contractor is reminded to clear the muddy slurry on major haul road near DT1911	As observed on 21 August, the muddy slurry had been cleared.
	14 August 2014	<u>Reminder</u> : Sand bag bunds should be provided to the boundary of the site near MTR exit A1.	As observed on 21 August, sand bag bunds had been provided to the boundary of the site.
<i>Noise</i>	21 August 2014	<u>Reminder</u> : The panel of the generator in the west-bound capping beam area was observed open. It should be closed to prevent noise generation.	As observed on 28 August, the panel of the generator had been closed to prevent noise generation.
<i>Landscape and Visual</i>	31 July 2014	<u>Observation</u> : Tree protection zone should be set up to protect trees at the bar bending areas. Construction materials should be removed from the tree protection zones at W8.	As observed on 7 August, tree protection zones had been set up to protect trees at the bar bending areas and at W8. However some tree branches inside a tree protection zones at W8 was observed and follow up action was needed to be review.
	7 August 2014	<u>Reminder</u> : Tree branches were observed inside the tree protection zone at W8. Contractor is reminded to remove them from the zone	As observed on 14 August, the tree branches have been removed from the tree protection zone at W8.
	14 August 2014	<u>Observation</u> : Construction materials were observed near trees at W8. Contractor should remove the materials and properly set up tree protection zone to protect the trees.	Due to access road was blocked, this item is marked as follow-up until improvement/rectification measures can be observed and recorded. Follow up action will be reported in next reporting month.

Parameters	Date	Observations and Recommendations	Follow-up
	21 August 2014	<u>Observation:</u> Tree protection zone should be properly set up to protect the trees near the site office.	As observed on 28 August, the construction materials have been removed from the tree protection zone which is closer to the site office. However, follow up action was needed to be review for the tree protection zone which is further away from the site office as its condition was not considered satisfactory. This item has been included in the observation on 28 August 2014 for rectification.
	28 August 2014	<u>Observation:</u> Construction materials were observed placed inside the tree protection zones near the site office and the bar bending area. One of the trees (at the front of the site office) was observed without a proper protection zone. The contractor should properly set up the tree protection zone and remove the construction materials	Follow up action will be reported in the next reporting month.
Cultural Heritage	---	---	---
Air Quality	21 August 2014	<u>Reminder:</u> White smoke emission was observed from a generator at the bored-piling area. It should be properly maintained to prevent dark smoke emission.	As observed on 28 August, white smoke emission from the generator could still be observed, thus follow up action was needed to be reviewed and follow up action will be reported in the next reporting month.
	28 August 2014	<u>Reminder:</u> The exposed slope near Lung Cheung Road should be properly covered to prevent dust generation.	Follow up action will be reported in next reporting month.
Waste/ Chemical Management	31 July 2014	<u>Reminder:</u> Oil stain was found on the ground near the generator at the bored piling area. Contractor is reminded to properly clear them as chemical waste.	As observed on 7 August, the generator has been relocated. The oil stain on the original position had been properly removed as chemical waste.
	7 August 2014	<u>Observation:</u> Oil containers near the D-wall extractor should be provided with drip tray to prevent chemical leakage or should be disposed of properly as chemical waste	As observed on 14 August, the oil containers near the D-wall extractor had been removed.
	28 August 2014	<u>Observation:</u> Chemical container near East-bound capping beam area should be provided with drip tray to prevent chemical leakage.	Follow up action will be reported in next reporting month.
	28 August 2014	<u>Observation:</u> Oil stain was observed on the ground near the desander. It should be properly cleared as chemical waste.	Follow up action will be reported in next reporting month.
	28 August 2014	<u>Reminder:</u> The drain hole of the drip tray near the original location of DT1911 should be blocked properly to prevent chemical leakage.	Follow up action will be reported in next reporting month.
Permits/ Licenses	---	---	---

ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

- 6.5 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

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

Summary of Environmental Complaint

- 6.7 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

- 6.8 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**.

7 FUTURE KEY ISSUES

Construction Programme for the Next Month

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

- D-wall construction;
- Interchange Adit – Prebored socketed H-piling work;
- Capping beam construction works and sheet piling;
- Drive sheet pile for cofferdam;
- Bored piling works;
- Excavation and ELS works;
- West Unpaid Adit – site work formation and Prebored socketed H-piling works;
- Diversion of covered walkway at Luen Yee Road, and
- Tree Transplanting works.

Key Issues in the Next Month

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

- Dust arising from loading, unloading, transfer, handling or storage of bulk cement or dry PFA and bentonite and excavated materials;
- Control of silty surface runoff;
- Preservation of Former Royal Air Force Hangar and Old Pillbox after dismantling and relocation;
- Preservation and protection of retained and transplanted trees; and
- Implementation of mitigation measures for noise nuisance from construction works.

Monitoring Schedule in the Next Month

7.3 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.

8 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 8.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 August 2014 in accordance with EM&A Manual and the requirement under EP.
- 8.2 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.
- 8.3 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.
- 8.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.
- 8.5 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

8.6 Water Quality

- Slurry on the haul road should be cleared regularly to reduce the runoff generation.
- Sand bag bunds should be provided to the site boundary to prevent silty runoff from entering public roads.

Construction Noise

- Door of operating engine and other noise generation parts should be closed at all time to prevent noise generation.

Landscape and Visual

- “No-intrusion zone” should be established and maintained for existing trees as far as practicable. The Contractor is reminded to closely monitor and restrict the site working staff and construction plants from entering the erected “no-intrusion zone” for existing trees and avoid placing construction materials within the tree protection zone for maximizing the protection. No construction works should be carried out in the “no-intrusion zone” for existing trees.

Air Quality

- 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.
- Regular maintenance should be provided to plants to prevent black smoke emission.

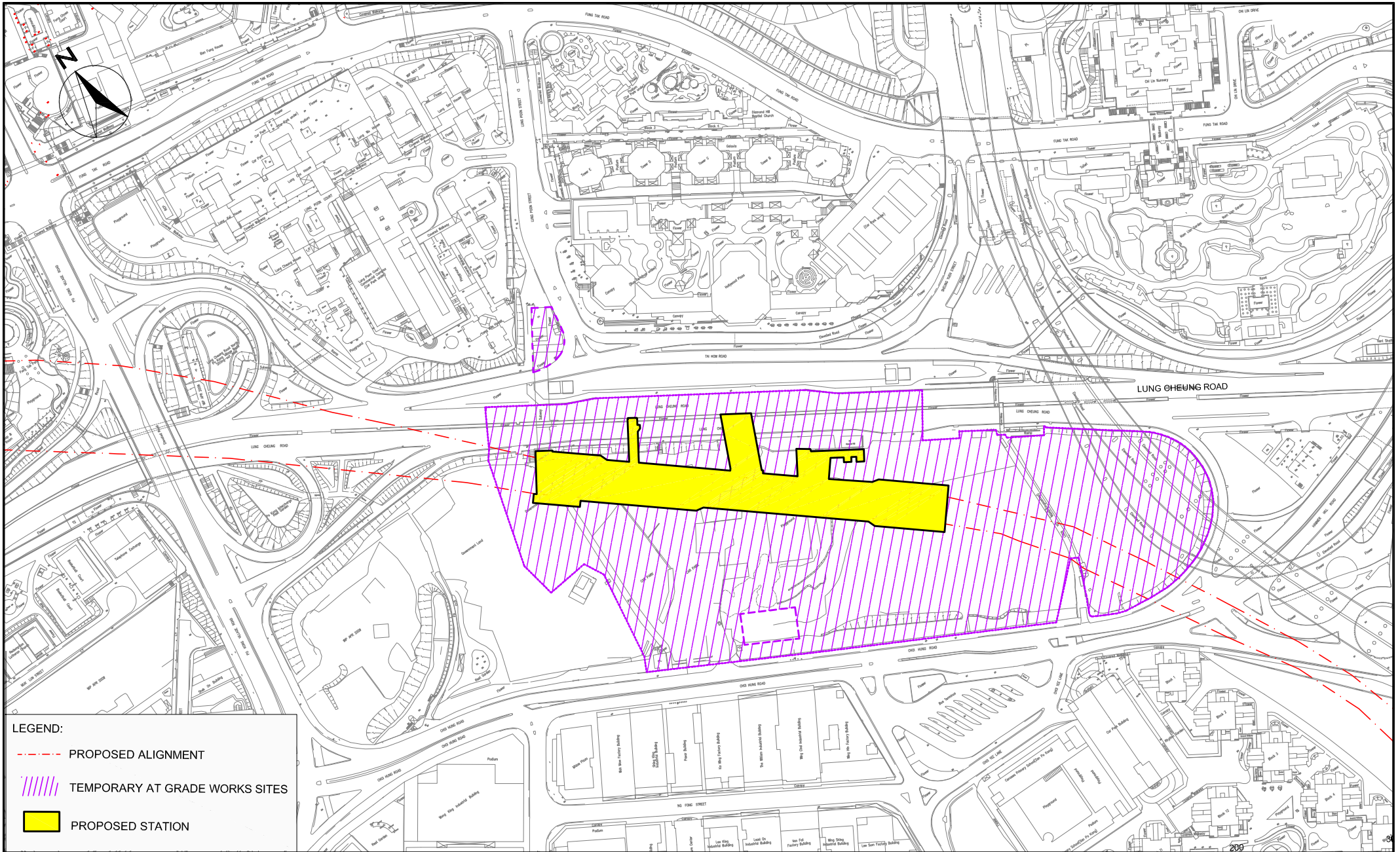
Waste/Chemical Management

- Good site practice of providing drip trays for temporary use of chemicals and oil

containers shall be sustained. Drip trays should be properly maintained.

- Provision and enhancement of the preventive mitigation measures to avoid oil leakage during oil filling works and from working plants.
- Any oil mixture and oil stain on the ground should be disposed of as chemical waste.

FIGURES



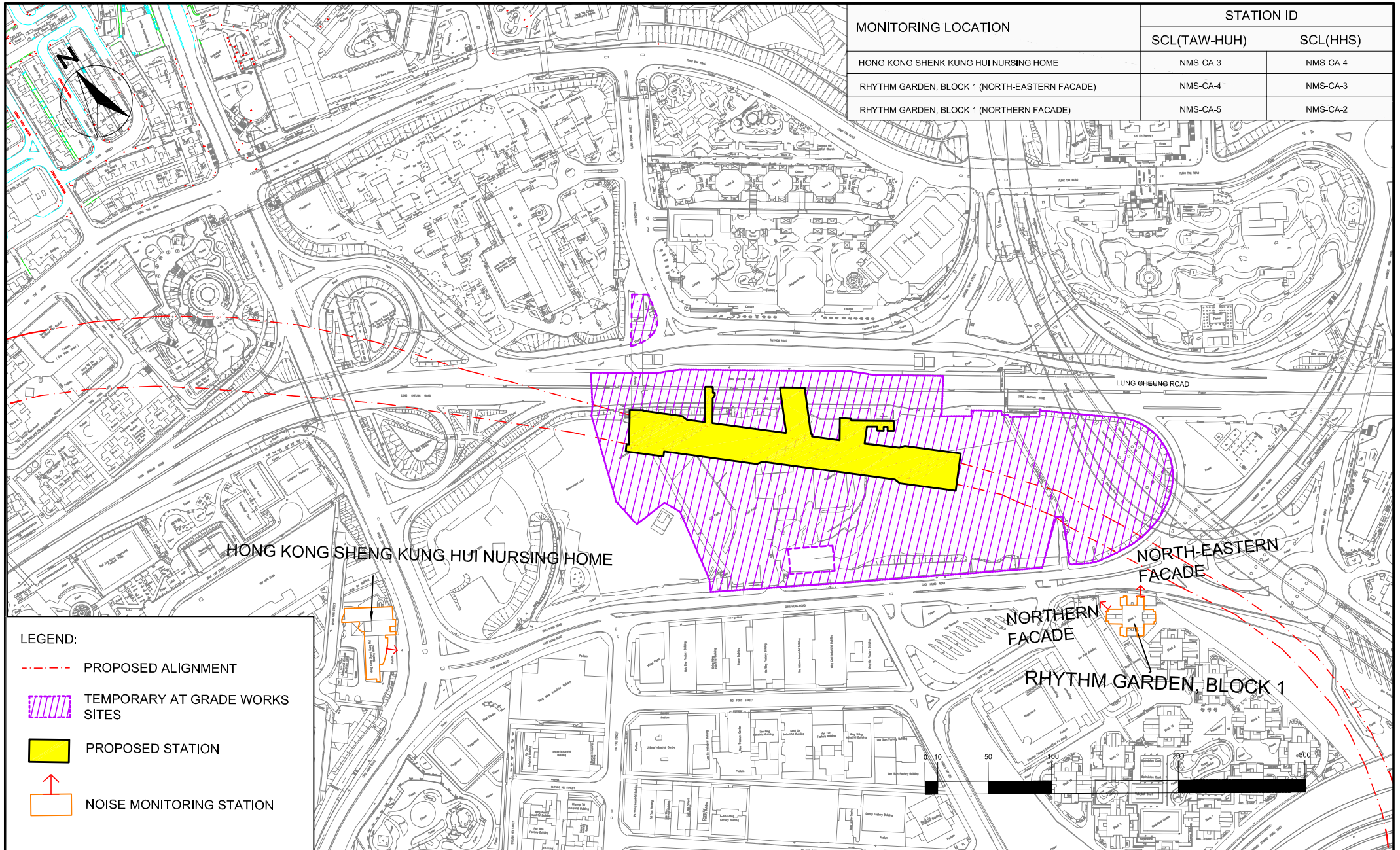
- LEGEND:**
- - - PROPOSED ALIGNMENT
 - //// TEMPORARY AT GRADE WORKS SITES
 - PROPOSED STATION

SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION

SITE LAYOUT PLAN



SCALE	1:80	DATE	MAY 2013	
CHECK	KC	DRAWN	JW	
JOB No.	MA12051	FIGURE NO.	1	REV
				-

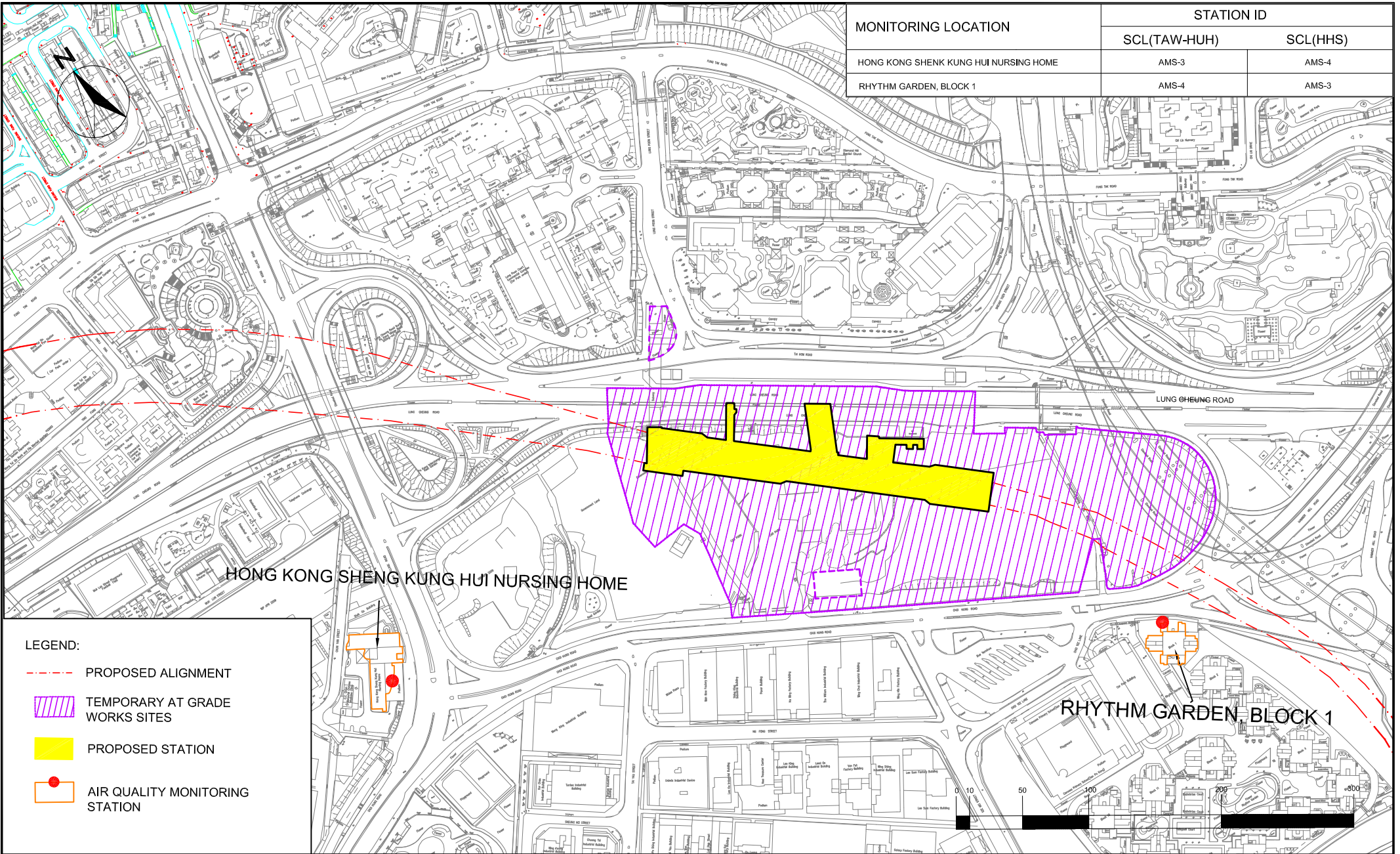


MONITORING LOCATION	STATION ID	
	SCL(TAW-HUH)	SCL(HHS)
HONG KONG SHENK KUNG HUI NURSING HOME	NMS-CA-3	NMS-CA-4
RHYTHM GARDEN, BLOCK 1 (NORTH-EASTERN FACADE)	NMS-CA-4	NMS-CA-3
RHYTHM GARDEN, BLOCK 1 (NORTHERN FACADE)	NMS-CA-5	NMS-CA-2

LEGEND:

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

SCALE	1:100	DATE	MAY 2013	
CHECK	KC	DRAWN	JW	
JOB No.	MA12051	FIGURE NO.	2	REV -



MONITORING LOCATION	STATION ID	
	SCL(TAW-HUH)	SCL(HHS)
HONG KONG SHEN KUNG HUI NURSING HOME	AMS-3	AMS-4
RHYTHM GARDEN, BLOCK 1	AMS-4	AMS-3

LEGEND:

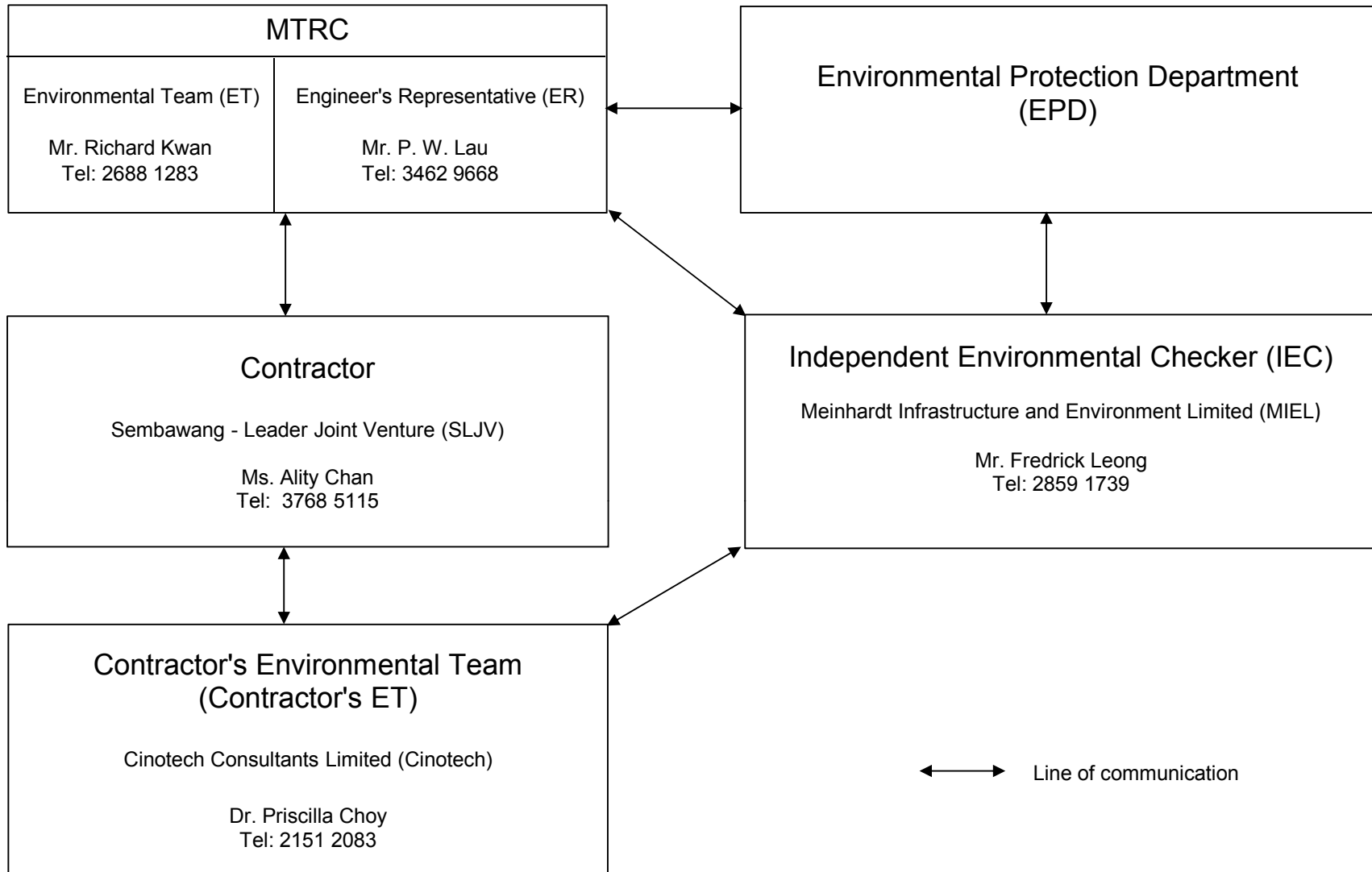
- - - PROPOSED ALIGNMENT
- TEMPORARY AT GRADE WORKS SITES
- PROPOSED STATION
- AIR QUALITY MONITORING STATION

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

Sep-14

Proposal

No.

MA12051

Figure

4

CINOTECH

**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	August				September				October				November							
						04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	01	08	15
CDA Development Site																									
General																									
C1106.CDA1067	Construction of Stage 2 Hoarding Modification	14	25-Aug-14 A	15-Sep-14	20%	Construction of Stage 2 Hoarding Modification, Construction of Stage 2 Hoarding Modification																			
Piling Works																									
C1106.CDA2065	Construct Bored Pile BP6 & B17 (2 nos)	30	24-Jul-14 A	14-Aug-14 A	100%	Construct Bored Pile BP6 & B17 (2 nos)																			
C1106.CDA2070	CDA - Bored Pile BP25 & BP26 (2 nos)	30	11-Sep-14*	17-Oct-14	0%	CDA - Bored Pile BP25 & BP26 (2 nos)																			
C1106.CDA2085	CDA - Bored Pile BP12 & BP23 (2 nos)	30	26-Jul-14 A	24-Sep-14	60%	CDA - Bored Pile BP12 & BP23 (2 nos), CDA - Bored Pile BP12 & BP23 (2 nos)																			
C1106.CDA2087	CDA - Bored Pile BP22 & BP24 (2 nos)	30	21-Aug-14 A	08-Oct-14	40%	CDA - Bored Pile BP22 & BP24 (2 nos), CDA - Bored Pile BP22 & BP24 (2 nos)																			
C1106.CDA2089	CDA - Bored Pile BP5 (1 no)	15	25-Sep-14	14-Oct-14	0%	CDA - Bored Pile BP5 (1 no)																			
C1106.CDA2116	CDA - Bored Pile BP2 & BP4 (2 nos)	30	06-Aug-14 A	03-Sep-14	80%	CDA - Bored Pile BP2 & BP4 (2 nos), CDA - Bored Pile BP2 & BP4 (2 nos)																			
C1106.CDA2121	CDA - Bored Pile BP21 & BP15 (2 nos)	32	04-Sep-14	14-Oct-14	0%	CDA - Bored Pile BP21 & BP15 (2 nos)																			
C1106.CDA2130	CDA - Interface Coring	70	18-Aug-14 A	12-Nov-14	10%	CDA - Interface Coring																			
C1106.CDA2132	CDA - Sonict Test	25	18-Oct-14	15-Nov-14	0%	CDA - Sonict Test																			
C1106.CDA2134	CDA - Submit BA14 for Bored Pile	14	17-Nov-14	02-Dec-14	0%	CDA - Submit BA14 for Bored Pile																			

* Bored piling works are entrusted by Planning Department

- Remaining Work
- Critical Remaining Work
- Baseline (PMP)
- Actual Work
- Milestone

3 of 3

**MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 August 2014**

3 Month Rolling Programme

Date	Revision	Checked	Appr...
01-Sep-14	C-1106-3MRP/ 20		

**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 (Leq (30-min))
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	70 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**

TEST REPORT

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

Test Report No.:	C/N/130919/1
Date of Issue:	2013-09-21
Date Received:	2013-09-19
Date Tested:	2013-09-21
Date Completed:	2013-09-21
Next Due Date:	2014-09-20

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 57%

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/140104
Date of Issue:	2014-01-05
Date Received:	2014-01-04
Date Tested:	2014-01-04
Date Completed:	2014-01-05
Next Due Date:	2015-01-04

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	: 19 degree Celsius
Relative Humidity	: 52%

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/130830/2
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 69%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/131129/1
Date of Issue:	2013-11-30
Date Received:	2013-11-29
Date Tested:	2013-11-29
Date Completed:	2013-11-30
Next Due Date:	2014-11-29

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.	: 23853
Microphone No.	: 48530
Equipment No.	: N-08-10

Test conditions:

Room Temperature	: 19 degree Celsius
Relative Humidity	: 57%

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/131004/1
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/131004/3
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/131108/1
Date of Issue:	2013-11-09
Date Received:	2013-11-08
Date Tested:	2013-11-08
Date Completed:	2013-11-09
Next Due Date:	2014-11-08

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Project No.	: C13
Equipment No.	: N-02-01

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 52 %

Methodology:

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

Results:

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

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



PATRICK TSE
Laboratory Manager

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0008

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 30-Jun-14 Next Due Date: 29-Aug-14
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	300.3	Pressure, Pa (mmHg)	757.9

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0588	Intercept, bc	-0.0461
Last Calibration Date:	30-Sep-13	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	29-Sep-14	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.7	3.40	58.65	7.4	2.71
2	8.6	2.92	50.40	5.6	2.35
3	7.4	2.71	46.81	4.7	2.16
4	4.5	2.11	36.67	3.0	1.72
5	3.2	1.78	31.05	2.0	1.41

By Linear Regression of Y on X

Slope, mw = 0.0467 Intercept, bw : -0.0177
 Correlation coefficient* = 0.9990

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.00

Remarks: _____

Conducted by: Wk. Tang Signature: [Signature] Date: 30/6/14
 Checked by: [Signature] Signature: [Signature] Date: 30 June 2014

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0009

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 29-Aug-14 Next Due Date: 28-Oct-14
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	302.5	Pressure, Pa (mmHg)	761.1

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0588	Intercept, bc	-0.0461
Last Calibration Date:	30-Sep-13	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	29-Sep-14	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.8	3.41	58.81	7.6	2.74
2	8.6	2.91	50.32	5.6	2.35
3	7.4	2.70	46.74	4.8	2.18
4	4.6	2.13	37.01	3.0	1.72
5	3.2	1.78	31.00	2.0	1.40

By Linear Regression of Y on X

Slope, mw = 0.0478 Intercept, bw = -0.0625
 Correlation coefficient* = 0.9997

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.03

Remarks: _____

Conducted by: WK Tang Signature: [Signature]
 Checked by: [Signature] Signature: [Signature]

Date: 29/8/2014
 Date: 29 August 2014

TEST REPORT

Description	Calibration Orifice	Manufacturer	TISCH
Serial No.	0993	Temperature, Ta (K)	300.8
Model No.	TE-5025A	Pressure, Pa (mmHg)	759.3
Date	30 September 2013	Equipment No.:	A-04-04

Plate	Diff.Vol (m ³)	Diff.Time (min)	Diff.Hg (mm)	Diff.H ₂ O (in.)
1	1.00	1.4103	3.4	2.00
2	1.00	0.9980	6.8	4.00
3	1.00	0.8970	8.5	5.00
4	1.00	0.8540	9.4	5.50
5	1.00	0.7060	13.6	8.00

DATA TABULATION

Vstd	(X axis) Qstd	(Y axis)
0.9853	0.6986	1.4069
0.9808	0.9828	1.9897
0.9786	1.0910	2.2245
0.9775	1.1446	2.3331
0.9720	1.3768	2.8138

Y axis= $\text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$
Qstd Slope (m) = 2.07768
Intercept (b) = -0.04613
Coefficient (r) = 0.99997

Va	(X axis) Qa	(Y axis)
0.9955	0.7059	0.8901
0.9910	0.9930	1.2589
0.9888	1.1023	1.4074
0.9876	1.1565	1.4761
0.9821	1.3911	1.7803

Y axis= $\text{SQRT}[\text{H}_2\text{O}(\text{Ta}/\text{Pa})]$
Qa Slope (m) = 1.30101
Intercept (b) = -0.02919
Coefficient (r) = 0.99997

CALCULATIONS

Vstd=Diff. Vol/[(Pa-Diff.Hg)/760](298/Ta)
 Qstd=Vstd/Time
 Va=Diff.Vol/[(Pa-Diff.Hg)/Pa]
 Qa=Va/Time

For subsequent flow rate calculations:

Qstd=l/m{[SQRT(H₂O(Pa/760)(298/Ta))]-b}
 Qa=l/m{[SQRT H₂O(Ta/Pa)]-b}

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

Patrick Tse

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 August 2014**

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

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

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

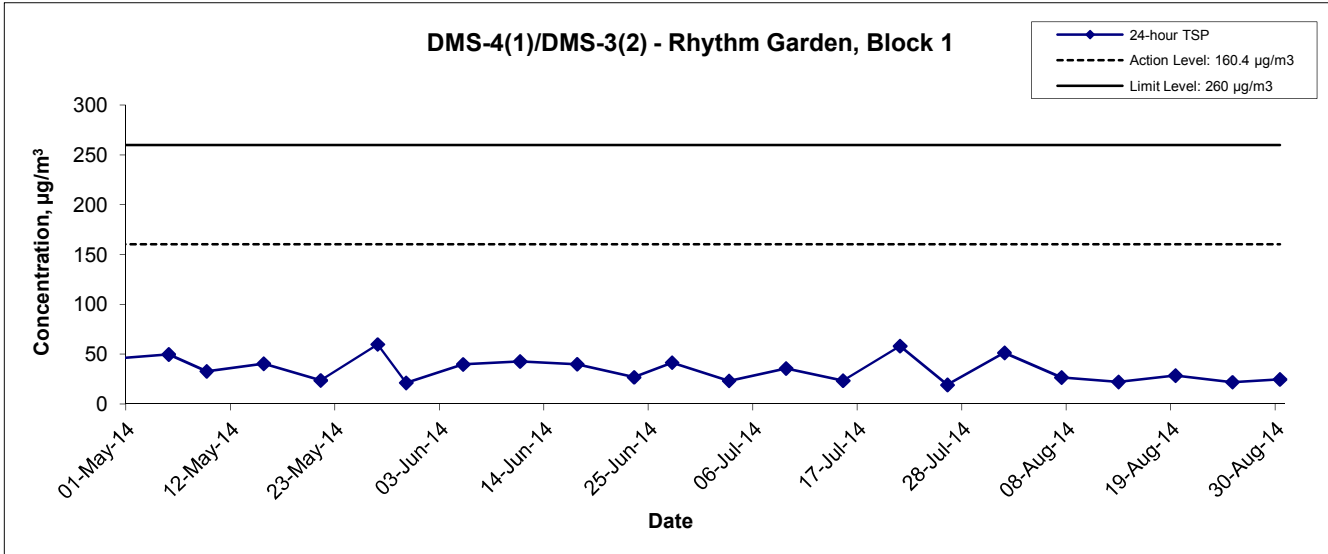
Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

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			
1-Aug-14	09:00	Sunny	303.3	753.2	3.2185	3.3078	0.0893	2983.6	3007.6	24.0	1.21	1.21	1.21	1737.6	51.4
7-Aug-14	09:00	Sunny	300.3	755.3	3.2040	3.2506	0.0466	3014.1	3038.1	24.0	1.21	1.21	1.21	1748.6	26.7
13-Aug-14	09:00	Sunny	298.3	754.3	3.2593	3.2983	0.0390	3038.1	3062.1	24.0	1.22	1.22	1.22	1753.3	22.2
19-Aug-14	09:00	Cloudy	300.4	758.6	3.1748	3.2249	0.0501	3062.1	3086.1	24.0	1.22	1.22	1.22	1752.1	28.6
25-Aug-14	09:00	Sunny	302.7	760.1	3.2024	3.2408	0.0384	3086.1	3110.1	24.0	1.21	1.21	1.21	1747.2	22.0
30-Aug-14	09:00	Sunny	303.1	761.3	3.1732	3.2164	0.0432	3110.1	3134.1	24.0	1.21	1.21	1.21	1745.4	24.8
														Min	22.0
														Max	51.4
														Average	29.3

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:

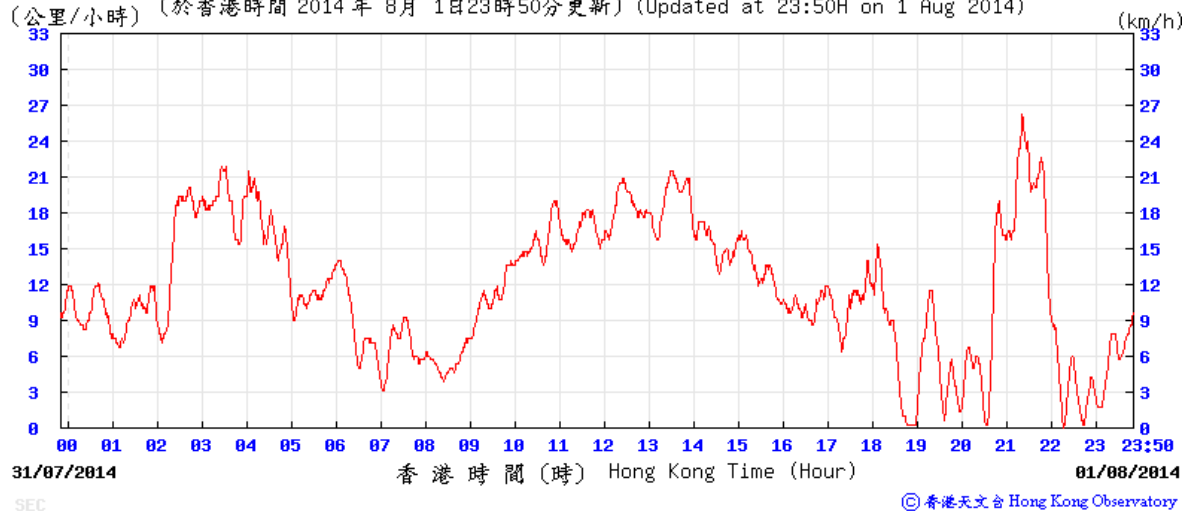
- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

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	
	Date Sep 14	Appendix E	

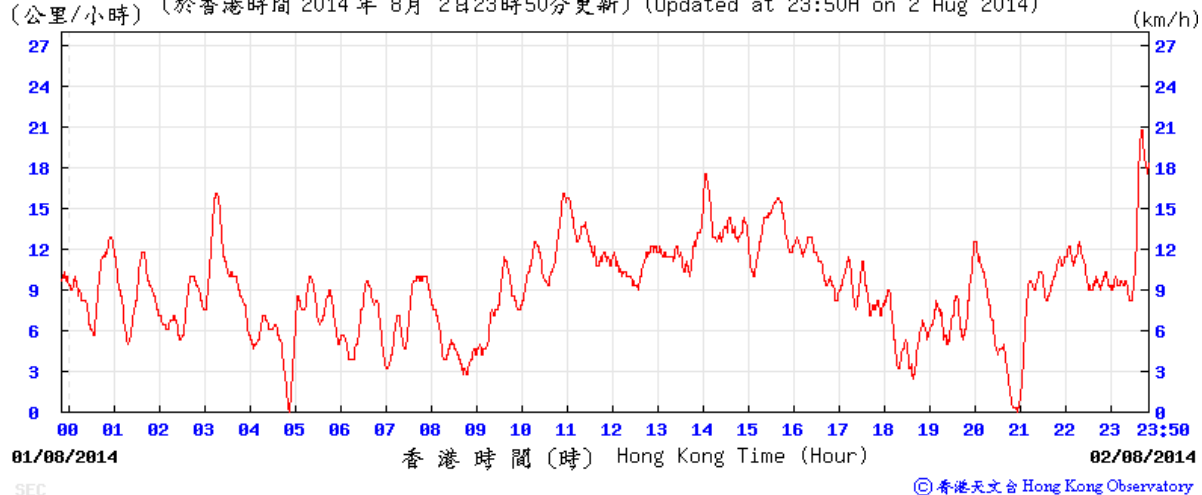
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

1-2 August 2014

(公里/小時) (於香港時間 2014 年 8 月 1 日 23 時 50 分更新) (Updated at 23:50H on 1 Aug 2014)



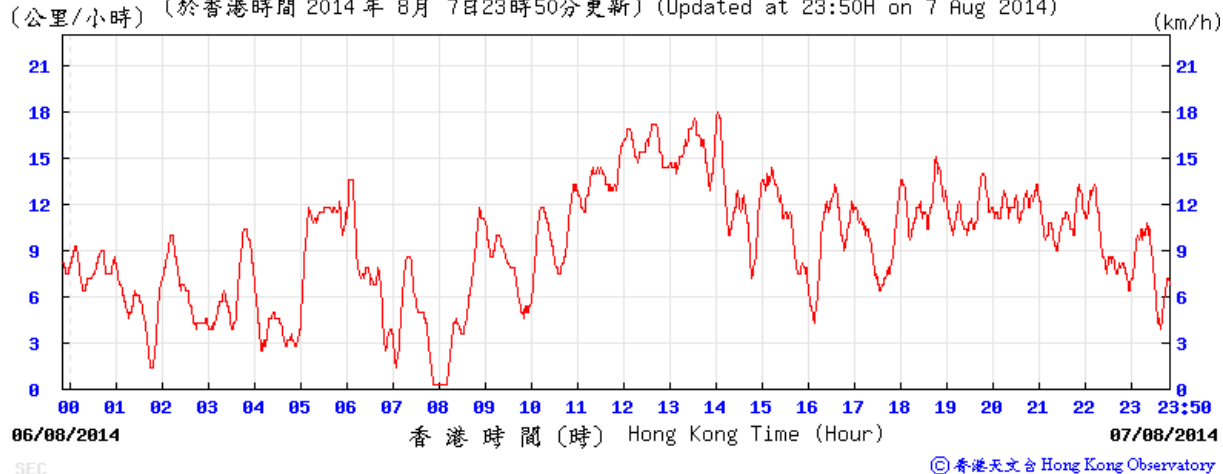
(公里/小時) (於香港時間 2014 年 8 月 2 日 23 時 50 分更新) (Updated at 23:50H on 2 Aug 2014)



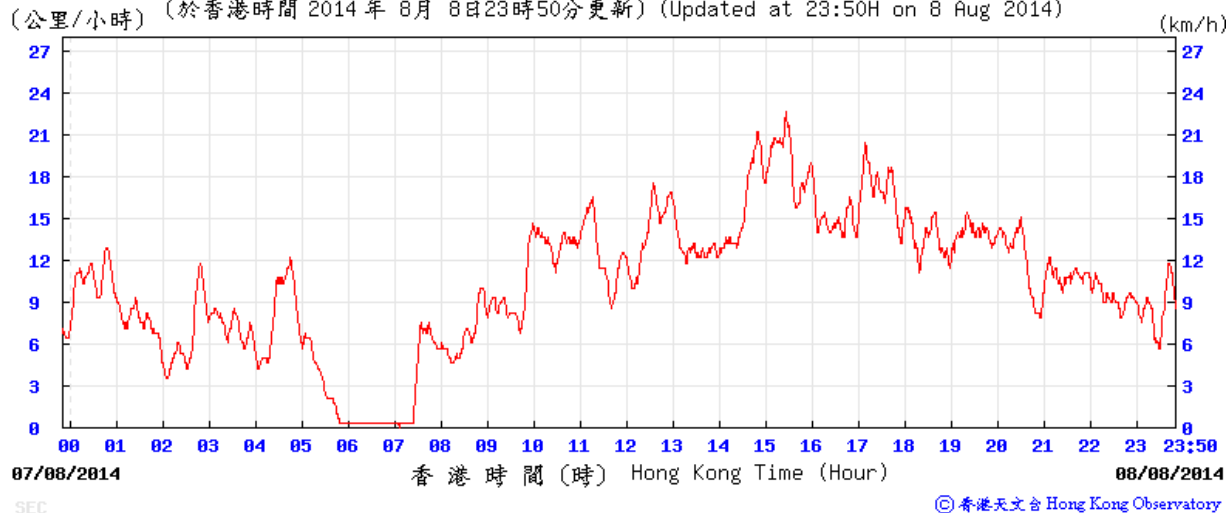
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

7-8 August 2014

(公里/小時) (於香港時間 2014 年 8 月 7 日 23 時 50 分更新) (Updated at 23:50H on 7 Aug 2014)



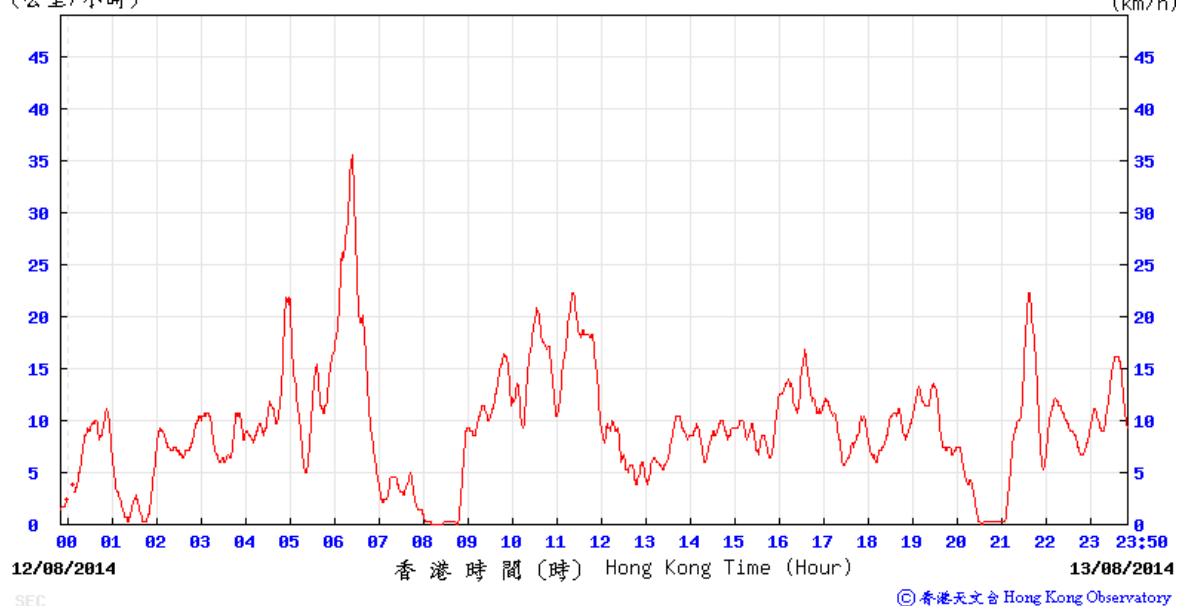
(公里/小時) (於香港時間 2014 年 8 月 8 日 23 時 50 分更新) (Updated at 23:50H on 8 Aug 2014)



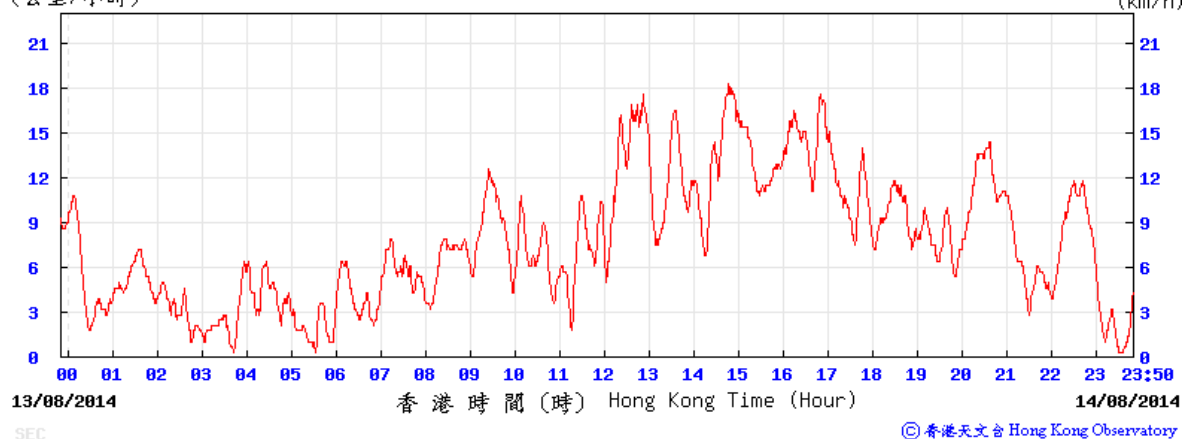
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

13-14 August 2014

(公里/小時) (於香港時間 2014 年 8月13日23時50分更新) (Updated at 23:50H on 13 Aug 2014)

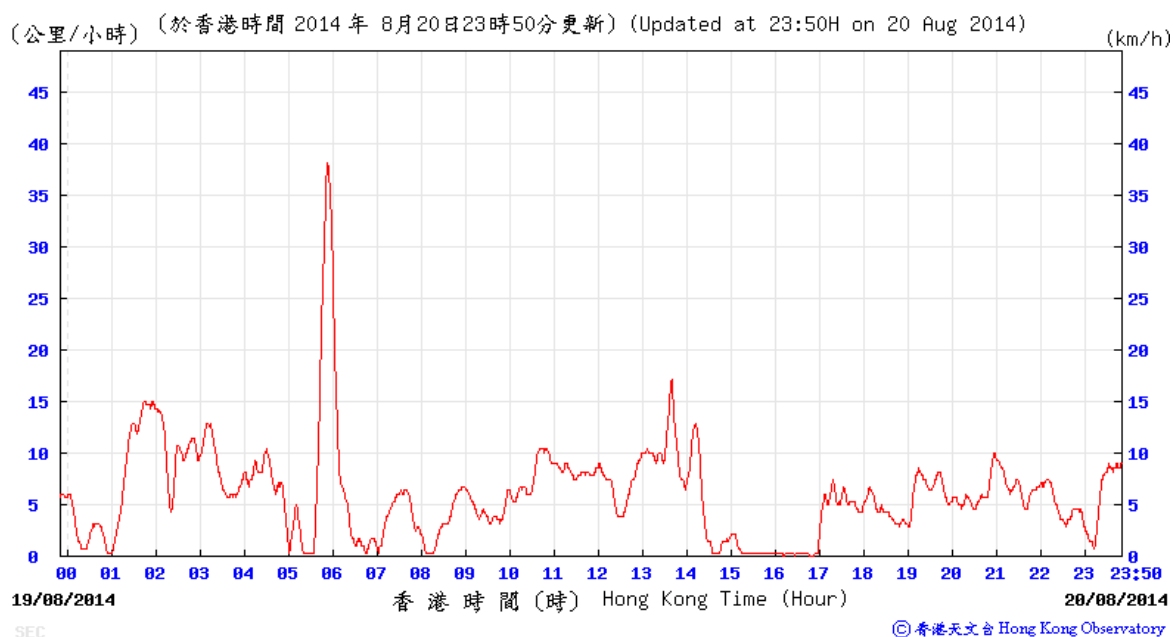
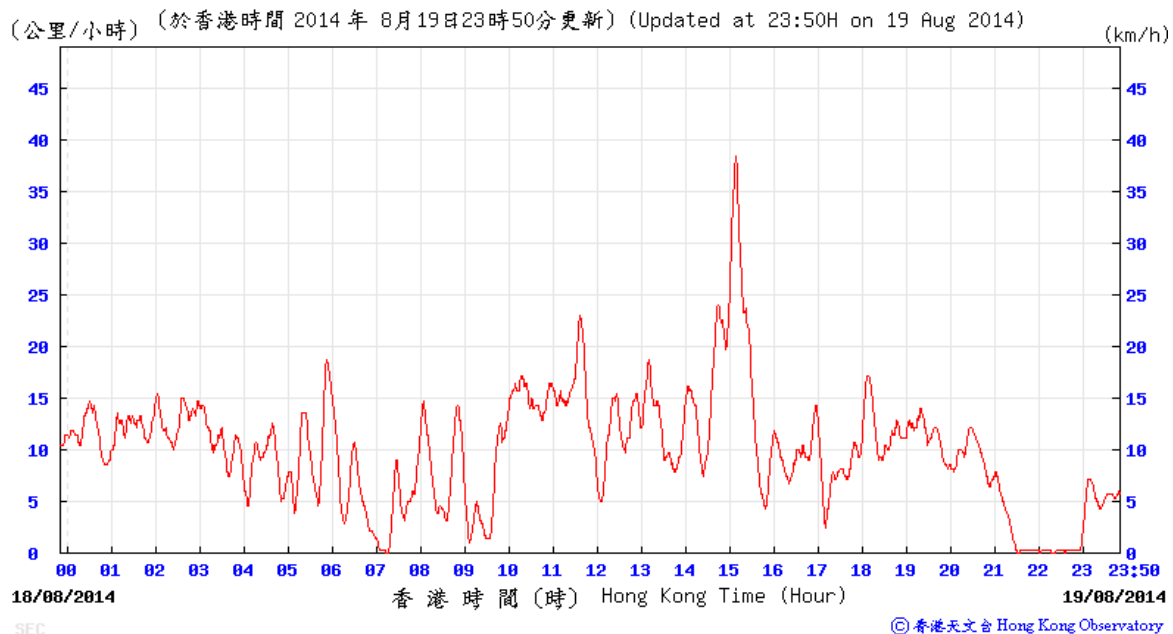


(公里/小時) (於香港時間 2014 年 8月14日23時50分更新) (Updated at 23:50H on 14 Aug 2014)



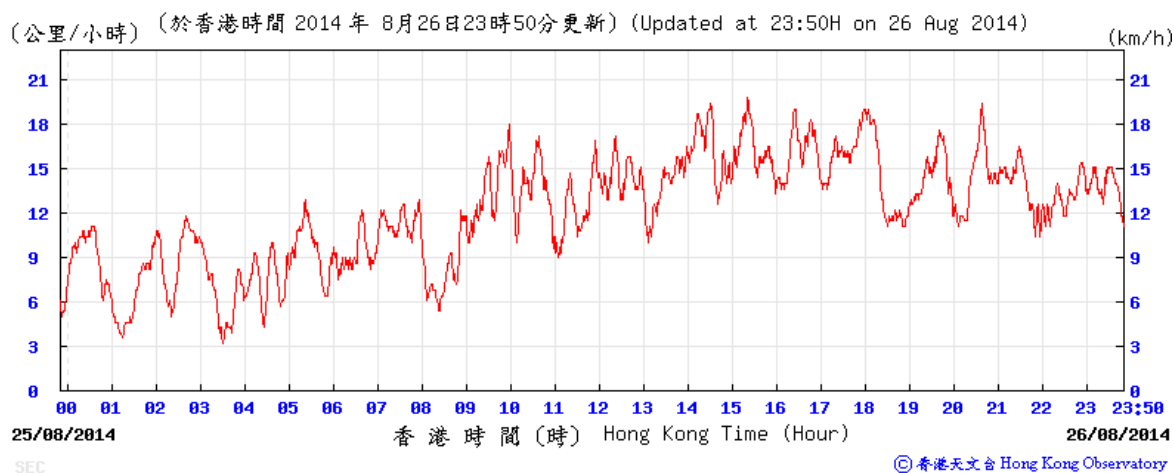
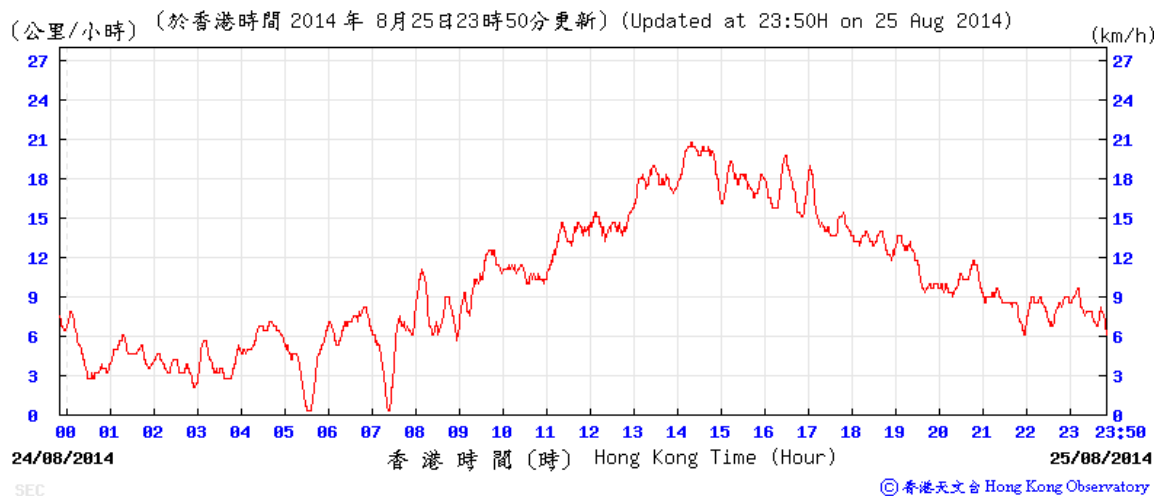
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

19-20 August 2014



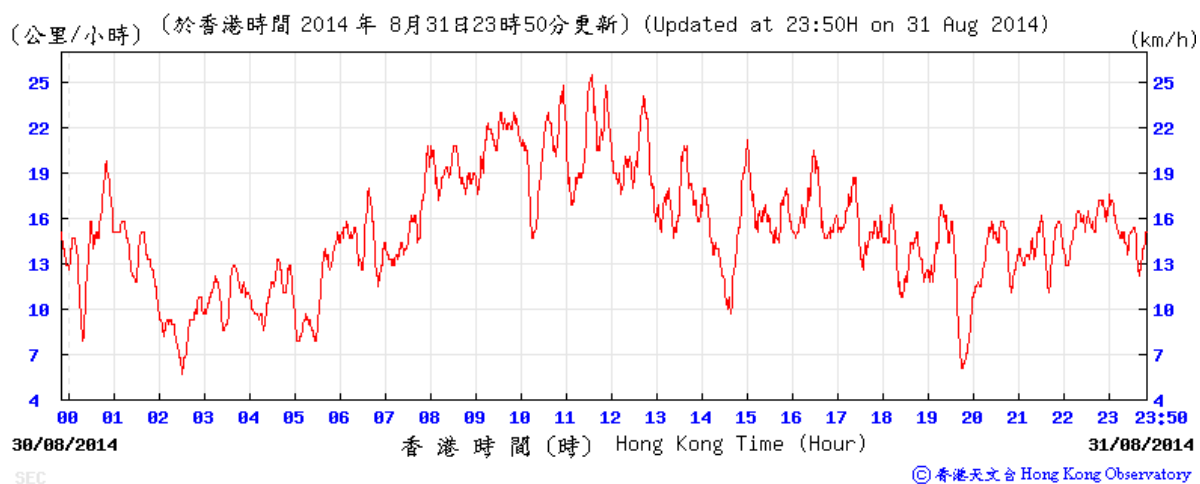
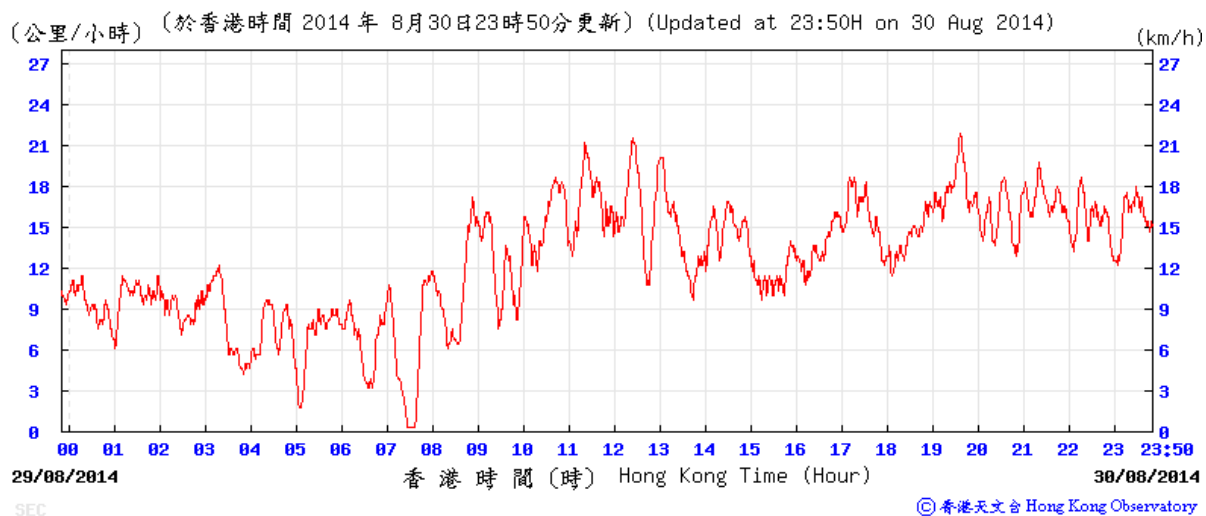
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

25-26 August 2014



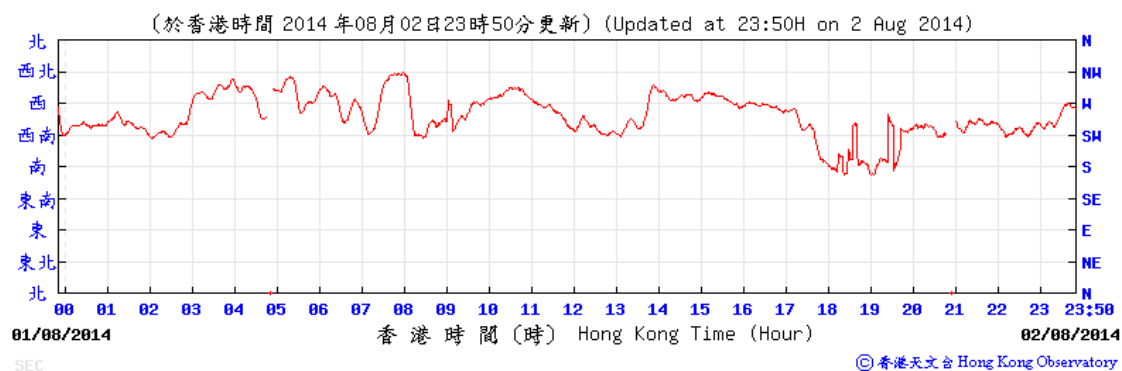
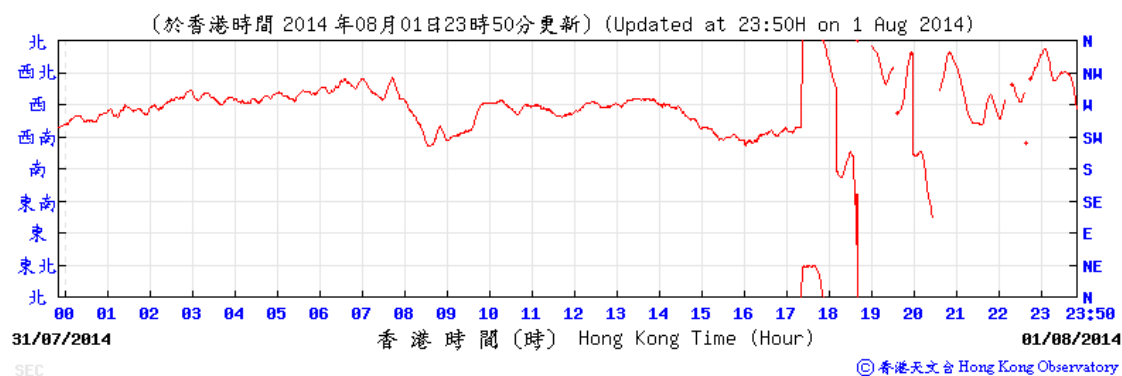
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

30-31 August 2014



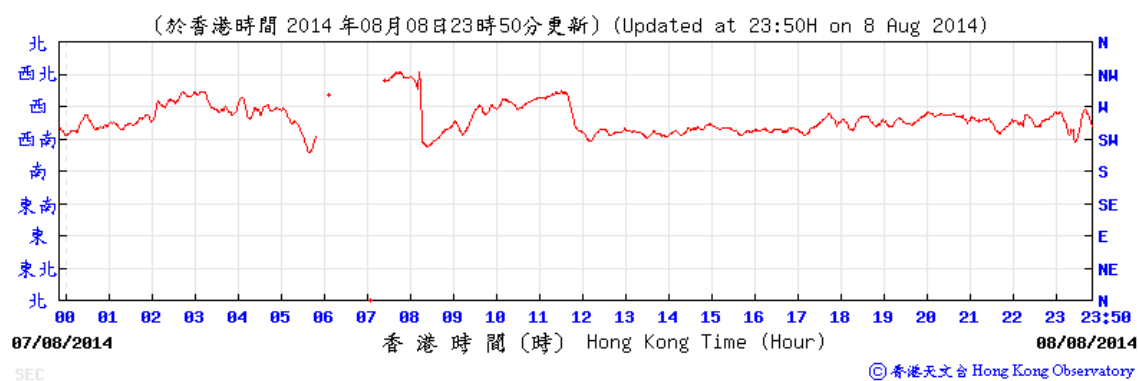
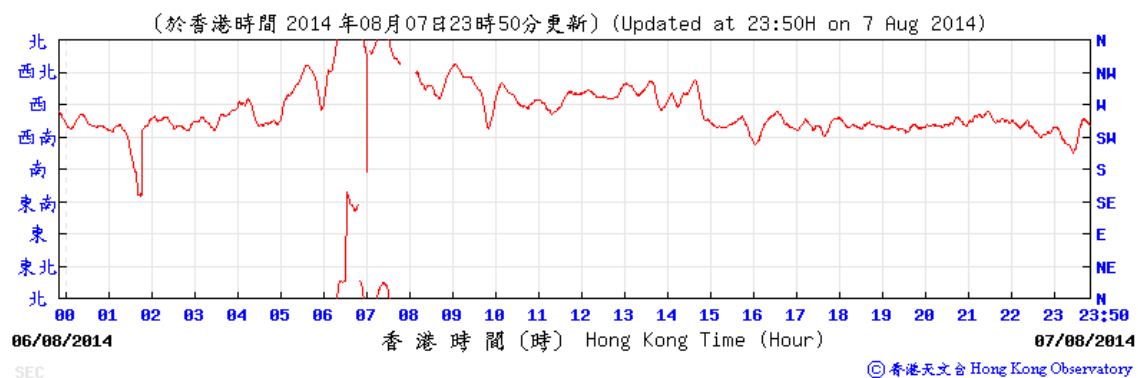
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

1-2 August 2014



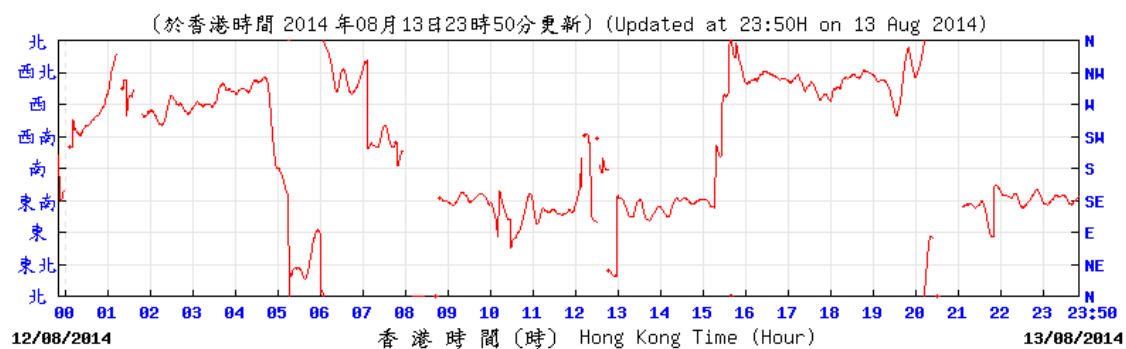
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

7-8 August 2014



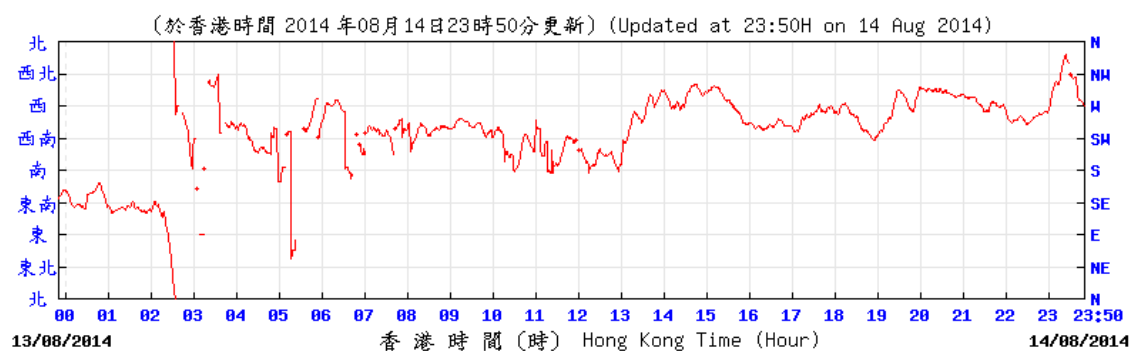
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

13-14 August 2014



SEC

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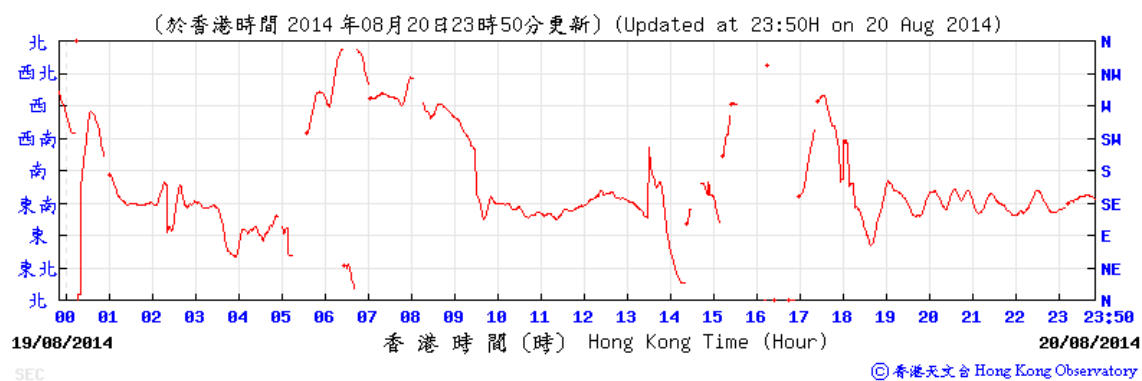
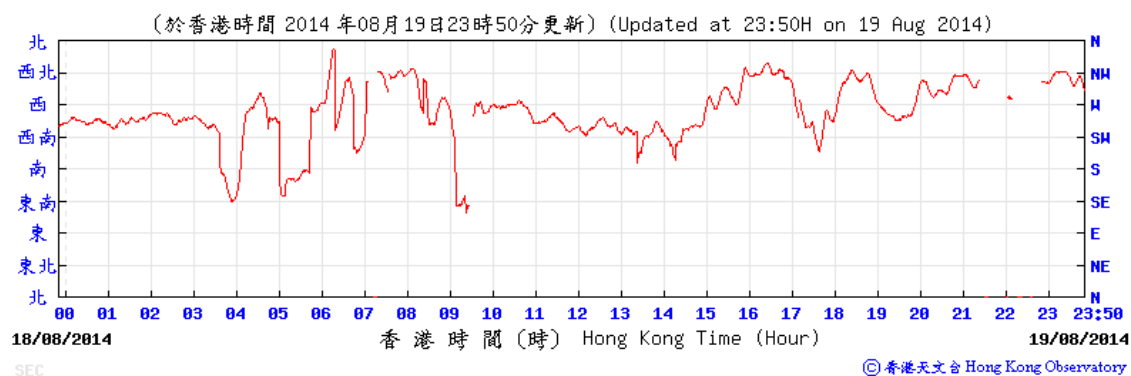


SEC

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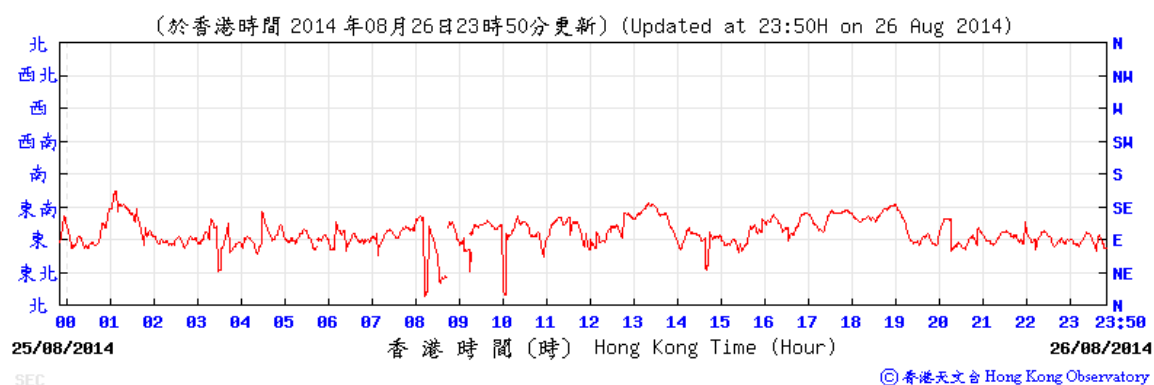
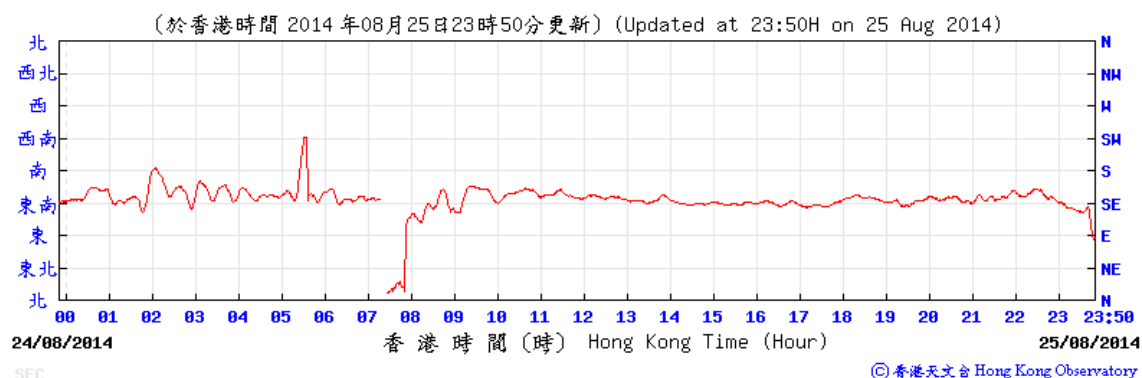
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

19-20 August 2014



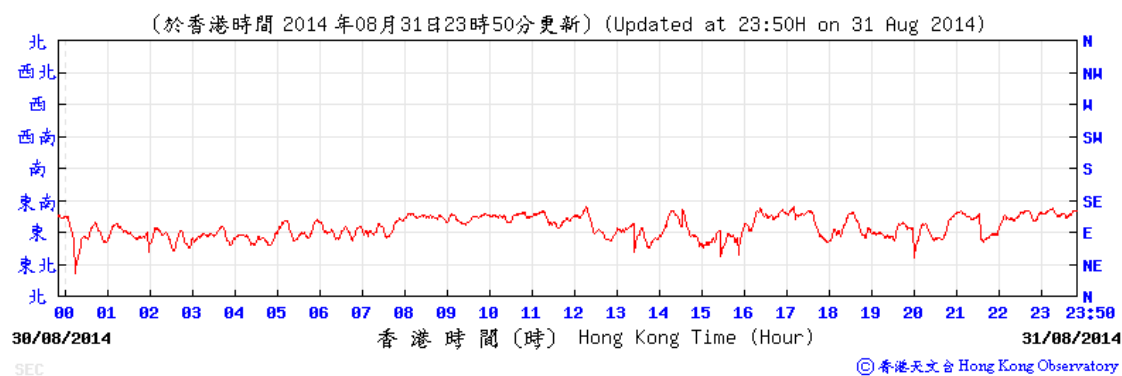
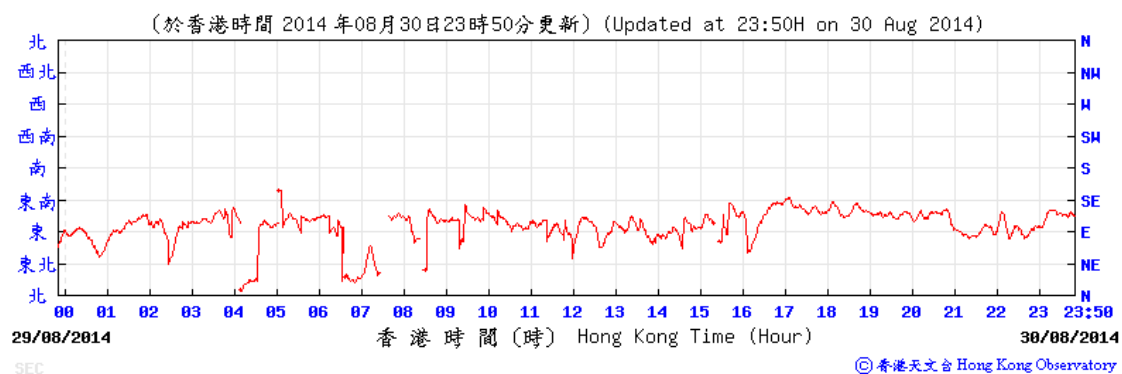
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

25-26 August 2014



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

30-31 August 2014



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

Appendix F - Noise Monitoring Results

Location NMS-CA-4(1)/NMS-CA-3(2) - Block 1, Rhythm Garden (north-eastern façade)									
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level	
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}	
4-Aug-14	Cloudy	16:25	74.4	75.3	73.4	74.5	71	71.9	
		16:30	74.6	75.7	73.4				
		16:35	74.9	76.2	73.3				
		16:40	74.4	75.5	73.2				
		16:45	74.1	75.1	73.0				
		16:50	74.8	75.9	73.6				
15-Aug-14	Sunny	14:43	73.7	75.0	71.9	73.5		71	69.9
		14:48	73.5	74.9	72.0				
		14:53	72.9	74.1	71.6				
		14:58	73.5	74.3	72.5				
		15:03	73.4	74.8	72.2				
		15:08	74.1	75.2	72.6				
20-Aug-14	Cloudy	11:25	72.0	73.1	70.8	72.3		71	66.4
		11:30	72.5	73.7	71.1				
		11:35	72.2	73.3	71.1				
		11:40	72.3	73.5	71.0				
		11:45	72.4	73.7	71.1				
		11:50	72.6	73.8	71.2				
26-Aug-14	Sunny	15:10	72.3	73.7	70.7	72.7		71	67.8
		15:15	72.6	73.8	68.8				
		15:20	72.7	73.9	71.2				
		15:25	72.8	73.7	71.5				
		15:30	72.6	73.9	69.3				
		15:35	73.0	73.9	71.7				

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

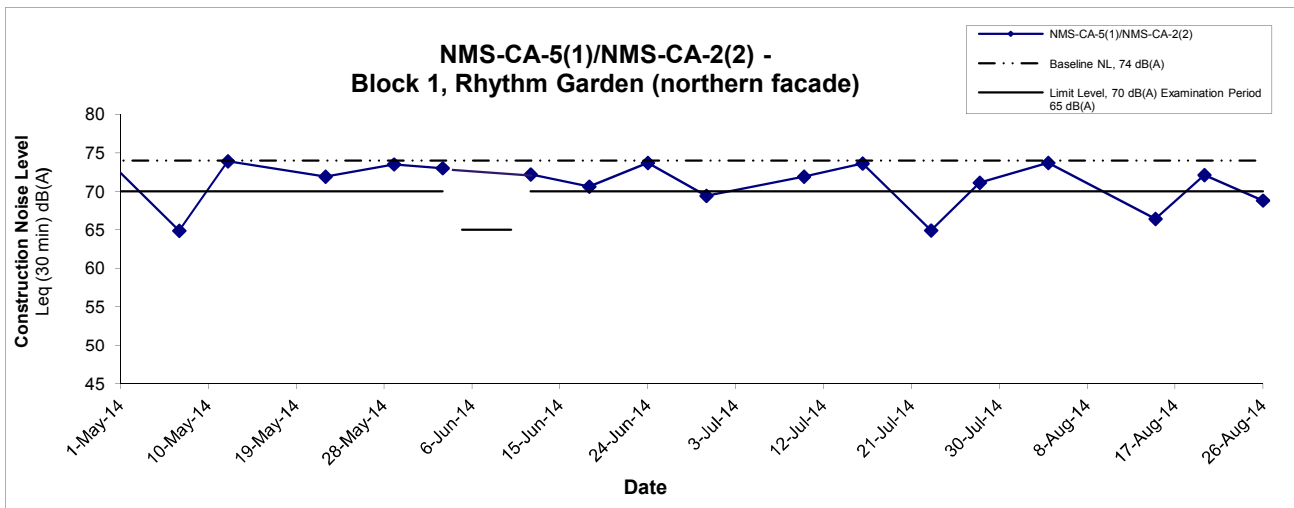
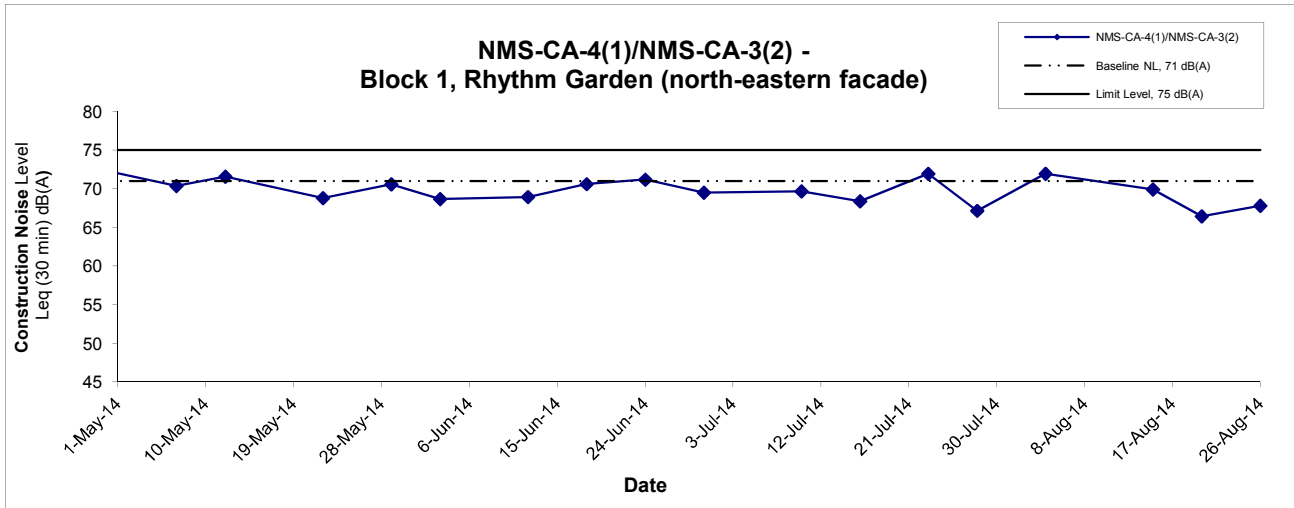
Appendix F - Noise Monitoring Results

Location NMS-CA-5(1)/NMS-CA-2(2) - Block 1, Rhythm Garden (northern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}
4-Aug-14	Cloudy	15:50	73.7	74.7	72.6	73.7	74	73.7 Measured ≤ Baseline Level
		15:55	74.0	74.9	73.0			
		16:00	73.6	74.6	72.5			
		16:05	73.2	74.3	72.1			
		16:10	73.8	74.8	72.8			
		16:15	73.8	74.7	73.0			
15-Aug-14	Sunny	14:00	74.7	75.9	73.5	74.7	74	66.4
		14:05	74.9	76.1	73.4			
		14:10	74.9	75.9	73.6			
		14:15	74.7	75.8	73.4			
		14:20	74.5	75.4	73.4			
		14:25	74.6	75.5	73.3			
20-Aug-14	Cloudy	10:48	73.0	74.3	71.4	72.1	74	72.1 Measured ≤ Baseline Level
		10:53	72.6	73.9	71.1			
		10:58	72.8	74.1	71.5			
		11:03	72.0	72.9	70.4			
		11:08	70.7	71.7	69.5			
		11:13	71.1	72.2	70.0			
26-Aug-14	Sunny	14:30	68.9	69.9	67.5	68.8	74	68.8 Measured ≤ Baseline Level
		14:35	68.4	69.4	67.2			
		14:40	69.0	69.9	67.9			
		14:45	68.8	69.6	67.4			
		14:50	69.0	69.9	67.7			
		14:55	68.5	69.5	67.3			

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).

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	Scale	Project No.	CINOTECH
	Graphical Presentation of Construction Noise Monitoring Results	N.T.S	MA12051	
		Date	Appendix	
		Sep 14	F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: August 2014

- 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	140807
Date	7 August 2014 (Thursday)
Time	13:30 – 16:00

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

Ref. No.	Remarks/Observations	Related Item No.
140807-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"> Tree branches were observed inside the tree protection zone at W8. Contractor is reminded to remove them from the zone <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
140807-O01	<p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> Oil containers near the D-wall extractor should be provided with drip tray to prevent chemical leakage or should be disposed of properly as chemical waste. <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.:140731), item 140731-O02 is remarked as 140807-R02 and follow up action is needed to be review. 	H 10

	Name	Signature	Date
Recorded by	Kenneth Yuen		11 August 2014
Checked by	Dr. Priscilla Choy		11 August 2014

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

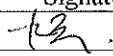

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140814
Date	14 August 2014 (Thursday)
Time	13:30 – 15:30

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

Ref. No.	Remarks/Observations	Related Item No.
140814-R01	Part B – Water Quality • Contractor is reminded to clear the muddy slurry on major haul road near DT1911	B 3
140814-R03	• Sand bag bunds should be provided to the boundary of the site near MTR exit A1	B 20
140814-O02	Part C – Ecology • No environmental deficiency was identified during the site inspection. Part D – Landscape & Visual • Construction materials were observed near trees at W8. Contractor should remove the materials and properly set up tree protection zone to protect the trees. Part E – Air Quality • No environmental deficiency was identified during the site inspection. Part F – Cultural Heritage • No environmental deficiency was identified during the site inspection. Part G – Construction Noise Impact • No environmental deficiency was identified during the site inspection. Part H – Waste/Chemical Management • No environmental deficiency was identified during the site inspection. Part I – Permits/Licenses • No environmental deficiency was identified during the site inspection. Part J – Others • Follow-up on previous audit section (Ref. No.:140807), all environmental deficiencies were observed improved/rectified by contractor.	D 2, 3

	Name	Signature	Date
Recorded by	Kenneth Yuen		15 August 2014
Checked by	Dr. Priscilla Choy		15 August 2014

Shatin to Central Link -

Contract 1106 Diamond Hill Station

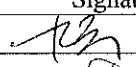

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140821
Date	21 August 2014 (Thursday)
Time	13:30 – 15:30

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

Ref. No.	Remarks/Observations	Related Item No.	
140821-O01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	D 2, 3	
140821-R02	<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"> Tree protection zone should be properly set up to protect the trees near the site office. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> White smoke emission was observed from a generator at the bored-piling area. It should be properly maintained to prevent dark smoke emission. 		E 15
140821-R03	<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"> The panel of the generator in the west-bound capping beam area was observed open. It should be closed to prevent noise generation <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.:140814), due to access road was blocked, 140814-O02 is marked as follow-up until improvement/rectification measures can be observed and recorded. 		G 9

	Name	Signature	Date
Recorded by	Kenneth Yuen		26 August 2014
Checked by	Dr. Priscilla Choy		26 August 2014

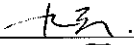

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140828
Date	28 August 2014 (Thursday)
Time	13:30 – 17:00

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

Ref. No.	Remarks/Observations	Related Item No.
140828-001	<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"> Construction materials were observed placed inside the tree protection zones near the site office and the bar bending area. One of the trees (at the front of the site office) was observed without a proper protection zone. The contractor should properly set up the tree protection zone and remove the construction materials 	D 2, 3
140828-R04	<p>Part E – Air Quality</p> <ul style="list-style-type: none"> The exposed slope near Lung Cheung Road should be properly covered to prevent dust generation. <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. 	E 6
140828-O02	<p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> Chemical container near East-bound capping beam area should be provided with drip tray to prevent chemical leakage. 	H10
140828-O03	<ul style="list-style-type: none"> Oil stain was observed on the ground near the desander. It should be properly cleared as chemical waste. 	H 9
140828-R05	<ul style="list-style-type: none"> The drain hole of the drip tray near the original location of DT1911 should be blocked properly to prevent chemical 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.:140821), follow up actions are needed to be review for items: 140821-O01 and 140821-R02. The access road was still blocked thus improvement/ rectification measures for 140814-O02 cannot be recorded. 	H 10

	Name	Signature	Date
Recorded by	Kenneth Yuen		3 September 2014
Checked by	Dr. Priscilla Choy		3 September 2014

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	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>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. 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. 						^
Air Quality (Construction Phase)								
/	A1	<p>Emission from Vehicles and Plants</p> <ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD) 	<p>Reduce air pollution emission from construction vehicles and plants</p>	Contractor	All construction sites	Construction stage	• APCO	^ * ^
/	A2	Open burning shall be prohibited	<p>Reduce air pollution emission from work site</p>	Contractor	All construction sites	Construction stage	APCO	^
Construction Dust Impact								
S7.6.6	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	<p>Minimize dust impact at the nearby sensitive receivers</p>	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM- 	*

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>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;</p> <ul style="list-style-type: none"> • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire 						<p>^</p> <p>^</p> <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>surface wet;</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, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six 						<p>N/A</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>N/A</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.						
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; • 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 	Control construction airborne noise	Contractor	All Construction Sites where practicable	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
		from on-site construction activities.						
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	^
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	Contractor	Selected representative	Construction stage	•TM-EIA	^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

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

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>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 drainage system and storm runoff being directed into foul sewers 						<p>^</p> <p>N/A</p> <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>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 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. 	<p>impact from accidental spillage</p>		<p>sites where practicable</p>	<p>stage</p>	<p>Control Ordinance</p> <ul style="list-style-type: none"> • ProPECC PN1/94 • TM-EIAO • TM-Water 	<p>* * ^ ^</p>
<i>Waste Management (Construction Waste)</i>								
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 	<p>Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use</p>	<p>Contractor</p>	<p>All construction sites</p>	<p>Construction stage</p>	<ul style="list-style-type: none"> • DEVB TC(W) No. 6/2010 	<p>N/A</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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 	<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</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance 	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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.</p> <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. 	the amount for final disposal				<ul style="list-style-type: none"> ETWB TCW No.19/2005 	^
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 	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 	^ ^ ^

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

Contract No: MTR SCL 1106 - Diamond Hill Station

Date of Report: August, 2014

Monthly Summary Waste Flow Table for 2014

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	2.940	0.000	0.000	2.529	0.411	0.000	0.000	0.000	0.000	0.000	0.073	
Feb	2.869	0.000	0.000	2.348	0.521	0.000	0.000	0.225	0.000	1.600	0.090	
Mar	5.081	0.000	0.000	2.957	2.124	0.000	0.000	0.020	0.000	1.760	0.049	
Apr	4.360	0.000	0.000	1.447	2.913	1.000	0.000	0.055	1.000	3.460	0.118	
May	4.904	0.000	0.000	0.930	3.973	0.000	0.000	0.313	2.000	2.260	0.128	
Jun	7.414	0.000	0.000	1.710	5.704	0.000	0.000	0.000	0.000	0.000	0.115	
Sub-total	27.568	0.000	0.000	11.921	15.646	1.000	0.000	0.613	3.000	9.080	0.573	
Jul	12.467	0.000	0.000	1.593	10.874	0.000	0.000	0.210	0.000	2.110	0.091	
Aug	11.797	0.000	0.000	0.406	11.391	0.000	0.000	0.000	0.000	0.120	0.088	
Sept												
Oct												
Nov												
Dec												
Total	51.832	0.000	0.000	13.920	37.911	1.000	0.000	0.823	3.000	11.310	0.752	

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

**16th 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 No.16

[Period from 1 to 31 August 2014]

Works Contract 1107 – Diamond Hill to Kai Tak
Tunnels

(September 2014)

Certified by: 
Dr. Priscilla Choy

Position: Environmental Team Leader

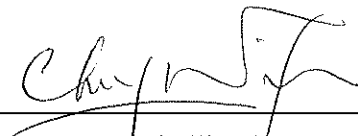
Date: 11th September 2014

Chun Wo – SELI Joint Venture

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

**Monthly Environmental
Monitoring and Audit Report
For August 2014**

(Version 2.0)

Certified By 

Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

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

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

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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
Introduction	1
Summary of Construction Works undertaken during Reporting Month	1
Variation in Construction Method	1
Environmental Monitoring and Audit Progress	1
Regular Construction Noise and Construction Dust Monitoring	1
Waste Management	2
Landscape and Visual	2
Environmental Site Inspection	2
Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution	2
Future Key Issues	2
1 INTRODUCTION	3
Purpose of the Report	3
Structure of the Report	3
2 PROJECT INFORMATION.....	4
Background	4
General Site Description	4
Construction Programme and Activities	4
Project Organisation	4
Status of Environmental Licences, Notification and Permits.....	4
Summary of EM&A Requirements	5
3 ENVIRONMENTAL MONITORING REQUIREMENTS.....	6
<i>Regular Construction Noise Monitoring</i>	6
Monitoring Parameter and Frequency	6
Monitoring Equipment and Methodology	7
Field Monitoring.....	7
Monitoring Equipment	7
Maintenance and Calibration.....	8
Action & Limit Level for Construction Noise Monitoring	8
<i>Continuous Noise Monitoring</i>	8
<i>Regular Construction Dust Monitoring</i>	8
Monitoring Parameter and Frequency	8
Monitoring Equipment	9
Instrumentation.....	9
HVS Installation	9
Filters Preparation	9
Operating/Analytical Procedures	10
Maintenance/Calibration	11
Action and Limit Levels for Dust Monitoring	11
<i>Landscape and Visual</i>	11
4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS	12
5 MONITORING RESULTS	13
Regular Construction Noise Monitoring	13

Regular Dust Monitoring.....	13
Waste Management.....	14
Landscape and Visual.....	14
6 ENVIRONMENTAL SITE INSPECTION.....	15
Site Audit.....	15
Implementation Status of Environmental Mitigation Measures.....	15
7 ENVIRONMENTAL NON-CONFORMANCE.....	17
Summary of Exceedances.....	17
Summary of Environmental Non-Compliance.....	17
Summary of Environmental Complaint.....	17
Summary of Environmental Summon and Successful Prosecution.....	17
8 FUTURE KEY ISSUES.....	18
Construction Programme for the Next Month.....	18
Key Issues in the Next Month.....	18
Monitoring Schedule in the Next Month.....	18
9 CONCLUSIONS AND RECOMMENDATIONS.....	19
Conclusions.....	19
Recommendations.....	19

LIST OF TABLES

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

LIST OF FIGURES

Figure 1	The Alignment and Works Area for Works Contract 1107
Figure 2	Locations of Construction Noise Monitoring
Figure 3	Location of Dust Monitoring
Figure 4	Organisation Chart and Key Contact of the Project

LIST OF APPENDICES

Appendix A	Tentative Construction Programme
Appendix B	Action and Limit Levels
Appendix C	Calibration Certificates for Monitoring Equipment
Appendix D	Impact Monitoring Schedule
Appendix E	24-hour TSP Monitoring Results and Graphical Presentations

Appendix F	Noise Monitoring Results and Graphical Presentations
Appendix G	Summary of Exceedance
Appendix H	Site Audit Summary
Appendix I	Event and Action Plans
Appendix J	Updated Environmental Mitigation Implementation Schedule
Appendix K	Waste Generation in the Reporting Month
Appendix L	Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

EXECUTIVE SUMMARY**Introduction**

1. This is the 16th 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 to 31 August 2014.

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;
- Shaft excavation;
- Site preparation works;
- Grouting works; and
- TBM excavation.

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 by the EPD for the varied construction method. The updated EP (EP No.: EP-438/2012/F) was issued by EPD on 15 July 2014.

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)) 4 times
- NMS-CA-5⁽¹⁾⁽⁴⁾/NMS-CA-2⁽²⁾⁽⁴⁾ (Block 1, Rhythm Garden (northern façade)) 4 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 7 and 22 August 2014. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

7. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 1, 7, 15, 22 and 29 August 2014. The representative of the IEC joined the site inspection on 7 August 2014. 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/ a successful prosecution 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;
 - Shaft excavation;
 - Site preparation works;
 - Grouting works; and
 - TBM excavation.

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 16th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 August 2014. 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;
 - Shaft excavation;
 - Site preparation works;
 - Grouting works; and
 - TBM excavation.

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**. A new Construction Noise Permits (CNP): GW-RE0884-14 was granted by EPD in this reporting month.

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/F	15/07/2014	13/08/2014	Superseded by EP-438/2012/G since 14/08/2014
EP-438/2012/G	14/08/2014	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-RE0110-14	05/02/2014	04/08/2014	Valid
GW-RE0722-14	30/06/2014	29/12/2014	Valid
GW-RE0736-14	02/07/2014	31/12/2014	Valid
GW-RE0884-14	14/08/2014	04/02/2015	Valid

Summary of EM&A Requirements

- 2.7 The EM&A programme under Works Contract 1107 require regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
 - Action and Limit levels for all environmental parameters;
 - Event / Action Plans;
 - Environmental mitigation measures, as recommended in the Project EIA study final report; and
 - Environmental requirements in contract documents.
- 2.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.9 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

- 3.1 In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was rejected; alternative locations were proposed and agreed by the ER (Engineer’s Representative), IEC (Independent Environmental Checker) and EPD (Environmental Protection Department). The construction noise monitoring locations are listed in **Table 3.1** and shown in **Figure 2**.

Table 3.1 Regular Construction Noise Monitoring Location

Regular Construction Noise Monitoring Location⁽⁴⁾⁽⁵⁾	Description	Type of Measurement
NMS-CA-4 ⁽¹⁾ / NMS-CA-3 ⁽²⁾	Block 1, Rhythm Garden (north-eastern façade)	Façade
NMS-CA-5 ⁽¹⁾⁽³⁾ / NMS-CA-2 ⁽²⁾⁽³⁾	Block 1, Rhythm Garden (northern façade)	Façade

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Noise monitoring on NMS-CA-4⁽¹⁾/NMS-CA-3⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade) is carried out by Environmental Team of SCL Works Contract 1106.
- (5) Noise monitoring on NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade) is carried out by Environmental Team of SCL Works Contract 1106.

Monitoring Parameter and Frequency

- 3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period of monitoring stations at Rhythm Garden is shown in **Appendix D**.
- 3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). L_{Aeq} (30min) (as six consecutive $L_{eq, 5-min}$ readings) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays.

Monitoring Equipment and Methodology

Field Monitoring

3.4 The monitoring procedures are as follows:

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - frequency weighting : A
 - time weighting : Fast
 - measurement time : 5 minutes (obtaining six consecutive $L_{eq,5min}$ readings for a $L_{eq,30 min}$ reading)
- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- At the end of the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB(A) shall be made to the noise parameter obtained by free field measurement.

Monitoring Equipment

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

Table 3.2 Noise Monitoring Equipment

Monitoring Equipment	Model (Serial no.)
Sound Level Meter	SVAN 955 (Serial no.: 12553, 14303) SVAN 957 (Serial no.: 21459, 23853)
Calibrator	SV30A (Serial no.: 24780, 24803) B&K 4231 (Serial no.: 2326353)

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: 0993	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 (July 2014)	14 th August 2014

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 8 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. No exceedance of the limit level was recorded at designated monitoring stations.
- 5.2 The noise monitoring results recorded at NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) on 4, 15 and 20 August exceeded the daytime construction noise criterion. However, the results are not considered as exceedance as the results on 4 and 20 August were below the baseline noise level; and the result on 15 August was below limit level after baseline correction. The noise monitoring result on 26 August at NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) and all noise monitoring results at NMS-CA-4⁽¹⁾/NMS-CA-3⁽²⁾ did not exceed the daytime construction noise criterion.
- 5.3 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.4 The noise monitoring results together with their graphical presentations are presented in **Appendix F**.
- 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 $\mu\text{g}/\text{m}^3$	Maximum $\mu\text{g}/\text{m}^3$	Average $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
24-hr TSP (DMS-4 ⁽¹⁾⁽³⁾ / DMS-3 ⁽²⁾⁽³⁾)	22.0	51.4	29.3	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) Dust monitoring on DMS-4⁽¹⁾/DMS-3⁽²⁾ (Block 1, Rhythm Garden) is carried out by Environmental Team of SCL Works Contract 1106.
- 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.

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**. 5,105m³ of C&D materials, 50m³ of general refuse were generated and disposed; 150 kg of paper/cardboard were generated and recycled 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		
August 2014	5,105m ³	50 m ³	0 kg	150 kg	0kg	0 kg
Notes:						
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil,						
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.						

Landscape and Visual

- 5.11 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 7 and 22 August 2014. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audit

- 6.1 Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audit are attached in **Appendix H**.
- 6.1.1 Site audits were conducted on 1, 7, 15, 22 and 29 August 2014 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 7 August 2014. No site inspection was conducted by EPD during the reporting month. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

- 6.2 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**.
- 6.3 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>	7 August 2014	<u>Observation:</u> Water discharged from a water treatment facility at the upstream area was observed silty. The facility should be properly maintained and operated to ensure the quality of treated water and prevent leakage from the tank.	As observed on 15 August, no treated water was being discharged during the site inspection and the water treatment facility has been fixed to prevent leakage.
	7 August 2014	<u>Observation:</u> Muddy water was observed leaking into the Kai Tuk Nullah at both the upstream and downstream area. Contractor should provide appropriate measure(s) to prevent untreated muddy water discharge.	As observed on 15 August, no muddy water leakage was observed on upstream nor downstream of Kai Tuk Nullah during the inspection
	22 August 2014	<u>Observation:</u> Silty water was observed leaking into the downstream area of Kai Tuk Nullah. The contractor is advised to properly block the hole or gap to prevent untreated silty water leakage.	As observed on 29 August, no silty water was leaking into the nullah, the holes and gaps have been properly blocked to prevent leakage in the future.
<i>Noise</i>	---	---	---
<i>Landscape and Visual</i>	---	---	---
<i>Air Quality</i>	1 August 2014	<u>Reminder:</u> Smoke emission from an excavator at cut and cover tunneling area was observed. Contractor is reminded to properly maintain machines to prevent air pollution.	As observed on 7 August, no smoke emission from the excavator was seen.
	7 August 2014	<u>Reminder:</u> Smoke emission from a generator near the noise barrier along Kai Ching Estate was observed. Contractor should have regular maintenance for plants/generators to prevent air pollution.	As observed on 15 August, the generator has been relocated. No smoke emission from other generators has been observed.

Parameters	Date	Observations and Recommendations	Follow-up
	15 August 2014	<u>Reminder:</u> Dusty stockpile at the downstream area should be covered by impervious sheeting or watered regularly to prevent dust generation.	As observed on 22 August, excavation work was being carried out at part of the dusty stockpile. The part of stockpile where no work was being carried out was covered by impervious sheeting to prevent dust generation.
	29 August 2014	<u>Reminder:</u> Mud was observed on the ground at the boundary of CP1. The contractor is reminded to properly remove them.	The follow up action will be reported in next reporting month
	29 August 2014	<u>Reminder:</u> Dusty stockpile at the downstream area should be properly covered to prevent dust generation.	The follow up action will be reported in next reporting month
Waste / Chemical Management	25 July 2014	<u>Reminder:</u> Contractor should provide drip tray to chemical container at the cut and cover tunnelling area to prevent chemical leakage.	As observed on 1 August, the chemical container was removed from the cut and cover tunnelling area to prevent leakage.
	7 August 2014	<u>Observation:</u> Oil stains on area near the external yard and cut and cover tunnelling area were observed. Contractor should provide drip tray to suspicious source to prevent oil leakage and properly remove the oil stain as chemical waste	As observed on 15 August, the oil stains near the external yard and cut and cover tunnelling area have been properly removed as chemical waste.
	7 August 2014	<u>Observation:</u> Drip tray should be provided to chemical containers near the cut and cover tunnelling area to prevent chemical leakage.	As observed on 15 August, the chemical containers have been removed to prevent chemical leakage.
Permits/ Licenses	--	--	--

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

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

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

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

Summary of Environmental Summon and Successful Prosecution

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

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

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

- Site investigation works;
- Investigation and removal of old foundation works;
- Shaft excavation;
- Site preparation works;
- Grouting works; and
- TBM excavation.

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 shaft excavation works;
- To ensure the performance of sorting of C&D materials at source (during generation); and
- To carry out inspection of dump truck at site exit to ensure inert and non-inert C&D materials are properly segregated before removing off site.

Monitoring Schedule in the Next Month

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

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

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

Recommendations

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

Water Quality

- The Contractor is reminded to properly maintain the water treatment facilities to ensure the efficiencies of the facilities.
- The Contractor is reminded to provide appropriate measure(s) to drainage system to prevent leakage of silty runoff.

Landscape and Visual

- N/A

Noise

- N/A

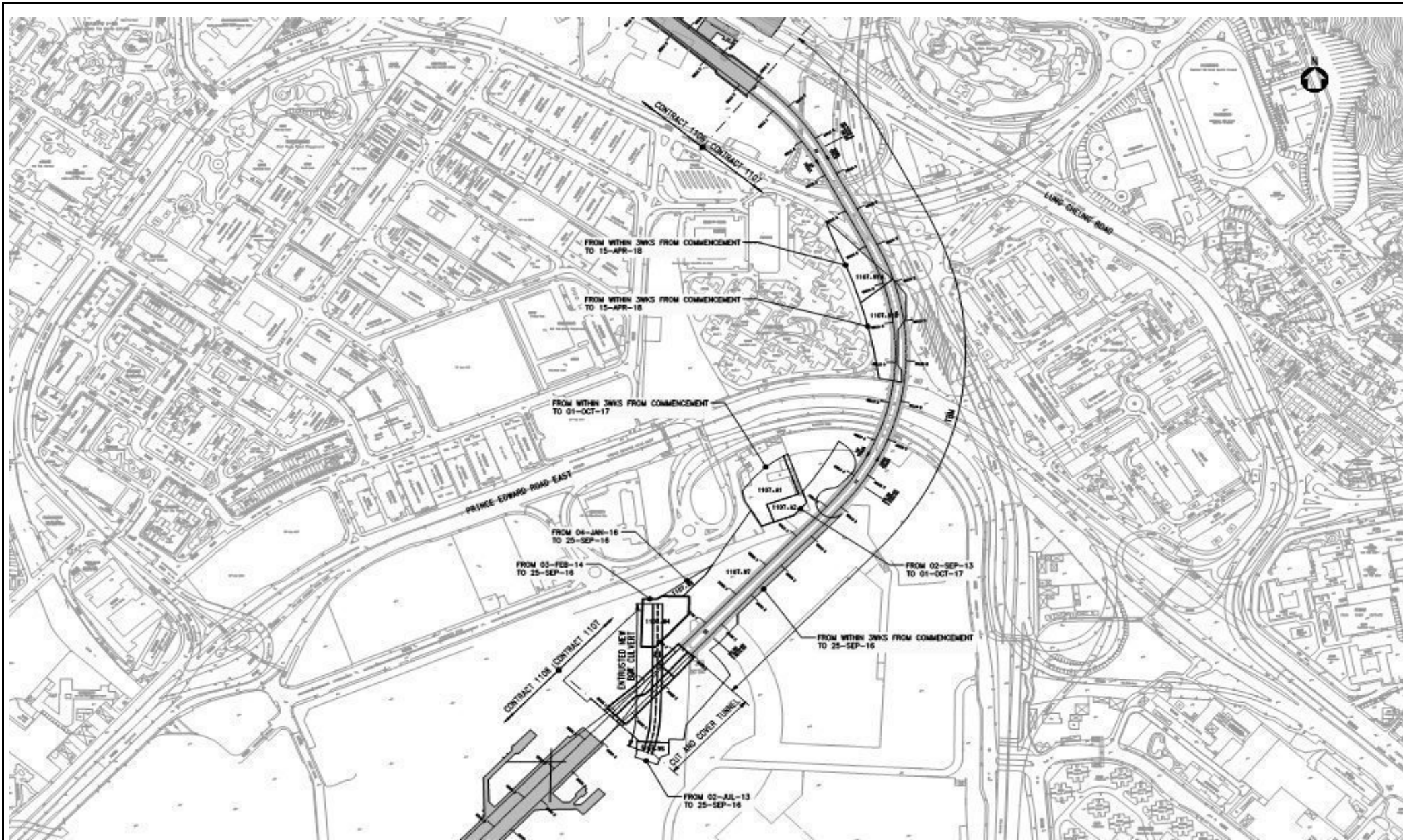
Air Quality

- The contractor is reminded to properly maintain all machines and engines to prevent black smoke emission.
- Dusty stockpile at the site should be covered with impervious sheet to prevent dust generation.
- Mud and dirt on the ground near site entrance should be cleared readily to avoid dust generation and dispersion to public road.

Waste/Chemical Management

- The Contractor was reminded to provide drip tray of appropriate size to chemical containers to prevent chemical leakage.
- In case of chemical leakage, it should be properly removed as chemical waste.

FIGURES



Title
MTR SCL Works Contract 1107
Diamond Hill to Kai Tak Tunnels
Site Layout Plan

Scale
N.T.S
Date
May-13

Project No.
MA13018
Figure
1

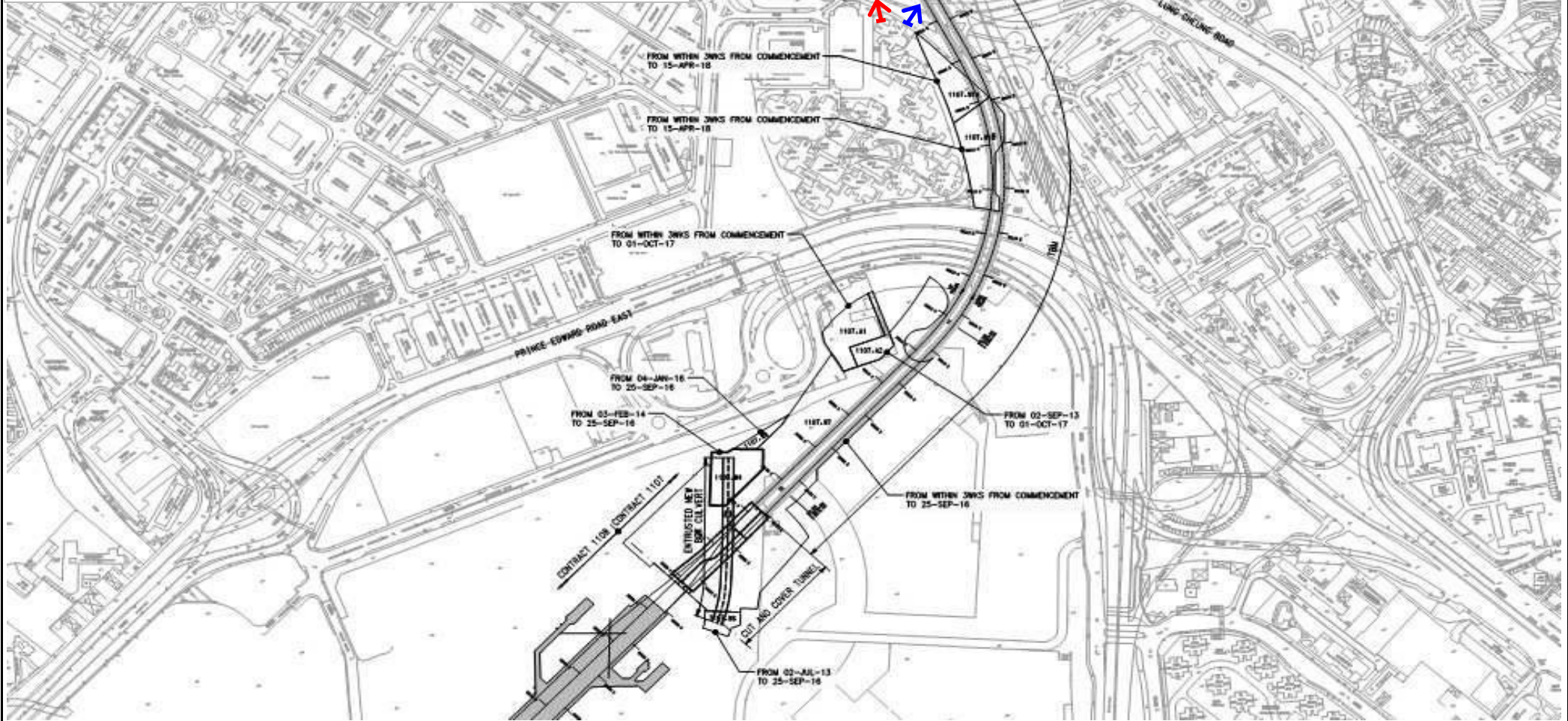
CINOTECH

Legend:

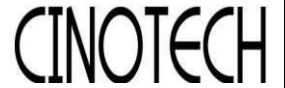
- ➔ NMS-CA-4⁽¹⁾/NMS-CA-3⁽²⁾ Block 1, Rhythm Garden (north-eastern façade)
- ➔ NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ Block 1, Rhythm Garden (northern façade)

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).



Title	MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Locations of Constrction Noise Monitoring		Scale	N.T.S	Project No.	MA13018
			Date	May-13	Figure	2

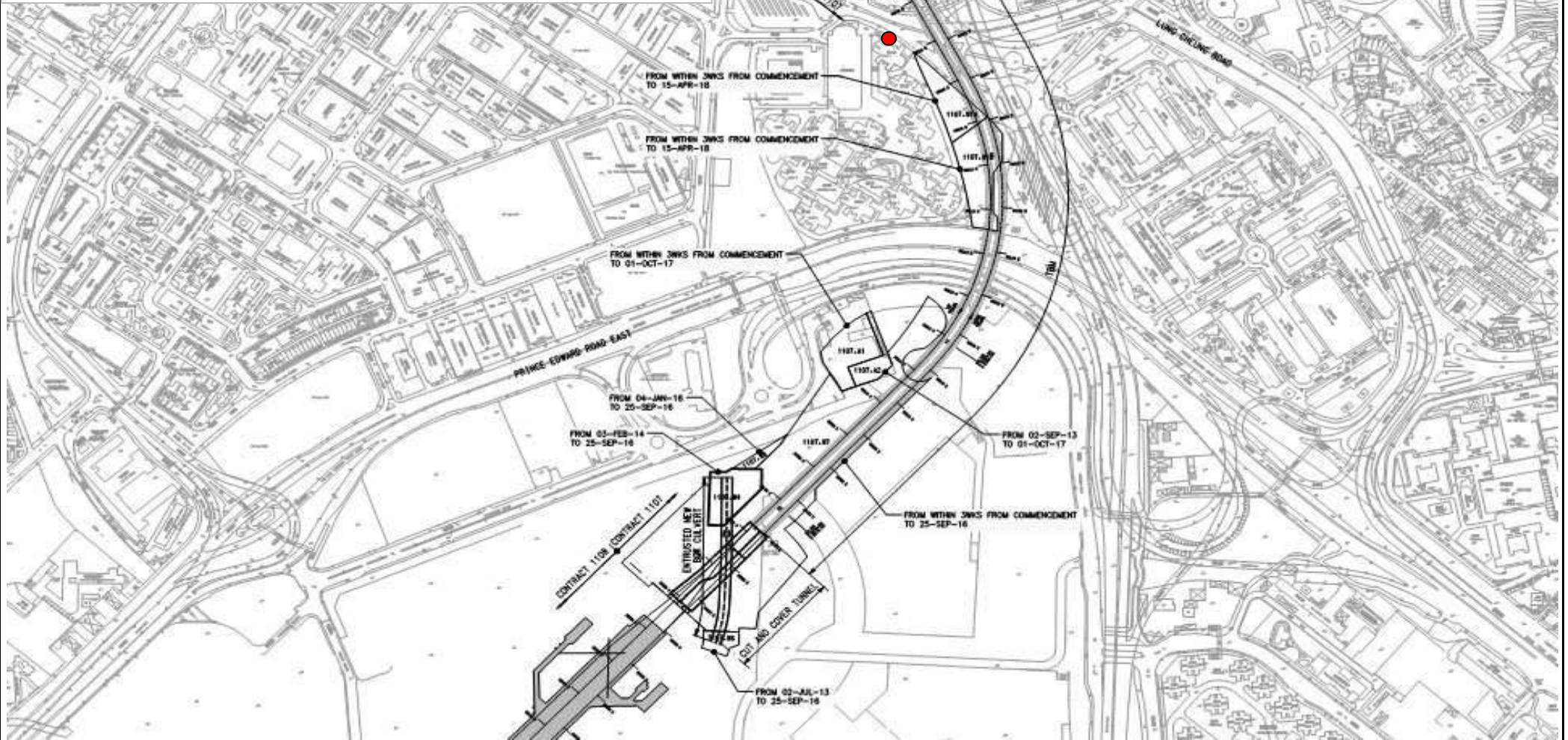


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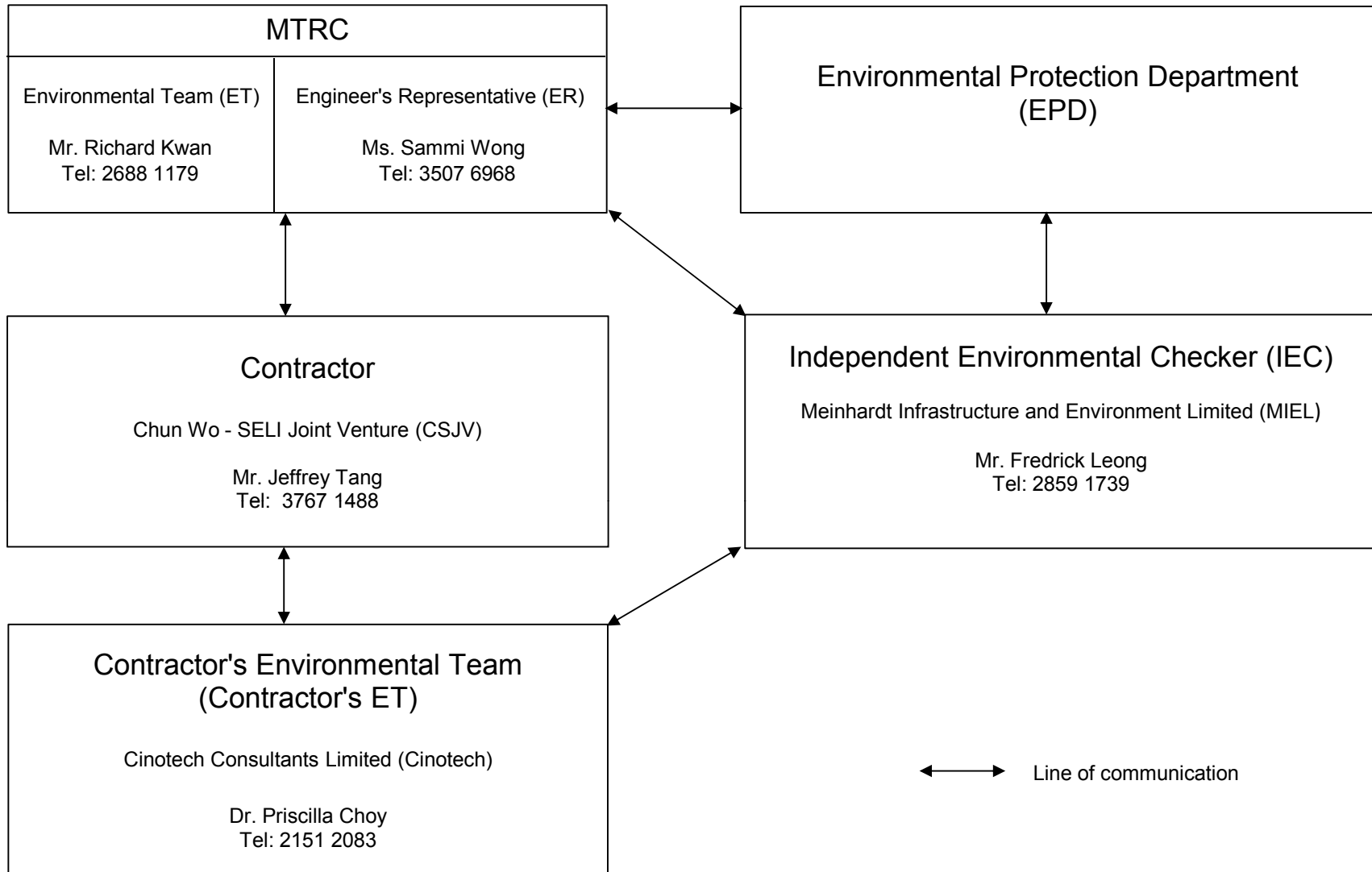
- DMS-4⁽¹⁾/DMS-3⁽²⁾ Block 1, Rhythm Garden

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

Jul 2014

Proposal

No. MA13018

Figure

4

CINOTECH

**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2014				
									Jul	Aug	Sep	Oct	Nov
MTRC SCL 1107 Diamond Hill to Kai Tak													
Schedule of Completion Obligation & Other													
Schedule of Milestone Dates - Cost Centre B													
1107.MS10360	B3 Assembly, testing and commissioning of the TBM complete and ready for tunnel driving (UP track) 27JUL14	0		04-Jul-14		07-Aug-14		16-Aug-14*					
Schedule of Milestone Dates - Cost Centre C													
1107.MS10410	C4 Manufacturing of pre-cast tunnel lining segment 10% by number complete and delivery to site 29JUN14	0		02-May-14		29-Jul-14		26-Aug-14*					
1107.MS10420	C5a Manufacturing of pre-cast tunnel lining segment 20% by number complete and delivery to site 28SEP14	0		11-Jun-14		28-Sep-14		15-Sep-14*					
Schedule of Milestone Dates - Cost Centre I (for Optio													
1107.MS10780	I4 Manufacturing of pre-cast tunnel lining segment 10% by number complete and delivery to site 29JUN14	0		02-May-14		01-Jul-14		26-Aug-14*					
1107.MS10790	I5a Manufacturing of pre-cast tunnel lining segment 20% by number complete and delivery to site 28SEP14	0		11-Jun-14		24-Jul-14		15-Sep-14*					
Programme Data													
1107.ID10950	3.0a 1106 compl Retrieval Shaft at DIH (SCL) east 49-53 with Base Slab & Ready for 1107 TBM Retr 28SEP14 MTR to advise	0		28-Sep-14		28-Sep-14		28-Sep-14*					
1107.ID10980	4.0a 1108 complete final exca'n level at Intf with 1107 @ KAT station for 1107 to construct stub tunnels MTR to advise	0	25-May-14		01-Jul-14			01-Aug-14*					
1107.ID10990	4.0b 1108 remove affected temporary works for 1107 stub tunnels (Up and Down tracks) construction MTR to advise	0	19-Oct-14		19-Oct-14			19-Oct-14*					
Cost Centre A - Preliminaries													
Site Enabling Works													
Hoarding Erection													
1107.20900	Green Hoarding Works	108			26-May-14	22-Oct-14	26-May-14 A	22-Oct-14					
Site Setup													
Engineer's Site Accomodation													
1107.12650a	Engr's Site Accomodation- Construction Works- Structure Erection	24			05-Jun-14	03-Jul-14	05-Jun-14 A	16-Jul-14 A					
1107.12650b	Engr's Site Accomodation- Construction Works- 1st Floor Slab	24			04-Jul-14	31-Jul-14	04-Jul-14 A	24-Jul-14 A					
1107.12650c	Engr's Site Accomodation- Construction Works- Steel Protection	6			14-Jul-14	19-Jul-14	14-Jul-14 A	29-Jul-14 A					
1107.12650d	Engr's Site Accomodation- Construction Works- Roof & Wall Cladding	16			21-Jul-14	07-Aug-14	21-Jul-14 A	07-Aug-14					
1107.12650e	Engr's Site Accomodation- Construction Works- E&M & ABWF	33			02-Aug-14	30-Aug-14	02-Aug-14	10-Sep-14					
1107.12660	Engr's Site Accomodation- Statutory Inspection & Handover	1	11-Sep-13	13-Sep-13	01-Sep-14	01-Sep-14	11-Sep-14	11-Sep-14					
1107.12670	Handover Date of Engineer's Accomodation (Q&A CON T051) 17SEP13	0		17-Sep-13		01-Sep-14		11-Sep-14*					
Misc Items													
1107.18990	Provision of Site General Staff (Drivers, Amahs, etc) - Second Quarter of 2014	71	01-Apr-14	30-Jun-14	01-Apr-14	30-Jun-14	01-Apr-14 A	30-Jun-14 A					
1107.19000	Provision of Site General Staff (Drivers, Amahs, etc) - Third Quarter of 2014	77	02-Jul-14	30-Sep-14	02-Jul-14	30-Sep-14	02-Jul-14 A	30-Sep-14					
1107.19010	Provision of Site General Staff (Drivers, Amahs, etc) - Fourth Quarter of 2014	75	03-Oct-14	31-Dec-14	03-Oct-14	31-Dec-14	03-Oct-14	31-Dec-14					
1107.19180	Provision of Site General Labour for Temporary Works - Second Quarter of 2014	71	01-Apr-14	30-Jun-14	31-Mar-14	28-Jun-14	31-Mar-14 A	28-Jun-14 A					
1107.19190	Provision of Site General Labour for Temporary Works - Third Quarter of 2014	77	02-Jul-14	30-Sep-14	02-Jul-14	30-Sep-14	02-Jul-14 A	30-Sep-14					
1107.19200	Provision of Site General Labour for Temporary Works - Fourth Quarter of 2014	75	03-Oct-14	31-Dec-14	03-Oct-14	31-Dec-14	03-Oct-14	31-Dec-14					
Cost Centre B - Procurement of TBM													



Date	Revision	Checked	Approved
See 2nd Col	0	KCL	KCL

- █ Master Prog Baseline Bar
- █ Last Month Forecast Bar
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ Milestone
- ▼ Summary

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2014					
									Jul	Aug	Sep	Oct	Nov	
Test														
1107.19420	Manufacture of Cutting Tools and Spare Parts	48	25-Feb-14	01-Mar-14	15-Mar-14	05-Jul-14	15-Mar-14 A	05-Jul-14 A	05-Jul-14 A, Test					
1107.19930	Delivery of Cutting Tools and Spare Parts	1			05-Jul-14	05-Jul-14	05-Jul-14 A	05-Jul-14 A	Delivery of Cutting Tools and Spare Parts					
Cost Centre C - Tunnel Construction by														
Site Enabling Works for TBM														
Instrumentation & Monitoring														
1107.19940	TTMS Application for I&M Installation along TBM Alignment	64			03-Jun-14	27-Oct-14	03-Jun-14 A	27-Oct-14	TTMS Application for I&M Installation along TBM Alignment					
1107.19940a	Installation of I&M along TBM not Requiring TTMS	64			03-Jun-14	16-Aug-14	03-Jun-14 A	16-Aug-14	Installation of I&M along TBM not Requiring TTMS					
1107.19940b	Installation of I&M along TBM Requiring TTMS	58			18-Aug-14	27-Oct-14	18-Aug-14	27-Oct-14	Installation of I&M along TBM Requiring TTMS					
OPTION 3 - Obstruction Removal														
Removal of Abandoned Airport Admin Bldg Foundations DN Track														
1107.13560	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed) (Portion 1a)	17	07-Nov-13	11-Feb-14	02-Jul-14	10-Nov-14	02-Jul-14 A	10-Nov-14	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed) (Portion 1a)					
1107.13560a	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed) (Portion 1b)	14			20-Sep-14	08-Oct-14	20-Sep-14	08-Oct-14	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed) (Portion 1b)					
1107.13560b	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed) (Portion 1c)	14			09-Oct-14	24-Oct-14	09-Oct-14	24-Oct-14	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed) (Portion 1c)					
1107.13560c	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed) (Portion 1d)	14			25-Oct-14	10-Nov-14	25-Oct-14	10-Nov-14	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed) (Portion 1d)					
1107.20053d	Pump Test- Excavate to Strut 2 level, Demolish Conc pile cap & Install Strut 2	9			02-Jul-14	11-Jul-14	02-Jul-14 A	11-Jul-14 A	Pump Test- Excavate to Strut 2 level, Demolish Conc pile cap & Install Strut 2					
1107.20053e	Pump Test- Demolish Conc pile cap Further down & Install Dewatering Pump	5			04-Jul-14	09-Jul-14	04-Jul-14 A	09-Jul-14 A	Pump Test- Demolish Conc pile cap Further down & Install Dewatering Pump					
1107.20053f	Pump Test- Carry out Pump Test & Submit Results	4			10-Jul-14	14-Jul-14	10-Jul-14 A	14-Jul-14 A	Pump Test- Carry out Pump Test & Submit Results					
1107.20060	ELS to Locate Foundations (Portion 1) DN 98005 to 98055	40			15-Jul-14	29-Aug-14	15-Jul-14 A	29-Aug-14	ELS to Locate Foundations (Portion 1) DN 98005 to 98055					
1107.20062	ELS to Locate Foundations (Portion 2) DN 98040 to 98080	59			30-Aug-14	10-Nov-14	30-Aug-14	10-Nov-14	ELS to Locate Foundations (Portion 2) DN 98040 to 98080					
Ground Treatment														
Jet Grouting Treatment for Cross Passage 3														
1107.13092	Construction of Temp Road	24	31-Jan-14	12-Apr-14	10-Jun-14	07-Nov-14	10-Jun-14 A	08-Jul-14 A	Construction of Temp Road					
1107.13093	Stage 3 TTMS	12			09-Jul-14	22-Jul-14	09-Jul-14 A	22-Jul-14 A	Stage 3 TTMS					
1107.13094	Trial Holes	6			09-Jul-14	15-Jul-14	09-Jul-14 A	15-Jul-14 A	Trial Holes					
1107.13100	Jet Grouting (36 nos) (Average 2.25 Columns per day) Stage 1 (Cutterhead Intervention omitted- smaller grout block)	20	31-Jan-14	25-Feb-14	16-Jul-14	07-Aug-14	21-Jul-14 A	14-Aug-14	Jet Grouting (36 nos) (Average 2.25 Columns per day) Stage 1 (Cutterhead Intervention omitted- smaller grout block)					
1107.13101	Curing of Grout	21			08-Aug-14	28-Aug-14	15-Aug-14	04-Sep-14	Curing of Grout					
1107.13102	3 nos core Sample	3			29-Aug-14	01-Sep-14	05-Sep-14	08-Sep-14	3 nos core Sample					
1107.13103	Reinstatement of Road	11			29-Aug-14	11-Sep-14	05-Sep-14	18-Sep-14	Reinstatement of Road					
1107.13110	Stage 4 TTMS	12	26-Feb-14	26-Feb-14	12-Sep-14	25-Sep-14	19-Sep-14	04-Oct-14	Stage 4 TTMS					
1107.13111	Trial Holes	6			12-Sep-14	18-Sep-14	19-Sep-14	25-Sep-14	Trial Holes					
1107.13120	Jet Grouting (36 nos) (Average 2.25 Columns per day) Stage 2 (Cutterhead Intervention omitted- smaller grout block)	20	27-Feb-14	21-Mar-14	19-Sep-14	14-Oct-14	26-Sep-14	21-Oct-14	Jet Grouting (36 nos) (Average 2.25 Columns per day) Stage 2 (Cutterhead Intervention omitted- smaller grout block)					
1107.13130	Demobilise	3	22-Mar-14	25-Mar-14	15-Oct-14	17-Oct-14	22-Oct-14	24-Oct-14	Demobilise					
1107.13140	Curing of Grout	21	22-Mar-14	11-Apr-14	15-Oct-14	04-Nov-14	22-Oct-14	11-Nov-14	Curing of Grout					
1107.13150	Reinstate Road	18	22-Mar-14	12-Apr-14	18-Oct-14	07-Nov-14	25-Oct-14	14-Nov-14	Reinstate Road					



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See 2nd Col	0	KCL	KCL

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Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2014					
									Jul	Aug	Sep	Oct	Nov	
Jet Grouting Treatment for Cross Passage 2														
1107.13190	Jet Grouting (144 nos incl of TBM Intervention) Average 2.25 Grout Columns per day	64	07-Apr-14	17-Jul-14	22-May-14	06-Aug-14	22-May-14 A	31-Jul-14 A		31-Jul-14 A, Jet Grouting Treatment for Cross Passage 2				
1107.13200	Demobilise	3	27-Jun-14	30-Jun-14	15-Jul-14	17-Jul-14	10-Jul-14 A	12-Jul-14 A	■	Demobilise				
1107.13210	Reinstatement of Site	12	02-Jul-14	15-Jul-14	18-Jul-14	31-Jul-14	14-Jul-14 A	31-Jul-14 A	■	Reinstatement of Site				
1107.13220	Curing of Grout	21	27-Jun-14	17-Jul-14	15-Jul-14	04-Aug-14	10-Jul-14 A	30-Jul-14 A	■	Curing of Grout				
Jet Grouting Treatment for Cross Passage 1														
1107.13239a	Access to 1106 CP1 Site Area	0			24-Jul-14		15-Aug-14*		◆	Access to 1106 CP1 Site Area				
1107.13240	Site Clearance Plant set up	3	08-Jan-14	10-Jan-14	24-Jul-14	26-Jul-14	15-Aug-14	18-Aug-14	■	Site Clearance Plant set up				
1107.13250	Trial pit for Locating Underground Utilities	6	11-Jan-14	17-Jan-14	28-Jul-14	02-Aug-14	19-Aug-14	25-Aug-14	■	Trial pit for Locating Underground Utilities				
1107.13260	Jet Grouting (104 nos) Average 2.25 Grout Columns	46	18-Jan-14	14-Mar-14	04-Aug-14	26-Sep-14	26-Aug-14	21-Oct-14	■	Jet Grouting (104 nos) Average 2.25 Grout Columns				
1107.13270	Demobilise	6	15-Mar-14	21-Mar-14	27-Sep-14	06-Oct-14	22-Oct-14	28-Oct-14	■	Demobilise				
1107.13280	Curing of Grout	21	15-Mar-14	04-Apr-14	27-Sep-14	17-Oct-14	22-Oct-14	11-Nov-14	■	Curing of Grout				
Pressure Grouting Treatment to Pier Z5 Foundation														
1107.13334	F4 Ground treatment and grouting work to Pier Z5 complete	0	08-Jan-14	28-Jan-14	10-Jul-14	31-Jul-14	04-Jul-14 A	25-Jul-14 A	◆	25-Jul-14 A, Pressure Grouting Treatment to Pier Z5 Foundation				
1107.13340	Demobilise	6	08-Jan-14	14-Jan-14	11-Jul-14	17-Jul-14	05-Jul-14 A	11-Jul-14 A	■	F4 Ground treatment and grouting work to Pier Z5 complete				
1107.13350	Curing of Grout	21	08-Jan-14	28-Jan-14	11-Jul-14	31-Jul-14	05-Jul-14 A	25-Jul-14 A	■	Demobilise				
Pressure Grouting Treatment for DIH TBM Retrieval Shaft														
1107.13390	1107 Allowed Access to 1106 Eastern Retrieval Shaft Grout Block Work Area	0	09-Nov-13		25-Jul-14		01-Sep-14*		◆	1107 Allowed Access to 1106 Eastern Retrieval Shaft Grout Block				
1107.13410	Site Clearance Plant set up	6	09-Nov-13	15-Nov-13	25-Jul-14	31-Jul-14	01-Sep-14	06-Sep-14	■	Site Clearance Plant set up				
1107.13420	Trial pit for Locating Underground Utilities	6	16-Nov-13	22-Nov-13	01-Aug-14	07-Aug-14	08-Sep-14	15-Sep-14	■	Trial pit for Locating Underground Utilities				
1107.13430	Pressure Grouting UP Track (181 nos) Average 4 Points/day with 2 machines	45	03-Dec-13	27-Jan-14	08-Aug-14	30-Sep-14	16-Sep-14	08-Nov-14	■	Curing of Grout				
Mobilisation of TBM														
1107.13860	Gantry Crane Beams Installation	8	18-Feb-14	20-Feb-14	02-Jul-14	10-Jul-14	02-Jul-14 A	31-Jul-14 A	■	22-Sep-14, Mobilisation of TBM				
1107.13870	Gantry Crane Assembly	18	21-Feb-14	24-Feb-14	11-Jul-14	19-Jul-14	04-Aug-14	23-Aug-14	■	Gantry Crane Beams Installation				
1107.13880	Noise Enclosure - Frame Partial Installation (Dn Track)	14	25-Feb-14	12-Mar-14	21-Jul-14	05-Aug-14	25-Jul-14 A	13-Aug-14	■	Gantry Crane Assembly				
1107.13890	Noise Enclosure - Panels Partial Installation (Dn Track)	15	13-Mar-14	08-Apr-14	06-Aug-14	30-Aug-14	07-Aug-14	23-Aug-14	■	Noise Enclosure - Frame Partial Installation (Dn Track)				
1107.13900	Noise Enclosure - Complete Frame Installation	10	11-Apr-14	17-Apr-14	01-Sep-14	06-Sep-14	18-Aug-14	28-Aug-14	■	Noise Enclosure - Panels Partial Installation (Dn Track)				
1107.13910	Noise Enclosure - Complete Panels Installation	20	22-Apr-14	21-Jun-14	08-Sep-14	10-Oct-14	29-Aug-14	22-Sep-14	■	Noise Enclosure - Complete Frame Installation				
1107.20870	Noise Enclosure Acoustical components Delivery	41			15-Apr-14	10-Jun-14	15-Apr-14 A	14-Aug-14	■	Noise Enclosure - Complete Panels Installation				
1107.20880	Noise Enclosure Structural components Delivery	34			21-May-14	07-Jul-14	21-May-14 A	30-Jul-14 A	■	Noise Enclosure Acoustical components Delivery				
Tunnel Boring Construction - UP Track														
1107.13920	Pre-assembly of TBM Back-up Decks at External Yard	30	13-Mar-14	28-Apr-14	19-Jun-14	24-Jul-14	19-Jun-14 A	24-Jul-14 A	■	Noise Enclosure Structural components Delivery				
1107.13930	Construction of Cradle & Reaction Frame & Assembly of TBM Shield in Shaft	24	13-Mar-14	10-Apr-14	19-Jun-14	17-Jul-14	19-Jun-14 A	16-Aug-14	■	Pre-assembly of TBM Back-up Decks at External Yard				
1107.13940	TBM Initial 90m Driving - TBM Fully Embedded	55	22-Apr-14	27-Jun-14	08-Aug-14	14-Oct-14	18-Aug-14	23-Oct-14	■	Construction of Cradle & Reaction Frame & Assembly of TBM Shield in Shaft				
1107.13950	Shaft Final Set-up, Ready for Tunnel Drive	5	28-Jun-14	04-Jul-14	15-Oct-14	20-Oct-14	24-Oct-14	29-Oct-14	■	TBM Initial 90m Driving - TBM Fully Embedded				
1107.13951	B3 Assembly, testing and commissioning of the TBM complete and ready for tunnel driving (UP track)	0		27-Jul-14		27-Jul-14		27-Jul-14 A	◆	Shaft Final Set-up, Ready for Tunnel Drive				



Data Date 01-Aug-14
Page 3 of 6
SCL1107 M-3MR-017
Printed 01-Aug-14 11:11

MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme
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Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2014					
									Jul	Aug	Sep	Oct	Nov	
1107.13960	TBM Boring Next 123m	15	05-Jul-14	24-Jul-14	21-Oct-14	07-Nov-14	30-Oct-14	15-Nov-14						
1107.13990	C5b Up track TBM tunnel drive from Kai Tak to DIH 35% by plan length complete	0		28-Sep-14		28-Sep-14		28-Sep-14*						◆ C5b Up track TBM tunnel drive from Kai Tak
Production of Pre - Cast Tunnel Lining		147	24-Feb-14	06-Oct-14	27-May-14	17-Nov-14	28-Apr-14 A	19-Nov-14						
Production of Segments		147	24-Feb-14	06-Oct-14	27-May-14	17-Nov-14	28-Apr-14 A	19-Nov-14						
1107.14710	First 10% of Segment Production (Cumulative 10%) (RC)	54	24-Feb-14	02-May-14	27-May-14	30-Jul-14	28-Apr-14 A	19-Jun-14 A						First 10% of Segment Production (Cumulative 10%) (RC)
1107.14720	Next 10% of Segment Production (Cumulative 20%) (RC)	32	03-May-14	11-Jun-14	17-Jun-14	24-Jul-14	17-Jun-14 A	28-Jul-14 A						Next 10% of Segment Production (Cumulative 20%) (RC)
1107.14730	Next 15% of Segment Production (Cumulative 35%) (RC)	48	12-Jun-14	07-Aug-14	25-Jul-14	19-Sep-14	29-Jul-14 A	22-Sep-14						Next 15% of Segment Production (Cumulative 35%) (RC)
1107.14731	Next 15% of Segment Production (Cumulative 50%) (RC)	48	08-Aug-14	06-Oct-14	20-Sep-14	17-Nov-14	23-Sep-14	19-Nov-14						Next 15% of Segment Production (Cumulative 50%) (RC)
1107.14780	C4 Manufacturing of pre-cast tunnel lining segment 10% by number complete and delivery to site	0		29-Jun-14		29-Jul-14		26-Aug-14*						◆ C4 Manufacturing of pre-cast tunnel lining segment 10% by number complete and delivery to site
1107.14790	C5a Manufacturing of pre-cast tunnel lining segment 20% by number complete and delivery to site	0		28-Sep-14		28-Sep-14		28-Sep-14*						◆ C5a Manufacturing of pre-cast tunnel lining segment 20% by number complete and delivery to site
1107.20190	Delivery of Rings 1 - 63	7			03-Jul-14	11-Jul-14	03-Jul-14 A	15-Aug-14						Delivery of Rings 1 - 63
1107.20680	Delivery of Rings 64 - 126 (10%)	7			21-Jul-14	29-Jul-14	18-Aug-14	26-Aug-14						Delivery of Rings 64 - 126 (10%)
1107.20690	Delivery of Rings 127 - 189	7			04-Aug-14	12-Aug-14	26-Aug-14	04-Sep-14						Delivery of Rings 127 - 189
1107.20700	Delivery of Rings 190 - 252 (20%)	7			22-Aug-14	01-Sep-14	04-Sep-14	15-Sep-14						Delivery of Rings 190 - 252 (20%)
1107.20710	Delivery of Rings 253 - 315	7			11-Sep-14	19-Sep-14	15-Sep-14	23-Sep-14						Delivery of Rings 253 - 315
1107.20720	Delivery of Rings 316 - 378	7			30-Sep-14	08-Oct-14	06-Oct-14	14-Oct-14						Delivery of Rings 316 - 378
1107.20730	Delivery of Rings 379 - 441	7			21-Oct-14	29-Oct-14	23-Oct-14	31-Oct-14						Delivery of Rings 379 - 441
Cost Centre D - KAT Cut & Cover Tunnels		116	19-Oct-13	10-Oct-14	19-Jun-14	28-Oct-14	27-Jun-14 A	05-Nov-14						
Diaphragm Walls		28	19-Oct-13	19-Nov-13	31-Jul-14	30-Aug-14	06-Aug-14	06-Sep-14						06-Sep-14, Diaphragm Walls
TBM Launch Shafts		28	19-Oct-13	19-Nov-13	31-Jul-14	30-Aug-14	06-Aug-14	06-Sep-14						06-Sep-14, TBM Launch Shafts
Temporary Muck Pit		28	19-Oct-13	19-Nov-13	31-Jul-14	30-Aug-14	06-Aug-14	06-Sep-14						06-Sep-14, Temporary Muck Pit
1107.19450	Excavate to Strut Level	1	19-Oct-13	24-Oct-13	31-Jul-14	05-Aug-14	06-Aug-14*	06-Aug-14						Excavate to Strut Level
1107.19460	Install Walers & Struts & Preload	11	25-Oct-13	31-Oct-13	06-Aug-14	12-Aug-14	07-Aug-14	19-Aug-14						Install Walers & Struts & Preload
1107.19470	Excavate to Foundation Level	2	01-Nov-13	06-Nov-13	13-Aug-14	18-Aug-14	20-Aug-14	21-Aug-14						Excavate to Foundation Level
1107.19480	Muck Pit Base Slab	2	07-Nov-13	09-Nov-13	19-Aug-14	21-Aug-14	22-Aug-14	23-Aug-14						Muck Pit Base Slab
1107.19488	Muck Pit Structure to +2.5mpd	4					25-Aug-14	28-Aug-14						Muck Pit Structure to +2.5mpd
1107.19490	Remove Strut S2	2	11-Nov-13	12-Nov-13	22-Aug-14	23-Aug-14	29-Aug-14	30-Aug-14						Remove Strut S2
1107.19500	Complete Muck Pit Structure	6	13-Nov-13	19-Nov-13	25-Aug-14	30-Aug-14	01-Sep-14	06-Sep-14						Complete Muck Pit Structure
Sheet Piling		13			27-Jun-14	12-Jul-14	27-Jun-14 A	09-Aug-14						09-Aug-14, Sheet Piling
1107.15883	Sheet Pile Remedial Works (Pressure Grouting, 10 nos 610 pipe piles)	13			27-Jun-14	12-Jul-14	27-Jun-14 A	09-Aug-14						Sheet Pile Remedial Works (Pressure Grouting, 10 nos 610 pipe piles)
Pump Tests		32	17-May-14	12-Jun-14	14-Jul-14	16-Aug-14	28-Jul-14 A	19-Aug-14						19-Aug-14, Pump Tests
C & C Tunnels		32	17-May-14	12-Jun-14	14-Jul-14	16-Aug-14	28-Jul-14 A	19-Aug-14						19-Aug-14, C & C Tunnels
1107.15990	Stage 1 Pump Test - Drawdown	3	17-May-14	23-May-14	14-Jul-14	17-Jul-14	28-Jul-14 A	30-Jul-14 A						Stage 1 Pump Test - Drawdown
1107.16000	Stage 1 Pump Test - Steady State & Recovery	4	24-May-14	29-May-14	18-Jul-14	26-Jul-14	31-Jul-14 A	02-Aug-14						Stage 1 Pump Test - Steady State & Recovery
1107.16010	Stage 2 Pump Test - Drawdown	5	30-May-14	09-Jun-14	28-Jul-14	06-Aug-14	11-Aug-14	15-Aug-14						Stage 2 Pump Test - Drawdown
1107.16020	Stage 2 Pump Test - Steady State & Recovery	3	10-Jun-14	12-Jun-14	07-Aug-14	16-Aug-14	16-Aug-14	19-Aug-14						Stage 2 Pump Test - Steady State & Recovery
Excavation & C&C Tunnel Structure		116	13-Jun-14	10-Oct-14	19-Jun-14	28-Oct-14	27-Jun-14 A	05-Nov-14						



Data Date 01-Aug-14
Page 4 of 6
SCL1107 M-3MR-017
Printed 01-Aug-14 11:11

MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme
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Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2014				
									Jul	Aug	Sep	Oct	Nov
C&C Tunnel Structure (Previously Boxes 2B & 1B)		116	13-Jun-14	10-Oct-14	19-Jun-14	28-Oct-14	27-Jun-14 A	05-Nov-14					
ELS Section 1 & 2		116	13-Jun-14	30-Sep-14	19-Jun-14	28-Oct-14	27-Jun-14 A	05-Nov-14					
1107.16400	Excavate to Strut S1 Section 1	5	13-Jun-14	24-Jun-14	19-Jun-14	24-Jun-14	27-Jun-14 A	04-Jul-14 A	Excavate to Strut S1 Section 1				
1107.16410	Excavate to Strut S1 Section 2	5	25-Jun-14	05-Jul-14	03-Jul-14	08-Jul-14	05-Jul-14 A	10-Jul-14 A	Excavate to Strut S1 Section 2				
1107.16420	Excavate to Strut S2 Section 1	4	07-Jul-14	16-Jul-14	24-Jul-14	28-Jul-14	01-Aug-14	05-Aug-14	Excavate to Strut S2 Section 1				
1107.16430	Excavate to Strut S2 Section 2	4	17-Jul-14	26-Jul-14	29-Jul-14	01-Aug-14	06-Aug-14	09-Aug-14	Excavate to Strut S2 Section 2				
1107.16440	Excavate to Strut S3 Section 1	4	28-Jul-14	06-Aug-14	21-Aug-14	25-Aug-14	29-Aug-14	02-Sep-14	Excavate to Strut S3 Section 1				
1107.16450	Excavate to Strut S3 Section 2	4	07-Aug-14	15-Aug-14	26-Aug-14	29-Aug-14	03-Sep-14	06-Sep-14	Excavate to Strut S3 Section 2				
1107.16460	Excavate to Strut S4 Section 1	4	18-Aug-14	30-Aug-14	19-Sep-14	23-Sep-14	27-Sep-14	03-Oct-14	Excavate to Strut S4 Section 1				
1107.16470	Excavate to Strut S4 Section 2	4	01-Sep-14	15-Sep-14	24-Sep-14	27-Sep-14	04-Oct-14	08-Oct-14	Excavate to Strut S4 Section 2				
1107.16480	Excavate to Formation Level Section 1	4	16-Sep-14	19-Sep-14	20-Oct-14	23-Oct-14	28-Oct-14	31-Oct-14	Excavate to Formation Level Section 1				
1107.16490	Excavate to Formation Level Section 2	4	26-Sep-14	30-Sep-14	24-Oct-14	28-Oct-14	01-Nov-14	05-Nov-14	Excavate to Formation Level Section 2				
1107.16500	Install Strut S1 Section 1	9	25-Jun-14	05-Jul-14	03-Jul-14	12-Jul-14	07-Jul-14 A	17-Jul-14 A	Install Strut S1 Section 1				
1107.16510	Install Strut S1 Section 2	9	07-Jul-14	16-Jul-14	14-Jul-14	23-Jul-14	18-Jul-14 A	28-Jul-14 A	Install Strut S1 Section 2				
1107.16520	Install Strut S2 Section 1	8	17-Jul-14	26-Jul-14	02-Aug-14	11-Aug-14	11-Aug-14	19-Aug-14	Install Strut S2 Section 1				
1107.16530	Install Strut S2 Section 2	8	28-Jul-14	06-Aug-14	12-Aug-14	20-Aug-14	20-Aug-14	28-Aug-14	Install Strut S2 Section 2				
1107.16540	Install Strut S3 Section 1	8	07-Aug-14	16-Aug-14	30-Aug-14	08-Sep-14	08-Sep-14	17-Sep-14	Install Strut S3 Section 1				
1107.16550	Install Strut S3 Section 2	8	16-Aug-14	26-Aug-14	10-Sep-14	18-Sep-14	18-Sep-14	26-Sep-14	Install Strut S3 Section 2				
1107.16560	Install Strut S4 Section 1	8	01-Sep-14	11-Sep-14	29-Sep-14	09-Oct-14	09-Oct-14	17-Oct-14	Install Strut S4 Section 1				
1107.16570	Install Strut S4 Section 2	8	16-Sep-14	25-Sep-14	10-Oct-14	18-Oct-14	18-Oct-14	27-Oct-14	Install Strut S4 Section 2				
ELS Section 3 & 4		105	07-Jul-14	10-Oct-14	03-Jul-14	11-Oct-14	07-Jul-14 A	05-Nov-14					
1107.16600	Excavate to Strut S1 Section 3	5	07-Jul-14	17-Jul-14	03-Jul-14	08-Jul-14	07-Jul-14 A	15-Jul-14 A	Excavate to Strut S1 Section 3				
1107.16610	Excavate to Strut S1 Section 4	5	18-Jul-14	29-Jul-14	09-Jul-14	14-Jul-14	16-Jul-14 A	13-Aug-14	Excavate to Strut S1 Section 4				
1107.16620	Excavate to Strut S2 Section 3	4	30-Jul-14	08-Aug-14	05-Aug-14	08-Aug-14	29-Aug-14	02-Sep-14	Excavate to Strut S2 Section 3				
1107.16630	Excavate to Strut S2 Section 4	4	09-Aug-14	19-Aug-14	09-Aug-14	13-Aug-14	03-Sep-14	06-Sep-14	Excavate to Strut S2 Section 4				
1107.16640	Excavate to Strut S3 Section 3	4	20-Aug-14	29-Aug-14	02-Sep-14	05-Sep-14	27-Sep-14	03-Oct-14	Excavate to Strut S3 Section 3				
1107.16650	Excavate to Strut S3 Section 4	4	30-Aug-14	10-Sep-14	06-Sep-14	11-Sep-14	04-Oct-14	08-Oct-14	Excavate to Strut S3 Section 4				
1107.16660	Excavate to Strut S4 Section 3	4	11-Sep-14	24-Sep-14	03-Oct-14	07-Oct-14	28-Oct-14	31-Oct-14	Excavate to Strut S4 Section 3				
1107.16670	Excavate to Strut S4 Section 4	4	25-Sep-14	10-Oct-14	08-Oct-14	11-Oct-14	01-Nov-14	05-Nov-14	Excavate to Strut S4 Section 4				
1107.16700	Install Strut S1 Section 3	9	18-Jul-14	28-Jul-14	15-Jul-14	24-Jul-14	15-Jul-14 A	18-Aug-14	Install Strut S1 Section 3				
1107.16710	Install Strut S1 Section 4	9	30-Jul-14	08-Aug-14	25-Jul-14	04-Aug-14	19-Aug-14	28-Aug-14	Install Strut S1 Section 4				
1107.16720	Install Strut S2 Section 3	8	09-Aug-14	19-Aug-14	14-Aug-14	22-Aug-14	08-Sep-14	17-Sep-14	Install Strut S2 Section 3				
1107.16730	Install Strut S2 Section 4	8	20-Aug-14	29-Aug-14	23-Aug-14	01-Sep-14	18-Sep-14	26-Sep-14	Install Strut S2 Section 4				
1107.16740	Install Strut S3 Section 3	8	30-Aug-14	10-Sep-14	12-Sep-14	20-Sep-14	09-Oct-14	17-Oct-14	Install Strut S3 Section 3				
1107.16750	Install Strut S3 Section 4	8	11-Sep-14	20-Sep-14	22-Sep-14	30-Sep-14	18-Oct-14	27-Oct-14	Install Strut S3 Section 4				
Cost Centre F3 - Utilities Protection / Div		101			09-Jul-14	06-Nov-14	09-Jul-14 A	06-Nov-14					
Diversion/ Replacement of WaterMains at Choi Hung F		101			09-Jul-14	06-Nov-14	09-Jul-14 A	06-Nov-14					



Data Date 01-Aug-14
Page 5 of 6
SCL1107 M-3MR-017
Printed 01-Aug-14 11:11

MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme
Data Date 01-Aug-14

Date	Revision	Checked	Approved
See 2nd Col	0	KCL	KCL

█ Master Prog Baseline Bar ◆ Milestone
█ Last Month Forecast Bar ▶ Summary
█ Actual Work
█ Remaining Work
█ Critical Remaining Work

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2014					
									Jul	Aug	Sep	Oct	Nov	
Trial Holes and Pipe Installation														
1107.20270	TP07 Lane 2 (25m)	31			09-Jul-14	13-Aug-14	09-Jul-14 A	13-Aug-14						
1107.20271	TP11 Lane 3	50			14-Aug-14	14-Oct-14	14-Aug-14	14-Oct-14						
1107.20280	TP03 Traffic Island (North) -(24hrs)	20			15-Oct-14	06-Nov-14	15-Oct-14	06-Nov-14						
Cost Centre G CEDD Entrusted Works														
New Reprovisioned Culvert														
North Section of Culvert														
1107.18290	Excavation for North Section of New Culvert	8	16-May-14	24-May-14	15-Oct-14	23-Oct-14	24-Oct-14	01-Nov-14						Exc
1107.18300	Bay 4 Sub base, Blinding & Base Slab	10	26-May-14	06-Jun-14	24-Oct-14	04-Nov-14	03-Nov-14	13-Nov-14						
1107.18375	(Predicted) Commencement of 2014/2015 Dry Season	0	03-Nov-14		03-Nov-14		03-Nov-14*							◆ (P)



Data Date 01-Aug-14
Page 6 of 6
SCL1107 M-3MR-017
Printed 01-Aug-14 11:11

**MTRC SCL 1107 Diamond Hill to Kai Tak
Tunnels 3 Month Rolling Programme**
Data Date 01-Aug-14

Date	Revision	Checked	Approved
See 2nd Col	0	KCL	KCL

- Master Prog Baseline Bar ◆ ◆ Milestone
- Last Month Forecast Bar ▼ Summary
- Actual Work
- Remaining Work
- Critical Remaining Work

**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**

TEST REPORT

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

Test Report No.:	C/N/130919/1
Date of Issue:	2013-09-21
Date Received:	2013-09-19
Date Tested:	2013-09-21
Date Completed:	2013-09-21
Next Due Date:	2014-09-20

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 57%

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/140104
Date of Issue:	2014-01-05
Date Received:	2014-01-04
Date Tested:	2014-01-04
Date Completed:	2014-01-05
Next Due Date:	2015-01-04

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	: 19 degree Celsius
Relative Humidity	: 52%

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/130830/2
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 69%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/131129/1
Date of Issue:	2013-11-30
Date Received:	2013-11-29
Date Tested:	2013-11-29
Date Completed:	2013-11-30
Next Due Date:	2014-11-29

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.	: 23853
Microphone No.	: 48530
Equipment No.	: N-08-10

Test conditions:

Room Temperature	: 19 degree Celsius
Relative Humidity	: 57%

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/131004/1
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/131004/3
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

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



PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/131108/1
Date of Issue:	2013-11-09
Date Received:	2013-11-08
Date Tested:	2013-11-08
Date Completed:	2013-11-09
Next Due Date:	2014-11-08

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Project No.	: C13
Equipment No.	: N-02-01

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 52 %

Methodology:

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

Results:

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

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



PATRICK TSE
Laboratory Manager

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0008

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 30-Jun-14 Next Due Date: 29-Aug-14
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	300.3	Pressure, Pa (mmHg)	757.9

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0588	Intercept, bc	-0.0461
Last Calibration Date:	30-Sep-13	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	29-Sep-14	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.7	3.40	58.65	7.4	2.71
2	8.6	2.92	50.40	5.6	2.35
3	7.4	2.71	46.81	4.7	2.16
4	4.5	2.11	36.67	3.0	1.72
5	3.2	1.78	31.05	2.0	1.41

By Linear Regression of Y on X

Slope, mw = 0.0467 Intercept, bw = -0.0177

Correlation coefficient* = 0.9990

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.00

Remarks: _____

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

Date: 30/6/14
 Date: 30 June 2014

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0009

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 29-Aug-14 Next Due Date: 28-Oct-14
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	302.5	Pressure, Pa (mmHg)	761.1

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0588	Intercept, bc	-0.0461
Last Calibration Date:	30-Sep-13	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	29-Sep-14	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.8	3.41	58.81	7.6	2.74
2	8.6	2.91	50.32	5.6	2.35
3	7.4	2.70	46.74	4.8	2.18
4	4.6	2.13	37.01	3.0	1.72
5	3.2	1.78	31.00	2.0	1.40

By Linear Regression of Y on X

Slope, mw = 0.0478 Intercept, bw = -0.0625
 Correlation coefficient* = 0.9997

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.03

Remarks: _____

Conducted by: WK Tang Signature: [Signature]
 Checked by: [Signature] Signature: [Signature]

Date: 29/8/2014
 Date: 29 August 2014

TEST REPORT

Description	Calibration Orifice	Manufacturer	TISCH
Serial No.	0993	Temperature, Ta (K)	300.8
Model No.	TE-5025A	Pressure, Pa (mmHg)	759.3
Date	30 September 2013	Equipment No.:	A-04-04

Plate	Diff.Vol (m ³)	Diff.Time (min)	Diff.Hg (mm)	Diff.H ₂ O (in.)
1	1.00	1.4103	3.4	2.00
2	1.00	0.9980	6.8	4.00
3	1.00	0.8970	8.5	5.00
4	1.00	0.8540	9.4	5.50
5	1.00	0.7060	13.6	8.00

DATA TABULATION

Vstd	(X axis) Qstd	(Y axis)
0.9853	0.6986	1.4069
0.9808	0.9828	1.9897
0.9786	1.0910	2.2245
0.9775	1.1446	2.3331
0.9720	1.3768	2.8138

Y axis= $\text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$
Qstd Slope (m) = 2.07768
Intercept (b) = -0.04613
Coefficient (r) = 0.99997

Va	(X axis) Qa	(Y axis)
0.9955	0.7059	0.8901
0.9910	0.9930	1.2589
0.9888	1.1023	1.4074
0.9876	1.1565	1.4761
0.9821	1.3911	1.7803

Y axis= $\text{SQRT}[\text{H}_2\text{O}(\text{Ta}/\text{Pa})]$
Qa Slope (m) = 1.30101
Intercept (b) = -0.02919
Coefficient (r) = 0.99997

CALCULATIONS

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

For subsequent flow rate calculations:

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

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

Patrick Tse

PATRICK TSE
 Laboratory Manager

APPENDIX D
IMPACT MONITORING SCHEDULE

**Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tuk Tunnels
Impact Air Quality and Noise Monitoring Schedule for August 2014**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Aug	2-Aug
					24 hr TSP	
3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	8-Aug	9-Aug
	Noise			24 hr TSP		
10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug
			24 hr TSP		Noise	
17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug
		24 hr TSP	Noise			
24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug
	24 hr TSP	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 110 Diamond Hill to Kai Tuk Tunnels
Tentative Impact Air Quality and Noise Monitoring Schedule for September 2014**

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

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

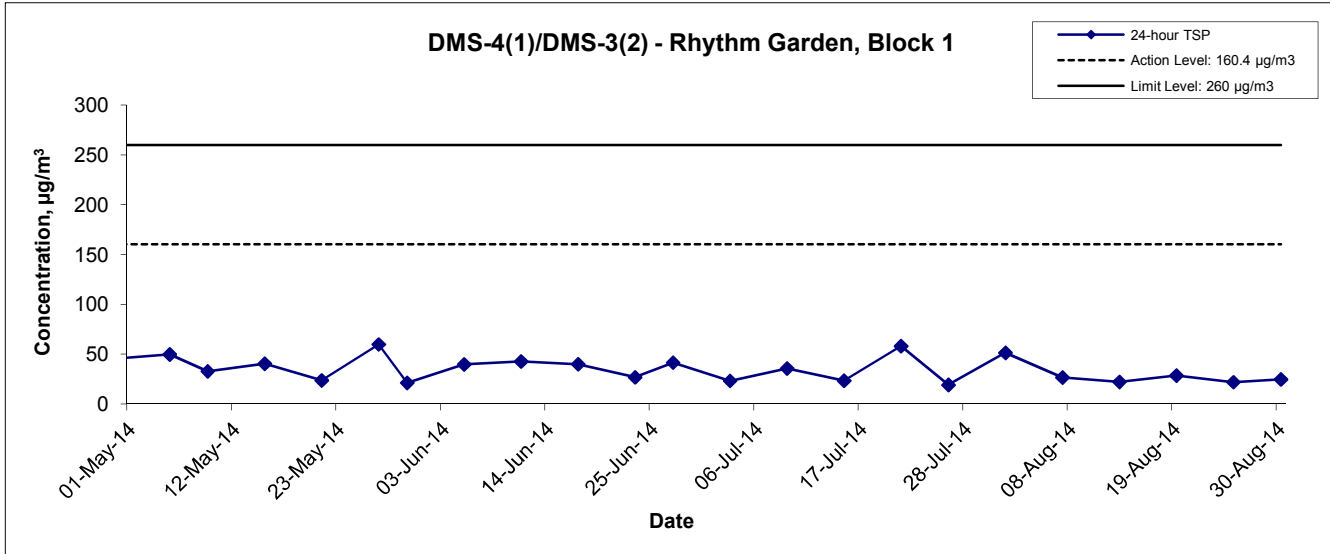
Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

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			
1-Aug-14	09:00	Sunny	303.3	753.2	3.2185	3.3078	0.0893	2983.6	3007.6	24.0	1.21	1.21	1.21	1737.6	51.4
7-Aug-14	09:00	Sunny	300.3	755.3	3.2040	3.2506	0.0466	3014.1	3038.1	24.0	1.21	1.21	1.21	1748.6	26.7
13-Aug-14	09:00	Sunny	298.3	754.3	3.2593	3.2983	0.0390	3038.1	3062.1	24.0	1.22	1.22	1.22	1753.3	22.2
19-Aug-14	09:00	Cloudy	300.4	758.6	3.1748	3.2249	0.0501	3062.1	3086.1	24.0	1.22	1.22	1.22	1752.1	28.6
25-Aug-14	09:00	Sunny	302.7	760.1	3.2024	3.2408	0.0384	3086.1	3110.1	24.0	1.21	1.21	1.21	1747.2	22.0
30-Aug-14	09:00	Sunny	303.1	761.3	3.1732	3.2164	0.0432	3110.1	3134.1	24.0	1.21	1.21	1.21	1745.4	24.8
														Min	22.0
														Max	51.4
														Average	29.3

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:

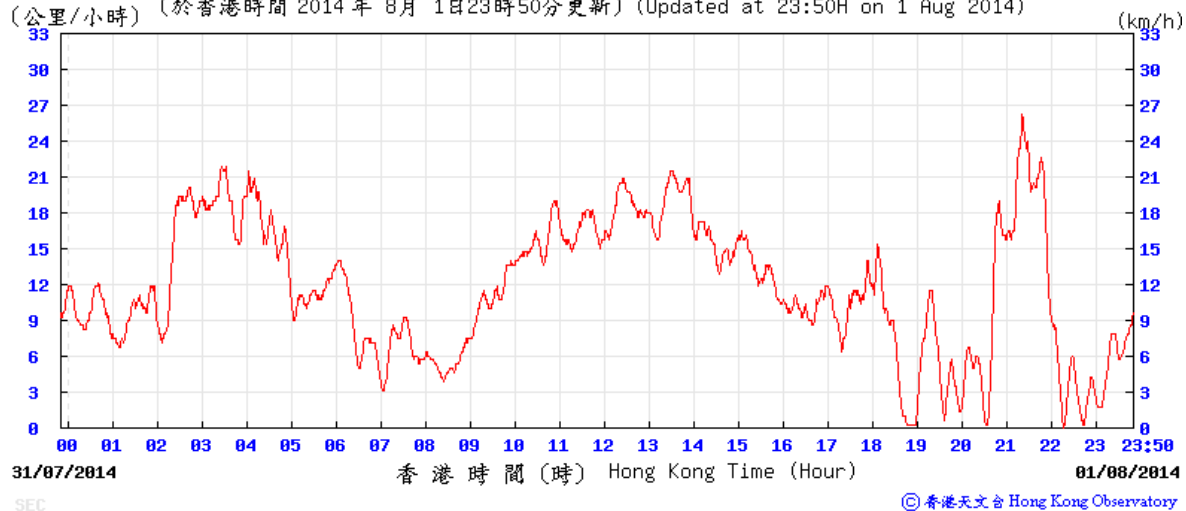
- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Title Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tuk Tunnels Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA13018	
	Date Aug 14	Appendix E	

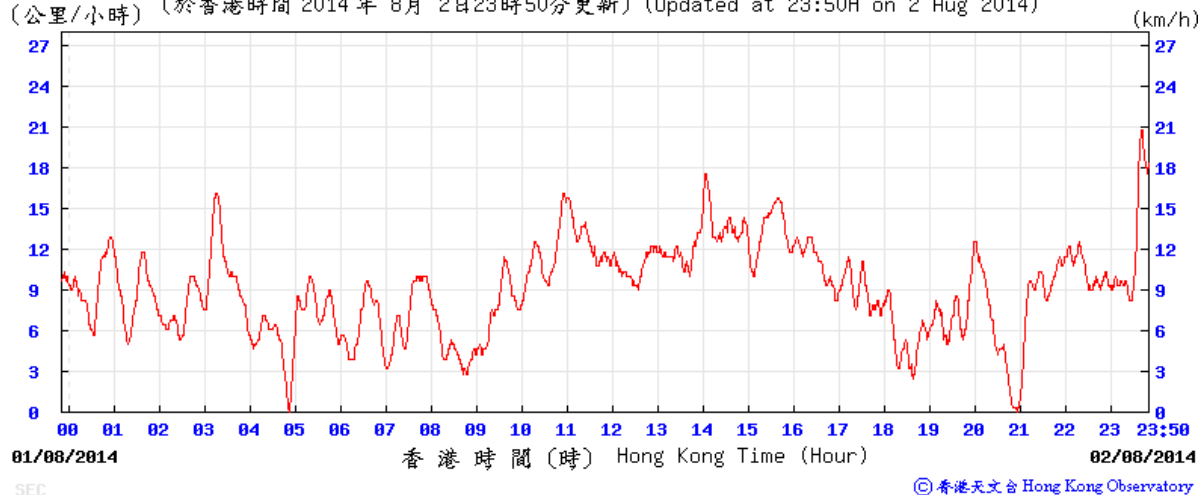
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

1-2 August 2014

(公里/小時) (於香港時間 2014 年 8 月 1 日 23 時 50 分更新) (Updated at 23:50H on 1 Aug 2014)



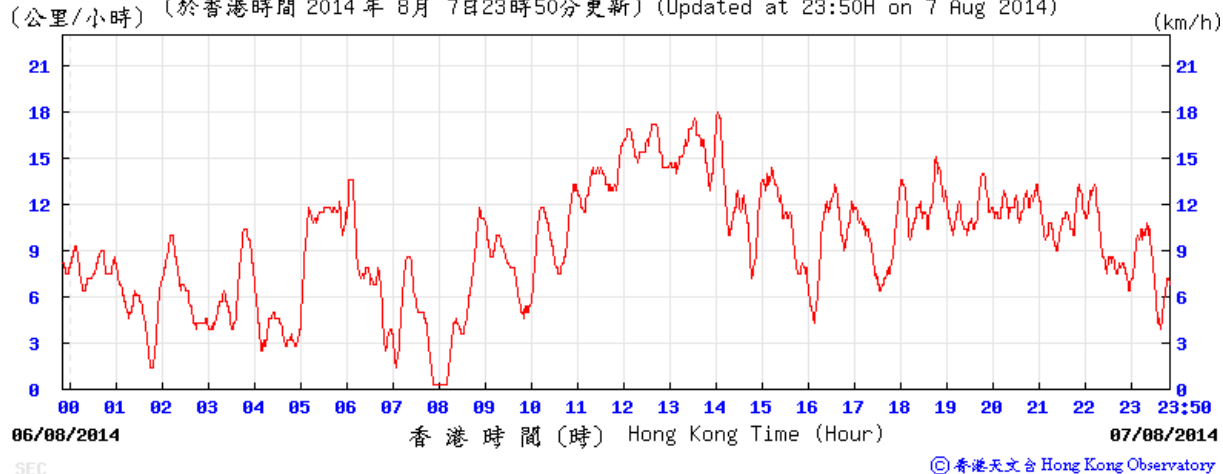
(公里/小時) (於香港時間 2014 年 8 月 2 日 23 時 50 分更新) (Updated at 23:50H on 2 Aug 2014)



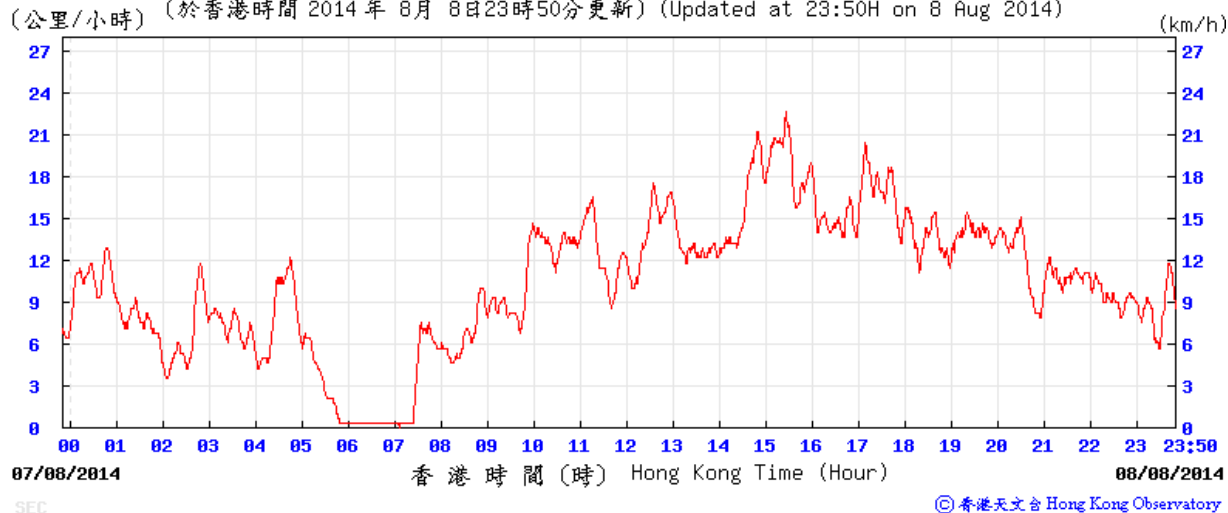
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

7-8 August 2014

(公里/小時) (於香港時間 2014 年 8 月 7 日 23 時 50 分更新) (Updated at 23:50H on 7 Aug 2014)



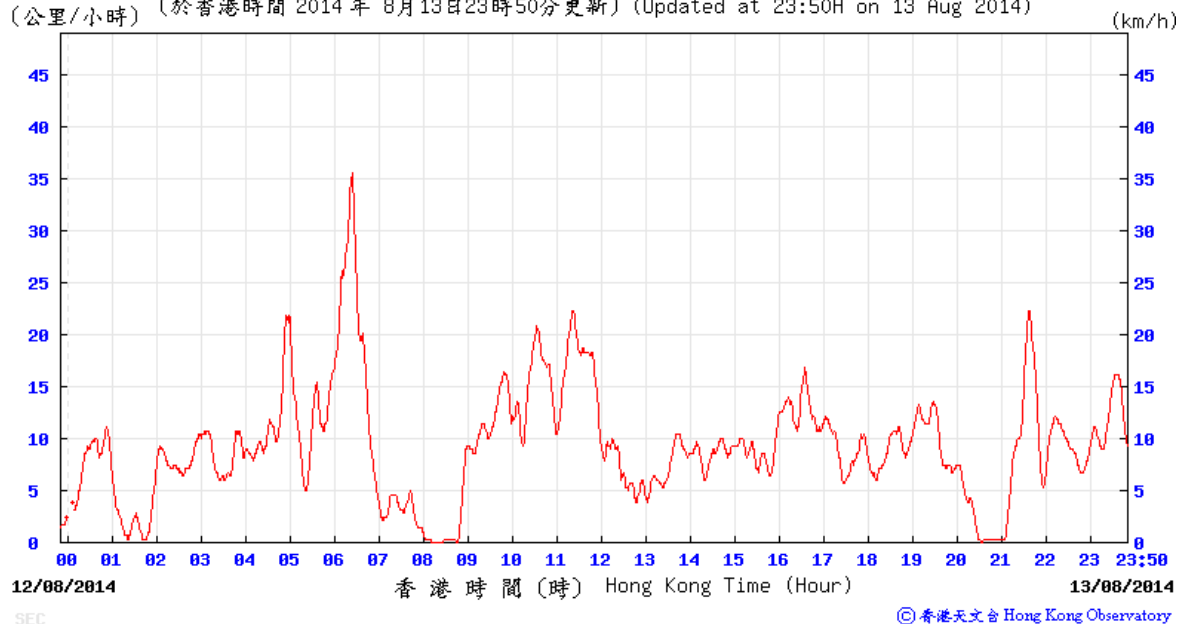
(公里/小時) (於香港時間 2014 年 8 月 8 日 23 時 50 分更新) (Updated at 23:50H on 8 Aug 2014)



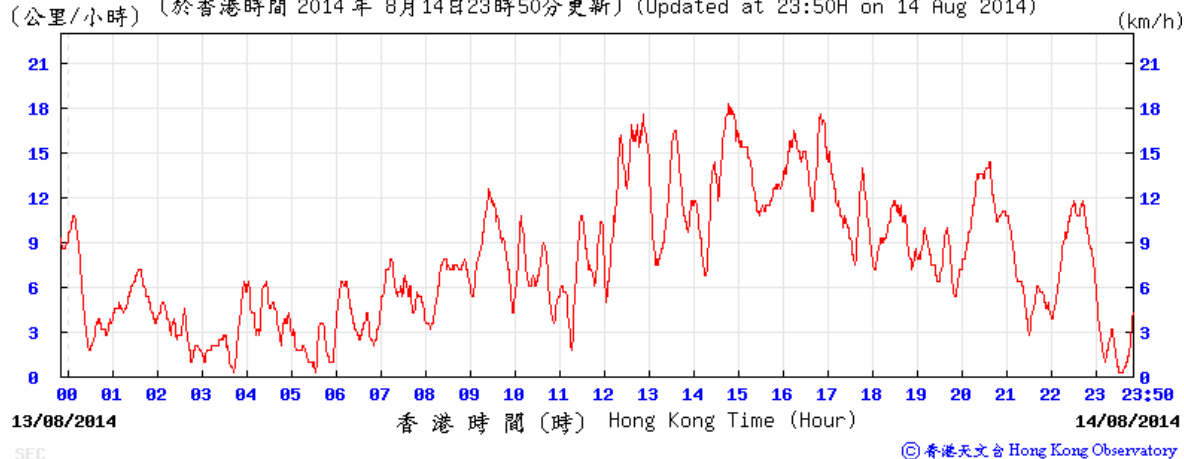
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

13-14 August 2014

(公里/小時) (於香港時間 2014 年 8月13日23時50分更新) (Updated at 23:50H on 13 Aug 2014)

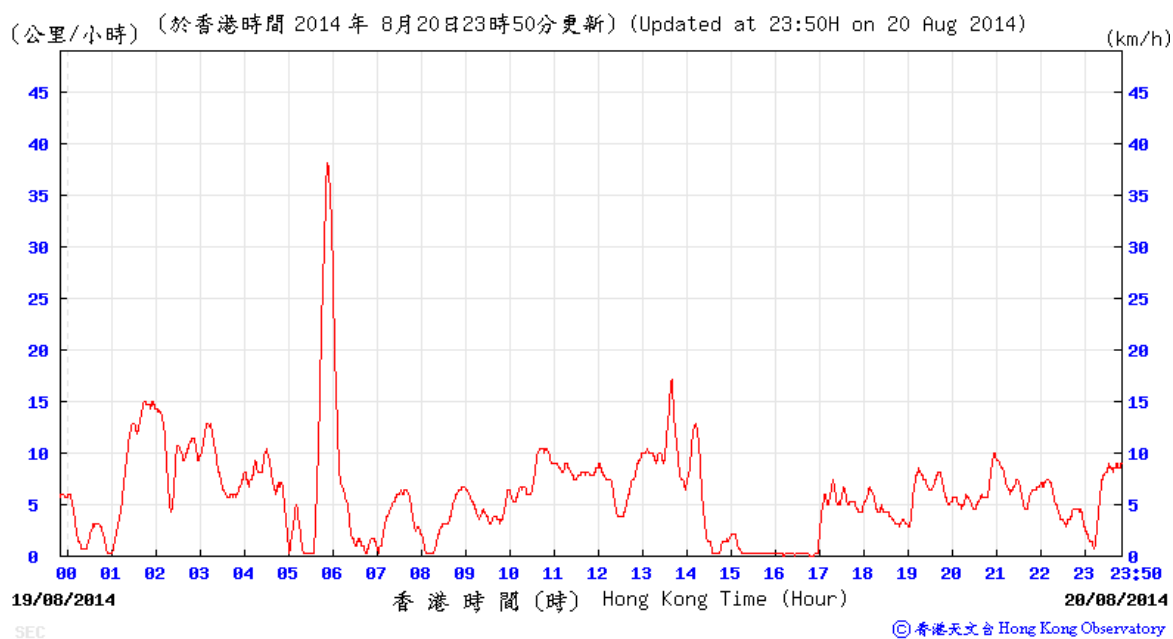
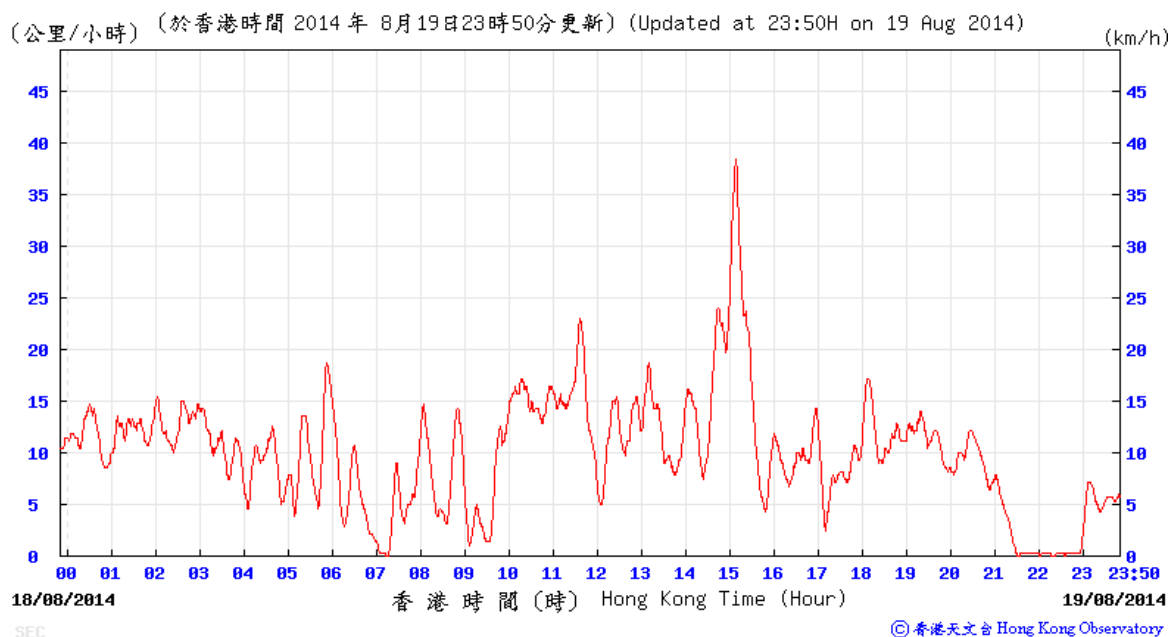


(公里/小時) (於香港時間 2014 年 8月14日23時50分更新) (Updated at 23:50H on 14 Aug 2014)



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

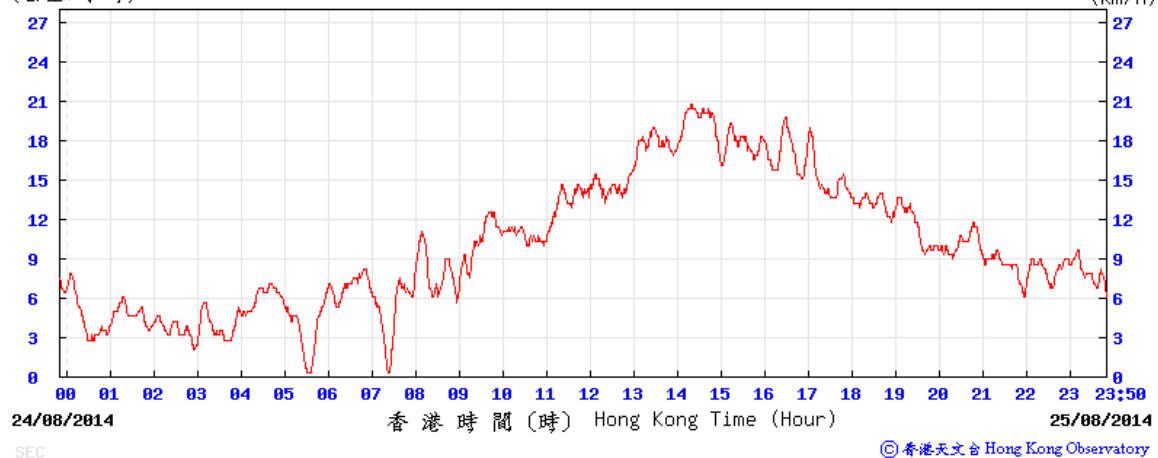
19-20 August 2014



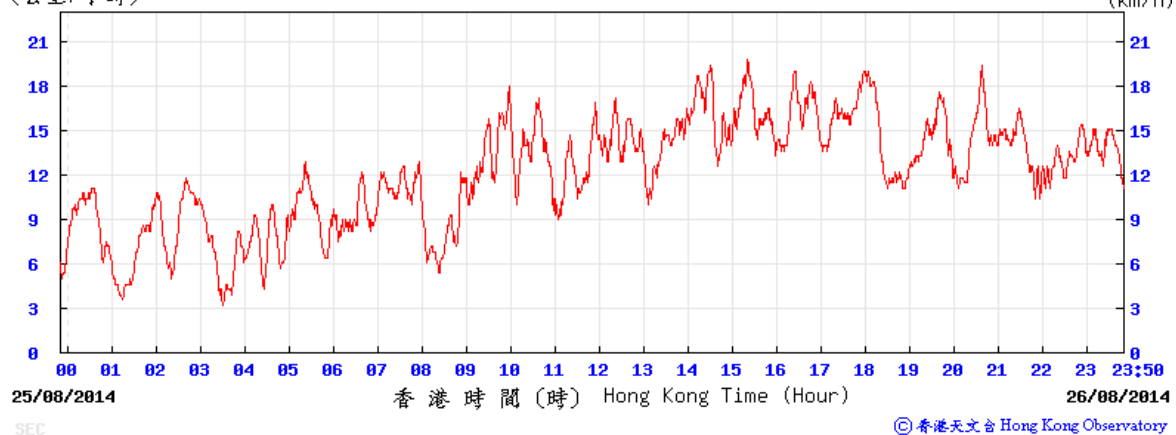
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

25-26 August 2014

(公里/小時) (於香港時間 2014 年 8月25日23時50分更新) (Updated at 23:50H on 25 Aug 2014)

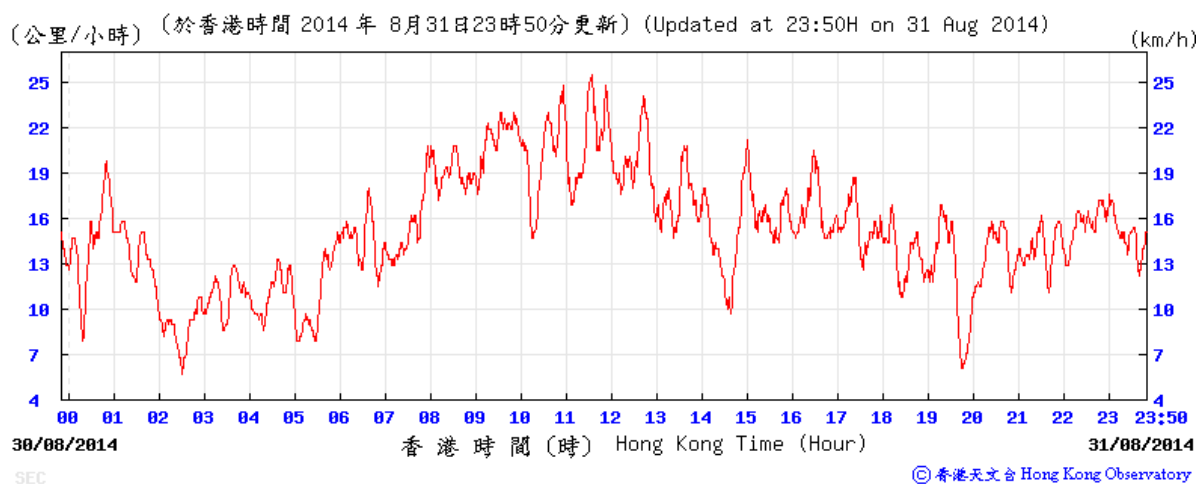
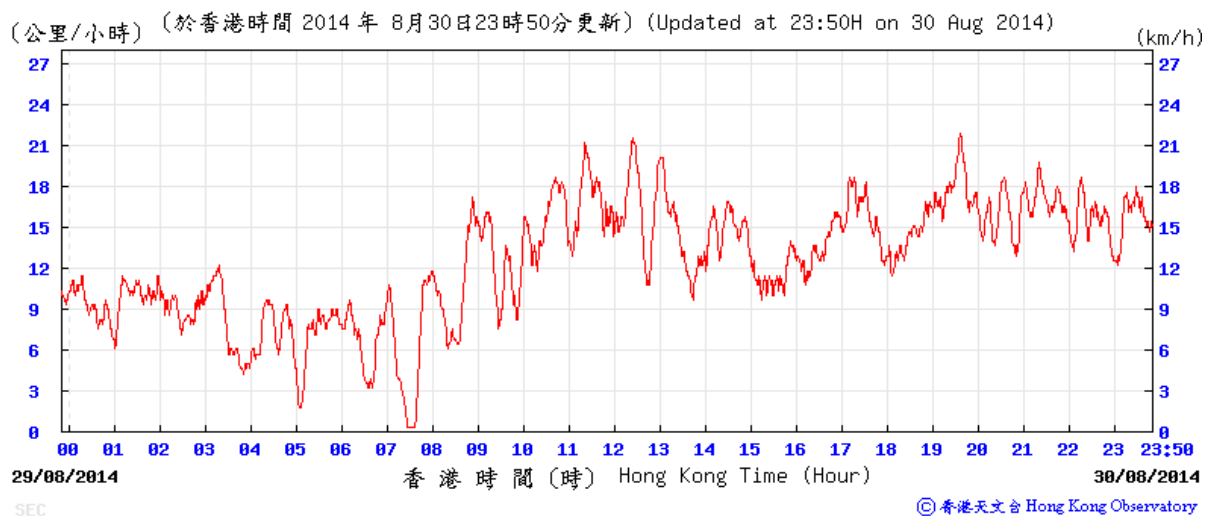


(公里/小時) (於香港時間 2014 年 8月26日23時50分更新) (Updated at 23:50H on 26 Aug 2014)



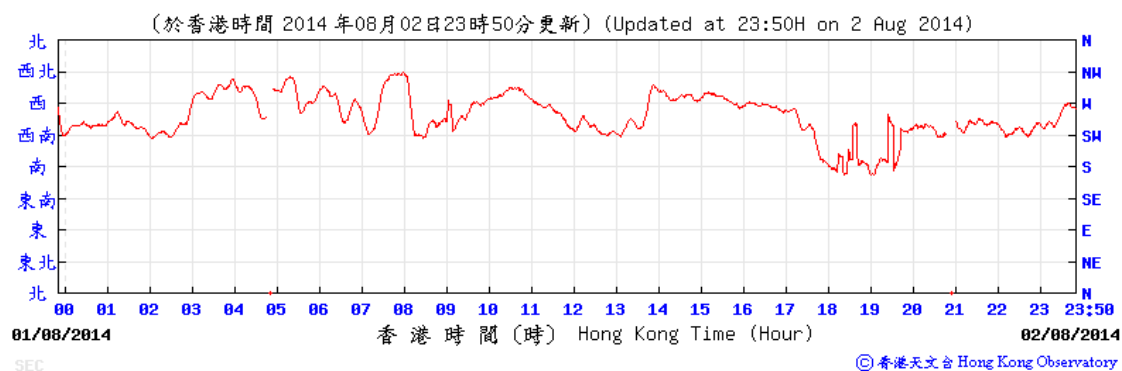
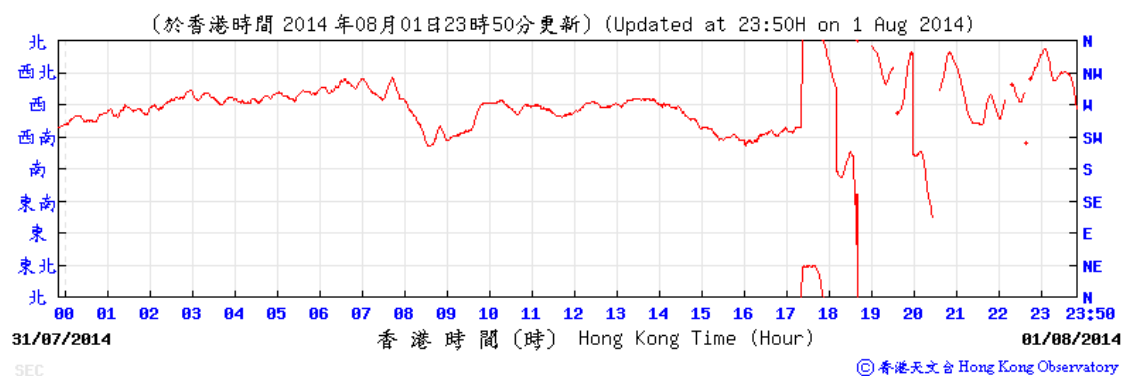
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

30-31 August 2014



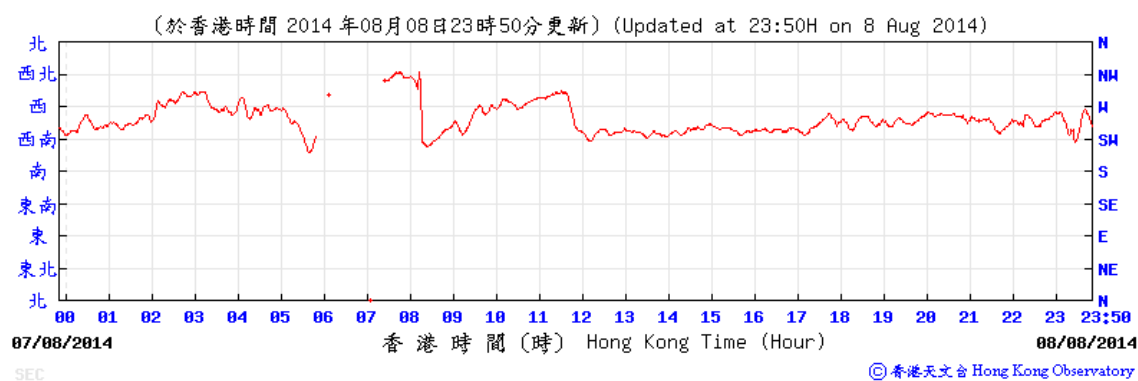
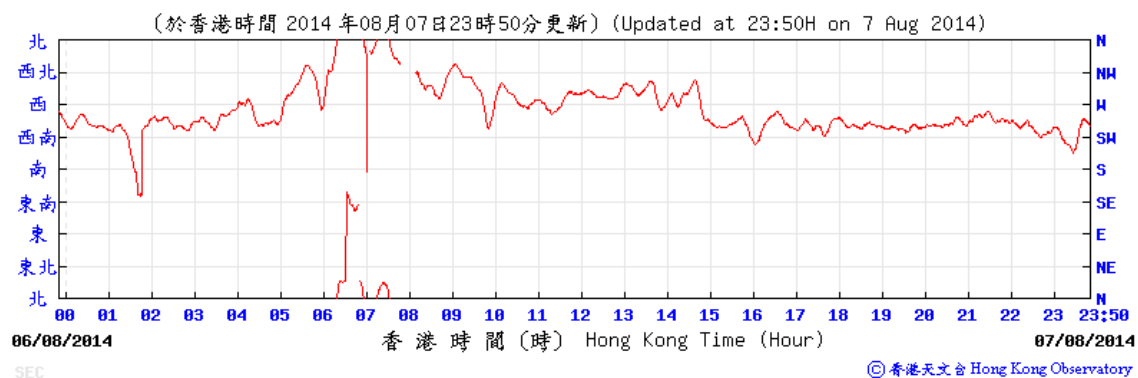
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

1-2 August 2014



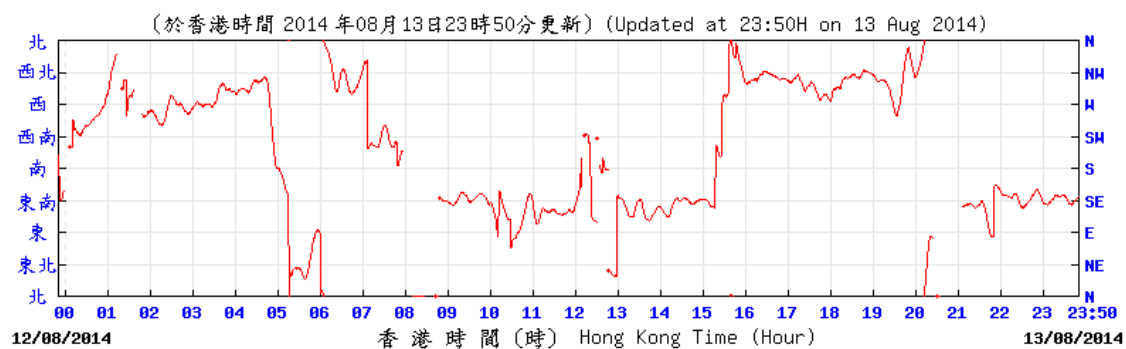
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

7-8 August 2014



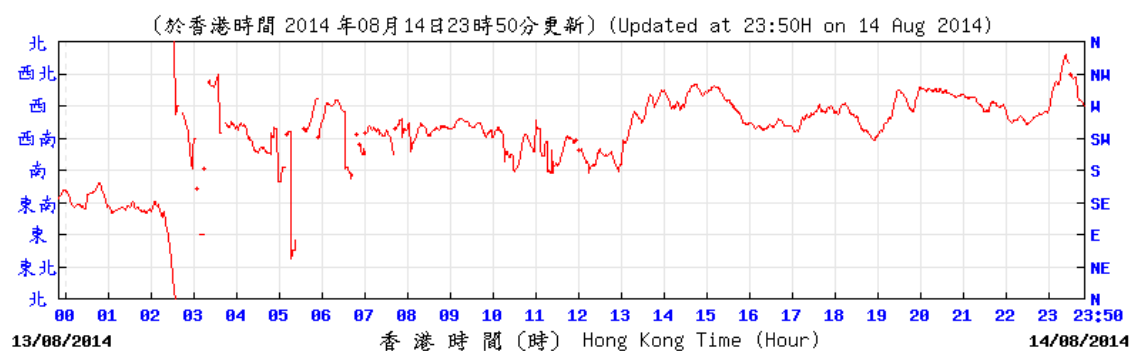
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

13-14 August 2014



SEC

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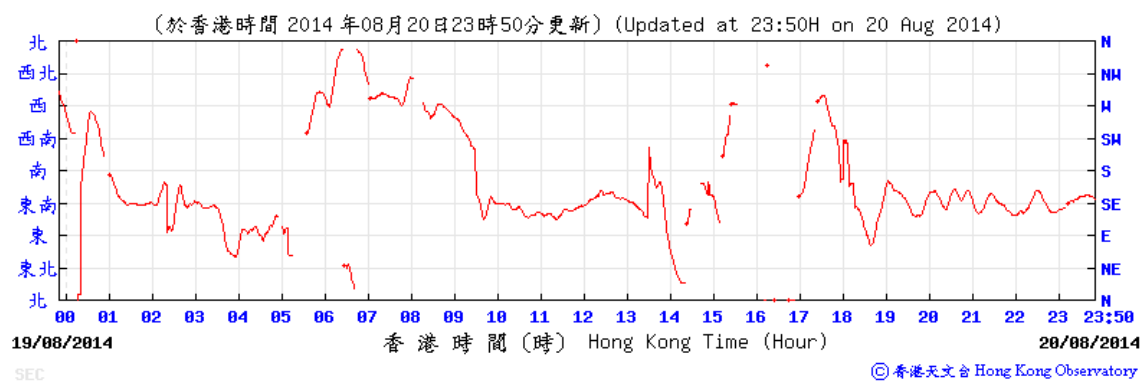
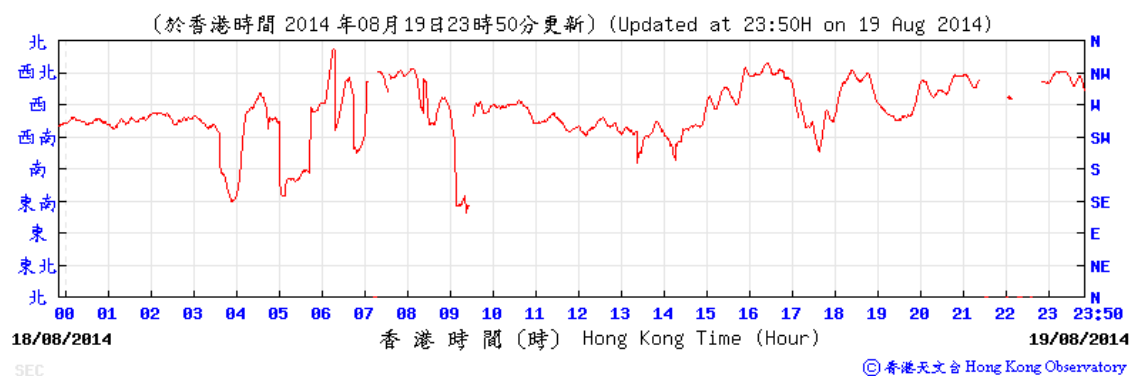


SEC

© 香港天文台 Hong Kong Observatory

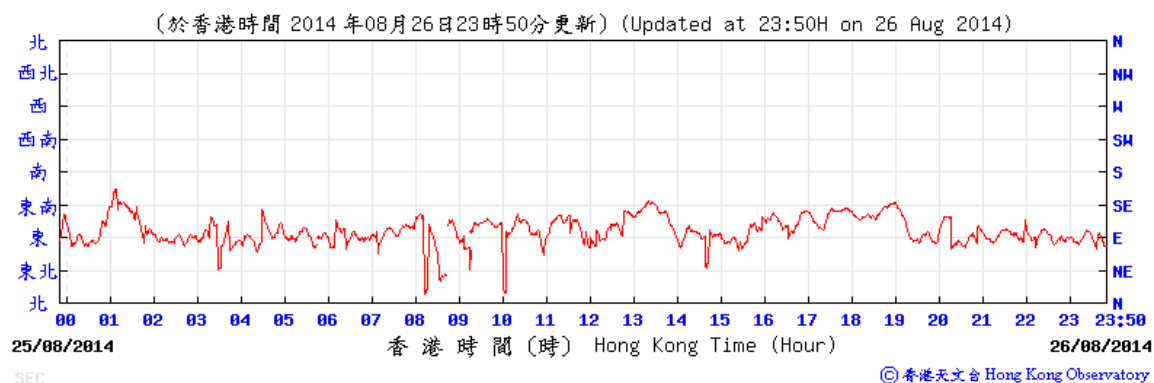
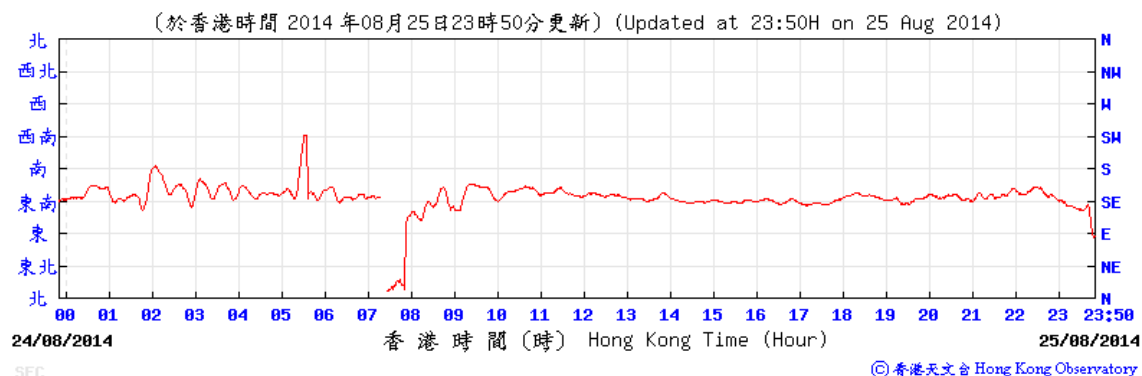
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

19-20 August 2014



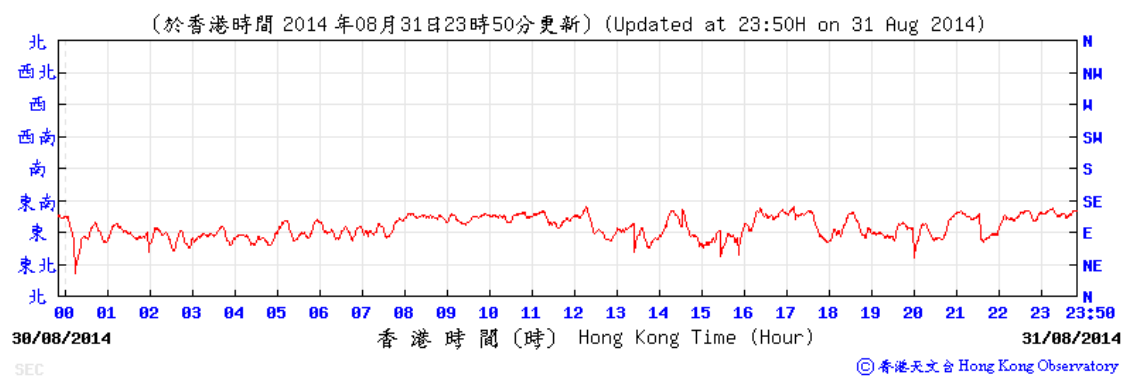
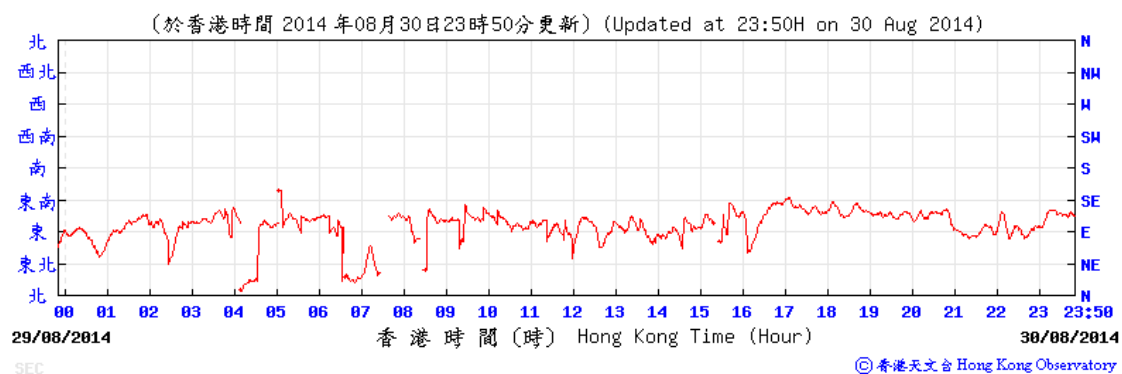
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

25-26 August 2014



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

30-31 August 2014



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

Appendix F - Noise Monitoring Results

Location NMS-CA-4(1)/NMS-CA-3(2) - Block 1, Rhythm Garden (north-eastern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}
4-Aug-14	Cloudy	16:25	74.4	75.3	73.4	74.5	71	71.9
		16:30	74.6	75.7	73.4			
		16:35	74.9	76.2	73.3			
		16:40	74.4	75.5	73.2			
		16:45	74.1	75.1	73.0			
		16:50	74.8	75.9	73.6			
15-Aug-14	Sunny	14:43	73.7	75.0	71.9	73.5	71	69.9
		14:48	73.5	74.9	72.0			
		14:53	72.9	74.1	71.6			
		14:58	73.5	74.3	72.5			
		15:03	73.4	74.8	72.2			
		15:08	74.1	75.2	72.6			
20-Aug-14	Cloudy	11:25	72.0	73.1	70.8	72.3	71	66.4
		11:30	72.5	73.7	71.1			
		11:35	72.2	73.3	71.1			
		11:40	72.3	73.5	71.0			
		11:45	72.4	73.7	71.1			
		11:50	72.6	73.8	71.2			
26-Aug-14	Sunny	15:10	72.3	73.7	70.7	72.7	71	67.8
		15:15	72.6	73.8	68.8			
		15:20	72.7	73.9	71.2			
		15:25	72.8	73.7	71.5			
		15:30	72.6	73.9	69.3			
		15:35	73.0	73.9	71.7			

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

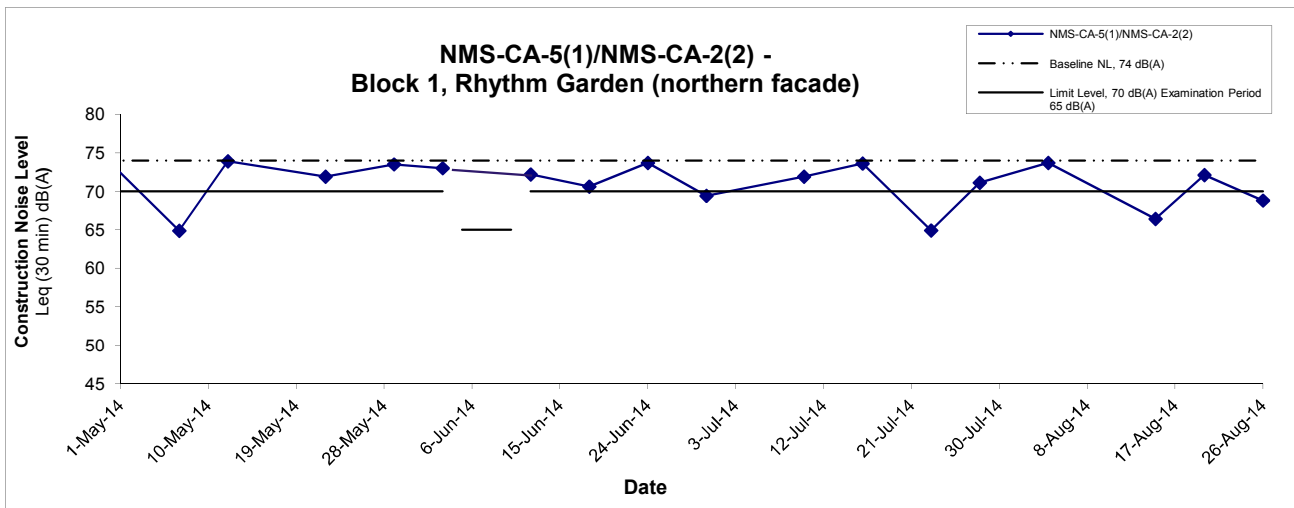
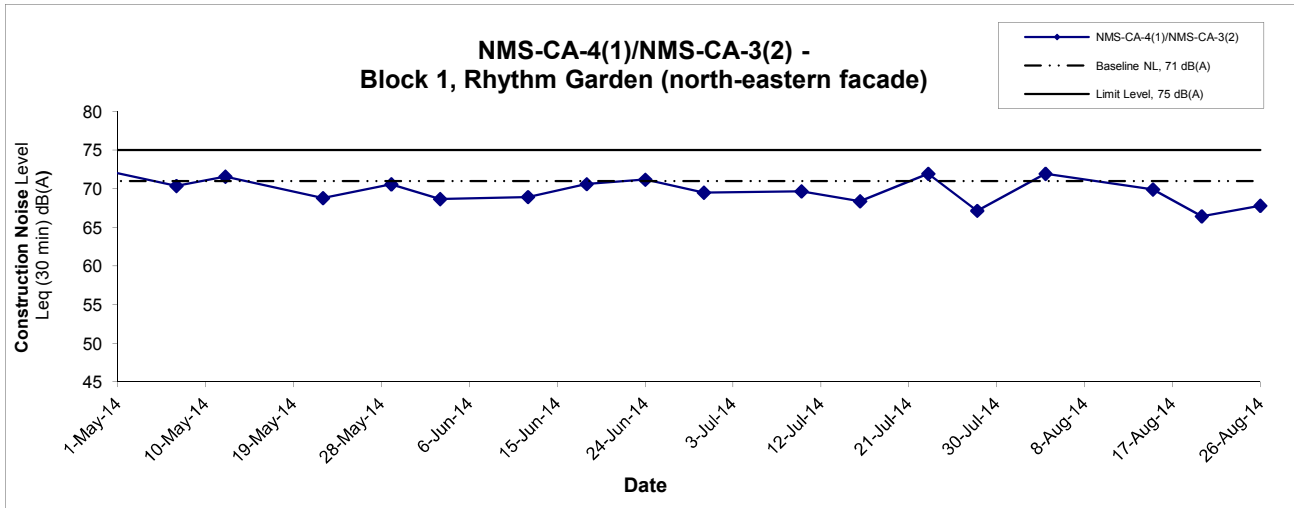
Appendix F - Noise Monitoring Results

Location NMS-CA-5(1)/NMS-CA-2(2) - Block 1, Rhythm Garden (northern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}
4-Aug-14	Cloudy	15:50	73.7	74.7	72.6	73.7	74	73.7 Measured ≤ Baseline Level
		15:55	74.0	74.9	73.0			
		16:00	73.6	74.6	72.5			
		16:05	73.2	74.3	72.1			
		16:10	73.8	74.8	72.8			
		16:15	73.8	74.7	73.0			
15-Aug-14	Sunny	14:00	74.7	75.9	73.5	74.7	74	66.4
		14:05	74.9	76.1	73.4			
		14:10	74.9	75.9	73.6			
		14:15	74.7	75.8	73.4			
		14:20	74.5	75.4	73.4			
		14:25	74.6	75.5	73.3			
20-Aug-14	Cloudy	10:48	73.0	74.3	71.4	72.1	74	72.1 Measured ≤ Baseline Level
		10:53	72.6	73.9	71.1			
		10:58	72.8	74.1	71.5			
		11:03	72.0	72.9	70.4			
		11:08	70.7	71.7	69.5			
		11:13	71.1	72.2	70.0			
26-Aug-14	Sunny	14:30	68.9	69.9	67.5	68.8	74	68.8 Measured ≤ Baseline Level
		14:35	68.4	69.4	67.2			
		14:40	69.0	69.9	67.9			
		14:45	68.8	69.6	67.4			
		14:50	69.0	69.9	67.7			
		14:55	68.5	69.5	67.3			

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).

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 Tuk Tunnels Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA13018	CINOTECH
	Date Aug 14	Appendix F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: August 2014

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

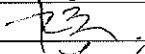

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140801
Date	1 August 2014 (Friday)
Time	9:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
140801-R01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Air Quality</p> <ul style="list-style-type: none"> Smoke emission from an excavator at cut and cover tunneling area was observed. Contractor is reminded to properly maintain machines to prevent air pollution. <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.:140725), the environmental deficiency was observed improved/rectified by contractor. 	D 15

	Name	Signature	Date
Recorded by	Kenneth Yuen		1 August 2014
Checked by	Ivy Tam		1 August 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140807
Date	7 August 2014 (Thursday)
Time	9:00 – 12:00

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

Ref. No.	Remarks/Observations	Related Item No.
140807-O01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Water discharged from a water treatment facility at the upstream area was observed silty. The facility should be properly maintained and operated to ensure the quality of treated water and prevent leakage from the tank. 	B 7
140807-O02	<ul style="list-style-type: none"> Muddy water was observed leaking into the Kai Tuk Nullah at both the upstream and downstream area. Contractor should provide appropriate measure(s) to prevent untreated muddy water discharge. 	B 7,15i
140807-R05	<p>Part C – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Air Quality</p> <ul style="list-style-type: none"> Smoke emission from a generator near the noise barrier along Kai Ching Estate was observed. Contractor should have regular maintenance for plants/generators to prevent air pollution. 	D 15
140807-O03	<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"> Oil stains on area near the external yard and cut and cover tunneling area were observed. Contractor should provide drip tray to suspicious source to prevent oil leakage and properly remove the oil stain as chemical waste. 	F 9
140807-O04	<ul style="list-style-type: none"> Drip tray should be provided to chemical containers near the cut and cover tunneling area to prevent chemical leakage. <p>Part G – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:140801), the environmental deficiency was observed improved/rectified by contractor. 	F 10

	Name	Signature	Date
Recorded by	Kenneth Yuen		8 August 2014
Checked by	Dr. Priscilla Choy		8 August 2014

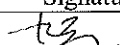

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140815
Date	15 August 2014 (Friday)
Time	9:00 – 10:00

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

Ref. No.	Remarks/Observations	Related Item No.
140815-R01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Air Quality</p> <ul style="list-style-type: none"> Dusty stockpile at the downstream area should be covered by impervious sheeting or watered regularly to prevent dust generation. <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.:140807), all environmental deficiencies were observed improved/rectified by contractor. 	D 6

	Name	Signature	Date
Recorded by	Kenneth Yuen		15 August 2014
Checked by	Dr. Priscilla Choy		15 August 2014

Shatin to Central Link -

Contract 1107 Diamond Hill to Kai Tak Tunnels



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140822
Date	22 August 2014 (Friday)
Time	9:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
140822-001	<p>Part B – Water Quality</p> <ul style="list-style-type: none">Silty water was observed leaking into the downstream area of Kai Tuk Nullah. The contractor is advised to properly block the hole or gap to prevent untreated silty water leakage. <p>Part C – Landscape & Visual</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part D – Air Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part F – Waste/Chemical Management</p> <ul style="list-style-type: none">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.:140815), all environmental deficiency was observed improved/rectified by contractor.	B 1,3

	Name	Signature	Date
Recorded by	Kenneth Yuen		22 August 2014
Checked by	Dr. Priscilla Choy		22 August 2014

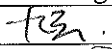

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140829
Date	29 August 2014 (Friday)
Time	9:00 – 10:50

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

Ref. No.	Remarks/Observations	Related Item No.
140829-R01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	D 5
140829-R02	<p>Part C – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Air Quality</p> <ul style="list-style-type: none"> Mud was observed on the ground at the boundary of CP1. The contractor is reminded to properly remove them. Dusty stockpile at the downstream area should be properly covered to prevent dust generation. 	D 6
	<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.:140822) all environmental deficiency was observed improved/rectified by contractor. 	

	Name	Signature	Date
Recorded by	Kenneth Yuen		29 August 2014
Checked by	Dr. Priscilla Choy		29 August 2014

**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 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

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

Ap[riA 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

Ap[riA 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.						
<i>Air Quality (Construction Phase)</i>								
/	A1	Emission from Vehicles and Plants <ul style="list-style-type: none"> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD) 	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^ * ^
/	A2	Open burning shall be prohibited	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	• APCO	^
<i>Construction Dust Impact</i>								
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	• 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	• APCO • To control the dust impact to meet HKAQO and TM- EIA criteria	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[riA 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 extending 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 	<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;">N/A</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[ri]A 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; • Any skip hoist for material transport should be totally enclosed by 						^
								^
								^
								N/A
								N/A

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[riA 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"> 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. 	airborne noise		Sites where practicable	stage		^ ^ ^ N/A ^ 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	Screen the noisy plant items	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[riA 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
		sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	to be used at all construction sites					
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 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 (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), 	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

Ap[riA 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>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.</p> <ul style="list-style-type: none"> The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the 						^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[riA 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>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 						<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;">N/A</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[riA 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>or foundation excavations should be discharged into storm drains via silt removal facilities.</p> <ul style="list-style-type: none"> • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. • Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction 						* ^ * ^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[riA 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>areas during the wet season (April to September) as far as practicable.</p> <ul style="list-style-type: none"> Adopt best management practices. 						*
S10.7.1	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 (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN 1/94 TM-water TM-EIAO 	<p>^</p> <p>^</p> <p>^</p> <p>N/A</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[ri]A Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S10.7.1	W3	<u>Sewage Effluent</u> <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	<u>Accidental Spillage</u> In order to prevent accidental spillage of chemicals, the following is recommended: <ul style="list-style-type: none"> Proper storage and handling facilities should be provided; 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. 	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
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<u>On-site sorting of C&D material</u>	Separation of unsuitable	Contractor	All construction	Construction	• DEVB TC(W) No.	

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[riA 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"> 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. 	rock from ending up at concrete batching plants and be turned into concrete for structural use		sites	stage	6/2010	^
S11.5.1	WM2	<u>Construction and Demolition Material</u> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material 	Good site practice to minimize the waste	Contractor	All construction sites	Construction stage	• Land (Miscellaneous	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[riA 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>for backfilling and reinstatement;</p> <ul style="list-style-type: none"> • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and EPD and get their approval before implementation 	<p>generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p>				<p>Provisions) Ordinance</p> <ul style="list-style-type: none"> • Waste Disposal Ordinance • ETWB TCW No. 19/2005 	<p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <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 	<p>Good site practice to minimize the waste</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous 	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[riA 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>practicable in order to minimise the arising of C&D materials.</p> <p>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.</p> <p>The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage.</p> <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. <p>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>generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p>				<p>Provisions) Ordinance</p> <ul style="list-style-type: none"> Waste Disposal Ordinance ETWB TCW No.19/2005 	^
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 	<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 	^ ^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[riA 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>odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</p> <ul style="list-style-type: none"> Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 						N/A ^
S11.5.1	WM6	<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 450L unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly labeled 	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 	^ ^ ^

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

CW - SELI Joint Venture

Name of Department: MTRC

Contract No.:1107

Monthly Summary Waste Flow Table for 2014

Year	Estimated Quantities of Inert C&D Materials (in '000m ³) (see Note 3)										Estimated Quantities of C&D Wastes									
	Total Quantity Generated		Suitable for Recycled Aggregates		Reused in the Contract		Reused in other Projects		Disposed as Public Fill		Metals		Paper/cardboard packaging		Plastics (see Note 2)		Chemical Waste		Others, e.g. general refuse	
	(a)		(b)		(c)		(d)		(e=a-b-c-d)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000m ³)	
	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.
January	5.500	5.330	0.000	0.000	0.000	0.000	2.500	1.840	3.000	3.49	0.000	0.000	0.100	0.158	0.100	0.810	0.000	0.108	0.100	0.040
February	5.500	2.685	0.000	0.000	0.000	0.000	0.000	0.660	5.500	2.025	1.000	2.660	0.100	0.230	1.000	0.650	0.000	0.000	0.100	0.015
March	8.400	5.945	0.000	0.000	0.000	0.000	4.000	3.145	4.400	2.800	0.000	0.000	0.100	0.135	0.000	0.000	0.000	0.000	0.100	0.025
April	4.400	4.025	0.000	0.000	0.000	0.000	0.000	2.670	4.400	1.355	5.000	5.950	0.100	0.000	0.000	0.000	0.100	0.000	0.100	0.025
May	8.400	2.740	0.000	0.000	0.000	0.000	4.000	1.810	4.400	0.930	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.040
June	8.400	4.340	0.000	0.000	0.000	0.000	4.000	2.110	4.400	2.230	0.000	9.260	0.100	0.277	0.000	0.000	0.100	0.400	0.100	0.035
July	8.400	6.275	0.000	0.000	0.000	0.000	4.000	4.150	4.400	2.125	0.000	5.640	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.045
August	8.400	5.105	0.000	0.000	0.000	0.000	4.000	2.025	4.400	3.080	0.000	0.000	0.100	0.150	0.000	0.000	0.000	0.000	0.100	0.050
September																				
October																				
November																				
December																				
Total	57.400	36.445	0.000	0.000	0.000	0.000	22.500	18.410	34.900	18.035	6.000	23.510	0.800	0.950	1.100	1.460	0.200	0.508	0.800	0.275

- 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

**15th Monthly EM&A Report for Works Contract 1112 –
Hung Hom Station and Stabling Sidings**

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

[Period from 1 to 31 August 2014]

(September 2014)

Certified by: Vivian Chan 

Position: Environmental Team Leader

Date: 12 September 2014



15th Monthly EM&A Report for August 2014

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

September 2014

Project/Deliverable No.	7076187 D34/01
Project Name	Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings
Report Name	15 th Monthly EM&A Report for August 2014
Report Date	September 2014
Report for	Leighton Contractors (Asia) Limited

PREPARATION, REVIEW AND AUTHORISATION

Revision #	Date	Prepared by	Reviewed by	Approved by
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CONTENTS

EXECUTIVE SUMMARY	IV
Introduction	iv
Landscape and Visual Monitoring.....	iv
Air Quality Monitoring	iv
Noise Quality Monitoring.....	iv
Waste Management.....	iv
Environmental Auditing	v
Compliant, Notification of Summons and Successful Prosecution	v
Future Key Issues	v
1 INTRODUCTION	6
1.1 Project Background	6
1.2 Purpose of the Report.....	6
1.3 Report Structure.....	6
2 PROJECT INFORMATION.....	7
2.1 General Site Description	7
2.2 Construction Programme and Activities	8
2.3 Project Organisation	8
2.4 Status of Environmental Licences, Notification and Permits.....	9
3 ENVIRONMENTAL MONITORING PARAMETERS.....	11
3.1 Landscape and Visual Impact Monitoring.....	11
3.2 Air Quality Monitoring	11
3.3 Construction Noise Monitoring.....	14
4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES	15
5 MONITORING RESULTS	16
5.1 Landscape and Visual	16
5.2 Air Quality Monitoring	16
5.3 Regular Construction Noise Monitoring	16
5.4 Waste Management.....	16
6 ENVIRONMENTAL SITE INSPECTION AND AUDIT	17
7 ENVIRONMENTAL NON-CONFORMANCE	20
7.1 Summary of Monitoring Exceedances	20
7.2 Summary of Environmental Non-Compliance	20

7.3	Summary of Environmental Complaint.....	20
7.4	Summary of Environmental Summons and Successful Prosecution.....	20
8	FUTURE KEY ISSUES.....	21
8.1	Construction Programme for Next Month.....	21
8.2	Key Issues for the Coming Months	21
8.3	Monitoring Schedule for Next Month.....	21
9	CONCLUSIONS AND RECOMMENDATIONS.....	22
9.1	Conclusions	22
9.2	Recommendations	22

APPENDICES

Appendix A	Project Works Boundary
Appendix B	Construction Programme
Appendix C	Project Organisation for Environmental Works
Appendix D	Location of Air Quality Monitoring Station
Appendix E	Calibration Certificates of Monitoring Equipment
Appendix F	Wind Data
Appendix G	Environmental Monitoring Programme
Appendix H	Implementation Schedule of Environmental Mitigation Measures
Appendix I	Event and Action Plan
Appendix J	Measures Monitoring Results and their Graphical Presentations
Appendix K	Waste Flow Table
Appendix L	Cumulative Statistics of Complaints, Notification of Summons and Successful Prosecutions

TABLES

Table 2-1	Contact Information of Key Personnel
Table 2-2	Status of Environmental Licenses, Notification and Permits
Table 3-1	Air Quality Monitoring Parameters and Frequency
Table 3-2	Air Quality Monitoring Location
Table 3-3	Air Quality Monitoring Equipment
Table 4-1	Summary of Status of Required Submission under EP
Table 5-1	Summary of 24-hour TSP Monitoring Results
Table 6-1	Observations and Recommendations of Site Audits

EXECUTIVE SUMMARY

Introduction

The construction works of MTRC Shatin to Central Link Works Contract 1112- Hung Hom Station and Stabling Sidings (the Project) comprise permanent works and the necessary temporary works for Hung Hom Station (HUH), Hung Hom Stabling Sidings (HHS), the South Approach Tunnels (SAT) and the North Approach Tunnels (NAT) to the new station, HHS and any reprovisioning remedial and improvement works (RRIW).

Construction works of the Project commenced on 3 June 2013. This is the 15th monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 August 2014 in accordance with the EM&A manual.

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

- Piling for HUH, NAT and SAT
- Diaphragm wall construction at HUH
- Initial excavation at HUH and HHS
- Barging point operation at Hung Hom Freight Pier
- Operation of Material Receiving Hopper at Hung Hom Freight Pier
- Marine transportation and disposal of spoil to designated dumping ground(s)
- Underpinning works at HUH
- Reconstruction of Cheong Wan Road Viaduct

Landscape and Visual Monitoring

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 7 and 21 August 2014. All necessary mitigation measures have been implemented by the Contractor.

Air Quality Monitoring

Air quality (24-hour TSP) monitoring was carried out on 4, 9, 15, 21 and 27 August 2014. No exceedance of Action and Limit Level of 24-hour TSP monitoring was recorded at the monitoring location in the reporting month.

Noise Quality Monitoring

Construction airborne noise monitoring can be referred to the Monthly EM&A Report for Contract 1111.

Waste Management

As advised by the Contractor, 76,930 kg of general refuse was generated from the Project and disposed of at NENT landfill. A total of 8,570 m³ inert construction and demolition (C&D) materials were generated from the Project, where 199.1 m³ was imported from SCL 1111, 3,559 m³ was reused in other projects, 4,566 m³ was disposed of at TM38 Public Fill, and 443 m³ was disposed of

at TKO137 Public Fill. No chemical waste was disposed and no waste was recycled during the reporting month.

Environmental Auditing

A total of 4 weekly environmental site audits were conducted on 7, 14, 21 and 28 August 2014. The IEC joint site audit was undertaken on 21 August 2014.

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:

- Piling for HUH, NAT and SAT
- Diaphragm wall construction at HUH
- Initial excavation at HUH and HHS
- Barging point operation at Hung Hom Freight Pier
- Operation of Material Receiving Hopper at Hung Hom Freight Pier
- Marine transportation and disposal of spoil to designated dumping ground(s)
- Modification works at Concourse level
- Underpinning works at HUH
- Reconstruction 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 No. EP-438/2012/E) was issued by Director of Environmental Protection (DEP) on 4 April 2014.

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 15th EM&A report which summarizes the monitoring results and audit findings during the reporting period from 1 to 31 August 2014.

1.3 Report Structure

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

2 PROJECT INFORMATION

2.1 General Site Description

2.1.1 The works under Works Contract 1112 comprise permanent works and the necessary temporary works for Hung Hom Station (HUH), Hung Hom Stabling Sidings (HHS), the South Approach Tunnels (SAT) and the North Approach Tunnels (NAT) to the new station, HHS and any reprovisioning remedial and improvement works (RRIW). The major permanent works under Works Contract 1112 generally comprise the following:

- New HUH integrated with the existing HUH station, with associated entrances, ventilation facilities, plant rooms, other ancillary facilities, and ABWF works.
- Modification of the existing HUH station to allow interchange between Existing East Rail Line and SCL(TAW-HUH), and between SCL(MKK-HUH) and SCL(TAW-HUH) comprising alteration and addition works at podium level, mid-level, and platform level.
- Running tunnels of the SCL(TAW-HUH) at the south and north ends of the new HUH to the existing stub tunnel of Existing West Rail and interface with Works Contract 1111.
- Running tunnels of the SCL(MKK-HUH) at the south and north ends of the new HUH to the proposed North Ventilation Building and interface with Works Contract 1111.
- Extensive underpinning and modification of the existing podium structure of HUH and the Hong Kong Coliseum, and associated protection works.
- Diversion, modification and dismantling of existing building services associated with underpinning and modification of existing structures.
- Demolition and clearance of the majority of the existing Hung Hom Freight Terminal infrastructure.
- Protection, diversion, and modification of utilities and services.
- Launching and retrieval track connecting the SCL(TAW-HUH) to HHS from the turnout close to WRL at the south and interface with Works Contract 1111 at the north.
- CLP Transformer Building.
- Demolition of the existing International Mail Centre adjacent to Salisbury Road, the MTR Freight Operations Building within the southern end of the Hung Hom Freight Terminal, and other ancillary buildings.
- Reconstruction of Cheong Wan Road Viaduct.
- Civil, BS and ABWF provisions for designated and interfacing contracts.
- Landscape works.
- Modification to various parts of existing disused Freight Yard structure for provision of HHS, comprising alteration and addition works at underground level, ground level, mezzanine level and podium level including new

accommodation and plant areas and stablings 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:

- Piling for HUH, NAT and SAT
- Diaphragm wall construction at HUH
- Initial excavation at HUH and HHS
- Barging point operation at Hung Hom Freight Pier
- Operation of Material Receiving Hopper at Hung Hom Freight Pier
- Marine transportation and disposal of spoil to designated dumping ground(s)
- Underpinning works at HUH
- Reconstruction of Cheong Wan Road Viaduct

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

Company	Position	Name	Telephone	Fax
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/F	15 Jul 2014	13 Aug 2014	Valid until cancellation on 13 Aug 2014	EP for SCL (TAW-HUH)
EP-438/2012/G	14 Aug 2014	-	Valid	EP for SCL (TAW-HUH)
Construction Noise Permit				
GW-RE0238-14	10 Mar 2014	09 Sep 2014	Valid	Generator for Intrafor office in barging point
GW-RE0465-14	03 May 2014	03 Sep 2014	Valid	Water mains connection
GW-RE0507-14	14 May 2014	13 Nov 2014	Valid	Dewatering at HHS
GW-RE0530-14	30 May 2014	30 Nov 2014	Valid	ADMS installations within live rail areas
GW-RE0706-14	27 Jun 2014	26 Dec 2014	Valid	Installation of Pre-bored H-Piles (grouting or welding)
GW-RE0750-14	12 Jul 2014	30 Sep 2014	Valid	Delivery of heavy vehicles
GW-RE0741-14	16 Jul 2014	16 Nov 2014	Valid until cancellation on 22 Aug 2014	ADMS installation under podium and in concourse level

Permit / Licence No. / Notification / Reference No.	Valid Period		Status	Remark
	From	To		
GW-RE0766-14	12 Jul 2014	10 Oct 2014	Valid until cancellation on 22 Aug 2014	Erection of 9m protection barrier for bored pile GP1
GW-RE0781-14	18 Jul 2014	17 Aug 2014	Valid until cancellation on 17 Aug 2014	Erection/removal of temporary footbridge, replacement of the precast beams and movement joints
GW-RE0815-14	25 Jul 2014	24 Aug 2014	Valid until cancellation on 24 Aug 2014	Erection/removal of temporary footbridge, replacement of the precast beams and movement joints
GW-RE0846-14	2 Aug 2014	30 Aug 2014	Valid until cancellation on 30 Aug 2014	Loading and unloading of scissor lift outside Hung Hom Station
GW-RE0919-14	22 Aug 2014	23 Sep 2014	Valid	Erection of 9m protection barrier for bored pile GP1
GW-RE0949-14	25 Aug 2014	31 Dec 2014	Valid	Pipe jacking works
GW-RE0959-14	25 Aug 2014	25 Dec 2014	Valid	A&A and ABWF works in concourse level
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 Landscape and Visual Impact Monitoring

3.1.1 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period.

3.2 Air Quality Monitoring

Parameter, Frequency and Duration

3.2.1 In accordance with the EM&A Manual, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required throughout the construction period. The monitoring parameters and frequency are provided in **Table 3-1**.

Table 3-1 Air Quality Monitoring Parameters and Frequency

Parameter	Frequency
1-hour TSP	3 times in every 6 days when one documented valid complaint is received
24-hour TSP ^[1]	Once per 6 days

Note:

1. 24-hour TSP will be conducted when project-related construction activities are being undertaken within a radius of 500m from monitoring stations.

Monitoring Location

3.2.2 One air quality monitoring station was set up at the location in accordance with the approved EM&A Manuals. The location of the construction dust monitoring station is summarised in **Table 3-2** and shown in **Appendix D**.

3.2.3 The monitoring location of AM2 has been located on the roof of the Site Office Building next to Harbourfront Horizon since 19 March 2014.

Table 3-2 Air Quality Monitoring Location

ID	Location
AM2 ^[1]	Harbourfront Horizon ^[2]

Note:

1. Different IDs were used in various EM&A Manuals for dust monitoring location at Harbourfront Horizon, DMS-12 was used in EM&A Manual for SCL(TAW-HUH), AM2 were used in EM&A Manual and EIA report for SCL(MKK-HUH), and DMS-1 Works Contract 1112 were used in EM&A Manual and EIA report for HHS. For ease of future reference, AM2 will be adopted for EM&A reporting for Works Contract 1112 when referring to this monitoring location.
2. Air quality monitoring location at Harbourfront Horizon is the same as monitoring station CD6a as proposed in the EM&A Manual for "Kwun Tong Line Extension (KTE)". Access to Harbourfront Horizon was rejected by the owner during preparation for baseline monitoring

for the KTE in early 2011. A representative monitoring location at the adjacent Finger Pier, at about 25m from Harbourfront Horizon, was adopted as an alternative monitoring location for KTE. This monitoring location is considered the most appropriate alternative monitoring location for AM2 and have been adopted for dust monitoring for Contract 1112.

Monitoring Equipment

3.2.4 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)	1612

3.2.5 The HVS were calibrated in every six months interval using calibration kit which is re-calibrated by the manufacturer after one year of use. The calibration certificate of the calibration kit and the calibration spreadsheet of the HVS is provided in **Appendix E**.

Monitoring Procedures

3.2.6 Specifications of HVS are as follow:

- i. 0.6 - 1.7m³ per minute adjustable flow range
- ii. Equipped with a timing / control device with +/- 5 minutes accuracy for 24 hours operation
- iii. Installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation
- iv. Capable of providing a minimum exposed area of 406cm²
- v. Flow control accuracy: +/- 2.5% deviation over 24-hour sampling period
- vi. Equipped with a shelter to protect the filter and sampler
- vii. Incorporated with an electronic mass flow rate controller or other equivalent devices
- viii. Equipped with a flow recorder for continuous monitoring
- ix. Provided with a peaked roof inlet
- x. Incorporated with a manometer
- xi. Able to hold and seal the filter paper to the sampler housing at horizontal position
- xii. Easily changeable filter and
- xiii. Capable of operating continuously for a 24-hour period.

3.2.7 Preparation of Filter Papers

- i. Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.

- ii. All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25°C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.
- iii. All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

3.2.8 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

- 3.2.9 Average wind data (wind speed and direction) at the King's Park meteorological station during the monitoring period were obtained from the Hong Kong Observatory (HKO) and presented in **Appendix F**.

Monitoring Schedule

- 3.2.10 The schedule for environmental monitoring in August 2014 is provided in **Appendix G**.

3.3 Construction Noise Monitoring

- 3.3.1 In accordance with the approved EM&A Manuals for SCL (TAW-HUH), SCL (MKK-HUH) and SCL (HHS), construction noise monitoring is required at No. 234-238 Chatham Road North (originally proposed as Wing Fung Building in the approved EM&A Manuals).
- 3.3.2 Construction airborne noise monitoring requirement details at No. 234-238 Chatham Road North (NM2) can be referred to the Monthly EM&A Report for Contract 1111.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

- 4.1.1 All environmental mitigation measures and requirements as stated in EIA Reports, Environmental Permits and EM&A Manuals are implemented. The implementation status of the environmental mitigation measures for this Works Contract during the reporting period is summarized in *Appendix H*.
- 4.1.2 Submissions to EPD during construction stage had been made in accordance with the EP requirements. A summary of EP submission requirements and their status is presented in *Table 4-1*.

Table 4-1 Summary of Status of Required Submission under EP

Required Submission	Environmental Permit	Date of Submission	Status
EP Condition 3.4 - Monthly Environmental Monitoring & Audit (EM&A) Report	EP-437/2012	14 August 2014	Submitted
	EP-438/2012/F	14 August 2014	Submitted

5 MONITORING RESULTS

5.1 Landscape and Visual

- 5.1.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 7 and 21 August 2014. All necessary mitigation measures have been implemented by the Contractor.
- 5.1.2 The Event and Action Plan for Landscape and Visual Impact Monitoring is provided in *Appendix I*.

5.2 Air Quality Monitoring

- 5.2.1 The monitoring results for 24-hour TSP are summarized in *Table 5-1*. Detailed air quality monitoring results are presented in *Appendix J*.

Table 5-1 Summary of 24-hour TSP Monitoring Results

ID	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM2	37	16.7 – 37.0	182	260

- 5.2.2 No Action and Limit Level exceedance was recorded in the reporting month.
- 5.2.3 The Event and Action Plan is provided in *Appendix I*.

5.3 Regular Construction Noise Monitoring

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

5.4 Waste Management

- 5.4.1 Receptacles for collection of general refuse were provided at the site. As advised by the Contractor, 76,930 kg of general refuse was generated from the Project and disposed of at NENT landfill. A total of 8,570 m³ inert construction demolition (C&D) materials was generated from the Project, where 199.1 m³ was imported from SCL 1111, 3,559 m³ was reused in other projects, 4,566 m³ was disposed of at TM38 Public Fill, 443 m³ was disposed of at TKO137 Public Fill. No chemical waste was disposed and no waste was recycled in the reporting period. The waste flow table is presented in *Appendix K*.
- 5.4.2 A billing account for construction waste disposal has been approved and a trip ticket system was implemented to record the waste generated from the Project in the reporting month.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

- 6.1.1 Weekly site audits were conducted by the ET and attended by the ER and the Contractor to monitor the timely implementation of proper environmental management practices and mitigation measures at the site. 4 site audits were carried out on 7, 14, 21 and 28 August 2014 during the reporting month. Representative of the IEC joined the site inspection on 21 August 2014. A summary of the implementation schedule of environmental mitigation measures is provided in [Appendix H](#).
- 6.1.2 No adverse comments from EPD site inspection conducted on 3 August 2014 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	Description	Works Area	Observation Date	Status
Landscape and Visual	N/A	N/A	N/A	N/A
Air Quality	White smoke emission was observed. The Contractor should review the efficiency of exhaust system regularly and maintain equipment in good condition.	SAT	24 July 2014	The item was rectified by the Contractor on 14 August 2014.
		SAT	31 July 2014	The item was rectified by the Contractor on 7 August 2014.
		SAT	21 August 2014.	The item was rectified by the Contractor on 28 August 2014.
		NAT	21 August 2014.	The item was rectified by the Contractor on 28 August 2014.
		SAT	28 August 2014	The item will be followed-up in the next reporting month.
		NAT	28 August 2014	The item will be followed-up in the next reporting month.
		HHS	28 August 2014	The item will be followed-up in the next reporting month.
		M5a	7 August 2014	The item was rectified by the Contractor on 14 August 2014.
	Grouting facility was not enclosed properly. The Contractor should ensure all grouting facilities with proper enclosure.			

Parameters	Description	Works Area	Observation Date	Status
Noise	Noise Emission Label was observed missing. The Contractor should ensure air compressor consists of Noise Emission Label.	SAT	7 August 2014	The item was rectified by the Contractor on 14 August 2014.
		HHS	14 August 2014	The item was rectified by the Contractor on 21 August 2014.
Water Quality	Gully was observed with inadequate protections. The Contractor should enhance the protections for gullies to prevent sand/silt entering the drainage system.	NAT	14 August 2014	The item was rectified by the Contractor on 21 August 2014.
		NAT	28 August 2014	The item will be followed-up in the next reporting month.
Waste/ Chemicals Management	Chemical containers were observed without secondary containment. The Contractor should provide secondary containments to all chemical containers to prevent land contamination.	HUH	31 July 2014	The item was rectified by the Contractor on 7 August 2014.
		M5a	7 August 2014	The item was rectified by the Contractor on 14 August 2014.
		HUH	7 August 2014	The item was rectified by the Contractor on 14 August 2014.
		HHS	7 August 2014	The item was rectified by the Contractor on 14 August 2014.
		NAT	14 August 2014	The item was rectified by the Contractor on 21 August 2014.
		SAT	21 August 2014	The item was rectified by the Contractor on 28 August 2014.
		HUH	21 August 2014	The item was rectified by the Contractor on 28 August 2014.
		HHS	21 August 2014	The item was rectified by the Contractor on 28 August 2014.
		SAT	14 August 2014	The item was rectified by the Contractor on 21 August 2014.
	Oil spillage was observed. The Contractor should clean the oil spillage and dispose of as chemical waste.	SAT	14 August 2014	The item was rectified by the Contractor on 21 August 2014.

Parameters	Description	Works Area	Observation Date	Status
Permits/ License	N/A	N/A	N/A	N/A

Note:

1. HUH: Hung Hom Station
2. HHS: Hung Hom Stabling Sidings
3. NAT: North Approach Tunnels
4. SAT: South Approach Tunnels
5. N/A: Not Applicable
6. M5a: Works area close to the intersection of Salisbury Road and Hong Wan Path

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:

- Piling for HUH, NAT and SAT
- Diaphragm wall construction at HUH
- Initial excavation at HUH and HHS
- Barging point operation at Hung Hom Freight Pier
- Operation of Material Receiving Hopper at Hung Hom Freight Pier
- Marine transportation and disposal of spoil to designated dumping ground(s)
- Modification works at Concourse level
- Underpinning works at HUH
- Reconstruction 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 September 2014 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 15th monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 August 2014.
- 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:

Air Quality Impact

- Grouting facility should be enclosed with proper enclosure.
- Maintain all site plant equipment to function in good condition to prevent fume generation.

Airborne Noise Impact

- Ensure Noise Emission Label is tagged on all air compressors.

Water Quality Impact

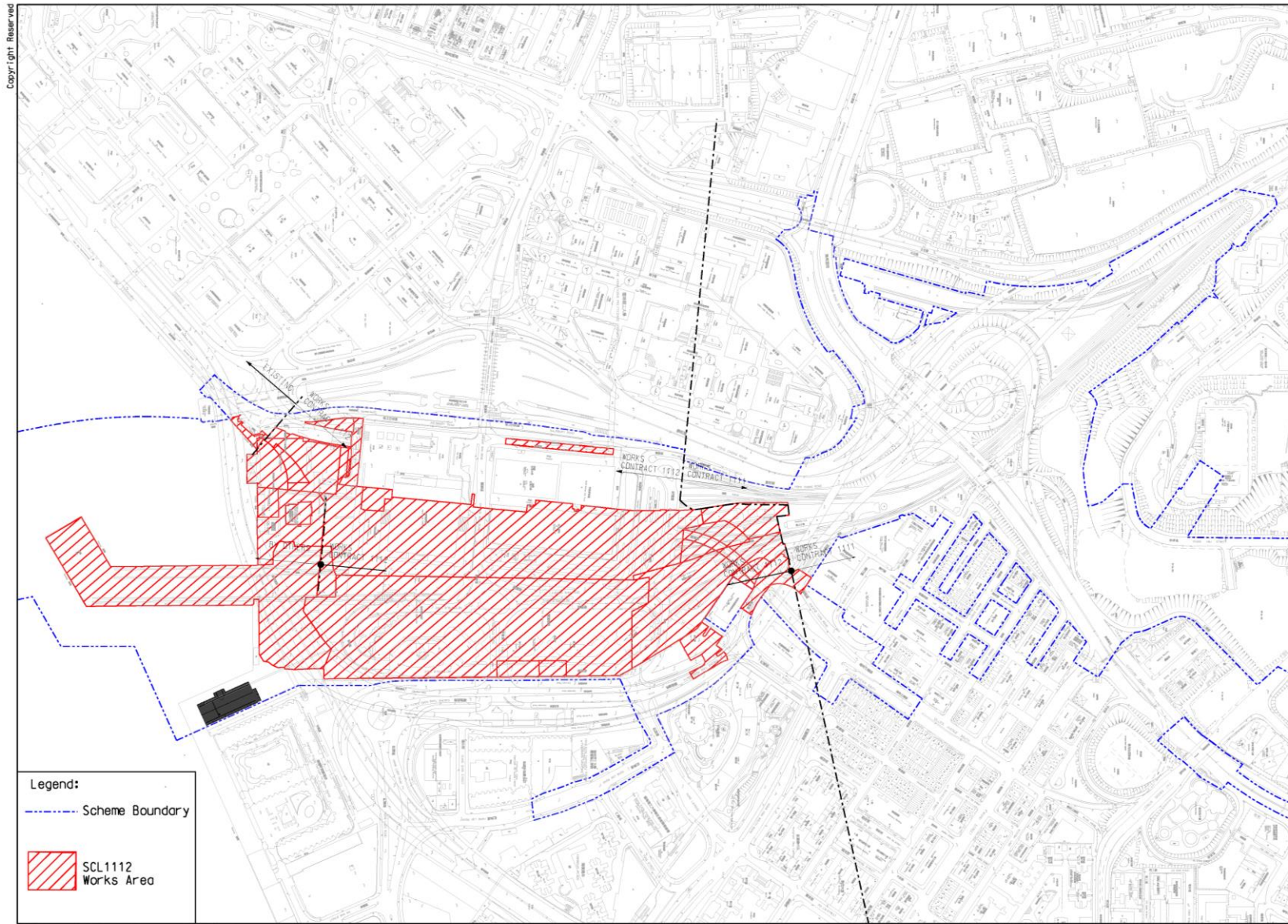
- Provide adequate protections to gully to prevent sand/silt entering the drainage system.

Chemical and Waste Management

- Provide secondary containment with proper maintenance and usage to prevent any possibility in contaminating the land.
- Enhance training on chemical handling to prevent oil spillage.

APPENDIX A

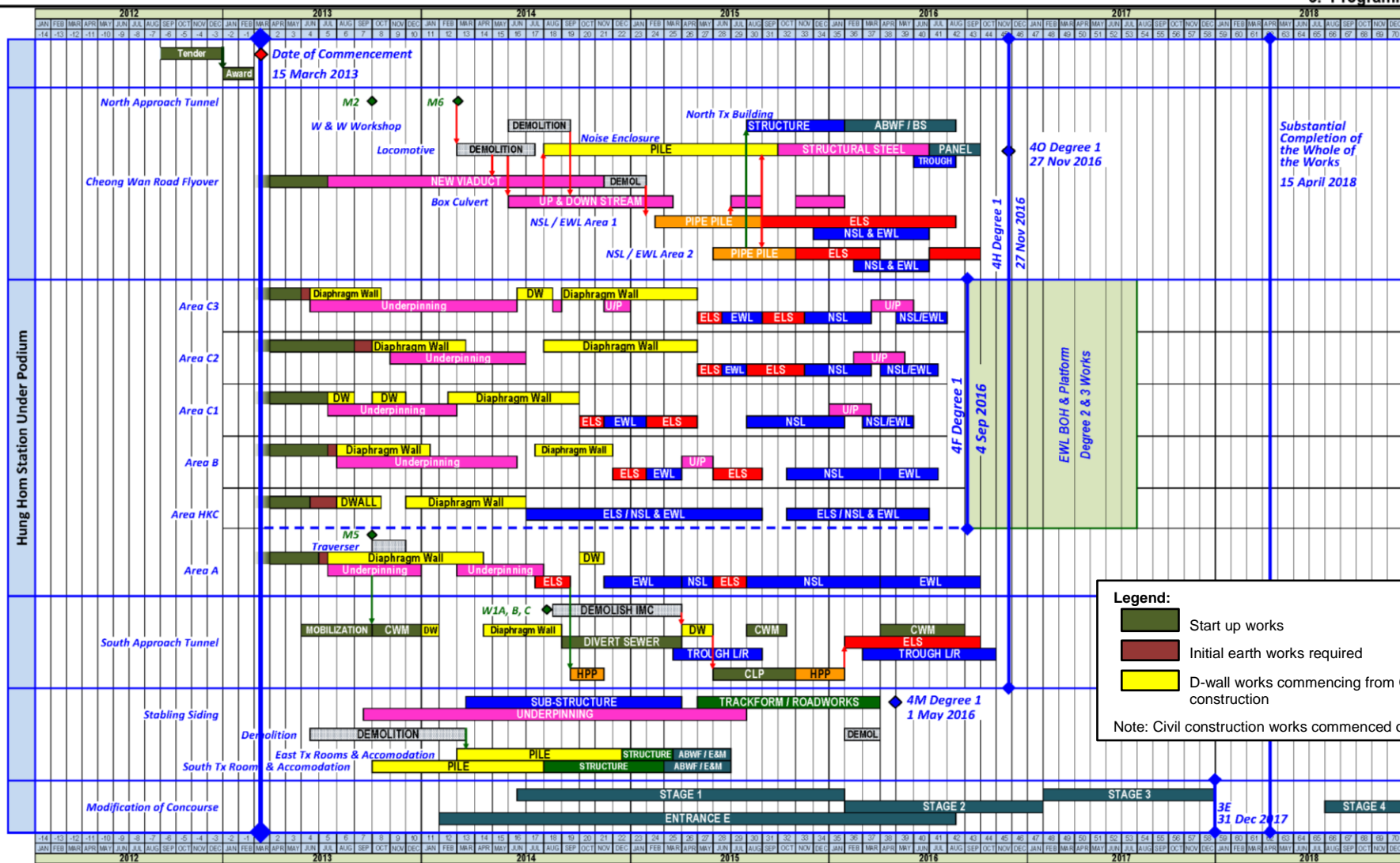
Project Works Boundary



APPENDIX B

Construction Programme

3. Programme



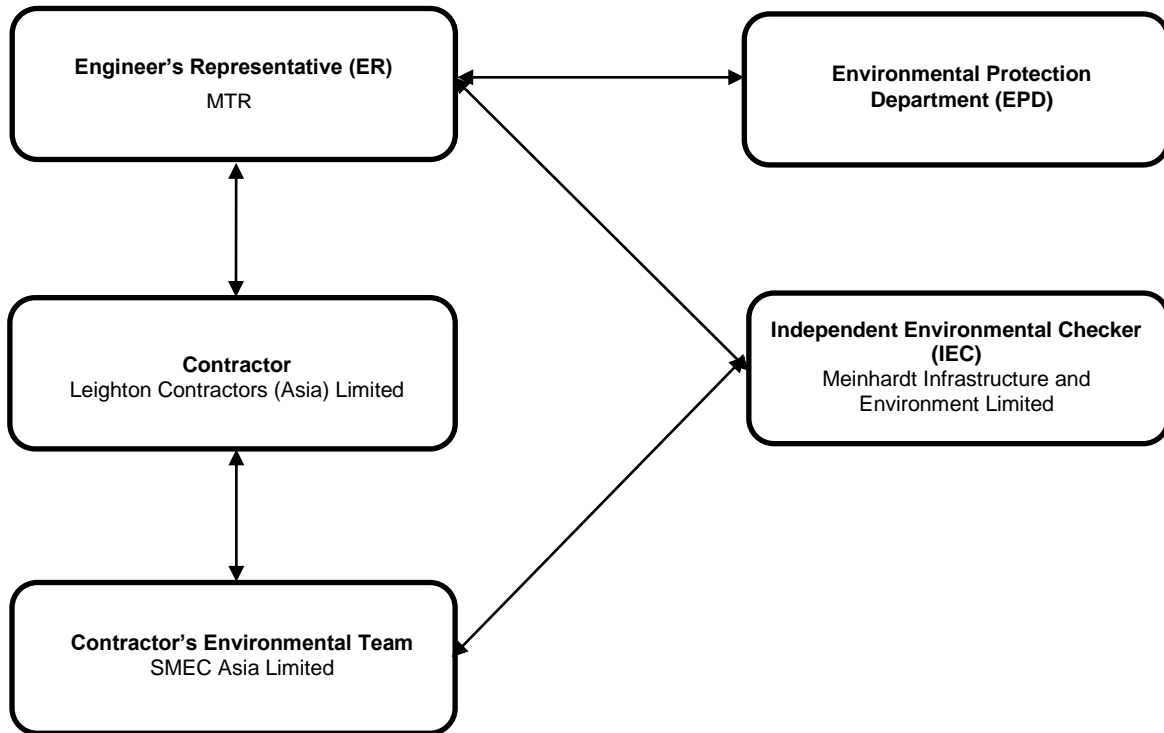
Legend:

- Start up works
- Initial earth works required
- D-wall works commencing from Guide wall construction

Note: Civil construction works commenced on 3 Jun 13

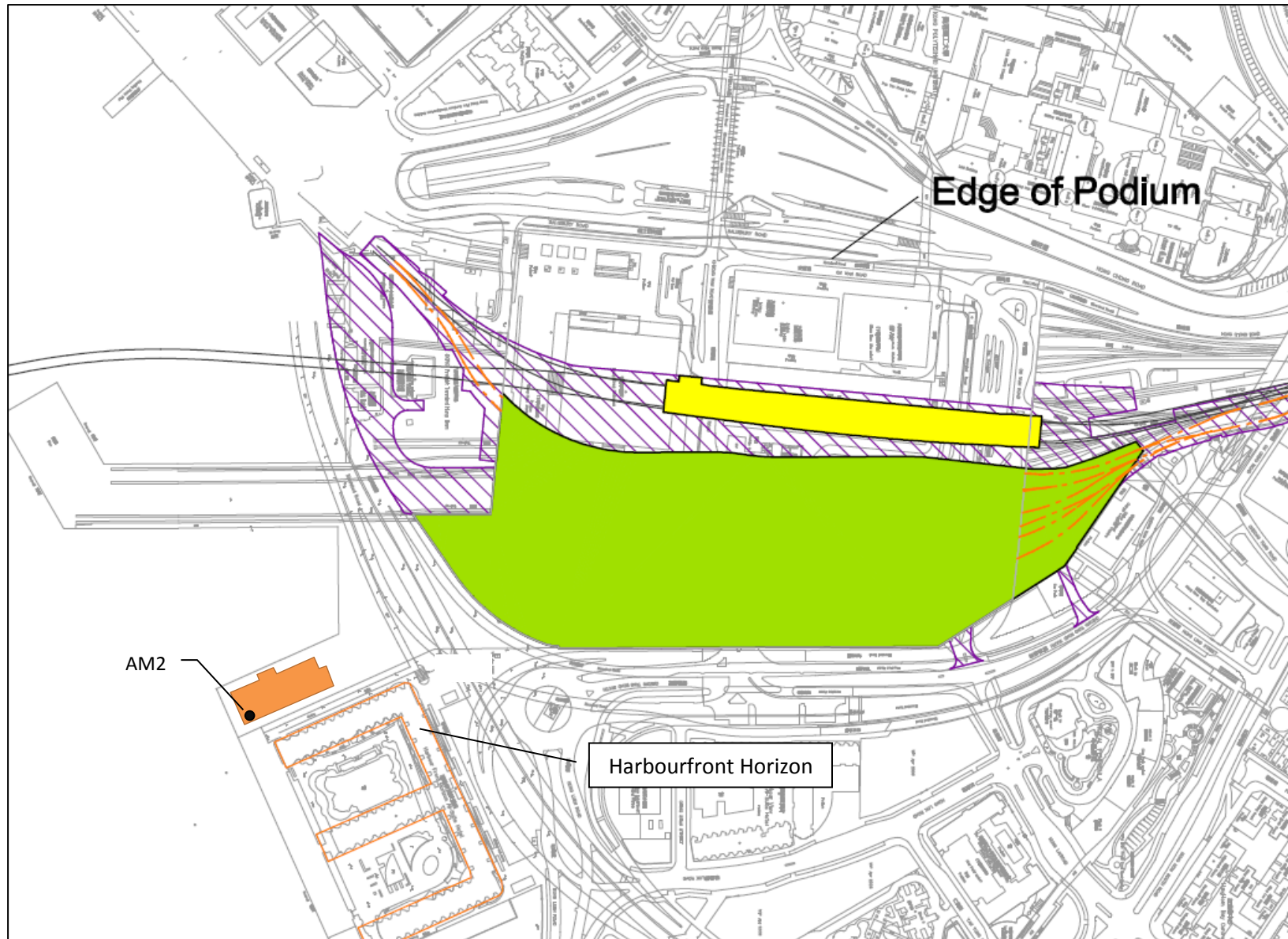
APPENDIX C

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 6, 2014
Sampler: Hunghom MTR TSP	Next Calibration Date: August 6, 2014
Serial No 694-0665	Tech: Sam Wong

CONDITIONS			
Barometric Pressure (in Hg):	39.54	Corrected Pressure (mm Hg):	1004
Temperature (deg F):	88	Temperature (deg K):	304
Average Press. (in Hg):	39.54	Corrected Average (mm Hg):	1004
Average Temp. (deg F):	88	Average Temp. (deg K):	304

CALIBRATION ORIFICE			
Make: Tisch	Qstd Slope:	2.00757	
Model: TE-5025A	Qstd Intercept:	-0.01628	
Serial#: 1612	Date Certified:	April 7, 2014	

CALIBRATIONS						
Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	11.80	1.955	60.0	68.28	Slope =	35.0633
2	10.00	1.801	54.0	61.45	Intercept =	-1.0378
3	7.80	1.591	48.0	54.62	Corr. coeff.=	0.9991
4	5.00	1.276	38.0	43.24		
5	3.00	0.990	30.0	34.14	# 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

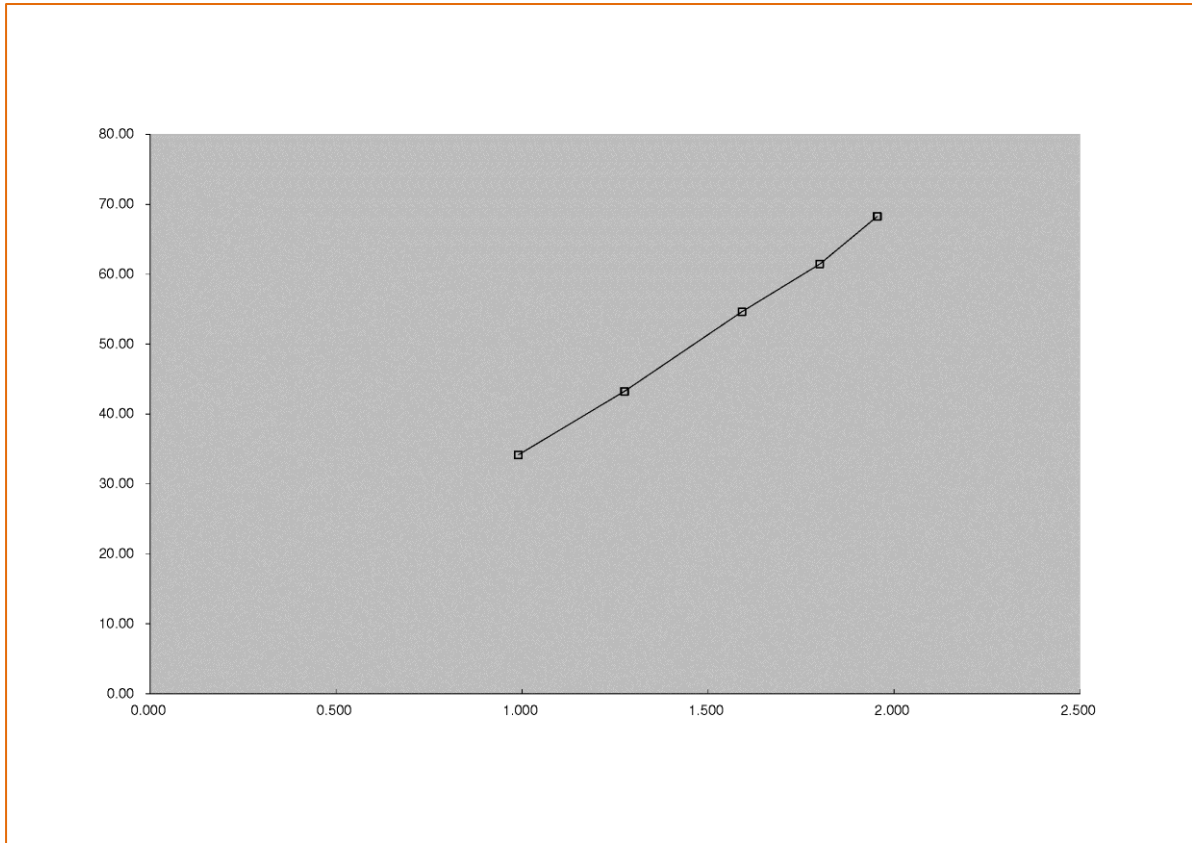
For subsequent calculation of sampler flow:
 $1/m\{I[\text{Sqrt}(298/Tav)(Pav/760)]-b\}$


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

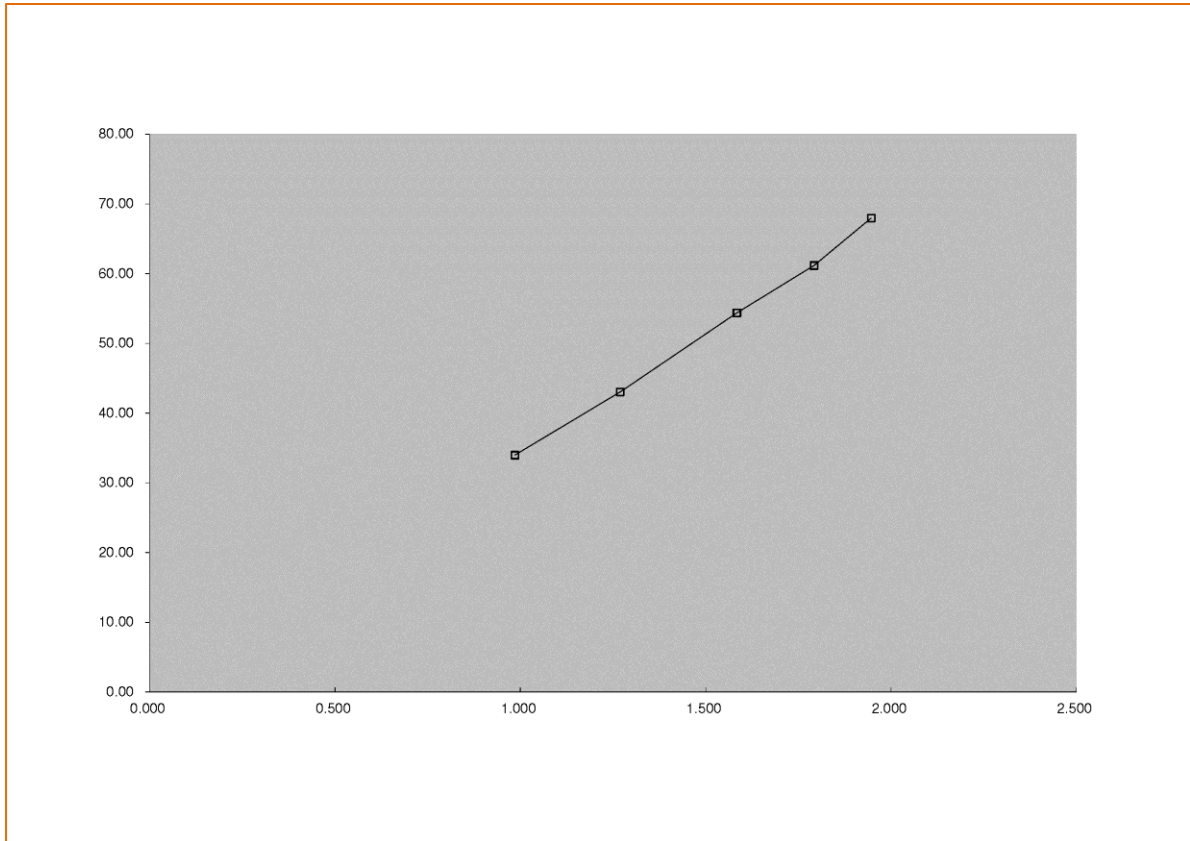
Reviewer: Sam Wong

Signature: 

Date: June 6, 2014



TSP Sampler Calibration					
SITE					
Location: Hung Hom		Calibration Date: August 9, 2014			
Sampler: Hunghom MTR TSP		Next Calibration Date: October 9, 2014			
Serial No 694-0665		Tech: Sam Wong			
CONDITIONS					
Barometric Pressure (in Hg):	39.54	Corrected Pressure (mm Hg):	1004		
Temperature (deg F):	93	Temperature (deg K):	307		
Average Press. (in Hg):	39.54	Corrected Average (mm Hg):	1004		
Average Temp. (deg F):	93	Average Temp. (deg K):	307		
CALIBRATION ORIFICE					
Make:	Tisch	Qstd Slope:	2.00757		
Model:	TE-5025A	Qstd Intercept:	-0.01628		
Serial#:	1612	Date Certified:	April 7, 2014		
CALIBRATIONS					
Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	11.80	1.946	60.0	67.97	Slope = 35.0633
2	10.00	1.792	54.0	61.17	Intercept = -1.0344
3	7.80	1.584	48.0	54.37	Corr. coeff.= 0.9991
4	5.00	1.270	38.0	43.05	
5	3.00	0.985	30.0	33.98	# of Observations: 5
<p>Calculations</p> <p>Qstd = 1/m[$\sqrt{\text{H2O}(\text{Pa}/\text{Pstd})}(\text{Tstd}/\text{Ta})$]-b] IC = I[$\sqrt{\text{Pa}/\text{Pstd}}(\text{Tstd}/\text{Ta})$]</p> <p>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: $1/m((I[\sqrt{298/\text{Tav}}(\text{Pav}/760)]-b)$</p> <p>m = sampler slope b = sampler intercept I = chart response Tav = daily average temperature Pav = daily average pressure</p>					
Reviewer: <u>Sam Wong</u>	Signature: 			Date: <u>August 9, 2014</u>	





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ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 07, 2014 Rootsmeter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 1612 Pa (mm) - 742.95

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	1.3940	3.2	2.00
2	NA	NA	1.00	0.9790	6.4	4.00
3	NA	NA	1.00	0.8800	7.8	5.00
4	NA	NA	1.00	0.8350	8.8	5.50
5	NA	NA	1.00	0.6910	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9866	0.7077	1.4077	0.9957	0.7142	0.8896
0.9823	1.0034	1.9908	0.9914	1.0127	1.2581
0.9804	1.1140	2.2258	0.9894	1.1243	1.4066
0.9791	1.1726	2.3345	0.9881	1.1834	1.4753
0.9739	1.4094	2.8155	0.9829	1.4224	1.7793
Qstd slope (m) = 2.00757			Qa slope (m) = 1.25710		
intercept (b) = -0.01628			intercept (b) = -0.01029		
coefficient (r) = 0.99989			coefficient (r) = 0.99989		
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:

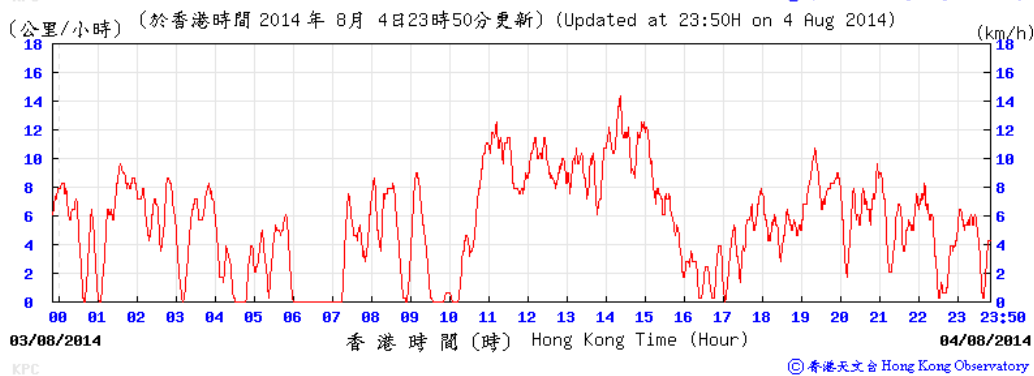
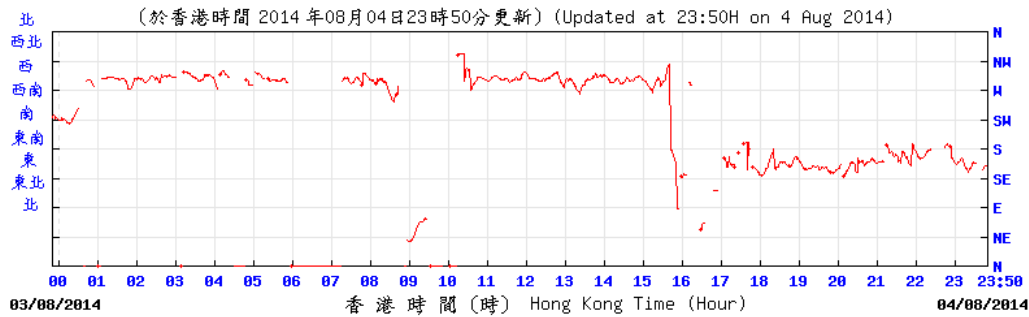
$$Qstd = 1/m \{ [\text{SQRT} (H2O (Pa/760) (298/Ta))] - b \}$$

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

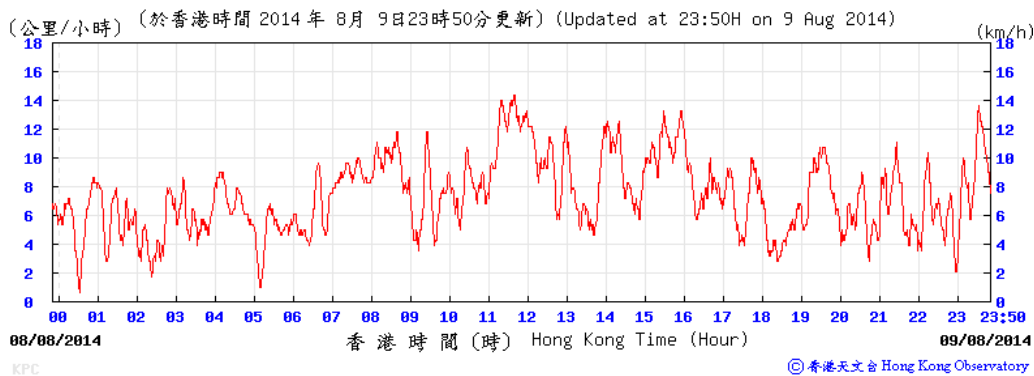
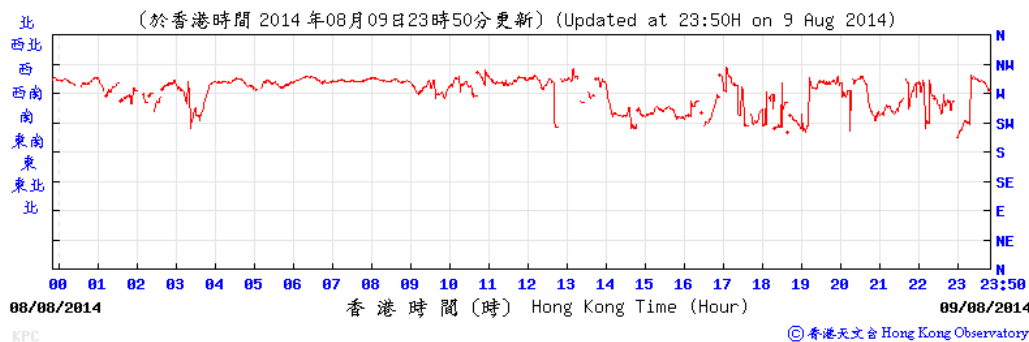
Appendix F

Wind Data

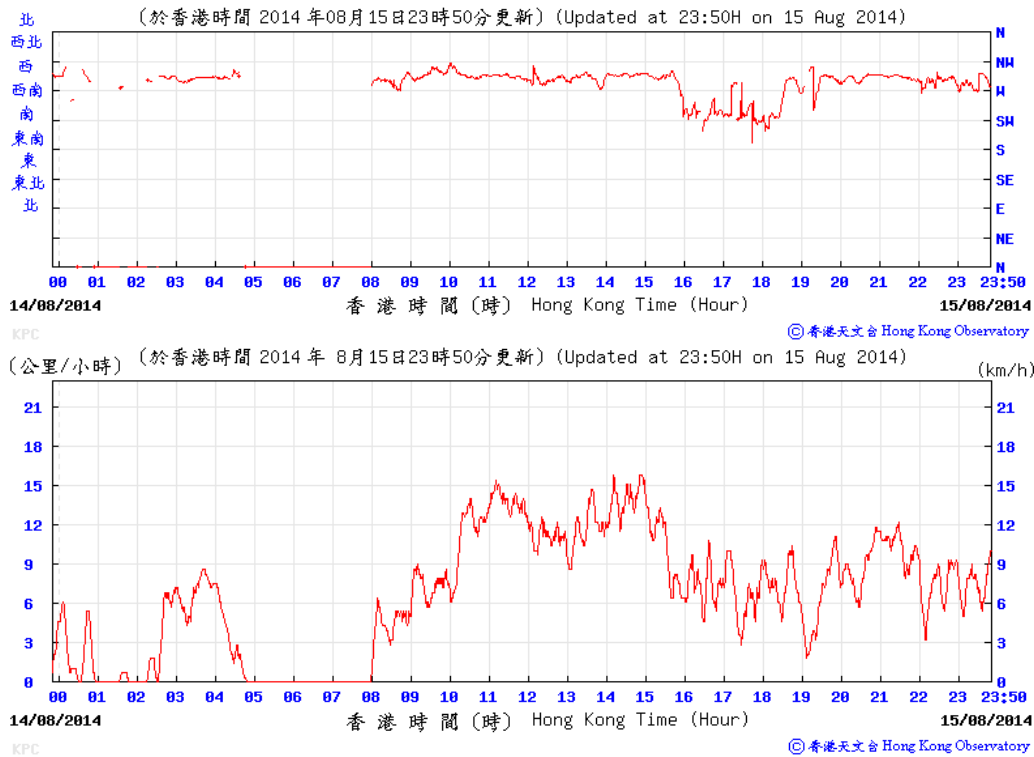
4 August 2014



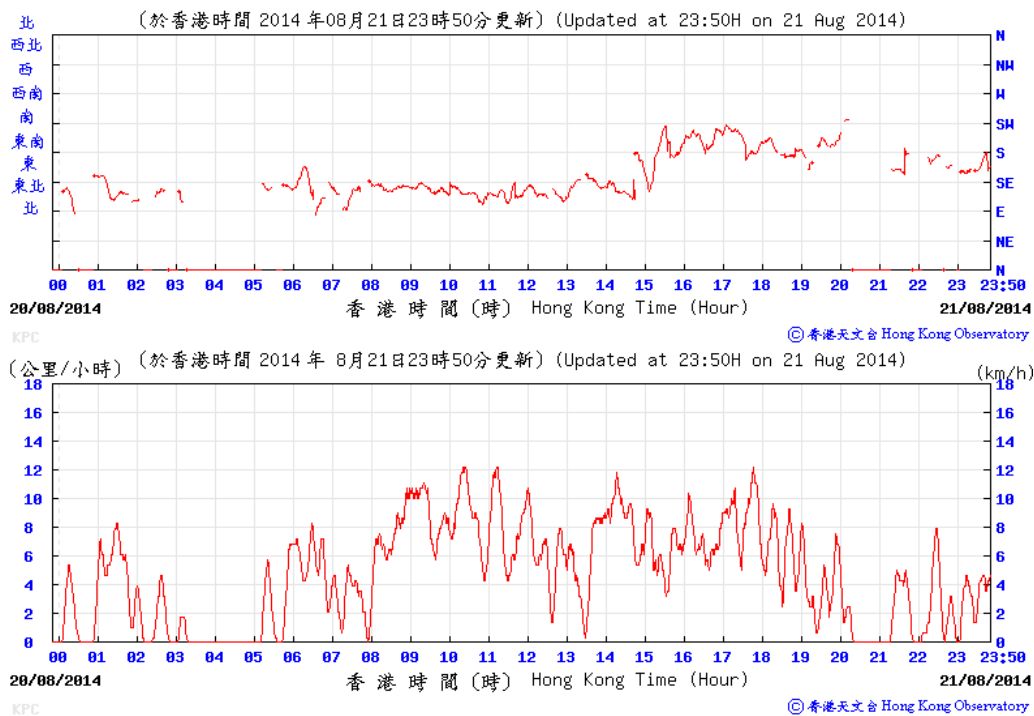
9 August 2014



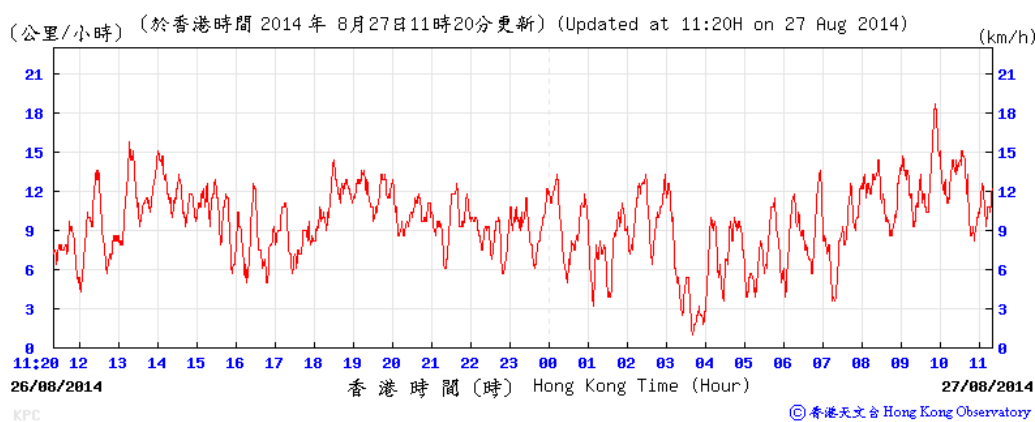
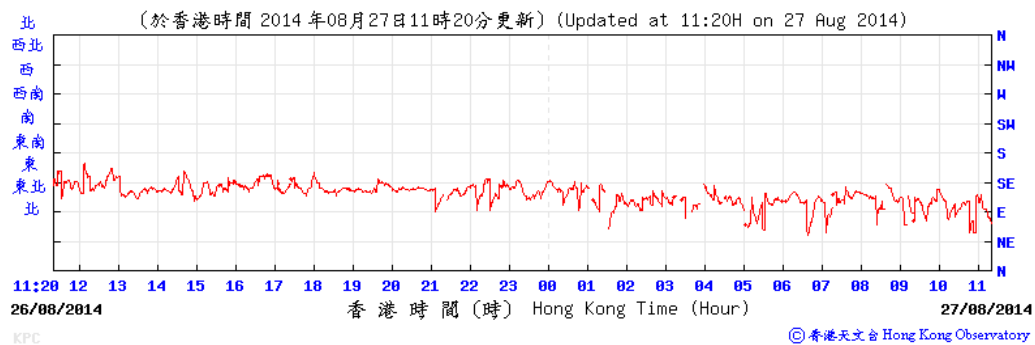
15 August 2014



21 August 2014



27 August 2014



Appendix G

Environmental Monitoring Programme

Environmental Monitoring Schedule for SCL1112 in August 2014

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

Environmental Monitoring Schedule for SCL1112 in September 2014

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 24 hr TSP
14	15	16	17	18	19 24 hr TSP	20
21	22	23	24	25 24 hr TSP	26	27
28	29	30				

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.						
Air Quality (Construction Phase)							
N.A.	Emission from Vehicles and Plants: <ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD). 	Reduce air pollution emission from construction vehicles and plants	Contractor	All constructions sites	Construction stage	Air Pollution Control Ordinance (APCO)	^ # ^
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	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	Barging Facility: <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 	To minimize the construction dust impacts to the nearby sensitive receivers	Contractor	Barging point at Hung Hom Freight Pier	Construction stage	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
	EM&A Manual. <ul style="list-style-type: none"> Vehicles leaving the barging facilities – vehicles would be required to pass through the wheel washing facilities to be provided at site exit. 						N/A
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, 	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	^ ^ ^ ^ ^ ^

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	<p>cutting, polishing or other mechanical breaking operation takes place will be sprayed with water or a dust suppression chemical continuously.</p> <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. 						<p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p> <p>*</p> <p>^</p>
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	^

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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)) Crane, mobile (SWL=94dB(A)) Crawler Crane (SWL=102dB(A)) 	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	*

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	<ul style="list-style-type: none"> • 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	^

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	<p>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 system after accidental spillage. A bypass will be provided for 						<p>^</p> <p>^</p> <p>#</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

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	<ul style="list-style-type: none"> the oil interceptors to prevent flushing during heavy rain. 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. 						^ ^ ^ ^
S10.7.1 of Ref. 1; S10.7.1 of Ref. 3	<u>Tunnelling works</u> <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	^ ^ ^ ^

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S8.68 of Ref. 2; S10.7.1 of Ref. 1	<p><u>Operation of Barging Facilities</u> The following good practice shall apply for the barging facilities operations:</p> <ul style="list-style-type: none"> All barges should be fitted with tight bottom seals to prevent leakage of materials during transport; Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or transportation; All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water. Mitigation measures as outlined for control of <i>construction runoff and site drainage</i> provide above should be applied to minimise water quality impacts from site runoff and open stockpile spoils at the proposed barging facilities where appropriate. 	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	WPCO TM-EIA	^ ^ ^ ^ ^
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 settleable solids in a silt removal facility, and pH adjustment as washing and general cleaning etc., can minimise water 	To minimize water quality impact from building construction	Contractor	All construction sites where practicable	Construction stage	WPCO EIAO-TM	^ N/A

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	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.						
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	^
S8.64 of Ref. 2; S10.7.1 of Ref. 3	<p><u>Groundwater seepage</u></p> <p>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</p>	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	WPCO TM-Water EIAO-TM	^

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	removal facilities. Groundwater from dewatering process will also be discharged into the storm system via silt traps.						
S10.7.1 of Ref. 1; S8.57 – 8.59 of Ref. 2; S10.7.1 of Ref. 3	<p><u>Accidental spillage</u> To prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> • Proper storage and handling facilities will be provided. • All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. • The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. • Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	WPCO ProPECC PN1/94 EIAO-TM TM-Water	* * ^ ^
S8.72 of Ref.2	Regular site inspections should be undertaken to inspect the construction activities and works areas	To ensure the recommended water quality mitigation measures are properly implemented	Contractor	All construction sites	Construction stage	EIAO-TM WPCO ProPECC PN 1/94 TM-DSS WDO	^

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Waste Management (Construction Phase)							
S11.4.1.1 of Ref. 1; S9.80 – 9.83 of Ref. 2; S11.4.1.1 of Ref.3	<p><u>Onsite sorting of C&D material</u></p> <p>Geological assessment will be carried out by competent persons onsite during excavation to identify materials which are not suitable to use as aggregate in structural concrete (eg, volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock will be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator will also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities will be submitted by the Contractors for the Engineer to review and agree. In addition, site records will also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) ref: 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc will also be explored.</p>	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	DEVB TC(W) ref. 6/2010	^
S11.5.1 of Ref.1; S9.72 – 9.74 of Ref. 2; S11.5.1 of Ref.3	<p><u>Construction and demolition material</u></p> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement. Carry out onsite sorting. Make provisions in the Contract documents to allow and promote The use of recycled aggregates where appropriate. Adopt ‘selective demolition’ technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible. Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified. Implement an enhanced Waste Management Plan similar to ETWBTC (Works) ref 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. will be avoided. The contractor will propose the final disposal sites to the Project 	Good site practice to minimise the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW Ref 19/2005	^ ^ ^ ^ ^ ^ ^

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	Proponent and EPD and get their approval before implementation.						
S11.5.1 of Ref.1; S9.73 of Ref. 2; S11.5.1 of Ref.3	<p><u>C&D waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication will be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works will be considered. Use of wooden hoardings will not be used, as in other projects. Metal hoarding will be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The contractor will recycle as much of the C&D materials as possible onsite. Public fill and C&D waste will be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites will be considered for such segregation and storage. 	Good site practice to minimise the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW Ref 19/2005	^ ^
S11.5.1 of Ref.1; S9.100-9.102 of Ref.2; S11.5.1 of Ref. 3	<p><u>General refuse</u></p> <ul style="list-style-type: none"> General refuse generated onsite will be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector will be employed by the contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimise odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans will be often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit will be provided if feasible. Office wastes will be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme will be considered by the contractor. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance	^ ^ ^

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S11.5.1 of Ref.1; S9.84 – 9.93 of Ref. 2	<p><u>Land-based sediment</u></p> <ul style="list-style-type: none"> The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. The Project Proponent should agree in advance with MFC of CEDD on the site allocation. Subject to the final decision by MFC, Type 1 sediments are typically disposed to South Cheung Chau and/or East of Ninepin as open sea disposal while Type 2 sediments are disposed to East Sha Chau as confined marine disposal. Sampling and Testing Plan(s) should be prepared in accordance with ETWB TC(W) No. 34/2002. Site investigation, based on the Sediment Sampling and Testing Plan(s), should be carried out in order to confirm the disposal arrangements for the proposed excavated sediments. A Sediment Quality Report (SQR) should then be submitted to EPD for agreement prior to the tendering of the construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal. The excavated sediments is expected to be loaded onto the dumping trucks and transferred to the barging point where the sediments would be transported via barge to the existing designated disposal sites allocated by the MFC. The excavated sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002. Requirements of the Air Pollution Ordinance (Construction Dust) Regulation, where relevant, shall be adhered to during excavation, transportation and disposal of sediments. Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged 	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>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; and be 	<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>^</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>arranged so that incompatible materials are adequately separated.</p> <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	<p><u>Asbestos wastes</u></p> <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; If proposed remediation methods employ chemical oxidation methods as the contaminant mass reduction technology, chemicals will be securely and separately stored away from 	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
	<p>sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and Personal Protective Equipment</p> <ul style="list-style-type: none"> • 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	<p>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:</p> <p>Set up a list of safety measures for site workers.</p> <p>Provide written information and training on safety for site workers.</p> <p>Keep a log-book and plan showing the contaminated zones and clean zones.</p> <p>Maintain a hygienic working environment.</p> <p>Avoid dust generation.</p> <p>Provide face and respiratory protection gear to site workers.</p> <p>Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers.</p> <p>Provide first aid training and materials to site workers.</p>	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	<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>“Occupation Safety and Health Ordinance (Chapter 509)”</p>	^
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 	Perform environmental monitoring & auditing	Contractor	All construction sites	Construction stage	EIAO Guidance Note Ref4/2010 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
	EM&A Manual are fully complied with.						

Remark for Status:

^ Compliance of mitigation measure
 + Non-compliance but rectified by the contractor
 N/A Not Applicable

X Non-compliance of mitigation measure
 * Recommendation was made during site audit but improved/rectified by the contractor
 # Recommendation was made during site audit and improvement/rectification not yet completed by the contractor

Notes:

Ref. 1 – EIA Report for SCL (TAW-HUH)
 Ref. 2 – EIA Report for SCL (MKK-HUH)
 Ref. 3 – EIA Report for SCL (HHS)

This EMIS contains only those requirements that are relevant to Works Contract 1112 in terms of:

- EM&A required under Works Contract 1112
- Who to implement the measures – the Contractor (Leighton)
- The location of the measures – within and in the vicinity of the Works Contract 1112 Site Boundary
- When to implement the measures – during the design and construction

APPENDIX I

Event and Action Plan

Event and Action Plan for Landscape and Visual Impact Monitoring

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

Event and Action Plan for Air Quality

Event	ET	IEC	ER	Contractor
Action level				
1. Exceedance for one sample	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

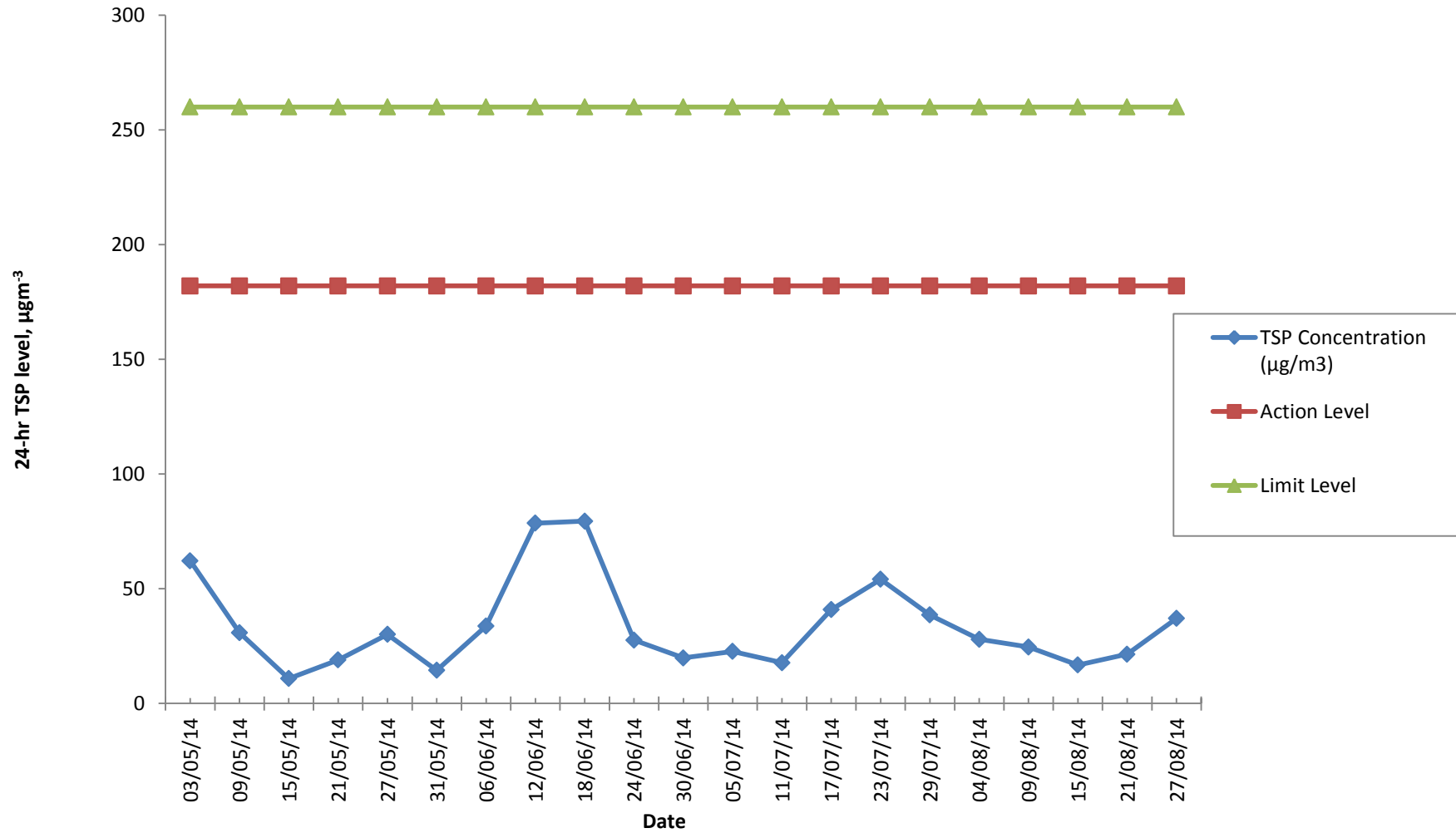
APPENDIX J

Monitoring Results and their Graphical Presentations

Air Quality Monitoring Results for AM2

Sampling Date	Wt. of paper (g)				Elapse Time			Flow Rate (CFM)			Total Volume (m ³)	TSP Concentration (µg/m ³)	Weather	Reference
	Paper No.	Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate				
04/08/14	73	2.7108	2.7564	0.0456	11439.30	11463.30	24.00	40	40	40.0	1631.05	27.9574	Cloudy	-
09/08/14	74	2.7076	2.7477	0.0401	11463.30	11487.30	24.00	40	40	40.0	1631.05	24.5854	Sunny	-
15/08/14	75	2.7033	2.7272	0.0239	11487.30	11511.30	24.00	35	35	35.0	1427.17	16.7464	Sunny	-
21/08/14	76	2.7007	2.7357	0.0350	11511.30	11535.30	24.00	40	40	40.0	1631.05	21.4586	Cloudy	-
27/08/14	82	2.7079	2.7683	0.0604	11535.30	11559.30	24.00	40	40	40.0	1631.05	37.0314	Sunny	-

Construction Dust Monitoring Results for AM2 (Harbourfront Horizon)



APPENDIX K

Waste Flow Table

Waste Flow Table														
Month	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of non-inert C&D Wastes Generated Monthly					
	Generated		Disposed						Recycled				Disposed	
	Total Quantity Generated	Hard Rock and Broken Concrete	Imported from other Projects	Reused in the Contract	Reused in other Projects	Disposed as Public Fills at HH Barging Point	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Metals	Paper/ Cardboard Packaging	Asphalt	Plastics	Chemical Waste	General Refuse ^[Note 2]
Unit	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000Kg)	(in '000Kg)	(in '000Kg)	(in '000Kg)	(in '000Kg)	(in '000Kg)
Jun-13	0	0	0	0	0	0	0	0	137.3	0	0	0	0	6.55
Jul-13	0.36	0	0	0	0	0	0	0.36	365.34	0	0	0	0	16.87
Aug-13	1.68	0	0	0	0	0.05	0	1.63	69.98	0.25	0	0	0	12.67
Sep-13	3.39	0	0	0	0	0.20	0	3.19	131.18	0.22	0	0.46	0	16.25
Oct-13	4.04	0	0	0	0	0.78	0	3.26	179.97	0.63	8.28	2.04	0	39.87
Nov-13	6.09	0	0	0	0	2.09	0.18	3.82	125.70	0.45	160.35	0	0	28.69
Dec-13	5.69	0	0	0	0	1.74	0.01	3.94	72.15	0.39	4.13	0	0	18.04
Jan-14	4.58	0	0	0	0	0	0.27	4.31	117.57	0.26	147.67	0.26	0	30.09
Feb-14	3.80	0	0	0	0.14 ^[Note3]	0	0.19	3.46	28.32	0.29	414.67	0	0	15.73
Mar-14	10.10	0	0	0	6.18 ^[Note4]	0	0.29	3.63	96.26	0.25	0	0	0	47.76
Apr-14	6.67	0	0	0	4.82 ^[Note5]	0	0.0053	1.85	75.43	0.23	1,322.39	0	0.2	78.63
May-14	5.77	0	0.52 ^[Note7]	0.42	2.00 ^[Note6]	0	0.12	3.65	48.86	0.28	501.45	0	0	66.03
Jun-14	4.56	0	0.47 ^[Note9]	0	1.73 ^[Note8]	0	0.29	2.54	0	0.25	0	0	0.4	45.97
Jul-14	8.61	0	0.34 ^[Note11]	0	2.89 ^[Note10]	0	0.87	4.84	0	0	0	0	0	40.50
Aug-14	8.57	0.00	0.20 ^[Note13]	0.00	3.56 ^[Note12]	0.00	0.44	4.57	0	0.00	0.00	0.00	0.00	76.93
TOTAL	73.90	0.00	1.52	0.42	21.31	4.85	2.68	45.06	1448.05	3.51	2558.94	2.76	0.60	540.58

Note:

1. Assume the density of fill is 2 ton/m³.
2. Refuses disposed of at NENT landfill.
3. 137 m³ of the Inert C&D materials were reused in South Island Line (SIL) Project Contract 904.
4. 267 m³ of the Inert C&D materials were reused in South Island Line (SIL) Project Contract 904;
 3,998 m³ of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and

- 1,912 m³ of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08.
5. 1,728 m³ of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and 3,088 m³ of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08.
6. 184 m³ of the Inert C&D materials were reused in South Island Line (SIL) Project Contract 904; and 1814 m³ of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08.
7. 516 m³ of the Inert C&D materials were imported from Shatin to Central Link (SCL) Project Contract 1111.
8. 1,021 m³ of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and 707 m³ of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08.
9. 468.7 m³ of the Inert C&D materials were imported from Shatin to Central Link (SCL) Project Contract 1111.
10. 2,894 m³ of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08.
11. 338.7 m³ of the Inert C&D materials were imported from Shatin to Central Link (SCL) Project Contract 1111.
12. 575.5m³ of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and 2907.6 m³ of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08; and 76.0 m³ of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2009/08
13. 199 m³ of the Inert C&D materials were imported from Shatin to Central Link (SCL) Project Contract 1111.

APPENDIX L

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

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

Appendix I

**15th 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 No. 15

[Period from 1 to 31 August 2014]

Works Contract 1108 – Kai Tak Station and
Associated Tunnels

(September 2014)

Certified by: Goldie Fung



Position: Environmental Team Leader

Date: 12 September 2014

Kaden – Chun Wo Joint Venture (KCJV)

Shatin to Central Link –

Contract 1108

Kai Tak Station and Associated Tunnels

Monthly Environmental Monitoring & Auditing Report for

August 2014

The Contents of this report have been certified by:



Ms. Goldie Fung
(Environmental Team Leader)

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Fax: 2856 2010

TABLE OF CONTENT

Executive Summary	3
1 Introduction	5
1.1 Purpose of the Report	5
1.2 Structure of the Report	5
2 Project Information	7
2.1 Background	7
2.2 General Site Description	7
2.3 Construction Programme and Activities	7
2.4 Project Organization	7
2.5 Status of Environmental Licences, Notification and Permits	8
2.6 Summary of EM&A Requirements	9
3 Environmental Monitoring Requirements	10
3.1 Culture Heritage	10
3.2 Landscape and Visual	10
4 Implementation Status on Environmental Protection Requirements	11
5 Monitoring Results	12
5.1 Cultural Heritage	12
5.2 Landscape and Visual	12
5.3 Waste Management	12
6 Environmental Site Inspection	13
6.1 Site Audit	13
6.2 Implementation Status of Environmental Mitigation Measures	13
7 Environmental Non-Conformance	15
7.1 Summary of Environmental Exceedances	15
7.2 Summary of Environmental Non-Compliance	15
7.3 Summary of Environmental Complaint	15
7.4 Summary of Environmental Summon and Successful Prosecution	15
8 Future Key Issues	16
9 Conclusions and Recommendations	17
9.1 Conclusions	17
9.2 Recommendations	17

LIST OF APPENDICES

Appendix A: Site Location Plan

Appendix B: Construction Programme

Appendix C: Project Organization Chart & Contact Details

Appendix D: Buffer Zone for Lung Tsun Stone Bridge & Former Kowloon City Pier

Appendix E: Event/Action Plan for landscape & Visual During Construction Stage

Appendix F: Waste Flow Table

Appendix G: Updated Environmental Mitigation Implementation Schedule

Appendix H: Cumulative Log for Environmental Exceedance, Complaints, Notification of
Summons and Successful Prosecutions

LIST OF TABLES

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

Table 4.1: Status of Required Submissions under EP

Table 5.1: Quantities of Waste Disposed from the Project

Table 6.1: Summary Results of Site Inspections Findings

Executive Summary

This is the fifteenth 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 August 2014 to 31st August 2014.

Summary of the Construction Works undertaken during the Reporting Month

The major site activities in this reporting period were including:

- Excavation on going
- Wall and top slab construction
- Shoring for access shaft
- Station structure: base slab concreting, base slab rebar fixing, concourse slab rebar fixing
- Nullah diversion: plastering for shotcrete surface
- Mined tunnel: launching shaft, waler installation, receiving shaft, jet grouting, sheet piling

Variation in Construction Method

Based on recent engineering information and having considered the high construction risk for tunnel excavation, the tunnel with mining method is required to be shortened and the associated at-grade construction works within the buffer zone above the Former Kowloon City Pier (FKCP) is therefore proposed to minimize the potential impact on FKCP. The application for variation of an Environmental Permit with Environmental Review Report has been submitted to EPD on 19th March 2014 and the amended Environmental Permit (EP-438/2012/E) was issued to MTRC on 4th April 2014.

Environmental Monitoring and Audit Progress

Culture Heritage

Inspection of the Former Kowloon City Pier was conducted during the weekly environmental site inspection. Details of the inspection findings are presented in Section 6.

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, 2,583 m³ of Type 1 marine mud were generated during this reporting month and were disposed to the receiving facility of Contract 1108A. 6,836 m³ of inert C&D materials were generated and were disposed to Public Fill Reception Facilities of CEDD. 81.06 m³ of non-inert C&D waste were generated and disposed at landfill site. 40 kg of paper was sent to recyclers for recycling.

Environmental Site Inspection

Joint weekly inspections were conducted by representatives of the Contractor, Engineer and ET on 5th, 15th, 19th and 26th August 2014. The representative of the IEC joined the site inspection on 15th August 2014. No site inspection was conducted by EPD during the reporting month. 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:

- Excavation
- Open cut tunnel: shotcreting to excavated slope
- Cut and cover tunnel: wall and top slab concrete
- Station: base slab concreting, concourse slab concreting, base slab rebar fixing, backfilling
- Mined tunnel: launching shaft, receiving shaft, sheet piling, jet grouting

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 fifteenth monthly EM&A Report which summarises the audit findings for the EM&A programme during the reporting period from 1st August 2014 to 31st August 2014.

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**.

- Excavation on going
- Wall and top slab construction
- Shoring for access shaft
- Station structure: base slab concreting, base slab rebar fixing, concourse slab rebar fixing
- Nullah diversion: plastering for shotcrete surface
- Mined tunnel: launching shaft, waler installation, receiving shaft, jet grouting, sheet piling

2.4 Project Organization

The project organization chart and contact details are shown in **Appendix C**.

2.5 Status of Environmental Licences, Notification and Permits

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

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

Permit / License No.	Valid Period		Status	Remark
	From	To		
Environmental Permit (EP)				
EP-438/2012/F	15/07/2014	13/08/2014	Invalid	/
EP-438/2012/G	14/08/2014	N/A	Valid	Supersede the permit (EP-438/2012/F)
Notification pursuant to Air Pollution Control (Construction Dust) Regulation				
Ref. Number 359540	16/05/2013	N/A	Valid	/
Construction Noise Permit for the Carrying Out of Percussive Piling				
PP-RE0002-14	01/03/2014	30/08/2014	Valid	/
Construction Noise Permit for General Works				
GW-RE0246-14	15/03/2014	14/09/2014	Valid	/
GW-RE0308-14	22/03/2014	20/09/2014	Valid	/
GW-RE0460-14	27/04/2014	26/10/2014	Valid	/
GW-RE0583-14	30/05/2014	21/11/2014	Valid	/
GW-RE0757-14	11/07/2014	10/01/2015	Valid	/
GW-RE0748-14	15/07/2014	14/01/2015	Valid	/
GW-RE0856-14	09/08/2014	08/02/2015	Valid	/
GW-RE0863-14	14/08/2014	13/02/2015	Valid	/
GW-RE0899-14	15/08/2014	14/02/2015	Valid	/
Effluent Discharge License				
WT00018268-2014	17/03/2014	31/08/2018	Valid	/
Waste Disposal (Charges for Disposal of Construction Waste) Regulation				
Billing Account No. 7017544	07/06/2013	N/A	Valid	/
Registration of Chemical Waste Producer				
WPN 5213-286-K3069-01	09/07/2013	N/A	Valid	/

Marine Dumping Permit				
EP/MD/15-021	27/05/2014	26/11/2014	Valid	Permit held by C1108A
EP/MD/15-073	14/08/2014	13/09/2014	Valid	Permit held by C1108A

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 Environmental Permit and 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 section under Former Kowloon City Pier.

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	Fourteenth Monthly EM&A Report	14 th August 2014

5 Monitoring Results

5.1 Cultural Heritage

Inspection of the Former Kowloon City Pier was conducted during the weekly environmental site inspection. Details of the inspection findings are presented in Section 6.

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. 2,583 m³ of Type 1 marine mud were generated during this reporting month and were disposed to the receiving facility of Contract 1108A. The inert C&D materials were disposed to the Public Fill Reception Facilities of CEDD. The general refuse was disposed to designated landfill site. Paper was sent to recycler for recycling. No metals and plastics were recycled during this reporting month. No chemical waste was generated and disposed. 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
August 2014	6,836 m ³	81.06 m ³	0 kg	40 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, 15th, 19th and 26th August 2014. The representative of the IEC joined the site inspection on 15th August 2014. The details of observations during site audit can refer to Table 6.1.

No site inspection was conducted by EPD during the reporting month.

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	N/A	N/A	N/A	N/A	N/A	/
Air Quality	N/A	N/A	N/A	N/A	N/A	/
Water Quality	5 Aug 14	The paved haul road of the junction between Area 1 and Area2 was muddy.	Contractor was reminded to remove the mud to improve the environmental condition of the site. Contractor was also recommended to enhance the vehicles washing measure to avoid earth deposition of paved road.	Water tanker and sweeper were provided to frequently wash off the mud on the paved haul road of the junction between Area 1 and Area2.	15 Aug 14	/
	15 Aug 14	Silty water was observed discharging into the nullah at Area 2.	Contractor was advised to enhance the capacity of the wastewater treatment facility and ensure proper de-silting of	No silty water discharged into the nullah at Area 2 was observed	19 Aug 14	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
			wastewater prior to discharge.			
	15 Aug 14	Soil was being piled up on the stockpiling area at Area 1.	Contractor was reminded to cover the stockpile with impervious sheet once available for access and provide proper measures to minimise the potential of runoff.	Stockpile on the stockpile area at Area 1 was covered with tarpaulin once available for access. A trench was constructed for collection of potential muddy runoff	26 Aug 14	/
	19 Aug 14	The haul road between Area 1 & 2 and connecting to C1108A was muddy.	Contractor was advised to wash off the attached mud to maintain site environmental condition. Contractor was also reminded to implement proper measures to prevent earth deposition on haul road.	Water tanker and sweeper were provided to frequently wash off the mud on the haul road between Area 1 & 2 and connecting to C1108A. A trench was constructed to collect the washed water. The overall condition of the haul road was satisfactory	26 Aug 14	/
	26 Aug 14	An oil drum without secondary containment was observed at Area 2.	Contractor was advised to provide drip tray for storage of chemicals on site.	Follow-up action will be inspected in next reporting month.	N/A	/
Waste / Chemical Management	5 Aug 14	General waste was observed inside the trench of Area 2.	Contractor was reminded to remove the waste to maintain good environmental condition.	The general waste inside the trench of Area 2 was removed	15 Aug 14	/
Cultural Heritage	N/A	N/A	N/A	N/A	N/A	/
Landscape and Visual	N/A	N/A	N/A	N/A	N/A	/
Permits/ Licenses	N/A	N/A	N/A	N/A	N/A	/

7 Environmental Non-Conformance

7.1 Summary of Environmental Exceedances

No breaches of Action and Limit levels was recorded in the reporting month.

7.2 Summary of Environmental Non-Compliance

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

7.3 Summary of Environmental Complaint

No environmental project-related complaint was received in the reporting month.

7.4 Summary of Environmental Summon and Successful Prosecution

There was no successful environmental prosecution or notification of summons received since the Project commencement.

The cumulative log for environmental exceedance, non-compliance, complaint and summon and successful prosecution since the commencement of the Project is presented in **Appendix H**.

8 Future Key Issues

The major construction activities in the coming month will include:

- Excavation
- Open cut tunnel: shotcreting to excavated slope
- Cut and cover tunnel: wall and top slab concrete
- Station: base slab concreting, concourse slab concreting, base slab rebar fixing, backfilling
- Mined tunnel: Launching shaft, receiving shaft, sheet piling, jet grouting

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, water quality and waste management. The Contractor has been reminded to properly implement dust, construction noise and water quality 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 fifteenth monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during 1st August 2014 to 31st August 2014 in accordance with the EM&A Manual and the requirement under EP-438/2012/G.

4 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:

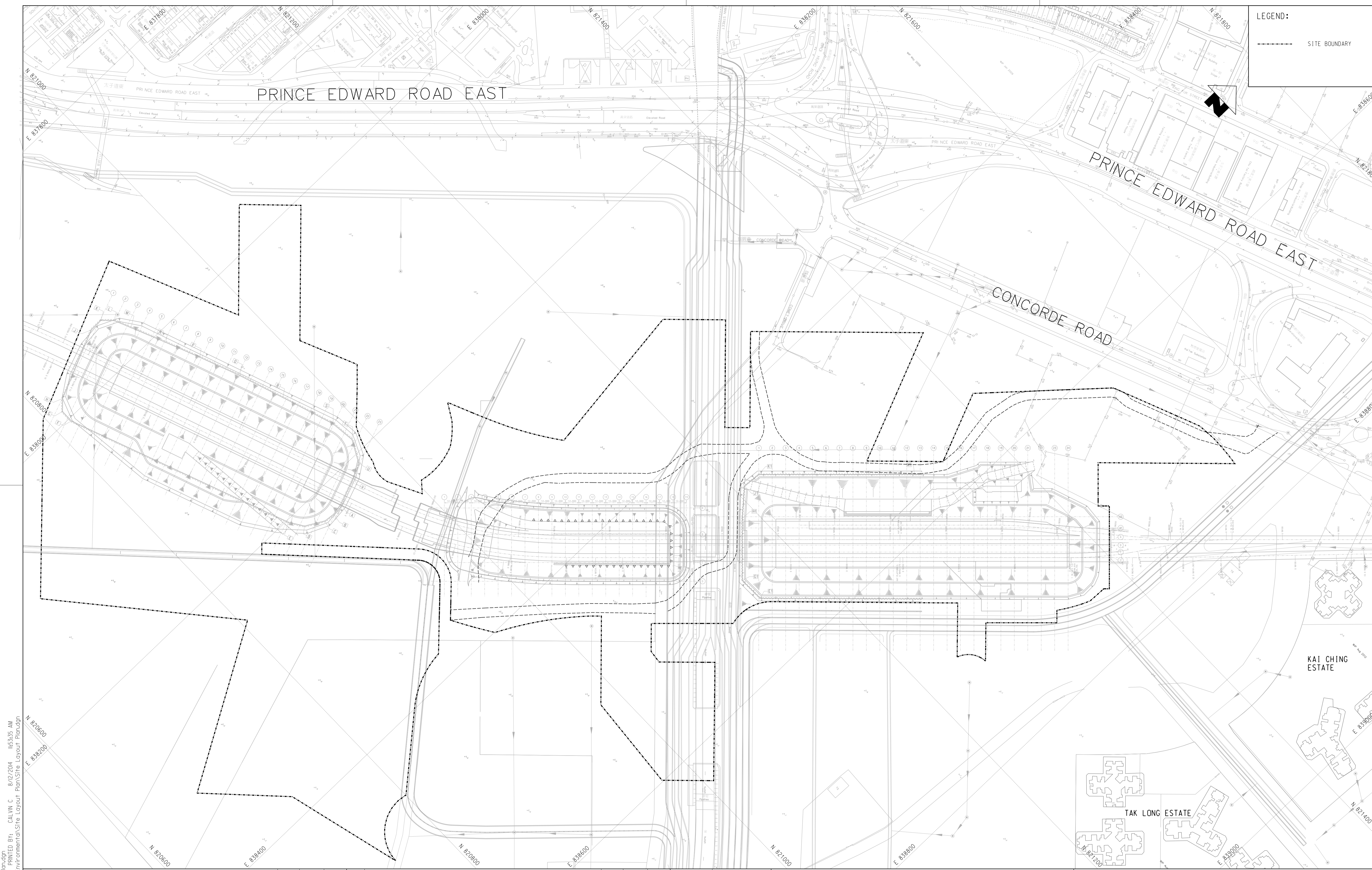
Water Quality Impact

- Remove the mud on haul road and provide proper measures to avoid soil deposition
- Direct site water and runoff to wastewater treatment facilities with sufficient capacity prior to discharge
- Provide proper measure to minimize soil erosion of stockpiles and muddy run-off generation
- Provide secondary containment for the storage of chemicals on-site

Waste Management

- Remove general waste on-site

Appendix A – Site Location Plan



...Site Layout Plan.dgn
 PLOT DRW: ...
 MODELNAME: ...
 FILENAME: ...

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED
A	FIRST SUBMISSION	KW	11/08/14	BW					

DRAWN	CC
DESIGNED	KW
CHECKED	ET
APPROVED	BW
DATE	11/AUG/2014



SHATIN TO CENTRAL LINK



 Kaden - Chun Wo Joint Venture

TITLE
CONTRACT 1108
KAI TAK STATION AND ASSOCIATED TUNNELS
 SITE LAYOUT PLAN

SCALE
 1 : 1500 (A1)

DRAWING NO.
SITE LAYOUT PLAN

REV. A

Appendix B – Construction Programme

Activity ID	Activity Name	Activity % Complete	Start	Finish	August				September				October				November				December	
					17				18				19				20				21	
					04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	01
Contract 1108 Kai Tak Station and Associated Tunnels																						
Contractual Dates and Project Key Dates																						
IPS Milestone Dates																						
Cost Centre B - Kai Tak Station, Entrances and Adits																						
01108.MSB04	B4 - Complete excavation down to station formation level (Week No. 48/14, 30-Nov-14)	0%		31-Aug-14																		
Cost Centre C - South Approach Tunnel																						
01108.MSC03a	C3a - Complete 50% excavation by volume to tunnel formation levels (Week No. 26/14, 23-June-14)	0%		06-Oct-14																		
Schedule of Access Dates for Designated Contractors																						
Programme Constraints																						
01108.PC.P10.17a	Earliest date for connection of temporary diversion of the existing Kai Tak Nullah (01-Oct-14, ref. PSP10.17)	0%	01-Oct-14*																			
A - Preliminaries																						
B - Kai Tak Station, Entrances and Adits																						
B1 KAT Station																						
B1.2 Station - Excavation																						
B1.2.3 Earthworks																						
General Site Clearance & Trim to +3.5mPD																						
01108.STN.EX00-06	Adj to Nullah to GL06 General clearance & trim existing ground to +3.5mPD, 11906 m3	92%	14-Mar-14 A	02-Sep-14																		
Excavation to Formation Level																						
01108.STN.EX21-24	GL 21~24 Excavation, 38731 m3 (5 nr. backhoe)	90%	15-Jan-14 A	02-Sep-14																		
B1.3 Station - U/G C&S Works (Below Concourse Level Soffit)																						
Base Slab																						
01108.STN.BS02-04	GL 02~04 Base slab, 24mL	50%	30-Jul-14 A	15-Sep-14																		
01108.STN.BS21-24	GL 21~24 Base slab, 34mL (Team 1)	50%	01-Aug-14 A	15-Sep-14																		
01108.STN.BS00-02	GL 00~02 Base slab, 19.6mL	0%	22-Sep-14	21-Oct-14																		
External Wall to Concourse																						
01108.STN.EC08-10	GL 08~10 External wall (2 teams, 8 cycles)	85%	03-Jun-14 A	03-Sep-14																		
01108.STN.EC16-19	GL 16~19 External wall (2 teams, 10 cycles)	50%	18-Jun-14 A	12-Sep-14																		
01108.STN.EC06-08	GL 06~08 External wall (2 teams, 8 cycles)	20%	01-Aug-14 A	19-Sep-14																		
01108.STN.EC19-21	GL 19~21 External wall (2 teams, 10 cycles)	0%	01-Sep-14	24-Sep-14																		
01108.STN.EC04-06	GL 04~06 External wall (2 teams, 8 cycles)	0%	01-Sep-14	24-Sep-14																		
01108.STN.EC02-04	GL 02~04 External wall (2 teams, 8 cycles)	0%	15-Sep-14	06-Oct-14																		
01108.STN.EC21-24	GL 21~24 External wall (2 teams, 10 cycles)	0%	16-Sep-14	10-Oct-14																		
01108.STN.EC24-24	GL 24~24 End wall (2 teams in 10m panel, 2 cycles)	0%	16-Sep-14	10-Oct-14																		
01108.STN.EC00-02	GL 00~02 External wall (2 teams, 8 cycles)	0%	21-Oct-14	08-Nov-14																		
01108.STN.EC00-00	GL 00~00 End wall (2 teams in 10m panel, 2 cycles)	0%	21-Oct-14	08-Nov-14																		
Internal Wall & Column to Concourse																						
01108.STN.IC16-19	GL 16~19 Internal wall & column (196m with 6 teams in 10m panel)	85%	28-May-14 A	03-Sep-14																		
01108.STN.IC08-10	GL 08~10 Internal wall & column (168m with 6 teams in 10m panel)	70%	13-Jun-14 A	06-Sep-14																		
01108.STN.IC06-08	GL 06~08 Internal wall & column (168m with 6 teams in 12m panel)	50%	29-Jul-14 A	12-Sep-14																		
01108.STN.IC19-21	GL 19~21 Internal wall & column (224m with 8 teams in 10m panel)	0%	01-Sep-14	24-Sep-14																		
01108.STN.IC04-06	GL 04~06 Internal wall & column (168m with 6 teams in 10m panel)	0%	01-Sep-14	24-Sep-14																		
01108.STN.IC02-04	GL 02~04 Internal wall & column (168m with 6 teams in 10m panel)	0%	15-Sep-14	10-Oct-14																		
01108.STN.IC21-24	GL 21~24 Internal wall & column (224m with 8 teams in 13m panel)	0%	16-Sep-14	10-Oct-14																		
01108.STN.IC00-02	GL 00~02 Internal wall & column (168m with 6 teams in 10m panel)	0%	21-Oct-14	13-Nov-14																		
Platform Slab and Wall																						
01108.STN.PS04-06	GL 04~06 Platform slab & wall (wall - 2 teams x 2 cycles)	80%	02-Jul-14 A	05-Sep-14																		
01108.STN.PS19-21	GL 19~21 Platform slab & wall (wall - 2 teams x 2 cycles)	50%	29-Jul-14 A	15-Sep-14																		
01108.STN.PS02-04	GL 02~04 Platform wall & slab (wall - 2 teams x 2 cycles)	0%	15-Sep-14	08-Oct-14																		
01108.STN.PS21-24	GL 21~24 Platform slab & wall (wall - 2 teams x 2 cycles)	0%	16-Sep-14	15-Oct-14																		
01108.STN.PS00-02	GL 00~02 Platform wall & slab (wall - 2 teams x 2 cycles)	0%	21-Oct-14	11-Nov-14																		
01108.MSB06P	B6 - Complete all structural works for Platform level (Week No. 10/15, 8-Mar-15) - Programmed	0%		11-Nov-14																		
Over Track Exhaust																						
01108.STN.OT14-16	GL 14~16 Over Track Exhaust	60%	25-Jun-14 A	10-Sep-14																		

▲ Milestone
 ▲ Critical Milestone
 ■ Critical Remaining Work
 ■ Remaining Work
 ■ Remaining Level of Effort

— Primary Baseline
 ■ Actual Work

Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (Aug 2014)



Activity ID	Activity Name	Activity % Complete	Start	Finish	August				September				October				November				December			
					17				18				19				20				21			
					04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	01	08	
01108.STN.OT16-19	GL 16~19 Over Track Exhaust	10%	08-Jul-14 A	20-Sep-14	[Actual Work]				[Critical Remaining Work]															
01108.STN.OT08-10	GL 08~10 Over Track Exhaust	20%	23-Jul-14 A	15-Sep-14	[Actual Work]				[Critical Remaining Work]															
01108.STN.OT06-08	GL 06~08 Over Track Exhaust	0%	20-Sep-14	09-Oct-14					[Critical Remaining Work]															
01108.STN.OT19-21	GL 19~21 Over Track Exhaust	0%	25-Sep-14	17-Oct-14	[Actual Work]				[Critical Remaining Work]															
01108.STN.OT04-08	GL 04~08 Over Track Exhaust	0%	25-Sep-14	14-Oct-14					[Critical Remaining Work]				[Actual Work]											
01108.STN.OT02-04	GL 02~04 Over Track Exhaust	0%	10-Oct-14	28-Oct-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.OT21-24	GL 21~24 Over Track Exhaust	0%	11-Oct-14	04-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.OT00-02	GL 00~02 Over Track Exhaust	0%	13-Nov-14	01-Dec-14									[Actual Work]				[Critical Remaining Work]							
Compacted Soil Backfill between Up Track and Refuge Track																								
01108.STN.BF14-16	GL 14~16 Backfill and compaction, 1366 m3	0%	01-Sep-14	15-Sep-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.BF12-14	GL 12~14 Backfill and compaction, 1366 m3	0%	01-Sep-14	15-Sep-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.BF10-12	GL 10~12 Backfill and compaction, 1093 m3	0%	01-Sep-14	15-Sep-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.BF16-19	GL 16~19 Backfill and compaction, 1366 m3	0%	04-Sep-14	18-Sep-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.BF08-10	GL 08~10 Backfill and compaction, 1093 m3	0%	09-Sep-14	22-Sep-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.BF06-08	GL 06~08 Backfill and compaction, 1093 m3	0%	15-Sep-14	26-Sep-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.BF04-06	GL 04~06 Backfill and compaction, 1093 m3	0%	25-Sep-14	09-Oct-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.BF19-21	GL 19~21 Backfill and compaction, 1366 m3	0%	25-Sep-14	09-Oct-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.BF02-04	GL 02~04 Backfill and compaction, 1093 m3	0%	06-Oct-14	13-Oct-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.BF21-24	GL 21~24 Backfill and compaction, 1549 m3	0%	11-Oct-14	24-Oct-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.BF00-02	GL 00~02 Backfill and compaction, 893 m3	0%	08-Nov-14	15-Nov-14									[Actual Work]				[Critical Remaining Work]							
Metalworks, BWIC with Services and BS Works																								
01108.STN.BM12-24	GL 12~24 Installation of PSD support beam, 16.5 t	0%	01-Sep-14	12-Nov-14					[Actual Work]				[Critical Remaining Work]				[Actual Work]				[Critical Remaining Work]			
01108.STN.BW12-24	GL 12~24 BWIC and BS works	0%	16-Sep-14	10-Dec-14					[Actual Work]				[Critical Remaining Work]				[Actual Work]				[Critical Remaining Work]			
B1.4 Station U/G C&S Works (Concourse Level and Above)																								
Concourse Level																								
01108.STN.CS12-14	GL 12~14 Concourse slab	0%	02-Jul-14 A	06-Oct-14	[Actual Work]				[Critical Remaining Work]															
01108.STN.CS14-16	GL 14~16 Concourse slab	0%	16-Sep-14	20-Oct-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.CS10-12	GL 10~12 Concourse slab	0%	16-Sep-14	20-Oct-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.CS16-19	GL 16~19 Concourse slab	0%	20-Sep-14	25-Oct-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.CS08-10	GL 08~10 Concourse slab	0%	27-Sep-14	31-Oct-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.CS06-08	GL 06~08 Concourse slab	0%	11-Oct-14	12-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.CS19-21	GL 19~21 Concourse slab	0%	18-Oct-14	19-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.CS04-06	GL 04~06 Concourse slab	0%	23-Oct-14	24-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.CS02-04	GL 02~04 Concourse slab	0%	28-Oct-14	20-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.CS21-24	GL 21~24 Concourse slab	0%	05-Nov-14	06-Dec-14					[Actual Work]				[Critical Remaining Work]											
External Wall to Lower Ground																								
01108.STN.EG0	External wall hanging platform	0%	01-Sep-14	22-Sep-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.EG12-14	GL 12~14 External wall (2 teams, 8 cycles)	0%	07-Oct-14	29-Oct-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.EG14-16	GL 14~16 External wall (2 teams, 10 cycles)	0%	21-Oct-14	12-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.EG10-12	GL 10~12 External wall (2 teams, 8 cycles)	0%	21-Oct-14	12-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.EG16-19	GL 16~19 External wall (2 teams, 10 cycles)	0%	25-Oct-14	18-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.EG08-10	GL 08~10 External wall (2 teams, 8 cycles)	0%	01-Nov-14	24-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.EG06-08	GL 06~08 External wall (2 teams, 8 cycles)	0%	13-Nov-14	05-Dec-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.EG19-21	GL 19~21 External wall (2 teams, 10 cycles)	0%	20-Nov-14	12-Dec-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.EG02-04	GL 02~04 External wall (2 teams, 8 cycles)	0%	20-Nov-14	09-Dec-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.EG04-06	GL 04~06 External wall (2 teams, 8 cycles)	0%	25-Nov-14	17-Dec-14					[Actual Work]				[Critical Remaining Work]											
Internal Wall to Lower Ground																								
01108.STN.IG12-14	GL 12~14 Internal wall & column (196m with 6 teams in 10m panel)	0%	07-Oct-14	07-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.IG14-16	GL 14~16 Internal wall & column (261m with 8 teams in 10m panel)	0%	21-Oct-14	21-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.IG10-12	GL 10~12 Internal wall & column (196m with 6 teams in 10m panel)	0%	21-Oct-14	21-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.IG16-19	GL 16~19 Internal wall & column (229m with 6 teams in 10m panel)	0%	25-Oct-14	27-Nov-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.IG08-10	GL 08~10 Internal wall & column (196m with 6 teams in 10m panel)	0%	01-Nov-14	03-Dec-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.IG06-08	GL 06~08 Internal wall & column (196m with 6 teams in 12m panel)	0%	13-Nov-14	15-Dec-14					[Actual Work]				[Critical Remaining Work]											
01108.STN.IG19-21	GL 19~21 Internal wall & column (261m with 6 teams in 11m panel)	0%	20-Nov-14	22-Dec-14					[Actual Work]				[Critical Remaining Work]											

▲ Milestone	— Primary Baseline
▲ Critical Milestone	■ Actual Work
■ Critical Remaining Work	
■ Remaining Work	
■ Remaining Level of Effort	

Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (Aug 2014)



Activity ID	Activity Name	Activity % Complete	Start	Finish	August				September				October				November				December	
					17				18				19				20				21	
					04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	01
01108.MT.EX1060	Excavation down to -8.3mPD (approx.3000m3)	0%	28-Nov-14	05-Dec-14																		
C2.1.3 Horizontal Pipe Pile																						
Downtrack and Uptrack																						
01108.MT.HPP1170	1st batch (12 nos.x 610m m & 4nos. x 219m m) after excavation down to -8.3mPD + Back to Back Tie + grouting	0%	16-Oct-14	06-Nov-14																		
01108.MT.EX1190	Waling (TW1)	0%	06-Nov-14	14-Nov-14																		
C3 Cut and Cover Tunnels (U=297m; D=307m)																						
C3.2 Excavation CH 98650 to CH 98866 and CH 98907 to CH 98975																						
C3.2.2 Temporary Works and ELS																						
Temporary Works Design & Approval																						
01108.CCT.DN05.1b.3	CCT ELS/ Hydraulic (CH 98650 to 98750) - No-adverse-comment by RDO/ BD/ GEO	80%	20-Aug-13 A	09-Sep-14																		
01108.CCT.DN05.2.3	CCT ELS (CH 98750 to 98976) - Design No-adverse-comment by RDO/ BD/ GEO	50%	23-Dec-13 A	12-Sep-14																		
Sheet Piles																						
Partial Open Cut																						
01108.CCT.SP0010a	Pre-bored existing seawall for sheet piling, 2 x ~30m horizontal run	0%	01-Sep-14	17-Sep-14																		
C3.2.3 Earthworks																						
Partial Open Cut																						
Open Cut from Existing Ground Level to -3.5mPD																						
01108.CCT.EX8762c	CH 98755~98776 Excavation to -3.5mPD, 3906 m3 + 1680 m3 seawall	20%	06-Jan-14 A	11-Sep-14																		
01108.CCT.EX8783c	CH 98776~98797 Excavation to -3.5mPD, 4746 m3 + 840 m3 seawall	0%	12-Sep-14	03-Oct-14																		
01108.CCT.EX8804c	CH 98797~98818 Excavation to -3.5mPD, 6384 m3	0%	04-Oct-14	28-Oct-14																		
01108.CCT.EX8825c	CH 98818~98840 Excavation to -3.5mPD, 6688 m3	0%	29-Oct-14	21-Nov-14																		
Cofferdam below -3.5mPD																						
01108.CCT.EX8783s	CH 98776~98797 Excavation & struts, 5684 m3	50%	20-Jun-14 A	12-Sep-14																		
01108.CCT.EX8762s	CH 98755~98776 Excavation & struts, 5556 m3	70%	20-Jun-14 A	09-Sep-14																		
01108.CCT.EX8804s	CH 98797~98818 Excavation & struts, 5811 m3	0%	29-Oct-14	18-Nov-14																		
01108.CCT.EX8825s	CH 98818~98840 Excavation & struts, 6222m3	0%	22-Nov-14	12-Dec-14																		
C3.3 C&S Works																						
Tunnel Construction CH 98650 to CH 98840																						
Base Slabs																						
01108.CCT.TB8741	CH98734~98755 Base slabs, 2 x 2 x 10.5mL	0%	09-Sep-14	04-Oct-14																		
01108.CCT.TB8762	CH98755~98776 Base slabs, 2 x 2 x 10.5mL	0%	04-Oct-14	28-Oct-14																		
01108.CCT.TB8783	CH98776~98797 Base slabs, 2 x 2 x 10.5mL	0%	28-Oct-14	20-Nov-14																		
External Walls																						
01108.CCT.TW8720	CH98713~98734 Walls, 2 x 2 x 10.5mL	75%	21-Aug-14 A	04-Sep-14																		
01108.CCT.TW8657	CH98650~98671 Walls, 2 x 2 x 10.5mL	50%	25-Aug-14 A	10-Sep-14																		
01108.CCT.TW8741	CH98734~98755 Walls, 2 x 2 x 10.5mL	0%	04-Oct-14	23-Oct-14																		
01108.CCT.TW8762	CH98755~98776 Walls, 2 x 2 x 10.5mL	0%	28-Oct-14	15-Nov-14																		
01108.CCT.TW8783	CH98776~98797 Walls, 2 x 2 x 10.5mL	0%	20-Nov-14	09-Dec-14																		
Top Slabs																						
01108.CCT.TR8720	CH98713~98734 Top slabs, 2 x 2 x 10.5mL	75%	21-Aug-14 A	04-Sep-14																		
01108.CCT.TR8657	CH98650~98671 Top slabs, 2 x 2 x 10.5mL	50%	25-Aug-14 A	09-Sep-14																		
01108.CCT.TR8741	CH98734~98755 Top slabs, 2 x 2 x 10.5mL	0%	23-Oct-14	08-Nov-14																		
01108.CCT.TR8762	CH98755~98776 Top slabs, 2 x 2 x 10.5mL	0%	15-Nov-14	02-Dec-14																		
Internal C&C Works																						
01108.CCT.IC8678	CH98671~98692 Track level concreteworks & finishes	0%	01-Sep-14	12-Sep-14																		
01108.CCT.IC8699	CH98692~98713 Track level concreteworks & finishes	0%	01-Sep-14	12-Sep-14																		
01108.CCT.IC8720	CH98713~98734 Track level concreteworks & finishes	0%	04-Sep-14	17-Sep-14																		
01108.CCT.IC8657	CH98650~98671 Track level concreteworks & finishes	0%	10-Oct-14	23-Oct-14																		
01108.CCT.IC8741	CH98734~98755 Track level concreteworks & finishes	0%	08-Nov-14	20-Nov-14																		
Waterproofing Works																						
01108.CCT.WP8678	CH98671~98692 2-coat spray, 75m m screed & 75mm blockworks, 2 x 2 x 10.5mL	0%	01-Sep-14	17-Sep-14																		
01108.CCT.WP8699	CH98692~98713 2-coat spray, 75m m screed & 75mm blockworks, 2 x 2 x 10.5mL	0%	01-Sep-14	17-Sep-14																		
01108.CCT.WP8720	CH98713~98734 2-coat spray, 75m m screed & 75mm blockworks, 2 x 2 x 10.5mL	0%	11-Sep-14	27-Sep-14																		
01108.CCT.WP8657	CH98650~98671 2-coat spray, 75m m screed & 75mm blockworks, 2 x 2 x 10.5mL	0%	16-Sep-14	03-Oct-14																		
01108.CCT.WP8741	CH98734~98755 2-coat spray, 75m m screed & 75mm blockworks, 2 x 2 x 10.5mL	0%	14-Nov-14	01-Dec-14																		

▲	▲ Milestone	—	Primary Baseline
▲	▲ Critical Milestone	█	Actual Work
█	Critical Remaining Work	█	Remaining Work
█	Remaining Work	█	Remaining Level of Effort

Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (Aug 2014)



Activity ID	Activity Name	Activity % Complete	Start	Finish	August				September				October				November				December	
					17				18				19				20				21	
					04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	01
Drainage																						
01108.CCT.DR8975	CH98650~98755 U-channel, pipe laying, catch pits, 210mL	0%	04-Oct-14	03-Dec-14																		
Backfill and Compaction																						
Backfill and Compaction CH 98650 to CH 98840																						
01108.CCT.BF8678	CH98671~98692 Backfill, compaction & remove strut, 8470m3	0%	18-Sep-14	13-Oct-14																		
01108.CCT.BF8699	CH98692~98713 Backfill, compaction & remove strut, 8470m3	0%	18-Sep-14	13-Oct-14																		
01108.CCT.BF8657	CH98650~98671 Backfill, compaction & remove strut, 8470m3	0%	24-Sep-14	17-Oct-14																		
01108.CCT.BF8720	CH98713~98734 Backfill, compaction & remove strut, 8470m3	0%	29-Sep-14	21-Oct-14																		
CSMM Backfill CH 98650 to CH 98840																						
01108.CCT.BF8720c	CH98707~98720 CSMM backfill, 13mL x 42m2, total 546 m3	0%	08-Oct-14	14-Oct-14																		
C4 Stub Tunnels (U=32m; D=32m; R=33m)																						
C4.1 Excavation CH 98255 to CH 98290																						
Temporary Works																						
Temporary Works Design, Review & Approval																						
01108.STT.DN04.2.3	Stub Tunnel Interface with C1107 - Design No-adverse-comment by RDO/ BD/ GEO	50%	27-Jan-14 A	11-Sep-14																		
Temporay Works - Sheet Pile & ELS																						
01108.STT.SP070	Sheet piling, Area W1a, FSP III Type A1: 25nr, 680m (25nr x 27.2m)	0%	01-Sep-14	04-Sep-14																		
01108.STT.SP060	Sheet piling, E1~E1, FSP III Type A1: 25nr, 680m (25nr x 27.2m)	0%	01-Sep-14	04-Sep-14																		
01108.STT.SP170	Prebored H-piles (King post), 8nr x 37.5m L	0%	01-Sep-14	10-Sep-14																		
01108.STT.SP180	Prebored H-piles (King post), 4nr x 37.5m L	0%	11-Sep-14	15-Sep-14																		
01108.STT.SP010	Sheet piling, C1~A1, FSP III Type A1, A2: 102nr, 2587m (77nr x 27.2m & 25nr x 19.7m)	0%	11-Sep-14	27-Sep-14																		
Earthworks																						
01108.STT.EX8273	CH98255~98273 Excavation & struts, 10930 m3	50%	27-May-14 A	25-Sep-14																		
01108.STT.EX8290	CH98273~98290 Excavation & struts, 10930 m3	0%	26-Sep-14	10-Nov-14																		
C4.2 Stub Tunnels - C&S Works																						
Tunnel Construction CH98268 to CH98290 (Up Track & Refuge Track)																						
Base Slabs																						
01108.STT.TB8290n	CH98279~98290 Base slabs, 2 x 11mL (Up & Refuge tracks)	0%	11-Nov-14	08-Dec-14																		
C5 SUA																						
C5.1 SUA - C&S Works																						
SUA Access at GL A1/A2																						
01108.OCT.SU010	At CH99088/GL A1~A2 SUA- Baseslab	0%	07-Nov-14	27-Nov-14																		
01108.OCT.SU020	At CH99088/GL A1~A2 SUA- Suspended slabs, beams & walls to -9.482mPD	0%	28-Nov-14	26-Dec-14																		
C6 Access Shafts																						
C&S Works																						
C6.1.1 External Walls																						
01108.CCT.AS010	CH98746~98768 Access shaft - Base slabs, 2 x 3 x 8.88mLx 9.82mW x 1~2.1mT	0%	01-Sep-14	08-Oct-14																		
01108.CCT.AS020	CH98746~98768 Access shaft - Walls B5~B3, W1 to Level C, 2 x 3 x 8.88mLx 9.82mW	0%	09-Oct-14	12-Nov-14																		
01108.CCT.AS030	CH98746~98768 Access shaft - Walls W2, W4, B2 to Level B, 2 x 3 x 8.88mLx 9.82mW x 1~2.1mT	0%	13-Nov-14	17-Dec-14																		
D - Associated Works																						
D3 Instrumentation and Monitoring																						
Instrumentation Installation and Monitoring																						
01108.AWM.0010	Installation of piezometers, inclinometers, ground/ bldg/ utility settlement markers	80%	02-Jul-13 A	15-Sep-14																		
01108.AWM.0030	Regular Monitorings and Submit Monitoring Reports (weekly for 50 months)	50%	01-Aug-13 A	12-Aug-16																		
D4 Landscape																						
Site Formation Works for Engineers' Accommodation																						
01108.AWS.0010	Site formation for Engineer's accommodation - Design, ICE and submission	0%	01-Sep-14	15-Sep-14																		
01108.AWS.0020	Site formation for Engineer's accommodation - Approval	0%	16-Sep-14	15-Oct-14																		
01108.AWS.0030	Filling to formation level for Engineer's accommodation, imported natural material, 3544 m3	0%	16-Oct-14	05-Nov-14																		
D5 Utilities Diversion																						
Diversion of Existing Nullah																						
Temporary Works & Hydraulic Assessment																						
01108.AWD.DNA1.3	KTND Hydraulic Assessment - No-adverse-comment by DSD	90%	08-Aug-13 A	04-Sep-14																		
01108.AWD.DN09.5.3	KTND Temporary Channel - Design - No-adverse-comment by DSD & RDO/ BD/ GEO	90%	16-Jan-14 A	03-Sep-14																		

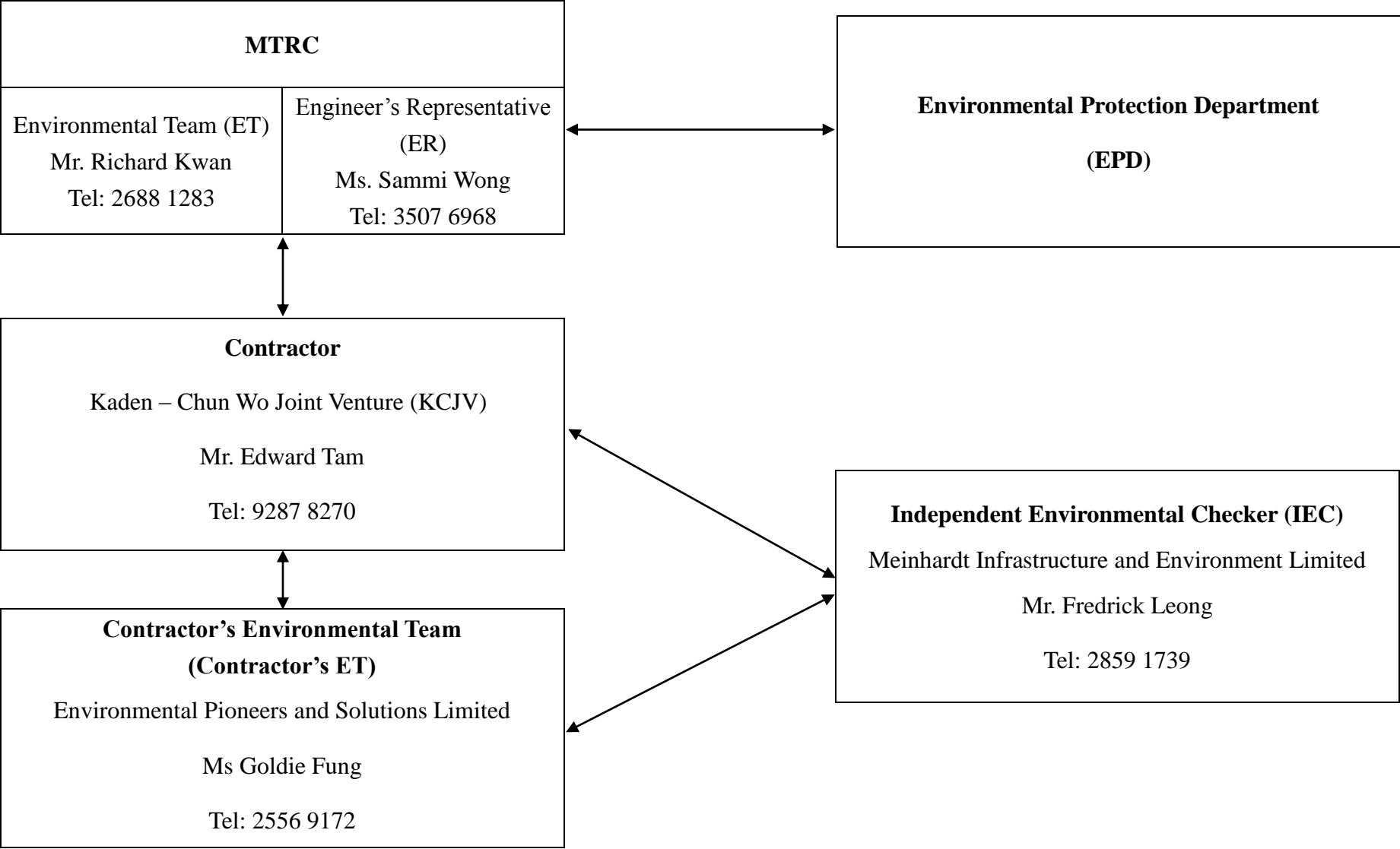
▲ Milestone
 ▲ Critical Milestone
 ■ Critical Remaining Work
 ■ Remaining Work
 ■ Remaining Level of Effort

Primary Baseline
 Actual Work

Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (Aug 2014)

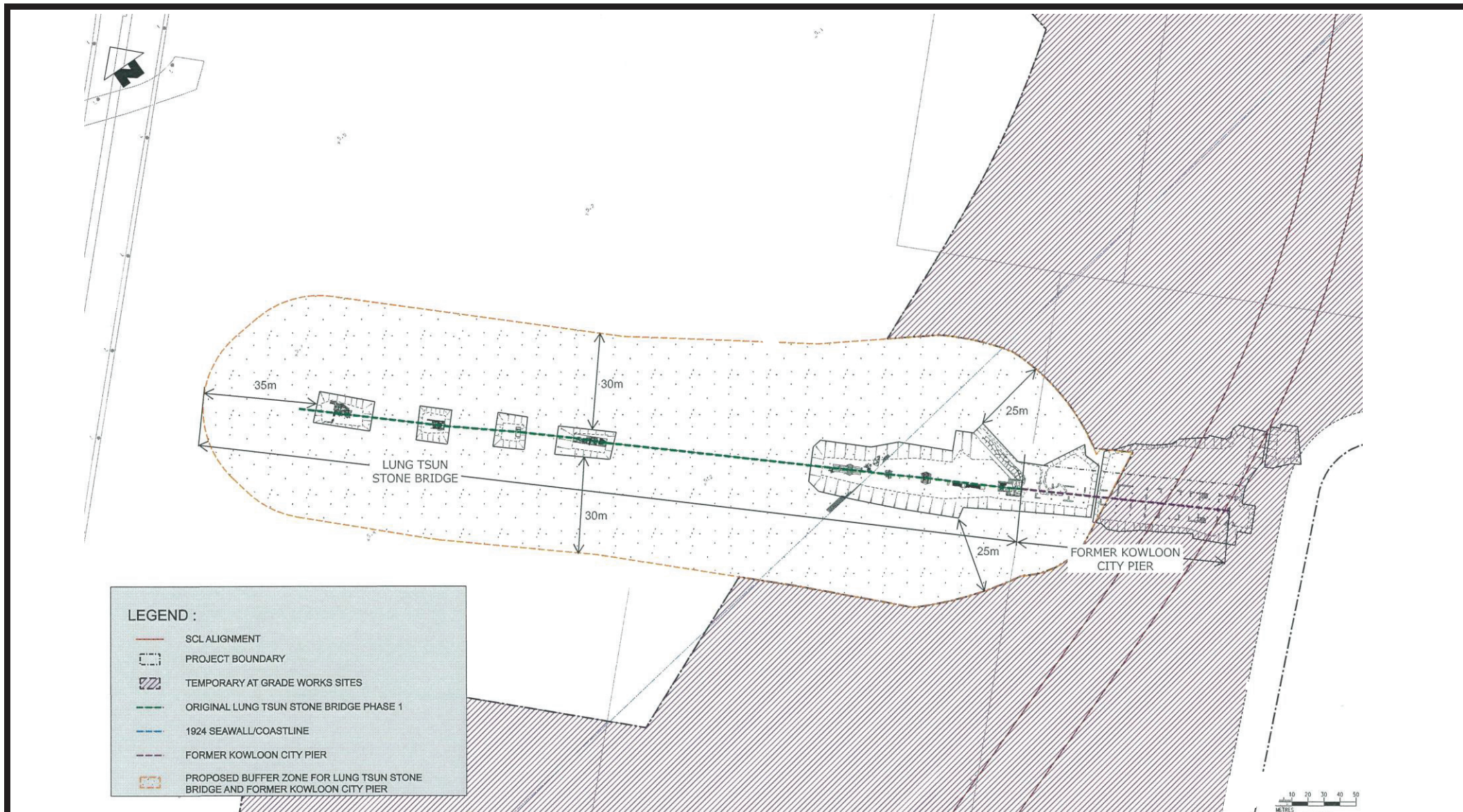


Appendix C –Project Organization Chart & Contact Details



← → Line of communication

***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/G
環境許可證編號：EP-438/2012/G

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 the attachment of the Application No.: VEP-432/2014]
[本圖是根據申請編號 VEP-432/2014 的附件編制]



***Appendix E – Event/Action Plan for landscape & Visual During
Construction Stage***

Event / Action Plan for Landscape and Visual during Construction Stage

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

Appendix F – Waste Flow Table

Monthly Summary Waste Flow Table for 2014 (year)

Month	<u>Actual Quantities of Inert C&D Materials Generated Monthly</u>						<u>Actual Quantities of C&D Materials Generated Monthly</u>				
	Total Quantity Generated	Hard Rocks & Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals	Paper / cardboard packaging	Plastics	Chemical waste	Others (general refuse)
					1108A*	CEDD [#]					
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	74.526	0.000	0.000	0.000	72.007	2.519	32.340	0.110	0.000	0.000	0.059
Feb	57.988	0.000	0.000	0.000	55.963	2.025	0.000	0.160	0.007	0.640	0.123
Mar	45.732	0.000	0.000	0.000	41.405	4.327	0.000	0.096	0.000	0.000	0.146
Apr	32.976	0.000	0.000	0.000	30.126	2.850	0.000	0.034	0.000	0.000	0.060
May	26.839	0.000	0.000	0.000	26.839	0.000	46.620	0.048	0.000	0.260	0.135
Jun	15.390	0.000	0.000	0.000	11.868	3.522	0.000	0.060	0.004	0.000	0.240
Sub-total	253.451	0.000	0.000	0.000	238.208	15.243	78.960	0.508	0.011	0.900	0.763
July	7.001	0.000	0.000	0.000	0.015	6.986	0.000	0.022	0.003	0.000	0.075
August	6.836	0.000	0.000	0.000	0.000	6.836	0.000	0.040	0.000	0.000	0.081
September	--	--	--	--	--	--	--	--	--	--	--
October	--	--	--	--	--	--	--	--	--	--	--
November	--	--	--	--	--	--	--	--	--	--	--
December	--	--	--	--	--	--	--	--	--	--	--
Total	267.288	0.000	0.000	0.000	267.288		78.960	0.570	0.014	0.900	0.919
Year 2013	144.512	0.000	0.000	0.000	144.512		93.330	0.030	0.000	0.480	2.568
Grand Total	411.800	0.000	0.000	0.000	411.800		172.290	0.600	0.014	1.380	3.487

Notes: * MTR SCL Contract 1108A barging point.

Government (CEDD) Public Fill Reception Facilities

***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	CH1	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	LV2	<p><u>Decorative Hoarding</u></p> <p>Erection of decorative screen during construction stage to screen</p>	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context</p> <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> Trees of high to medium survival rate would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006. 				construction stage	
Air Quality (Construction Phase)							
/	A1	<p><u>Emission from Vehicles and Plants</u></p> <ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be 	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		powered by ultra low sulphur diesel fuel (ULSD).					
/	A2	Open burning shall be prohibited.	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	✓
Construction Dust Impact							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	✓
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m ² to achieve the dust removal efficiency.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	✓
S7.6.5	D3	<ul style="list-style-type: none"> • Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the 	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	✓

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

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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					
<i>Construction Noise (Airborne)</i>							
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	Control construction airborne noise	Contractor	All construction sites	Construction stage	✓
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy	Reduce the construction noise	Contractor	All construction sites	Construction	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	levels at low-level zone of NSRs through partial screening.			stage	
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	✓
S8.3.6	N4	Use “Quiet plants”	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	✓
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	✓
Water Quality (Construction Phase)							
S10.7.1	W1	<p>In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:</p> <p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site 	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	*

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction. 					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. 					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the 					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</p> <ul style="list-style-type: none"> • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. 					

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		<ul style="list-style-type: none"> Adopt best management practices 					
S10.7.1	W2	<p><u>Tunnelling Works</u></p> <ul style="list-style-type: none"> Cut-&-cover/ open cut tunnelling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	N/A
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks are 	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		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.					
S10.7.1	W4	<p><u>Groundwater from Contaminated Area:</u></p> <ul style="list-style-type: none"> No direct discharge of groundwater from contaminated areas should be adopted. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in this EIA report for compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water) and the existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination. If the review results indicated that the groundwater to be generated from the excavation works would be contaminated; the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground. If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable 	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found	Construction stage	N/A

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		<p>standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers.</p> <ul style="list-style-type: none"> If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater. 					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	*
Waste Management (Construction Waste)							
S11.4.1.1	WM1	<p>On-site sorting of C&D material</p> <ul style="list-style-type: none"> Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock 	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	✓

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

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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		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 labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	*
S11.5.1	WM6	<u>Land-based and Marine-based Sediment</u>	To control pollution due to	Contractor	Within Project Site	Construction	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location; • All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations; • Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action. • The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers; • The Contractors shall comply with the conditions in the dumping licence. 	marine sediment		Area	Stage	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material; • The material shall be placed into the disposal pit by bottom dumping; • Contaminated marine mud shall be transported by spit barge of not less than 750m³ capacity and capable of rapid opening and discharge at the disposal site; • Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site. • For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping into designated mud pit would be a possible arrangement. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping at the disposal site, thereby fulfil confined mud disposal. 					
S11.5.1	WM7	<u>Chemical Waste</u> <ul style="list-style-type: none"> • Chemical waste that is produced, as defined by Schedule 1 of the 	Control the chemical waste and ensure proper storage,	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</p> <ul style="list-style-type: none"> • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary 	handling and disposal.				

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		storage containers; or be to a reuser of the waste, under approval from the EPD.					
<i>EM&A Project</i>							
S14.2 – 14.4	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	✓

Remarks :

- ✓ Compliance of mitigation measure
- X Non-compliance of mitigation measure
- Non-compliance but rectified by the contractor
- * Recommendation was made during site audit but improved/rectified by the contractor.
- N/A Not Applicable

***Appendix H – Cumulative Log for Environmental Exceedance,
Complaints, Notification of Summons and Successful Prosecutions***

Cumulative Log for Environmental Exceedance, Complaints, Notification of Summons and Successful Prosecution

Reporting Month	Number of Exceedance	Number of Environmental Complaints	Number of Notification of Summons	Number of Successful Prosecutions
January 2014	0	0	0	0
February 2014	0	0	0	0
March 2014	0	0	0	0
April 2014	0	0	0	0
May 2014	0	0	0	0
June 2014	0	0	0	0
July 2014	0	0	0	0
August 2014	0	0	0	0
Total	0	0	0	0
Year 2013	0	0	0	0
Grand Total	0	0	0	0

Appendix J

**11th Monthly EM&A Report for Works Contract 1102 –
Hin Keng Station and Approach Structures**

MTR Corporation Limited

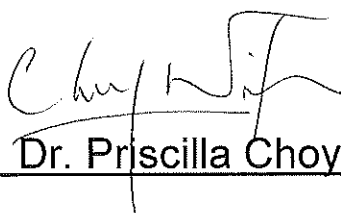
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 11

[Period from 1 to 31 August 2014]

Works Contract 1102 –
Hin Keng Station and Approach Structures

(September 2014)

Certified by: 
_____ Dr. Priscilla Choy _____

Position: Environmental Team Leader

Date: 10th September 2014

Penta-Ocean Construction Co. Ltd.

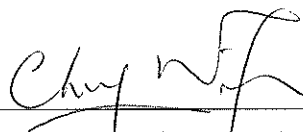
**Shatin to Central Link –
Contract 1102
Hin Keng Station and Approach
Structures**

**Monthly Environmental Monitoring
and Audit Report**

(Version 1.0)

August 2014

Approved By



(Contractor's Environmental Team Leader)

REMARKS:

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

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

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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
Introduction	1
Summary of Construction Works undertaken during the Reporting Month	1
Environmental Monitoring and Audit Progress	1
Regular Construction Noise and Construction Dust Monitoring	1
Waste Management	1
Landscape and Visual.....	1
Environmental Site Inspection	2
Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution	2
Future Key Issues	2
1 INTRODUCTION	3
Purpose of the Report	3
Structure of the Report	3
2 PROJECT INFORMATION.....	4
Background	4
General Site Description	4
Construction Programme and Activities	4
Project Organization.....	4
Status of Environmental Licences, Notification and Permits.....	4
Summary of EM&A Requirements	5
3 ENVIRONMENTAL MONITORING REQUIREMENTS	6
Regular Construction Noise Monitoring	6
Monitoring Parameter and Frequency	6
Monitoring Equipment, Maintenance, Calibration and Procedures	6
Action & Limit Level for Construction Noise Monitoring	7
Continuous Noise Monitoring	7
Regular Construction Dust Monitoring.....	7
Monitoring Parameter and Frequency	7
Monitoring Equipment, Maintenance, Calibration and Procedures	7
Action and Limit Levels for Dust Monitoring	8
Landscape and Visual.....	8
4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS	9
5 MONITORING RESULTS	10
Regular Construction Noise Monitoring	10
Regular Dust Monitoring.....	10
Waste Management	11
Landscape and Visual.....	11
6 ENVIRONMENTAL SITE INSPECTION.....	12
Site Audits	12
Implementation Status of Environmental Mitigation Measures.....	12
7 ENVIRONMENTAL NON-CONFORMANCE.....	14
Summary of Exceedances	14

Summary of Environmental Non-Compliance.....	14
Summary of Environmental Complaint	14
Summary of Environmental Summon and Successful Prosecution	14
8 FUTURE KEY ISSUES	15
Construction Programme for the Next Month.....	15
Key Issues in the Next Month	15
Monitoring Schedule in the Next Month.....	15
9 CONCLUSIONS AND RECOMMENDATIONS	16
Conclusions	16
Recommendations	16

LIST OF TABLES

Table 2.1	Summaries of Environmental Licences, Notification and Permits
Table 3.1	Regular Construction Noise Monitoring Station
Table 3.2	Construction Noise Monitoring Parameters and Frequency
Table 3.3	Dust Monitoring Station
Table 3.4	Dust Monitoring Parameters and Frequency
Table 4.1	Status of Required Submissions under EP
Table 5.1	Summary Table of Construction Noise Monitoring Results
Table 5.2	Summary Table of Dust Monitoring Results
Table 5.3	Quantities of Waste Generated from the Project
Table 6.1	Observations and Recommendations of Site Audit

LIST OF FIGURES

Figure 1	Site Layout Plan of Works Contract 1102
Figure 2	Organization Chart and Key Contact of the Project
Figure 3	Location of Noise Monitoring Station
Figure 4	Location of Dust Monitoring Station

LIST OF APPENDICES

Appendix A	Tentative Construction Programme
Appendix B	Action and Limit Levels
Appendix C	Summary of Exceedance
Appendix D	Site Audit Summary
Appendix E	Updated Environmental Mitigation Implementation Schedule
Appendix F	Event and Action Plans
Appendix G	Waste Generation in the Reporting Month
Appendix H	Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

EXECUTIVE SUMMARY

Introduction

1. This is the 11th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for MTR Shatin to Central Link (SCL) Works Contract 1102 – Hin Keng Station and Approach Structures. This report documents the findings of EM&A Works conducted from 1 to 31 August 2014.

Summary of Construction Works undertaken during the Reporting Month

2. The major site activities undertaken in the reporting month include:
 - Slope improvement works;
 - Pipe Pile Wall;
 - Cap Excavation;
 - ELS Construction;
 - Diversion of Underground Utilities; and
 - Modification of Retaining Wall.

Environmental Monitoring and Audit Progress

3. A summary of the monitoring activities in this reporting period is listed below and the monitoring works were undertaken by Contractor ET of Works Contract SCL 1103:

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours
Noise Monitoring Station ID
 - NMS-CA-1⁽¹⁾ (C.U.H.K.A.A Thomas Cheung School) 4 times
- Construction Dust (24-hour TSP) Monitoring
Dust Monitoring Station ID
 - DMS-1⁽¹⁾ (C.U.H.K.A.A Thomas Cheung School) 6 times

Remarks:

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

Waste Management

4. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 5,061.4 m³ of inert C&D materials were generated from the Project and were sent to Contract 1108A Kai Tak Barging Point and Tseung Kwan O Area 137 Fill Bank during the reporting month. No non-recyclable non-inert C&D materials and 43.3 m³ general refuse were disposed of at NENT Landfill. No chemical wastes, steel material, plastics and paper/cardboard packaging was generated and collected by the recycler during this reporting month.

Landscape and Visual

5. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 12 and 26 August 2014. Most of the necessary mitigation

measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in **Section 6**.

Environmental Site Inspection

6. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 5, 12, 19 and 26 August 2014. The representative of the IEC joined the site inspection on 26 August 2014. Details of the audit findings and implementation status are presented in **Section 6**.

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

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

Future Key Issues

11. Major site activities for the coming reporting month will include:
 - Slope improvement works;
 - Bored piling;
 - Pipe Pile Wall;
 - Cap Excavation;
 - ELS Construction;
 - Diversion of Underground Utilities; and
 - Modification of Retaining Wall.

1 INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was appointed by Penta-Ocean Construction Co.Ltd. (POC) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL)Works Contract 1102 – Hin Keng Station and Approach Structures (hereafter referred to as the Project).

Purpose of the Report

1.2 This is the 11th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 August 2014.

Structure of the Report

1.3 The structure of the report is as follows:

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

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

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

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

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

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

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

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

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts. This Works Contract 1102 covers the construction of SCL Hin Keng Station (HIK Station) and its approach structures. This construction contract was awarded to Penta-Ocean Construction Co. Ltd. (POC) in July 2013 and the EM&A programme was commenced on 1st October 2013.

General Site Description

- 2.3 For Works Contract 1102, the works area for the HIK Station is located next to Hin Keng Estate and Che Kung Miu Road. The alignment and works area for the Works Contract 1102 are shown in **Figure 1**.

Construction Programme and Activities

- 2.4 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.
- Slope improvement works;
 - Pipe Pile Wall;
 - Cap Excavation;
 - ELS Construction;
 - Diversion of Underground Utilities; and
 - Modification of Retaining Wall.

Project Organization

- 2.5 The project organization chart and contact details are shown in **Figure 2**.

Status of Environmental Licences, Notification and Permits

- 2.6 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since the commencement of the construction works in October 2013 are presented in **Table 2.1**.

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

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-438/2012/F	15/7/2014	13/8/2014	Updated to EP-438/2012/G
EP-438/2012/G	14/8/2014	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
Reference No: 362534	29/7/2013	N/A	Valid
Billing Account for Construction Waste Disposal			
A/C No.: 7017900	02/8/2013	N/A	Valid
Registration of Chemical Waste Producer			
Registration No. 5218-759-P1057-03	3/9/2013	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00018589-2014	29/4/2014	30/9/2018	Valid
Construction Noise Permit (CNP)			
GW-RN0380-14	30/6/2014	29/12/2014	Valid

Summary of EM&A Requirements

- 2.7 The EM&A programme under Works Contract 1102 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 of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

- 3.1 In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring station. The construction noise monitoring location is listed in **Table 3.1** and shown in **Figure 3**.

Table 3.1 Regular Construction Noise Monitoring Station

Regular Construction Noise Monitoring Location	Description	Type of Measurement
NMS-CA-1 ⁽¹⁾	C.U.H.K.A.A Thomas Cheung School	Façade

Note (1): NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

Monitoring Parameter and Frequency

- 3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual by the Contractor Environmental Team of Works Contract SCL 1103. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period could be referred to Appendix K of SCL 1103 monthly EM&A report. The construction noise was monitored at the frequency and duration stated in **Table 3.2**.

Table 3.2 Construction Noise Monitoring Parameters and Frequency

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring	Throughout the construction period	L_{eq} (30min)	Once per week

- 3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). L_{Aeq} (30min) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays while L_{10} and L_{90} were also recorded as supplementary reference information for data auditing.

Monitoring Equipment, Maintenance, Calibration and Procedures

- 3.4 The detailed information of monitoring equipment, maintenance, calibration and procedures could be referred to Section 4.2 of SCL 1103 monthly EM&A report.

Action & Limit Level for Construction Noise Monitoring

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

Continuous Noise Monitoring

- 3.6 With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared and submitted under EP Condition 2.10, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria will be anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (TAW-HUH) under Works Contract 1102.

Regular Construction Dust Monitoring

- 3.7 The proposed dust monitoring station for the construction phase of the Project, as recommended in the approved EM&A Manual, is listed in **Table 3.3** and shown in **Figure 4**.

Table 3.3 Dust Monitoring Station

Regular Dust Monitoring Location	Description
DMS-1 ⁽¹⁾	C.U.H.K.A.A. Thomas Cheung School

Note (1): ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

Monitoring Parameter and Frequency

- 3.8 The dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring station in accordance with the requirements stipulated in the EM&A Manual. The monitoring schedule for this reporting period could be referred to Appendix K of SCL 1103 monthly EM&A report. The 24-hour TSP levels were monitored at the frequency and duration stated in **Table 3.4**.

Table 3.4 Dust Monitoring Parameters and Frequency

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring ⁽¹⁾	Throughout the construction period	24-hour TSP ⁽²⁾	Once per 6 days

Note:

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

(2) 24-hour TSP will be conducted when project-related construction activities are being undertaken within a radius of 500m from monitoring stations.

Monitoring Equipment, Maintenance, Calibration and Procedures

- 3.9 The detailed information of monitoring equipment, maintenance, calibration and procedures could be referred to Section 3.2 of SCL 1103 monthly EM&A report.

Action and Limit Levels for Dust Monitoring

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

Landscape and Visual

- 3.11 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is given in **Appendix E**. The Event / Action Plan (EAP) for landscape and visual are presented in **Appendix F**.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
3.4	Monthly Environmental Monitoring & Audit Report (July 2014)	14 August 2014

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 4 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays during the reporting period by ET of SCL 1103. No exceedance of the limit level was recorded at designated monitoring station.
- 5.2 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.3 The detailed noise monitoring results together with their graphical presentations are presented in Appendix H of SCL 1103 monthly EM&A report.

Table 5.1 Summary Table of Construction Noise Monitoring Results

Parameter	Minimum Leq(30min), dB(A)	Maximum Leq(30min), dB(A)	Action Level	Limit Level, Leq(30min), dB(A)
Noise	47.9	53.2	When one documented complaint is received	70/65 ⁽¹⁾

Remarks:

- (1) For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching period and examination periods respectively.
- (2) The noise monitoring data presented in the table is baseline corrected.

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

Regular Dust Monitoring

- 5.5 A total of 6 sets of 24-hour TSP monitoring were carried out at the designated monitoring station of the reporting period by ET of Works Contract SCL 1103. The monitoring results together with their graphical presentations are presented in Appendix E of SCL 1103 monthly EM&A report and a summary of the dust monitoring results in this reporting month is given in **Table 5.2**.

Table 5.2 Summary Table of Dust Monitoring Results

Parameter	Minimum $\mu\text{g}/\text{m}^3$	Maximum $\mu\text{g}/\text{m}^3$	Average $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
24-hr TSP	15.3	34.3	22.9	148.7	260

- 5.6 Wind monitoring data obtained from Kai Tak Meteorological Station of Hong Kong Observatory is shown in Appendix F of SCL 1103 monthly EM&A report.
- 5.7 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.8 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period.

Waste Management

- 5.9 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and paper/cardboard packaging materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.3**. No chemical waste, steel material, plastics, paper/cardboard packaging was generated during this reporting month. Details of waste management data is presented in **Appendix G**.

Table 5.3 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^{(a)(b)}	C&D Materials (non-inert) ^(c)				
		General Refuse	Chemical Waste	Recycled materials		
Paper/cardboard	Plastics			Metals		
August 2014 ^(d)	5,061.4 m ³	43.3 m ³	0 kg	0 kg	0 kg	0 kg

Notes:

- (a) Inert C&D materials include excavated soil and rock, which were delivered to Tseung Kwan O Area 137 Fill Bank during the reporting month.
- (b) In 5,061.4 m³ inert C&D materials, No excavated soil was delivered to Contract 1108A Kai Tak Barging Point and would be reused in other project.
- (c) 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.
- (d) The cut-off date of the waste flow data in reporting month was 29 August 2014.

Landscape and Visual

- 5.10 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 12 and 26 August 2014. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audits

- 6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix D**.
- 6.2 Site audits were conducted on 5, 12, 19 and 26 August 2014 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 26 August 2014. No EPD site inspection was conducted during the reporting month. The details of observations during site audit carried out by ET can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

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

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	5 & 12 Aug 2014	Stagnant liquid and sediment should be properly cleared from the drain at at-grade box. The Contractor should ensure proper capacity for drain to prevent overflow.	The drain was removed by concreting on 19 Aug 2014.
	5 Aug 2014	<u>Reminder:</u> Sediment should be regularly removed from drainage channel near sedimentation tank.	Sediment in drainage channel was removed on 12 Aug 2014.
	12 & 19 Aug 2014	<u>Reminder:</u> Sand bag bund should be improved for gullies at site entrance of at-grade box.	The gullies were removed on 26 Aug 2014.
	19 Aug 2014	Effluent discharge near site entrance appears milky. The Contractor should properly maintain the aquased to improve the quality of effluent.	The quality of the effluent had been improved on 26 Aug 2014.
<i>Noise</i>	19 & 26 Aug 2014	<u>Reminder:</u> Movable noise barrier for generator at at-grade box should be maintained.	Follow up actions will be reported in the next month.
<i>Landscape and Visual</i>	29 Jul 2014	<u>Reminder:</u> Fencing for tree protection zone should be properly maintained.	The fencing for tree protection zone was maintained on 5 Aug 2014.
<i>Air Quality</i>	12 Aug 2014	<u>Reminder:</u> Dusty stockpile opposite to bus terminal should be covered with impervious sheet after construction work.	The dusty stockpile was covered with tarpaulin sheet on 19 Aug 2014.
	19 Aug 2014	<u>Reminder:</u> Blower should be provided to reduce smoke impact generated from welding	Blowers were provided for welding work on 26 Aug 2014.

Parameters	Date	Observations and Recommendations	Follow-up
		work.	
	26 Aug 2014	<u>Reminder:</u> Proper mitigation measure should be implemented for exposed slope at pit-by-pit.	Follow up actions will be reported in the next month.
Waste / Chemical Management	17, 22 and 29 Jul 2014	To provide a drip tray for oil container near the site office.	The oil container was removed on 5 Aug 2014.
	29 Jul 2014	<u>Reminder:</u> Drip tray should be provided to unused air compressor for future use.	The unused air compressor was removed on 5 Aug 2014.
	26 Aug 2014	Oil/Chemical containers should be provided with drip tray. (near tennis court and near aquased)	Follow up actions will be reported in the next month.
Permits/ Licenses	N/A	There was no observation in the reporting period.	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 C**.

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

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

Summary of Environmental Summon and Successful Prosecution

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

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

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

- Slope improvement works;
- Bored piling;
- Pipe Pile Wall;
- Cap Excavation;
- ELS Construction;
- Diversion of Underground Utilities; and
- Modification of Retaining Wall.

Key Issues in the Next Month

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

- Dust arising from loading, unloading, transfer, handling or storage of bulk cement, excavated materials and soil erosion in dry days;
- Control of silty surface runoff;
- Implementation of mitigation measures for wastewater spillage from construction works.
- Preservation and protection of retained and transplanted trees;
- Implementation of mitigation measures for noise nuisance from construction works;
- Control of silty surface runoff during wet season;
- Overflow of the sedimentation tanks and desilting facilities; and
- Regular removal of silt, mud and sand along u-channels and sedimentation tanks.

Monitoring Schedule in the Next Month

8.3 The tentative schedule of regular construction noise monitoring and 24-hour TSP monitoring at in the next reporting period is presented in Appendix K of SCL 1103 monthly EM&A report. The regular construction noise monitoring and 24-hour TSP monitoring will be conducted at the same monitoring locations in the next reporting period.

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 August 2014 in accordance with EM&A Manual and the requirement under EP.
- 9.2 No exceedance of the Action and Limit Levels of regular construction noise and 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting month.
- 9.3 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

- All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times;
- Drainage channel in site area should be regularly inspected and maintained to prevent overflow; and
- Sand bag bund should be provided to gullies in construction area to avoid untreated discharge.

Construction Noise

- Regular review on the noise mitigation measures and the conditions of the implemented noise mitigation measures shall be properly maintained.

Air Quality

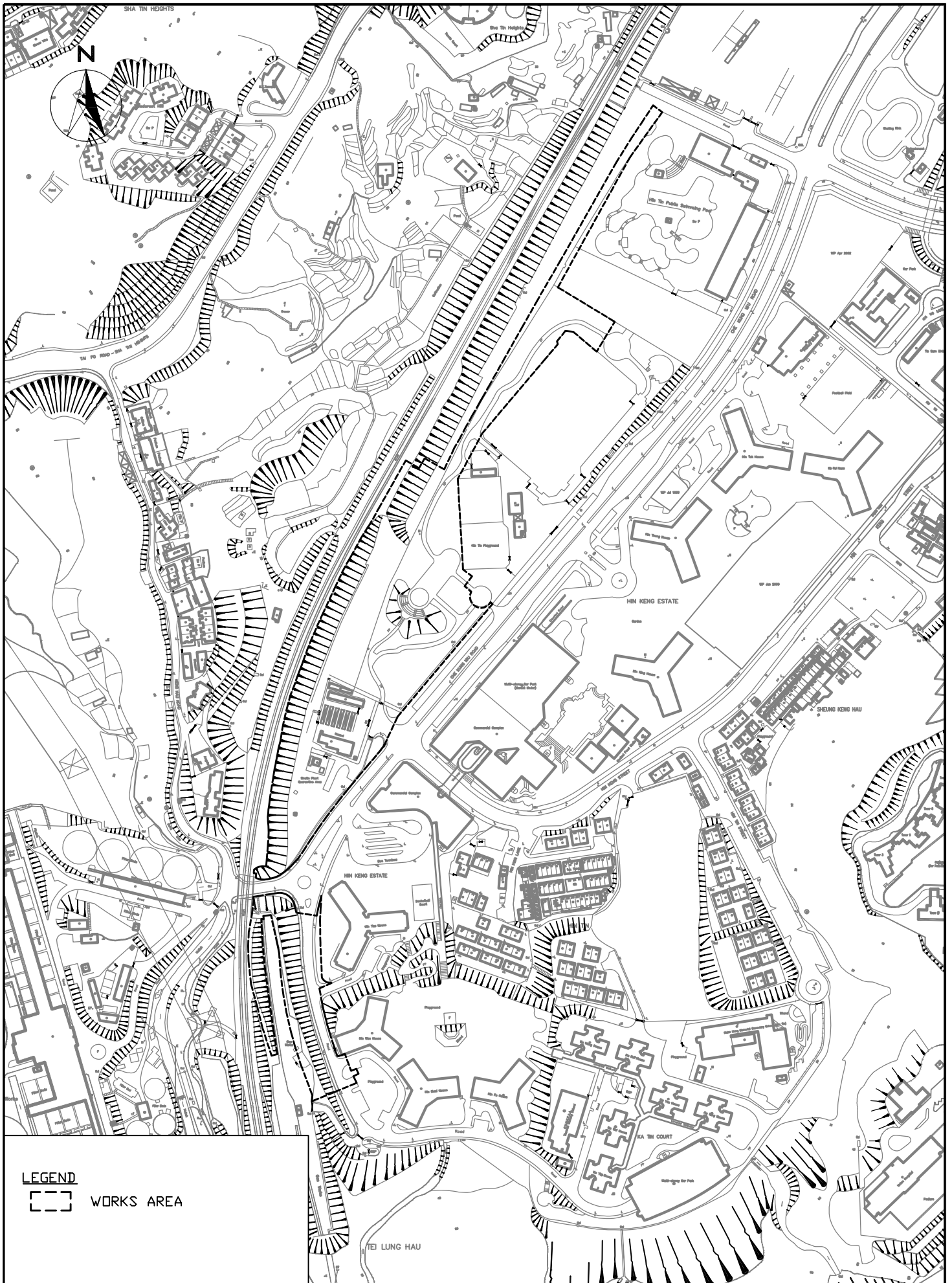
- Exposed work area should be covered with impervious sheet where possible to suppress dust emission;
- Proper mitigation measures should be provided to welding work and other construction activities generating smoke to reduce impact to surroundings; and
- Proper mitigation measures should be implemented for dusty stockpile and exposed slope to reduce construction dust impact.

Waste/Chemical Management

- Good site practice of providing drip trays for temporary use of chemicals shall be sustained. Drip trays should be properly maintained; and
- Provision and enhancement of the preventive mitigation measures to avoid oil

leakage during oil filling works.

FIGURES



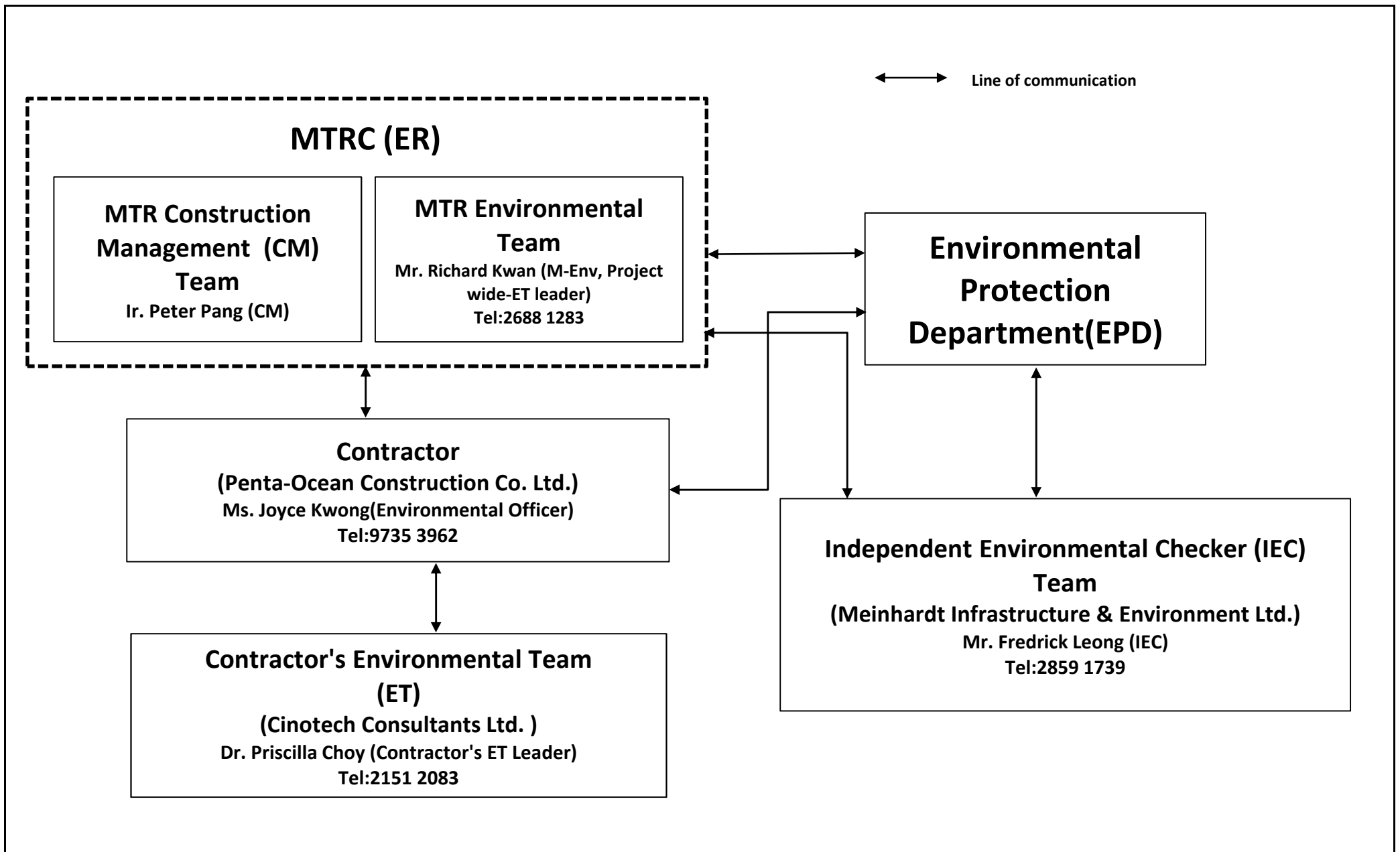
LEGEND

 WORKS AREA

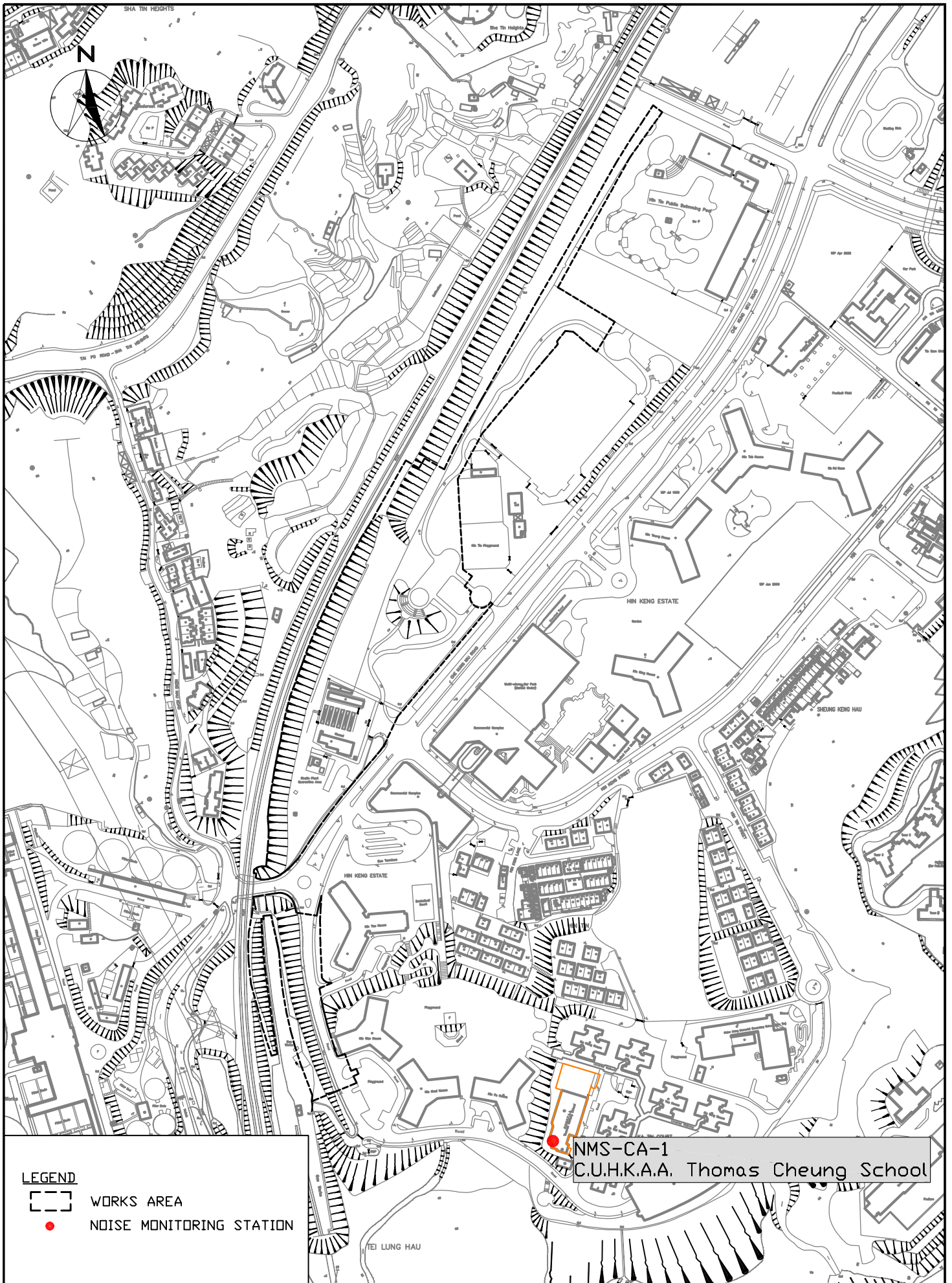
CINOTECH
Cinotech Consultants Limited

SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK -
HIN KENG STATION AND APPROACH STRUCTURES
**SITE LAYOUT PLAN OF
WORKS CONTRACT 1102**

SCALE	1:10000@A4	DATE	NOV 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 1
		REV	-



Title SCL Contract 1102 The Shatin to Central Link - Hin Keng Station and Approach Structures Organization Chart and Key Contact of the Project	Scale	N.T.S	Project No.	MA13040	
	Date	Oct-13	Figure	2	



LEGEND

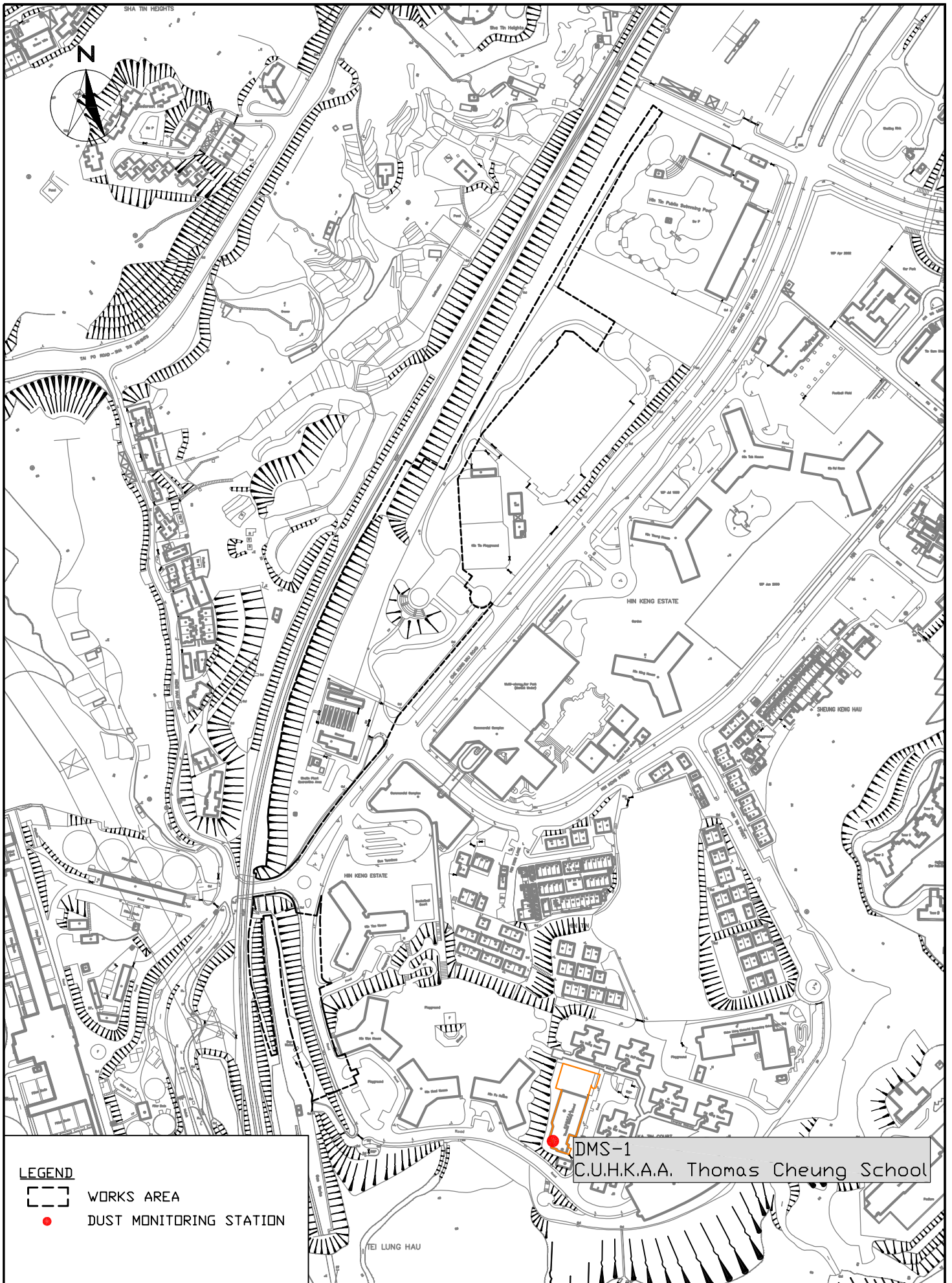
- WORKS AREA
- NOISE MONITORING STATION

NMS-CA-1
C.U.H.K.A.A. Thomas Cheung School



SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK -
HIN KENG STATION AND APPROACH STRUCTURES
LOCATION OF NOISE MONITORING STATION

SCALE	1:10000@A4	DATE	OCT 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 3
		REV	-



DMS-1
C.U.H.K.A.A. Thomas Cheung School

LEGEND

- WORKS AREA
- DUST MONITORING STATION



SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK -
HIN KENG STATION AND APPROACH STRUCTURES
LOCATION OF DUST MONITORING STATION

SCALE	1:10000@A4	DATE	OCT 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 4
		REV	-

**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	2014				
						Aug	Sep	Oct	Nov	Dec
3-month Rolling Programme Summary (Sep to Nov)		910	235	21-Oct-13 A	24-Jun-15					
Hin Keng Station		88	55	02-Jul-14A	06-Nov-14					
Sub-structure		88	55	02-Jul-14A	06-Nov-14					
Cap and Tie Beams		88	50	02-Jul-14A	31-Oct-14					
Earth Mat Installation		58	55	28-Aug-14 A	06-Nov-14					
Superstructure		36	36	19-Sep-14	01-Nov-14					
Concourse Level		20	20	19-Sep-14	14-Oct-14					
Mezzanine Floor		24	24	06-Oct-14	01-Nov-14					
Ma On Shan Line & Tail Track		910	163	21-Oct-13 A	25-Mar-15					
Retaining Wall RW7		330	114	02-Dec-13 A	17-Jan-15					
Initial Work		171	1	02-Dec-13 A	01-Sep-14					
Structural Works		113	113	20-Jun-14 A	17-Jan-15					
Noise Barrier Mini-pile		377	125	21-Oct-13 A	30-Jan-15					
Noise Barrier Work		768	163	15-May-14A	25-Mar-15					
Miscellaneous Items within Operation Area		146	67	28-Mar-14 A	20-Nov-14					
Elevated Evacuation Walkway		146	67	28-Mar-14 A	20-Nov-14					
At-grade Box		214	64	26-Feb-14 A	17-Nov-14					
Temporary Piling Platform		177	64	26-Feb-14 A	17-Nov-14					
Bored Pile Construction		61	61	01-Sep-14	13-Nov-14					
Hin Keng Viaduct		433	235	23-Dec-13 A	24-Jun-15					
Foundation		433	235	23-Dec-13 A	24-Jun-15					
Bored Piles Construction & Pile Test		414	138	23-Dec-13 A	14-Feb-15					
Pile Cap Construction		169	169	20-Nov-14	24-Jun-15					
FR63 Slope		218	55	15-Feb-14 A	06-Nov-14					
Pit by Pit Construction		218	55	15-Feb-14 A	06-Nov-14					
Row 1		128	0	15-Feb-14 A	01-Sep-14					
Row 2		38	38	22-Sep-14	06-Nov-14					
FR65 Slope		382	116	14-Jan-14 A	20-Jan-15					
Pit by Pit Construction		382	116	14-Jan-14 A	20-Jan-15					
Zone 1		300	116	14-Jan-14 A	20-Jan-15					
Zone 2		282	54	21-Jul-14A	05-Nov-14					
Zone 4		54	54	01-Sep-14	05-Nov-14					



- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone

MTRC SCL Project Contract 1102
Hin Keng Station and Approach Structures

3 Months Rolling Programme Summary

(Period - Sep to Nov 2014)

Date	Revision	Checked	Approved
1-Sep-14	0		

**APPENDIX B
ACTION AND LIMIT LEVELS**

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

Regular Dust Monitoring Station	Description	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
DMS-1 ⁽¹⁾⁽²⁾	C.U.H.K.A.A. Thomas Cheung School	148.7	260

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
 (2) Dust monitoring is carried out by Environmental Team of SCL Works Contract 1103.

Construction Noise

Regular Construction Noise Monitoring Station	Description	Time Period	Action Level	Limit Level
NMS-CA-1 ⁽¹⁾⁽²⁾	C.U.H.K.A.A Thomas Cheung School	0700-1900 hrs on normal weekdays	When one documented complaint is received	65 / 70 dB(A) ⁽³⁾

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
 (2) Construction Noise monitoring is carried out by Environmental Team of SCL Works Contract 1103.
 (3) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.

**APPENDIX C
SUMMARY OF EXCEEDANCE**

APPENDIX C – SUMMARY OF EXCEEDANCE

Reporting Month: August 2014

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX D
SITE AUDIT SUMMARY

Shatin to Central Link -

Contract 1102 Hin Keng Station and Approach Structures



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140805
Date	5 August 2014 (Tuesday)
Time	09:00 – 10:45

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

Ref. No.	Remarks/Observations	Related Item No.
140805-O01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Stagnant liquid and sediment should be properly cleared from the drain at at-grade box. The Contractor should ensure proper capacity for drain to prevent overflow. 	B 7 and B 12
140805-R02	<ul style="list-style-type: none"> Sediment should be regularly removed from drainage channel near sedimentation tank. <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 – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I – Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	B 7

	Name	Signature	Date
Recorded by	Jason Lai		5 August 2014
Checked by	Dr. Priscilla Choy		5 August 2014



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140812
Date	12 August 2014 (Tuesday)
Time	09:00 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
140812-R02	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Sand bag bund should be improved for gullies at site entrance of at-grade box. 	B 11
140812-R01	<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"> Dusty stockpile opposite to bus terminal should be covered with impervious sheet after construction work. <p>Part F – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	E 6
140812-F03	<p>Part I – Others</p> <ul style="list-style-type: none"> Stagnant liquid and sediment should be properly cleared from the drain at at-grade box. The Contractor should ensure proper capacity for drain to prevent overflow. 	B 7 and B 12

	Name	Signature	Date
Recorded by	Jason Lai		12 August 2014
Checked by	Dr. Priscilla Choy		12 August 2014

Shatin to Central Link -

Contract 1102 Hin Keng Station and Approach Structures



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140819
Date	19 August 2014 (Tuesday)
Time	09:00 – 10:45

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

Ref. No.	Remarks/Observations	Related Item No.
140819-001	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Effluent discharge near site entrance appears milky. The Contractor should properly maintain the aquased to improve the quality of effluent. 	B 6iii
140819-R03	<p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> Blower should be provided to reduce smoke impact generated from welding work. 	E 11
140819-R02	<p>Part F – Construction Noise Impact</p> <ul style="list-style-type: none"> Movable noise barrier for generator at at-grade box should be maintained. 	F 7
140819-F04	<p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I – Others</p> <ul style="list-style-type: none"> Sand bag bund should be improved for gullies at site entrance of at-grade box. 	B 11

	Name	Signature	Date
Recorded by	Jason Lai		19 August 2014
Checked by	Dr. Priscilla Choy		19 August 2014

*Shatin to Central Link -
Contract 1102 Hin Keng Station and Approach Structures*



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140826
Date	26 August 2014 (Tuesday)
Time	09:00 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
140826-R02	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> Proper mitigation measure should be implemented for exposed slope at pit-by-pit. <p>Part F – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	E 6
140826-O01	<p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> Oil/Chemical containers should be provided with drip tray. (near tennis court and near aquased) <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	G 10
140826-F03	<p>Part I – Others</p> <ul style="list-style-type: none"> Movable noise barrier for generator at at-grade box should be maintained. 	F 7

	Name	Signature	Date
Recorded by	Jason Lai		26 August 2014
Checked by	Dr. Priscilla Choy		26 August 2014

**APPENDIX E
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<i>Ecology (Construction Phase)</i>								
S5.4	E1	Engineering works should not encroach into country park boundary, Tei Lung Hau Stream and secondary woodland near the portal at Hin Keng	Minimise ecological impacts	Contractor	Lion Rock Country Park, Tei Lung Hau Stream	Detailed design and construction stage	<ul style="list-style-type: none"> • AFCD's requirements • EIAO • Country Parks Ordinance 	^
S5.7	E5	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> • Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses in particular the Tei Lung Hau stream; • Avoidance of soil storage against trees or close to 	Minimise ecological impacts	Contractor	All construction sites	During construction	<ul style="list-style-type: none"> • ProPECC PN 1/94 	^
								N/A

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>waterbodies in particular the Tei Lung Hau stream;</p> <ul style="list-style-type: none"> • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. Tei Lung Hau Stream and the adjoining secondary woodland, tunnel on hill at top of slope stabilisation works; • No on-site burning of waste; • Waste and refuse in appropriate receptacles. 						N/A ^ ^
S5.7	E7	<p><u>Water Quality and Hydrology</u></p> <ul style="list-style-type: none"> • Implement water control measures (ETWB TCW No. 5/2005, Protection of natural streams/ rivers from adverse impacts arising from construction works to avoid direct or indirect impacts on the Tei Lung Hau Stream) and good site practices. 	<ul style="list-style-type: none"> • Avoid indirect water impact to any wetland habitats or wetland fauna • Minimize the drawdown of water table 	Contractor	Works area in Hin Keng	Construction stage	• TCW No. 5/2005	^
<i>Landscape & Visual (Construction Phase)</i>								
S6.9.3	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	TM-EIAO	^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

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

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

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>Air Quality (Construction Phase)</i>								
/	A1	Emission from Vehicles and Plants <ul style="list-style-type: none"> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD) 	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^ ^ ^
/	A2	Open burning shall be prohibited	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	• APCO	^
<i>Construction Dust Impact</i>								
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	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^
S7.6.5	D2	• Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area and once per 1.5hour 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	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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						
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 	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	<p style="text-align: center;">^</p> <p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>point should be paved with concrete, bituminous materials or hardcores;</p> <ul style="list-style-type: none"> • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

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

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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	• TM-EIA	^
Construction Noise (Airborne)								
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other 	Control construction airborne noise	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^ ^ ^ ^ ^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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	• 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	*
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected	Contractor	Selected representative	Construction stage	• TM-EIA	^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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, 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. 						<p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

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 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 drainage system and storm runoff being directed into foul sewers. 						<p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">*</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

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 						<p>^</p> <p>*</p> <p>^</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 	^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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.						
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 promotethe 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 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;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<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 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-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. 	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>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<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	<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	<ul style="list-style-type: none"> Waste Disposal Ordinance 	^ ^ ^ ^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<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. 						^
Land Contamination								

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
					Keng Street)	phases		
Chapter 13.13	A13C.8	Establishment of emergency response and evacuation plans (cooperation of various parties/departments required. For the operational phase the emergency plan should also include adequate procedures for controlling the tunnel ventilation system and stopping of the SCL train traffic in order to prevent the trains moving into the affected areas.)	To reduce the risks to the SCL staff, construction workers and passengers	MTRC/ Contractor	-	Construction and operation phases		^
Chapter 13.13	A13C.8	Safety/emergency response/evacuation training and drills for all personnel	To reduce the risks to the SCL staff, construction workers and passengers	MTRC/ Contractor	-	Construction and operation phases		^
EM&A Project								

APPENDIX F
EVENT AND ACTION PLANS

Appendix F - Event and Action Plan for Air Quality Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1102 ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 	<ol style="list-style-type: none"> 1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Inform the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

LIMIT LEVEL

<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 1102 ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and EPD 2. Repeat measurement to confirm findings 3. Increase monitoring frequency 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event and Action Plan for Landscape and Visual during Construction Phase

Action Level	Works Contract 1102 ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

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

Name of Contractor: Penta-Ocean Construction Co. Ltd.
Waste Flow Table for Year 2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated (in '000m ³)	Broken Concrete (in '000m ³)	Reused in the Contract (in '000m ³)	Reused in other Projects (See Note 2) (in '000m ³)	Disposed as Public Fill (See Note 1) (in '000m ³)	Disposed as Sorting Facility (in '000m ³)	Metals (in '000 kg)	Paper/ cardboard packaging (in '000kg)	Plastics (in '000kg)	Chemical Waste (in '000kg)	Others, e.g. general refuse (in '000m ³)
Year 2013	4.2424	0.0803	0	0.2980	3.8011	0.0631	0	0	0	0	0.1227
Jan-14	1.3004	0	0	0.1714	1.1265	0.0025	0	0	0	0	0.0442
Feb-14	0.1766	0	0	0.1483	0.0044	0.0238	0	0	0	0	0.0069
Mar-14	2.7538	0	0	0.3543	2.3748	0.0248	0	0	0	0	0.0479
Apr-14	1.0369	0	0	0.0806	0.9444	0.0120	0	0	0	0	0.0215
May-14	2.5399	0	0	0.8866	1.6390	0.0143	0	0	0	0	0.0360
Jun-14	6.6293	0	0	4.1629	2.4548	0.0117	0	0	0	0	0.0233
Sub-total	18.6793	0.0803	0	6.1021	12.3450	0.1522	0	0	0	0	0.3025
Jul-14	6.4539	0	0	0.2108	6.2431	0	0	0	0	0	0.0307
Aug-14 (See Note 3)	5.0614	0	0	0	5.0562	0.0052	0	0	0	0	0.0433
Sep-14											
Oct-14											
Nov-14											
Dec-14											
Total	30.1946	0.0803	0	6.3129	23.6443	0.1574	0	0	0	0	0.3765

Note: (1) Inert C&D materials include excavated soil and rock, which were delivered to Tseung Kwan O Area 137 Fill Bank during the reporting month.

Note: (2) Excavated soil was disposed of at Contract 1108A Kai Tak Barging Point and would be reused in other Project.

Note: (3) The cut-off date of waste flow data in reporting month was 29 August 2014.

**APPENDIX H
CUMULATIVE LOG FOR COMPLAINTS,
NOTIFICATIONS OF SUMMONS AND
SUCCESSFUL PROSECUTIONS**

Appendix H - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions**Cumulative Complaint Log**

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

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
--	--	--	--	--	--