

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. 64

[Period from 1 to 31 December 2017]

(January 2018)

Verified by: Fredrick Leong 

Position: Independent Environmental Checker

Date: 11 January 2018

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. 64

[Period from 1 to 31 December 2017]

(Jan 2018)

Certified by: Lisa Poon 

Position: Environmental Team Leader

Date: 11 January 2018



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. 64

[Period from 1 to 31 Dec 2017]

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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 REQUIREMENTS10	

List of Tables

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

List of Appendices

Appendix A	64 th Monthly EM&A Report for Works Contract 1109 – Stations and Tunnels of Kowloon City Section
Appendix B	60 th Monthly EM&A Report for Works Contract 1111 – Hung Hom North Approach Tunnels
Appendix C	59 th Monthly EM&A Report for Works Contract 1103 – Hin Keng to Diamond Hill Tunnels
Appendix D	58 th Monthly EM&A Report for Works Contract 1106 – Diamond Hill Station
Appendix E	56 th Monthly EM&A Report for Works Contract 1107 –Diamond Hill to Kai Tak Tunnels
Appendix F	55 th Monthly EM&A Report for Works Contract 1112 – Hung Hom Station and Stabling Sidings
Appendix G	55 th Monthly EM&A Report for Works Contract 1108 – Kai Tak Station and Associated Tunnels
Appendix H	51 st Monthly EM&A Report for Works Contract 1102 – Hin Keng Station and Approach Structures
Appendix I	3 rd Monthly EM&A Report for Works Contract 11240 – Excavation, Sorting and Disposal of Stockpiled Spoils to Approved Receptor Site

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) were subsequently applied for EP-438/2012 and EP-437/2012. The latest Environmental Permits (EP Nos.: EP-438/2012/K and EP-437/2012/A) were issued by Director of Environmental Protection (DEP) on 4 October 2016 and 28 November 2017, respectively.

1.2 Project Programme

- 1.2.1 Eleven 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 2019 tentatively. **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 ⁽¹⁾	Ma On Shan Line Modification Works	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. (Arup)
1106	Diamond Hill Station	March 2013	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.

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
1108A ⁽²⁾	Kai Tak Barging Point Facilities	September 2012	Concentric – Hong Kong River Joint Venture (CCL-HKR JV)	Cinotech Consultants Ltd. (Cinotech)
1109	Stations and Tunnels of Kowloon City Section	September 2012	Samsung-Hsin Chong JV (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
11240	Excavation, Sorting and Disposal of Stockpiled Spoils to Approved Receptor Site	October 2017	Crown Asia Engineering Limited (CAEL)	MTR Co. Limited

Notes:

- (1) All construction works (works areas at Tai Wai Mei Tin Road and the offsite temporary storage areas) under Works Contract 1101 were completed on 29 February 2016.
- (2) All construction works (Kai Tak Barging Point Facilities) under Works Contract 1108A were completed on 29 September 2016.

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 sixty-fourth 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 December 2017.

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

Works Contract	Contract Title	Works Covered in Environmental Permit No.
1112	Hung Hom Station and Stabling Sidings	EP-437/2012/A & EP-438/2012/K
11240	Excavation, Sorting and Disposal of Stockpiled Spoils to Approved Receptor Site	EP-438/2012/K

2.1.2 The EM&A Reports for Works Contracts 1109, 1111, 1103, 1106, 1107, 1112, 1108, 1102, and 11240 prepared by the respective Contractor's ETs are provided in **Appendices A to I**, respectively. The EM&A Reports provide details of the project information, EM&A requirements, impact monitoring and audit results for the corresponding Contracts.

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

Table 2.1 Summary of Major Construction Activities in the Reporting Period

Works Contract	Site	Construction Activities
1102	Hin Keng Station and Approach Structures	<ul style="list-style-type: none"> • Soft Landscaping; • ABWF works at Hin Keng Station; • Modification of Retaining Wall and Installation of Noise Barrier; • Hard Landscape; • E&M Works; and • Backfilling Works
1103	Hin Keng Area	• Site formation
	Fung Tak Area	• ELS works and ABWF works
	Ma Chai Hang Area	• C&S works and ABWF works
	Shui Chuen O	• Storage area
1106	Diamond Hill Station Area	<ul style="list-style-type: none"> • Superstructure works of SCL-DIH station; • ABWF works at SCL-DIH station area; • Foundation works, Temporary Lung Cheung Road diversion, TTA for site access and temporary footpath diversion at Choi Hung Road and A2; • Construction of Interchange Adit, West Unpaid Link Adit and East MOE (Entrance B); • Alteration works for Entrance A2; • Backfilling works; • Stations breakthrough; and • Drainage works
1107	Choi Hung Road	• ELS the K509 CCTV High Mast permanent footing
1108	Kai Tak Station	<ul style="list-style-type: none"> • Open cut tunnel: General cleaning and defect rectification and SUA EVA construction. • Cut and cover tunnel: General cleaning and defect rectification. • Station: Leveling to F.F.L. in Area 3, installation of roof cladding and reflected ceiling at Entrance A, B & D, installation of glass canopy at DEE and SEE, installation of aluminum fins

Works Contract	Site	Construction Activities
		and external cladding at NVS and SVS, and installation of metal screen wall at DEE and SEE.
1109	Works in Ma Tau Wai (MTW)	<ul style="list-style-type: none"> Along Ma Tau Wai Road and TKW/MTW Road Garden – Station construction; ABWF works; and EEP construction.
	Works in To Kwa Wan (TKW)	<ul style="list-style-type: none"> Olympic Garden – Construction of station entrance and ABWF works; TKW Station – Construction of TKW station, backfilling and ABWF works; Tam Kung Road – Adit construction; and Nam Kok Road – Construction of station entrance.
1111	Ho Man Tin	<ul style="list-style-type: none"> Steel mesh, planter works, hoarding removal
	NSL (South)	<ul style="list-style-type: none"> Concreting works, form work erection, reinforcement fixing, backfill, road & drainage construction, excavation, hoarding removal
	OB2 / TB1	<ul style="list-style-type: none"> Maintenance access, abandoned watermain removal, bar fence and road reinstatement
	OB2A / TB2	<ul style="list-style-type: none"> Maintenance access, bar fence and road reinstatement
	NSL 9 & Oi Sen Path	<ul style="list-style-type: none"> Backfilling, drainage work, scaffolding platform erection, lifting works, hoarding removal, manhole construction
1112	South Approach Tunnels (SAT)	<ul style="list-style-type: none"> Building services works EVA Roadworks
	Hung Hom Stabling Sidings (HHS)	<ul style="list-style-type: none"> Drainage works
	Hung Hom Station (HUH)	<ul style="list-style-type: none"> Platform ABWF and E&M works
	North Approach Tunnels (NAT)	<ul style="list-style-type: none"> Utility works
	Concourse level & Mid-level walkway	<ul style="list-style-type: none"> Modification works
11240	Kai Tak Barging Point Facilities	<ul style="list-style-type: none"> Sorting and handling of spoil material and operation of barging point. Marine transportation of spoil to approved receptor sites for beneficial reuse.

2.1.4 Impact monitoring for air quality and construction noise were conducted in accordance with the EM&A Manual in the reporting period. Continuous noise monitoring was not required in the reporting period for all Works Contracts according to the Continuous Noise Monitoring Plan (CNMP). The air quality and construction noise for this reporting month are summarised in **Tables 2.2** and **2.3**. Details of the monitoring requirements, locations, equipment, methodology and QA/QC procedures are presented in the EM&A Reports as provided in **Appendices A to I**.

2.1.5 Water quality monitoring was not carried out during this reporting period since no dredging activity was conducted in the reporting month.

- 2.1.6 One complaint under Works Contract 1112 regarding dust nuisance was referred by EPD on 7 December 2017. Investigations were conducted and reported in the respective EM&A Report. No exceedance of limit level, notification of summons or successful prosecutions was received during the reporting period. Log for environmental complaints, notification of summons and successful prosecutions are provided in **Table 2.4**.
- 2.1.7 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 Contracts 1102 and 1103					
DMS-1	C.U.H.K.A.A. Thomas Cheung School	43.0 - 119.5	148.7	260	No
Works Contract 1103					
DMS-2	Price Memorial Catholic Primary School	56.5 – 102.4	167.4	260	No
Works Contracts 1103 and 1106					
DMS-3	Hong Kong S.K.H Nursing Home ⁽¹⁾	47.8 – 97.8	159.1	260	No
Works Contract 1106 and 1107					
DMS-4	Block 1, Rhythm Garden	12.5 – 55.1	160.4	260	No
Works Contract 1108 ⁽⁵⁾					
Works Contract 1109					
DMS-6	Katherine Building ⁽²⁾	59 – 69	156.8	260	No
DMS-7	Parc 22 ⁽³⁾	61 – 76	166.7	260	No
DMS-8	SKH Good Shepherd Primary School	70 – 81	152.2	260	No
DMS-9	No. 12 Pau Chung Street ⁽⁴⁾⁽⁹⁾	70 – 74	160.9	260	No
DMS-10	Chat Ma Mansion	62 – 76	170.4	260	No
Works Contract 1111					
AM1 ⁽⁶⁾	No. 234 – 238 Chatham Road North ⁽⁷⁾	44.5 – 105.0	183.9	260	No
Works Contract 1112					
AM2	Site Boundary of Finger Pier Adjacent To Harbourfront Horizon ⁽⁸⁾	41.3 – 49.7	182	260	No
Works Contract 11240 ⁽⁵⁾					

Notes:

- (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) Alternative monitoring location of No. 26 Kowloon City Road

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 Contracts 1102 and 1103						
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School	51.6 – 55.6	57.0	< Baseline	70 (65 during examination period)	No
Works Contract 1103						
NMS-CA-2	Price Memorial Catholic Primary School	55.3 – 60.9	66.0	< Baseline	70 (65 during examination period)	No
Works Contracts 1103 and 1106						
NMS-CA-3	Hong Kong S.K.H Nursing Home ⁽¹⁾	70.3 – 73.0	73.0	≤ Baseline	70	No
Works Contracts 1106 and 1107						
NMS-CA-4	Block 1, Rhythm Garden (north-eastern façade)	71.6 – 72.1	71.0	62.7 – 65.6	75	No
NMS-CA-5	Block 1, Rhythm Garden (northern façade) ⁽²⁾	70 – 70.5	74.0	< Baseline	70 (65 during examination period)	No
Works Contract 1108 ⁽⁶⁾						
Works Contract 1109						
NMS-CA-6	No. 16-23 Nam Kok Road ⁽³⁾	61.7 – 63.2	76.1	< Baseline	75	No
NMS-CA-7	Skytower Tower 2	65.1 – 65.5	70.0	< Baseline	75	No
NMS-CA-8	SKH Good Shepherd Primary School	72.2 – 72.8	75.4	< Baseline	70 (65 during examination period) (79 during the period of conducting the continuous noise monitoring) ⁽⁸⁾	No
NMS-CA-9	Kong Yiu Mansion ⁽⁴⁾	68.9 – 69.6	69.2	< Baseline – 59.0	75	No
NMS-CA-10	Chat Ma Mansion	75.4 – 76.3	76.6	< Baseline	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)	63.6 – 68.7	68.0	< Baseline – 60.4	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⁾	68.7 – 71.2	79.0	< Baseline	75 (77) ⁽¹⁰⁾	No
Works Contract 1112 ⁽⁶⁾						
Works Contract 11240 ⁽⁶⁾						

Notes:

- (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 CNMMP and CNMP which were approved by EPD.
- (10) Daytime noise Limit Level of 77 dB(A) applies during the continuous noise monitoring period.

Table 2.4 Log for Environmental Complaints, Notification of Summons and Successful Prosecutions for the Reporting Month

Works Contract	Environmental Complaints	Notification of Summons	Successful Prosecutions
1102	0	0	0
1103	0	0	0
1106	0	0	0
1107	0	0	0
1108	0	0	0
1109	0	0	0
1111	0	0	0
1112	1	0	0
11240	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 EPs (EP-437/2012/A and EP-438/2012/K). The status of required submissions under the EPs as of the reporting period are summarised in **Tables 3.1** and **3.2**.

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

EP Condition (EP-438/2012/K)	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) 8 Feb 2013 (5 th submission) 26 Apr 2013 (6 th submission) 11 Jun 2013 (7 th submission) 12 Jul 2013 (Approved) 26 Jul 2013 (8 th submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9 th submission) 13 Sep 2013 (Approved) 20 Jan 2014 (10 th submission) 26 Feb 2014 (Approved) 31 Mar 2015 (Contract 1106 submission only) 13 Apr 2015 (Contract 1106 submission only) 15 Apr 2015 (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) 8 Feb 2013 (5 th submission) 26 Apr 2013 (6 th submission) 11 Jun 2013 (7 th submission) 12 Jul 2013 (Approved) 26 Jul 2013 (8 th submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9 th submission) 13 Sep 2013 (Approved) 20 Jan 2014 (10 th submission)

EP Condition (EP-438/2012/K)	Submission	Submission date
		26 Feb 2014 (Approved) 7 Oct 2014 (11 th submission) 23 Oct 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) 5 Oct 2012 (3 rd submission) 10 Oct 2012 (Approved) 4 Mar 2013 (4 th submission) 9 May 2013 (5 th submission) 24 Jul 2013 (6 th submission) 26 Jul 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) 14 Nov 2012 (4 th submission) 8 Feb 2013 (5 th submission) 18 Mar 2013 (6 th submission) 18 Jun 2013 (7 th submission) 12 Jul 2013 (Approved) 23 Mar 2017 (8 th submission)
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 2.27	Operational Ground-borne Noise Mitigation Measures Plan	18 Mar 2016 (Batch 1 Version A submission) 28 Apr 2016 (Batch 1 Version B submission) 28 Apr 2016 (Batch 2 Version A submission) 1 Jun 2016 (Batch 1 Version C submission) 1 Jun 2016 (Batch 2 Version B submission) 23 Jun 2016 (Batch 1 Version D submission) 23 Jun 2016 (Batch 2 Version C submission)

EP Condition (EP-438/2012/K)	Submission	Submission date
		15 Jul 2016 (Batch 1 Version D approved) 15 Jul 2016 (Batch 2 Version C approved) 15 Sep 2016 (Batch 3 Version A submission) 4 Oct 2016 (Batch 3 Version A approved) 8 Mar 2017 (Batch 4 Version A) 7 Apr 2017 (Batch 4 Version A approved) 7 Jun 2017 (Final) 20 Jul 2017 (Approved)
Condition 2.28	As-built Drawings for Operational Ground-borne Noise Mitigation Measures	10 Aug 2017 (1 st submission)
Condition 2.30	As-built Drawings for Operational Air-borne Noise Mitigation Measures	4 Dec 2015 (1 st submission) 28 Dec 2015 (2 nd submission) 4 Feb 2016 (Approved)
Condition 2.33	As-built Drawings for Landscape and Visual Mitigation Measures	4 Dec 2015 (1 st submission) 28 Dec 2015 (2 nd submission) 4 Feb 2016 (Approved)
Condition 2.36	Contamination Assessment Plan (CAP) for the Temporary Magazine Site at TKO Area 137	23 Mar 2016 (1 st submission) 20 Apr 2016 (2 nd submission) 22 Apr 2016 (Approved)
Condition 2.36	Contamination Assessment Report (CAR) for the Temporary Magazine Site at TKO Area 137	19 May 2016 (1 st submission) 3 Jun 2016 (2 nd submission) 15 Jun 2016 (Approved)
Condition 3.1	Proposal for Termination of Environmental Monitoring and Audit (EM&A) Programme for Kai Tak Barging Point Facilities	7 Oct 2016 (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. 1-62	Reported in previous Monthly EM&A Reports
	Monthly EM&A Report No. 63	14 Dec 2017

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

EP Condition (EP-437/2012/A)	Submission	Submission date
Condition 1.11	Notification of Commencement Date of Construction of the Project	30 Nov 2012
Condition 2.3	Notification of Information of Community Liaison Groups	30 Nov 2012
Condition 2.5	Management Organisation of Main Construction Companies	19 Dec 2012 (1 st submission) 30 Apr 2013 (2 nd submission)
Condition 2.6	Construction Programme and EP Submission Schedule	19 Dec 2012
Condition 2.7	Construction Noise Mitigation Measures Plan (CNMMP)	30 Nov 2012 (1 st submission) 8 Feb 2013 (Approved) 26 Apr 2013 (2 nd submission) 11 Jun 2013 (3 rd submission) 27 Aug 2013 (Approved) 20 Jan 2014 (4 th submission) 28 Apr 2016 (Approved)
Condition 2.8	Continuous Noise Monitoring Plan (CNMP)	30 Nov 2012 (1 st submission) 11 Jan 2013 (2 nd submission) 8 Feb 2013 (Approved) 20 Jan 2014 (3 rd submission) 28 Apr 2016 (Approved)
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 (VLTP)	14 Nov 2012 (1 st submission) 8 Feb 2013 (2 nd submission) 4 Feb 2015 (3 rd submission) 26 Jun 2015 (4 th submission) 12 May 2017 (5 th submission)
Condition 2.16	Operational Ground-borne Noise Mitigation Measures Plan	23 Mar 2017 (1 st submission) 17 May 2017 (2 nd submission) 28 Jun 2017 (3 rd submission) 20 Jul 2017 (Approved)
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. 5-62 Monthly EM&A Report No. 63	Reported in previous Monthly EM&A Reports 14 Dec 2017

Appendix A

**64th 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. 64

[Period from 1 to 31 December 2017]

Works Contract 1109 - Stations and Tunnels of
Kowloon City Section

(11 January 2018)

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Date: 11 January 2018

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.64

December 2017

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For and on behalf of
ERM-Hong Kong, Limited

Approved by: Frank Wan

Signed:



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Date: 11 January 2018

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 REQUIREMENT	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 Locations</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	21
7.1	SUMMARY OF MONITORING EXCEEDANCE	21
7.2	SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE	21
7.3	SUMMARY OF ENVIRONMENTAL COMPLAINT	21
7.4	SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION	21
8	FUTURE KEY ISSUES	22
8.1	KEY ISSUES FOR THE COMING MONTH	22
8.2	MONITORING SCHEDULE FOR THE NEXT MONTH	22
8.3	CONSTRUCTION PROGRAMME FOR THE NEXT MONTH	22
9	CONCLUSIONS	23

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</i>	<i>Regular 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>(Not Used)</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 sixty-fourth monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 December 2017 to 31 December 2017 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)

- Along Ma Tau Wai Road and TKW/MTW Road Garden – Station construction; ABWF works; and EEP construction.

Works in To Kwa Wan (TKW)

- Olympic Garden – Construction of station entrance and ABWF works;
 - TKW Station – Construction of TKW station, backfilling and ABWF works;
 - Tam Kung Road – Adit construction; and
 - Nam Kok Road – Construction of station entrance.
-

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

No continuous noise monitoring was required during this reporting month, according to the schedule presented in the latest approved CNMP.

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. The Final Archaeological Report was accepted by AMO in June 2017.

No vibration monitoring was conducted during the reporting period as relevant tunnelling work for this Works Contract had been completed in vicinity of the historical structures listed in EM&A Manual.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. 3,964 m³ of inert C&D material was generated from the Project during the reporting month. 450 kg of plastics was generated and sent to recyclers for recycling during the reporting period. About 692 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. 99 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 December 2017. 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 27 December 2017. The representative of the IEC joined the site inspection on 11 December 2017. 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 was recorded during the reporting period.

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

No complaint was received during reporting period.

No 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)

- Along Ma Tau Wai Road and TKW/MTW Road Garden – Station construction; ABWF works; and EEP construction.

Work in To Kwa Wan (TKW)

- Olympic Garden – Construction of station entrance and ABWF works;
 - Tam Kung Road – Adit construction;
 - TKW Station – Construction of TKW station, backfilling, and ABWF works; and
 - Nam Kok Road – Construction of station entrance.
-

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 sixty-fourth EM&A report which summarises the monitoring results and audit findings during the reporting period from 1 December to 31 December 2017.

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">• Along Ma Tau Wai Road and TKW/MTW Road Garden – Station construction; ABWF works; and EEP construction.
<u><i>Works in To Kwa Wan (TKW)</i></u>
<ul style="list-style-type: none">• Olympic Garden – Construction of station entrance and ABWF works;• TKW Station – Construction of TKW station, backfilling and ABWF works;• Tam Kung Road – Adit construction; and• Nam Kok Road – Construction of station entrance.

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/K	Throughout the Contract	Permit granted on 4 October 2016
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	WT00019555-2014	30-September-2017	-
Site at MTW	WT00019556-2014	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			
- PME at Kai Tak Storage Yard 2	GW-RE0659-17	25 August 2017 – 24 February 2018	-
- PME at MTW Road E1-E6	GW-RE0424-17	6 June 2017 – 5 December 2017	Superseded by GW-RE0908-17
-	GW-RE0908-17	5 December 2017 – 4 June 2018	-
- PME at SUW works Area (TBM)	GW-RE0799-17	23 October 2017 – 22 April 2018	-
- PME at SUW works Area	GW-RE0772-17	5 October 2017 – 4 April 2018	-
- PME at Olympic Garden	GW-RE0870-17	22 November 2017 – 21 May 2018	-
- PME at TKW Opening (1-8)	GW-RE0658-17	24 August 2017 – 23 February 2018	-
- PME at Lok Shan Road and Kiang Su Street	GW-RE0841-17	7 November 2017 – 6 May 2018	-
SP-Licence for TBM operation	L-3-249(1)	19 May 2015 – 18 May 2018	Notification for the cancellation of the Specified Process

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
			Licence has been given to EPD in Nov 2016
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. 10486660)
NMS-CA-8, NMS-CA-9 and NMS-CA-10	Sound Level Meter: NL 52 (Serial No. 00131627)

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(B)	Hing Fu Building
MTW-12-3(A)	SKH Good Shepherd Primary School
MTW-12-4(A)	Kong Yiu Mansion
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(A)	SKH Good Shepherd Primary School
MTW-16-1	SKH Good Shepherd Primary School

Note:

(a) Subject to the latest Continuous Noise Monitoring Plan approved in October 2014 and

Continuous Noise Monitoring Location ^(a)	Description
review in March 2015.	

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. 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(B)	Hing Fu Building	80	September 2014 – December 2014 ^(b)
MTW-12-3(A)	SKH Good Shepherd Primary School	80	August 2014 – January 2015 ^(b) , March 2015 – June 2015
MTW-12-4(A)	Kong Yiu Mansion	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(A)	SKH Good Shepherd Primary School	81	September 2014 – June 2015 ^(b)
MTW-16-1	SKH Good Shepherd Primary School	78	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) The latest CNMP was approved by EPD in October 2014. Continuous noise monitoring at TKW-3-2 (B), MTW-12-3(A), MTW-12-4(A) and MTW-12-11(A) commenced in October 2014.
- (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 had 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 2454)
DMS-7	TE-5170 (Serial No. 3574), CM-AIR-43 (Orifice ID 2454)
DMS-8	TE-5170 (Serial No. 3572), CM-AIR-43 (Orifice ID 2454)
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 2454)

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. The Final Archaeological Report was accepted by AMO in June 2017.

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	Sixty-third Monthly EM&A Report	14 December 2017

5 MONITORING RESULTS

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. The noise level recorded at all five monitoring locations during the whole reporting period are below baseline level or below limit level after baseline-level correction.

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

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

5.2 CONTINUOUS NOISE MONITORING

No continuous noise monitoring was required during the reporting period in accordance with the schedule presented in the latest approved CNMP.

5.3 CONSTRUCTION DUST MONITORING

A total of 25 sets of 24-hr TSP monitoring 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	63	59 – 69	156.8	260
DMS-7	70	61 – 76	166.7	260
DMS-8	75	70 – 81	152.2	260
DMS-9 (a)	73	70 – 74	160.9	260
DMS-10	70	62 – 76	170.4	260

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.

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. The Final Archaeological Report was accepted by AMO in June 2017.

No vibration monitoring was conducted during the reporting period as relevant tunnelling work for this Works Contract had been completed in vicinity of the historical structures listed in EM&A Manual.

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 (c)	Non-inert C&D Materials			
			General Refuse/Vegetative Waste	Recycled materials		
				Paper/card board	Plastics	Metals
December 2017	3,964 m ³	0 kg	692 m ³	99 kg	450 kg	0 kg

Notes:

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

(b) 3,964 m³ of inert C&D materials was generated from the Project during the reporting month.

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

Bi-weekly inspections of the implementation of landscape and visual mitigation measures were conducted on 4 and 18 December 2017. Most of the mitigation measures given in *Annex H* have been implemented. Required Actions that were found are listed below:

4 December 2017

- No observation was reported during the site inspection.

18 December 2017

- 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 27 December 2017. The representative of the IEC joined the site inspection on 11 December 2017. No non-compliance was recorded during the site inspections.

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

4 December 2017

- The Contractor was reminded to further improve cover for the stockpiles at TKW works area.

11 December 2017

- There was no major observation during site inspection.

18 December 2017

- The Contractor was reminded to provide cover for breaker's tip using acoustic mat at Kowloon City Road works area.
- The Contractor was reminded to provide sufficient watering for breaking works at Kowloon City Road works area.

27 December 2017

- The Contractor was reminded to provide sufficient wheel washing at Olympic Garden works area.

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 was recorded during the reporting period.

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

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 received during reporting period. 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"> • Along Ma Tau Wai Road and TKW/MTW Road Garden – Station construction; ABWF works; and EEP construction.
<i>Work in To Kwa Wan (TKW)</i>
<ul style="list-style-type: none"> • Olympic Garden – Construction of station entrance and ABWF works; • Tam Kung Road – Adit construction; • TKW Station – Construction of TKW station, backfilling, and ABWF works; and • Nam Kok Road – Construction of station entrance.

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 64th monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 December 2017 to 31 December 2017 in accordance with the EM&A Manual and the requirement under EP-438/2012/K.

No exceedance of the Action and Limit Levels of the regular construction noise was recorded 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.

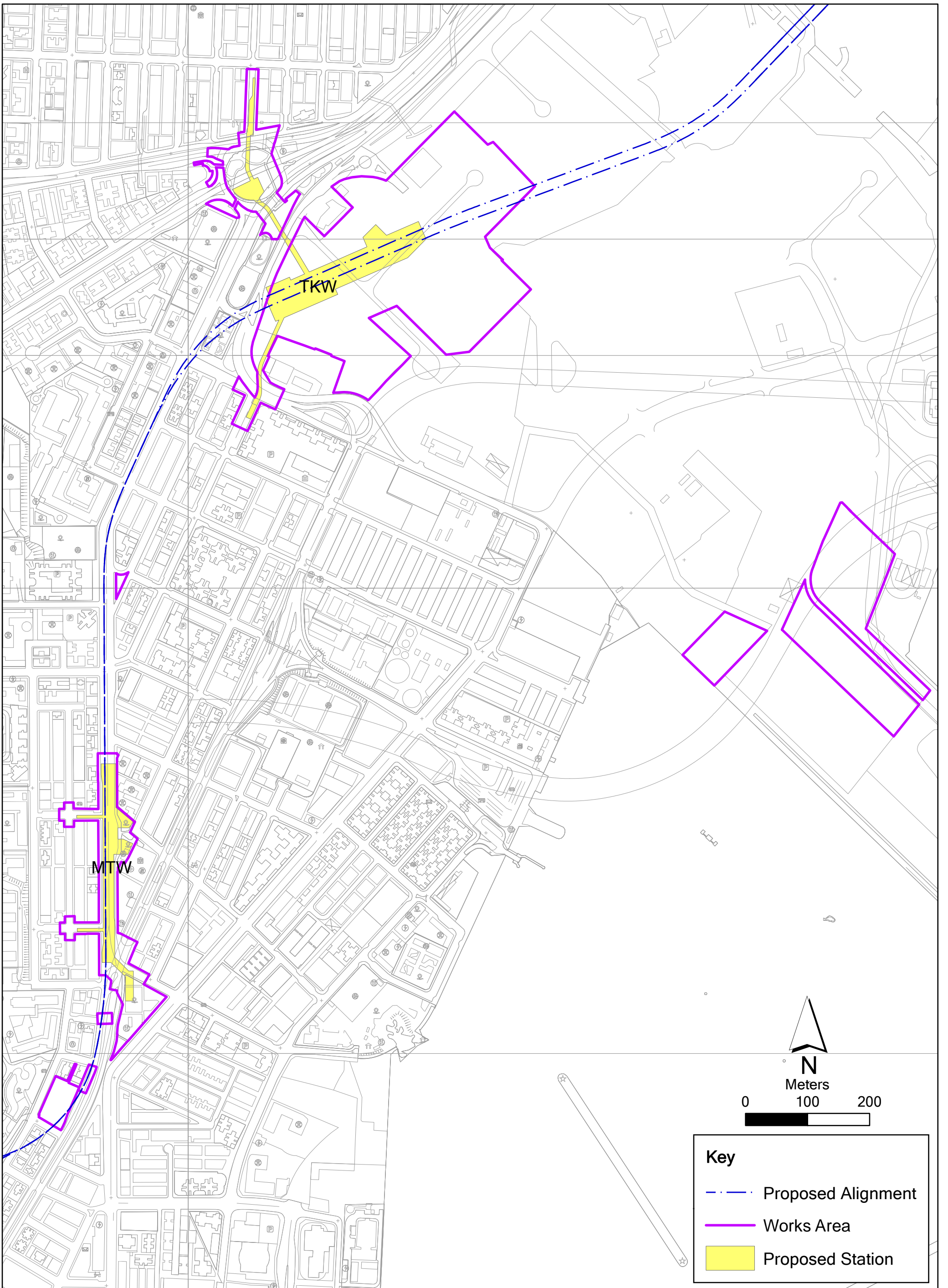
No complaint was received during reporting period.

No summon or 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 – DECEMBER 2017

Activity ID	Activity Name	Remaining Duration	Physical % Complete	Start	Finish	2017				2018									
						Dec	Jan	Feb	Mar	Dec	Jan	Feb	Mar						
1109 - SUW & TKW Stations and Tunnels Dec 2017 (MPR2)																			
PROJECT DATES																			
Table 4 - Specified Degrees of Completion																			
Degree 3 Dates																			
Tx Rooms																			
01109.CD1531	4I(ii) Deg 3 - SUW Vent Shaft B - Tx Rooms & 11kV Switchgear & Tx Rm incl. HV cable riser ... (DRM: 1 Oct 17, 39/17)	0	100%		27-Nov-17 A														
Specified Milestone Dates (Revised)																			
CC-A Milestones																			
01109.MSA22-P	A22 - Engr's confirmation of satisfac implementation of quality reqmts as per approved spec. Plans (21 Jan 2018)	0	0%		21-Jan-18*														
01109.MSA23-P	A23 - Engr's confirmation of satisfac. implementation of safety&environ. Reqmts (18 Mar 2018)	0	0%		18-Mar-18*														
CC-B - SUW STATION, ENTRANCES AND ADITS																			
SUW Station Construction Works																			
Station - C&S Works (Concourse Level and Above)																			
Backfilling to Final Formation level																			
Backfilling to final formation level																			
01109.PDB8820	Backfilling to final formation level GL 1 to 6 (after Ventilation Shaft Ready)	0	100%	24-Nov-17 A	05-Dec-17 A														
01109.PDB8830	Backfilling to final formation level GL 6 to 8	0	100%	24-Nov-17 A	05-Dec-17 A														
01109.PDB8850	Backfilling to final formation level GL 8 to 16 (after Entrance D Ready)	0	100%	16-Oct-17 A	05-Dec-17 A														
Station - ABWF Works - Degree 2																			
GL 1 - 5 - Works to Degree 2, Platform Level																			
01109.PDB17010	Deg 2 - Install permanent door frames with temp doors/locks (BoH)	30	5%	23-Oct-17 A	31-Jan-18														
01109.PDB17020	Deg 2 - Install metal staircases, cat-ladders and catwalks (BoH)	40	50%	10-Sep-17 A	12-Feb-18														
01109.PDB17060	Deg 2 - Complete all wall and ceiling finishes (BoH)	48	5%	24-Nov-17 A	24-Feb-18														
01109.PDB17070	Deg 2 - Complete BoH fixing brackets for raised floor (BoH)	48	5%	24-Nov-17 A	24-Feb-18														
01109.PDB17030	Deg 2 - Install structural steelwork & l/face brackets to lift shafts, P/form screen doors (FoH)	49	50%	25-Aug-17 A	26-Feb-18														
01109.PDB17040	Deg 2 - Install louvres and grills (FoH)	60	50%	10-Sep-17 A	13-Mar-18														
01109.PDB17080	Deg 2 - Install framework for wall panels and cladding (FoH)	60	50%	10-Sep-17 A	13-Mar-18														
01109.PDB17090	Deg 2 - Install Air tight + acoustic doors for air plenums (BoH)	30	5%	24-Nov-17 A	13-Mar-18														
01109.PDB17100	Deg 2 - Complete brackets, hangers, framework etc for Designated Contractors (FoH)	60	50%	10-Sep-17 A	13-Mar-18														
GL 5 - 23 - Works to Degree 2, Platform Level																			
01109.PDB17970	Deg 2 - Install permanent door frames with temp doors/locks (BoH)	40	50%	10-Sep-17 A	12-Feb-18														



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-MPR2-2P, Page 1 of 10
THREE MONTH ROLLING PROGRAMME - Dec 17 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.
Printed:08-Jan-18

- Actual Work
- Remaining Work
- Master Programme Rev.2
- Last Month Update
- Milestone
- MP Rev.2 Milestone
- Last Month Milestone

Activity ID	Activity Name	Remaining Duration	Physical % Complete	Start	Finish	2017				2018					
						Dec	Jan	Feb	Mar	Dec	Jan	Feb	Mar		
01109.PDB17980	Deg 2 - Install metal staircases, cat-ladders and catwalks (BoH)	55	50%	10-Sep-17 A	07-Mar-18										
01109.PDB17990	Deg 2 - Install structural steelwork & l/face brackets to lift shafts, P/form screen doors (FoH)	79	50%	26-Jun-17 A	06-Apr-18										
01109.PDB18040	Deg 2 - Install framework for wall panels and cladding (FoH)	89	50%	26-Jun-17 A	18-Apr-18										
01109.PDB18060	Deg 2 - Complete brackets, hangers, framework etc for Designated Contractors (FoH)	89	50%	26-Jun-17 A	18-Apr-18										
01109.PDB18050	Deg 2 - Install Air tight + acoustic doors for air plenums (BoH)	40	5%	24-Nov-17 A	25-Apr-18										
01109.PDB18020	Deg 2 - Complete all wall and ceiling finishes (BoH)	105	5%	24-Nov-17 A	08-May-18										
01109.PDB18030	Deg 2 - Complete BoH fixing brackets for raised floor (BoH)	105	5%	24-Nov-17 A	08-May-18										
01109.PDB18000	Deg 2 - Install louvres and grills (FoH)	120	50%	10-Sep-17 A	26-May-18										
GL 1 - 5 - Works to Degree 2, Concourse Level															
01109.PDB18290	Deg 2 - Install permanent door frames with temp doors/locks (BoH)	40	5%	23-Oct-17 A	12-Feb-18										
01109.PDB18300	Deg 2 - Install metal staircases, cat-ladders and catwalks (BoH)	40	5%	13-Nov-17 A	12-Feb-18										
01109.PDB18370	Deg 2 - Install Air tight + acoustic doors for air plenums (BoH)	40	5%	13-Nov-17 A	12-Feb-18										
01109.PDB18340	Deg 2 - Complete all wall and ceiling finishes (BoH)	48	5%	13-Nov-17 A	24-Feb-18										
01109.PDB18350	Deg 2 - Complete BoH fixing brackets for raised floor (BoH)	48	5%	13-Nov-17 A	24-Feb-18										
01109.PDB18310	Deg 2 - Install structural steelwork & l/face brackets to lift shafts, P/form screen doors (FoH)	55	5%	24-Nov-17 A	07-Mar-18										
01109.PDB18320	Deg 2 - Install louvres and grills (FoH)	55	5%	24-Nov-17 A	07-Mar-18										
01109.PDB18360	Deg 2 - Install framework for wall panels and cladding (FoH)	55	5%	24-Nov-17 A	07-Mar-18										
01109.PDB18380	Deg 2 - Complete brackets, hangers, framework etc for Designated Contractors (FoH)	55	5%	24-Nov-17 A	07-Mar-18										
GL 5 - 23 - Works to Degree 2, Concourse Level															
01109.PDB18690	Deg 2 - Install Air tight + acoustic doors for air plenums (BoH)	40	0%	18-Dec-17 A	12-Feb-18										
01109.PDB18610	Deg 2 - Install permanent door frames with temp doors/locks (BoH)	40	10%	23-Oct-17 A	12-Feb-18										
01109.PDB18670	Deg 2 - Complete BoH fixing brackets for raised floor (BoH)	80	5%	24-Nov-17 A	07-Apr-18										
01109.PDB18620	Deg 2 - Install metal staircases, cat-ladders and catwalks (BoH)	40	5%	24-Nov-17 A	07-Apr-18										
01109.PDB18660	Deg 2 - Complete all wall and ceiling finishes (BoH)	80	0%	18-Dec-17 A	07-Apr-18										
01109.PDB18680	Deg 2 - Install framework for wall panels and cladding (FoH)	120	10%	10-Sep-17 A	26-May-18										
01109.PDB18700	Deg 2 - Complete brackets, hangers, framework etc for Designated Contractors (FoH)	120	10%	10-Sep-17 A	26-May-18										
01109.PDB18630	Deg 2 - Install structural steelwork & l/face brackets to lift shafts, P/form screen doors (FoH)	120	10%	10-Sep-17 A	26-May-18										
01109.PDB18640	Deg 2 - Install louvres and grills (FoH)	120	10%	10-Sep-17 A	26-May-18										
Degree 2 Activities, General Works for Achievement of Degree Completion															
01109.PDB10060	For 4D Deg 2 handover, prepare SUW Platform GL1-5 All areas excluding Ref 4E (DRM: 13 Aug 17, 32/17)	92	5%	24-Nov-17 A	27-Mar-18										
01109.PDB10070	For 4H Deg 2 handover, prepare SUW Concourse GL1-5 All areas excl Ref 4I (DRM: 8 Oct 17, 40/17)	93	5%	24-Nov-17 A	28-Mar-18										
01109.PDB10040	For 4F Deg 2 handover, prepare SUW Concourse GL5-23 SCR, SCpR, TER, & TECS Rooms (8 Oct 17)	97	5%	24-Nov-17 A	27-Apr-18										
01109.PDB10020	For 4A Deg 2 handover, prepare SUW Platform GL5-23 BOH areas -CTR,CTER,SER,PSD & TECS rooms, CLP HV cable risers & route	80	5%	24-Nov-17 A	08-May-18										
01109.PDB10050	For 4G Deg 2 handover, prepare SUW Concourse GL5-23 All remaining areas (26 Nov 17)	50	5%	24-Nov-17 A	26-May-18										



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-MPR2-2P, Page 2 of 10

THREE MONTH ROLLING PROGRAMME - Dec 17 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.

Printed:08-Jan-18

- Actual Work
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Activity ID	Activity Name	Remaining Duration	Physical % Complete	Start	Finish	2017				2018					
						Dec	Jan	Feb	Mar	Dec	Jan	Feb	Mar		
01109.PDB10030	For 4B Deg 2 handover, prepare SUW Platform GL5-23 All rem areas excl Ref 4C (8 Oct 17)	80	5%	24-Nov-17 A	26-May-18										
Station - ABWF Works - Degree 3															
GL 1 - 5 - Works to Degree 3, Concourse Level															
01109.PDB18460	Deg 3 - Seal all openings and penetrations (BoH)	150	5%	18-Dec-17 A	28-Aug-18										
01109.PDB18420	Deg 3 - Install raised floor panels (BoH)	150	5%	18-Dec-17 A	28-Aug-18										
Entrance A															
Entrance A - ABWF & E&M Works, Degree 1															
Entrance A - ABWF Works															
01109.PDB13730	ABWF External Works for Entrance A	35	5%	24-Nov-17 A	06-Feb-18										
Entrance D															
Entrance D - Concrete Structural Works (GL 8-10/F-F2)															
Entrance D- Concrete Walls ,Staircases and Roof															
Entrance D- Steel Works between UG/F to R/F															
01109.PDB13870	Steel Structure above Roof	45	20%	06-Nov-17 A	21-Feb-18										
Vent Shaft															
Vent Shaft - Works for Degree 2 Finish															
01109.PDB14090	Roof top waterproofing and misc. finishes	30	0%	26-Jan-18	07-Mar-18										
Entrance B & Adit B															
Entrance B & Adit B - Concrete Structural Works															
Portion 3															
01109.PDB13380B30	SUW B2 - Lift Shaft - Up to +5.50	0	99%	11-Oct-17 A	27-Dec-17										
01109.PDB13380B50	SUW B2 - staircase - Roof slab	0	0%	27-Dec-17	27-Dec-17										
01109.PDB13380B60	SUW B2 - staircase - Wall Construction (Up to +6.53)	0	0%	27-Dec-17	27-Dec-17										
01109.PDB13380B70	SUW B2 - staircase - Ground slab	0	0%	27-Dec-17	27-Dec-17										
01109.PDB13380B80	SUW B2 - staircase - Wall construction	0	0%	27-Dec-17	27-Dec-17										
Entrance B & Adit B - ABWF & E&M Works, Degree 1															
Entrance B & Adit B - ABWF															
Portion 2															
01109.PDB13540	ABWF Internal Works Adit B; GL B12 to B23 - to Degree 1 completion	0	100%	25-Jul-17 A	15-Dec-17 A										
Portion 3															
01109.PDB13550	ABWF External & Internal Works Adit B; GL B23 to B31 - to Degree 1 completion	4	30%	25-Jul-17 A	30-Dec-17										
Entrance B & Adit B - Works for Degree 2 Finish															
01109.PDB13522	For 4K Deg 2 handover, prepare SUW Adits B incl Ent, all rooms and vent shafts at Adit B	102	0%	27-Dec-17	04-May-18										
01109.PDB16110	For Deg 2 handover, works by Designated Contractors (DRM: 5 Nov 17, 44/17)	137	0%	27-Dec-17	16-Jun-18										



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-MPR2-2P, Page 3 of 10
 THREE MONTH ROLLING PROGRAMME - Dec 17 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
 Printed:08-Jan-18

- Actual Work
- Remaining Work
- Master Programme Rev.2
- Last Month Update
- Milestone
- MP Rev.2 Milestone
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Activity ID	Activity Name	Remaining Duration	Physical % Complete	Start	Finish	2017				2018										
						Dec	Jan	Feb	Mar	Dec	Jan	Feb	Mar							
CC-C - TKW STATION, ENTRANCES AND ADITS																				
TKW Station																				
Station - C&S Works (Concourse Level and above)																				
01109.PDC27190A170	EI - Coring and removal for additional wall openings	10	85%	08-Jun-17 A	08-Jan-18															
01109.PDC27190A240	Remaining Structures at Opening 2	15	50%	14-Oct-17 A	13-Jan-18															
01109.PDC27190A260	Remaining Structures at Opening 7	10	80%	18-Sep-17 A	15-Jan-18															
01109.PDC27190A250	Remaining Structures near Vent Shaft A	35	70%	07-Jul-17 A	06-Feb-18															
Station - C&S Works (Upper Platform Level)																				
01109.PDC27190A210	Mass concrete under platform and TVS (GL6-23)	15	81%	01-Apr-17 A	13-Jan-18															
01109.PDC27190A280	Casting for Remaining Internal Structure at opening 7	18	0%	27-Dec-17	17-Jan-18															
01109.PDC27190A140	Casting for Remaining Internal Structure (except opening 7)	29	88%	03-Nov-16 A	30-Jan-18															
Upper Track Slab Works																				
01109.PDC27190A160	Coring and removal of UT temporary slab	15	64%	29-Apr-17 A	13-Jan-18															
Station - C&S Works (Lower Platform Level)																				
01109.PDC27190A130	Casting for Remaining Internal Structure	20	82%	05-Jan-17 A	19-Jan-18															
01109.PDC27190A190	Mass concrete under platform and for TVS (GL6-21)	25	60%	10-Jun-17 A	25-Jan-18															
Moling hole reinstatement																				
Moling Hole 7																				
01109.PDC27820A30	Construction of TKW Stair Case at Opening 7 below Upper Track Level	5	70%	24-Oct-17 A	02-Jan-18															
01109.PDC27820A20	Construction of TKW Stair Case at Opening 7 to Concourse Level	11	0%	03-Jan-18	15-Jan-18															
Station - ABWF Works (Concourse Level and Above)																				
Major Works to Degree 1																				
01109.PDC22390	Deg 1 - Construct blockwork, partition walls, work to all plinths and upstands (BoH + FoH)	5	95%	10-Jun-16 A	02-Jan-18															
01109.PDC22530	Deg 1 - Apply Plastering, undercoat and floor screeding (BoH + FoH)	5	95%	23-Jul-16 A	08-Jan-18															
01109.PDC26850	Deg 1 - Install Movement and Expansion joints (FoH)	5	95%	26-Oct-16 A	13-Jan-18															
01109.PDC22580	Deg 1 - Complete Civil & Building provision works for Des Cons (FoH + BoH)	5	95%	12-Aug-16 A	19-Jan-18															
01109.PDC26860	Deg 1 - ABWF incl overhead ducting (FoH)	5	95%	26-Oct-16 A	25-Jan-18															
01109.PDC25590	Deg 1 - Carry Out As Built survey (BoH + FoH)	5	95%	05-Aug-17 A	31-Jan-18															
01109.PDC26870	Deg 1 - ABWF to staircases, lift shafts, lift pits, escalator pits and escalator areas (FoH)	5	95%	05-Aug-17 A	31-Jan-18															
01109.PDC26890	Deg 1 - Install temp pumps & commission temporary drainage system (BoH)	5	95%	11-Aug-17 A	06-Feb-18															
Major Works to Degree 2																				
01109.PDC26900	Deg 2 - Install permanent door frames with temp doors/locks (BoH)	14	40%	15-Sep-17 A	12-Jan-18															
01109.PDC26910	Deg 2 - Install metal staircases, cat-ladders and catwalks (BoH)	40	90%	09-Jan-17 A	19-Mar-18															
01109.PDC27000	Deg 2 - Complete all wall and ceiling finishes (BoH)	40	90%	17-Nov-16 A	24-Mar-18															



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-MPR2-2P, Page 4 of 10

THREE MONTH ROLLING PROGRAMME - Dec 17 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.

Printed:08-Jan-18

- Actual Work
- Remaining Work
- Master Programme Rev.2
- ▶ Last Month Update
- ◆ Milestone
- MP Rev.2 Milestone
- ▼ Last Month Milestone

Activity ID	Activity Name	Remaining Duration	Physical % Complete	Start	Finish	2017				2018					
						Dec	Jan	Feb	Mar	Dec	Jan	Feb	Mar		
01109.PDC27370	Deg 2 - Complete BoH fixing brackets for raised floor (BoH)	40	70%	05-Aug-17 A	30-Mar-18										
01109.PDC27860	Deg 2 - Install Air tight + acoustic doors for air plenums (BoH)	40	50%	24-Nov-17 A	07-Apr-18										
01109.PDC26920	Deg 2 - Install structural steelwork & l/face brackets to lift shafts, P/form screen doors (FoH)	40	70%	06-Apr-17 A	13-Apr-18										
01109.PDC26930	Deg 2 - Install louvres and grills (FoH)	40	50%	24-Nov-17 A	19-Apr-18										
01109.PDC27770	Deg 2 - Install framework for wall panels and cladding (FoH)	40	80%	22-Mar-17 A	25-Apr-18										
01109.PDC27870	Deg 2 - Complete brackets, hangers, framework etc for Designated Contractors (FoH)	40	80%	27-Mar-17 A	02-May-18										
Station - ABWF Works (Upper Platform Level)															
01109.PDC2800A50	Deg 1 - Screeding Works at FOH (remaining area)	3	95%	24-Nov-17 A	29-Dec-17										
01109.PDC2800A60	Deg 1 - Blockwall at Soutside	5	95%	23-Oct-17 A	02-Jan-18										
01109.PDC2800A70	Deg 1 - Works at Escalator Void	5	95%	17-Nov-17 A	02-Jan-18										
Major Works to Degree 1															
01109.PDC28000	Deg 1 - Construct blockwork, partition walls, work to all plinths and upstands (BoH + FoH)	5	95%	28-Apr-17 A	02-Jan-18										
01109.PDC28010	Deg 1 - Apply Plastering, undercoat and floor screeding (BoH + FoH)	5	95%	25-Jul-17 A	02-Jan-18										
01109.PDC28090	Deg 1 - Install temp pumps & commission temporary drainage system (BoH)	5	95%	15-Aug-17 A	02-Jan-18										
01109.PDC28630	Deg 1 - ABWF incl overhead ducting (BoH)	5	95%	25-Jul-17 A	02-Jan-18										
01109.PDC28620	Deg 1 - Carry Out As Built survey (BoH)	5	95%	12-Aug-17 A	04-Jan-18										
01109.PDC28050	Deg 1 - Install Movement and Expansion joints (FoH)	5	95%	22-May-17 A	05-Jan-18										
01109.PDC28030	Deg 1 - Carry Out As Built survey (FoH)	5	95%	14-Aug-17 A	08-Jan-18										
01109.PDC28020	Deg 1 - Complete Civil & Building provision works for Des Cons (FoH + BoH)	5	95%	05-Aug-17 A	11-Jan-18										
01109.PDC28060	Deg 1 - ABWF to P/Form incl overhead ducting (FoH)	5	95%	11-Aug-17 A	17-Jan-18										
01109.PDC28070	Deg 1 - ABWF to staircases, lift shafts, lift pits, escalator pits and escalator areas (FoH)	5	95%	17-Aug-17 A	23-Jan-18										
01109.PDC28080	Deg 1 - Louvres and acoustic panel frames to trackside areas incl. station overrun structure (BoH)	5	95%	17-Aug-17 A	29-Jan-18										
Major Works to Degree 2															
01109.PDC28150	Deg 2 - Complete all wall and ceiling finishes (BoH)	2	30%	27-Mar-17 A	28-Dec-17										
01109.PDC28110	Deg 2 - Install metal staircases, cat-ladders and catwalks (BoH)	10	30%	27-Mar-17 A	08-Jan-18										
01109.PDC28180	Deg 2 - Install Air tight + acoustic doors for air plenums (BoH)	30	30%	27-Mar-17 A	31-Jan-18										
01109.PDC28120	Deg 2 - Install structural steelwork & l/face brackets to lift shafts, P/form screen doors (FoH)	40	30%	27-Mar-17 A	12-Feb-18										
01109.PDC28130	Deg 2 - Install louvres and grills (FoH)	90	5%	24-Nov-17 A	19-Apr-18										
01109.PDC28170	Deg 2 - Install framework for wall panels and cladding (FoH)	70	30%	27-Mar-17 A	25-Apr-18										
01109.PDC28190	Deg 2 - Complete brackets, hangers, framework etc for Designated Contractors (FoH)	70	30%	29-Apr-17 A	02-May-18										
Major Works to Degree 3															
01109.PDC28270	Deg 3 - Seal all openings and penetrations (BoH)	100	10%	25-Oct-17 A	02-May-18										
01109.PDC28200	Deg 3 - Work to Head-wall, Tail-wall & Aux Comm units (BoH)	100	5%	25-Oct-17 A	02-May-18										
01109.PDC28230	Deg 3 - Install raised floor panels (BoH)	100	5%	25-Oct-17 A	02-May-18										



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-MPR2-2P, Page 5 of 10

THREE MONTH ROLLING PROGRAMME - Dec 17 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.

Printed:08-Jan-18

- Actual Work
- Remaining Work
- Master Programme Rev.2
- Last Month Update
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Activity ID	Activity Name	Remaining Duration	Physical % Complete	Start	Finish	2017				2018					
						Dec	Jan	Feb	Mar	Dec	Jan	Feb	Mar		
01109.PDC28280	Deg 3 - Complete all permanent doors & ironmongery (FoH)	170	5%	25-Oct-17 A	30-Aug-18										
01109.PDC28290	Deg 3 - Seal all openings and service penetrations (FoH)	170	5%	25-Oct-17 A	30-Aug-18										
01109.PDC28210	Deg 3 - Internal & external finishes (incl tiling) to all floors, walls and ceilings (FoH)	170	5%	25-Oct-17 A	30-Aug-18										
01109.PDC28220	Deg 3 - Complete ceiling grids and panels (FoH)	170	5%	25-Oct-17 A	30-Aug-18										
01109.PDC28240	Deg 3 - Complete glazing (FoH)	170	10%	23-Aug-17 A	30-Aug-18										
01109.PDC28250	Deg 3 - Complete final finishes (FoH)	170	5%	25-Oct-17 A	30-Aug-18										
01109.PDC28260	Deg 3 - Complete works to Smoke curtain, roller shutters, fire shutters and smoke barriers (FoH)	170	5%	25-Oct-17 A	30-Aug-18										
Station - ABWF Works (Lower Platform Level)															
01109.PDC28000A90	Water Tanks - Waterproofing, Tile and Cat Ladder Installation	0	100%	17-Oct-17 A	22-Dec-17 A										
01109.PDC28000A100	SER - Cat Ladder Installation	4	5%	24-Nov-17 A	30-Dec-17										
01109.PDC28000A130	Plastering GL16-18	5	5%	25-Nov-17 A	02-Jan-18										
01109.PDC28000A110	Protected Corridor - Blockwall Installation	8	80%	26-Oct-17 A	05-Jan-18										
01109.PDC28000A120	Escalator Void - Scaffold Installation	18	41%	13-Nov-17 A	17-Jan-18										
01109.PDC28610A30	Seepage Channel Installation	31	75%	13-Oct-17 A	01-Feb-18										
Major Works to Degree 1															
01109.PDC28650	Deg 1 - Carry Out As Built survey (BoH)	5	95%	25-Jul-17 A	02-Jan-18										
01109.PDC28310	Deg 1 - Construct blockwork, partition walls, work to all plinths and upstands (BoH + FoH)	5	95%	25-Jul-17 A	02-Jan-18										
01109.PDC28320	Deg 1 - Apply Plastering, undercoat and floor screeding (BoH + FoH)	5	95%	07-Aug-17 A	02-Jan-18										
01109.PDC28330	Deg 1 - Complete Civil & Building provision works for Des Cons (FoH + BoH)	5	95%	07-Apr-17 A	02-Jan-18										
01109.PDC28360	Deg 1 - Install Movement and Expansion joints (FoH)	5	95%	25-Jul-17 A	02-Jan-18										
01109.PDC28370	Deg 1 - ABWF to P/Form incl overhead ducting (FoH)	5	95%	25-Jul-17 A	02-Jan-18										
01109.PDC28380	Deg 1 - ABWF to staircases, lift shafts, lift pits, escalator pits and escalator areas (FoH)	5	95%	25-Jul-17 A	02-Jan-18										
01109.PDC28400	Deg 1 - Install temp pumps & commission temporary drainage system (BoH)	5	95%	04-Aug-17 A	05-Jan-18										
01109.PDC28340	Deg 1 - Carry Out As Built survey (FoH)	5	95%	09-Aug-17 A	08-Jan-18										
01109.PDC28390	Deg 1 - Louvres and acoustic panel frames to trackside areas incl. station overrun structure (BoH)	5	95%	22-Aug-17 A	08-Jan-18										
Major Works to Degree 2															
01109.PDC28420	Deg 2 - Install metal staircases, cat-ladders and catwalks (BoH)	40	30%	13-Sep-17 A	12-Feb-18										
01109.PDC28490	Deg 2 - Install Air tight + acoustic doors for air plenums (BoH)	40	30%	01-Nov-17 A	21-Feb-18										
01109.PDC28460	Deg 2 - Complete all wall and ceiling finishes (BoH)	48	30%	28-Oct-17 A	27-Feb-18										
01109.PDC28500	Deg 2 - Complete brackets, hangers, framework etc for Designated Contractors (FoH)	50	50%	27-May-17 A	27-Feb-18										
01109.PDC28410	Deg 2 - Install permanent door frames with temp doors/locks (BoH)	35	5%	23-Oct-17 A	07-Mar-18										
01109.PDC28440	Deg 2 - Install louvres and grills (FoH)	55	30%	25-Oct-17 A	07-Mar-18										
01109.PDC28470	Deg 2 - Complete BoH fixing brackets for raised floor (BoH)	48	20%	04-Nov-17 A	07-Mar-18										
01109.PDC28430	Deg 2 - Install structural steelwork & l/face brackets to lift shafts, P/form screen doors (FoH)	45	10%	08-Aug-17 A	13-Mar-18										



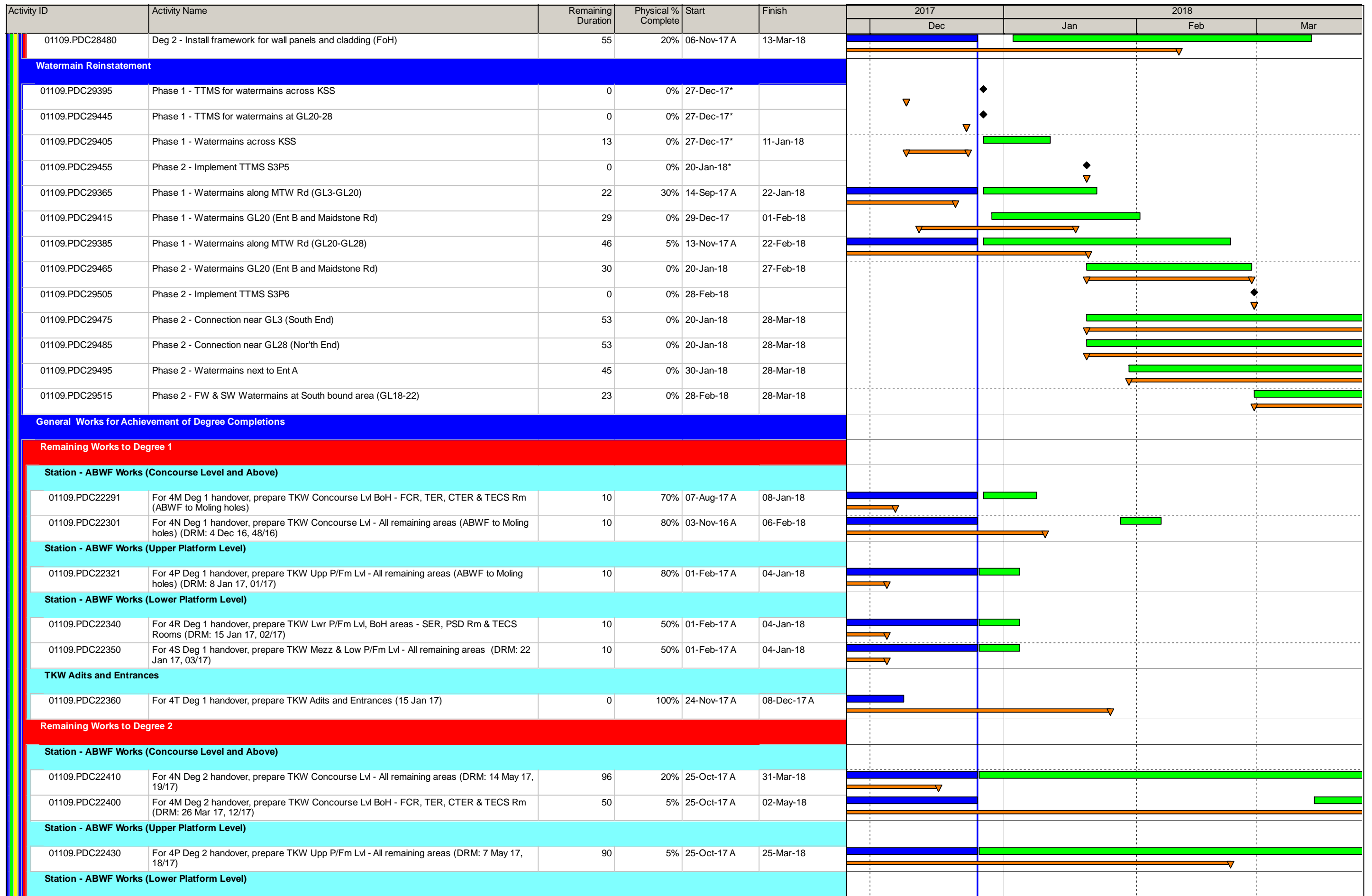
MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-MPR2-2P, Page 6 of 10

THREE MONTH ROLLING PROGRAMME - Dec 17 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.

Printed:08-Jan-18

- Actual Work
- Remaining Work
- Master Programme Rev.2
- Last Month Update
- Milestone
- MP Rev.2 Milestone
- Last Month Milestone



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-MPR2-2P, Page 7 of 10
 THREE MONTH ROLLING PROGRAMME - Dec 17 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
 Printed:08-Jan-18

- Actual Work
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- MP Rev.2 Milestone
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Activity ID	Activity Name	Remaining Duration	Physical % Complete	Start	Finish	2017				2018					
						Dec	Jan	Feb	Mar	Dec	Jan	Feb	Mar		
01109.PDC22460	For 4R Deg 2 handover, prepare TKW Lwr P/Fm Lvl, BoH areas - SER, PSD Rm & TECS Rooms (DRM: 9 Apr 17, 14/17)	74	5%	25-Oct-17 A	09-Mar-18										
01109.PDC22470	For 4S Deg 2 handover, prepare TKW Mezz & Low P/Fm Lvl - All remaining areas (DRM: 16 Apr 17, 15/17)	84	5%	25-Oct-17 A	19-Mar-18										
TKW Adits and Entrances															
01109.PDC22440	For 4T Deg 2 handover, prepare TKW Adits and Entrances (DRM: 14 May 17, 19/17)	160	5%	24-Nov-17 A	03-Jun-18										
Remaining Works to Degree 3															
Station - ABWF Works (Concourse Level and Above)															
01109.PDC22500	For 4M Deg 3 handover, prepare TKW Concourse Lvl BoH - FCR, TER, CTER & TECS Rm (DRM: 13 Aug 17, 32/17)	120	5%	25-Oct-17 A	30-Aug-18										
01109.PDC22550	For 4N Deg 3 handover, prepare TKW Concourse Lvl - All remaining areas (DRM: 26 Nov 17, 47/17)	166	10%	25-Oct-17 A	13-Sep-18										
Station - ABWF Works (Lower Platform Level)															
01109.PDC22540	For 4R Deg 3 handover, prepare TKW Lwr P/Fm Lvl, BoH areas - SER, PSD Rm & TECS Rooms (DRM: 13 Aug 17, 32/17)	126	0%	17-Mar-18	20-Jul-18										
Entrance A & Vent Shaft A															
Vent Shaft - ABWF Works															
01109.PDC27500	Deg 2 - ABWF to Vent Shaft A	93	0%	18-Dec-17 A	23-Apr-18										
Entrance A															
Civil & Structure															
01109.PDC22645A120	Ent A - Tower Crane Dismantle Complete	0	0%		09-Mar-18										
01109.PDC22645A210	Ent A - Tower crane removal	2	0%	08-Mar-18	09-Mar-18										
Entrances - ABWF Works															
01109.PDC26970	Deg 2 - ABWF to Entrance A	92	0%	18-Dec-17 A	21-Apr-18										
Entrance B															
Entrances - ABWF Works															
01109.PDC27210	Deg 2 - ABWF to Entrance B	80	10%	18-Sep-17 A	07-Apr-18										
Entrance C															
Entrances - ABWF Works															
01109.PDC27200A20	Steel Structure at Entrance C	0	99%	14-Aug-17 A	27-Dec-17										
01109.PDC27200A50	JV/DC material transportation from LT-06 lift shaft	55	50%	31-Aug-17 A	07-Mar-18										
01109.PDC27200A60	HO to ABWF team for finishing works	22	0%	08-Mar-18	03-Apr-18										
01109.PDC27240	Deg 2 - ABWF to Entrance C	93	30%	01-Nov-17 A	23-Apr-18										
Entrance D & Vent Shaft															
Entrance D (Bottom Up)															
01109.PDC22930-4A70	Ent D - Curing and preparation works for waterproofing	0	100%	25-Sep-17 A	25-Nov-17 A										
01109.PDC22930-4A80	Ent D - A1 Waterproofing for RB4, RB5	10	0%	27-Dec-17	08-Jan-18										
Entrances - ABWF Works															
01109.PDC27260	Deg 1 - ABWF to Entrance D	0	100%	12-Sep-16 A	08-Dec-17 A										



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-MPR2-2P, Page 8 of 10
 THREE MONTH ROLLING PROGRAMME - Dec 17 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.
 Printed:08-Jan-18

- Actual Work
- Remaining Work
- Master Programme Rev.2
- Last Month Update
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Activity ID	Activity Name	Remaining Duration	Physical % Complete	Start	Finish	2017				2018					
						Dec	Jan	Feb	Mar	Dec	Jan	Feb	Mar		
01109.PDC27260A10	Deg 1 - Plastering & Painting at External Wall	5	80%	30-Oct-17 A	02-Jan-18										
01109.PDC27270	Deg 2 - ABWF to Entrance D	90	0%	18-Dec-17 A	19-Apr-18										
CC-D - BORED TUNNELS FROM SUW STATION TO HOM STATION															
EEP (EI No.52)															
01109.PDEI52062	Ready for statutory inspections & obtain approval for EEP	110	0%	20-Mar-18	01-Aug-18										
EI 52 - EEP Shaft Structure (Revised)															
01109.PDDEI52036A-40	Final Backfill at slab top area & Adit D top area for TTMS	5	0%	25-Jan-18	30-Jan-18										
To Kwa Wan Ancillary Building															
C&S Works (Below Ground Level)															
TKA Shaft															
01109.PDD3480A80	Precast installation	25	0%	23-Jan-18	23-Feb-18										
01109.PDD3480A90	Surface Structure	0	0%	24-Feb-18	24-Feb-18										
C&S Works (Above Ground Level)															
Stairs															
01109.PDD3550	Stairs r-c construction (37m3)	24	0%	26-Feb-18	27-Mar-18										
BWIC with Other Structures															
01109.PDD3570	Openings in r-c slab	18	0%	05-Mar-18	24-Mar-18										
External Finishes and External Works															
External Wall Finishes															
01109.PDD3900	Welded Mesh panelling (24m2)	6	0%	05-Mar-18	10-Mar-18										
01109.PDD3910	Waterproofing (2x315m2)	9	0%	05-Mar-18	14-Mar-18										
01109.PDD3920	Earthworks & Landscaping	30	0%	05-Mar-18	10-Apr-18										
External Roof Finishes															
01109.PDD3930	Roof Tiling & green roof system	6	0%	15-Mar-18	21-Mar-18										
01109.PDD3940	Waterproofing (2x47m2)	6	0%	15-Mar-18	21-Mar-18										
CC-E - REPROVISIONING, REMEDIAL AND IMPROVEMENT WORKS (RRIW)															
General C & S Works															
C&S Works for Sung Wong Toi Playground															
01109.PDE1040	Reinstatement of Sung Wong Toi Playground	85	0%	27-Dec-17	13-Apr-18										
C&S Works for Subways KS33 & KS34															
E&M Lift installation															
Lift installation at Olympic Garden (LT07)															
01109.PDE1050-420A50	Lift installation at Olympic Garden (LT07) - Low speed test	0	0%	27-Dec-17	27-Dec-17										
01109.PDE1050-420A51	Lift installation at Olympic Garden (LT07) - High speed test	14	0%	27-Dec-17	09-Jan-18										



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-MPR2-2P, Page 9 of 10
 THREE MONTH ROLLING PROGRAMME - Dec 17 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
 Printed:08-Jan-18

- Actual Work
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Activity ID	Activity Name	Remaining Duration	Physical % Complete	Start	Finish	2017				2018			
						Dec	Jan	Feb	Mar	Dec	Jan	Feb	Mar
01109.PDE1050-420A55	Lift installation at Olympic Garden (LT07) - Lift Protection Works	1	0%	18-Jan-18	18-Jan-18								
Lift installation at KS34 (LT09)													
01109.PDE1050-420A61	Lift installation at KS34 (LT09) - Low speed test	0	0%	27-Dec-17	27-Dec-17								
01109.PDE1050-420A62	Lift installation at KS34 (LT09) - High speed test	10	0%	27-Dec-17	05-Jan-18								
01109.PDE1050-420A65	Lift installation at KS34 (LT09) - Lift Protection Works	2	0%	14-Jan-18	15-Jan-18								



MTR Corporation Limited
Shatin to Central Link Contract 1109

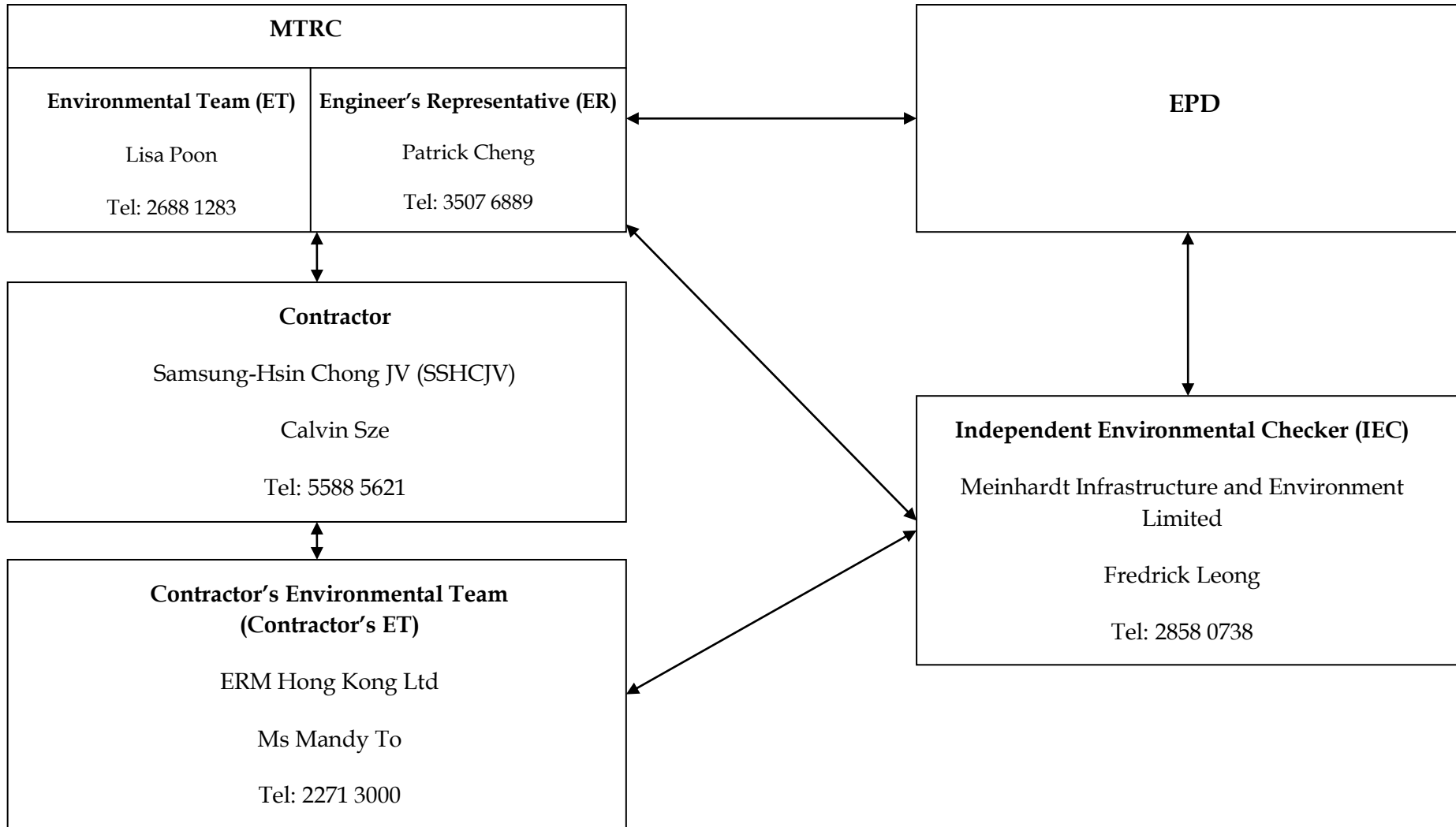
1109-MPR2-2P, Page 10 of 10
 THREE MONTH ROLLING PROGRAMME - Dec 17 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
 Printed:08-Jan-18

- Actual Work
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- Master Programme Rev.2
- Last Month Update
- Milestone
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Annex C

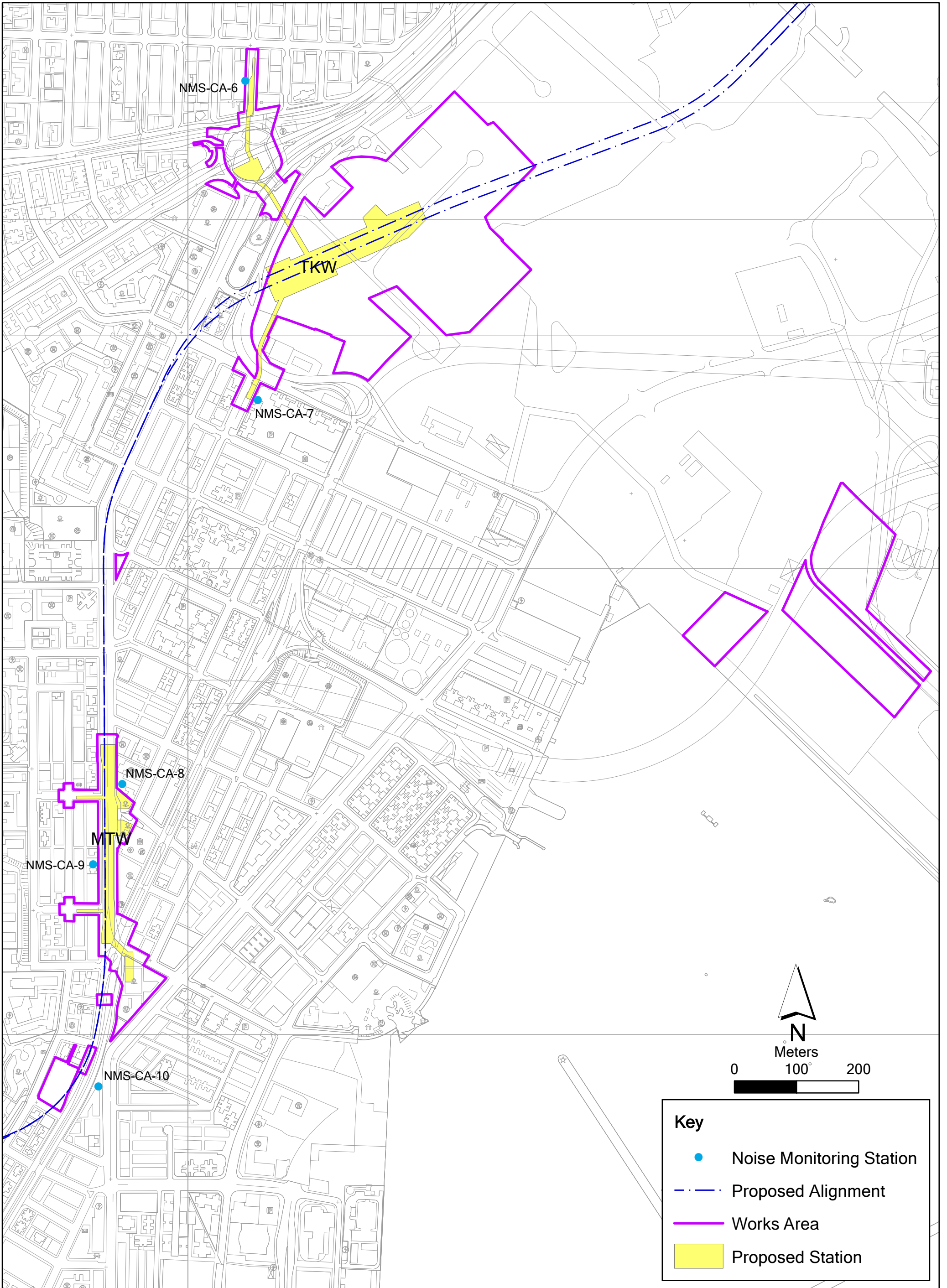
Project Organization Chart and Contact Detail

Annex C Project Organization of SCL Works Contract 1109



Annex D

Locations of Noise and Dust Monitoring Stations



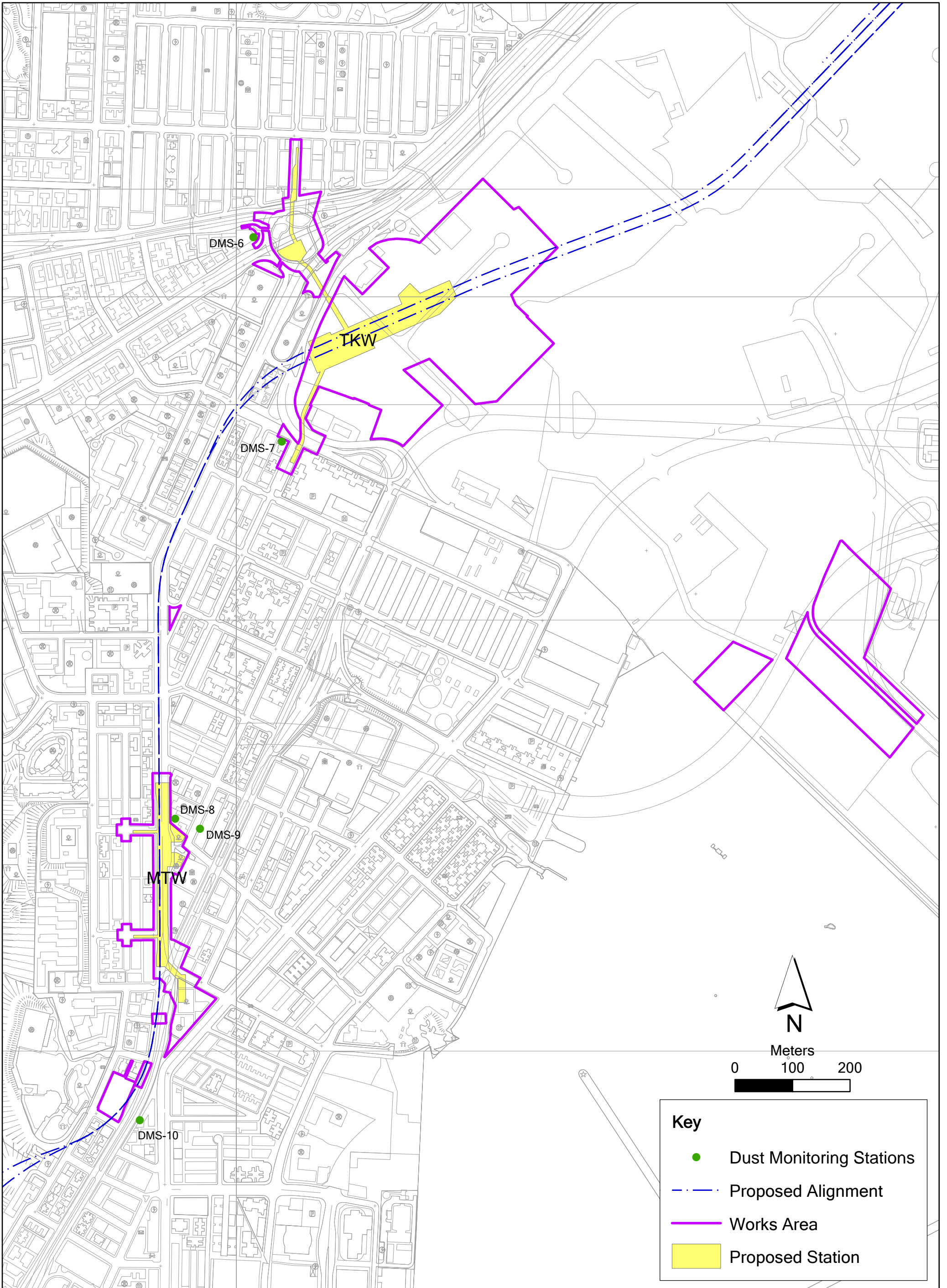
Annex D1

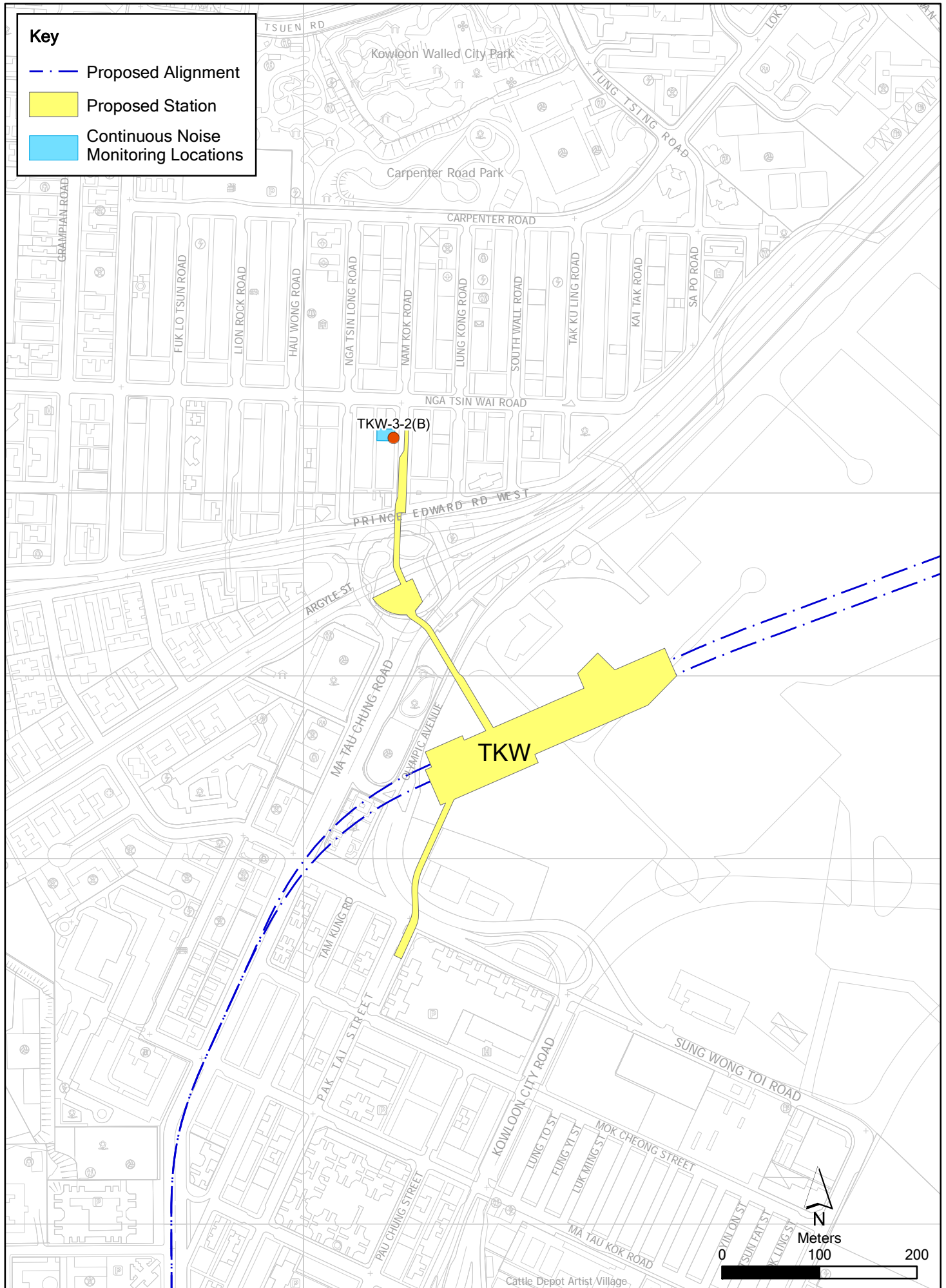
Location of Regular Construction Noise Monitoring Stations

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Date: 12/08/2014

Environmental
Resources
Management







Key

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

Figure 2.2a

Continuous Noise Monitoring Locations

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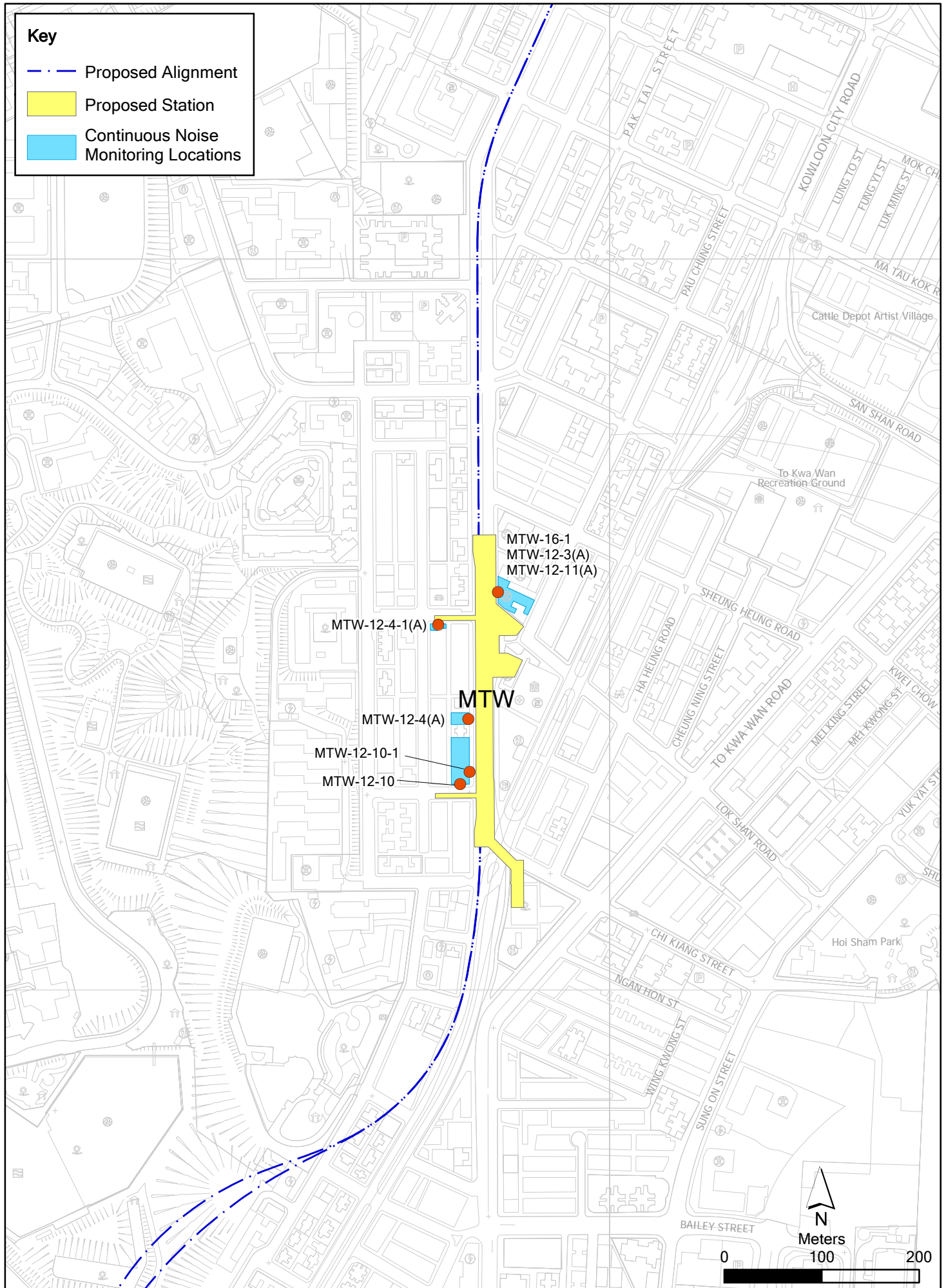


Figure 2.2b

Continuous Noise Monitoring Locations

Environmental
Resources
Management



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 : December 2017**

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

**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 : January 2018**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jan	02-Jan	03-Jan	04-Jan	05-Jan	06-Jan
	Public Holiday	Noise Monitoring				
07-Jan	08-Jan	09-Jan	10-Jan	11-Jan	12-Jan	13-Jan
	Noise Monitoring					
14-Jan	15-Jan	16-Jan	17-Jan	18-Jan	19-Jan	20-Jan
				Noise Monitoring		
21-Jan	22-Jan	23-Jan	24-Jan	25-Jan	26-Jan	27-Jan
			Noise Monitoring			
28-Jan	29-Jan	30-Jan	31-Jan			
		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: December 2017**

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

**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: January 2018**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Jan	02-Jan	03-Jan	04-Jan	05-Jan	06-Jan
	Public Holiday	24-hr TSP Monitoring				
07-Jan	08-Jan	09-Jan	10-Jan	11-Jan	12-Jan	13-Jan
	24-hr TSP Monitoring				24-hr TSP Monitoring	
14-Jan	15-Jan	16-Jan	17-Jan	18-Jan	19-Jan	20-Jan
				24-hr TSP Monitoring		
21-Jan	22-Jan	23-Jan	24-Jan	25-Jan	26-Jan	27-Jan
			24-hr TSP Monitoring			
28-Jan	29-Jan	30-Jan	31-Jan			
		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. 2454)	5 November 2017 5 May 2018
DMS-7	Parc 22	TE-5170 (S/N 3574)	CM-AIR-43 (Orifice I.D. 2454)	5 November 2017 5 May 2018
DMS-8	SKH Good Shepherd Primary School	TE-5170 (S/N 3572)	CM-AIR-43 (Orifice I.D. 2454)	5 November 2017 5 May 2018
DMS-9	No. 12 Pau Chung Street	TE-5170 (S/N 0814)	CM-AIR-43 (Orifice I.D. 2454)	5 November 2017 5 May 2018
DMS-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. 2454)	5 November 2017 5 May 2018

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-8, NMS-CA-9 and NMS-CA-10	Calibrator	Rion NC-73 (S/N 10486660)	17 March 2017	17 March 2018
	Sound Level Meter	Rion NL-52 (S/N 00131627)	4 July 2017	4 July 2018

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-6(Katherine Building)
Calibrated by : K.T.Ho
Date : 05/11/2017

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
Service Date : 20 March 2017
Slope (m) : 2.08464
Intercept (b) : -0.036840
Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1012
Ta(K) : 296

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1 18 holes	12.8	3.588	1.739	54	54.16
2 13 holes	9.4	3.075	1.493	48	48.14
3 10 holes	7.0	2.653	1.290	38	38.11
4 7 holes	4.4	2.104	1.027	30	30.09
5 5 holes	3.0	1.737	0.851	24	24.07

Sampler Calibration Relationship (Linear Regression)

Slope(m): 34.819

Intercept(b): -5.634

Correlation Coefficient(r): 0.9957

Checked by: Magnum Fan

Date: 08/11/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-7(Parc 22)
 Calibrated by : K.T.Ho
 Date : 05/11/2017

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 20 March 2017
 Slope (m) : 2.08464
 Intercept (b) : -0.036840
 Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1012
 Ta(K) : 296

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.4	3.531	1.712	64	64.18
2	13 holes	9.7	3.123	1.516	56	56.16
3	10 holes	7.8	2.801	1.361	50	50.14
4	7 holes	4.4	2.104	1.027	40	40.12
5	5 holes	3.0	1.737	0.851	30	30.09

Sampler Calibration Relationship (Linear Regression)

Slope(m):37.824 Intercept(b):-0.781 Correlation Coefficient(r):0.9954

Checked by: Magnum Fan

Date: 08/11/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-8(SHK Good Shepherd Primary School)
 Calibrated by : K.T.Ho
 Date : 05/11/2017

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 20 March 2017
 Slope (m) : 2.08464
 Intercept (b) : -0.036840
 Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1012
 Ta(K) : 296

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.4	3.531	1.712	63	63.18
2	13 holes	9.6	3.107	1.508	56	56.16
3	10 holes	7.6	2.765	1.344	50	50.14
4	7 holes	4.6	2.151	1.049	40	40.12
5	5 holes	3.2	1.794	0.878	32	32.09

Sampler Calibration Relationship (Linear Regression)

Slope(m): 33.738 Intercept(b): 0.641 Correlation Coefficient(r): 0.9986

Checked by: Magnum Fan

Date: 08/11/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-9(No. 12 Pau Chung Street)
 Calibrated by : K.T.Ho
 Date : 05/11/2017

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 20 March 2017
 Slope (m) : 2.08464
 Intercept (b) : -0.036840
 Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1012
 Ta(K) : 296

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.8	3.588	1.739	68	68.20
2	13 holes	9.8	3.140	1.524	58	58.17
3	10 holes	7.6	2.765	1.344	50	50.14
4	7 holes	4.6	2.151	1.049	40	40.12
5	5 holes	2.8	1.678	0.823	28	28.08

Sampler Calibration Relationship (Linear Regression)

Slope(m): 42.490 Intercept(b): -6.115 Correlation Coefficient(r): 0.9978

Checked by: Magnum Fan

Date: 08/11/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-10(Chat Ma Mansion)
 Calibrated by : K.T.Ho
 Date : 05/11/2017

Sampler

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

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 20 March 2017
 Slope (m) : 2.08464
 Intercept (b) : -0.036840
 Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1012
 Ta(K) : 296

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.4	3.5317	1.712	61	61.18
2	13 holes	9.4	3.075	1.493	54	54.16
3	10 holes	7.2	2.691	1.309	46	46.13
4	7 holes	4.9	2.220	1.083	37	37.11
5	5 holes	2.8	1.678	0.823	28	28.08

Sampler Calibration Relationship (Linear Regression)

Slope(m): 35.266 Intercept(b): 1.975 Correlation Coefficient(r): 0.9988

Checked by: Magnum Fan

Date: 08/11/2017



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 20, 2017 Rootsmeter S/N 0438320 Ta (K) - 293
 Operator Tisch Orifice I.D. - 2454 Pa (mm) - 759.46

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	1.4390	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9170	7.9	5.00
4	NA	NA	1.00	0.8730	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0120	0.7033	1.4257	0.9958	0.6920	0.8784
1.0078	0.9842	2.0163	0.9916	0.9683	1.2423
1.0057	1.0967	2.2543	0.9895	1.0791	1.3889
1.0045	1.1507	2.3643	0.9884	1.1322	1.4567
0.9992	1.3878	2.8514	0.9831	1.3654	1.7568
Qstd slope (m) = 2.08464			Qa slope (m) = 1.30537		
intercept (b) = -0.03684			intercept (b) = -0.02270		
coefficient (r) = 0.99994			coefficient (r) = 0.99994		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

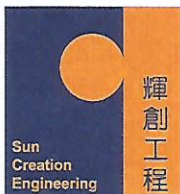
CALCULATIONS

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}



Certificate of Calibration 校正證書

Certificate No. : C171447
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC17-0633) Date of Receipt / 收件日期 : 16 March 2017

Description / 儀器名稱 : Sound Level Calibrator
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-73
Serial No. / 編號 : 10486660
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, 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

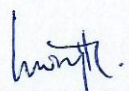
DATE OF TEST / 測試日期 : 17 March 2017


TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed 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
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By : 
測試 : H T Wong
Technical Officer

Certified By : 
核證 : K C Lee
Project Engineer

Date of Issue : 23 March 2017
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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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. : C171447

證書編號

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

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C163709
CL281	Multifunction Acoustic Calibrator	PA160023
TST150A	Measuring Amplifier	C161175

- 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	93.6	± 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 :

Only the original copy or the laboratory's certified true copy is valid.

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

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

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Sun Creation Engineering Limited – Calibration & Testing Laboratory

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

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606

Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com



Certificate of Calibration 校正證書

Certificate No. : C173613
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC17-1398) Date of Receipt / 收件日期 : 21 June 2017
Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00131627
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 4 July 2017

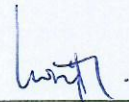
TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification. (after adjustment)
The results are detailed in the subsequent page(s).

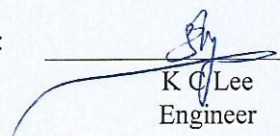
The test equipment used for calibration are traceable to National Standards via :

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

Tested By
測試


H T Wong
Technical Officer

Certified By
核證


K C Lee
Engineer

Date of Issue
簽發日期

4 July 2017

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. : C173613
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using the internal standard (After Adjustment) was performed before the test 6.1.1.2 to 6.3.2.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C170048
CL281	Multifunction Acoustic Calibrator	PA160023

- Test procedure : MA101N.

- Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L _A	A	Fast	94.00	1	* 92.8	± 1.1

* Out of IEC 61672 Class 1 Spec.

6.1.1.2 After Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L _A	A	Fast	94.00	1	94.0	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L _A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

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

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Certificate of Calibration

校正證書

Certificate No. : C173613
證書編號

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L _A	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.3

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L _A	A	Fast	94.00	63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.5
					250 Hz	85.3	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	92.9	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.6	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L _C	C	Fast	94.00	63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.0	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.6	-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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Certificate of Calibration

校正證書

Certificate No. : C173613
證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 04870

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

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

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

Note :

Only the original copy or the laboratory's certified true copy is valid.

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

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Annex G

Summary of Event/ Action Plans

Annex G1 Event and Action Plan for Regular Construction Noise Monitoring

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

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

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

Annex G3 Event and Action Plan for Construction Dust Monitoring

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

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

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

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

Annex H

Summary of Implementation Status 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.					
		<u>No-intrusion Zone</u>					
		<ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and associated understorey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing. The contractor should closely monitor and restrict the site working staff from entering the "no-intrusion zone", even for indirect construction activities and storage of equipment. 					
		<u>Protection of Retained Trees</u>					
		<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 Note 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></p> <p>Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for their appropriate disposal and maintenance.</p>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	✓
S10.7.1	W4	<p><u>Groundwater from Contaminated Area in case contamination is found:</u></p> <ul style="list-style-type: none"> • No direct discharge of groundwater from 	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	N/A

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

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

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<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. <p>Participation in a local collection scheme</p>	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

Regular Noise Monitoring Results

Annex I 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
05-Dec-17	11:10	11:40	Sunny	62.0	76.1	-(b)	-	Traffic noise	19	0.5	NL-18 00360030	NC-73 10486660
11-Dec-17	11:15	11:45	Sunny	62.0	76.1	-(b)	-	Traffic noise	18	0.5	NL-18 00360030	NC-73 10486660
21-Dec-17	11:15	11:45	Sunny	61.7	76.1	-(b)	-	Traffic noise	15	0.5	NL-18 00360030	NC-73 10486660
27-Dec-17	11:10	11:40	Sunny	63.2	76.1	-(b)	-	Traffic noise	18	0.5	NL-18 00360030	NC-73 10486660

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
05-Dec-17	10:15	10:45	Sunny	65.1	70.0	-(b)	-	Traffic noise	19	0.5	NL-18 00360030	NC-73 10486660
11-Dec-17	10:15	10:45	Sunny	65.5	70.0	-(b)	-	Traffic noise	18	0.5	NL-18 00360030	NC-73 10486660
21-Dec-17	10:22	10:52	Sunny	65.4	70.0	-(b)	-	Traffic noise	15	0.5	NL-18 00360030	NC-73 10486660
27-Dec-17	10:05	10:35	Sunny	65.3	70.0	-(b)	-	Traffic noise	18	0.5	NL-18 00360030	NC-73 10486660

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
05-Dec-17	8:00	8:30	Sunny	72.8	75.4	-(b)	Crane operation	Traffic noise	19	0.5	NL-18 00360030	NC-73 10486660
11-Dec-17	8:00	8:30	Sunny	72.3	75.4	-(b)	Backhoe	Traffic noise	18	0.5	NL-18 00360030	NC-73 10486660
21-Dec-17	8:00	8:30	Sunny	72.2	75.4	-(b)	Backhoe	Traffic noise	15	0.5	NL-18 00360030	NC-73 10486660
27-Dec-17	8:00	8:30	Sunny	72.3	75.4	-(b)	Backhoe	Traffic noise	18	0.5	NL-18 00360030	NC-73 10486660

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
05-Dec-17	9:25	9:55	Sunny	69.2	69.2	-(b)	Breaker	Traffic noise	19	0.5	NL-18 00360030	NC-73 10486660
11-Dec-17	9:22	9:52	Sunny	69.6	69.2	59.0	Backhoe	Traffic noise	18	0.5	NL-18 00360030	NC-73 10486660
21-Dec-17	9:25	9:55	Sunny	69.5	69.2	57.7	Backhoe	Traffic noise	15	0.5	NL-18 00360030	NC-73 10486660
27-Dec-17	9:22	9:52	Sunny	68.9	69.2	-(b)	Backhoe	Traffic noise	18	0.5	NL-18 00360030	NC-73 10486660

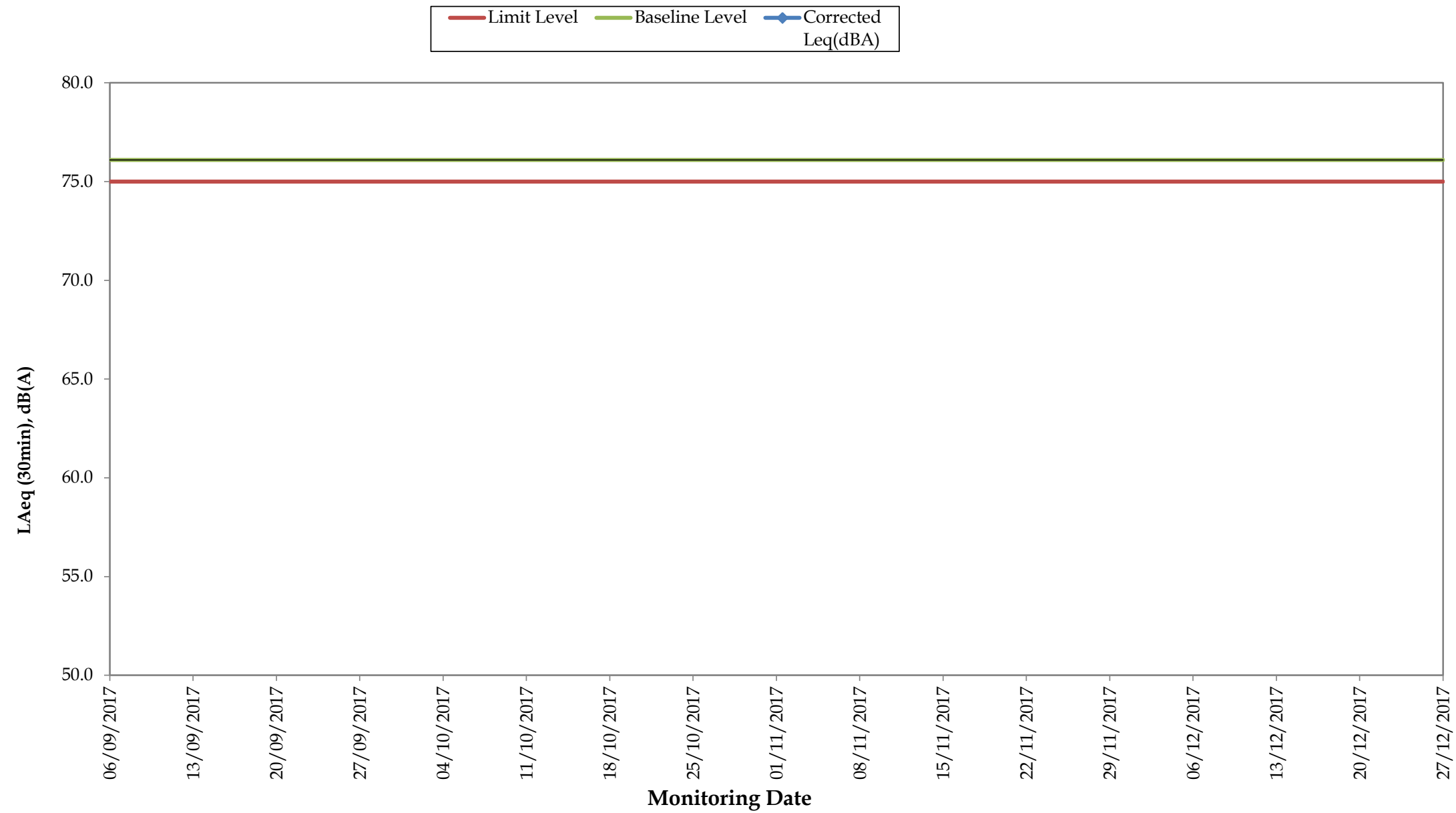
Station NMS-CA-10 Chat Ma Mansion

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
05-Dec-17	8:42	9:12	Sunny	76.3	76.6	-(b)	Crane operation	Traffic noise	19	0.5	NL-18 00360030	NC-73 10486660
11-Dec-17	8:40	9:10	Sunny	76.1	76.6	-(b)	Crane operation	Traffic noise	18	0.5	NL-18 00360030	NC-73 10486660
21-Dec-17	8:45	9:15	Sunny	76.0	76.6	-(b)	Crane operation	Traffic noise	15	0.5	NL-18 00360030	NC-73 10486660
27-Dec-17	8:42	9:12	Sunny	75.4	76.6	-(b)	Crane operation	Traffic noise	18	0.5	NL-18 00360030	NC-73 10486660

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 carried out at NMS-CA-8 and NMS-CA-10 on 5, 11, 21 and 27 December 2017 are 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.

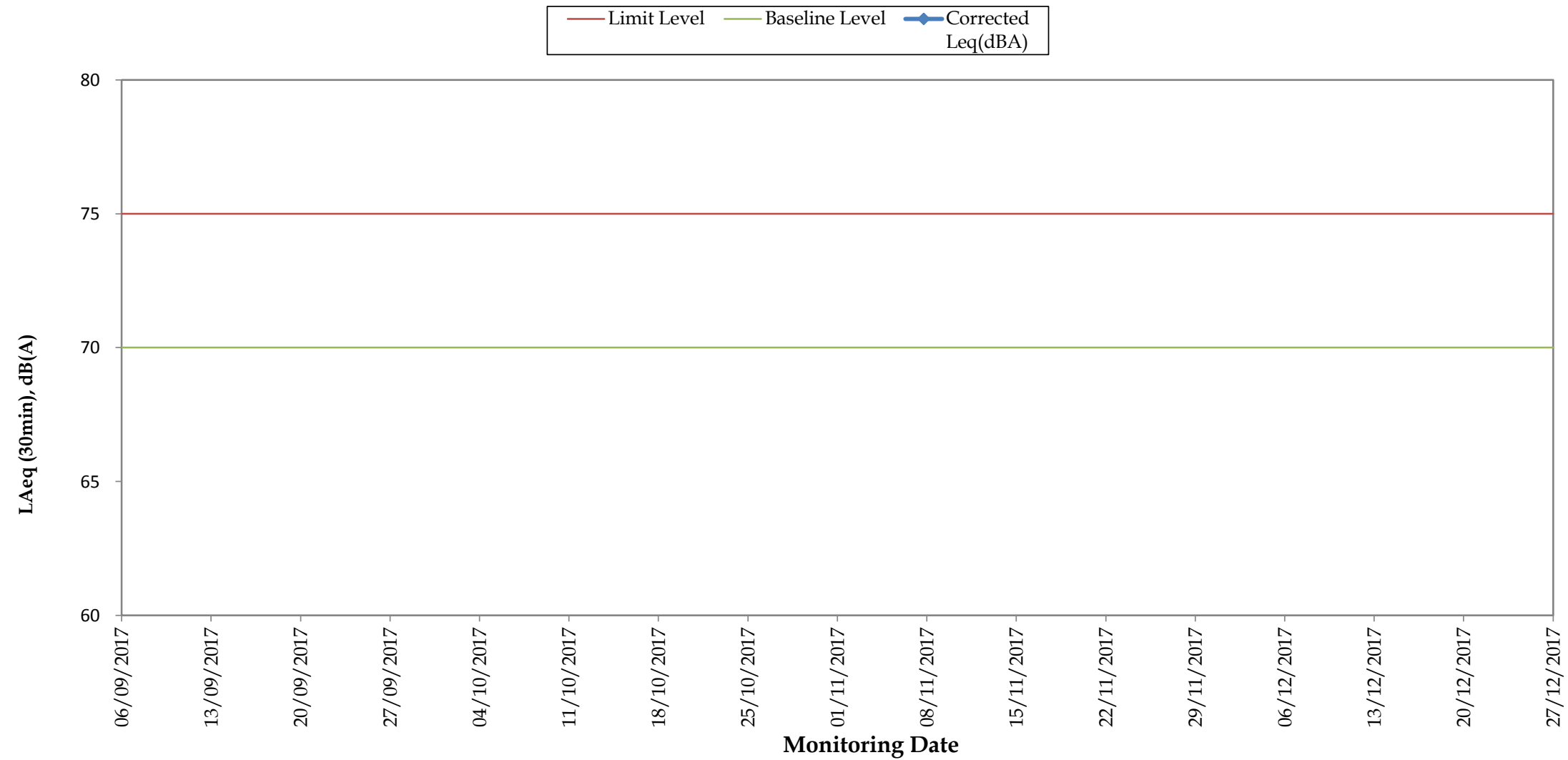
Regular Noise Monitoring Results at NMS-CA-6 (No. 16-23 Nam Kok Road) (LAeq, 30min) for the Past 4 Months



Remarks:

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

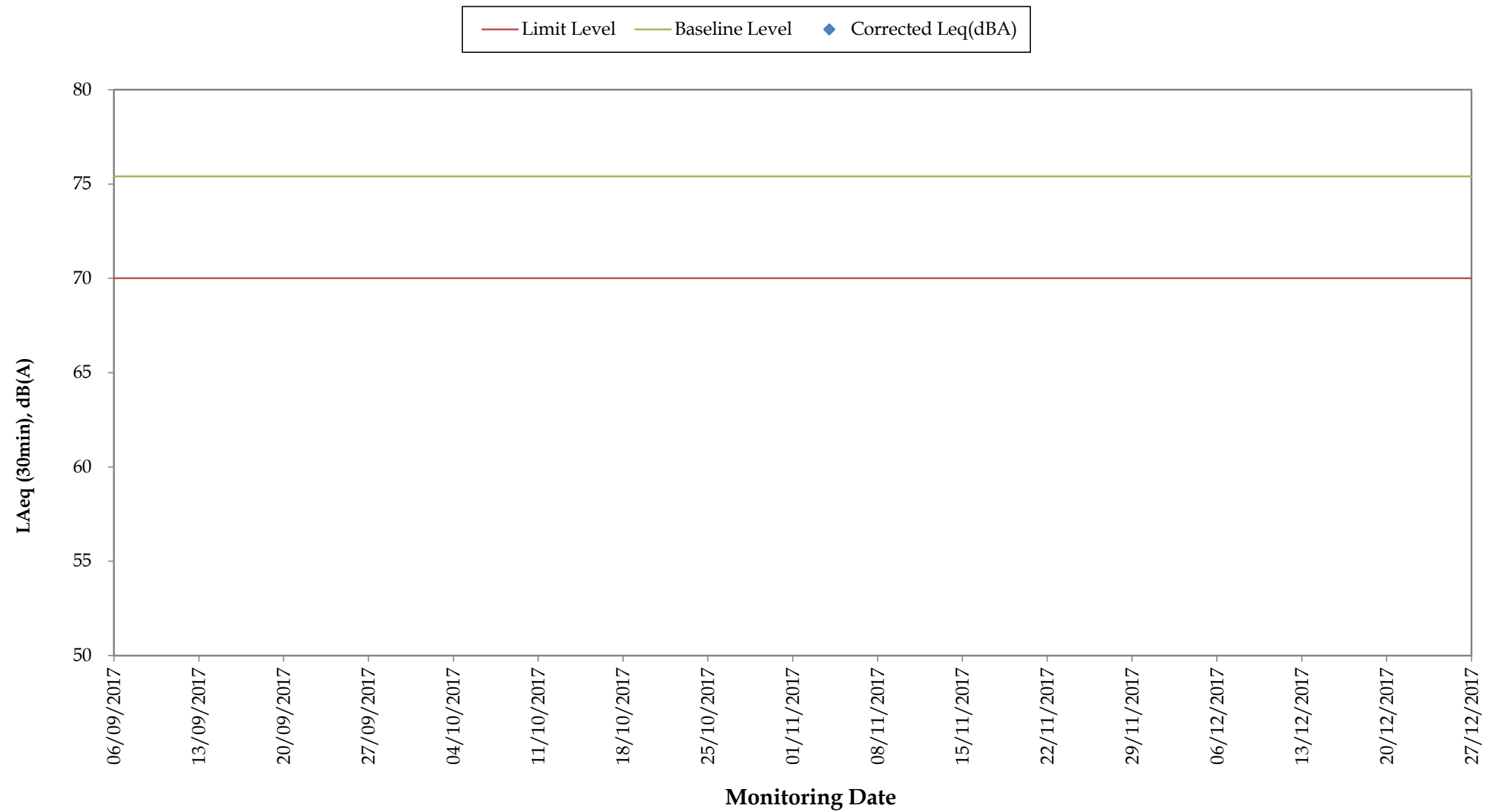
Regular Noise Monitoring Results at NMS-CA-7 (Skytower Tower 2) (LAeq, 30min) for the Past 4 Months



Remarks:

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

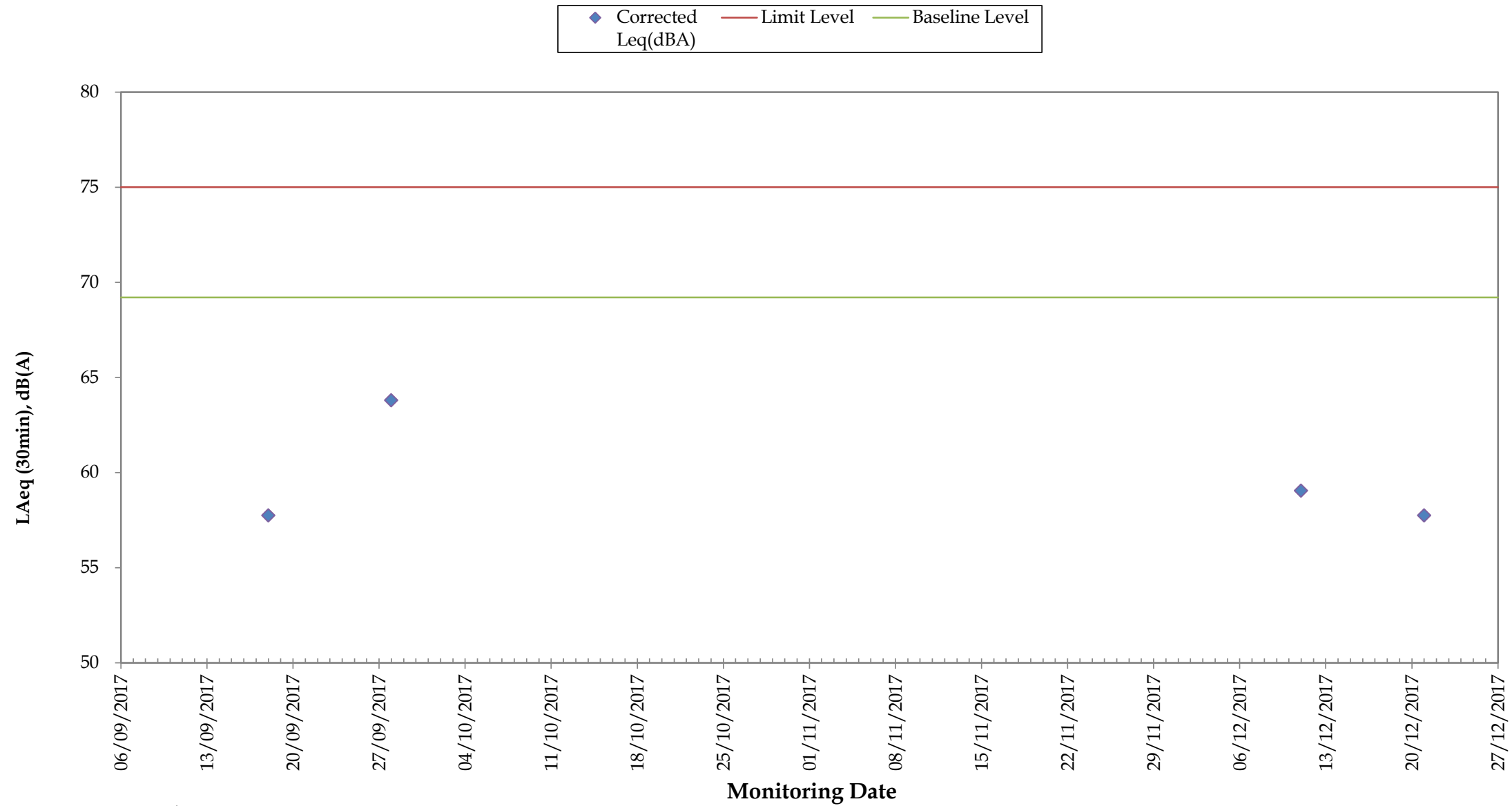
Regular Noise Monitoring Results at NMS-CA- 8 (SKH Good Shepherd Primary School) (LAeq, 30min) for the Past 4 Months



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise levels are equal to or 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.
- The limit level was updated from 79dB(A) to 70dB(A)/65dB(A) (during normal/examination period) from April 2016, as the continuous noise monitoring was completed in March 2016 according to the latest CNMP

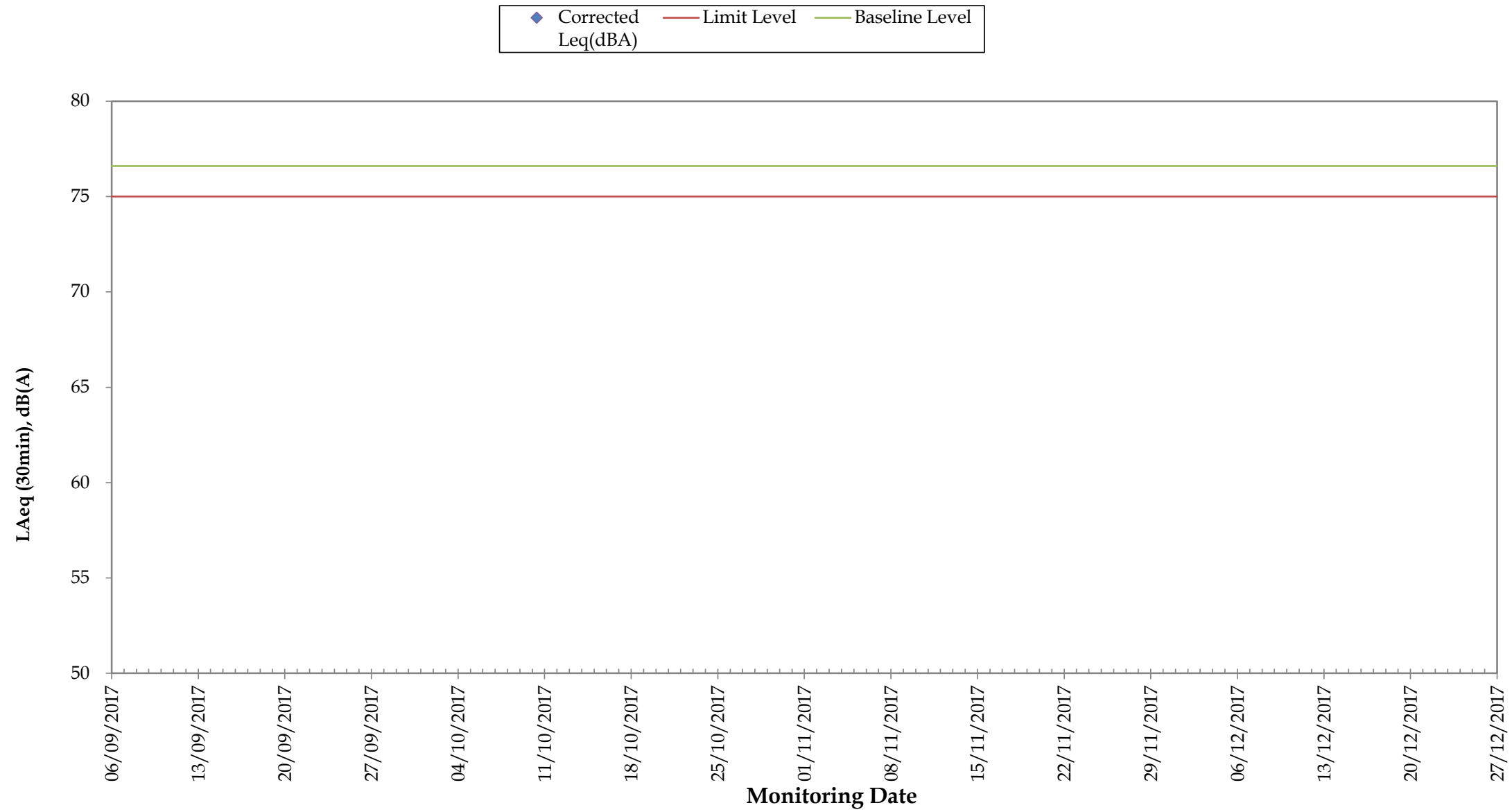
Regular Noise Monitoring Results at NMS-CA-9 (Kong Yiu Mansion) (LAeq, 30min)) for the Past 4 Months



Remarks:

- For those corrected noise levels that are not shown in this graph, the measured noise levels are equal to or 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 equal to or 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	Finish	Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	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	Date		Initial	Final	Initial	Final	(hrs)	Initial	Final								
05-Dec-17	06-Dec-17	Sunny	2.7207	2.8552	18152.30	18176.30	24.00	1.37	1.37	1.37	68	156.8	260	-	0107	8948	
11-Dec-17	12-Dec-17	Sunny	2.7853	2.9021	18176.30	18200.30	24.00	1.37	1.37	1.37	59	156.8	260	-	0107	8953	
15-Dec-17	16-Dec-17	Fine	2.7869	2.9221	18200.30	18224.30	24.00	1.37	1.37	1.37	69	156.8	260	-	0107	8958	
21-Dec-17	22-Dec-17	Sunny	2.7934	2.9100	18224.30	18248.30	24.00	1.37	1.37	1.37	59	156.8	260	-	0107	8963	
27-Dec-17	28-Dec-17	Sunny	2.7911	2.9112	18248.30	18272.30	24.00	1.37	1.37	1.37	61	156.8	260	-	0107	8968	
											Minimum	59					
											Average	63					
											Maximum	69					

Station DMS-7 Parc 22

Start	Finish	Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	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	Date		Initial	Final	Initial	Final	(hrs)	Initial	Final								
05-Dec-17	06-Dec-17	Sunny	2.7374	2.8609	7400.17	7424.17	24.00	1.24	1.24	1.24	69	166.7	260	-	3574	8947	
11-Dec-17	12-Dec-17	Sunny	2.7651	2.9000	7424.17	7448.17	24.00	1.24	1.24	1.24	76	166.7	260	-	3574	8952	
15-Dec-17	16-Dec-17	Fine	2.7879	2.9170	7448.17	7472.17	24.00	1.24	1.24	1.24	72	166.7	260	-	3574	8957	
21-Dec-17	22-Dec-17	Sunny	2.7900	2.8997	7472.17	7496.17	24.00	1.24	1.24	1.24	61	166.7	260	-	3574	8962	
27-Dec-17	28-Dec-17	Sunny	2.7710	2.9000	7496.17	7520.17	24.00	1.24	1.24	1.24	72	166.7	260	-	3574	8967	
											Minimum	61					
											Average	70					
											Maximum	76					

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							
05-Dec-17	8:05	06-Dec-17	8:05	Sunny	2.7474	2.8816	8357.11	8381.11	24.00	1.23	1.23	1.23	76	152.2	260	-	3572	8946
11-Dec-17	8:05	12-Dec-17	8:05	Sunny	2.7757	2.9191	8381.11	8405.11	24.00	1.23	1.23	1.23	81	152.2	260	-	3572	8951
15-Dec-17	8:15	16-Dec-17	8:15	Fine	2.7730	2.9084	8405.11	8429.11	24.00	1.23	1.23	1.23	76	152.2	260	-	3572	8956
21-Dec-17	8:05	22-Dec-17	8:05	Sunny	2.7846	2.9110	8429.11	8453.11	24.00	1.23	1.23	1.23	71	152.2	260	-	3572	8961
27-Dec-17	8:05	28-Dec-17	8:05	Sunny	2.7665	2.8901	8453.11	8477.11	24.00	1.23	1.23	1.23	70	152.2	260	-	3572	8966
													Minimum	70				
													Average	75				
													Maximum	81				

Station DMS-9 No. 12 Pau Chung Street

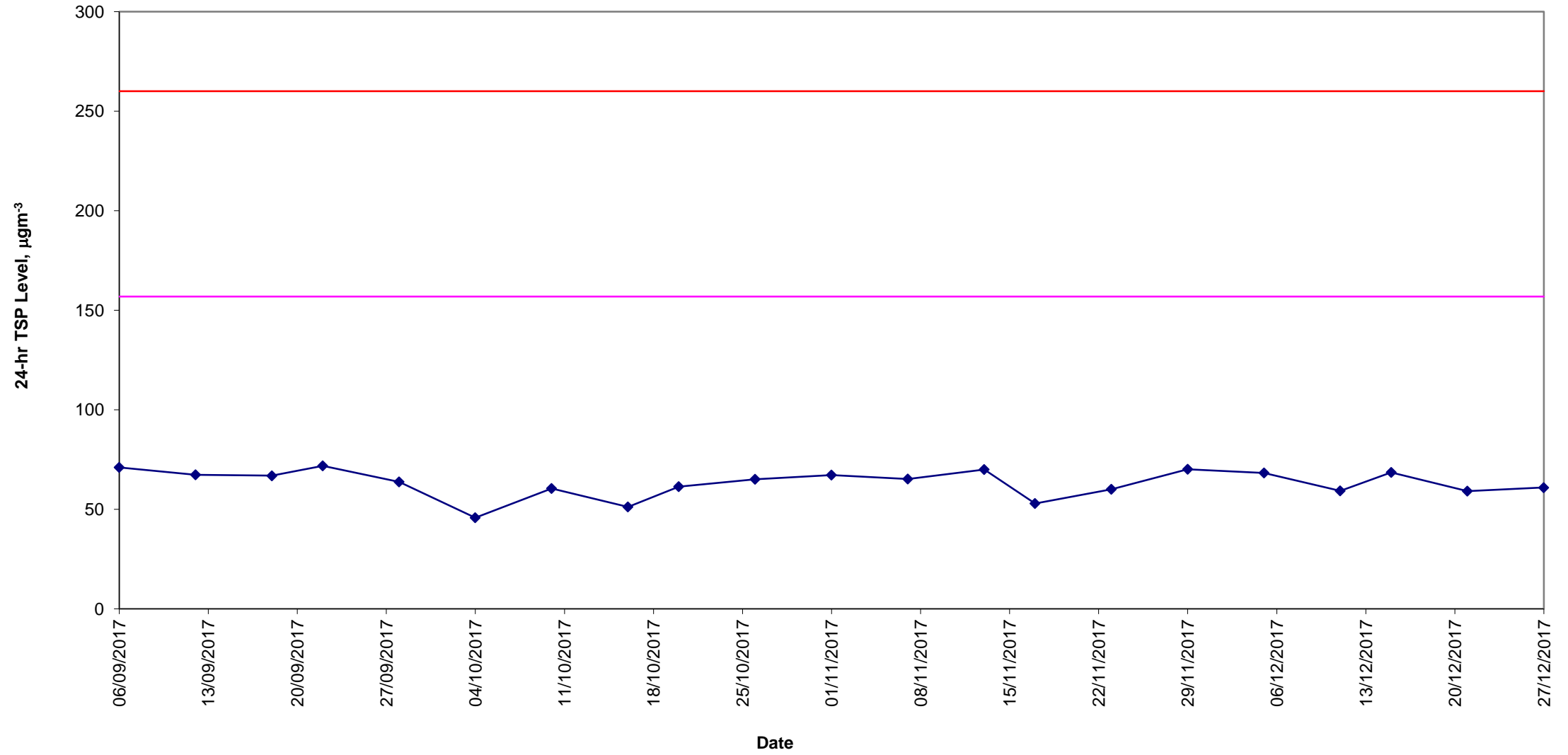
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
05-Dec-17	8:15	06-Dec-17	8:15	Sunny	2.7398	2.8702	18324.40	18348.40	24.00	1.23	1.23	1.23	74	160.9	260	-	0814	8945
11-Dec-17	8:15	12-Dec-17	8:15	Sunny	2.7687	2.8991	18348.40	18372.40	24.00	1.23	1.23	1.23	74	160.9	260	-	0814	8950
15-Dec-17	8:10	16-Dec-17	8:10	Fine	2.7593	2.8911	18372.40	18396.40	24.00	1.23	1.23	1.23	74	160.9	260	-	0814	8955
21-Dec-17	8:15	22-Dec-17	8:15	Sunny	2.7763	2.9009	18396.40	18420.40	24.00	1.23	1.23	1.23	70	160.9	260	-	0814	8960
27-Dec-17	8:15	28-Dec-17	8:15	Sunny	2.7659	2.8922	1842.40	1866.40	24.00	1.23	1.23	1.23	71	160.9	260	-	0814	8965
													Minimum	70				
													Average	73				
													Maximum	74				

Station DMS-10 Chat Ma Mansion

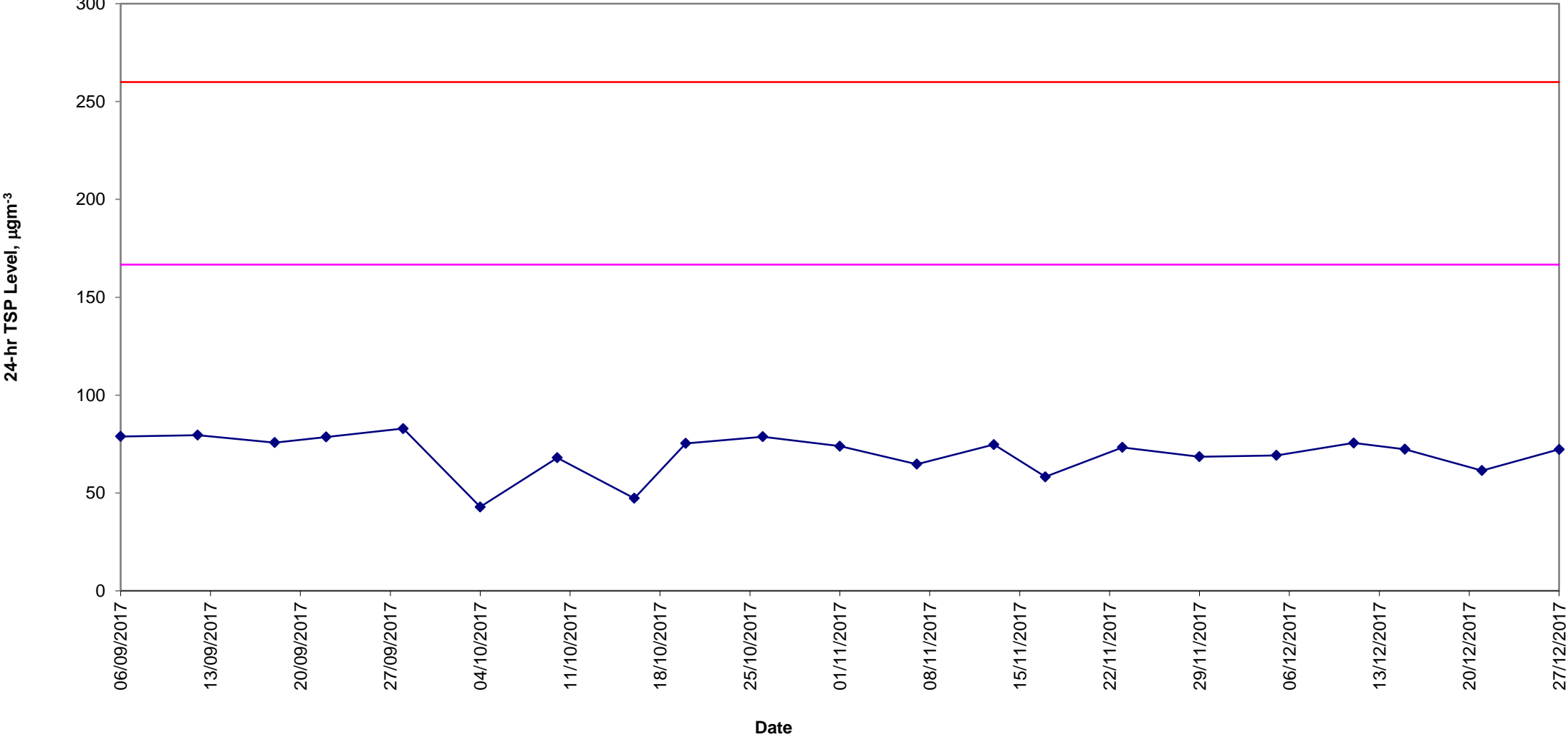
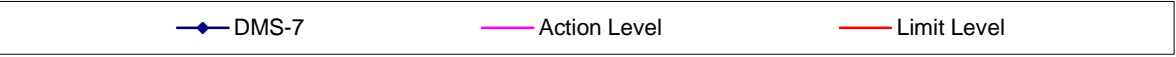
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
05-Dec-17	8:45	06-Dec-17	8:45	Sunny	2.7562	2.8797	8773.20	8797.20	24.00	1.25	1.25	1.25	69	170.4	260	-	3573	8944
11-Dec-17	8:43	12-Dec-17	8:43	Sunny	2.7551	2.8901	8797.20	8821.20	24.00	1.25	1.25	1.25	75	170.4	260	-	3573	8949
15-Dec-17	8:00	16-Dec-17	8:00	Fine	2.7650	2.9009	8821.20	8845.20	24.00	1.25	1.25	1.25	76	170.4	260	-	3573	8954
21-Dec-17	8:48	22-Dec-17	8:48	Sunny	2.7887	2.9011	8845.20	8869.20	24.00	1.25	1.25	1.25	62	170.4	260	-	3573	8959
27-Dec-17	8:45	28-Dec-17	8:45	Sunny	2.7682	2.8890	8869.20	8893.20	24.00	1.25	1.25	1.25	67	170.4	260	-	3573	8964
													Minimum	62				
													Average	70				
													Maximum	76				

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

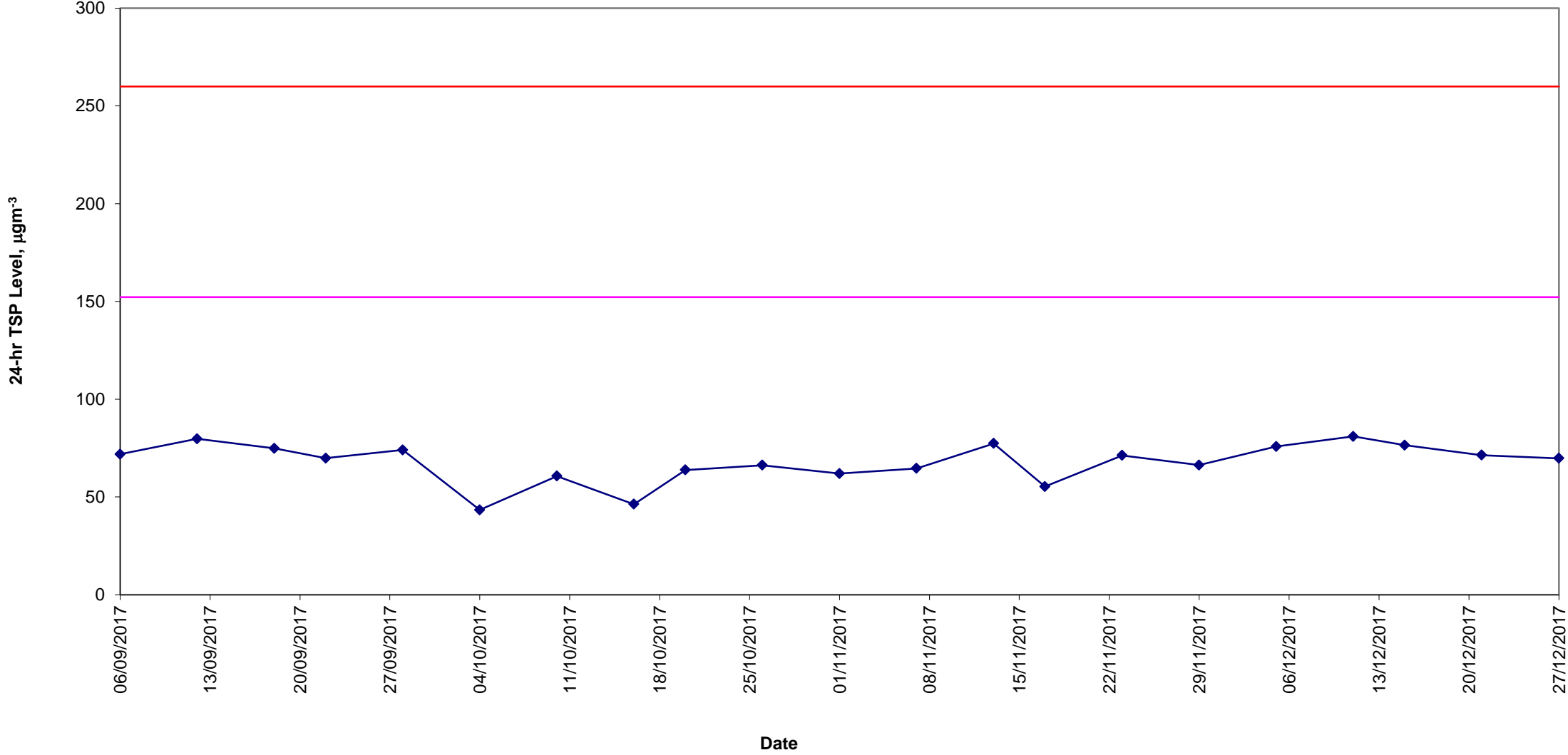
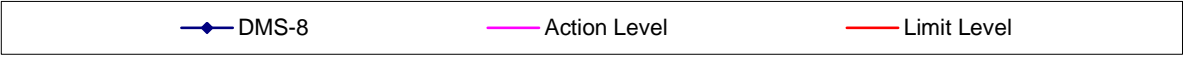
◆ DMS-6 ◆ Action Level ◆ Limit Level



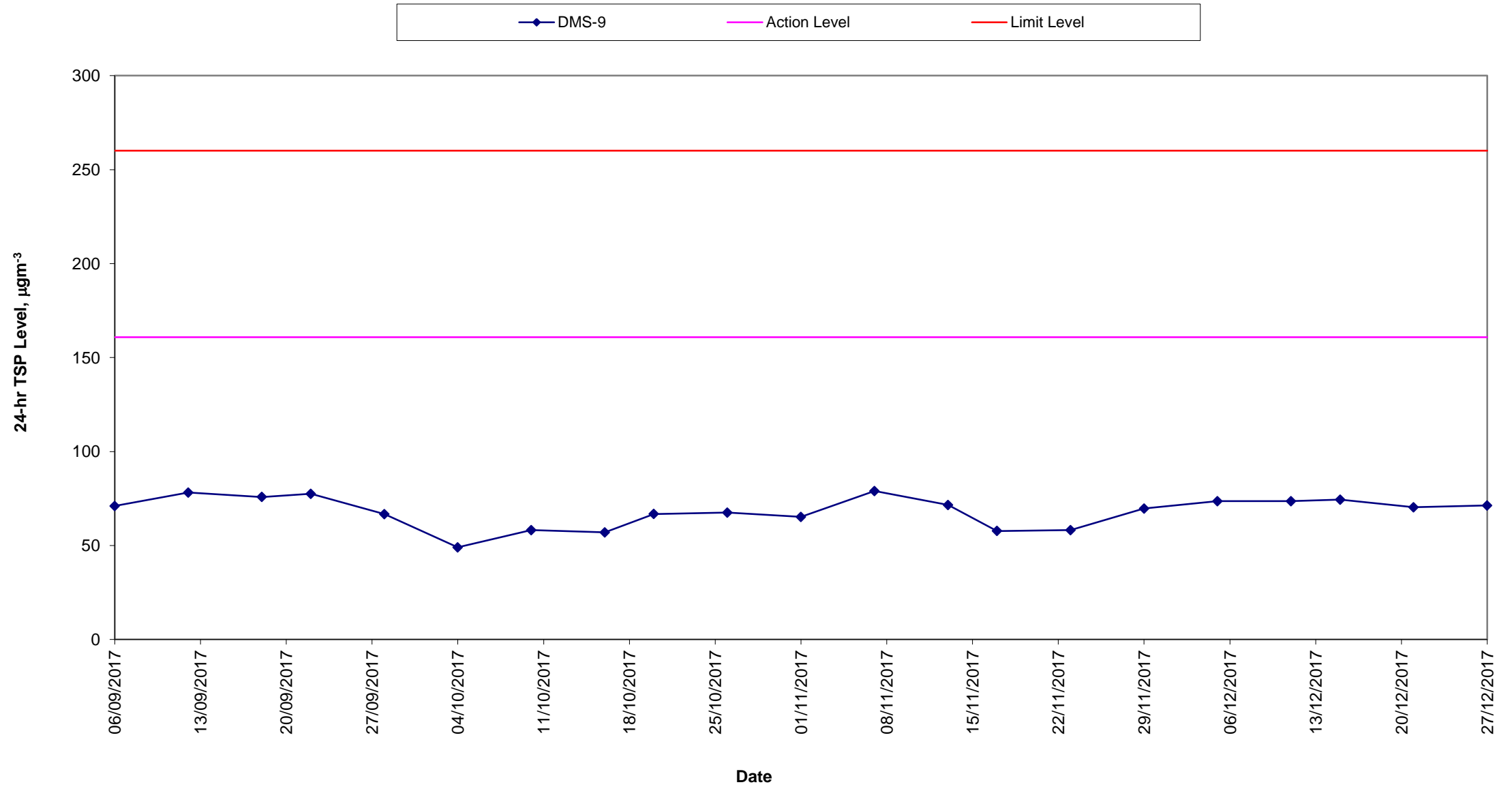
Construction Dust Monitoring Results for the Past 4 Months
DMS- 7 (Parc 22)



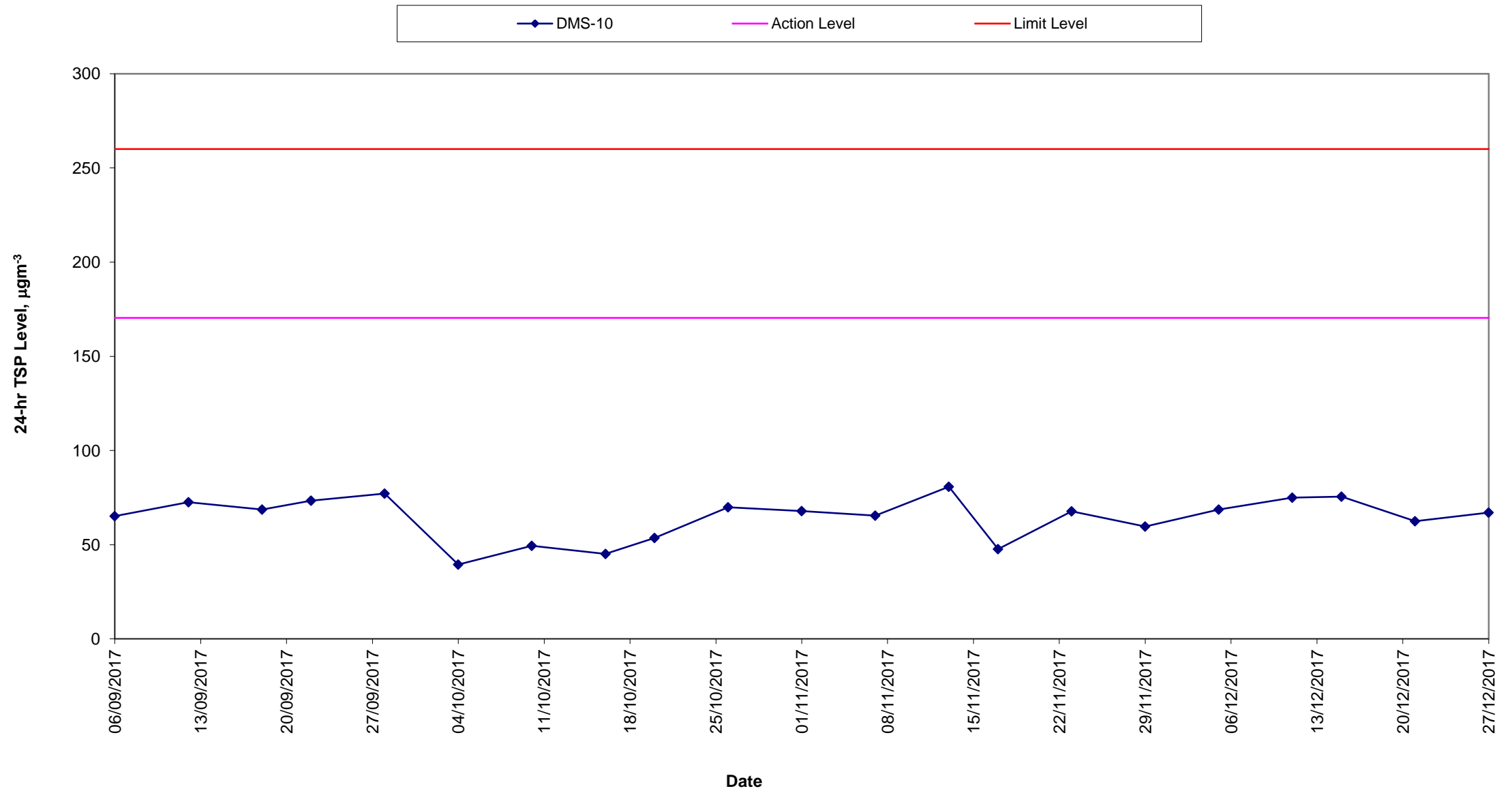
**Construction Dust Monitoring Results for the Past 4 Months
DMS-8 (SKH Good Shepherd Primary School)**



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)

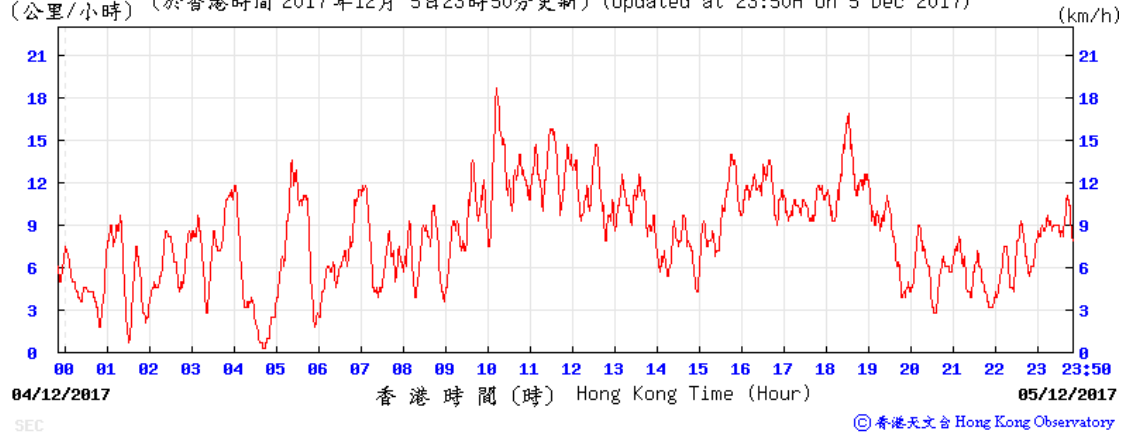


Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

5-6 December 2017

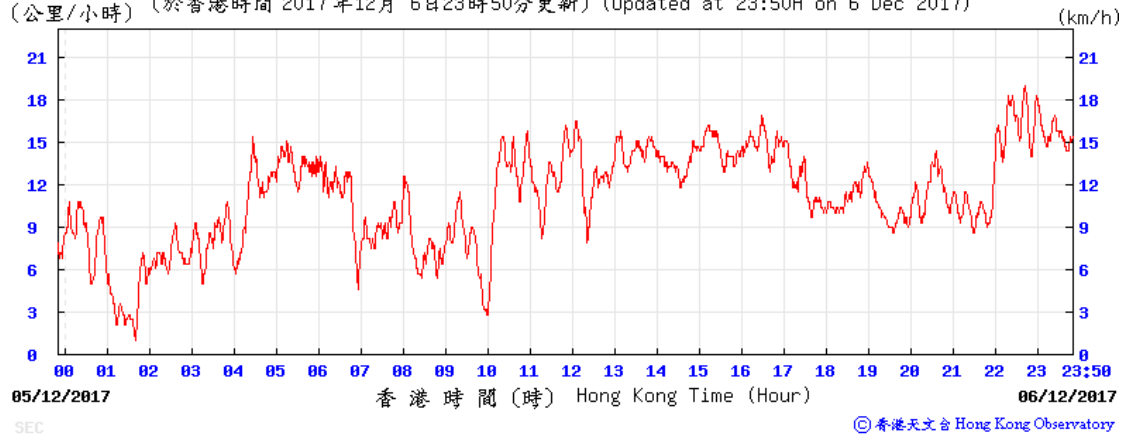
Wind Speed:

(公里/小時) (於香港時間 2017 年12月 5日23時50分更新) (Updated at 23:50H on 5 Dec 2017)



Wind Speed:

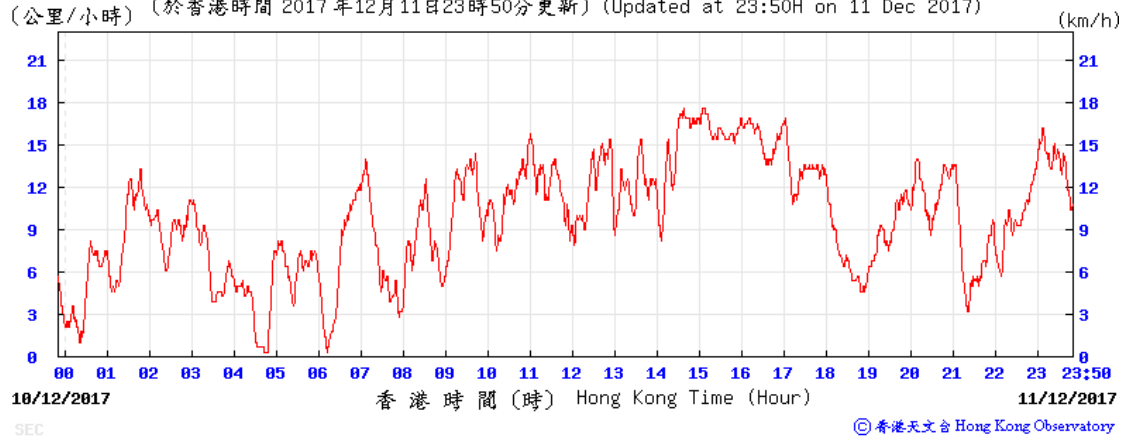
(公里/小時) (於香港時間 2017 年12月 6日23時50分更新) (Updated at 23:50H on 6 Dec 2017)



11-12 December 2017

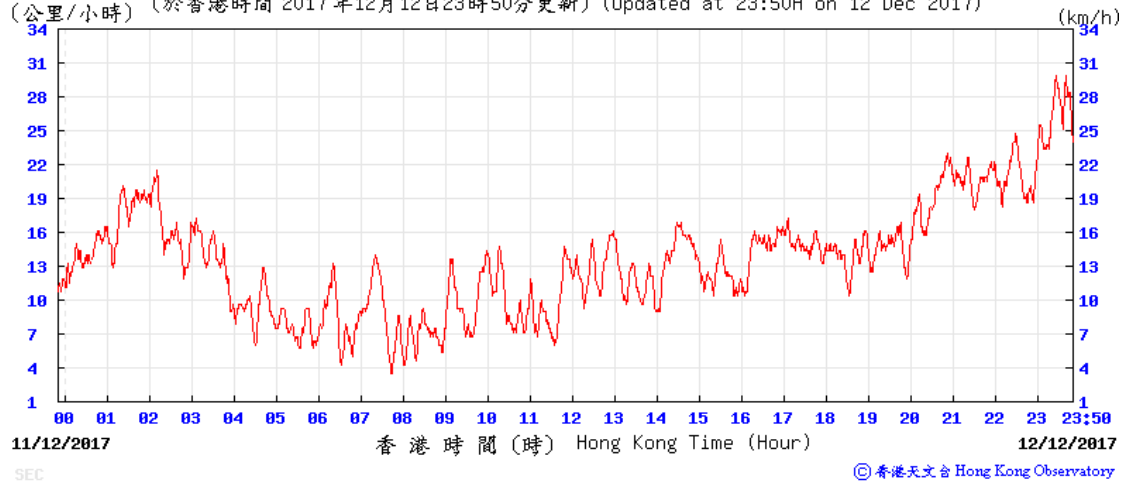
Wind Speed:

(公里/小時) (於香港時間 2017 年12月11日23時50分更新) (Updated at 23:50H on 11 Dec 2017)



Wind Speed:

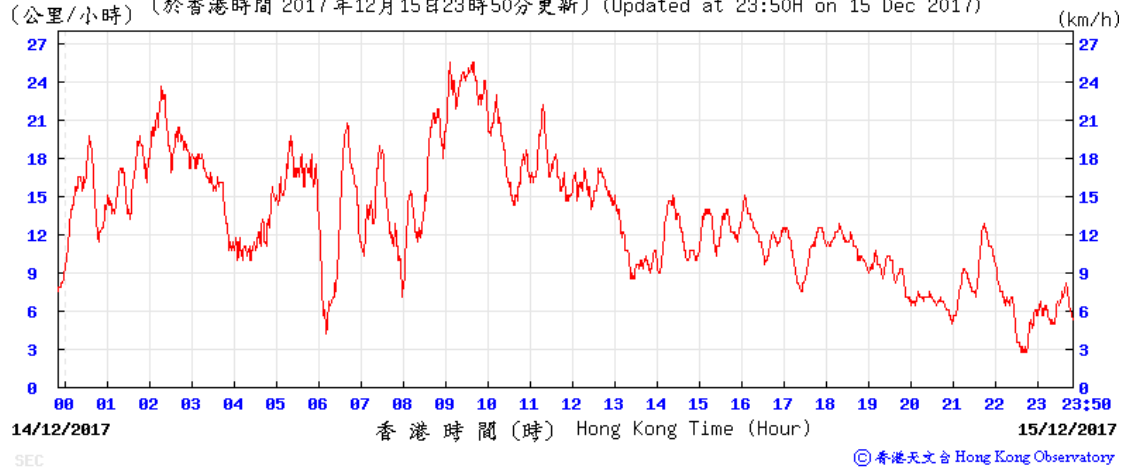
(公里/小時) (於香港時間 2017 年12月12日23時50分更新) (Updated at 23:50H on 12 Dec 2017)



15-16 December 2017

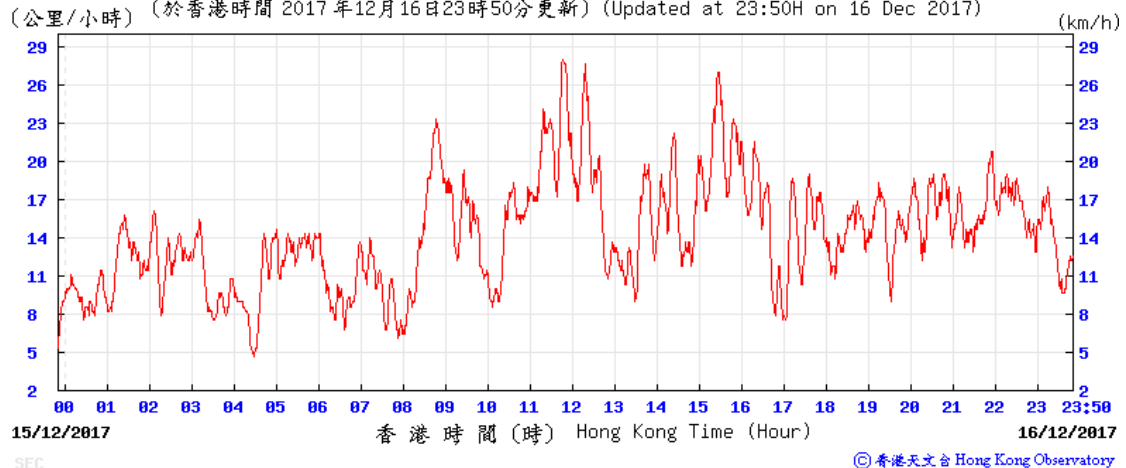
Wind Speed:

(公里/小時) (於香港時間 2017 年12月15日23時50分更新) (Updated at 23:50H on 15 Dec 2017)



Wind Speed:

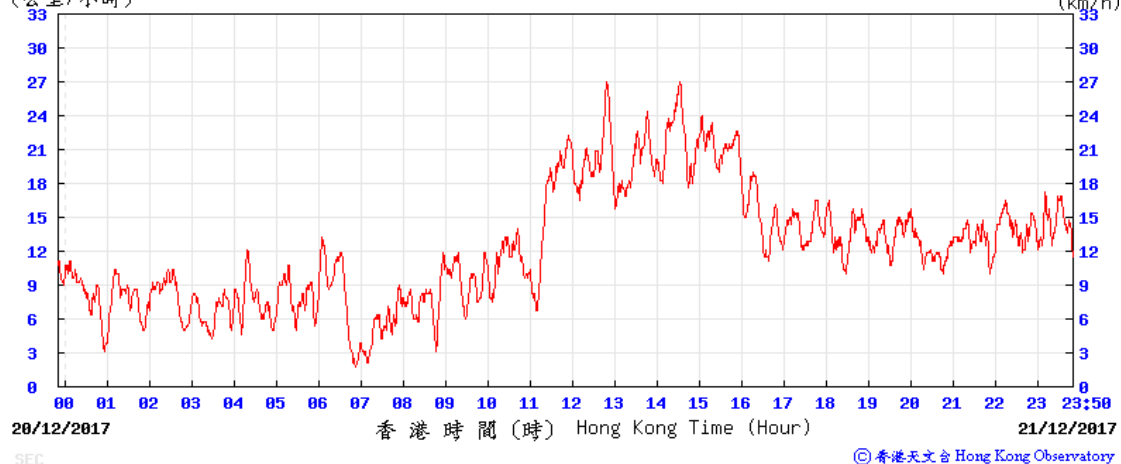
(公里/小時) (於香港時間 2017 年12月16日23時50分更新) (Updated at 23:50H on 16 Dec 2017)



21-22 December 2017

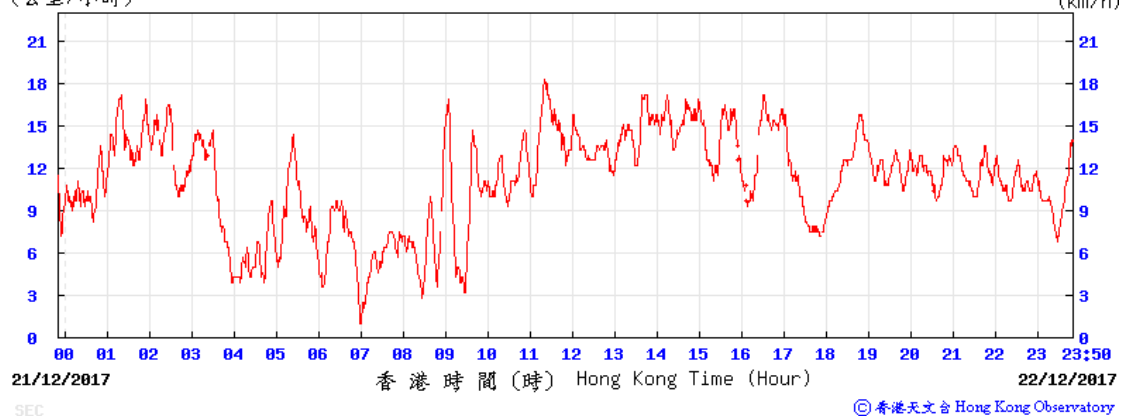
Wind Speed:

(公里/小時) (於香港時間 2017 年12月21日23時50分更新) (Updated at 23:50H on 21 Dec 2017)



Wind Speed:

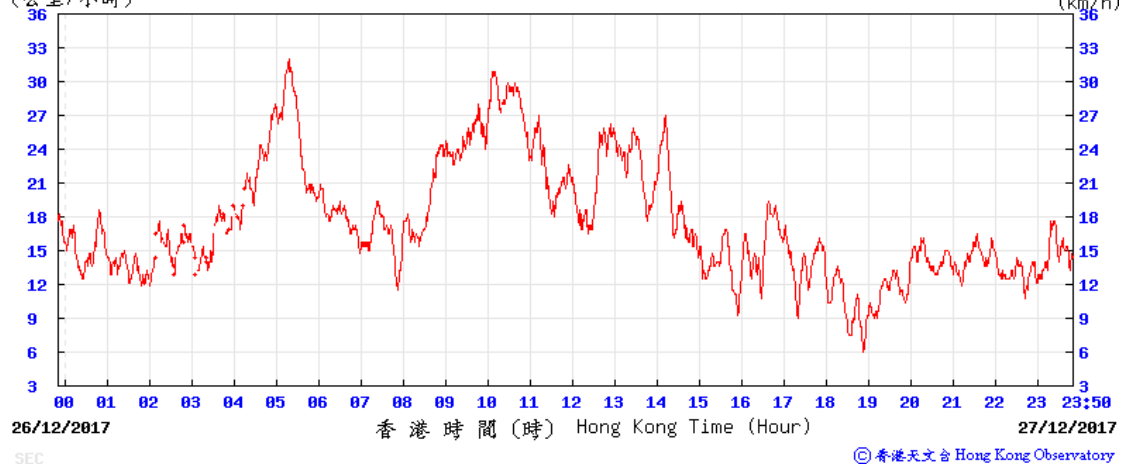
(公里/小時) (於香港時間 2017 年12月22日23時50分更新) (Updated at 23:50H on 22 Dec 2017)



27-28 December 2017

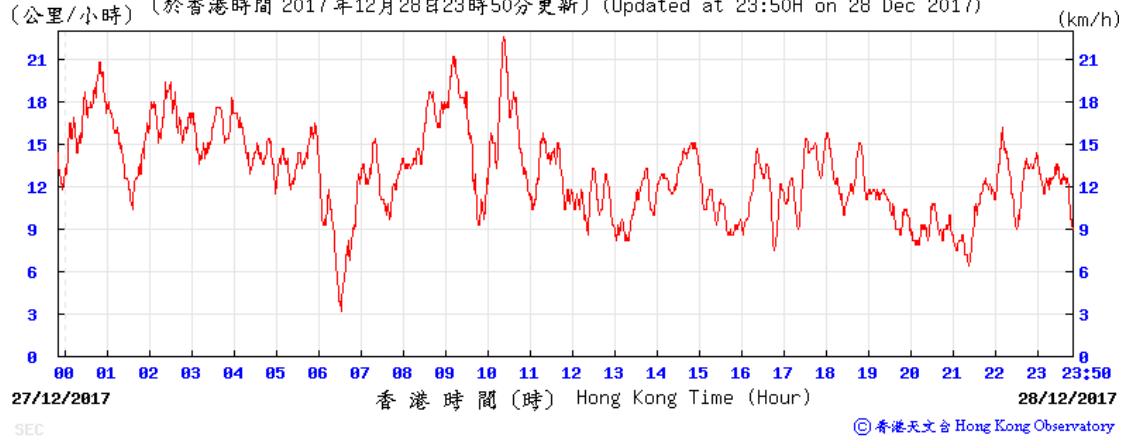
Wind Speed:

(公里/小時) (於香港時間 2017 年12月27日23時50分更新) (Updated at 23:50H on 27 Dec 2017)



Wind Speed:

(公里/小時) (於香港時間 2017 年12月28日23時50分更新) (Updated at 23:50H on 28 Dec 2017)

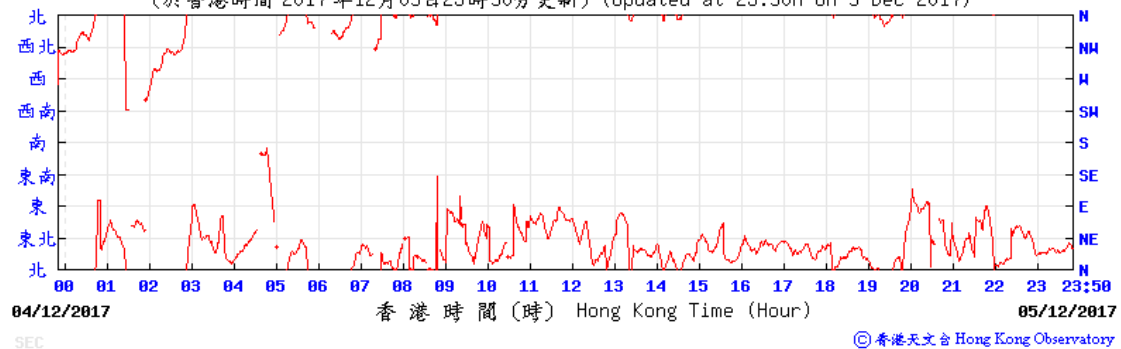


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

5-6 December 2017

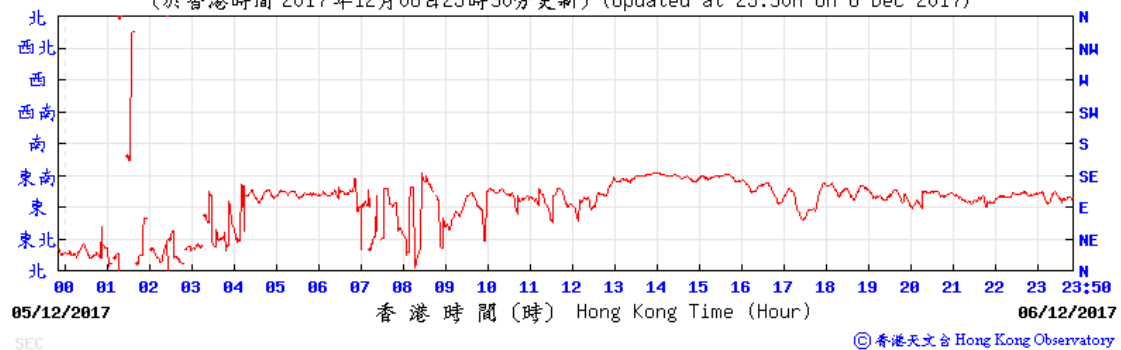
Wind Direction:

(於香港時間 2017 年12月05日23時50分更新) (Updated at 23:50H on 5 Dec 2017)



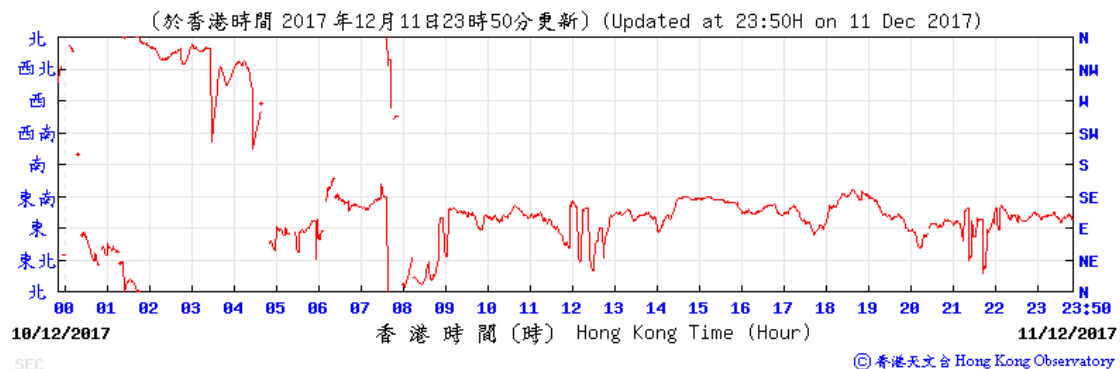
Wind Direction:

(於香港時間 2017 年12月06日23時50分更新) (Updated at 23:50H on 6 Dec 2017)

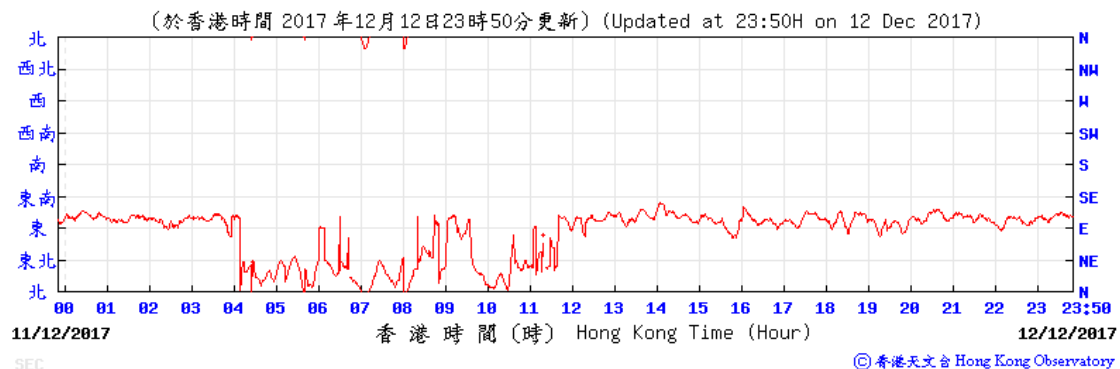


11-12 December 2017

Wind Direction:

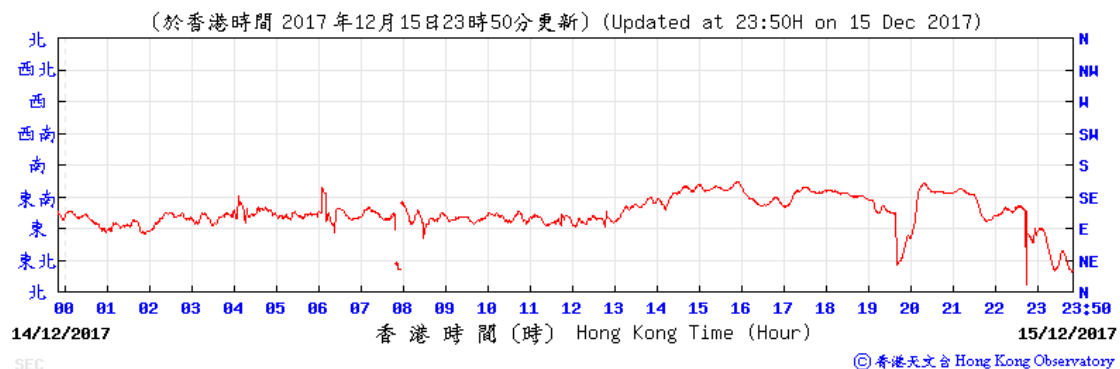


Wind Direction:

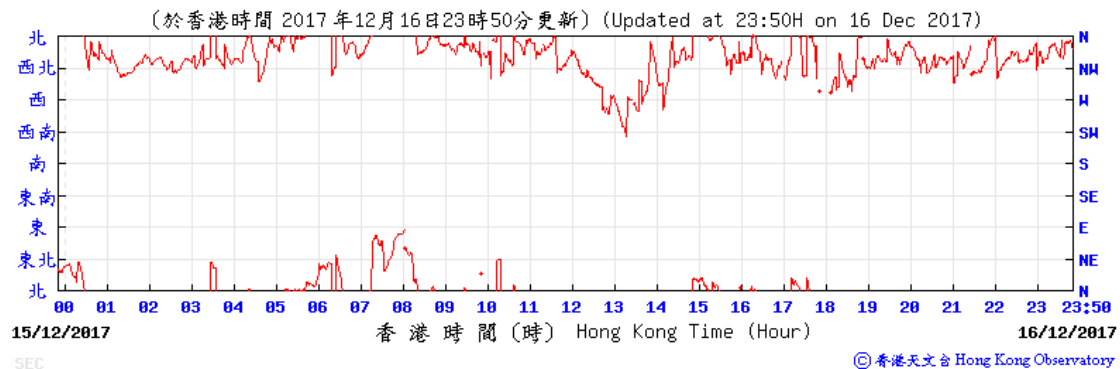


15-16 December 2017

Wind Direction:

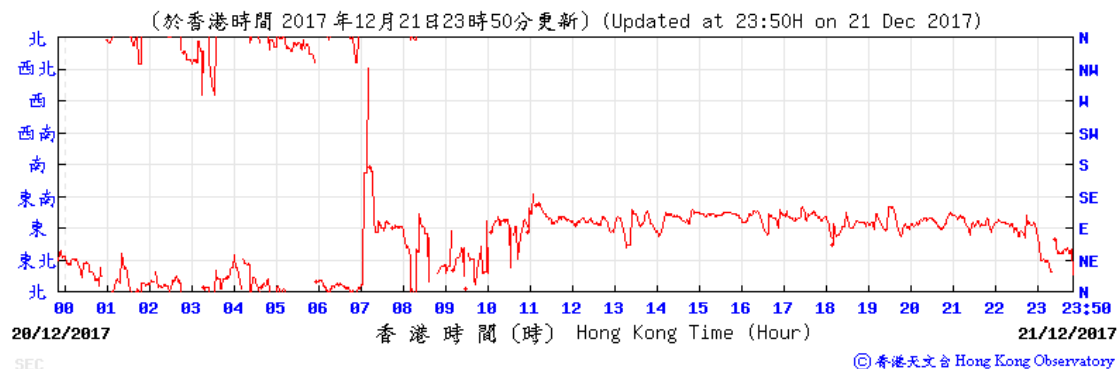


Wind Direction:

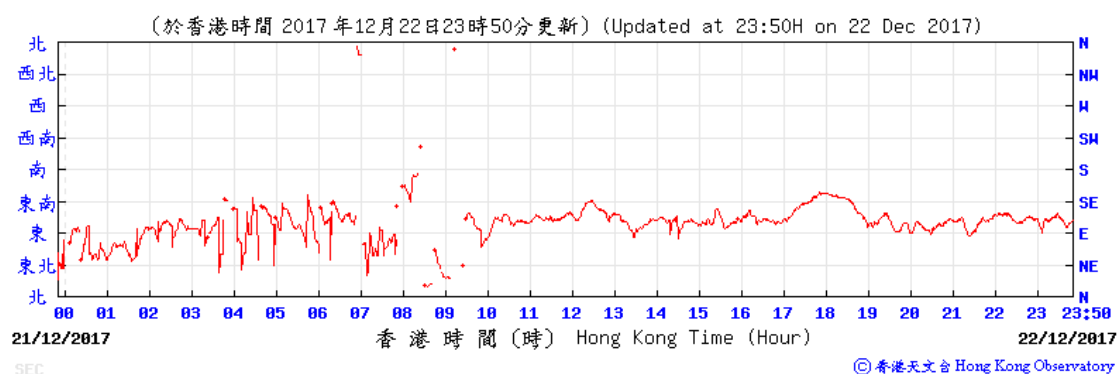


21-22 December 2017

Wind Direction:

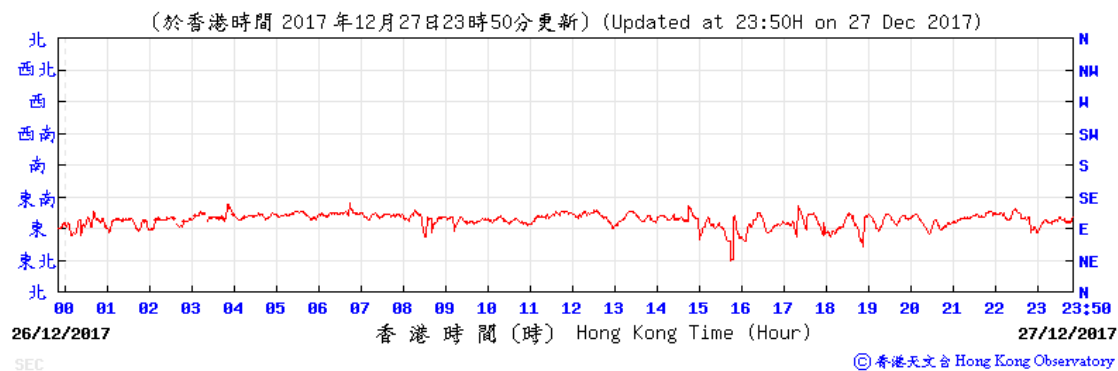


Wind Direction:

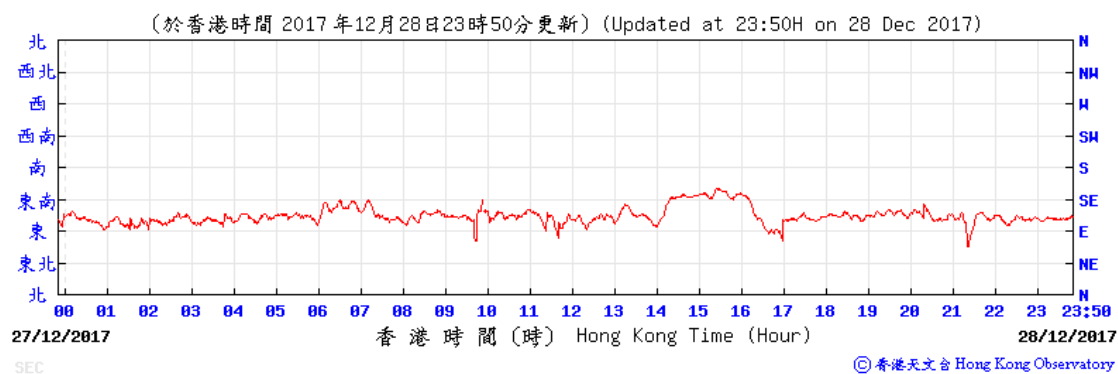


27-28 December 2017

Wind Direction:



Wind Direction:



Annex K

Waste Flow Table

Annex K – Waste Flow Table

Monthly Summary Waste Flow Table for the year 2012-2017

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)	Inert C&D Materials Delivered to 1123 Kai Tai Barging Facilities (See Note 12)	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 '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	0.000	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	0.000	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
Sep 2014	1.980	0.000	0.000	0.000	0.000	1.980	-	0.000	0.225	0.284	0.000	0.099	0.000
Oct 2014	16.902	0.000	0.000	0.000	0.000	16.902	-	0.000	0.050	0.492	1.120	0.109	0.000
Nov 2014	27.687	0.000	0.000	0.000	0.000	27.687	-	0.000	0.140	0.352	0.000	0.083	0.000
Dec 2014	44.771	0.000	0.000	0.000	0.000	44.771	-	0.000	0.090	0.284	0.400	0.103	0.000
Sub-total	186.115	0.000	0.000	0.000	0.000	186.115	0.000	0.000	1.048	4.573	2.335	1.314	0.000

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of Non-inert C&D Wastes Generated Monthly					Imported Fill
	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)	Inert C&D Materials Delivered to 1123 Kai Tai Barging Facilities (See Note 12)	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 '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)	
Jan 2015	64.165	0.000	0.000	0.266	0.000	63.899	-	0.000	0.077	0.328	0.180	0.150	0.000
Feb 2015	46.884	0.000	0.000	2.599	0.000	44.285	-	0.000	0.090	3.102	0.000	0.106	0.000
Mar 2015	41.498	0.000	0.000	0.000	0.000	41.498	-	0.000	0.072	2.321	0.600	0.126	0.000
Apr 2015	13.049	0.000	0.000	0.000	0.000	13.049	-	0.000	0.081	1.598	0.000	0.119	0.000
May 2015	54.559	0.000	0.000	0.000	0.000	54.559	-	0.000	0.063	0.548	0.000	0.099	0.000
Jun 2015	48.857	0.000	0.000	0.000	0.000	48.857	-	0.000	0.041	0.880	0.000	0.144	0.000
Jul 2015	34.471	0.000	0.000	0.000	0.000	34.471	-	0.000	0.090	4.972	0.720	0.218	0.000
Aug 2015	28.330	0.000	0.000	0.000	0.000	28.330	-	0.000	0.077	1.027	1.240	0.244	0.000
Sep 2015	25.376	0.000	0.000	0.000	0.000	25.376	-	0.000	0.068	0.845	2.080	0.224	0.000
Oct 2015	45.061	0.000	0.000	0.000	0.000	45.061	-	0.000	0.072	0.743	0.000	0.336	0.000
Nov 2015	45.607	0.000	0.000	0.000	0.000	45.607	-	0.000	0.085	4.719	1.760	0.344	0.000
Dec 2015	43.527	0.000	0.000	0.000	0.000	43.527	-	0.000	0.090	0.669	0.048	0.286	0.000
Sub-total	491.384	0.000	0.000	2.865	0.000	488.519	0.000	0.000	0.906	21.752	6.628	2.396	0.000
Jan 2016	28.064	0.000	0.000	0.000	0.000	28.064	-	0.000	0.855	0.494	0.000	0.276	0.000
Feb 2016	4.768	0.000	0.000	0.000	0.000	4.768	-	0.000	0.230	0.327	0.000	0.280	0.000
Mar 2016	13.662	0.000	0.000	0.000	0.000	13.662	-	0.000	0.000	0.316	0.000	0.232	0.000
Apr 2016	21.282	0.000	0.000	0.000	0.000	21.282	-	0.000	0.167	0.674	4.000	0.378	0.000
May 2016	28.466	0.000	0.000	0.000	0.000	28.466	-	0.000	0.072	0.580	0.000	0.315	0.000
Jun 2016	29.018	0.000	0.000	0.000	0.000	29.018	-	0.000	0.045	1.480	3.360	0.292	0.000
Jul 2016	3.727	0.000	0.000	0.000	0.000	3.727	-	0.000	0.045	0.860	0.000	0.347	0.000
Aug 2016	0.197	0.000	0.000	0.000	0.000	0.197	-	0.000	0.140	1.648	0.000	0.382	0.000
Sep 2016	0.000	0.000	0.000	0.000	0.000	0.000	-	0.000	0.122	0.680	0.000	0.443	0.000
Oct 2016	0.000	0.000	0.000	0.000	0.000	0.000	-	0.000	0.144	0.575	0.000	0.435	0.000
Nov 2016	0.000	0.000	0.000	0.000	0.000	0.000	-	0.000	0.133	0.900	9.600	0.589	0.000
Dec 2016	0.000	0.000	0.000	0.000	0.000	0.000	-	0.000	0.063	0.562	0.000	0.696	0.000
Sub-total	129.184	0.000	0.000	0.000	0.000	129.184	0.000	0.000	2.016	9.096	16.960	4.665	0.000
Jan 2017	0.000	0.000	0.000	0.000	0.000	0.000	-	0.000	0.126	0.276	0.000	0.769	0.000
Feb 2017	0.000	0.000	0.000	0.000	0.000	0.000	-	0.000	0.059	0.417	0.000	0.745	0.000
Mar 2017	0.000	0.000	0.000	0.000	0.000	0.000	-	0.000	0.077	0.448	0.000	0.618	0.000
Apr 2017	0.000	0.000	0.000	0.000	0.000	0.000	-	0.000	0.108	0.504	0.000	0.618	0.000
May 2017	10.676	0.000	0.000	0.000	0.000	0.000	10.676	0.000	0.158	0.296	0.000	0.619	0.000
Jun 2017	13.390	0.000	0.000	0.000	0.000	0.000	13.390	0.000	0.090	0.308	0.000	1.072	0.000
Jul 2017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.135	0.740	0.000	1.147	0.000
Aug 2017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.780	0.000	0.959	0.000
Sep 2017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.234	0.460	0.000	0.621	0.000
Oct 2017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.095	0.427	0.000	0.599	0.000
Nov 2017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.121	0.607	0.000	0.866	0.000
Dec 2017	3.964	0.000	0.000	0.000	3.964	0.000	0.000	0.000	0.990	0.450	0.000	0.692	0.000
Sub-total	28.030	0.000	0.000	0.000	3.964	0.000	24.066	0.000	2.238	5.713	0.000	9.325	0.000
Total	970.297	0.000	0.605	2.865	4.028	938.732	24.066	12.800	7.145	52.275	26.643	21.316	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.
- 12 Inert C&D Material was delivered to contract SCL1123 from 20-May-2017.

Annex L

(Not Used)

Annex M

Environmental Complaint,
Environmental Summon
and Prosecution Log

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
January 2014	0	0
February 2014	0	0
March 2014	0	0
April 2014	0	0
May 2014	0	0
June 2014	0	0

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
July 2014	0	0
August 2014	0	0
September 2014	1	0
October 2014	0	0
November 2014	0	0
December 2014	0	0
January 2015	3	0
February 2015	0	0
March 2015	0	0
April 2015	3	0
May 2015	2	0
June 2015	7	0
July 2015	0	0
August 2015	1	0
September 2015	2	0
October 2015	2	0
November 2015	0	0
December 2015	0	0
January 2016	2	0
February 2016	0	0
March 2016	1	0
April 2016	2	0
May 2016	1	0
June 2016	2	0

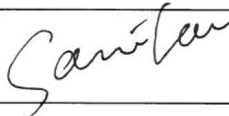

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
July 2016	0	0
August 2016	0	0
September 2016	0	0
October 2016	1	0
November 2016	0	0
December 2016	2	0
January 2017	0	0
February 2017	0	0
March 2017	1	0
April 2017	0	0
May 2017	0	0
June 2017	0	0
July 2017	1	0
August 2017	1	0
September 2017	2	0
October 2017	3	0
November 2017	1	0
December 2017	0	0
Overall Total	41	0

Appendix B

**60th EM&A Report for Works Contract 1111 –
Hung Hom North Approach Tunnels**

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
December 2017**

[January 2018]

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

Version: 0

Date: 9 January 2018

Disclaimer

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

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Table of Contents

	Page
EXECUTIVE SUMMARY4	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	10
3.3 Continuous noise monitoring	12
3.4 Landscape and Visual.....	13
4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES.....	14
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.....	17
7.1 Summary of Monitoring Exceedances	17
7.2 Summary of Environmental Non-Compliance.....	18
7.3 Summary of Environmental Complaints.....	18
7.4 Summary of Environmental Summon and Successful Prosecutions.....	18
8 FUTURE KEY ISSUES.....	19
8.1 Construction Programme for the Project.....	19
8.2 Key Issues for the Coming Month.....	19
8.3 Monitoring Schedule for the Next Two Month.....	19
9 CONCLUSIONS AND RECOMMENDATIONS.....	20
9.1 Conclusions.....	20
9.2 Recommendations	20

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 December 2017. As informed by the Contractor, major activities in the reporting period were:

Location	Site Activities
Ho Man Tin	Steel mesh, planter works, hoarding removal
NSL (South)	Concreting works, form work erection, reinforcement fixing, backfill, road & drainage construction, excavation, hoarding removal
OB2 / TB1	Maintenance access, abandoned watermain removal, bar fence and road reinstatement
OB2A / TB2	Maintenance access, bar fence and road reinstatement
NSL 9 & Oi Sen Path	Backfilling, drainage work, scaffolding platform erection, lifting works, hoarding removal, manhole construction

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 NoiseRegular Noise Monitoring

No Action Level exceedance was recorded since no noise related complaint during 0700 to 1900 hours on normal weekdays 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 been completed, no continuous noise monitoring was carried out during this reporting month.

Complaint, Notification of Summons and Successful Prosecution

No complaint, 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:

Location	Site Activities
Ho Man Tin	Steel mesh, planter works, hoarding removal
NSL (South)	Concreting works, form work erection, reinforcement fixing, backfill, road & drainage construction, excavation, hoarding removal
OB2 / TB1	Maintenance access, abandoned watermain removal, bar fence and road reinstatement
OB2A / TB2	Maintenance access, bar fence and road reinstatement
NSL 9 + Oi Sen Path	Backfilling, drainage work, lifting works, hoarding removal, manhole construction

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 sixtieth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 31 December 2017.

1.2 Report Structure

1.1.2 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 EP-437/2012. The latest Environmental Permit (EP No: EP-438/2012/K and EP-437/2012/A) were issued by Director of Environmental Protection (DEP) on 4 October 2016 and 28 November 2017 respectively.
- 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:-

Location	Site Activities
Ho Man Tin	Steel mesh, planter works, hoarding removal
NSL (South)	Concreting works, form work erection, reinforcement fixing, backfill, road & drainage construction, excavation, hoarding removal
OB2 / TB1	Maintenance access, abandoned watermain removal, bar fence and road reinstatement
OB2A / TB2	Maintenance access, bar fence and road reinstatement
NSL 9 & Oi Sen Path	Backfilling, drainage work, scaffolding platform erection, lifting works, hoarding removal, manhole construction

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	Ms. Lisa Poon	3127 6295	3127 6422
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	Ms. Michelle Tang	3904 9663	
		Environmental Officer	Ms. Phoebe Ng	3904 9665	
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/A	28 Nov 2017	-	Valid	
EP-438/2012/K	4 Oct 2016	-	Valid	-
Construction Noise Permit				
GW-RE0506-17	22 Jun 2017	20 Dec 2017	Valid until superseded by GW-RE1004-17 on 23 Dec 2017	CNP for General Works at NSL 9
GW-RE0585-17	27 Jul 2017	26 Jan 2018	Valid	CNP for General and Reprovisioning Works at Hung Hom Station
GW-RE0579-17	27 Jul 2017	26 Jan 2018	Valid	CNP for Dewatering and welding at NSL6
GW-RE0625-17	15 Aug 2017	14 Feb 2018	Valid	CNP for General Work at Oi Sen Path and Ho Man Tin Siding
GW-RE0644-17	22 Aug 2017	21 Feb 2018	Valid	CNP for General Works for steel decking at EWL8
GW-RE0645-17	22 Aug 2017	21 Feb 2018	Valid	CNP for General Works at NSL 7- 8
GW-RE0747-17	15 Sep 2017	14 Mar 2018	Valid	CNP for General Work at NSL 3-6
GW-RE0832-17	25 Oct 2017	24 Jan 2018	Valid	CNP for OB2 & OB2A Maintenance Work at Chatham Rd North
GW-RE0849-17	16 Nov 2017	15 Feb 2018	Valid	CNP for Noise Enclosure and Steel Platform Erection Work at Oi Sen Path
GW-RE0925-17	29 Nov 2017	28 Feb 2018	Valid	CNP for Hoarding Erection at NSL 3-6
GW-RE0926-17	27 Nov 2017	26 Feb 2018	Valid	CNP for 6m Hoarding and Scaffolding Platform Modification Works at NSL 9 & Oi Sen Path
GW-RE1004-17	23 Dec 2017	20 Jun 2018	Valid	CNP for General Works at NSL 9
Wastewater Discharge License				
WT00015644-2013	16 Apr 2013	30 Apr 2018	Valid	For MTR Ho Man Tin Sidings
WT00016090-2013	14 Jun 2013	30 Jun 2018	Valid	For alongside On Wan Road, MTR Hung Hom Station
WT00016108-2013	14 Jun 2013	30 Jun 2018	Valid	For Hong Chong Park and Slip road from Chatham Road North and underneath
WT00016435-2013	23 Jul 2013	31 Jul 2018	Valid	For Hong Chong Slip Rd and Slip Rd at Princess Margaret Road Link & Chatham Road North
WT00018688-2014	14 Apr 2014	30 Apr 2019	Valid	For inside Hung Hom Freight Terminal at Cheong Tung Road
WT00019068-2014	25 Jun 2014	30 Jun 2019	Valid	For Oi Sen Path

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
WT00019895-2014	24 Sep 2014	30 Sep 2019	Valid	For near Hong Chong Road, Hung Hom at MTRC Ho Man Tin Sidings
WT00020525-2014	30 Dec 2014	31 Dec 2019	Valid	For Chatham Road North
WT00020727-2015	6 Feb 2015	28 Feb 2020	Valid	For Chatham Road North above the railway
WT00020759-2015	15 May 2013	31 May 2018	Valid	For near Chatham Road North
WT00022080-2015	13 Aug 2015	31 Aug 2020	Valid	For near Chatham Road North, EWL 9
WT00022793-2015	23 Nov 2015	31 Jul 2018	Valid	For Winslow Street Slope (near Wa Fung Street)
WT00022802-2015	23 Nov 2015	28 Feb 2018	Valid	For near Winslow Street
Chemical Waste Producer Registration				
5213-641-G2618-01	22 Mar 2013	End of Project	Valid	For Winslow Street Playground Works
5213-641-G2618-03	8 Apr 2013	End of Project	Valid	For Hung Hom Station Works
5213-213-G2618-06	16 Apr 2013	End of Project	Valid	For Ho Man Tin Sidings Works
5213-236-G2618-10	14 Jun 2013	End of Project	Valid	For Chatham Road North - Hong Chong Road Works
5213-236-G2618-11	27 May 2013	End of Project	Valid	For Chatham Road North- NSL8 & EWL8 Works
5213-213-G2618-12	14 Apr 2014	End of Project	Valid	For Hung Hom Freight Terminal - NSL 3-5 Works
5213-236-G2618-14	8 May 2014	End of Project	Valid	For Oi Sen Path Works
5213-236-G2618-15	9 Feb 2015	End of Project	Valid	For NSL7 & EWL7 Works
5213-236-G2618-16	3 Aug 2015	End of Project	Valid	For EWL9 Works
Billing Account for Construction Waste Disposal				
7016658	24 Jan 2013	End of Project	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	End of Project	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.: 0988))

Monitoring Locations

- 3.1.3 One monitoring station was set up at the proposed location in accordance with the approved EM&A Manuals for SCL (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. 234-238 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 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 December 2017 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	Model No. B&K2270 (S/N: 2644597), Model No. B&K2250-L (S/N: 2681366)
Acoustic Calibrator	B&K (Model No. 4231 (S/N: 3006428))

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. 234-238 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 December 2017 is provided in **Appendix F**.

3.3 Continuous noise monitoring

Monitoring Requirements

- 3.3.1 According to EP conditions under EP-437/2012/A (Condition 2.8) and EP-438/2012/K (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

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

Table 3.7 Summary of Proposed Continuous Noise Monitoring Location

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

Note:

- (1) Permission of access could not be obtained from Wing Fung Building (originally proposed in the approved EM&A Manuals) and hence the monitoring location was relocated to No. 234-238 Chatham Road North. The alternative monitoring location is considered as an appropriate alternative noise monitoring station in the CNMP.

Monitoring Equipment

- 3.3.3 Continuous noise monitoring will be performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator will be deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.8**.

Table 3.8 Noise Monitoring Equipment for Continuous Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	B&K (Model No. 2238)
Acoustic Calibrator	Rion (Model No. NC-74)

Monitoring Parameters, Frequency and Duration

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

Monitoring Methodology

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

Event and Action Plan

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

Table 3.9 Summary of Proposed Continuous Noise Monitoring Programme

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⁾ Mar 2015 ⁽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. 234-238 Chatham Road North. The alternative monitoring location is considered as an appropriate alternative noise monitoring station in the CNMP.
- (3) Based on 2014-2015 Calendar of Carmel Secondary School, the examination periods are scheduled in January and February 2015. The continuous noise monitoring was conducted in January and February 2015.
- (4) Additional continuous noise monitoring was conducted in March 2015 according to the latest 2014-2015 Calendar of Carmel Secondary School.

3.4 Landscape and Visual

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

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EPs and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C**. Status of required submissions under the EPs during the reporting period is summarised in **Table 4.1**.

Table 4.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.4 (EP-437/2012/A) & Condition 3.4 (EP-438/2012/K)	Monthly EM&A Report for November 2017	14 December 2017

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	67.9	44.5 – 105.0	183.9	260

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

5.1.3 The event 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_{eq} (30 mins)	Limit Level, dB(A), L_{eq} (30 mins)
NM 1 ⁽²⁾	<Baseline – 60.4	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 during 0700 to 1900 hours on normal weekdays; 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, 1,179 m³ of inert C&D material was generated. 348 m³ and 74 m³ were disposed as public fills at TKO137 and TM38 respectively. 757 m³ of public fills was delivered to Hung Hom Barging Point and handled by other project. No public fills was reused in the Contract. While 51,200 kg of general refuse was disposed at NENT landfill in the reporting month, 1 kg of plastic were collected by recycling contractor in the reporting month. No metal and paper were collected by recycling contractor in the reporting month. No Type 1 marine dumping was delivered to Hung Hom Barging Point. 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 Practice 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 7 and 21 December 2017. 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 December 2017. The one held on 14 December 2017 was a joint inspection with the IEC, ER, the Contractor and the ET. 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	N/A	N/A	N/A
Air Quality	7 Dec 2017	<ul style="list-style-type: none"> Improper NRMM label was observed at OSP. The Contractor was advised to provide valid NRMM label for all equipment before operation. (Reminder) 	The item was rectified by the Contractor on 14 December 2017.
	14 Dec 2017	<ul style="list-style-type: none"> The Contractor was reminded to cover the stockpile with impervious sheeting at OSP. (Reminder) 	The item was rectified by the Contractor on 21 December 2017.
	21 Dec 2017	<ul style="list-style-type: none"> The Contractor was reminded to cover the exposed stockpile entirely with impervious sheeting at Winslow Street for dust suppression. (Reminder) 	The item was rectified by the Contractor on 28 December 2017.
	28 Dec 2017	<ul style="list-style-type: none"> The Contractor was reminded to provide hoarding for mixing process at OSP as dust suppression measure. (Reminder) 	The item was rectified by the Contractor on 28 December 2017.
		<ul style="list-style-type: none"> The Contractor was reminded to provide adequate watering for exposed area and breaking process at OSP. (Reminder) 	The item was rectified by the Contractor on 28 December 2017.
Noise	N/A	N/A	N/A
Waste/ Chemical Management	N/A	N/A	N/A
Landscape & Visual	N/A	N/A	N/A
Permits/ Licenses	N/A	N/A	N/A

- 6.1.3 Most of the follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period. Some outstanding follow-up actions will be reported in the next 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 during 0700 to 1900 hours on normal weekdays 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.
- 7.1.4 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.

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 Project

Construction Programme for the Next Two Month

8.1.1 The major construction works in January and February 2018 will be:

Location	Site Activities
Ho Man Tin	Steel mesh, planter works, hoarding removal
NSL (South)	Concreting works, form work erection, reinforcement fixing, backfill, road & drainage construction, excavation, hoarding removal
OB2 / TB1	Maintenance access, abandoned watermain removal, bar fence and road reinstatement
OB2A / TB2	Maintenance access, bar fence and road reinstatement
NSL 9 + Oi Sen Path	Backfilling, drainage work, lifting works, hoarding removal, manhole construction

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 Two Month

8.3.1 The tentative schedule for environmental monitoring in January and February 2018 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 during 0700 to 1900 hours on normal weekdays 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 December 2017. 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 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 dust suppression measures for exposed surface and stockpile of dusty materials.
- Provide valid NRMM label for all equipment before operation.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- No specific observation was identified in the reporting month.

Chemical/ Waste Management

- No specific observation was identified in the reporting month.

Landscape and Visual Impact

- No specific observation was identified in the reporting month.

Permits/Licenses

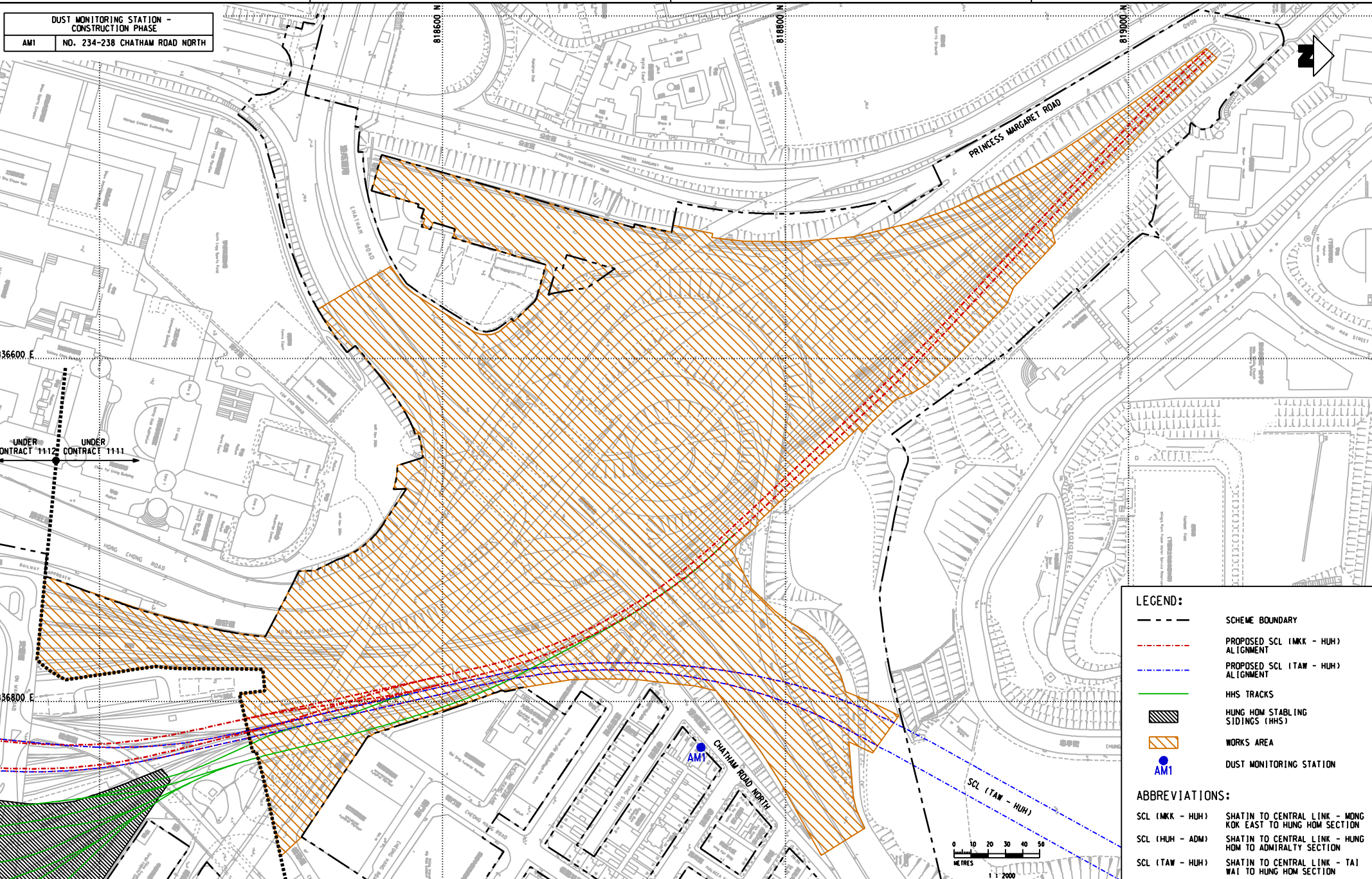
- No specific observation was identified in the reporting month.

FIGURES

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

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PLOT DATE: 14/6
 FILE NAME: H4248



LEGEND:

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

ABBREVIATIONS:

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

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION

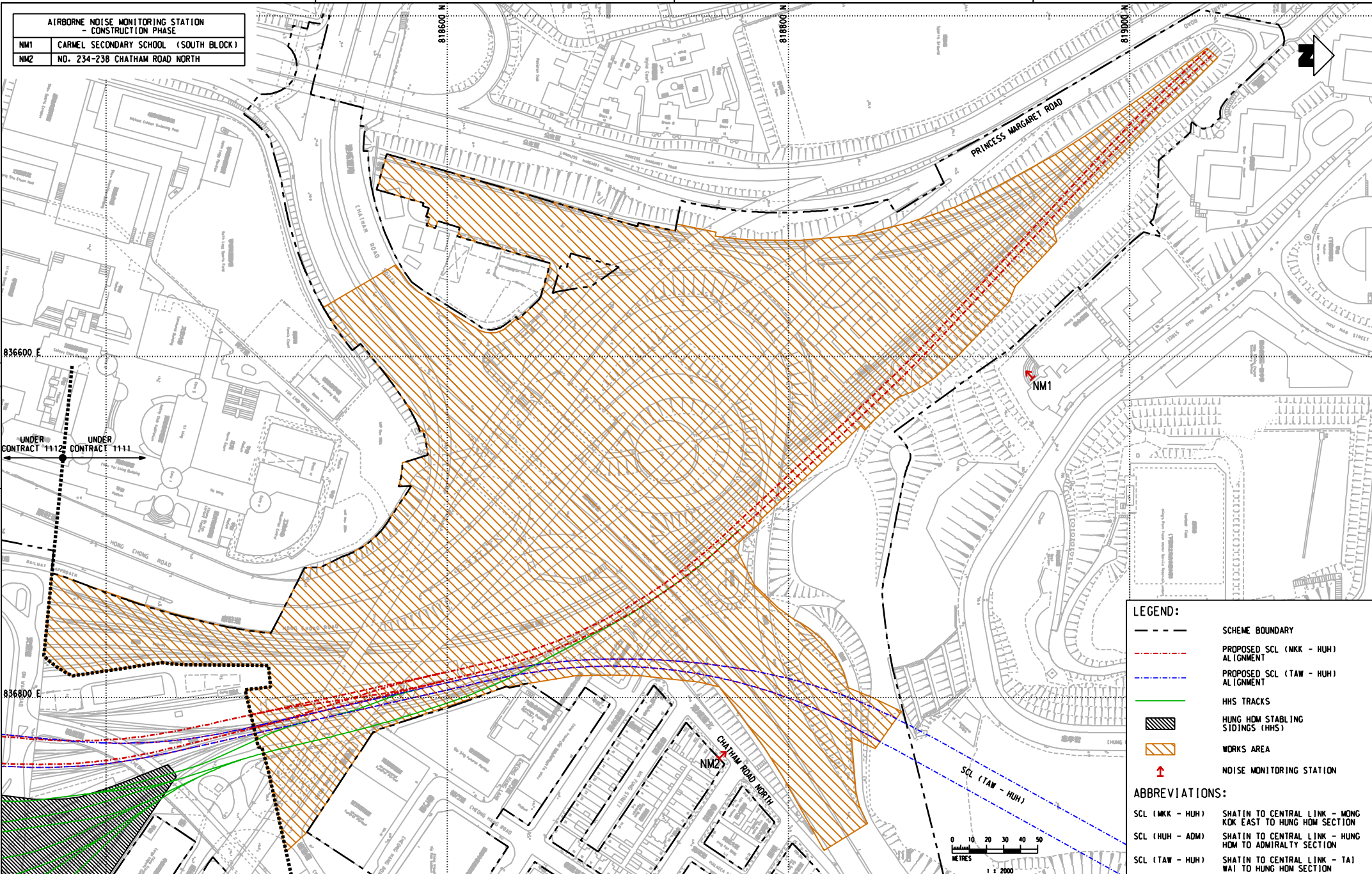
DRAWN: HD DESIGNED: L.C.L.L. CHECKED: L.C.L.L. APPROVED: (MNV) DATE: 08/JAN/2013		SHATIN TO CENTRAL LINK CONTRACTOR: Gammon - Kaden SCL 1113 Joint Venture ORIGINATOR:	TITLE: CONTRACT 1111 HUNG HOM NORTH APPROACH TUNNELS LOCATION OF AIR QUALITY MONITORING STATION
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SCALE: 1 : 2000 (A3)	FIGURE NO.: FIGURE 2.1	REV. -
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AIRBORNE NOISE MONITORING STATION - CONSTRUCTION PHASE	
NM1	CARMEL SECONDARY SCHOOL (SOUTH BLOCK)
NM2	NO. 234-238 CHATHAM ROAD NORTH

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DRAWING NO. 1111-03-001
 SHEET NO. 1 OF 1
 DATE: 08/JAN/2013
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 FILE NAME: 1111-03-001.dwg

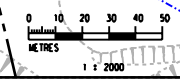


LEGEND:

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

ABBREVIATIONS:

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



REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

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<table border="1"> <tr> <td>CONTRACTOR</td> <td> </td> <td> ORIGINATOR </td> </tr> </table>	CONTRACTOR		ORIGINATOR 	<table border="1"> <tr> <td>TITLE</td> <td>CONTRACT 1111 HUNG HOM NORTH APPROACH TUNNELS LOCATION OF NOISE MONITORING STATION (CONSTRUCTION PHASE)</td> </tr> <tr> <td>SCALE</td> <td>1:2000 (A3)</td> </tr> <tr> <td>FIGURE NO.</td> <td>FIGURE 3.1</td> </tr> </table>	TITLE	CONTRACT 1111 HUNG HOM NORTH APPROACH TUNNELS LOCATION OF NOISE MONITORING STATION (CONSTRUCTION PHASE)	SCALE	1:2000 (A3)	FIGURE NO.	FIGURE 3.1	
CONTRACTOR		ORIGINATOR 									
TITLE	CONTRACT 1111 HUNG HOM NORTH APPROACH TUNNELS LOCATION OF NOISE MONITORING STATION (CONSTRUCTION PHASE)										
SCALE	1:2000 (A3)										
FIGURE NO.	FIGURE 3.1										

<table border="1"> <tr><td>DATE</td><td>08/JAN/2013</td></tr> <tr><td>CONTRACTOR</td><td>Gammon - Kaden SCL 1111 Joint Venture</td></tr> <tr><td>ORIGINATOR</td><td>AECOM</td></tr> </table>	DATE	08/JAN/2013	CONTRACTOR	Gammon - Kaden SCL 1111 Joint Venture	ORIGINATOR	AECOM	<table border="1"> <tr> <td>TITLE</td> <td>CONTRACT 1111 HUNG HOM NORTH APPROACH TUNNELS LOCATION OF NOISE MONITORING STATION (CONSTRUCTION PHASE)</td> </tr> <tr> <td>SCALE</td> <td>1:2000 (A3)</td> </tr> <tr> <td>FIGURE NO.</td> <td>FIGURE 3.1</td> </tr> </table>	TITLE	CONTRACT 1111 HUNG HOM NORTH APPROACH TUNNELS LOCATION OF NOISE MONITORING STATION (CONSTRUCTION PHASE)	SCALE	1:2000 (A3)	FIGURE NO.	FIGURE 3.1
DATE	08/JAN/2013												
CONTRACTOR	Gammon - Kaden SCL 1111 Joint Venture												
ORIGINATOR	AECOM												
TITLE	CONTRACT 1111 HUNG HOM NORTH APPROACH TUNNELS LOCATION OF NOISE MONITORING STATION (CONSTRUCTION PHASE)												
SCALE	1:2000 (A3)												
FIGURE NO.	FIGURE 3.1												

APPENDIX A

Construction Programme

Activity ID	Activity Name	Dur	Start	Finish	2015												2016												2017												2018																																														
					D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A																																										
NDMP - Rev B																						Additional Noise Barrier under Option 2																																																																	
OP2-010	Exercise Option 2 - Noise Barriers along EWL	0d		14-Jul-14 A																																																																																			
OP2-020	Design	48d	02-Mar-15*	30-Apr-15																																																																																			
OP2-030	Fabrication	126d	02-May-15	30-Sep-15																																																																																			
OP2-040	Delivery to Site	30d	02-Oct-15	06-Nov-15																																																																																			
OP2-050	Steelwork & Panel Installation	118d	07-Nov-15	02-Apr-16																																																																																			
CLP Cable Laying from Winslow Street to NSL9 (Drawing 1111/C/000/GKJV/SK/0011)																																																																																							
CLP-010	CLP Cable Laying from Zone 7 to Zone 1	140d	08-Sep-16	25-Jan-17																																																																																			
CLP-020	CLP Power on	0d		30-Jan-17*																																																																																			
North South Line (NSL)																																																																																							
(1) NSL/EWL Area 3A (50m)																																																																																							
Preparation Works																																																																																							
N3A-1010	Possess areas and site clearance	24d	17-Mar-14	14-Apr-14																																																																																			
N3A-1020	Trial pits / expose existing utilities	24d	24-Mar-14	24-Apr-14																																																																																			
N3A-1030	Remove existing track (by MTR)	12d	24-Mar-14	07-Apr-14																																																																																			
N3A-1040	Predrilling (19 no.s)	19d	31-Mar-14	25-Apr-14																																																																																			
STA Buiding Demolition Works																																																																																							
N3A-1280	BD amendment for demolition	60d	17-Mar-14	31-May-14																																																																																			
N3A-1290	Vacate Building	6d	12-May-14	17-May-14																																																																																			
N3A-1300	Erect protective measures	12d	19-May-14	31-May-14																																																																																			
N3A-1310	Demolish building structure	24d	03-Jun-14	30-Jun-14																																																																																			
Cofferdam																																																																																							
N3A-1050	Install 2.4m Height Hoarding (NTH)	24d	18-Mar-14	10-May-14																																																																																			
N3A-1060	West Side Pipe Piles (42 no.s), 2 Rigs	42d	02-Jul-14 A	19-Aug-14																																																																																			
N3A-1070	Drive sheetpile at south side of cofferdam	48d	02-Jul-14 A	26-Aug-14																																																																																			
N3A-1080	Sheetpile rectification works	48d	27-Aug-14	15-Nov-14																																																																																			
N3A-1090	East Side Pipe Piles (42 no.s) & SHP (20 no.s), 1 Rig	124d	28-May-14	24-Oct-14																																																																																			
N3A-1100	Grout Curtain	60d	03-Sep-14	15-Nov-14																																																																																			
N3A-1110	Grout curtain cut off wall between Area 3A & 3B	18d	03-Sep-14	15-Oct-14																																																																																			
N3A-1120	Instrumentation & Dewatering System	6d	06-Nov-14	15-Nov-14																																																																																			
N3A-1130	Pumping Test	7d	19-Nov-14	26-Nov-14																																																																																			
Excavation and Lateral Support																																																																																							
N3A-1140	Pre-pumping test ELS (not affected by shunt neck piling)	7d	19-Nov-14	26-Nov-14																																																																																			
N3A-1150	Excavate to Below S1 - Stage 1 (south side)	3d	09-Dec-14	11-Dec-14																																																																																			
N3A-1160	Install S1 & decking - Stage 1 (south side)	6d	12-Dec-14	17-Dec-14																																																																																			
N3A-1170	Break RC structure & ELS to S2 (south side)	31d	17-Dec-14	24-Jan-15																																																																																			
N3A-1180	Southside Shunt Neck piles completed & site clearance	0d		31-Jan-15																																																																																			
N3A-1190	Excavate to Below S1 - Stage 2 (north side)	2d	26-Jan-15	27-Jan-15																																																																																			
N3A-1200	Install S1 & decking - Stage 2 (north side)	6d	28-Jan-15	03-Feb-15																																																																																			
N3A-1210	Excavation to Below S2	5d	04-Feb-15	09-Feb-15																																																																																			
N3A-1220	Install S2	5d	10-Feb-15	14-Feb-15																																																																																			
N3A-1230	Excavation to Below S3	7d	16-Feb-15	26-Feb-15																																																																																			
N3A-1240	Install S3	7d	27-Feb-15	06-Mar-15																																																																																			
N3A-1250	Excavation to S4	9d	07-Mar-15	17-Mar-15																																																																																			
N3A-1260	Install S4	9d	18-Mar-15	27-Mar-15																																																																																			
N3A-1270	Excavation to Formation Level @ -10.6 mPD	10d	28-Mar-15	13-Apr-15																																																																																			
Tunnel Structure (5 Bays)																																																																																							
Bay N3A-01																																																																																							
N3A01-110	Place Blinding Layer	1d	14-Apr-15	14-Apr-15																																																																																			
N3A01-120	Construct Tunnel Base with Kicker	12d	15-Apr-15	28-Apr-15																																																																																			
N3A01-130	Place Infill Concrete/Compacted Fill up to S4	10d	29-Apr-15	11-May-15																																																																																			
N3A01-140	Remove S4	3d	12-May-15	14-May-15																																																																																			
N3A01-150	Construct NSL Wall up to S3	10d	15-May-15	27-May-15																																																																																			
N3A01-160	Place Infill Concrete/Compacted Fill up to S3	14d	28-May-15	12-Jun-15																																																																																			
N3A01-170	Remove S3	3d	13-Jun-15	16-Jun-15																																																																																			
N3A01-180	Construct NSL Roof (Travelling Form)	12d	17-Jun-15	02-Jul-15																																																																																			
N3A01-190	Tunnel Walkway & Degree 1 Works & Bulkhead Wall	12d	03-Jul-15	16-Jul-15																																																																																			
N3A01-200	Place Infill Concrete/compacted fill up to S2	14d	03-Jul-15	18-Jul-15																																																																																			
N3A01-210	Remove S2	3d	20-Jul-15	22-Jul-15																																																																																			
N3A01-220	Construct EWL Lower Wall	12d	23-Jul-15	05-Aug-15																																																																																			
N3A01-230	Place compacted fill to bottom of 1650 Drain	5d	06-Aug-15	11-Aug-15																																																																																			
N3A01-240	Lay 1650 Stormwater Drain	6d	12-Aug-15	18-Aug-15																																																																																			
N3A01-250	Place compacted fill to S1	11d	19-Aug-15	31-Aug-15																																																																																			
N3A01-260	Remove S1	3d	01-Sep-15	03-Sep-15																																																																																			
N3A01-270	Construct EWL Upper Wall	12d	04-Sep-15	17-Sep-15																																																																																			
N3A01-290	Place compacted fill to final formation level	6d	18-Sep-15	24-Sep-15																																																																																			
N3A01-300	Key Date 3G	0d		24-Sep-15																																																																																			
Bay N3A-02																																																																																							
N3A02-110	Place Blinding Layer	1d	15-Apr-15	15-Apr-15																																																																																			
N3A02-120	Construct Tunnel Base with Kicker	12d	29-Apr-15	13-May-15																																																																																			
N3A02-130	Place Infill Concrete/Compacted Fill up to S4	9d	14-May-15	23-May-15																																																																																			
N3A02-140	Remove S4	2d	26-May-15	27-May-15																																																																																			
N3A02-150	Construct NSL Wall up to S3	10d	28-May-15	08-Jun-15																																																																																			
N3A02-160	Place Infill Concrete/Compacted Fill up to S3	13d	09-Jun-15	24-Jun-15																																																																																			
N3A02-170	Remove S3	2d	25-Jun-15	26-Jun-15																																																																																			
N3A02-180	Construct NSL Roof (Travelling Form)	12d	03-Jul-15	16-Jul-15																																																																																			
N3A02-190	Tunnel Walkway & Works for Degree 1 Completion	12d	17-Jul-15	30-Jul-15																																																																																			
N3A02-200	Place Infill Concrete/compacted fill up to S2	13d	17-Jul-15	31-Jul-15																																																																																			
N3A02-210	Remove S2	2d	01-Aug-15	03-Aug-15																																																																																			
N3A02-220	Construct EWL Lower Wall	12d	06-Aug-15	19-Aug-15																																																																																			
N3A02-230	Place compacted fill to bottom of 1650 Drain	3d	20-Aug-15	22-Aug-15																																																																																			
N3A02-240	Lay 1650 Stormwater Drain	6d	24-Aug-15	29-Aug-15																																																																																			
N3A02-250	Place compacted fill to S1	10d	31-Aug-15	10-Sep-15																																																																																			
N3A02-260	Remove S1	2d	11-Sep-15	12-Sep-15																																																																																			
N3A02-270	Construct EWL Upper Wall	10d	18-Sep-15	30-Sep-15																																																																																			
N3A02-290	Place compacted fill to final formation level	2d	02-Oct-15	03-Oct-15																																																																																			
Bay N3A-03																																																																																							
N3A03-120	Place Blinding Layer	1d	16-Apr-15	16-Apr-15																																																																																			
N3A03-130	Construct Tunnel Base with Kicker	12d	14-May-15	28-May-15																																																																																			
N3A03-140	Place Infill Concrete/Compacted Fill up to S4	9d	29-May-15	08-Jun-15																																																																																			
N3A03-150	Remove S4	2d	09-Jun-15	10-Jun-15																																																																																			
N3A03-160	Construct NSL Wall up to S3	10d	11-Jun-15	23-Jun-15																																																																																			
N3A03-170	Place Infill Concrete/Compacted Fill up to S3	13d	24-Jun-15	09-Jul-15																																																																																			
N3A03-180	Remove S3	2d	10-Jul-15	11-Jul-15																																																																																			
N3A03-190	Construct NSL Roof (Travelling Form)	12d	17-Jul-15	30-Jul-15																																																																																			
N3A03-200	Tunnel Walkway & Works for Degree 1 Completion (inside)	12d	31-Jul-15	13-Aug-15																																																																																			
N3A03-210	Place Infill Concrete/compacted fill up to S2	13d	31-Jul-15	14-Aug-15																																																																																			
N3A03-220	Remove S2	2d	15-Aug-15	17-Aug-15																																																																																			
N3A03-230	Construct EWL Lower Wall	12d	20-Aug-15	02-Sep-15																																																																																			
N3A03-240	Place compacted fill to bottom of 1650 Drain	3d	03-Sep-15	05-Sep-15																																																																																			
N3A03-250	Lay 1650 Stormwater Drain	6d	07-Sep-15	12-Sep-15																																																																																			
N3A03-260	Place compacted fill to S1	10d	14-Sep-15	24-Sep-15																																																																																			
N3A03-270	Remove S1	2d	25-Sep-15	26-Sep-15																																																																																			
N3A03-280	Construct EWL Upper Wall	10d	02-Oct-15	13-Oct-15																																																																																			
N3A03-300	Place compacted fill to final formation level	2d	14-Oct-15	15-Oct-15																																																																																			
Bay N3A-04 - Depends on NSL3B Excavation																																																																																							
N3A04-100	Excavation reached approx -10.5 mPD	0d		11-Jun-15																																																																																			

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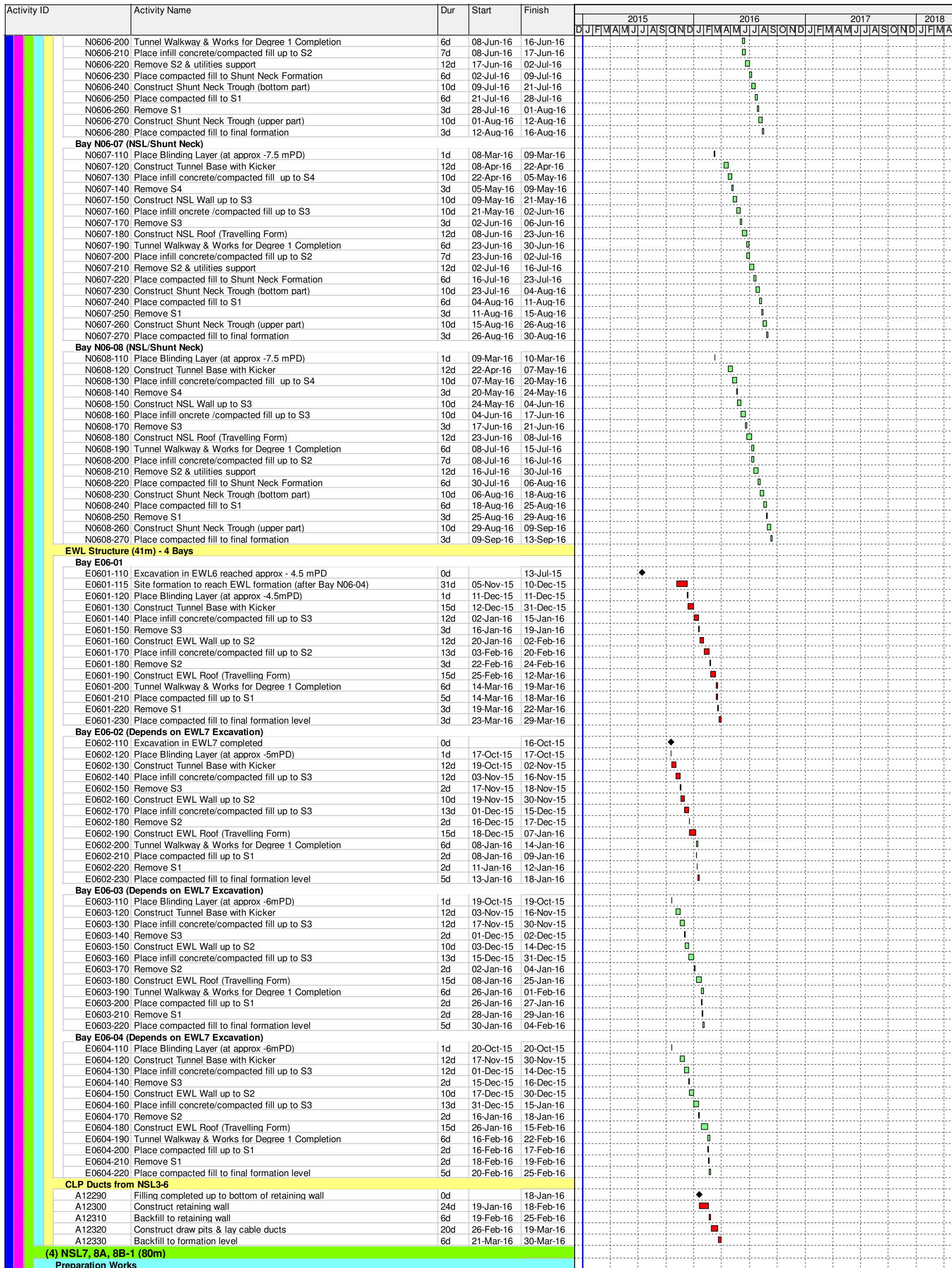
REVISION B



Gammon – Kaden SCL 1111 Joint Venture

NDMPB-35

Date	Revision	Checked	Approved
15-Jul-15	meeting comments incorporated		
16-Jul-15	meeting comments incorporated		
17-Sep-15	activity lagging time removed		



NON-DEMOLITION MASTER PROGRAMME

REVISION B

Date	Revision	Checked	Approved
15-Jul-15	meeting comments incorporated		
16-Jul-15	meeting comments incorporated		
17-Sep-15	activity lagging time removed		

Activity ID	Activity Name	Dur	Start	Finish	2015												2016												2017												2018											
					D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A							
N8B04-170	Remove S1	2d	17-Dec-16	19-Dec-16																																																
N8B04-180	Construct NSL Roof/Strut Beam (Travelling Form)	18d	24-Jan-17	16-Feb-17																																																
N8B04-190	Tunnel Walkway & Works for Degree 1 Completion	6d	17-Feb-17	23-Feb-17																																																
N8B04-200	Backfilling	6d	17-Feb-17	23-Feb-17																																																
Bay N8B-03 (Work Front 3)																																																				
N8B03-110	Place Blinding Layer (at approx -3 mPD)	1d	12-Sep-16	12-Sep-16																																																
N8B03-120	Construct Tunnel Base with Kicker	12d	07-Nov-16	19-Nov-16																																																
N8B03-130	Place infill concrete/compacted fill up to S2	12d	21-Nov-16	03-Dec-16																																																
N8B03-140	Remove S2	2d	05-Dec-16	06-Dec-16																																																
N8B03-150	Construct NSL Wall up to S1	8d	07-Dec-16	15-Dec-16																																																
N8B03-160	Place infill concrete/compacted fill up to S1	13d	16-Dec-16	03-Jan-17																																																
N8B03-170	Remove S1	2d	04-Jan-17	05-Jan-17																																																
N8B03-180	Construct NSL Roof/Strut Beam (Travelling Form)	18d	17-Feb-17	09-Mar-17																																																
N8B03-190	Tunnel Walkway & Works for Degree 1 Completion	6d	10-Mar-17	16-Mar-17																																																
N8B03-200	Backfilling	6d	10-Mar-17	16-Mar-17																																																
Bay N8B-02 (Work Front 3)																																																				
N8B02-110	Place Blinding Layer (at approx -4 mPD)	1d	13-Sep-16	13-Sep-16																																																
N8B02-120	Construct Tunnel Base with Kicker	12d	21-Nov-16	03-Dec-16																																																
N8B02-130	Place infill concrete/compacted fill up to S3	12d	05-Dec-16	17-Dec-16																																																
N8B02-140	Remove S3	2d	19-Dec-16	20-Dec-16																																																
N8B02-150	Construct NSL Wall up to S2	8d	21-Dec-16	31-Dec-16																																																
N8B02-160	Place infill concrete/compacted fill up to S2	13d	03-Jan-17	17-Jan-17																																																
N8B02-170	Remove S2	2d	18-Jan-17	19-Jan-17																																																
N8B02-180	Construct NSL Roof up to S1	18d	20-Jan-17	13-Feb-17																																																
N8B02-190	Tunnel Walkway & Works for Degree 1 Completion	6d	14-Feb-17	20-Feb-17																																																
N8B02-200	Place infill concrete/compacted fill up to S1	7d	14-Feb-17	21-Feb-17																																																
N8B02-210	Remove S1	2d	22-Feb-17	23-Feb-17																																																
N8B02-220	Construct NSL Roof/Strut Beam (Travelling Form)	18d	10-Mar-17	30-Mar-17																																																
N8B02-230	Backfilling	6d	31-Mar-17	07-Apr-17																																																
Bay N8B-01 (Work Front 3)																																																				
N8B01-110	Place Blinding Layer (at approx -4 mPD)	1d	14-Sep-16	14-Sep-16																																																
N8B01-120	Construct Tunnel Base with Kicker	12d	05-Dec-16	17-Dec-16																																																
N8B01-130	Place infill concrete/compacted fill up to S3	12d	19-Dec-16	04-Jan-17																																																
N8B01-140	Remove S3	2d	05-Jan-17	06-Jan-17																																																
N8B01-150	Construct NSL Wall up to S2	8d	07-Jan-17	16-Jan-17																																																
N8B01-160	Place infill concrete/compacted fill up to S2	13d	17-Jan-17	03-Feb-17																																																
N8B01-170	Remove S2	2d	04-Feb-17	06-Feb-17																																																
N8B01-180	Construct NSL Roof up to S1	18d	14-Feb-17	06-Mar-17																																																
N8B01-190	Tunnel Walkway & Works for Degree 1 Completion	6d	07-Mar-17	13-Mar-17																																																
N8B01-200	Place infill concrete/compacted fill up to S1	7d	07-Mar-17	14-Mar-17																																																
N8B01-210	Remove S1	2d	15-Mar-17	16-Mar-17																																																
N8B01-220	Construct NSL Roof/Strut Beam (Travelling Form)	18d	31-Mar-17	25-Apr-17																																																
N8B01-230	Backfilling	6d	26-Apr-17	04-May-17																																																
Noise Enclosure at Oi Sen Path																																																				
Section 1 CH 101+063 to CH 101+155 (9 Bays)																																																				
Preparation Works & Base for Noise Enclosure																																																				
NB-010	Slope Excavation	1d	18-Oct-14	23-Dec-14																																																
NB-020	Plate load test	6d	24-Dec-14	31-Dec-14																																																
NB-030	Plate Load Test Completed	0d		31-Dec-14																																																
NB-040	Construct Base (6 bays), including S1112 Footing @Bay1	60d	31-Dec-14	14-Mar-15																																																
NB-050	Place concrete blocks for platform (7 bays)	21d	31-Dec-14	24-Jan-15																																																
NB-060	Completion of return wire diversion (by MTR)	0d		15-Feb-15*																																																
NB-290	PEM Decommissioning (by MTR)	0d		15-Mar-15*																																																
NB-300	Remove PEM Container	12d	16-Mar-15	28-Mar-15																																																
NB-310	Site formation	18d	30-Mar-15	23-Apr-15																																																
NB-320	Construct Base for Bay 7	12d	24-Apr-15	08-May-15																																																
NB-330	Install bearings for NS3 & NS4	24d	01-Sep-15	29-Sep-15																																																
Bay 1 (Precast Skin)																																																				
NB01-010	Place precast wall skin (3m x 4 pieces) - NTH	5d	17-Mar-15	26-Mar-15																																																
NB01-020	Erect working platform, protective measures, and fix rebar	8d	27-Mar-15	09-Apr-15																																																
NB01-030	Place concrete (2 pours)	3d	10-Apr-15	13-Apr-15																																																
NB01-040	Erect steework platform above Bay 1 - NTH	6d	14-Apr-15	25-Apr-15																																																
NB01-050	Make good surfacing	1d	27-Apr-15	27-Apr-15																																																
Bay 2 (Precast Skin)																																																				
NB02-010	Place precast wall skin (3m x 4 pieces) - NTH	4d	28-Apr-15	05-May-15																																																
NB02-020	Erect working platform, protective measures, and fix rebar	5d	06-May-15	11-May-15																																																
NB02-030	Place concrete	1d	12-May-15	12-May-15																																																
NB02-040	Erect steework platform above Bay 2 - NTH	4d	14-May-15	21-May-15																																																
NB02-050	Make good surfacing	1d	22-May-15	22-May-15																																																
Bay 3 (Precast Skin)																																																				
NB03-010	Place precast wall skin (3m x 4 pieces) - NTH	4d	23-May-15	30-May-15																																																
NB03-020	Erect working platform, protective measures, and fix rebar	5d	01-Jun-15	05-Jun-15																																																
NB03-030	Place concrete	1d	06-Jun-15	06-Jun-15																																																
NB03-040	Erect steework platform above Bay 3 - NTH	4d	09-Jun-15	16-Jun-15																																																
NB03-050	Make good surfacing	1d	17-Jun-15	17-Jun-15																																																
Bay 4 (Precast Skin)																																																				
NB04-010	Place precast wall skin (3m x 4 pieces) - NTH	4d	18-Jun-15	25-Jun-15																																																
NB04-020	Erect working platform, protective measures, and fix rebar	2d	26-Jun-15	27-Jun-15																																																
NB04-030	Place concrete	1d	29-Jun-15	29-Jun-15																																																
NB04-040	Erect steework platform above Bay 4 - NTH	4d	30-Jun-15	07-Jul-15																																																
NB04-050	Make good surfacing	1d	08-Jul-15	08-Jul-15																																																
Bay 5 (Precast Skin)																																																				
NB05-010	Place precast wall skin (3m x 4 pieces) - NTH	4d	09-Jul-15	16-Jul-15																																																
NB05-020	Erect working platform, protective measures, and fix rebar	2d	17-Jul-15	18-Jul-15																																																
NB05-030	Place concrete	1d	20-Jul-15	20-Jul-15																																																
NB05-040	Erect steework platform above Bay 5 - NTH	4d	21-Jul-15	28-Jul-15																																																
NB05-050	Make good surfacing	1d	29-Jul-15	29-Jul-15																																																
Bay 6 (Precast Skin)																																																				
NB06-010	Place precast wall skin (3m x 4 pieces) - NTH	4d	30-Jul-15	06-Aug-15																																																
NB06-020	Erect working platform, protective measures, and fix rebar	2d	07-Aug-15	08-Aug-15																																																
NB06-030	Place concrete	1d	10-Aug-15	10-Aug-15																																																
NB06-040	Erect steework platform above Bay 6 - NTH	4d	11-Aug-15	18-Aug-15																																																
NB06-050	Make good surfacing	1d	19-Aug-15	19-Aug-15																																																
Bay 7 (Precast Skin)																																																				
NB07-010	Place precast wall skin (3m x 4 pieces) - NTH	4d	20-Aug-15	27-Aug-15																																																
NB07-020	Erect working platform, protective measures, and fix rebar	2d	28-Aug-15	29-Aug-15																																																
NB07-030	Place concrete	1d	31-Aug-15	31-Aug-15																																																
NB07-040	Erect steework platform above Bay 7 - NTH	4d	01-Sep-15	08-Sep-15																																																
NB07-050	Make good surfacing	1d	09-Sep-15	09-Sep-15																																																
Piling for Steel Platform																																																				
NB-070	Mobilize piling rig	3d	12-Aug-15	14-Aug-15																																																
NB-080	273mm Minipiles for temporary platform (Stage 1)	4d	15-Aug-15	19-Aug-15																																																
NB-085	Relocate piling rig	3d	20-Aug-15	22-Aug-15																																																
NB-088	273mm Minipiles for temporary platform (Stage 2)	4d	24-Aug-15	27-Aug-15																																																
NB-090	Demobilize piling rig	3d	28-Aug-15	31-Aug-15																																																
Bay 8 (Conventional)																																																				
NB08-010	Slope Excavation Completed	0d		11-Aug-15																																																
NB08-020	Construct Base	7d	01-Sep-15	08-Sep-15																																																
NB08-030	Construct Wall	10d	09-Sep-15	19-Sep-15																																																

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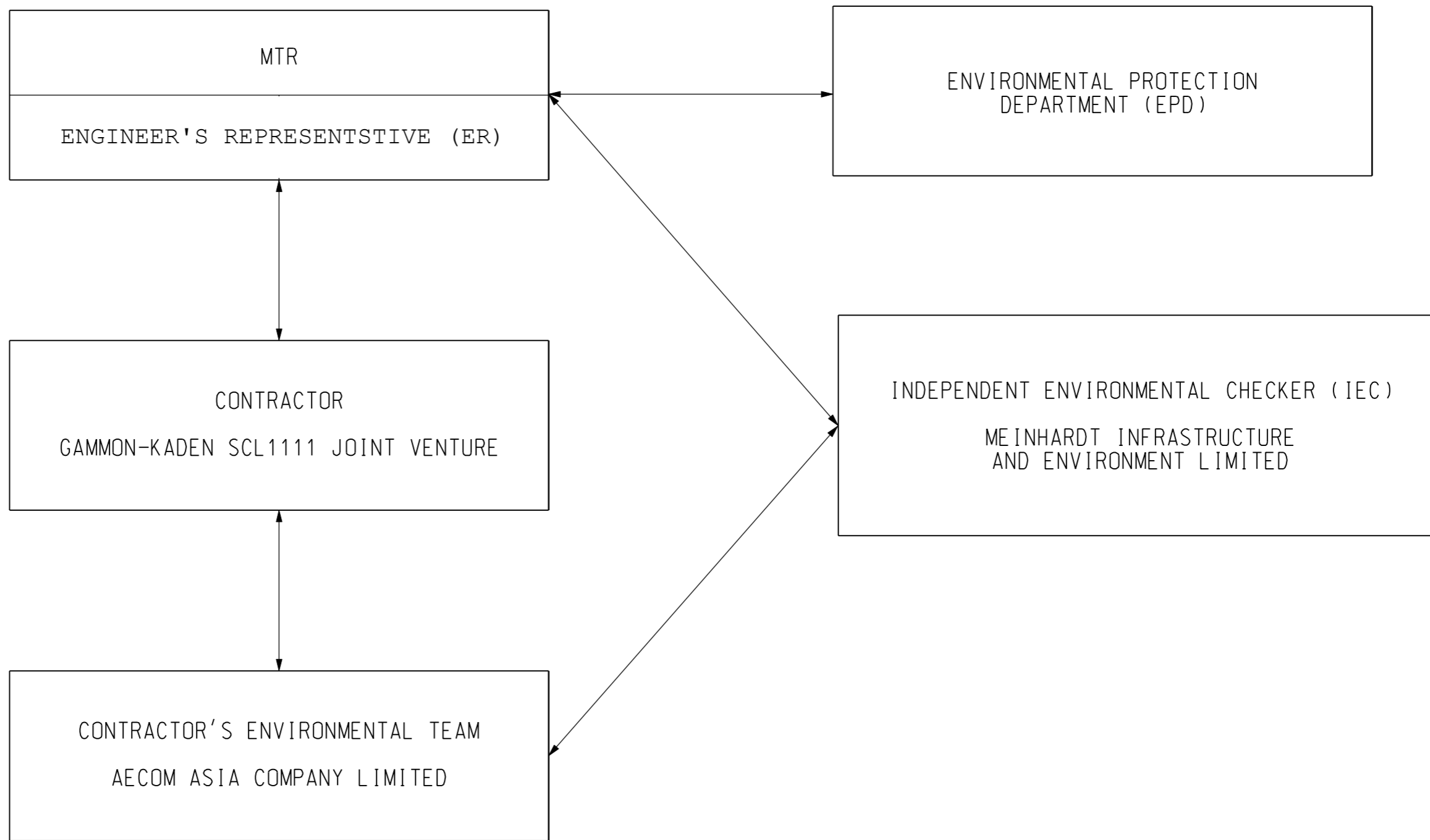
NDMPB-35

P 12 of 16

Date	Revision	Checked	Approved
15-Jul-15	meeting comments incorporated		
16-Jul-15	meeting comments incorporated		
17-Sep-15	activity lagging time removed		

APPENDIX B

Project Organization Structure



DRAWN		HD				SHATIN TO CENTRAL LINK		TITLE CONTRACT 1111 HUNG HOM NORTH APPROACH TUNNELS PROJECT ORGANISATION				
DESIGNED		LCLL										
CHECKED		LCLL										
APPROVED		IMW										
DATE		08/JAN/2013		CONTRACTOR				ORIGINATOR				
						<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>		CADD REF. Appendix B				
REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED	SCALE	FIGURE NO.	REV.
										N.T.S.	Appendix B	-

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	<ul style="list-style-type: none"> Existing topsoil shall be re-used where possible for new planting areas within the Project. 	All construction sites	N/A
		<ul style="list-style-type: none"> 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
		<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. 	All construction sites	V
		<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. 	All construction sites	V
		<ul style="list-style-type: none"> 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
		<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. 	All construction sites	N/A
		<ul style="list-style-type: none"> Compensatory tree & shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas. 	All construction sites	N/A
		<ul style="list-style-type: none"> Control of night-time lighting glare. 	All construction sites	N/A
		<ul style="list-style-type: none"> 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	<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. 	All construction sites	V
		<ul style="list-style-type: none"> Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. 	All construction sites	V
		<ul style="list-style-type: none"> Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs. 	All construction sites	V
		<ul style="list-style-type: none"> Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works. 	All construction sites	V
		<ul style="list-style-type: none"> Mobile plant should be sited as far away from NSRs as possible and practicable. 	All construction sites	V
		<ul style="list-style-type: none"> 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
		<p>The following quiet PME should be used:</p> <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)) 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)) 	Works areas where required	N/A

Construction Noise Impact				
		<ul style="list-style-type: none"> • 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)) 		
		<ul style="list-style-type: none"> • Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. 	All construction sites	√
		<ul style="list-style-type: none"> • Install movable noise barriers, acoustic mat or full enclosure, screen the noisy plants 	All construction sites	√
		<ul style="list-style-type: none"> • Sequencing operation of construction plants where practicable. 	All construction sites	√
		<ul style="list-style-type: none"> • Particularly noisy construction activities will be scheduled to avoid school examination period as far as practicable. 	Works areas near the Carmel Secondary School	√
/	To control construction airborne noise	<ul style="list-style-type: none"> • Hand held breakers having a mass of above 10 kg and air compressor capable of supplying compressed air at 500 kPa or above for carrying out construction work shall be fitted with valid noise emission labels during operation 	All construction sites	√

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	<ul style="list-style-type: none"> Watering once per hour on exposed worksites and haul road should be conducted to achieve dust removal efficiencies of 91.7%. 	All construction sites	@
		<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. 	All construction sites	@
		<ul style="list-style-type: none"> Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads 	All construction sites	V
		<ul style="list-style-type: none"> A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones. 	All construction sites	V
		<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 	All construction sites	N/A
		<ul style="list-style-type: none"> Vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. 	All construction sites	V
		<ul style="list-style-type: none"> 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
		<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. 	All construction sites	V
		<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. 	All construction sites	V
		<ul style="list-style-type: none"> Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously. 	All construction sites	V
		<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. 	All construction sites	N/A
		<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. 	All construction sites	V

Construction Air Quality Impact				
		<ul style="list-style-type: none"> Any skip hoist for material transport should be totally enclosed by impervious sheeting. 	All construction sites	N/A
		<ul style="list-style-type: none"> Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs. 	All construction sites	N/A
/	Minimize dust impact at nearby sensitive receivers	<ul style="list-style-type: none"> 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	@
		<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. 	All construction sites	N/A
		<ul style="list-style-type: none"> Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system. 	All construction sites	V
		<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. 	All construction sites	N/A
		<ul style="list-style-type: none"> Imposition of speed controls for vehicles on site haul roads. 	All construction sites	N/A
		<ul style="list-style-type: none"> Open burning shall be prohibited. 	All construction sites	V
/	Emission from Vehicles and Plants	<ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. 	All construction sites	V
		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Construction Site Drainage should be implemented to control site run-off and drainage as well as any site effluents generated from the works areas, and to prevent run-off and construction wastes from entering nearby water environment. 	Site drainage system	V
		<ul style="list-style-type: none"> Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. 	Site drainage system	V
		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly. 	All construction sites	V
		<ul style="list-style-type: none"> Construction works should be programmed to minimize soil excavation works in rainy seasons. 	All construction sites	N/A
		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. 	All construction sites	N/A
		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> 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

Construction Water Quality Impact				
		<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 from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. 	All construction sites	V
		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> 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
		<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. 	All construction sites	V
		<ul style="list-style-type: none"> A cofferdam wall should be built as necessary to limit groundwater inflow to the excavation works areas. 	Excavation works areas	N/A
		<ul style="list-style-type: none"> Wastewater generated should not be discharged into the stormwater drainage system. 	All construction sites	V
		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> Appropriate measures will be deployed to minimize the intrusion of groundwater into excavation works areas. 	All construction sites	N/A
		<ul style="list-style-type: none"> 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-HUH), S11.5.1(HHS) & S9 (MKK-HUH)	Good site practice to minimize the generation and impact of the waste.	<ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement. 	All construction sites	N/A
		<ul style="list-style-type: none"> Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions. 	All construction sites	V
		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> Proper storage and site practices to minimize the potential for damage or contamination of construction materials. 	All construction sites	V
		<ul style="list-style-type: none"> Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste. 	All construction sites	N/A
		<ul style="list-style-type: none"> Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution. 	All construction sites	V
		<ul style="list-style-type: none"> Maintain and clean storage areas routinely. 	All construction sites	V
		<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> Waste should be removed in timely manner. 	All construction sites	V
		<ul style="list-style-type: none"> Waste collectors should only collect wastes prescribed by their permits. 	All construction sites	V
		<ul style="list-style-type: none"> Waste should be disposed of at licensed waste disposal facilities. 	All construction sites	V
		<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. 	All construction sites	V
		<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. 	All construction sites	V
		<ul style="list-style-type: none"> The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides. 	All construction sites	@
		<ul style="list-style-type: none"> The Contractor should register as a chemical waste producer if chemical wastes would be generated. 	All construction sites	V
<ul style="list-style-type: none"> Disposal of chemical waste should be via a licensed waste collector. 	All construction sites	V		

Waste Management				
		<ul style="list-style-type: none"> Stockpiling of contaminated sediments should be avoided as far as possible. 	All construction sites	N/A
		<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 should follow the trip-ticket system. Licensed asbestos waste collectors should be appointed to collect the asbestos waste and deliver to the designated landfill for disposal. 	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 contamination during construction.	<ul style="list-style-type: none"> 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
		<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 70dB(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



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 - May 22, 2017 Rootsmeter S/N 0438320 Ta (K) - 295
 Operator Tisch Orifice I.D. - 0988 Pa (mm) - 754.38

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	1.3910	3.2	2.00
2	NA	NA	1.00	0.9810	6.4	4.00
3	NA	NA	1.00	0.8750	7.9	5.00
4	NA	NA	1.00	0.8330	8.8	5.50
5	NA	NA	1.00	0.6890	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9984	0.7178	1.4161	0.9957	0.7158	0.8844
0.9942	1.0135	2.0027	0.9915	1.0107	1.2507
0.9921	1.1338	2.2391	0.9894	1.1308	1.3983
0.9910	1.1897	2.3484	0.9883	1.1865	1.4666
0.9858	1.4307	2.8322	0.9831	1.4269	1.7687
Qstd slope (m) = 1.98425			Qa slope (m) = 1.24250		
intercept (b) = -0.00930			intercept (b) = -0.00581		
coefficient (r) = 0.99998			coefficient (r) = 0.99998		
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}

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: 18-Oct-17 Next Due Date: 18-Dec-17
 Equipment No.: --- Serial No. 8259

Ambient Condition			
Temperature, Ta (K)	301	Pressure, Pa (mmHg)	758.5

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.98425	Intercept, bc	-0.0093
Last Calibration Date:	22-May-17	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	22-May-18				

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	7.1	2.65	1.34	45.0	44.73
13	5.6	2.35	1.19	36.0	35.78
10	4.9	2.20	1.11	31.0	30.81
7	4.2	2.04	1.03	26.0	25.84
5	3.2	1.78	0.90	19.0	18.89

By Linear Regression of Y on X

Slope, mw = 59.3803 Intercept, bw = -35.0022
 Correlation Coefficient* = 0.9988

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation
From the TSP Field Calibration Curve, take Qstd = 1.30m ³ /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} = <u>42.45</u>

Remarks: _____

QC Reviewer: WIS CHAN Signature: [Signature] Date: 18/10/17

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: 14-Dec-17 Next Due Date: 14-Feb-18
 Equipment No.: --- Serial No.: 8259

Ambient Condition			
Temperature, Ta (K)	294.1	Pressure, Pa (mmHg)	763.7

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.98425	Intercept, bc	-0.0093
Last Calibration Date:	22-May-17	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	22-May-18				

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	6.8	2.63	1.33	44.0	44.40
13	5.4	2.34	1.19	36.0	36.33
10	4.8	2.21	1.12	30.0	30.27
7	4.2	2.07	1.05	26.0	26.24
5	3.1	1.78	0.90	18.0	18.16

By Linear Regression of Y on X

Slope, mw = 61.9661 Intercept, bw = -38.1116

Correlation Coefficient* = 0.9943

*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} = 42.06

Remarks: _____

QC Reviewer: HY Shum Signature: [Signature] Date: 14 Dec 17



CERTIFICATE OF CALIBRATION

Certificate No.: 17CA0303 01-02 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone	Pream
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2270	4189	ZC0032
Serial/Equipment No.:	2644597 N.012.01	2846461	17965
Adaptors used:	-	-	-

Item submitted by

Customer Name:	AECOM ASIA CO LTD
Address of Customer:	-
Request No.:	-
Date of receipt:	03-Mar-2017

Date of test: 07-Mar-2017

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	18-Jun-2017	CIGISMEC
Signal generator	DS 360	33873	18-Apr-2017	CEPREI
Signal generator	DS 360	61227	18-Apr-2017	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	60 ± 10 %
Air pressure:	1010 ± 5 hPa

Test specifications

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

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 08-Mar-2017

Company Chop:



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



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 17CA0303 01-02 Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Uncertainty (dB) / Coverage Factor	
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Frequency weightings			
Time weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Peak response	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
R.M.S. accuracy	Single 100µs rectangular pulse	Pass	0.3	
Time weighting I	Crest factor of 3	Pass	0.3	
	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.


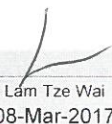
Test:	Subtest	Status	Uncertainty (dB) / Coverage Factor	
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95 %. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: 	Checked by: 
Date: 07-Mar-2017	Date: 08-Mar-2017

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 17CA0303 01-01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone	Preamp
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2250-L	4950	ZC0032
Serial/Equipment No.:	2681366 N.011.01	2665582	17190
Adaptors used:	-	-	-

Item submitted by

Customer Name: AECOM ASIA CO LTD
Address of Customer: -
Request No.: -
Date of receipt: 03-Mar-2017

Date of test: 07-Mar-2017

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	18-Jun-2017	CIGISMEC
Signal generator	DS 360	33873	18-Apr-2017	CEPREI
Signal generator	DS 360	61227	18-Apr-2017	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

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


Test results

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

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

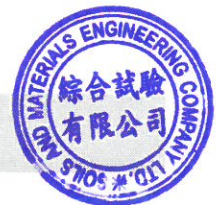
Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 08-Mar-2017

Company Chop:



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



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 17CA0303 01-01

Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	
	Lin	Pass	1.6	
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Frequency weightings			
	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Date:

Fung Chi Yip
07-Mar-2017

Checked by:

Date:

Lam Tze Wai
08-Mar-2017

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 17CA0309 01

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: B & K
Type/Model No.: 4231
Serial/Equipment No.: 3006428 / N004.03
Adaptors used: -

Item submitted by

Customer: AECOM ASIA CO LIMITED
Address of Customer: -
Request No.: -
Date of receipt: 09-Mar-2017

Date of test: 13-Mar-2017

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	14-Apr-2017	SCL
Preamplifier	B&K 2673	2743150	28-Apr-2017	CEPREI
Measuring amplifier	B&K 2610	2346941	26-Apr-2017	CEPREI
Signal generator	DS 360	61227	18-Apr-2017	CEPREI
Digital multi-meter	34401A	US36087050	18-Apr-2017	CEPREI
Audio analyzer	8903B	GB41300350	19-Apr-2017	CEPREI
Universal counter	53132A	MY40003662	19-Apr-2017	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 50 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications


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

Test results

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.

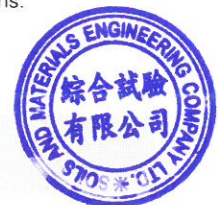
Approved Signatory:



Huang Jian Min/Feng Jun Qi

Date: 15-Mar-2017

Company Chop:



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



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 17CA0309 01 Page: 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.27	0.10

(Output level in dB re 20 μ Pa)

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.002 dB**
Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 1000.0 Hz**
Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2


4, Total Noise and Distortion

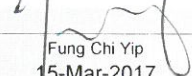
For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 0.5 %**
Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: 
Lai Sheng Jie
Date: 13-Mar-2017

Checked by: 
Fung Chi Yip
Date: 15-Mar-2017

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

APPENDIX F

EM&A Monitoring Schedules

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels
Impact Monitoring Schedule for December 2017**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Dec	2-Dec
					24-hour TSP (AM1)	
3-Dec	4-Dec	5-Dec	6-Dec	7-Dec	8-Dec	9-Dec
				24-hour TSP (AM1)	Noise (NM1, NM2)	
10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	16-Dec
			24-hour TSP (AM1)	Noise (NM1, NM2)		
17-Dec	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec	23-Dec
		24-hour TSP (AM1)	Noise (NM1, NM2)			24-hour TSP (AM1)
24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	29-Dec	30-Dec
			Noise (NM1, NM2)		24-hour TSP (AM1)	

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

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels
Tentative Impact Monitoring Schedule for January 2018**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Jan	2-Jan	3-Jan	4-Jan	5-Jan	6-Jan
				24-hour TSP (AM1)	Noise (NM1, NM2)	
7-Jan	8-Jan	9-Jan	10-Jan	11-Jan	12-Jan	13-Jan
			24-hour TSP (AM1)	Noise (NM1, NM2)		
14-Jan	15-Jan	16-Jan	17-Jan	18-Jan	19-Jan	20-Jan
		24-hour TSP (AM1)	Noise (NM1, NM2)			
21-Jan	22-Jan	23-Jan	24-Jan	25-Jan	26-Jan	27-Jan
	24-hour TSP (AM1)	Noise (NM1, NM2)				24-hour TSP (AM1)
28-Jan	29-Jan	30-Jan	31-Jan			
		Noise (NM1, NM2)				

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

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels
Tentative Impact Monitoring Schedule for February 2018**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Feb	2-Feb	3-Feb
					24-hour TSP (AM1)	
4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb
				24-hour TSP (AM1)	Noise (NM1, NM2)	
11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	16-Feb	17-Feb
			24-hour TSP (AM1)	Noise (NM1, NM2)		
18-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb	24-Feb
		24-hour TSP (AM1)	Noise (NM1, NM2)			24-hour TSP (AM1)
25-Feb	26-Feb	27-Feb	28-Feb			
		Noise (NM1, NM2)				

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

APPENDIX G

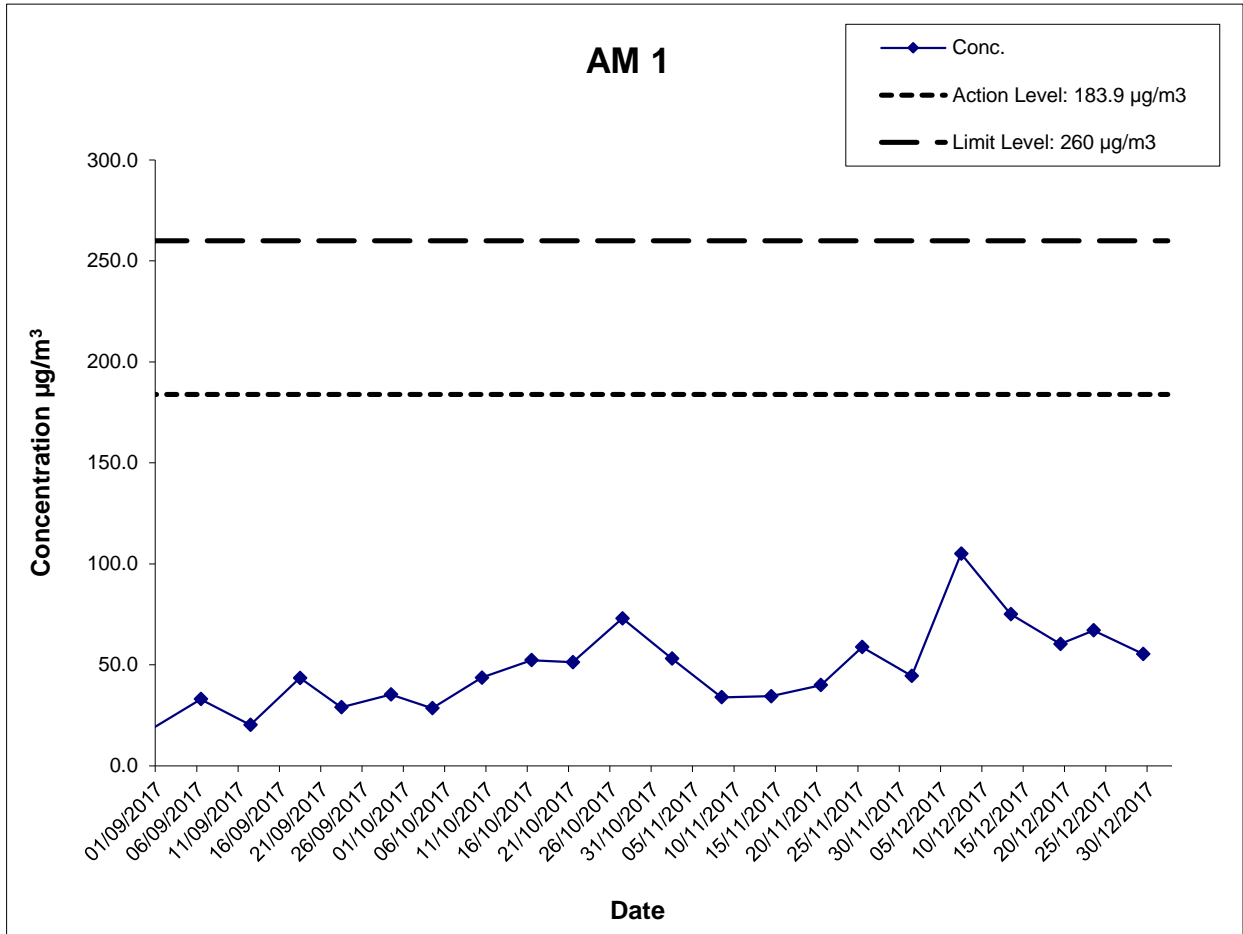
**Air Quality Monitoring Results and
their Graphical Presentations**

**Appendix G
Air Quality Monitoring Results**

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

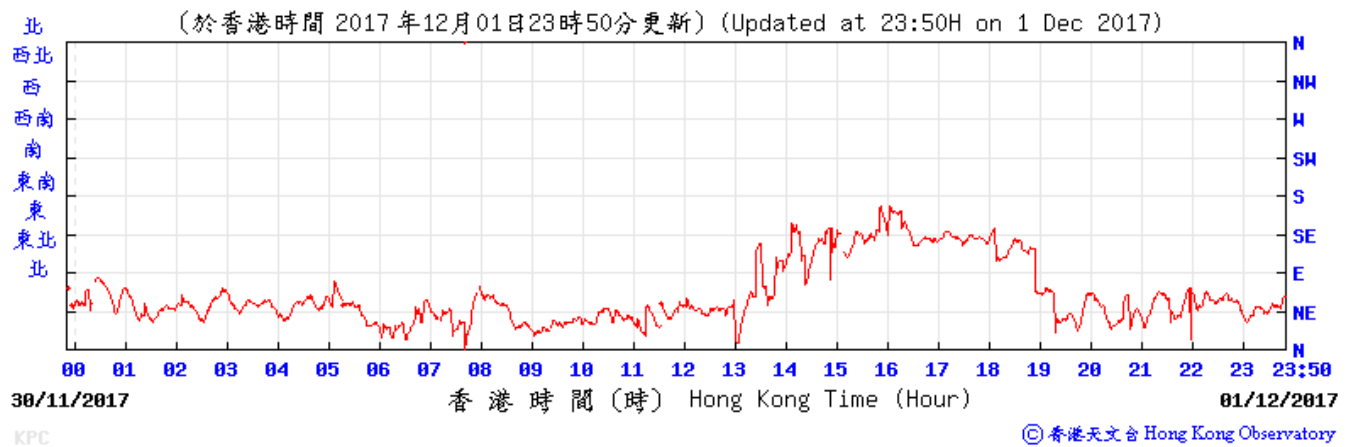
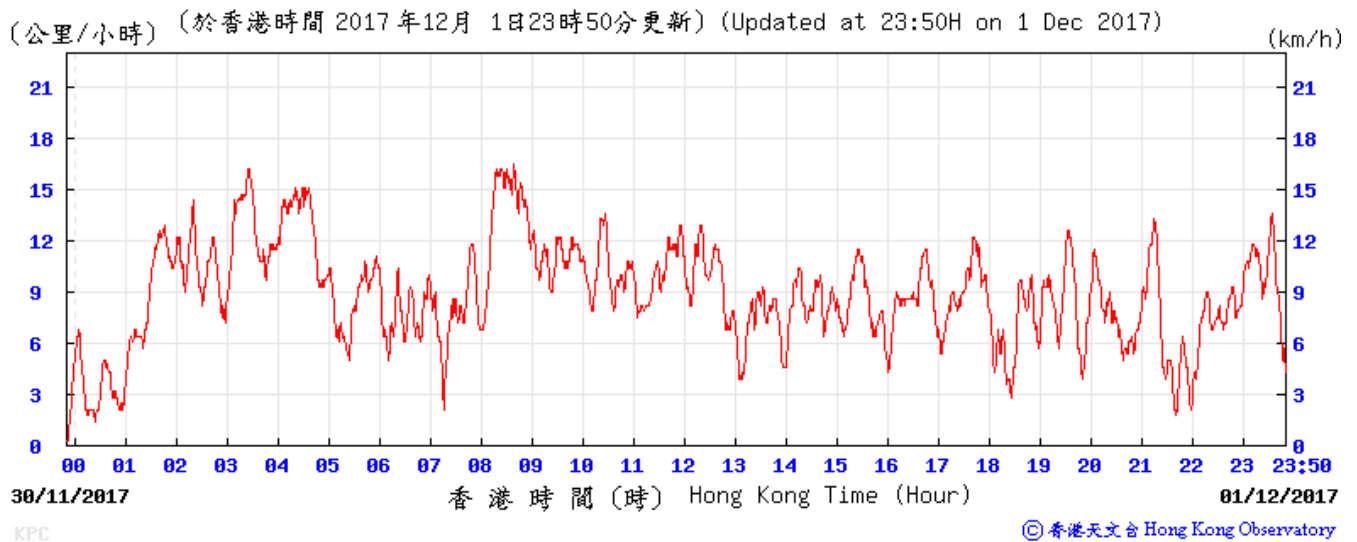
Start		End		Weather	Air	Atmospheric	Flow Rate (m ³ /min.)		Av. flow	Total vol.	Filter Weight (g)		Particulate	Elapse Time		Sampling	Conc.
Date	Time	Date	Time	Condition	Temp. (°C)	Pressure (hPa)	Initial	Final	(m ³ /min)	(m ³)	Initial	Final	weight(g)	Initial	Final	Time(hrs.)	(µg/m ³)
1-Dec-17	0:00	2-Dec-17	0:00	Sunny	20.1	1019.1	1.34	1.34	1.34	1932.5	2.5766	2.6625	0.0859	14252.02	14276.02	24.00	44.5
7-Dec-17	0:00	8-Dec-17	0:00	Fine	19.4	1018.2	1.34	1.34	1.34	1932.5	2.6134	2.8163	0.2029	14276.02	14300.02	24.00	105.0
13-Dec-17	0:00	14-Dec-17	0:00	Cloudy	18.4	1017.7	1.34	1.34	1.34	1932.5	2.7737	2.9187	0.1450	14300.02	14324.02	24.00	75.0
19-Dec-17	0:00	20-Dec-17	0:00	Fine	13.6	1025.6	1.34	1.34	1.34	1932.5	2.6161	2.7327	0.1166	14324.02	14348.02	24.00	60.3
23-Dec-17	0:00	24-Dec-17	0:00	Cloudy	19.0	1017.5	1.34	1.34	1.34	1932.5	2.5590	2.6885	0.1295	14348.02	14372.02	24.00	67.0
29-Dec-17	0:00	30-Dec-17	0:00	Cloudy	19.0	1021.3	1.34	1.34	1.34	1932.5	2.5798	2.6868	0.1070	14372.02	14396.02	24.00	55.4
																Average	67.9
																Minimum	44.5
																Maximum	105.0

Appendix G Air Quality Monitoring Results

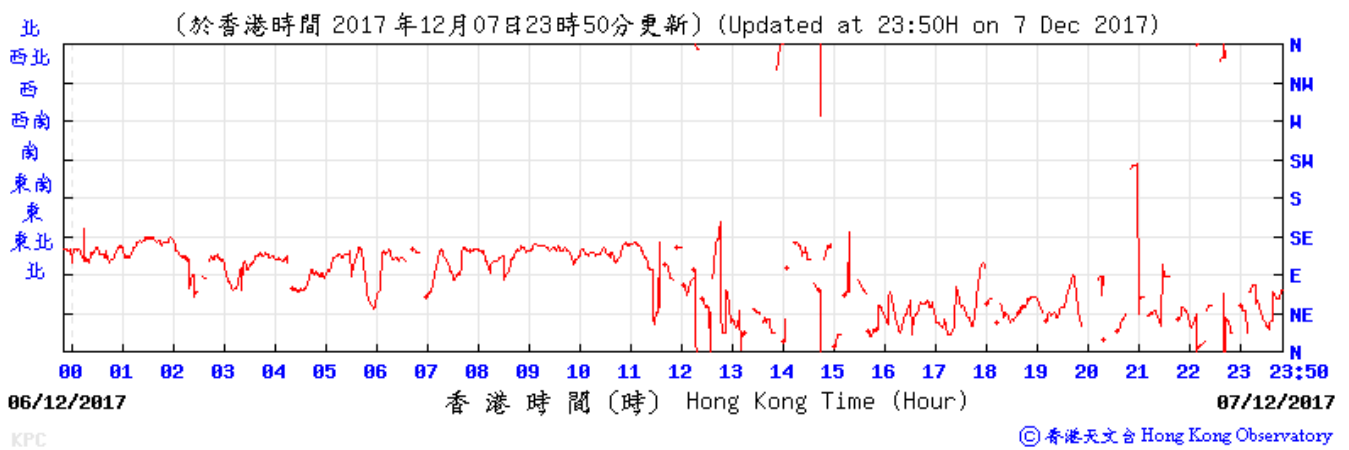
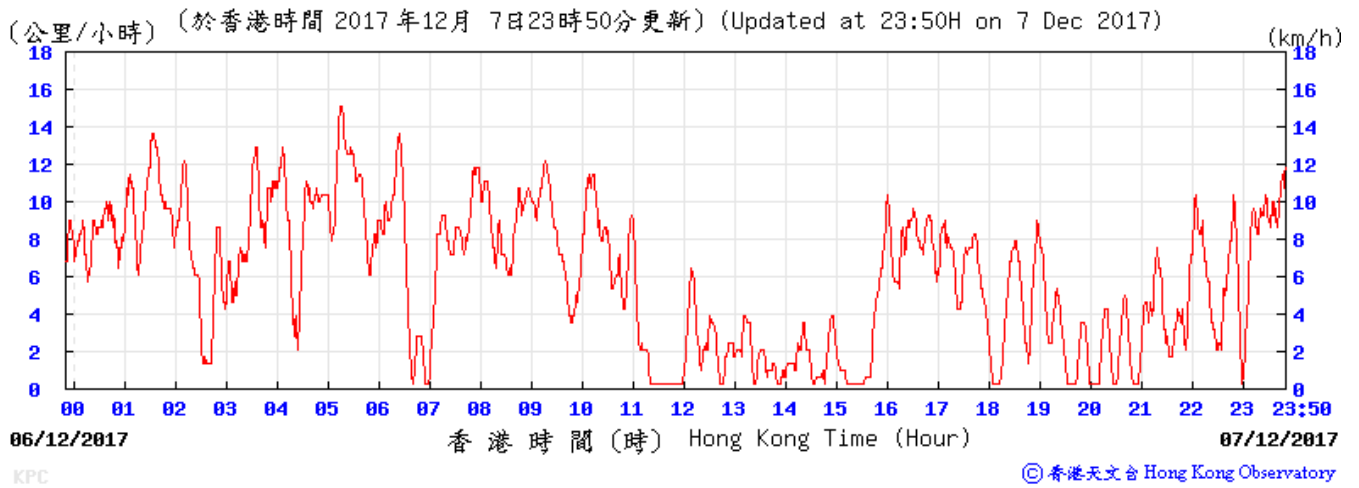


	Shatin to Central Link Works Contract 1111- Hung Hom North Approach Tunnels	SCALE	N.T.S.	DATE	Jan-18
	Graphical Presentations of Impact 24-hour TSP Monitoring Results	CHECK	TYUT	DRAWN	RCCP
		JOB NO.	60284101	APPENDIX No.	G

Appendix G – Extract of Meteorological Observations for King's Park Automatic Weather Station, December 2017

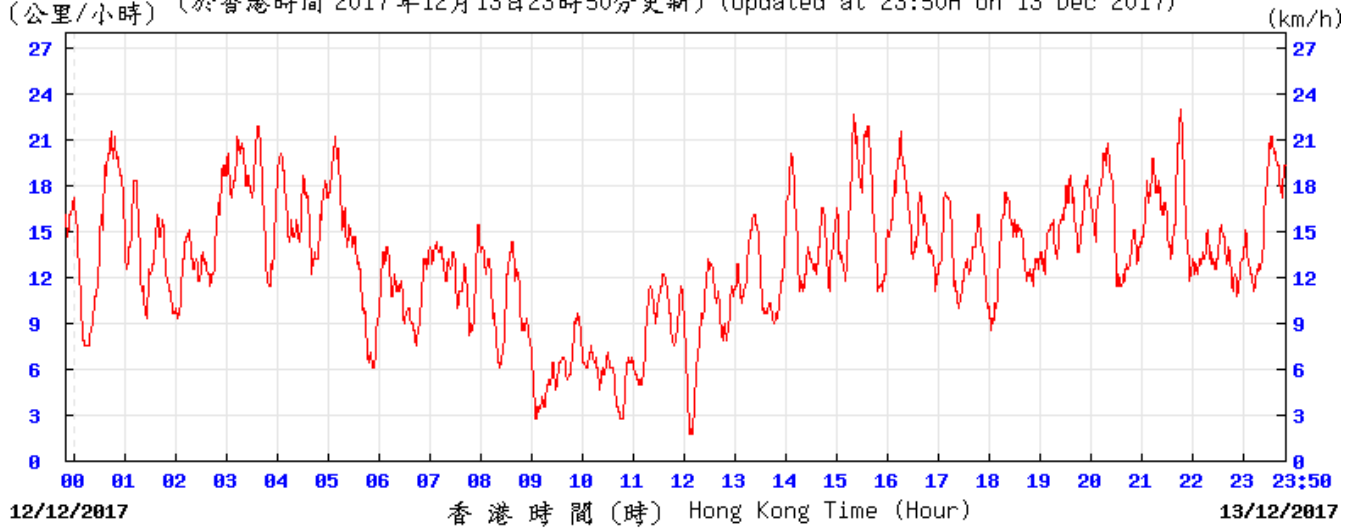


Appendix G – Extract of Meteorological Observations for King's Park Automatic Weather Station, December 2017



Appendix G – Extract of Meteorological Observations for King's Park Automatic Weather Station, December 2017

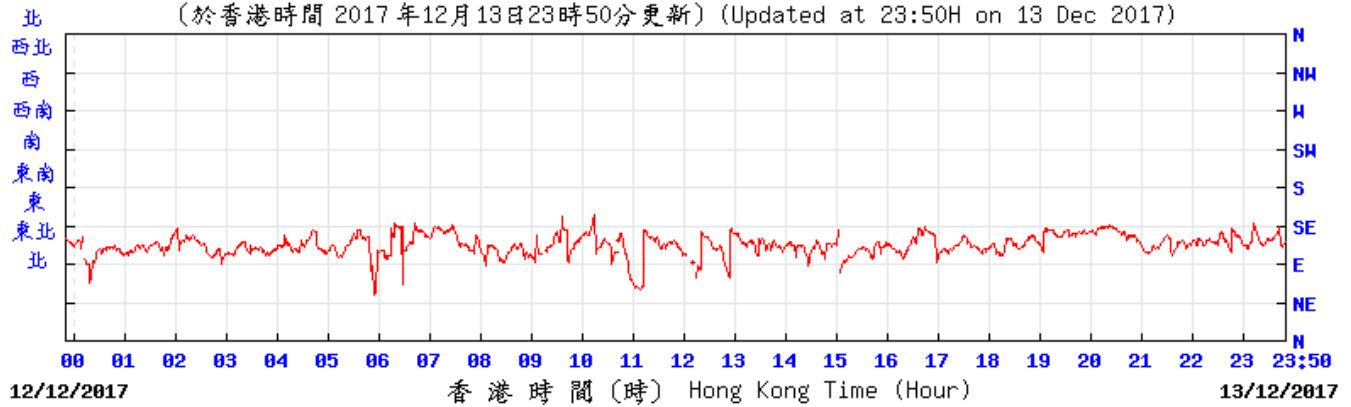
(公里/小時) (於香港時間 2017 年12月13日23時50分更新) (Updated at 23:50H on 13 Dec 2017)



KPC

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(於香港時間 2017 年12月13日23時50分更新) (Updated at 23:50H on 13 Dec 2017)

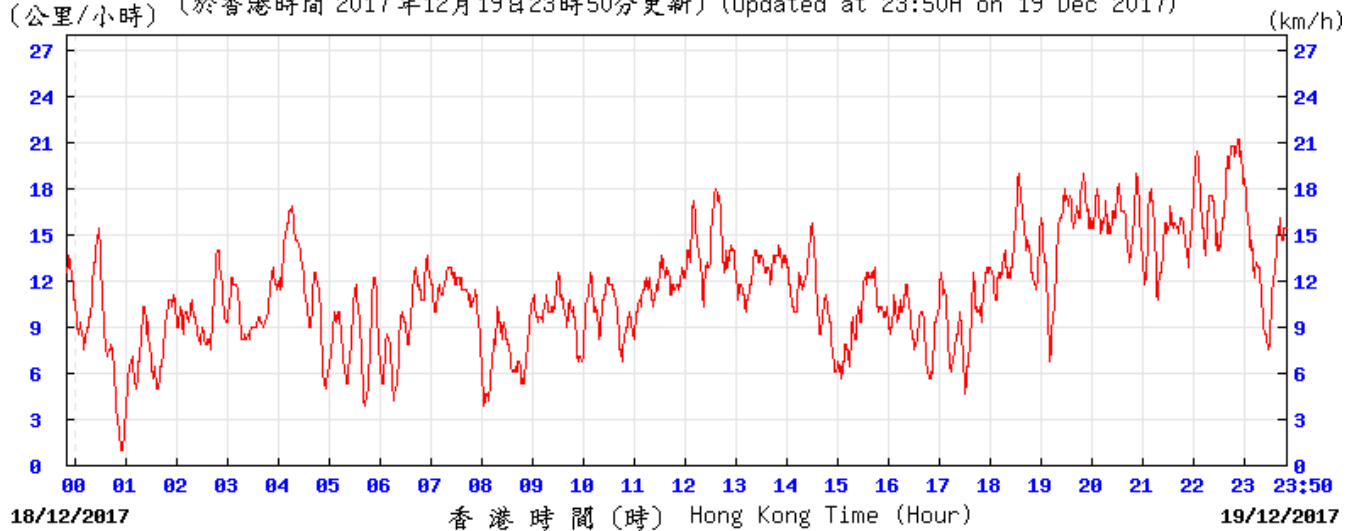


KPC

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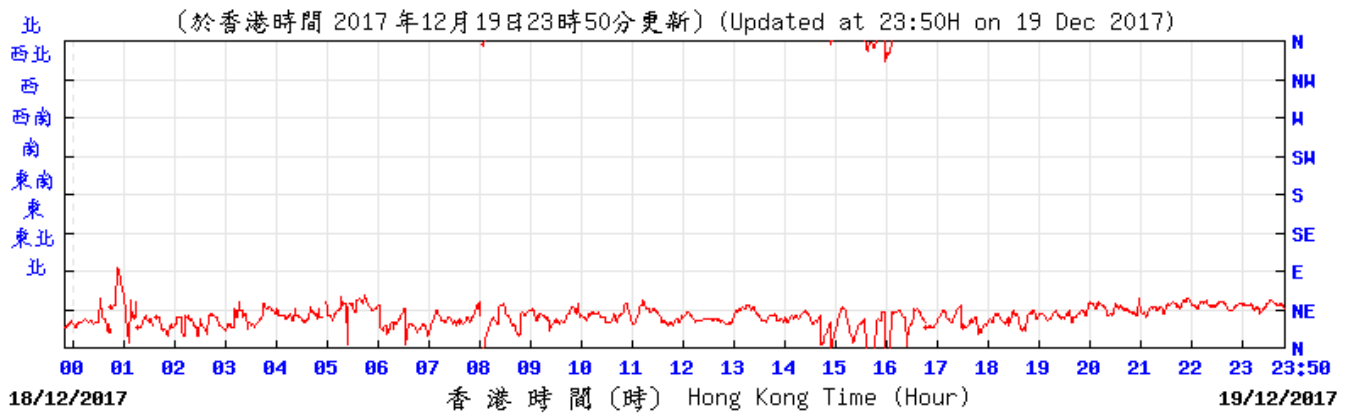
Appendix G – Extract of Meteorological Observations for King's Park Automatic Weather Station, December 2017

(公里/小時) (於香港時間 2017 年12月19日23時50分更新) (Updated at 23:50H on 19 Dec 2017)



KPC

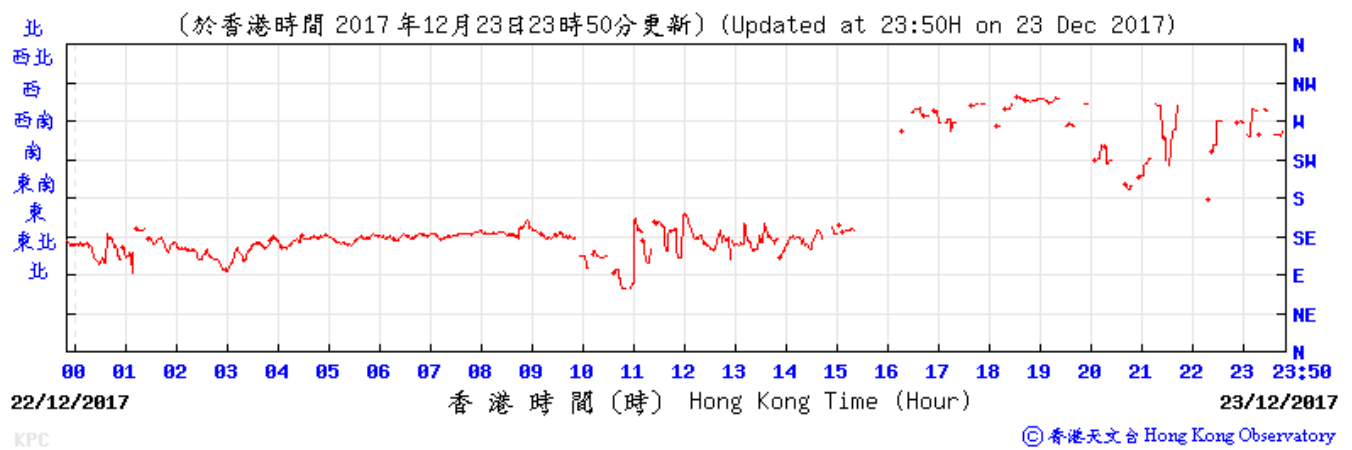
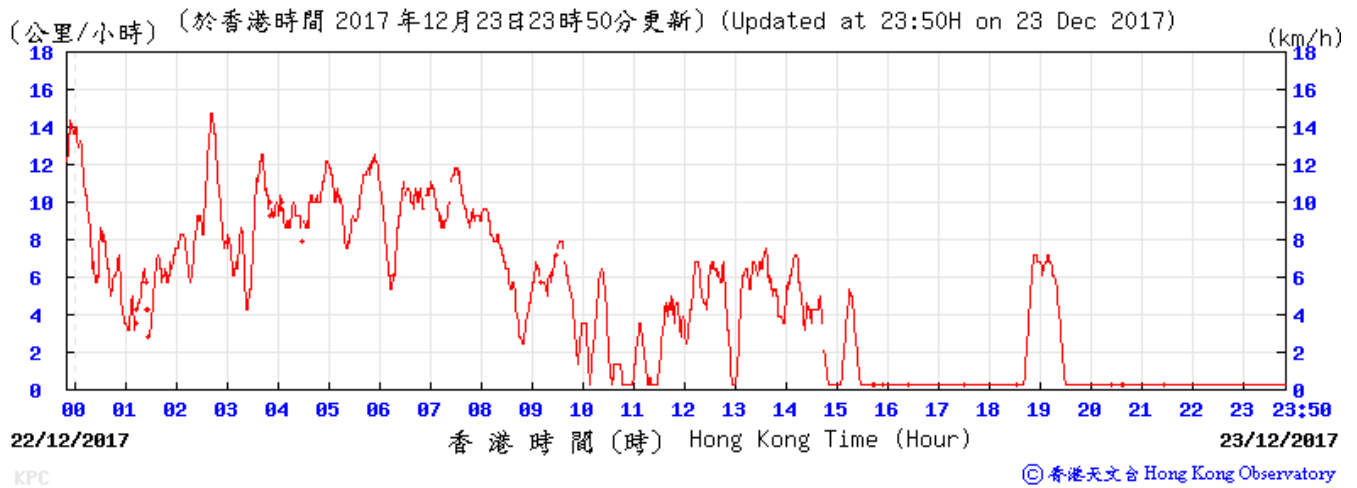
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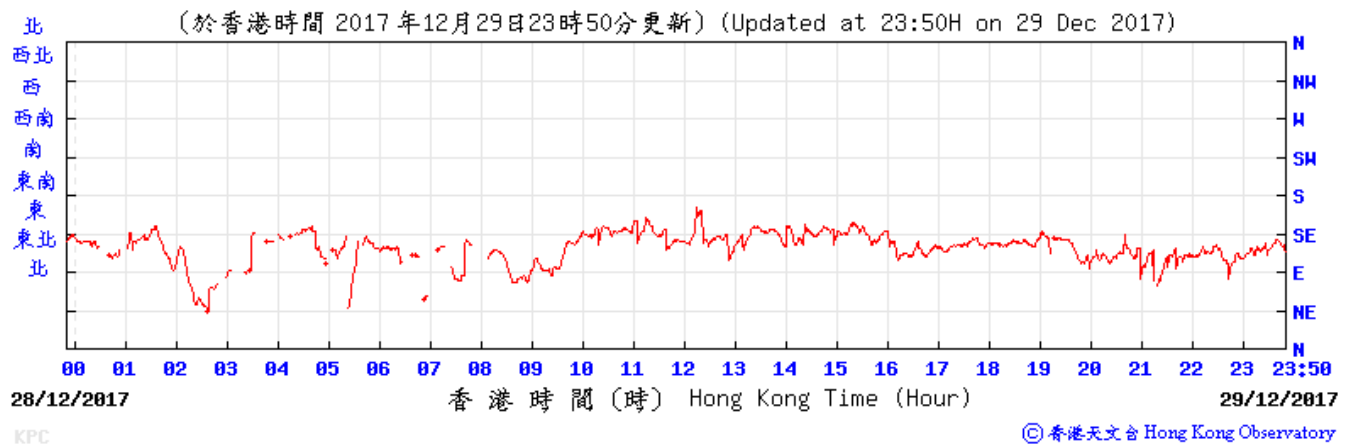
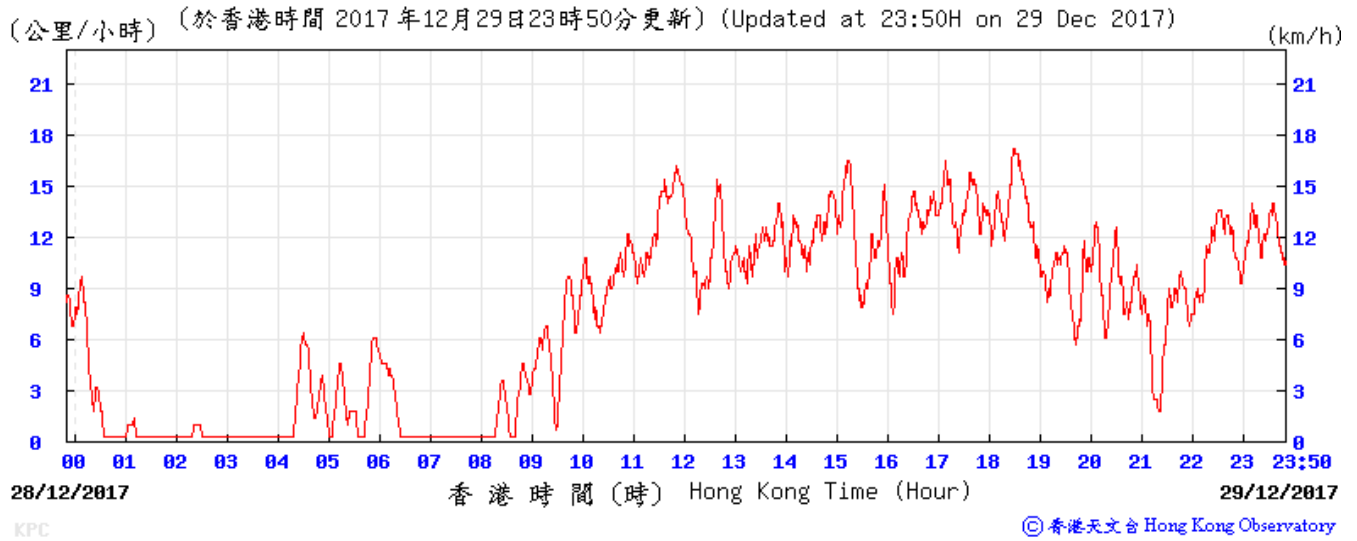
KPC

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Appendix G – Extract of Meteorological Observations for King's Park Automatic Weather Station, December 2017



Appendix G – Extract of Meteorological Observations for King's Park Automatic Weather Station, December 2017



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				
8-Dec-17	Fine	13:32	65.1	69.5	67.4	<Baseline	68.0	70	N
14-Dec-17	Sunny	10:10	59.2	67.4	63.6	<Baseline	68.0	70	N
20-Dec-17	Sunny	9:50	66.3	70.5	68.7	60.4	68.0	70	N
27-Dec-17	Fine	13:35	66.5	71.4	68.7	60.4	68.0	70	N

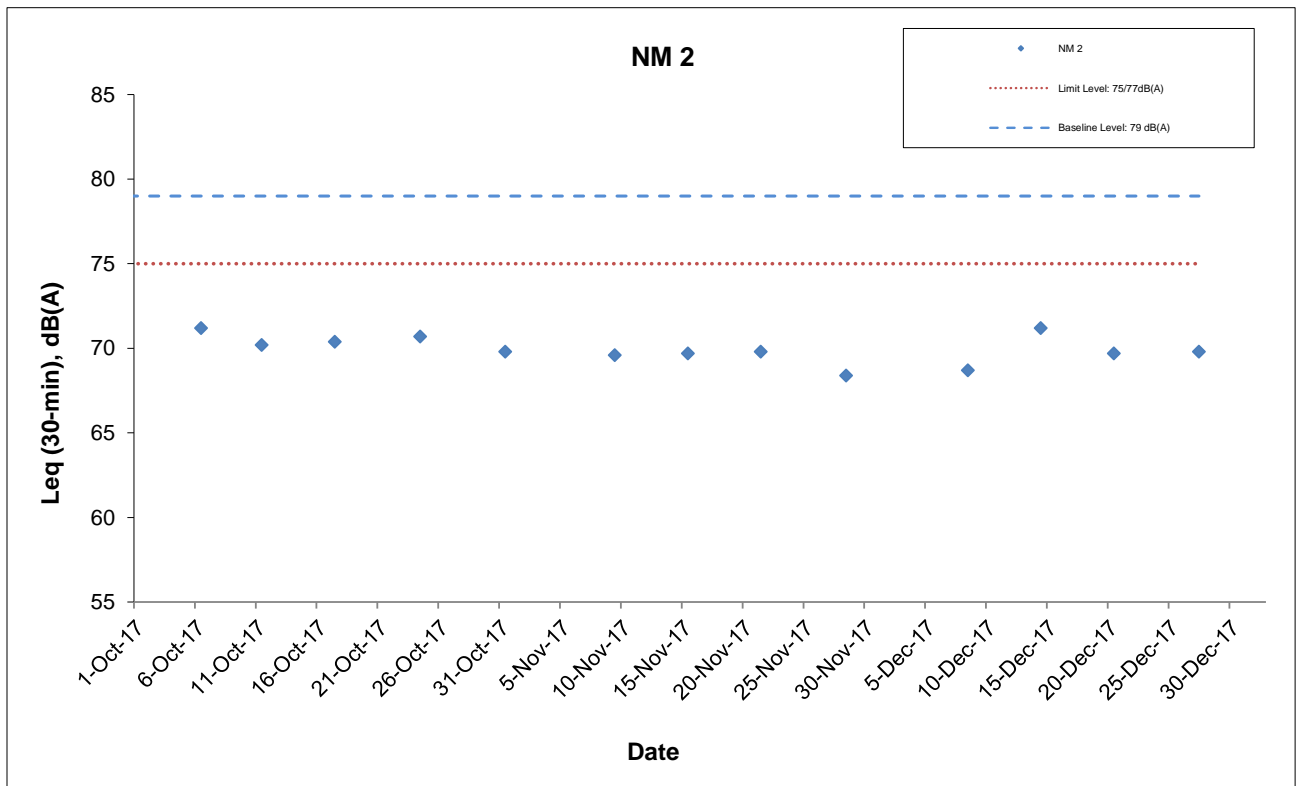
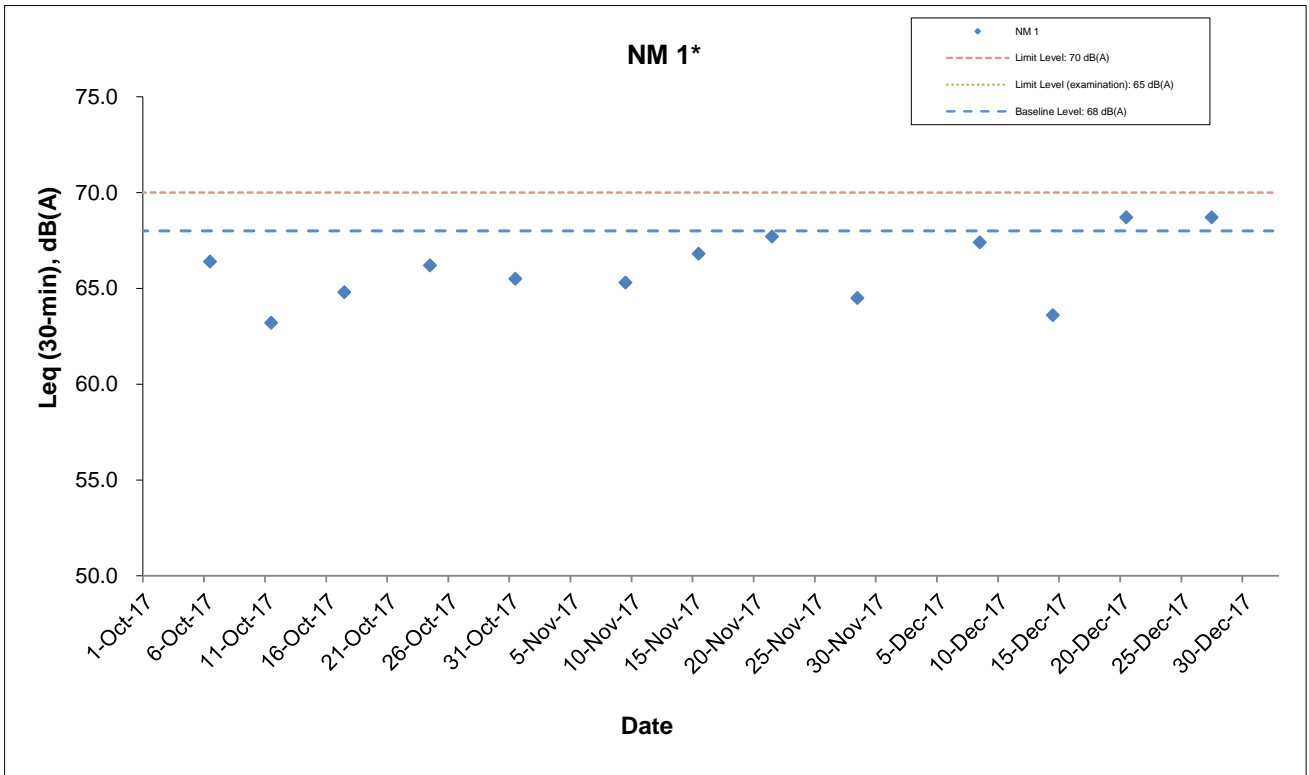
Daytime Noise Monitoring Results at Station NM 2 (No. 234 – 238 Chatham Road North)

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				
8-Dec-17	Fine	14:35	66.5	69.9	68.7	<Baseline	79.0	75	N
14-Dec-17	Sunny	10:50	66.5	74.8	71.2	<Baseline	79.0	75	N
20-Dec-17	Sunny	10:58	67.5	71.5	69.7	<Baseline	79.0	75	N
27-Dec-17	Fine	14:59	67.5	72.4	69.8	<Baseline	79.0	75	N

⁺ - Façade measurement

⁺⁺ - Free field measurement

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.

AECOM	Shatin to Central Link Works Contract 1111- Hung Hom North Approach Tunnels		SCALE	N.T.S.	DATE	Jan-18
	Graphical Presentations of Noise Monitoring Results		CHECK	TYUT	DRAWN	OYLW
			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	<ol style="list-style-type: none"> 1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Continuous Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action/Limit Level	1. Identify source ; 2. Repeat measurement. If two consecutive measurements exceed Action/Limit Level, the exceedance is then confirmed; 3. If exceedance is confirmed, notify IEC, ER and Contractor; 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented; 5. Discuss jointly with the IEC, ER and Contractor and formulate remedial measures; and 6. Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results.	1. Check monitoring data submitted by the Works Contract 1111 ET; 2. Check the Contractor's working method; 3. Discuss with the ER, Works Contract 1111 ET and Contractor on the potential remedial measures; and 4. Review and advise the Works Contract 1111 ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the Works Contract 1111 ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Ensure the proper implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source with the Works Contract 1111 ET; 2. If exceedance is confirmed, investigation the cause of exceedance and take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET of notification; 4. Implement the agreed proposals; 5. Liaise with ER to optimize the effectiveness of the agreed mitigation; 6. Revise and resubmit proposals if problem still not under control; and 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Landscape and Visual during Construction Stage

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

APPENDIX J

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

Appendix J

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. received in this month	Total no. received since project commencement
Environmental complaints	-	-	-	0	2
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					Actual Quantities of Marine Dumping Monthly		
	Generated					Disposed				Reused				Recycled			Disposed		Disposed		
	Fill Material	Artificial Material			Total Quantity Generated	Disposed as Public Fills at TKO137	Disposed 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)	Disposed as MD at HH Barging Point	
		Soil and Rock	Broken Concrete	Asphalt							Building Debris	Tolo								WIL 705	Type 1
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)	('000m ³)	('000m ³)	
Jan	1.094	0.000	0.000	0.000	1.094	0.092	0.039	0.000	0.131	0.000	0.000	0.000	0.963	0.963	0.000	0.776	0.000	0.000	120.720	0.000	0.000
Feb	1.137	0.000	0.000	0.000	1.137	0.343	0.028	0.000	0.372	0.000	0.000	0.000	0.766	0.766	0.000	1.024	0.000	0.000	100.550	0.000	0.000
Mar	0.875	0.000	0.000	0.000	0.875	0.203	0.008	0.000	0.211	0.000	0.000	0.000	0.664	0.664	0.000	0.654	0.000	0.000	118.440	0.000	0.000
Apr	0.755	0.000	0.000	0.000	0.755	0.039	0.000	0.000	0.039	0.000	0.000	0.000	0.716	0.716	0.000	0.770	0.000	0.000	48.990	0.000	0.000
May	0.507	0.000	0.000	0.000	0.507	0.094	0.011	0.000	0.106	0.000	0.000	0.000	0.402	0.402	0.000	0.981	0.001	0.000	113.400	0.000	0.000
Jun	0.463	0.000	0.000	0.000	0.463	0.162	0.023	0.000	0.185	0.000	0.000	0.000	0.278	0.278	0.001	0.759	0.002	0.000	82.720	0.000	0.000
SUB-TOTAL	4.833	0.000	0.000	0.000	4.833	0.934	0.109	0.000	1.043	0.000	0.000	0.000	3.789	3.789	0.001	4.964	0.003	0.000	584.820	0.000	0.000
Jul	0.469	0.000	0.000	0.000	0.469	0.166	0.008	0.000	0.173	0.000	0.000	0.000	0.296	0.296	0.000	0.000	0.006	0.000	160.660	0.000	0.000
Aug	0.396	0.000	0.000	0.000	0.396	0.181	0.011	0.000	0.192	0.000	0.000	0.000	0.204	0.204	0.000	1.563	0.000	0.000	105.500	0.000	0.000
Sep	1.293	0.000	0.000	0.000	1.293	0.273	0.046	0.000	0.318	0.000	0.000	0.000	0.975	0.975	0.000	0.000	0.003	0.000	60.260	0.000	0.000
Oct	1.756	0.000	0.000	0.000	1.756	0.187	0.032	0.000	0.219	0.000	0.000	0.000	1.537	1.537	0.001	0.000	0.001	0.000	95.430	0.000	0.000
Nov	1.453	0.000	0.000	0.000	1.453	0.133	0.086	0.000	0.219	0.000	0.000	0.000	1.234	1.234	0.001	0.000	0.001	0.000	90.620	0.000	0.000
Dec	1.179	0.000	0.000	0.000	1.179	0.348	0.074	0.000	0.422	0.000	0.000	0.000	0.757	0.757	0.000	0.000	0.001	0.000	51.200	0.000	0.000
2017 TOTAL	11.380	0.000	0.000	0.000	11.380	2.221	0.366	0.000	2.587	0.000	0.000	0.000	8.793	8.793	0.003	6.527	0.014	0.000	1148.490	0.000	0.000

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 in the period of 1 January 2015 to 1 August 2015 and handled by the Contractor of SCL1121 started from 3 August 2015.

Appendix C

**59th EM&A Report for Works Contract 1103 –
Hin Keng to Diamond Hill Tunnels**

MTR Corporation Limited

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

Monthly EM&A Report No. 59

[Period from 1 to 31 December 2017]

Works Contract 1103 – Hin Keng to Diamond Hill Tunnels

(January 2018)

Certified by: Jacky Chan 

Position: Environmental Team Leader

Date: 11 Jan 2018

MTR Corporation Limited

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

Monthly Environmental Monitoring
and Audit Report – December 2017

228105-27

January 2018

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

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ARUP

Contents

	Page
1 Environmental Status	6
1.1 Project Background	6
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	8
2 Implementation Status	9
2.1 Implementation Status of Mitigation Measures	9
2.2 Updated Implementation Schedule	9
3 Air Quality Monitoring	10
3.1 Air Quality Monitoring Requirements	10
3.2 Air Quality Monitoring Methodology	11
3.3 Monitoring Results and Observations	13
4 Noise Monitoring	14
4.1 Noise Monitoring Requirements	14
4.2 Noise Monitoring Methodology	15
4.3 Monitoring Results and Observations	16
5 Landscape and Visual Monitoring	18
5.1 Introduction	18
5.2 Mitigation Measures	18
6 Waste Disposal	19
7 Cultural Heritage	20
8 Hazard	21
9 Environmental Performance	22
9.1 Environmental Site Inspection	22
9.2 Summary of Environmental Complaint	22
9.3 Summary of Environmental Non-Compliance	23
9.4 Summary of Environmental Summon and Successful Prosecution	23

10	Future Key Issues	24
10.1	Key Issues for the Coming Month	24
10.2	Environmental Monitoring Program for the Coming Month	24
10.3	Construction Program for the Coming Month	24
11	Conclusions and Recommendations	25
11.1	Conclusions	25
11.2	Recommendations	25
12	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 fifty-ninth 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 December 2017 (1 to 31 December 2017).

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

- ELS Works and ABWF Works in Fung Tak;
- Site Formation at Hin Keng;
- C&S Works and ABWF Works at Ma Chai Hang; and
- Storage Area at Shui Chuen O.

Air Quality and noise monitoring were performed and the results were checked and reviewed. Site audits were conducted on a 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 2 air quality and 2 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 exceedence of Action / 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 760 m³ were generated and disposed of at public fill in TKO137FB/TM38FB and 94 m³ of general refuse was generated and disposed of at NENT/SENT/WENT landfill. 200 kg of chemical waste was generated.

Hazard

No blasting activity was carried out during the reporting month.

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 7 December 2017 and the final, an EIC joint site audit, was undertaken on 29 December 2017. No non-conformance to the environmental requirements was identified during the reporting period.

Complaint Log

No complaints were received during 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.

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.

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 ^[1]	Major Works Undertaken
Hin Keng	Site Formation
Fung Tak	ELS Works and ABWF Works
Ma Chai Hang	C&S Works and ABWF Works
Shiu Chuen O	Storage Area

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	Sammi Wong	3767 0268
SCL Project-wide Environmental Team Leader	Felice Wong	2688 1283
Independent Environmental Checker: Meinhardt Infrastructure & Environment Ltd.		
Independent Environmental Checker	Fredrick Leong	2859 1739
Contractor: VINCI Construction Grands Projets		
Project Director	Francois Dudouit	3765 5610
IMS Manager	Keith Lee	3765 5657
Contractor's Environmental Team: Ove Arup & Partners Hong Kong Ltd.		
Designated Environmental Team Leader for Works Contract 1103	Jacky Chan	2268 5292

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

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).

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/K	All	4 Oct 2016	Throughout the Contract
Discharge License under WPCO	WT00014650-2012	Hin Keng	10 Dec 2012	31 Dec 2017
	WT00014648-2012	Hin Keng	10 Dec 2012	31 Dec 2017
	WT00015145-2013	Shui Chuen O	21 Feb 2013	28 Feb 2018
	WT00015513-2013	Ma Chai Hang	2 Apr 2013	30 Apr 2018
	WT00015430-2013	Fung Tak	18 Mar 2013	31 Mar 2018
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation	351345	All	22 Oct 2012	15 Apr 2018
Construction Noise Permit	GW-RE0524-17	Ma Chai Hang	3 July 2017	2 Jan 2018
	GW-RE0976-17	Ma Chai Hang	3 Jan 2018	2 July 2018
	GW-RN0341-17	Hin Keng	23 May 2017	Superseded
	GW-RN0681-17	Hin Keng	5 Nov 2017	4 May 2017
	GW-RN0729-17	Hin Keng	20 Nov 2017	19 May 2017
Chemical Waste Producer Registration	5213-759-V2179-01	Hin Keng	13 Dec 2012	Throughout the Contract
	5213-281-V2179-03	Fung Tak	28 Feb 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 fifty-ninth monthly EM&A report summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the air quality, noise, ecology, waste management, landscape and visual monitoring and environmental site audit from 1 to 31 December 2017.

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 (November 2017)	14 December 2017

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 4)

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).

Note 4: The associated monitoring was carried out under Works Contract SCL1106 since October 2016.

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, 3763
Fibreglass Filter	G810		-
HVS Calibration Kit	TE-5025A		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 TE-5025A 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 m³/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

December 2017 was characterised largely by cold and dry conditions associated with the northeast monsoon. On occasion, warmer weather associated with a south westerly airstream affected Hong Kong.

3.3.2 Air Quality Monitoring Results

Monitoring of 24-hour TSP was conducted on 6, 12, 18, 23 and 29 December 2017. 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 ^(Note 1)		
DMS-1	78.8	43.0 – 119.5	148.7	260
DMS-2	81.6	56.5 – 102.4	167.4	260

Note:

Note 1: Range = Minimum TSP Value – Maximum TSP Value.

All 24-hour TSP measurements during the reporting month were below the Action/Limit Level. No exceedance of action and limit level was found.

The event and action plan is provided in **Appendix I**.

3.3.3 General Observations

Major construction works including Site Formation at Hin Keng; ELS Works and ABWF works at Fung Tak and Ma Chai Hang and storage at Shui Chuen O.

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)(Note 4)}

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).

Note 4: The associated monitoring was carried out under Works Contract SCL1106 since October 2016.

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.

4.1.2 Continuous Noise Monitoring

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, continuous noise monitoring was conducted in April 2013 at C.U.H.K.A.A. Thomas Cheung School only due to the prediction of residual airborne construction noise impacts exceeding the relevant noise criteria. No continuous noise monitoring is required during the reporting month as per the CNMP.

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	Bruel & Kjaer 2238	2654435	IEC 651 Type 1 IEC 804 Type 1
Sound level calibrator	Rion NC-74	35236437	IEC 942 Type 1

4.2.2 Maintenance and Calibration

The SLM and calibrator in compliance with the International Electrotechnical Commission (IEC) Publication 651:1979 (Type 1) and 804:1985 (Type 1) specifications according to the EM&A manual.

SLM complying with the standards of IEC 651 (Fast, Slow, Impulse rms detector tests) and IEC 804 (L_{eq} functions) and acoustical calibrator complying with IEC 942 were adopted for the noise measurement. All equipments are calibrated

externally. The calibration certificates for the noise equipment are given in **Appendix G**.

4.2.3 Monitoring Procedures

- The SLM and battery were checked to ensure that they are in proper condition. The SLM was set on a tripod at 1.2m above ground and at least 1m from the exterior of the building façade;
- Before conducting the measurement, the SLM was calibrated by an acoustical calibrator;
- Measurement parameter was set to A-weighted sound pressure level. The time weighting was set in fast response and the time period of measurement at 30 minutes;
- Wind speed was checked during noise monitoring to ensure the steady wind speed does not exceed 5m/s, or wind with gusts does not exceed 10m/s;
- Any abnormal conditions that generated intrusive noise during the measurement was recorded on the field record sheet;
- After each measurement, the equivalent continuous sound pressure level (L_{eq}), L_{10} and L_{90} were recorded on the field record sheet;
- After conducting the measurement, the SLM was calibrated by an sound level calibrator; and
- The SLM was re-calibrated by the sound level calibrator to confirm that there is no significant drift of reading. Measurements shall be accepted as valid only if the calibration levels before and after the noise measurement agrees to within 1.0 dB.

4.3 Monitoring Results and Observations

4.3.1 Weather Condition

December 2017 was characterised largely by cold and dry conditions associated with the northeast monsoon. On occasion, warmer weather associated with a south westerly airstream affected Hong Kong.

4.3.2 Noise Monitoring Results

Impact Monitoring

Monitoring of the construction noise level was conducted on 1, 7, 13, 19 and 27 December 2017. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix H** and are summarised in **Tables 4.5 - 4.6**. 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)
1-Dec-17	11:00-11:30	54.1	57.0	< Baseline Level	70/65
7-Dec-17	11:30-12:00	53.0		< Baseline Level	
13-Dec-17	11:00-11:30	54.6		< Baseline Level	
19-Dec-17	11:30-12:00	51.6		< Baseline Level	
27-Dec-17	11:30-12:00	55.6		< 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.

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)
1-Dec-17	09:00-09:30	58.5	66.0	< Baseline Level	70/65
7-Dec-17	09:00-09:30	59.4		< Baseline Level	
13-Dec-17	09:00-09:30	55.3		< Baseline Level	
19-Dec-17	09:30-10:00	60.9		< Baseline Level	
27-Dec-17	09:30-10:00	60.3		< 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 exceedance of Action / 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 14 and 28 December 2017. 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	760 m ³ (Total)	TKO137FB/TM38FB
Inert C&D Materials	0 m ³	Reused in the Contract
Chemical Waste	200 kg	Disposed of by a licensed collector
Paper / cardboard packaging	0 kg	-
Plastic	0 kg	
Metal	0 kg	
General Refuse	94 m ³	NENT/SENT/WENT Landfill

7 Cultural Heritage

In accordance with the EM&A Manual, appropriate vibration monitoring on the identified built heritage has been agreed with the Building Department (BD)/Geotechnical Engineering Office (GEO) under the requirement of Buildings Ordinance and/or Blasting Permit as appropriate. Vibration monitoring was not conducted at Wong Tai Sin Temple since no TBM was in operation during the reporting month.

8 Hazard

No blasting activity was carried out during the reporting month.

9 Environmental Performance

9.1 Environmental Site Inspection

Environmental site inspections were carried out on a weekly basis, with the IEC joint site inspection being carried out on 28 December 2017 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 9.1**.

Table 9.1 Key Findings of Weekly Environmental Site Audit

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
Air				
7 December 2017	Fung Tak	The contractor is reminded to ensure that stockpiles are properly covered.	Agreed with ET's Advice.	The contractor rectified the issue and ensured that the stockpiles were covered. Closed 14 December 2017.
28 December 2017	Ma Chai Hang	The contractor is reminded to ensure that dusty stockpiles are properly covered.	Agreed with ET's Advice.	The contractor noted this issue and will report the status in the next reporting month.
Waste				
14 and 21 December 2017	Ma Chai Hang	The contractor is reminded to practice proper housekeeping and ensure that general waste is regularly disposed.	Agreed with ET's Advice	The contractor rectified the issue and ensure that general waste was properly disposed. Closed 28 December 2017.

9.2 Summary of Environmental Complaint

One environmental complaint was recorded in the reporting month. The updated statistical summary of complaint is presented in **Table 9.2**. The updated complaint logs are shown in **Appendix L**.

Table 9.2 Summary of Complaints

Reporting Period	Complaint Statistics	
	Number	Cumulative
01/12/17 – 31/12/17	0	23

9.3 Summary of Environmental Non-Compliance

There was no non-compliance identified during the reporting month so review of the non-compliance was not required.

9.4 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.

10 Future Key Issues

10.1 Key Issues for the Coming Month

Works to be undertaken in the coming reporting month are summarised in **Table 10.1** below.

Table 10.1 Tentative Programme of Construction Works for the Coming Month

Locations ^[1]	Major Works Undertaken
Hin Keng	Site Formation
Fung Tak	ELS Works and ABWF Works
Ma Chai Hang	C&S Works and ABWF Works
Shiu Chui O	Storage Area

10.2 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**.

10.3 Construction Program for the Coming Month

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

11 Conclusions and Recommendations

11.1 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 / Limit Level of regular construction noise was recorded during the reporting month.

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 complaints were received during the reporting period. No 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.

11.2 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.

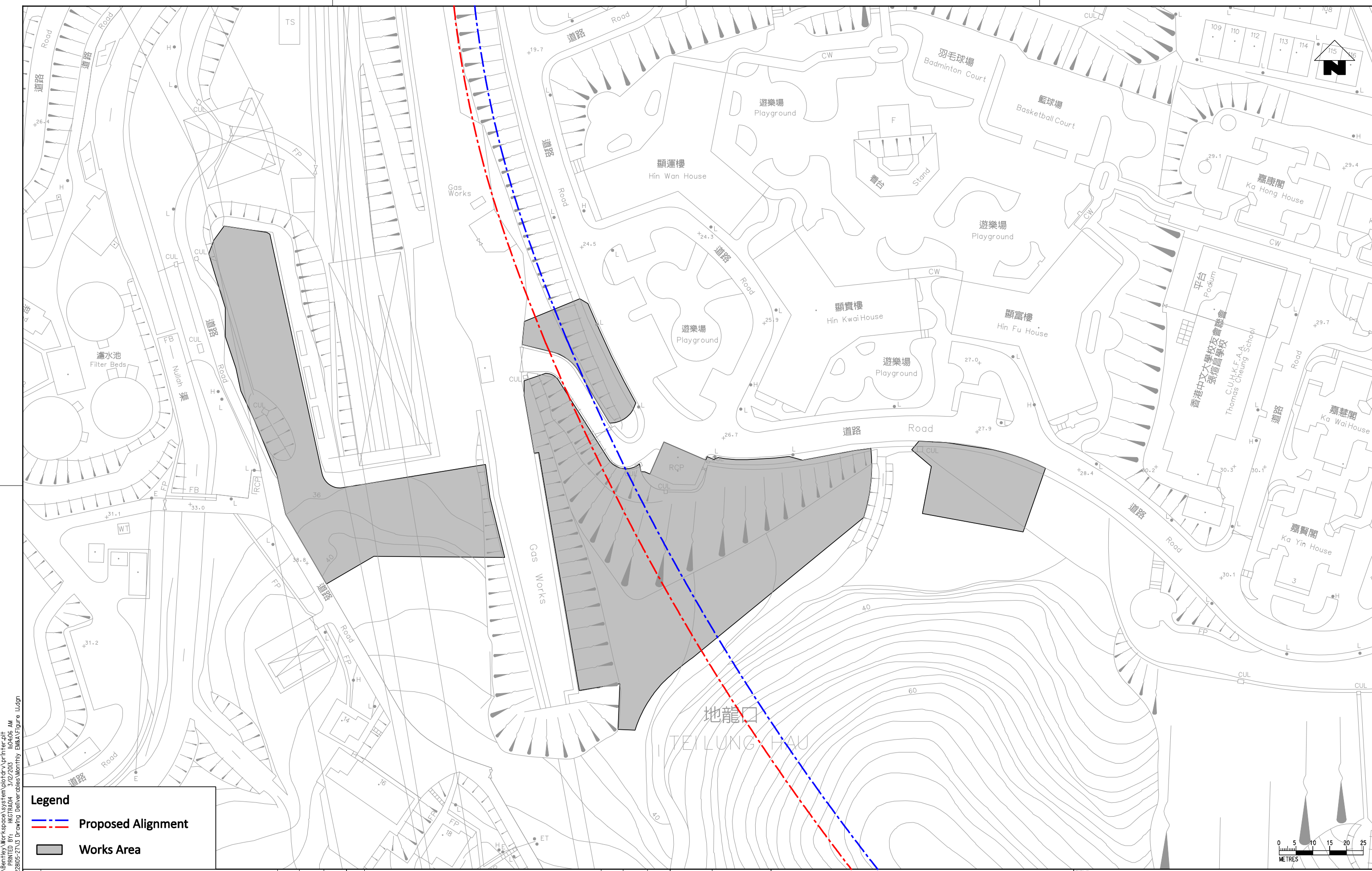
Construction dust is also key environmental issue. The implemented construction dust mitigation measures including covering of exposed slope / soil with tarpaulin

sheet etc., should be maintained and improved as necessary. Adequate water spraying should be provided for the unpaved area to minimize dust disturbance.

12 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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- - - Proposed Alignment
- Works Area

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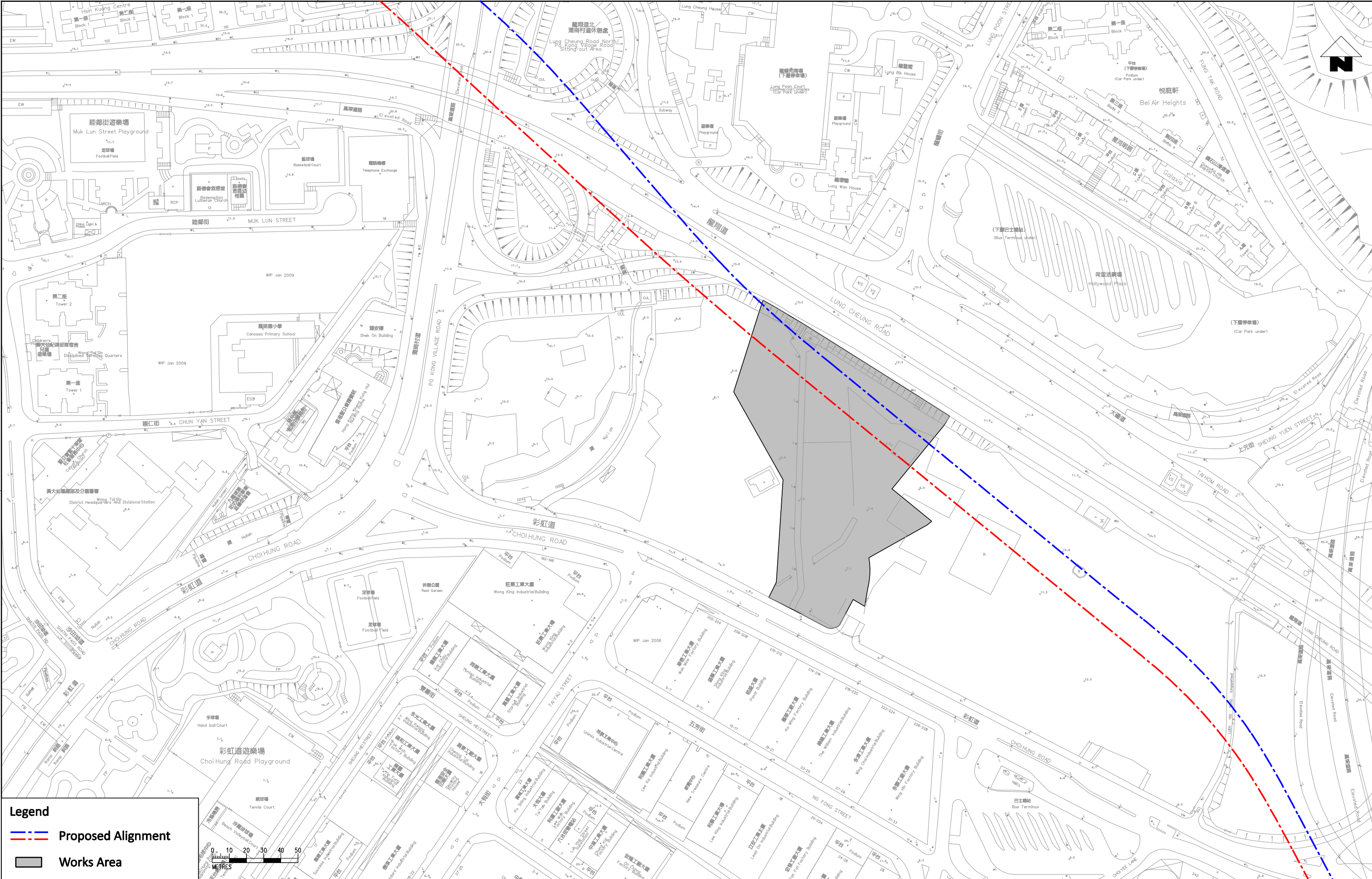
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TITLE

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

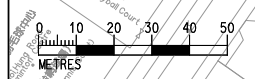
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- Proposed Alignment
- Works Area



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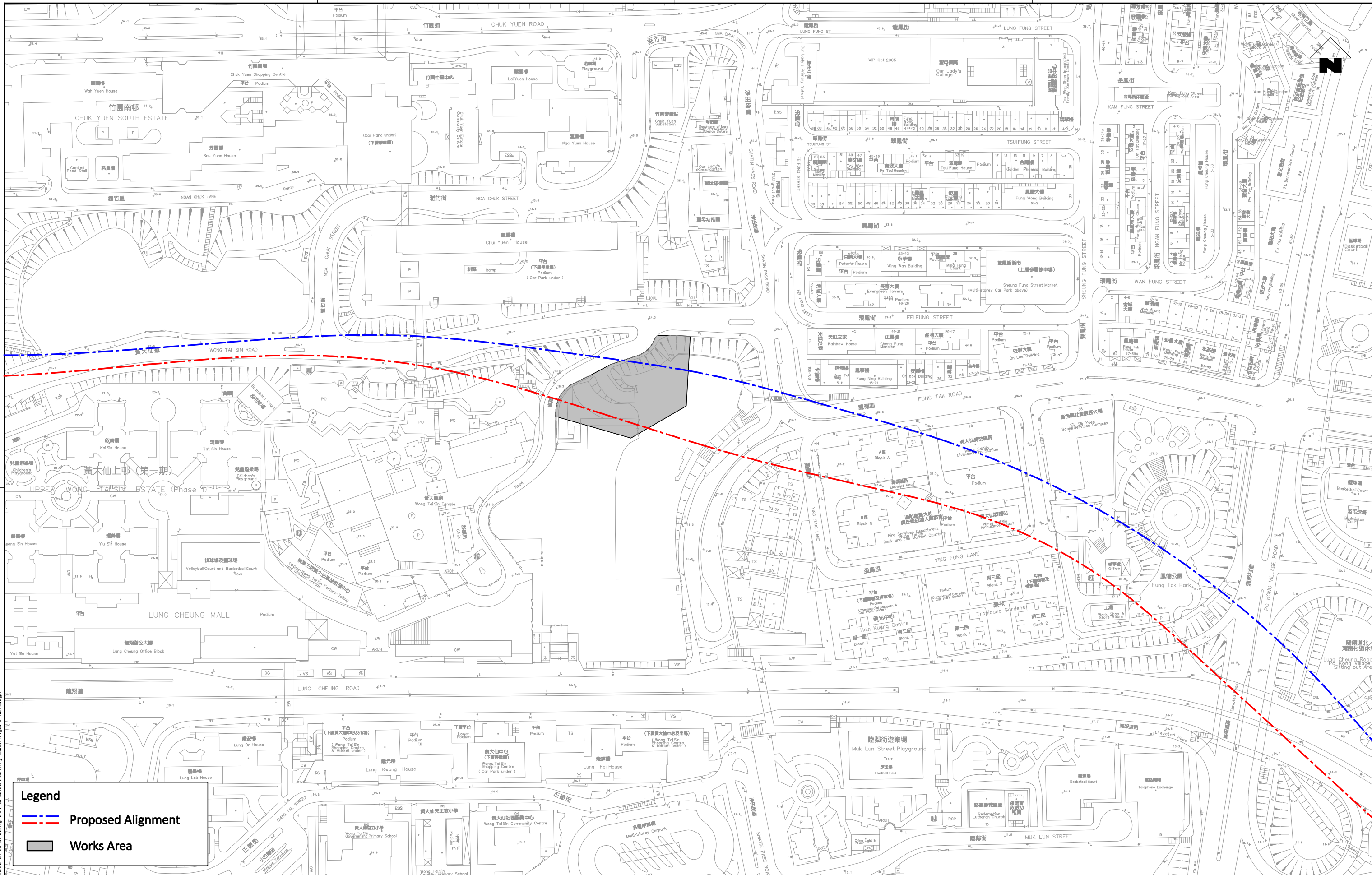
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CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Project Works Areas
 - General Site Layout of Diamond Hill Works Area
 (Sheet 2 of 6)

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- - - Proposed Alignment
- Works Area

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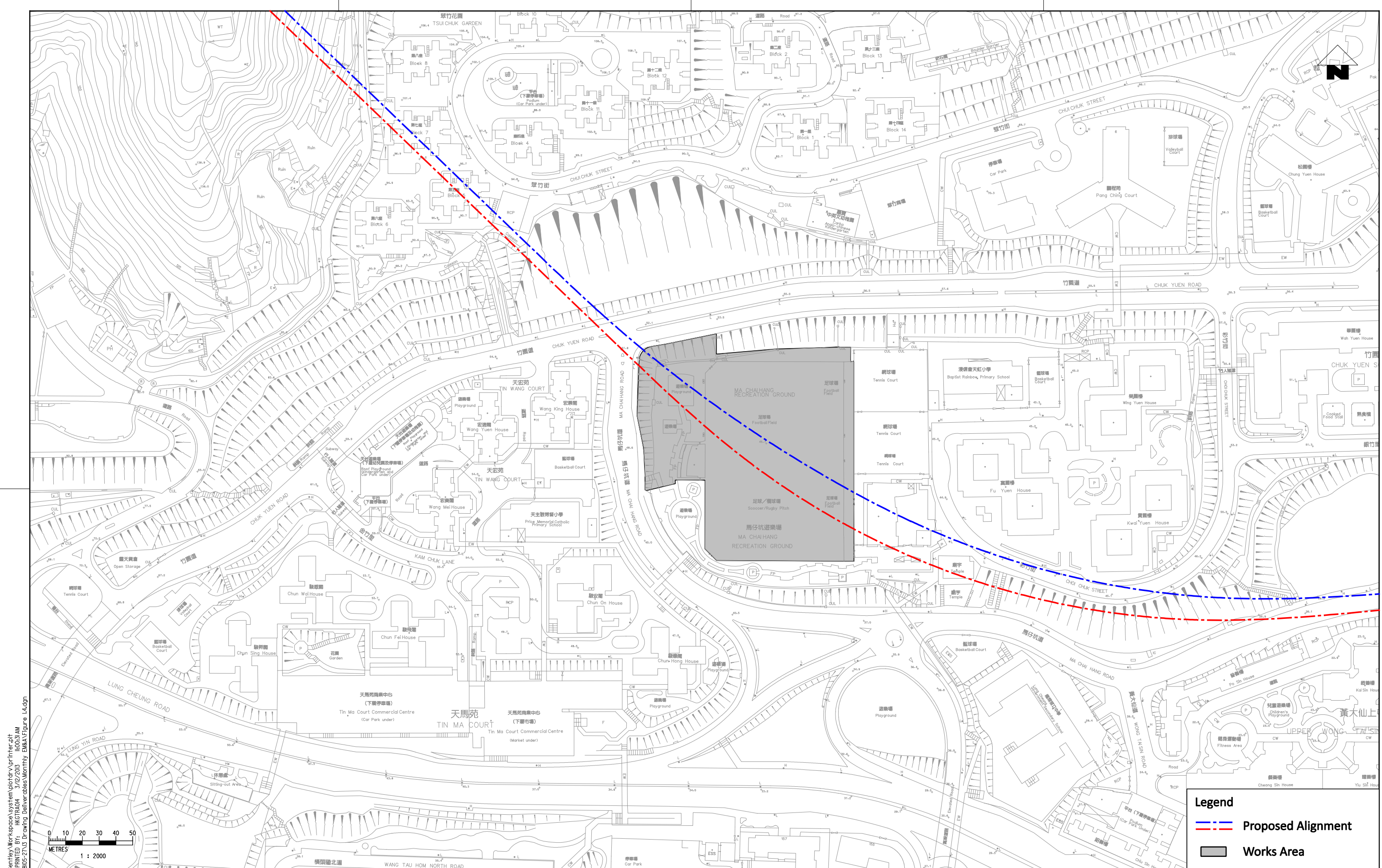
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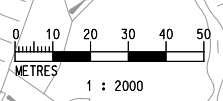
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TITLE		CONTRACT 1103	
HIN KENG TO DIAMOND HILL TUNNELS		Locations of Project Works Areas - Site Layout Plan of Fung Tak EAP/EEP Building (Sheet 3 of 6)	
SCALE	DRAWING NO.	REV.	
1:2000 (A3)	Figure 1.3	A	

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED
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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)

SCALE
 1:2000 (A3)

DRAWING NO.
 Figure 1.4

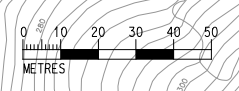
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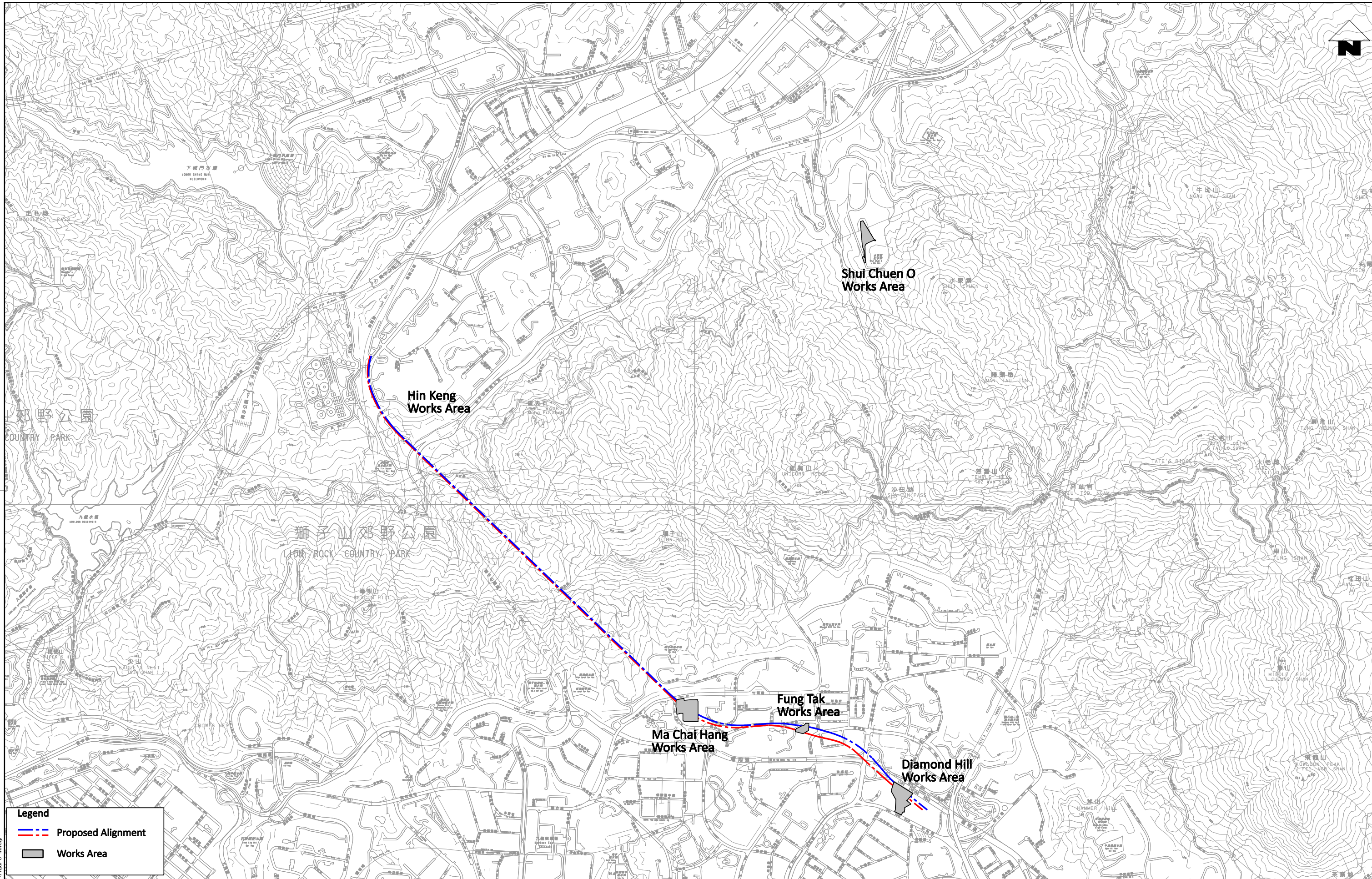
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Works Area



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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)
				A FIRST ISSUE GL 02/13 ST			ORIGINATOR ARUP Ove Arup & Partners Hong Kong Limited		DRAWING NO. Figure 1.5		
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- --- Proposed Alignment
- Works Area

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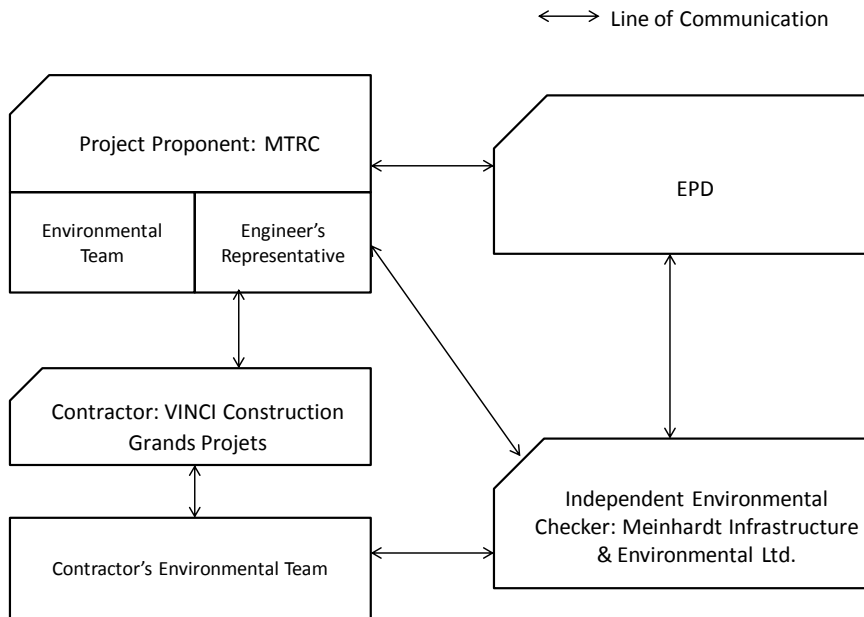
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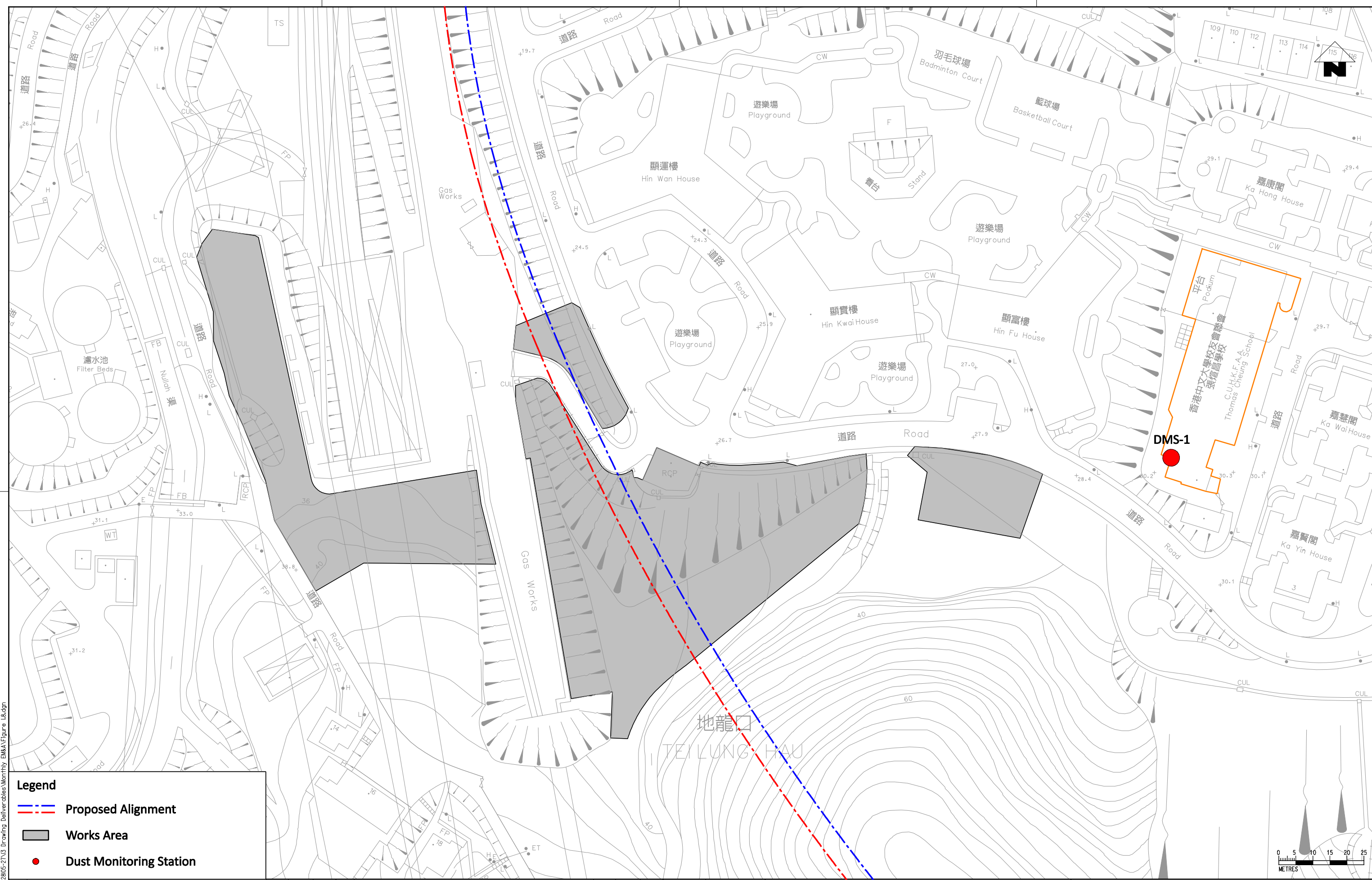
TITLE CONTRACT 1103 HIN KENG TO DIAMOND HILL TUNNELS Locations of Project Works Areas - General Alignment of Contract 1103 (Sheet 6 of 6)		SCALE 1:20000 (A3)	DRAWING NO. Figure 1.6	REV. B
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Figure 1.7 - Project Organisation for Environmental Works



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

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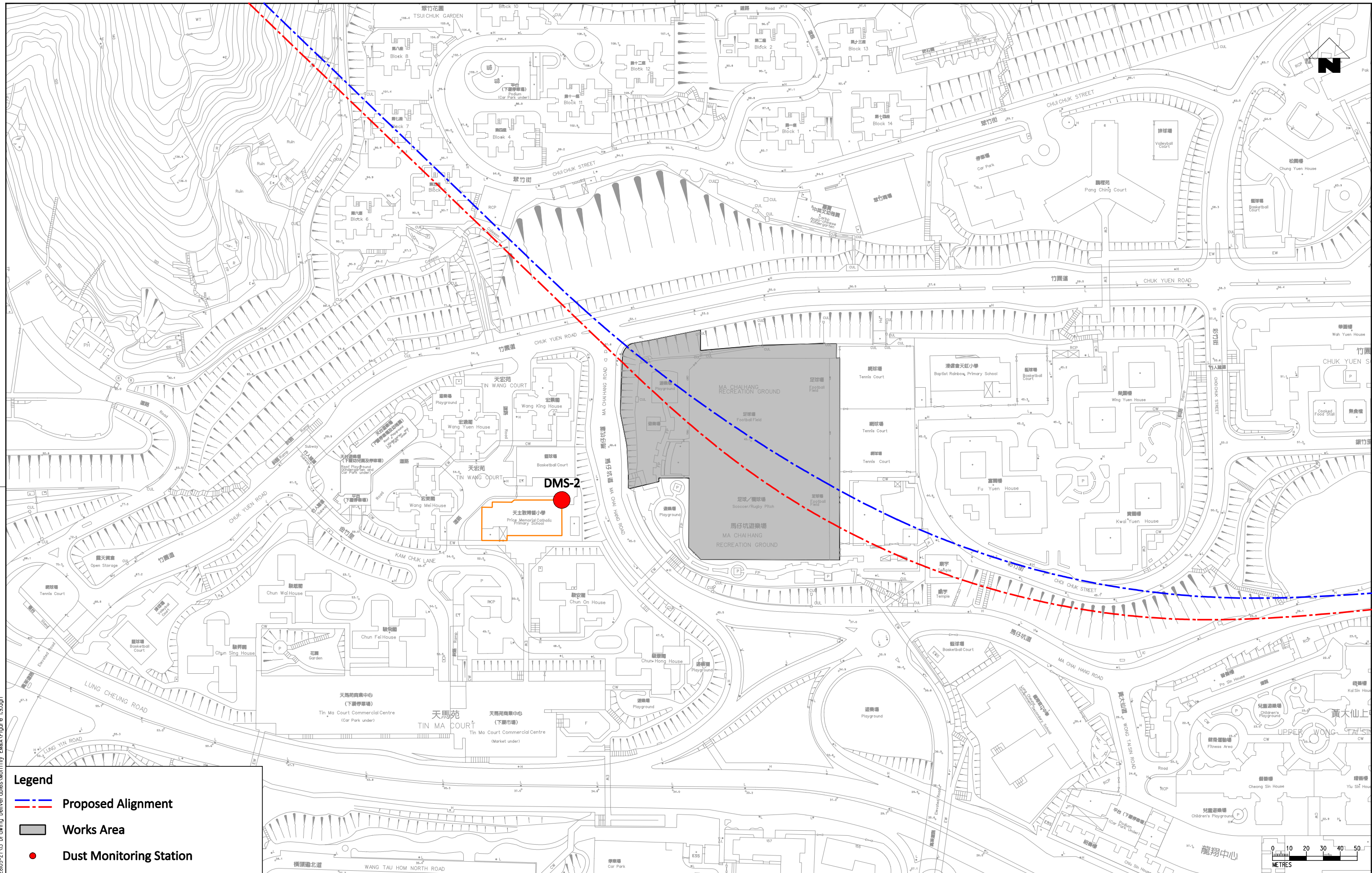
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Hong Kong Limited

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TITLE		CONTRACT 1103	
		HIN KENG TO DIAMOND HILL TUNNELS	
		Locations of Proposed Dust Monitoring Stations	
		(Sheet 1 of 3)	
SCALE	DRAWING NO.	REV.	
1:1000 (A3)	Figure 1.8	A	

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

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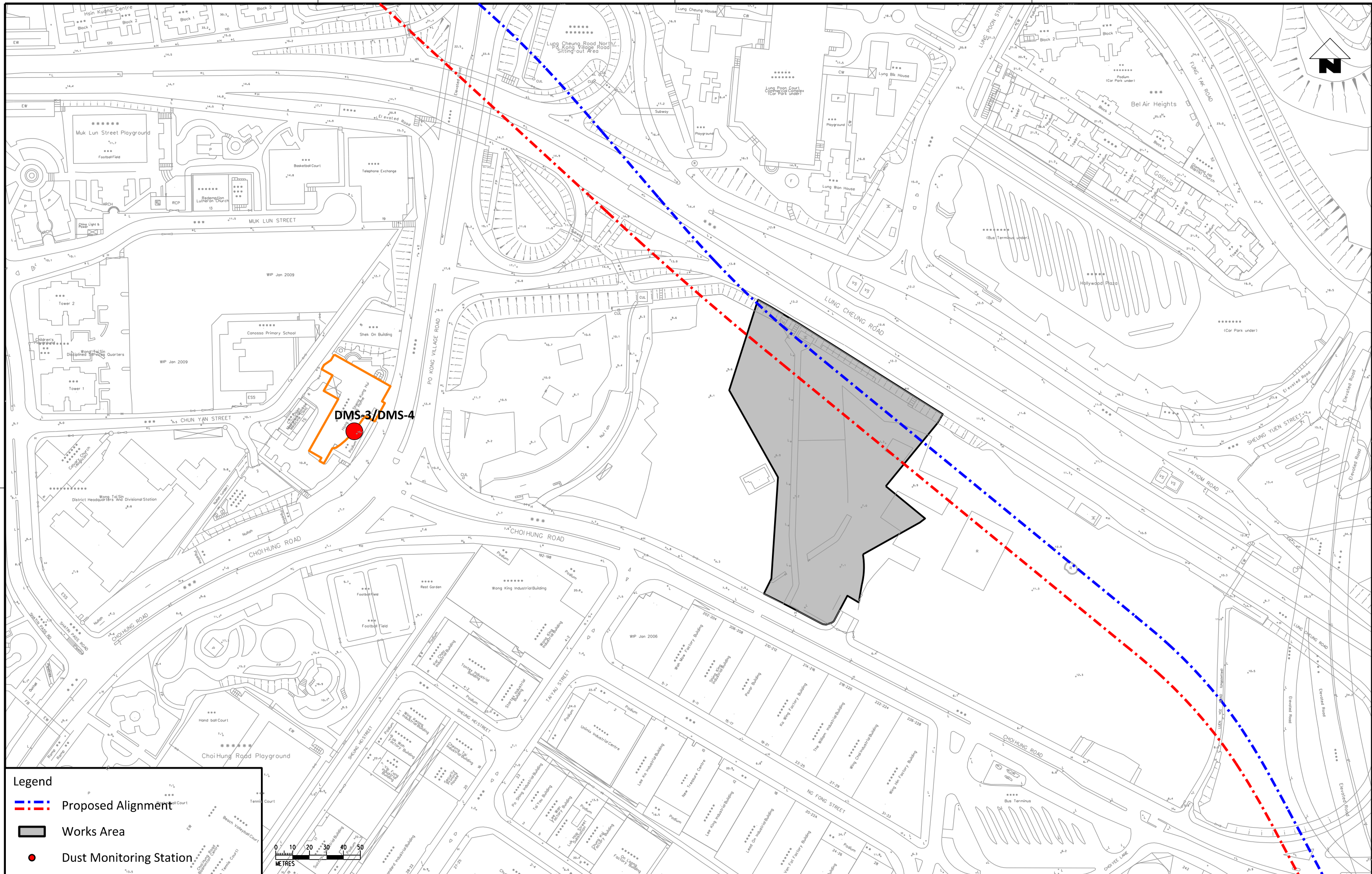
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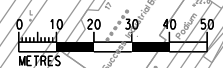
TITLE CONTRACT 1103 HIN KENG TO DIAMOND HILL TUNNELS Locations of Proposed Dust Monitoring Stations (Sheet 2 of 3)		SCALE 1:2000 (A3)	DRAWING NO. Figure 1.9	REV. A
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Legend

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



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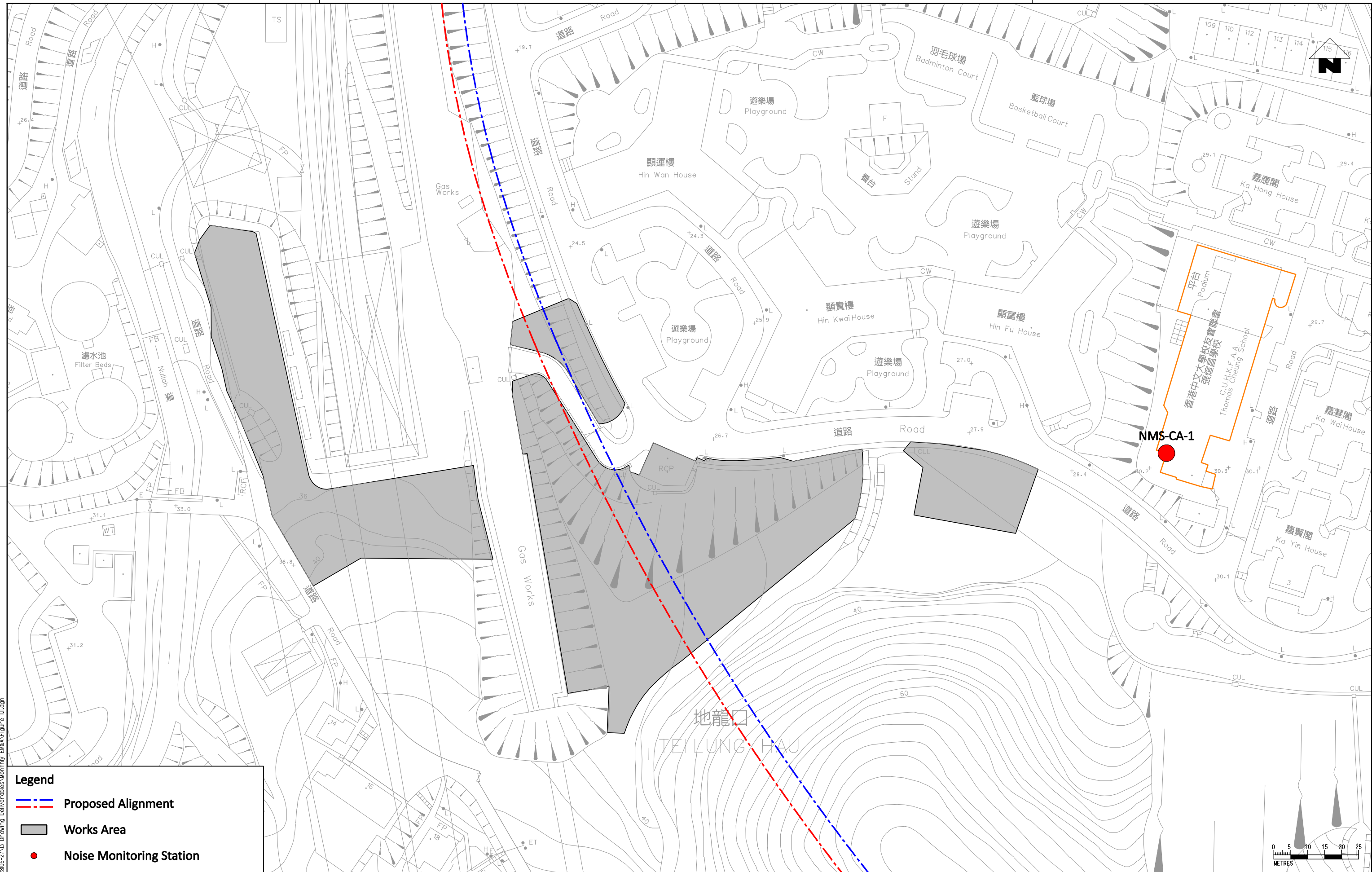
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CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Proposed Dust Monitoring Stations
 (Sheet 3 of 3)

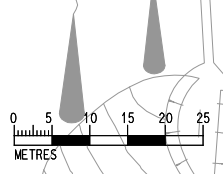
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Legend

- Proposed Alignment
- Works Area
- Noise Monitoring Station

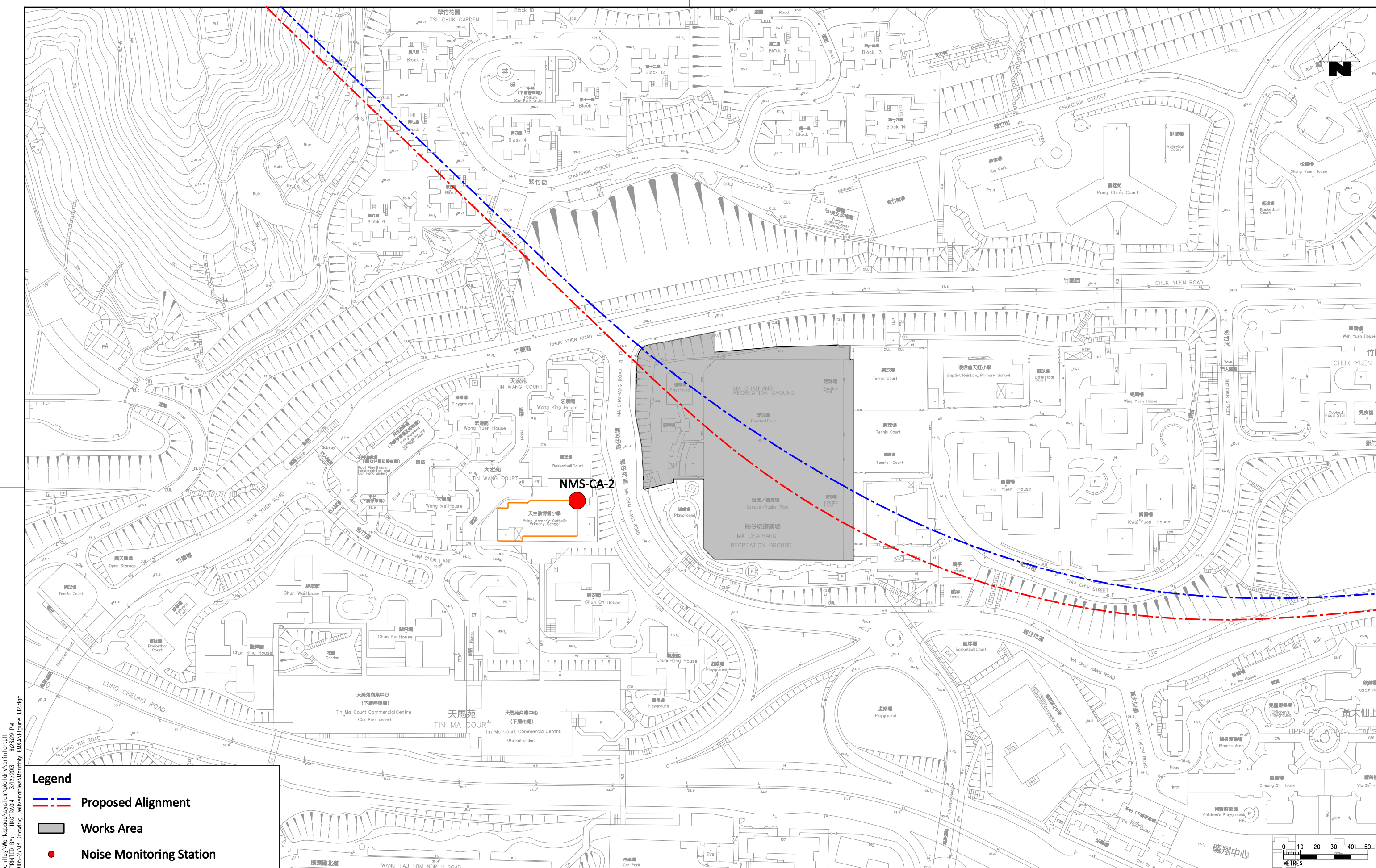


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TITLE	SCALE	DRAWING NO.	REV.
CONTRACT 1103 HIN KENG TO DIAMOND HILL TUNNELS Locations of Noise Monitoring Stations (Construction Airborne Noise) (Sheet 1 of 3)	1:1000 (A3)	Figure 1.11	A



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

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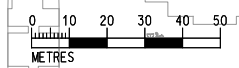
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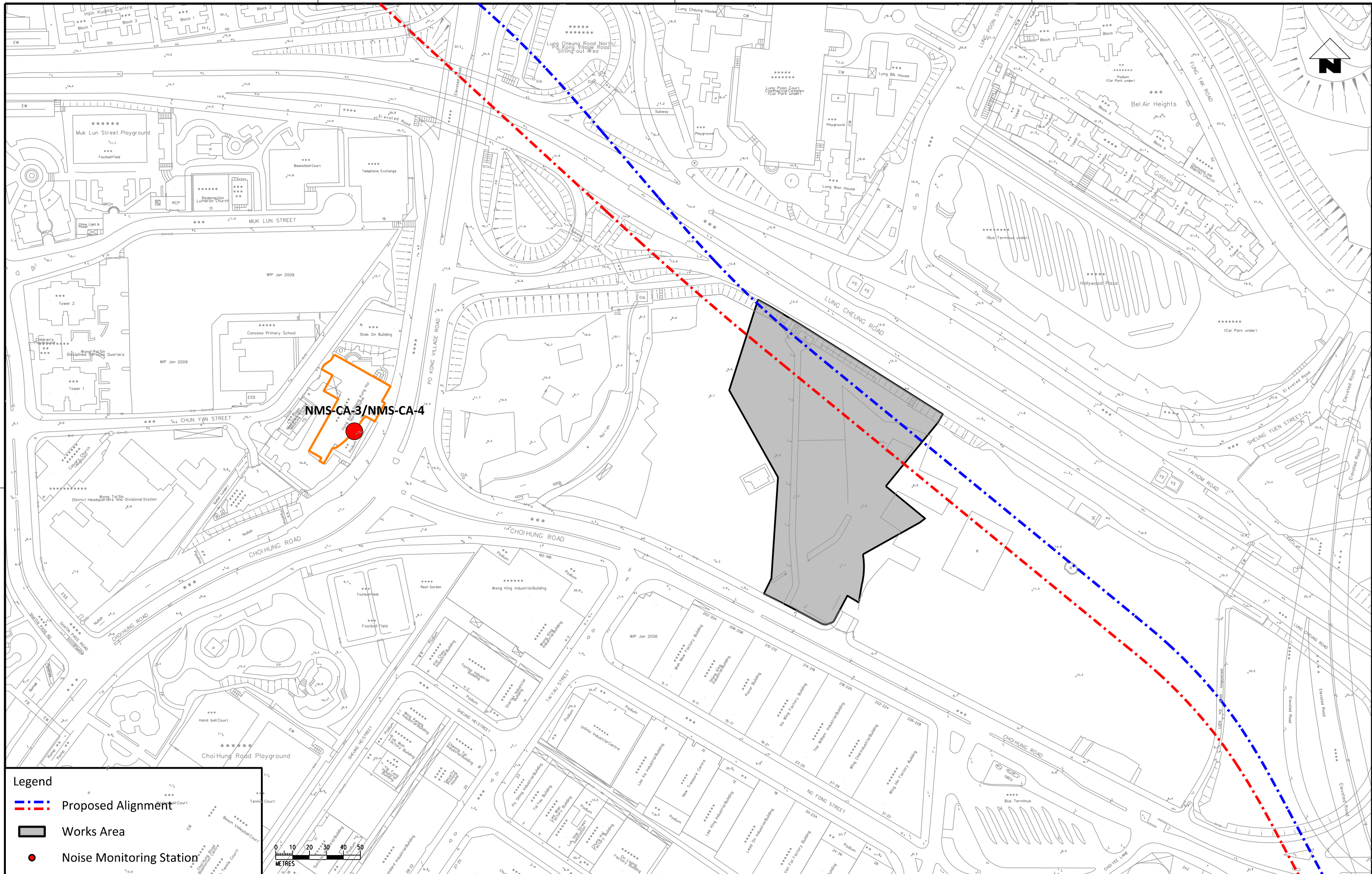
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TITLE
 CONTRACT 1103
 HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Noise Monitoring Stations
 (Construction Airborne Noise)
 (Sheet 2 of 3)

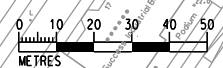
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Legend

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



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

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DRAWING NO. Figure 1.13

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Appendix A

Construction Programme

Activity ID	Activity Name	Original Duration	Start	Finish	Physical % Complete	Total Float	2017				2018																									
							December				January				February				March				April													
							03	10	17	24	31	07	14	21	28	04	11	18	25	04	11	18	25	01	08	15	22	29								
CONTRACT 1103:- HIN KENG TO DIAMOND HILL TUNNELS																																				
PROJECT DATES																																				
Schedule of Critical Dates (FOT A3)																																				
Schedule of Critical Dates (FOT A3) - Contractor's Achievement																																				
Schedule of Access Dates for Works Areas (PS A F3)																																				
Schedule of Access Dates for Designated Contractors (PS A I)																																				
Programme Data (PS A C2) Schedule of Power On Dates																																				
COST CENTER A - PRELIMINARIES																																				
Milestone Schedule - Preliminaries																																				
COST CENTER F - MA CHAI HANG VENTILATION BUILDING (MCV)																																				
COST CENTER F - Milestone Schedule - MCV																																				
MCV - TTM Scheme																																				
MCV - Shaft Excavation and ELS																																				
MCV - C&S Works																																				
MCV - ABWF																																				
COST CENTER G - FUNG TAK EAP/EEP BUILDING (FTA)																																				
COST CENTER G - Milestone Schedule - FTA																																				
FTA - C&S Works																																				
COST CENTER H - HIN KENG WORKING SHAFT																																				
COST CENTER H - Milestone Schedule - HIK Shaft																																				
HIK - Site Formation																																				
COST CENTER I - MAINTENANCE SHED IN MA CHAI HANG (N/A)																																				
Maintenance Shed - C&S Works																																				
COST CENTER L - ASSOCIATED WORKS																																				
Instrumentation and Monitoring																																				
Association Works - MCV Building																																				
Association Works - HIK Shaft																																				
COST CENTER M - RRIW																																				
COST CENTER M - Milestone Schedule - RRIW (Revised by MTR)																																				
COST CENTER M - Milestone Schedule - RRIW (TBA)																																				
RRIW - at Ma Chai Hang																																				
RRIW - Fung Tak Public Transport Terminus (PTT)																																				
COST CENTER N - OPTION 1: FUNG TAK PILE REMOVAL WORKS (Works Complete)																																				
COST CENTER N - Milestone Schedule - Option 1 (Milestones Not Applicable)																																				
Preliminaries and General																																				

▲ Milestone	▲ Actual MS	■ Baseline (Last Month)
▲ Critical Milestone	■ Remaining Level of Effort	■ Actual Work
■ Critical Remaining Work	■ Actual Level of Effort	◆ Baseline Milestone
■ Remaining Work	■ Baseline (RMP)	◆ Baseline Milestone

**Three Month Rolling Programme
As of 31-DEC-2017**

Date	Revision	Checked	Approved
31-Dec...	Submission for MTR Info...	KK	EC

Appendix B

Environmental
Monitoring
Programme in
Reporting Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Impact Monitoring Schedule - December 2017**

Date		Air Quality	Noise	Site Inspection
		24-hours TSP	L_{Aeq} , 30 min	
1-Dec-17	Fri			
2-Dec-17	Sat			
3-Dec-17	Sun			
4-Dec-17	Mon			
5-Dec-17	Tue			
6-Dec-17	Wed			
7-Dec-17	Thu			
8-Dec-17	Fri			
9-Dec-17	Sat			
10-Dec-17	Sun			
11-Dec-17	Mon			
12-Dec-17	Tue			
13-Dec-17	Wed			
14-Dec-17	Thu			
15-Dec-17	Fri			
16-Dec-17	Sat			
17-Dec-17	Sun			
18-Dec-17	Mon			
19-Dec-17	Tue			
20-Dec-17	Wed			
21-Dec-17	Thu			
22-Dec-17	Fri			
23-Dec-17	Sat			
24-Dec-17	Sun			
25-Dec-17	Mon			
26-Dec-17	Tue			
27-Dec-17	Wed			
28-Dec-17	Thu			
29-Dec-17	Fri			
30-Dec-17	Sat			
31-Dec-17	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	24-hour TSP
Noise	NMS-CA-1 - C.U.H.K.A.A Thomas Cheung School, NMS-CA-2 - Price Memorial Catholic Primary School	$L_{Aeq(30\text{ min})}$, 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> <p align="center">✓</p>

Notes (*): ✓ - Compliance; N/A – Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C – Non Compliance

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		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 1048 639">• <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="353 655 1048 831">• <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="353 847 1048 1086">• <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	Rdr
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	✓

Environmental Mitigation Implementation Schedule – Works Contract 1103

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		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

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		<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	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	All construction sites	Construction stage	• Annex 5, TM-EIA	<p align="center">✓</p>
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	<p align="center">✓</p>

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

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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">✓</p>

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S14.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	All construction sites	Construction stage	<ul style="list-style-type: none"> • EIAO Guidance Note No.4/2010 • TM-EIAO 	✓
S14.2 – 14.4	EM2	<p>1) An Environmental Team needs to be employed as per the EM&A Manual.</p> <p>2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.</p> <p>3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.</p>	Perform environmental monitoring & auditing	All construction sites	Construction stage	<ul style="list-style-type: none"> • EIAO Guidance Note No.4/2010 • TM-EIAO 	<p>✓</p> <p>✓</p> <p>✓</p>

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 0.2.1 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		N/A
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	N/A
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		N/A
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.		N/A
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		N/A
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		

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
		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.					N/A
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		N/A
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		N/A
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		N/A
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		N/A
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		N/A
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		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	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		N/A
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		N/A
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		N/A
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		N/A
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		N/A
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		N/A
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	-	Construction phase		N/A

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
			transport of detonator				
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		N/A
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		N/A
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		N/A
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		N/A
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 Government.	To ensure that the risks from the proposed explosives storage would not be unacceptable	Temporary explosives magazine	Construction phase		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	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		N/A
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		N/A
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		N/A
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		N/A
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		N/A
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		N/A
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 adjacent contracts.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		N/A
Chapter	A13B.7	Shotfirer to be provided with a lightning detector, and appropriate	To ensure safe use of	Along tunnel	Construction		N/A

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
13.13	.2	control measures should be in place.	explosives	alignment	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		N/A
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		N/A
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		N/A
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		N/A
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
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	To reduce the risks to the SCL staff, construction workers and passengers	-	Construction and operation phases		N/A

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
		of the SCL train traffic in order to prevent the trains moving into the affected areas.)					
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		N/A

Appendix D

Calibration
Certificates for Air
Monitoring
Equipment

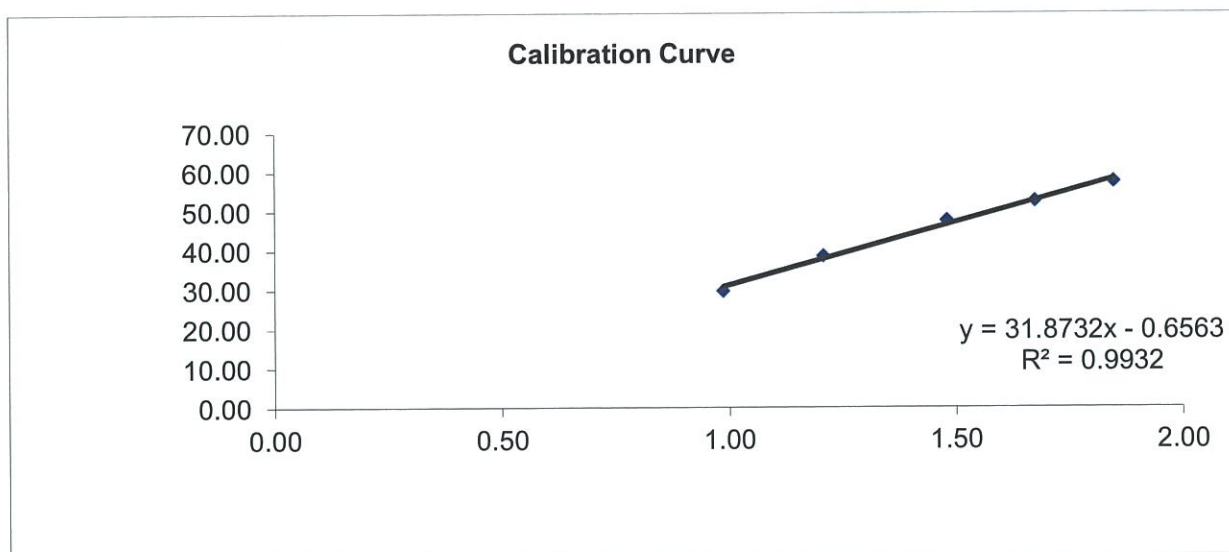
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	2-Nov-17	Barometric pressure	760 mm Hg
Next Calibration date	29-Dec-17	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	TE-5025A
Calibrator serial number	2421
Slope of the standard curve, m _s	2.00576
Intercept of the standard curve, b _s	0.00519

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	4.00	30.00	0.99	29.75
7	6.00	39.00	1.21	38.68
10	9.00	48.00	1.48	47.60
13	11.50	53.00	1.67	52.56
18	14.00	58.00	1.85	57.52



Linear Regression

Sampler slope (m) :	31.8732
Sampler intercept (b) :	-0.6563
Correlation coefficient (R ²) :	0.9932

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

Performed by: 

Date: 2 Nov 2017

Checked by: 

Date: 2 Nov 2017

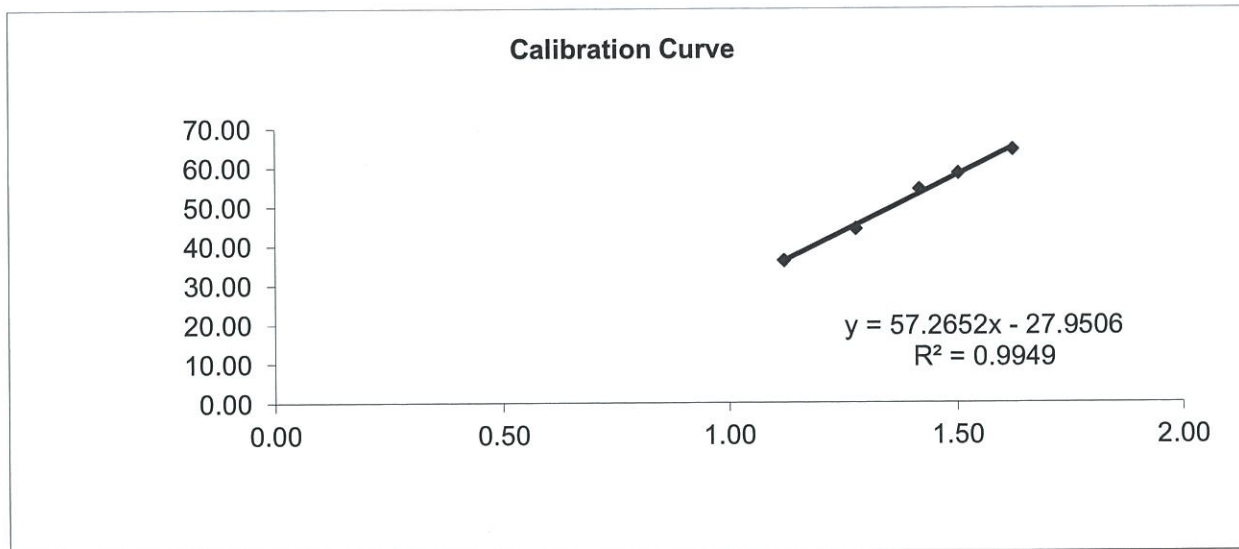
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	2-Nov-17	Barometric pressure	760 mm Hg
Next Calibration date	29-Dec-17	Temperature (°C)	21 °C
Sampler location	DMS2 - Price Memorial Catholic Prii	Temperature (K)	294 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	3761	T _{std}	298 K

Calibrator model	TE-5025A
Calibrator serial number	2421
Slope of the standard curve, m _s	2.00576
Intercept of the standard curve, b _s	0.00519

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	5.00	36.00	1.12	36.24
7	6.50	44.00	1.28	44.30
10	8.00	54.00	1.42	54.37
13	9.00	58.00	1.50	58.39
18	10.50	64.00	1.62	64.43



Linear Regression

Sampler slope (m) :	57.2652
Sampler intercept (b) :	-27.9506
Correlation coefficient (R ²) :	0.9949

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

Performed by: 

Date: 2 Nov 2017

Checked by: 

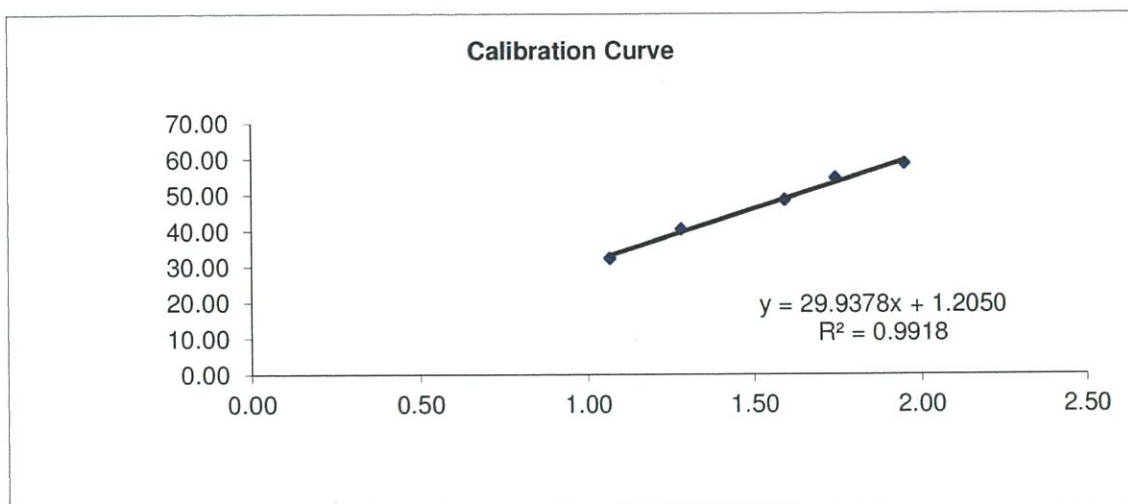
Date: 2 Nov 2017

Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	28-Dec-17	Barometric pressure	760 mm Hg
Next Calibration date	26-Feb-18	Temperature (°C)	18 °C
Sampler location	DMS1 - Thomas Cheung School	Temperature (K)	291 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	3763	T _{std}	298 K
Calibrator model	TE-5025A		
Calibrator serial number	2421		
Slope of the standard curve, m _s	2.00576		
Intercept of the standard curve, b _s	0.00519		

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	4.50	32.00	1.07	32.38
7	6.50	40.00	1.28	40.48
10	10.00	48.00	1.59	48.57
13	12.00	54.00	1.75	54.65
18	15.00	58.00	1.95	58.69



Linear Regression

Sampler slope (m) : **29.9378**
 Sampler intercept (b) : **1.2050**
 Correlation coefficient (R²) : **0.9918**

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

Performed by: 
 Checked by: 

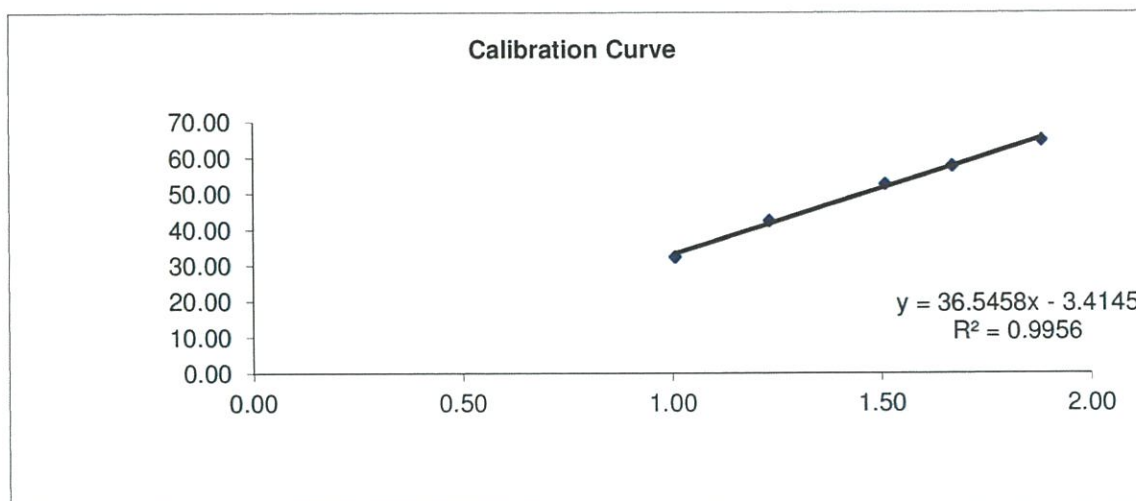
Date: 28-12-17
 Date: 28-12-17

Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	28-Dec-17	Barometric pressure	760 mm Hg
Next Calibration date	26-Feb-18	Temperature (°C)	18 °C
Sampler location	DMS2 - Price Memorial Catholic Pri	Temperature (K)	291 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	3761	T _{std}	298 K
Calibrator model		TE-5025A	
Calibrator serial number		2421	
Slope of the standard curve, m _s		2.00576	
Intercept of the standard curve, b _s		0.00519	

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	4.00	32.00	1.01	32.38
7	6.00	42.00	1.23	42.50
10	9.00	52.00	1.51	52.62
13	11.00	57.00	1.67	57.68
18	14.00	64.00	1.89	64.77



Linear Regression

Sampler slope (m) : **36.5458**
 Sampler intercept (b) : **-3.4145**
 Correlation coefficient (R²) : **0.9956**

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

Performed by: 
 Checked by: 

Date: 28-12-17
 Date: 28-12-17



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jan 03, 2017 Roots-meter S/N 0438320 Ta (K) - 295
 Operator Tisch Orifice I.D. - 2421 Pa (mm) - 742.95

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	1.4090	3.2	2.00
2	NA	NA	1.00	0.9910	6.4	4.00
3	NA	NA	1.00	0.8820	7.9	5.00
4	NA	NA	1.00	0.8430	8.8	5.50
5	NA	NA	1.00	0.6940	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9832	0.6978	1.4054	0.9957	0.7066	0.8911
0.9790	0.9879	1.9875	0.9914	1.0004	1.2603
0.9769	1.1076	2.2221	0.9893	1.1216	1.4090
0.9758	1.1575	2.3305	0.9881	1.1722	1.4778
0.9706	1.3985	2.8107	0.9829	1.4162	1.7823
Qstd slope (m) = 2.00576			Qa slope (m) = 1.25597		
intercept (b) = 0.00519			intercept (b) = 0.00329		
coefficient (r) = 0.99997			coefficient (r) = 0.99997		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

$$Qstd = Vstd/Time$$

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

$$Qa = Va/Time$$

For subsequent flow rate calculations:

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

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

Appendix E

Dust Results

Location: DMS-1 - C.U.H.K.A.A. Thomas Cheung School

Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m ³ /min)		Average Flow Rate (m ³ /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m ³)	24-hour TSP Level (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
103668	Dec-17	6-Dec-17	0:00	0:00	DMS1	Fine	Normal Operation	763.9	763.7	18.8	19.4	40.0	40.0	2.7977	2.8785	0.0808	1.3069	1.3056	1.3063	7190.87	7214.87	1440.00	1881.00	43.0	148.7	260.0
103670	Dec-17	12-Dec-17	0:00	0:00	DMS1	Fine	Normal Operation	763.8	763.3	18.6	18.4	38.0	38.0	2.8166	3.0316	0.2150	1.2490	1.2490	1.2490	7214.88	7238.88	1440.00	1798.56	119.5	148.7	260.0
103672	Dec-17	18-Dec-17	0:00	0:00	DMS1	Fine	Normal Operation	769.1	769.2	12.8	13.6	42.0	42.0	2.8063	3.0120	0.2057	1.3822	1.3805	1.3814	7238.89	7262.89	1440.00	1989.14	103.4	148.7	260.0
103674	Dec-17	23-Dec-17	0:00	0:00	DMS1	Fine	Normal Operation	763.1	763.6	19.0	20.2	44.0	44.0	2.7993	2.9197	0.1204	1.4223	1.4201	1.4212	7262.90	7286.90	1440.00	2046.53	58.8	148.7	260.0
103676	Dec-17	29-Dec-17	0:00	0:00	DMS1	Fine	Normal Operation	766.0	766.2	19.0	19.5	38.0	38.0	2.8127	2.9375	0.1248	1.2498	1.2491	1.2495	7286.91	7310.91	1440.00	1799.21	69.4	148.7	260.0

Average (µg/m3)	78.8
Max (µg/m3)	119.5
Min (µg/m3)	43.0

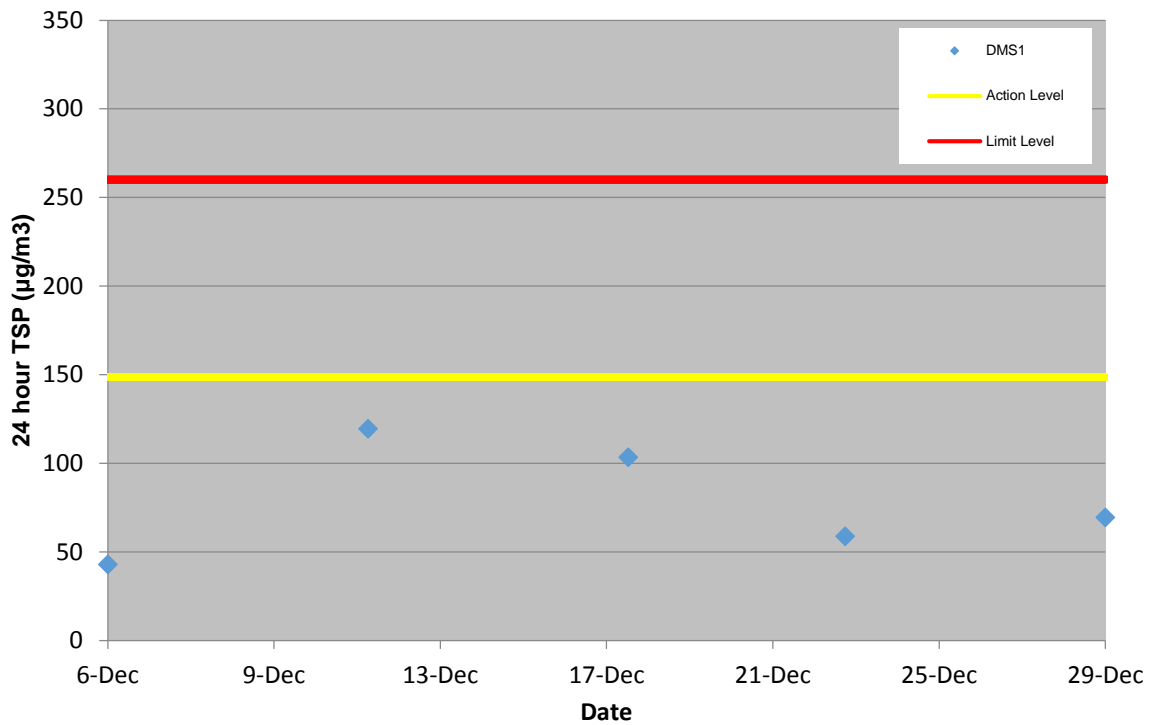
Location: DMS-2 Price Memorial Catholic Primary School

Details of 24-Hour TSP Monitoring

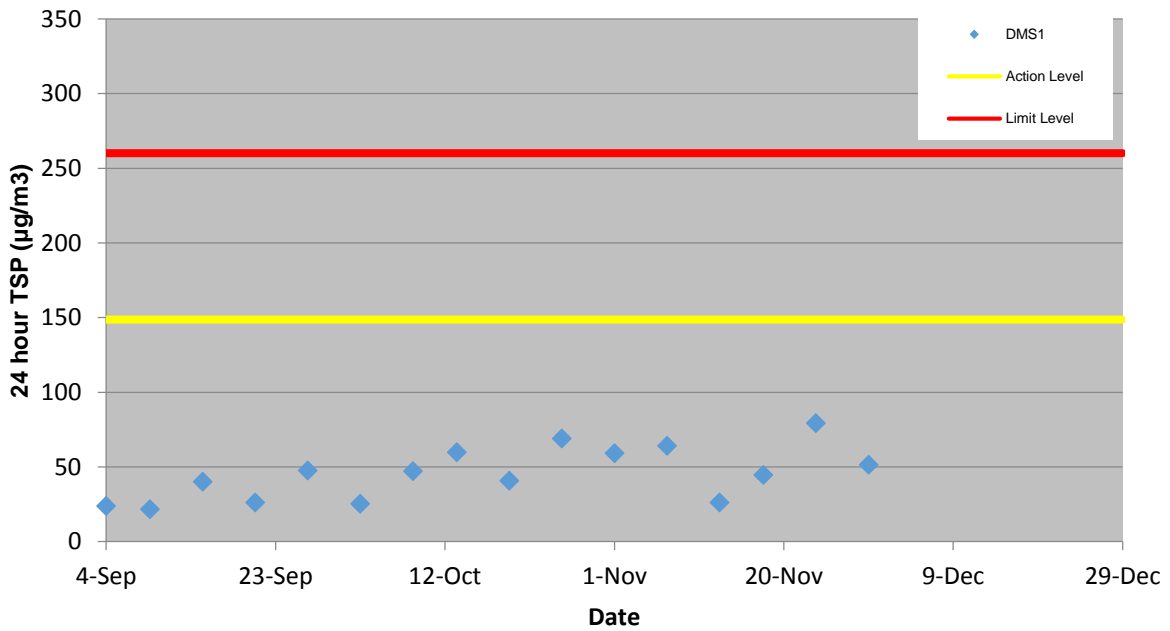
Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m ³ /min)		Average Flow Rate (m ³ /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m ³)	24-hour TSP Level (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
103669	Dec-17	6-Dec-17	0:00	0:00	DMS2	Fine	Normal Operation	763.9	763.7	18.8	19.4	38.0	38.0	2.8739	3.0033	0.1294	1.2903	1.2890	1.2897	6577.90	6601.90	1440.00	1857.1	69.7	167.4	260.0
103671	Dec-17	12-Dec-17	0:00	0:00	DMS2	Fine	Normal Operation	763.8	763.3	18.6	18.4	40.0	40.0	2.8108	3.0102	0.1994	1.3517	1.3517	1.3517	6601.91	6625.91	1440.00	1946.5	102.4	167.4	260.0
103673	Dec-17	18-Dec-17	0:00	0:00	DMS2	Fine	Normal Operation	769.1	769.2	12.8	13.6	38.0	38.0	2.8050	2.9922	0.1872	1.3064	1.3049	1.3057	6625.92	6649.92	1440.00	1880.14	99.6	167.4	260.0
103675	Dec-17	23-Dec-17	0:00	0:00	DMS2	Fine	Normal Operation	763.1	763.6	19.0	20.2	42.0	42.0	2.8209	2.9826	0.1617	1.4113	1.4091	1.4102	6649.93	6673.93	1440.00	2030.69	79.6	167.4	260.0
103677	Dec-17	29-Dec-17	0:00	0:00	DMS2	Fine	Normal Operation	766.0	766.2	19.0	19.5	40.0	40.0	2.8173	2.9274	0.1101	1.3526	1.3517	1.3522	6673.94	6697.94	1440.00	1947.10	56.5	167.4	260.0

Average (µg/m3)	81.6
Max (µg/m3)	102.4
Min (µg/m3)	56.5

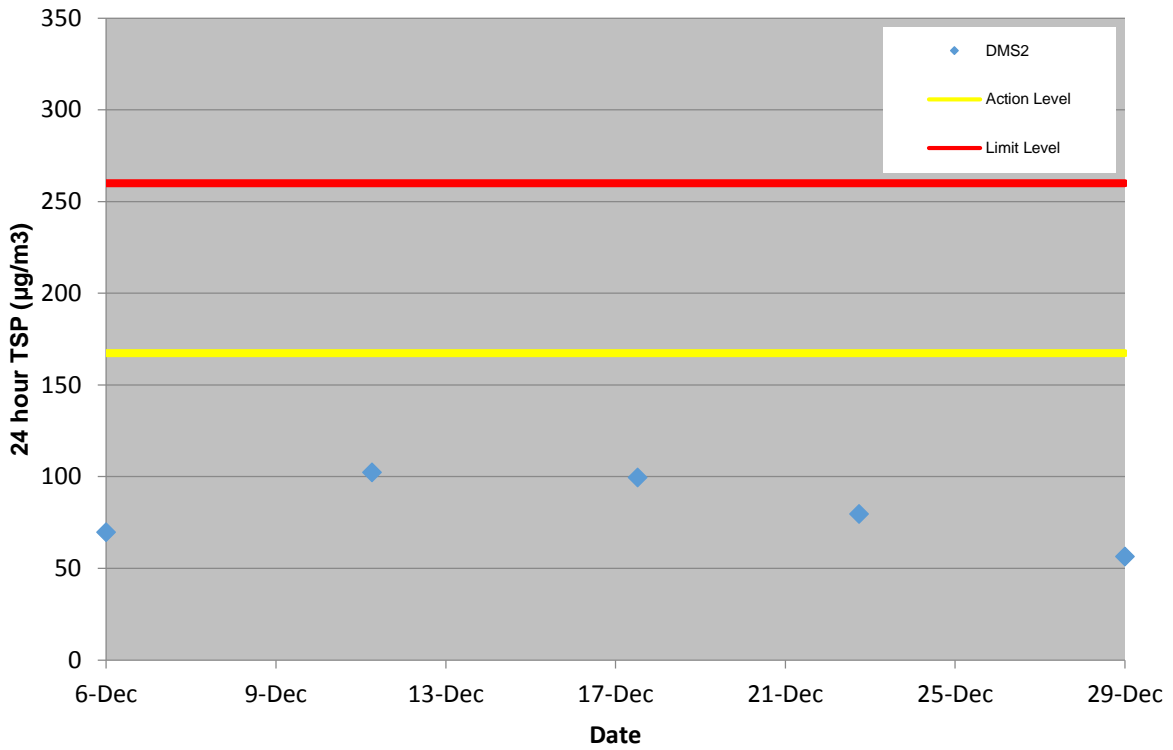
Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-1



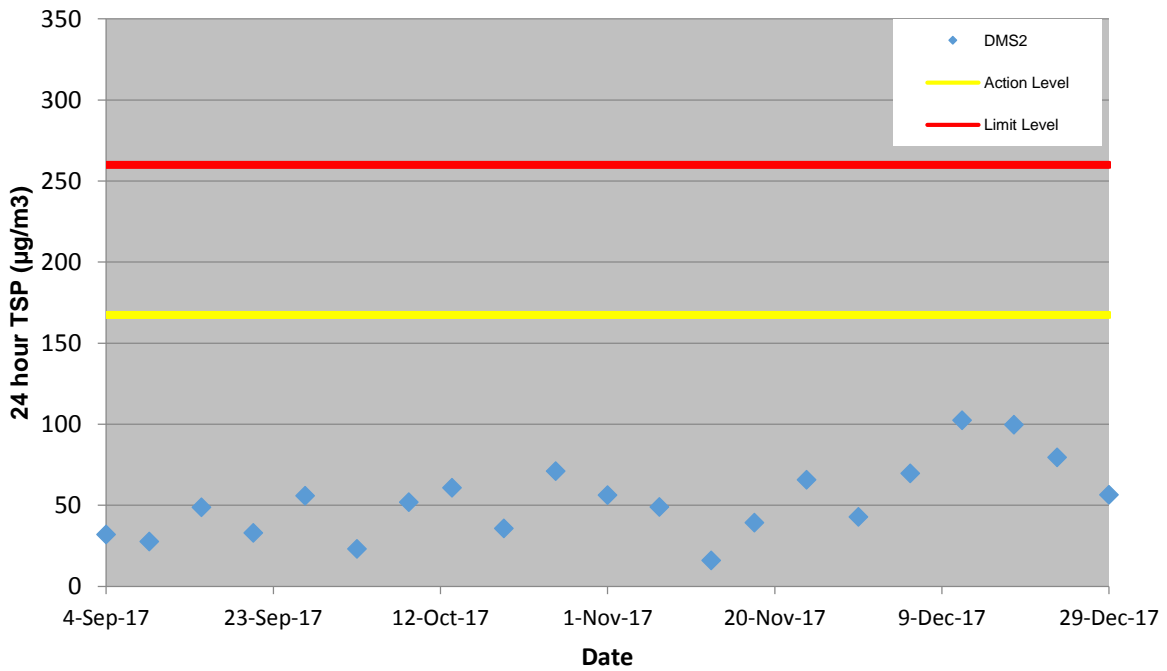
Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-1
From September 2017 to December 2017



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



Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-2
From September 2017 to December 2017

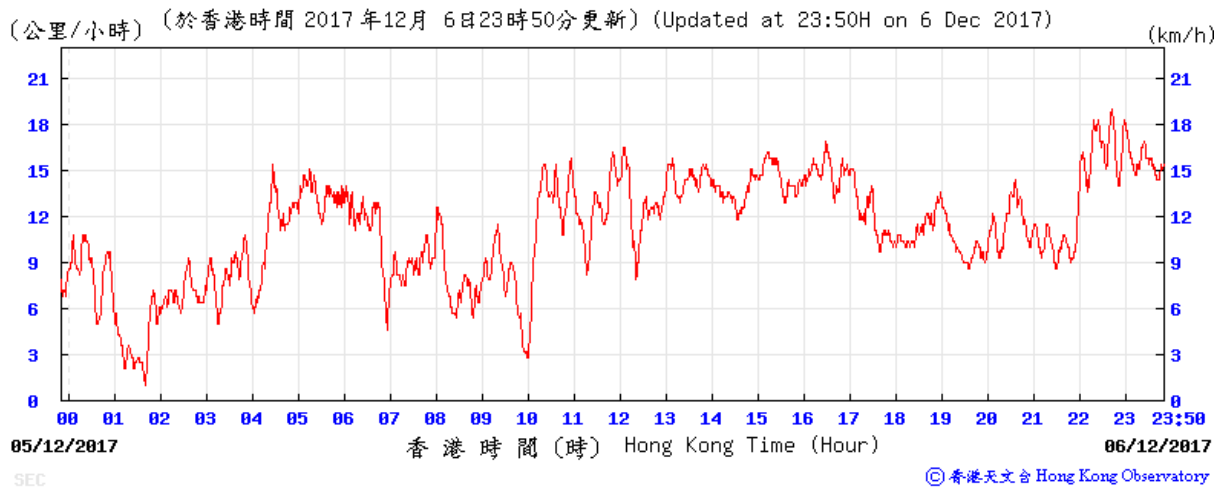


Appendix F

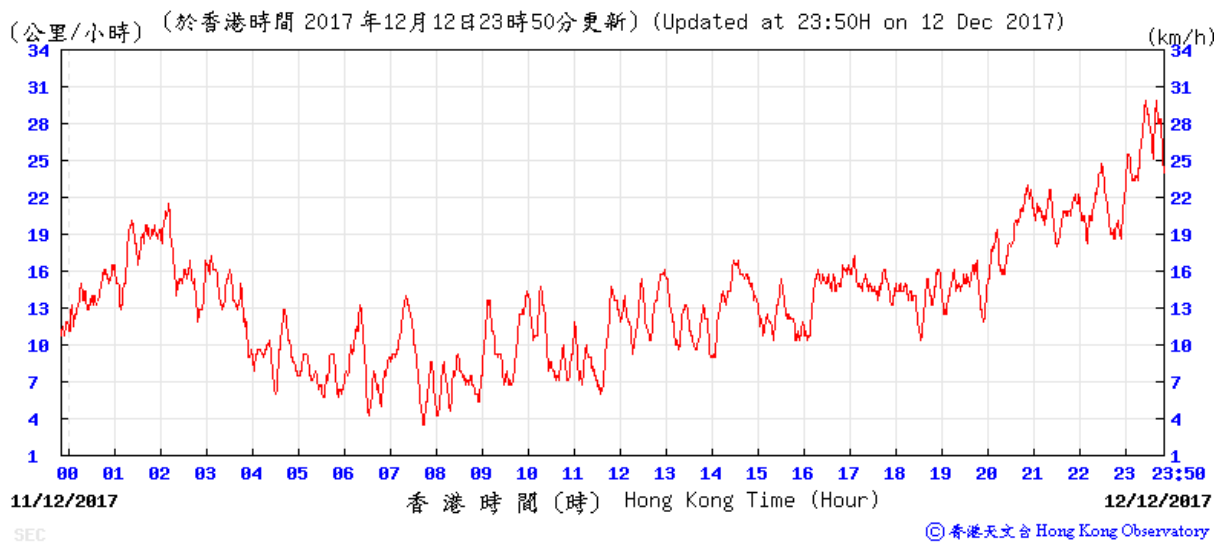
Wind data

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

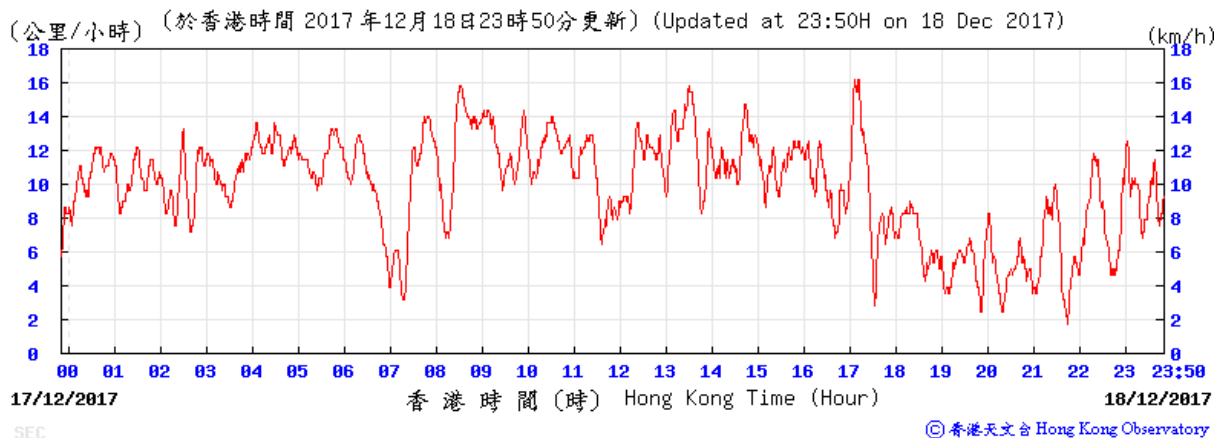
6 December 2017



12 December 2017

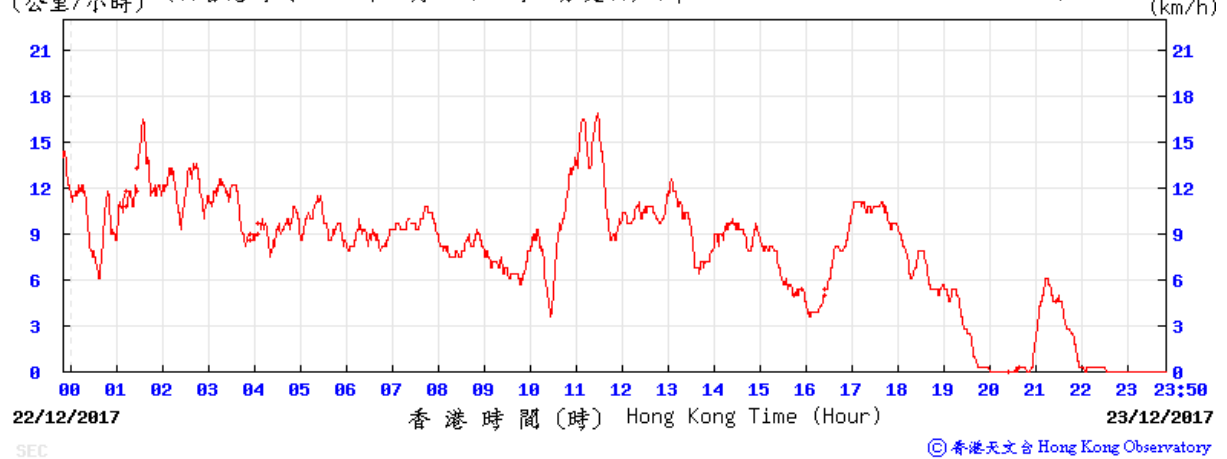


18 December 2017



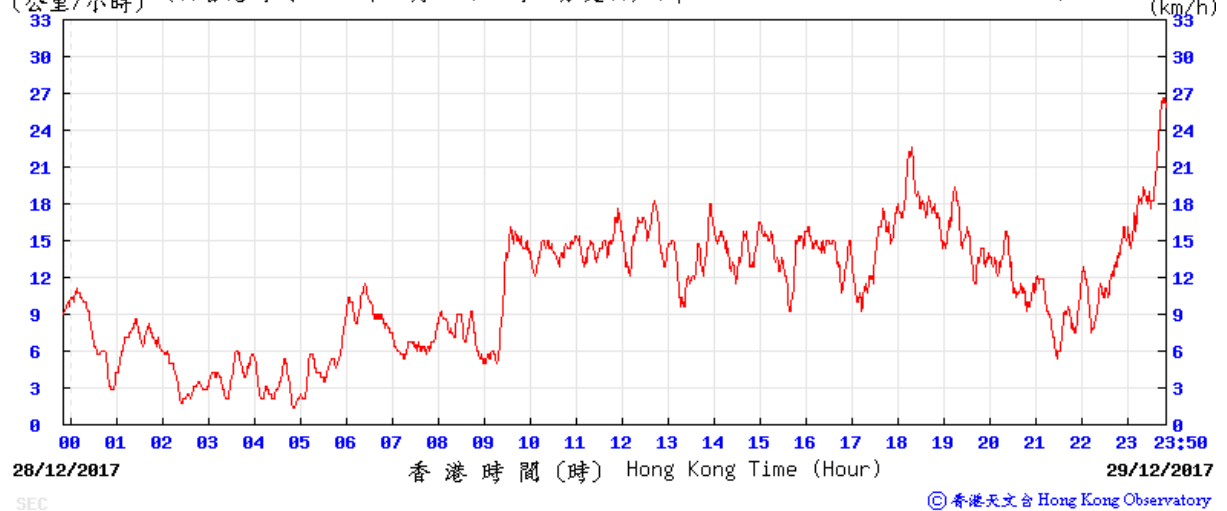
23 December 2017

(公里/小時) (於香港時間 2017 年12月23日23時50分更新) (Updated at 23:50H on 23 Dec 2017)



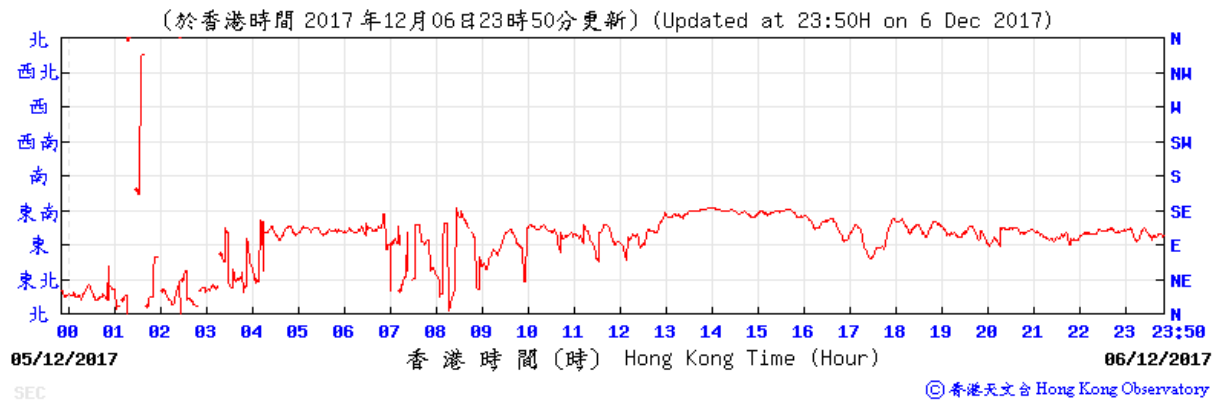
29 December 2017

(公里/小時) (於香港時間 2017 年12月29日23時50分更新) (Updated at 23:50H on 29 Dec 2017)

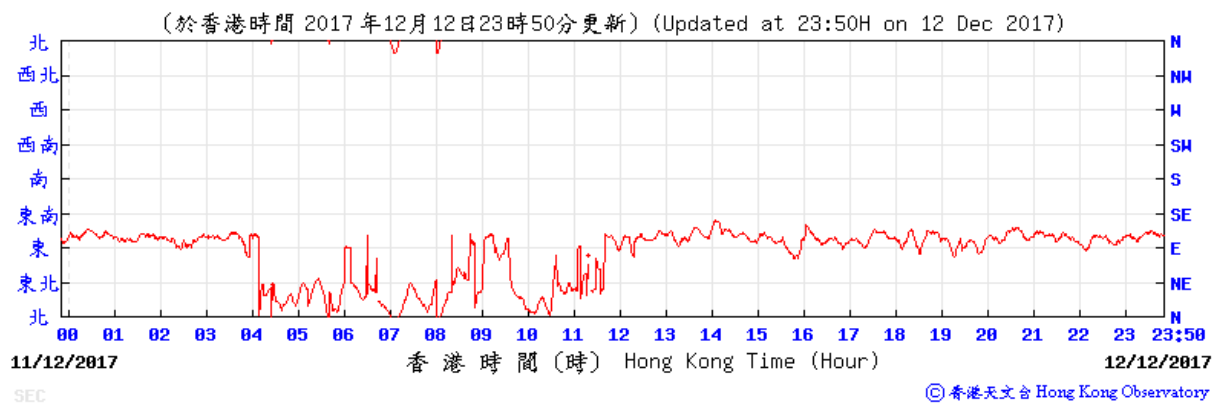


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

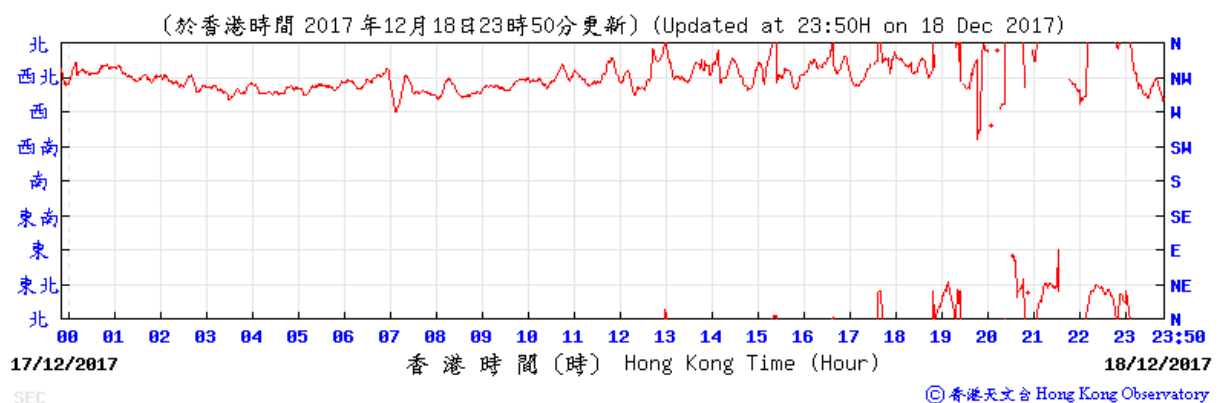
6 December 2017



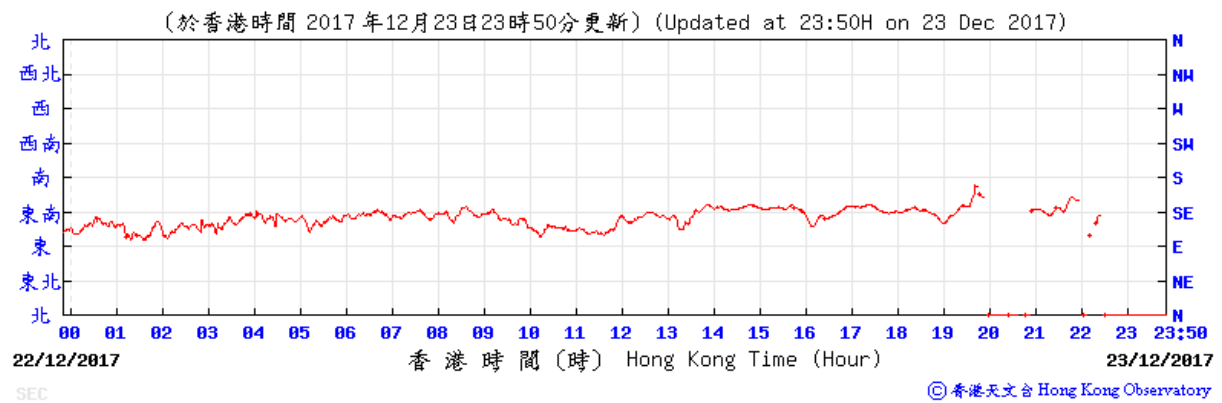
12 December 2017



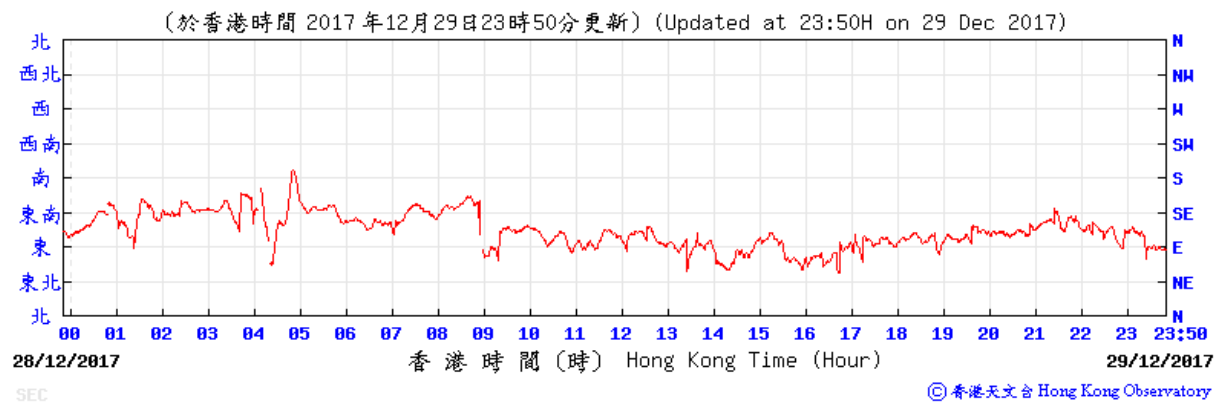
18 December 2017



23 December 2017

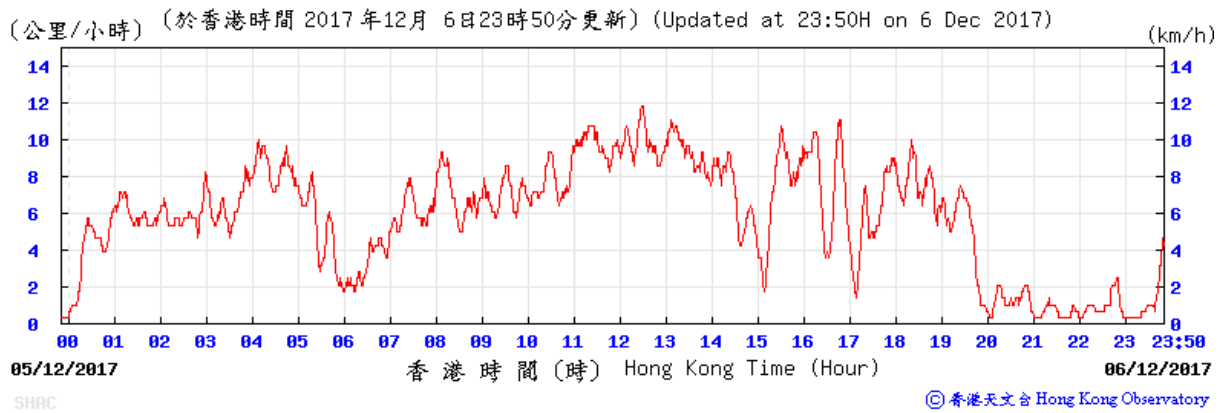


29 December 2017

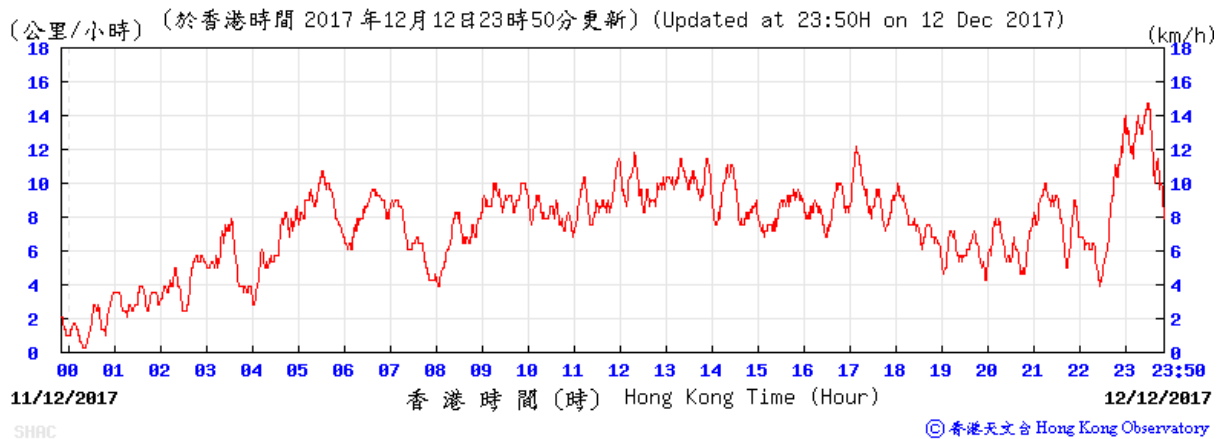


Average wind speed obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

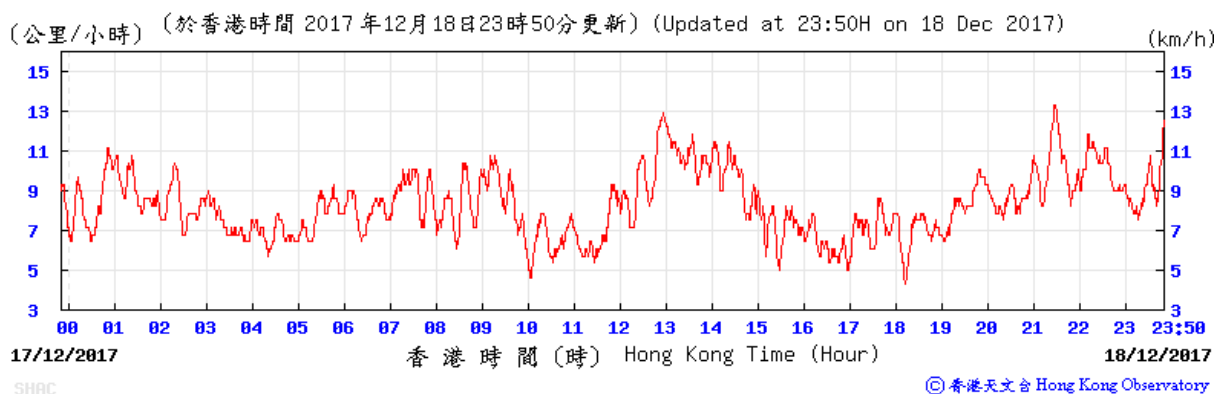
6 December 2017



12 December 2017

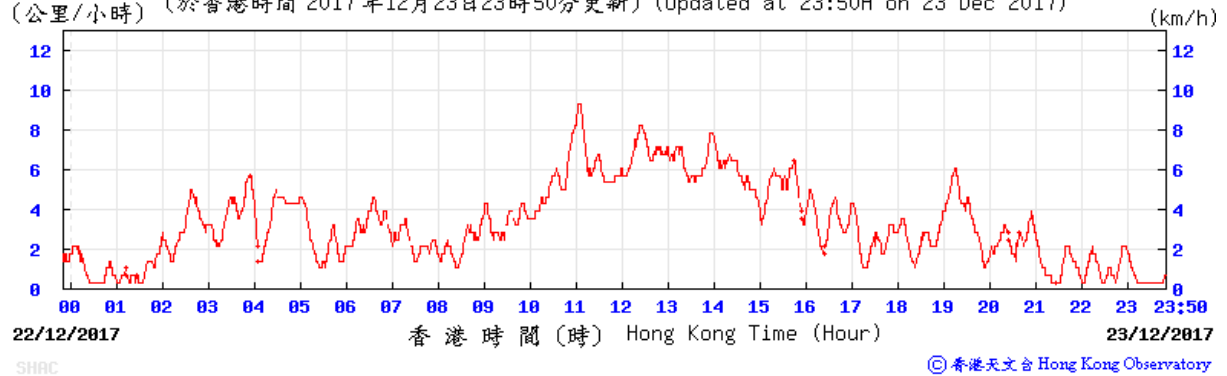


18 December 2017



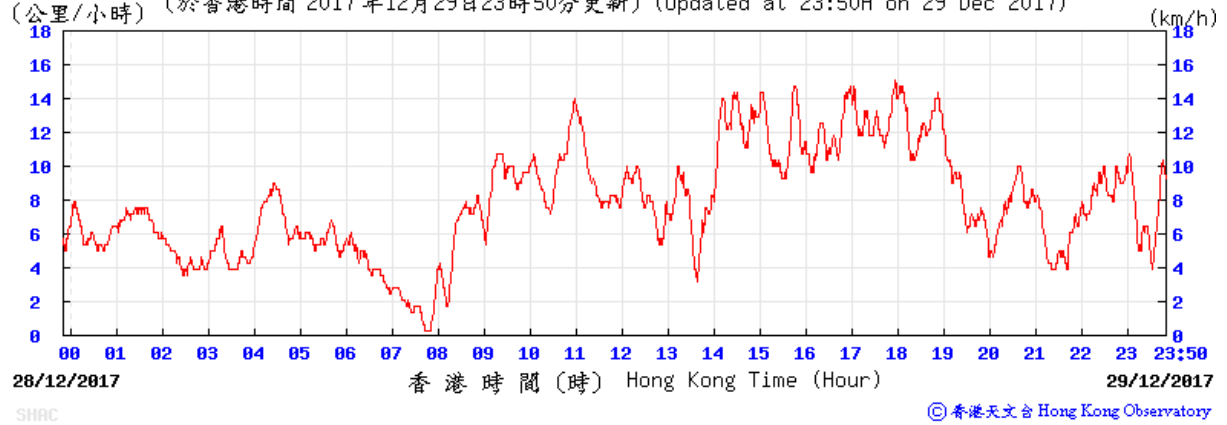
23 December 2017

(公里/小時) (於香港時間 2017 年12月23日23時50分更新) (Updated at 23:50H on 23 Dec 2017)



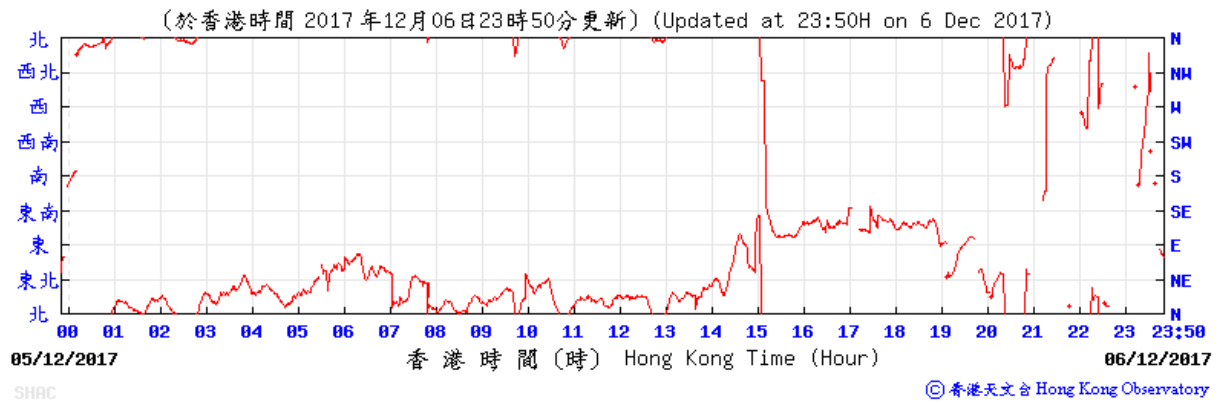
29 December 2017

(公里/小時) (於香港時間 2017 年12月29日23時50分更新) (Updated at 23:50H on 29 Dec 2017)

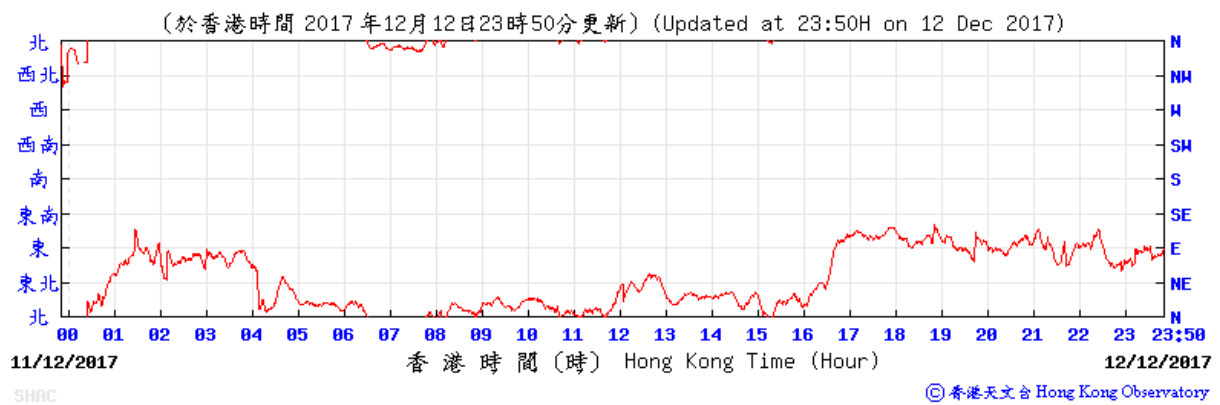


Average wind direction obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

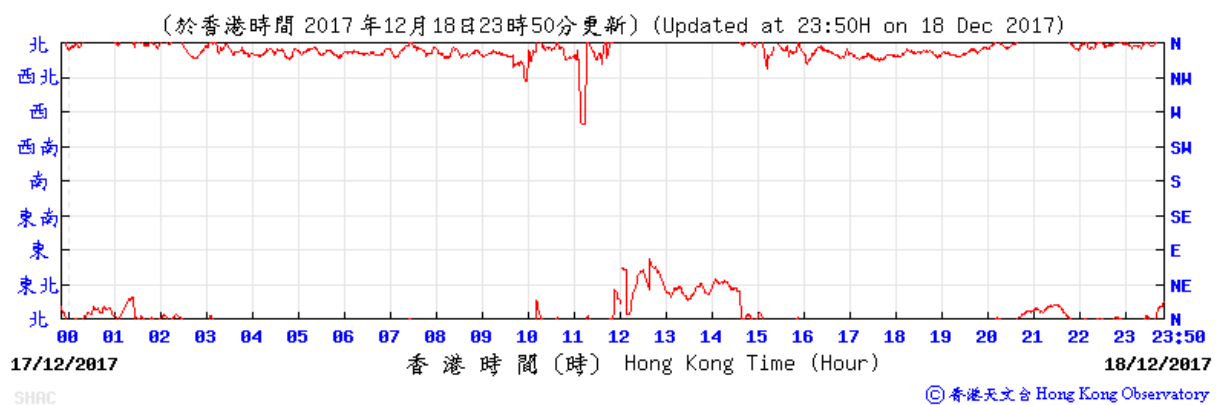
6 December 2017



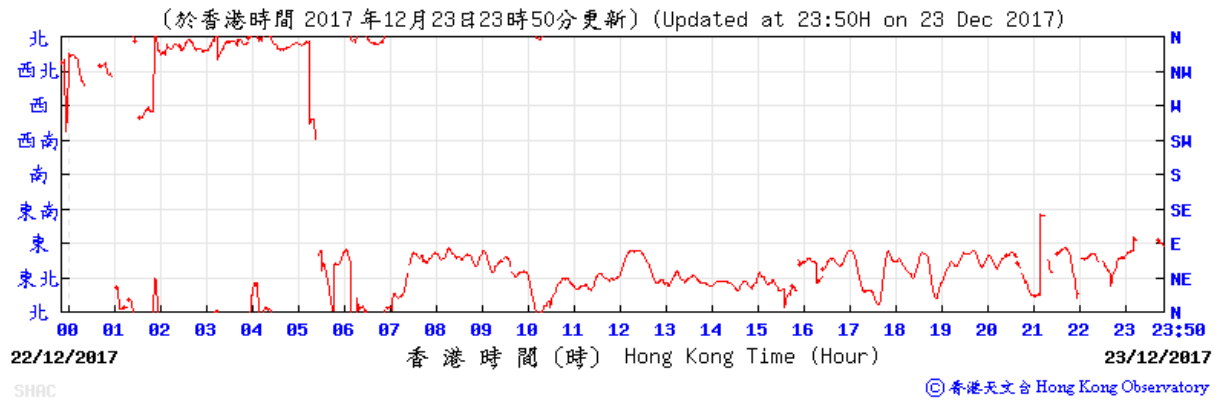
12 December 2017



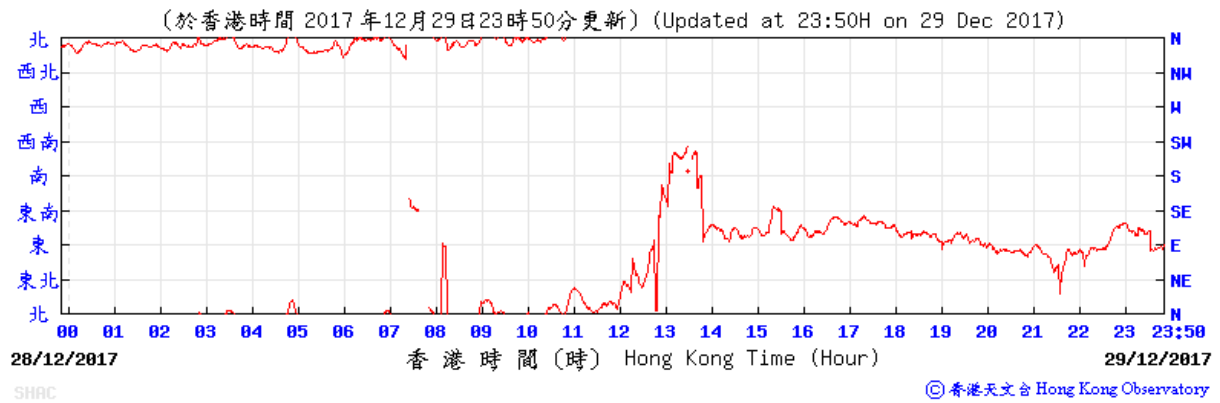
18 December 2017



23 December 2017



29 December 2017



Appendix G

Calibration
Certificates of Noise
Monitoring
Equipment



輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No. : C170448

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC17-0144)

Date of Receipt / 收件日期 : 19 January 2017

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 : 25 January 2017

TEST RESULTS / 測試結果

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

The results do not exceed 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
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested By

測試


H T Wong
Technical Officer

Certified By

核證


K C Lee
Project Engineer

Date of Issue

簽發日期

27 January 2017

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。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606

Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C170448

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 :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C170048
CL281	Multifunction Acoustic Calibrator	PA160023

- Test procedure : MA101N.

- Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

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

6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (Db)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.1	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFP}	A	F	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.1

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

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

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Certificate of Calibration

校正證書

Certificate No. : C170448

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			94.2	± 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		102.1	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	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	95.1	+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. : C170448
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	94.1	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	91.1	-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	89.7	± 0.5
			5 min.					80	79.8	± 1.0
			1/10 ²					70	69.8	± 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 :

Only the original copy or the laboratory's certified true copy is valid.

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

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

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



Certificate of Calibration 校正證書

Certificate No. : C176170
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC17-2443) Date of Receipt / 收件日期 : 25 October 2017

Description / 儀器名稱 : Sound Calibrator
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-74
Serial No. / 編號 : 35236437
Supplied By / 委託者 : Sun Fook Kong Construction Limited
Room 3207-10, Great Eagle Centre, 23 Harbour Road,
Wanchai, 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

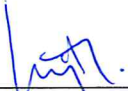
DATE OF TEST / 測試日期 : 5 November 2017

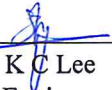
TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed 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
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By : 
測試 : _____
H T Wong
Technical Officer

Certified By : 
核證 : _____
K C Lee
Engineer

Date of Issue : 7 November 2017
簽發日期

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

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



Certificate of Calibration

校正證書

Certificate No. : C176170
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	C173864
CL281	Multifunction Acoustic Calibrator	PA160023
TST150A	Measuring Amplifier	C161175

- Test procedure : MA100N.

- Results :

5.1 Sound Level Accuracy

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

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.002	1 kHz ± 1 %	± 1

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

Note :

Only the original copy or the laboratory's certified true copy is valid.

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

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}
1-Dec-17	11:00-11:30	54.1	70.0	56.0	50.0	57.0	< Baseline Level
7-Dec-17	11:30-12:00	53.0	70.0	54.2	52.5	57.0	< Baseline Level
13-Dec-17	11:00-11:30	54.6	70.0	56.5	50.5	57.0	< Baseline Level
19-Dec-17	11:30-12:00	51.6	70.0	53.0	49.5	57.0	< Baseline Level
27-Dec-17	11:30-12:00	55.6	70.0	56.5	54.0	57.0	< Baseline Level

Max	L _{Aeq,30min}	55.6
Min	L _{Aeq,30min}	51.6

Notes: (*) : Façade correction is included
 (#) : Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

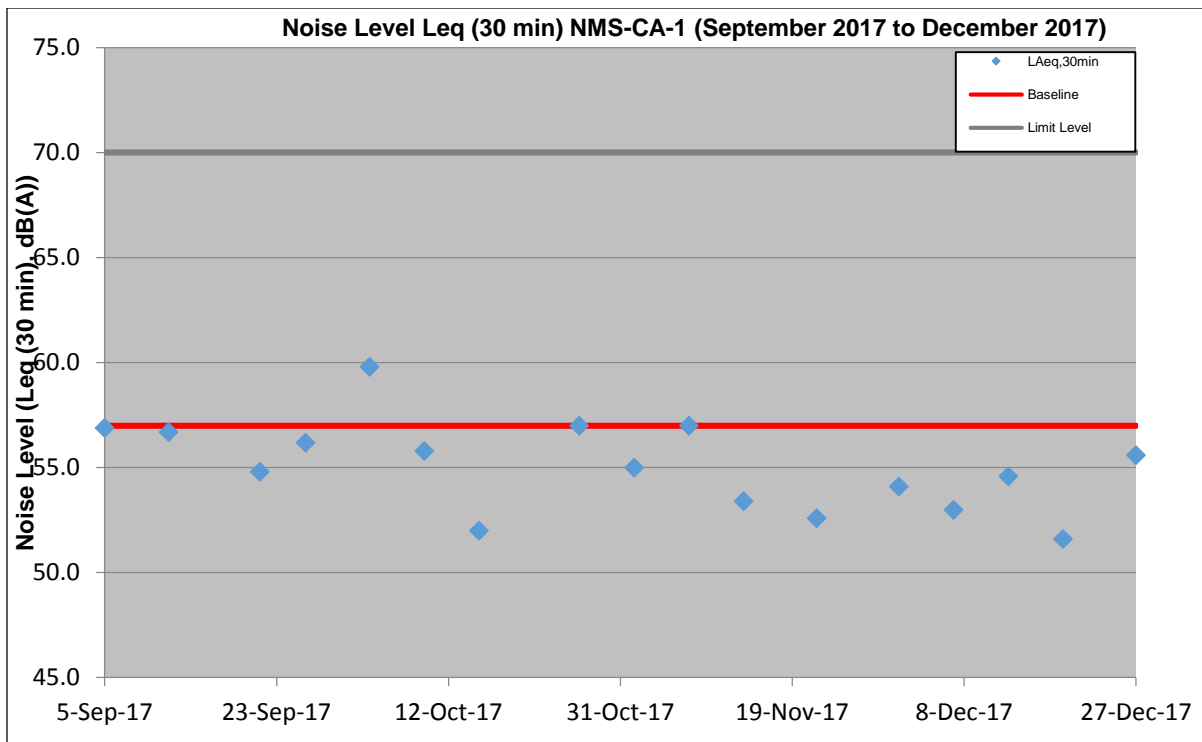
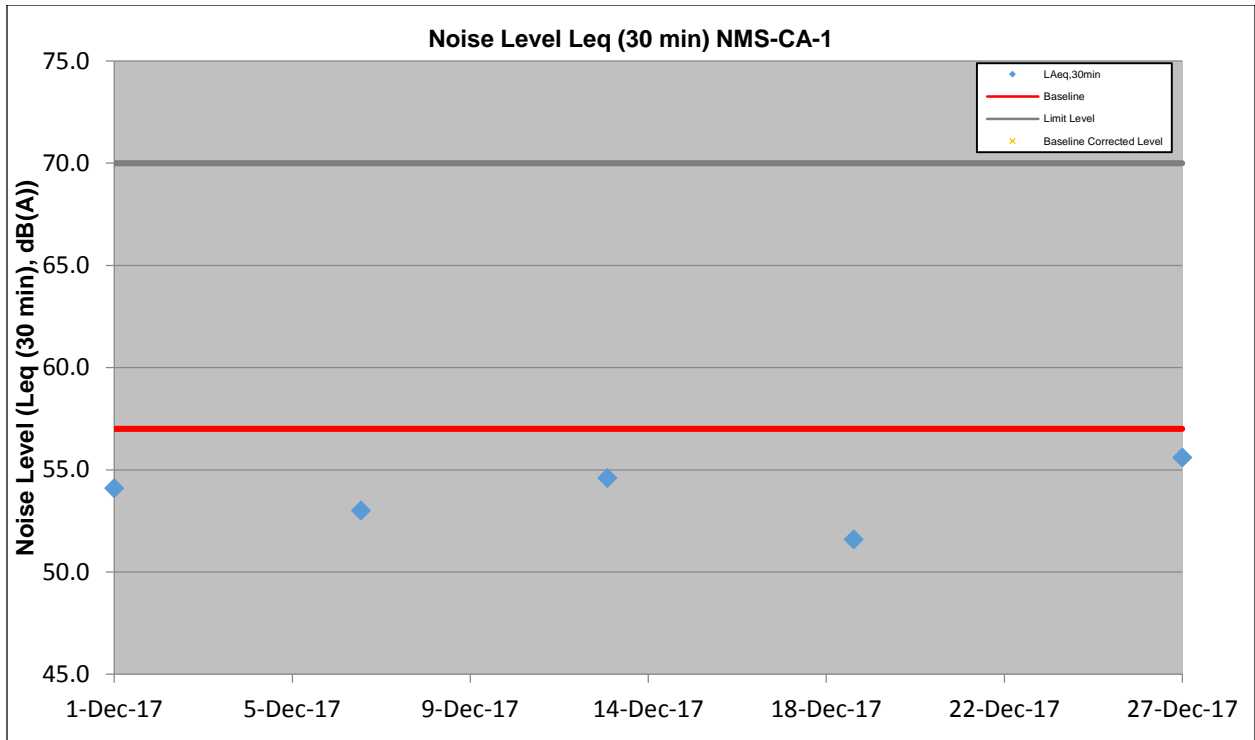
Location: NMS-CA-2 - Price Memorial Catholic Primary School

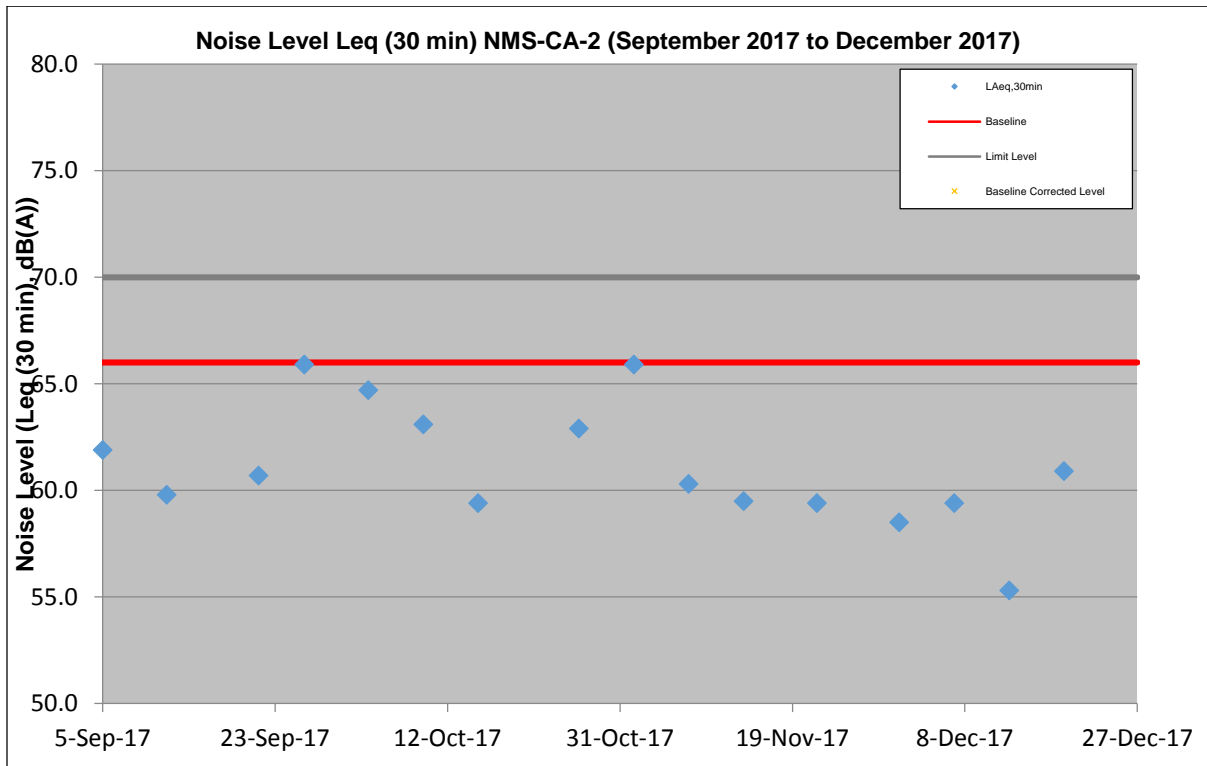
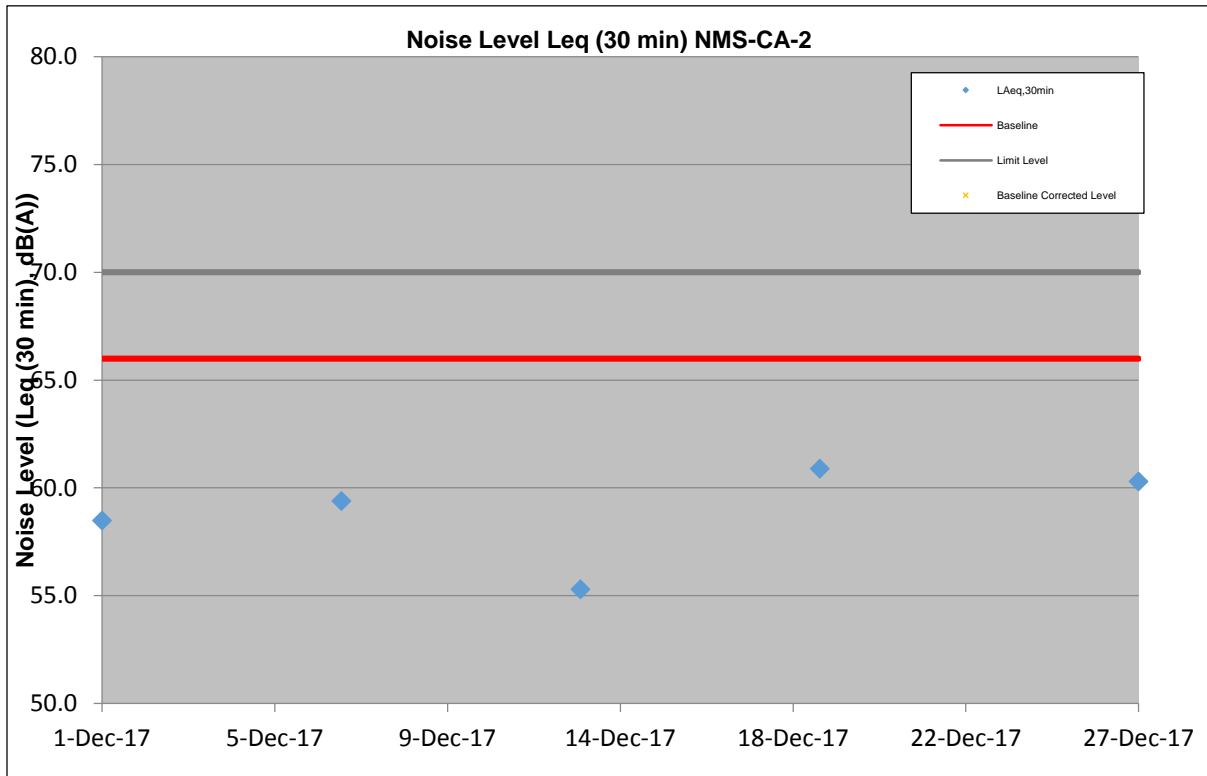
Daytime Noise Monitoring Results

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}
1-Dec-17	09:00-09:30	58.5	70.0	59.5	56.5	66.0	< Baseline Level
7-Dec-17	09:00-09:30	59.4	70.0	61.0	57.5	66.0	< Baseline Level
13-Dec-17	09:00-09:30	55.3	70.0	58.0	52.5	66.0	< Baseline Level
19-Dec-17	09:30-10:00	60.9	70.0	62.0	59.5	66.0	< Baseline Level
27-Dec-17	09:30-10:00	60.3	70.0	61.4	59.3	66.0	< Baseline Level

Max	L _{Aeq,30min}	60.9
Min	L _{Aeq,30min}	55.3

Notes: (*) : Façade correction is included
 (#) : Baseline Corrected Level = Measured Noise Level - Baseline Noise Level





Appendix I

Event/Action Plan for
Air Quality, Airborne
Noise and Landscape
and Visual

Event and Action Plan for Air Quality

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

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

Event and Action Plan for Airborne Noise

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

Event / Action Plan for Landscape and Visual

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

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer's Representative

Appendix J

Waste Flow Table

Monthly Summary Waste Flow Table for 2017

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	0.926	0.000	0.000	0.000	0.542	0.384	0.000	0.000	0.000	0.000	0.173
Feb	1.060	0.000	0.000	0.000	0.486	0.574	0.000	0.000	0.000	0.000	0.268
Mar	4.872	0.000	0.000	0.000	0.649	4.223	5.510	0.000	0.000	1.400	0.279
Apr	1.508	0.000	0.000	0.252	0.794	0.462	0.000	0.000	0.000	0.000	0.192
May	10.853	0.000	0.000	0.000	1.365	9.488	0.000	0.000	0.000	0.000	0.257
Jun	0.436	0.000	0.000	0.000	0.436	0.000	0.000	0.000	0.000	0.000	0.275
Sub-total	19.655	0.000	0.000	0.252	4.273	15.130	5.510	0.000	0.000	1.400	1.444
July	0.565	0.000	0.000	0.000	0.346	0.220	0.000	0.000	0.000	0.000	0.204
August	1.293	0.000	0.000	0.000	1.178	0.115	0.000	0.000	0.000	0.000	0.199
September	0.544	0.000	0.000	0.000	0.276	0.269	25.270	0.000	0.000	0.000	0.200
October	5.559	0.000	0.000	0.000	0.347	5.212	43.270	0.000	0.000	0.000	0.208
November	1.816	0.000	0.000	0.000	0.706	1.110	4.480	0.000	0.000	0.000	0.116
December	0.760	0.000	0.000	0.000	0.288	0.472	0.000	0.000	0.000	0.200	0.094
Total	30.193	0.000	0.000	0.252	7.413	22.528	78.530	0.000	0.000	1.600	2.467

Comments:

- 1) Assumption: The densities of Rock, Soil, Mixed 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 Dec is 31/12/2017 for TKO137FB/TM38FB, NENT/SENT/WENT landfill.
- 3) The amount of waste in Dec is 94.43 tons for NENT/SENT/WENT Landfill, 575.87 tons for TKO137FB/TM38FB.
- 4) The amount of C&D material reused in the Contract in Dec is 0 tons, for cut-off date as 31/12/2017.
- 5) The amount of chemical waste in Dec is 200L for cut-off date as 31/12/2017.
- 6) The value of waste amount would be rounded up in three decimal places.

Appendix K

Environmental
Monitoring
Programme for
Coming Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Tentative Impact Monitoring Schedule - January 2018**

Date	Air Quality	Noise	Site Inspection
	24-hours TSP	L_{Aeq} , 30 min	
1-Jan-18	Mon		
2-Jan-18	Tue		
3-Jan-18	Wed		
4-Jan-18	Thu		
5-Jan-18	Fri		
6-Jan-18	Sat		
7-Jan-18	Sun		
8-Jan-18	Mon		
9-Jan-18	Tue		
10-Jan-18	Wed		
11-Jan-18	Thu		
12-Jan-18	Fri		
13-Jan-18	Sat		
14-Jan-18	Sun		
15-Jan-18	Mon		
16-Jan-18	Tue		
17-Jan-18	Wed		
18-Jan-18	Thu		
19-Jan-18	Fri		
20-Jan-18	Sat		
21-Jan-18	Sun		
22-Jan-18	Mon		
23-Jan-18	Tue		
24-Jan-18	Wed		
25-Jan-18	Thu		
26-Jan-18	Fri		
27-Jan-18	Sat		
28-Jan-18	Sun		
29-Jan-18	Mon		
30-Jan-18	Tue		
31-Jan-18	Wed		

	Public Holiday
	Monitoring Day

Monitoring Details

Monitoring	Locations	Parameters
Air Quality	DMS-1 - C.U.H.K.A.A Thomas Cheung School, DMS-2 - Price Memorial Catholic Primary School	24-hour TSP
Noise	NMS-CA-1 - C.U.H.K.A.A Thomas Cheung School, NMS-CA-2 - Price Memorial Catholic Primary School	$L_{Aeq(30\text{ min})}$, L_{10} , L_{90}

Appendix L

Cumulative Log for
Complaints,
Notifications of
Summons and
Successful
Prosecutions

Ove Arup and Partners HK Ltd.

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
September 2014	0	0	0
October 2014	0	0	0
November 2014	1	0	0
December 2014	2	0	0
January 2015	0	0	0
February 2015	3	0	0
March 2015	3	0	0
April 2015	0	0	0
May 2015	0	0	0
June 2015	0	0	0
July 2015	1	0	0
August 2015	0	0	0
September 2015	0	0	0
October 2015	1	0	0
November 2015	1	0	0
December 2015	0	0	0
January 2016	0	0	0
February 2016	0	0	0
March 2016	1	0	0
April 2016	1	0	0
May 2016	1	0	0
June 2016	1	0	0

Ove Arup and Partners HK Ltd.

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
July 2016	0	0	0
August 2016	3	0	0
September 2016	0	0	0
October 2016	0	0	0
November 2016	0	0	0
December 2016	0	0	0
January 2017	0	0	0
February 2017	0	0	0
March 2017	1	0	0
April 2017	0	0	0
May 2017	0	0	0
June 2017	1	0	0
July 2017	0	0	0
August 2017	1	0	0
September 2017	0	0	0
October 2017	0	0	0
November 2017	1	0	0
December 2017	0	0	0
Total	23	0	0

Appendix D

**58th EM&A Report for Works Contract 1106 –
Diamond Hill Station**

MTR Corporation Limited

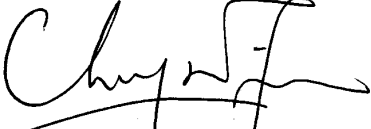
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 58

[Period from 1 to 31 December 2017]

Works Contract 1106 – Diamond Hill Station

(January 2018)

Certified by: 
_____ Dr. Priscilla Choy _____

Position: Environmental Team Leader

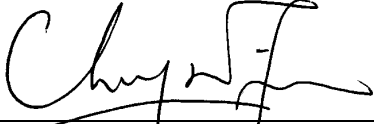
Date: 11th January 2018

Leader Joint Venture

Shatin to Central Link – Contract 1106 Diamond Hill Station

Monthly Environmental Monitoring and Audit Report For December 2017

(Version 1.0)

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 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	7
Field Monitoring.....	7
Monitoring Equipment	8
Maintenance and Calibration.....	9
Action & Limit Level for Construction 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 Summons 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 58th 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 1st to 31st December 2017.

Summary of Construction Works undertaken during the Reporting Month

2. The major site activities undertaken in the reporting month include:
 - Superstructure works of SCL-DIH station;
 - ABWF works at SCL-DIH station area;
 - Foundation works, Temporary Lung Cheung Road diversion, TTA for site access and temporary footpath diversion at Choi Hung Road and A2;
 - Construction of Interchange Adit, West Unpaid Link Adit and East MOE (Entrance B);
 - Alteration works for Entrance A2;
 - Backfilling works;
 - Stations breakthrough; and
 - Drainage works.

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⁾/NMS-CA-4⁽²⁾ (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⁾/DMS-4⁽²⁾ (H.K. Sheng Kung Hui Nursing Home) 5 times
 - DMS-4⁽¹⁾/DMS-3⁽²⁾ (Block 1, Rhythm Garden) 5 times

Remarks:

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

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

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 9 May 2013 and the fieldwork had been completed in September 2013 in accordance with the Licence granted and the approved AAP. The finalized Archaeological Survey-cum-Excavation Report was submitted to AMO on 27 February 2017. Artefacts handover to AMO was completed on 18 May 2017.

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 156 m³ of inert C&D materials were generated from the Project and were sent to Tseung Kwan O Area 137 Fill Bank during the reporting month. 157 m³ of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. No chemical waste was collected by licensed collector during the reporting month. No paper/cardboard packaging and no plastics and metal were generated in 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 December 2017. All 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 December 2017. The representative of the IEC joined the site inspection on 28 December 2017. 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 no 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:
- Superstructure works of SCL DIH station;
 - ABWF works at SCL-DIH station area;
 - Foundation works, TTA for site access and temporary footpath diversion at Choi Hung Road and A2;
 - Construction of Interchange Adit, West Unpaid Link Adit and East MOE (Entrance B);
 - Alteration works for Entrance A2;
 - Backfilling works;
 - Stations breakthrough; and
 - Drainage works.

1 INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) was appointed by Leader Joint Venture (LJV) 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 58th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1st to 31st December 2017.

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. Since July 2016, southern portion of the works area at Choi Hung Road was handover to relevant government department. The latest alignment and works areas 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**.
 - Superstructure works of SCL-DIH station;
 - ABWF works at SCL-DIH station area;
 - Foundation works, Temporary Lung Cheung Road diversion, TTA for site access and temporary footpath diversion at Choi Hung Road and A2;
 - Construction of Interchange Adit, West Unpaid Link Adit and East MOE (Entrance B);
 - Alteration works for Entrance A2;
 - Backfilling works;
 - Stations breakthrough; and
 - Drainage works.

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/K	04/10/2016	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
No.: 378656	28/08/2014	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-S3711-02	28/01/2015	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00025615-2016	24/10/2016	31/01/2018	Valid
WT00016920-2013	09/06/2013	30/09/2018	Valid
Construction Noise Permit (CNP)			
GW-RE0791-17	22/10/2017	19/04/2018	Valid
GW-RE0929-17	10/12/2017	04/03/2018	Valid

Summary of EM&A Requirements

- 2.7 The EM&A programme under Works Contract 1106 requires regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
 - Action and Limit levels for all environmental parameters;
 - Event / Action Plans;
 - Environmental mitigation measures, as recommended in the Project EIA study final report; and
 - Environmental requirements in contract documents.
- 2.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.9 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

- 3.1 In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was rejected; alternative locations were proposed and agreed by the ER (Engineer’s Representative), IEC (Independent Environmental Checker) and EPD (Environmental Protection Department). The construction noise monitoring locations are listed in **Table 3.1** and shown in **Figure 2**.

Table 3.1 Regular Construction Noise Monitoring Location

Regular Construction Noise Monitoring Location	Description	Type of Measurement
NMS-CA-3 ⁽¹⁾⁽³⁾ / NMS-CA-4 ⁽²⁾⁽³⁾	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⁾⁽⁴⁾ / NMS-CA-2 ⁽²⁾⁽⁴⁾	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) 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)
	SVAN 955 (Serial no.: 12563)
	SVAN 957 (Serial no.: 21455)
	BSWA 801 (Serial no.: 35924)
Calibrator	SV30A (Serial no.: 24803)
	SV30A (Serial no.: 24791)

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 CNMMP prepared and submitted under EP Condition 2.9 and 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⁾ / DMS-4 ⁽²⁾⁽³⁾	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.

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
HVS	Tisch Environmental, Inc.; Model no. TE-5170, Serial no.: 3223	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 $\pm 3^\circ\text{C}$; the relative humidity (RH) should be < 50% and not vary by more than $\pm 5\%$. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations.

Maintenance/Calibration

- 3.18 The following maintenance/calibration was required for the HVS:
- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
 - Calibration of the HVS (five point calibration) using Calibration Kit was carried out every two months. Copies of calibration certificates are attached in **Appendix C**.
 - The HVS calibration orifice will be calibrated annually.

Action and Limit Levels for Dust Monitoring

- 3.19 The Action and Limit levels have been established and are presented in **Appendix B** and the Event / Action Plan (EAP) for dust monitoring is presented in **Appendix I**.

Cultural Heritage

- 3.20 An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site was approved by EPD on 8 April 2013. A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been subsequently obtained from Antiquities and Monuments Office (AMO) on 19 April 2013. The archaeological survey-cum-excavation at Former Tai Hom Village shall be conducted in accordance with the Licence granted and the approved AAP.
- 3.21 The Conservation Plans for the two historic buildings, namely Former Royal Air Force Hangar and the Old Pillbox at the former Tai Hom Village site, were approved by EPD on 24 April 2013. Dismantling works on Former Royal Air Force Hangar and relocation work of the Old Pillbox shall be carried out in accordance with the approved Conservation Plan. 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 (November 2017)	14 th December 2017

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 12 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-3⁽¹⁾/ NMS-CA-4⁽²⁾ (Hong Kong S.K.H Nursing Home) in December 2017 exceeded the daytime construction noise criterion except 13 December 2017. However, the results are not considered as exceedance since the measured results were below the baseline noise levels.
- 5.3 The noise monitoring results recorded at (Block 1, Rhythm Garden (north-eastern façade)) in December 2017 did not exceed the daytime construction noise criterion.
- 5.4 The noise monitoring results recorded at NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) in December 2017 exceeded the daytime construction noise criterion only on 27 December 2017. However, the results are not considered as exceedance since the measured results were below the baseline noise levels.
- 5.5 Based on observation during the on-site monitoring, road traffic nearby, other construction site at Choi Hung Road and foundation works in other construction site at former Tai Hom Village in December 2017 are considered as potential noise source other than construction works of the Project that affects the monitoring results in the reporting month.
- 5.6 The noise monitoring results together with their graphical presentations are presented in **Appendix F**⁽³⁾.
- 5.7 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period. The summary of exceedance in this reporting month is provided in **Appendix G**.

Regular Dust Monitoring

- 5.8 A total of 10 sets of 24-hour TSP monitoring were carried out at the designated monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 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⁾ / DMS-4 ⁽²⁾)	47.8	97.8	78.2	159.1	260
24-hr TSP (DMS-4 ⁽¹⁾ / DMS-3 ⁽²⁾)	12.5	55.1	41.9	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).

- 5.9 Based on observation during the on-site monitoring, road traffic emission nearby, other construction site at Choi Hung Road and foundation works in other construction site at former Tai Hom Village in December 2017 are considered as potential dust source other than construction works of the Project that affects the monitoring results in the reporting month.
- 5.10 Wind monitoring data were obtained from Kai Tak Meteorological Station of Hong Kong Observatory and shown on **Appendix E**.
- 5.11 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period. The summary of exceedance in this reporting month is provided in **Appendix G**.

Cultural Heritage

- 5.12 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 9 May 2013 and completed in September 2013 in accordance with the Licence granted and the approved AAP. The finalized Archaeological Survey-cum-Excavation Report was submitted to AMO on 27 February 2017. Artefacts handover to AMO was completed on 18 May 2017.
- 5.13 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

- 5.14 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**. 156 m³ of C&D materials was generated during the reporting period and were disposed as public fill. 157 m³ of general refuse were generated during the reporting month. No chemical waste was collected by licensed collector during the reporting month. No paper/cardboard packaging and no plastics and metal were generated in 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		
December 2017	156 m ³	157 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, which 156 m³ was delivered to Tseung Kwan O Area 137 Fill Bank during the reporting month.
- (b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. General refuse was delivered to designated landfill for disposal.

Landscape and Visual

5.15 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 14 and 28 December 2017. 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 December 2017. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 28 December 2017. The details of observations during site audits 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>	30 November 2017	<u>Reminder:</u> Sedimentation tank should be maintained more frequently to avoid accumulation of silt.	As observed on 07 December 2017, no silt was observed in the sedimentation tank.
	14, 21, 28 December 2017	<u>Reminder:</u> Treated water was observed slightly unclear within the AquaSed. The contractor was reminded to enhance the sedimentation process to improve the effluent quality to comply with the criteria stated in the discharge license.	The follow up action will be reported in the next reporting month.
	28 December 2017	<u>Observation:</u> To clean the sand on the ground and provide the sandbag bund to avoid silty runoff out of the site.	The follow up action will be reported in the next reporting month.
<i>Noise</i>	21, 28 December 2017	<u>Observation / Reminder:</u> Noise barrier should be erected for road surface breaking works at LCR.	The follow up action will be reported in the next reporting month.
<i>Landscape and Visual</i>	28 December 2017	<u>Observation:</u> A proper tree protection zone should be established for the retained tree.	The follow up action will be reported in the next reporting month.
<i>Cultural Heritage</i>	--	--	--
<i>Air Quality</i>	30 November 2017	<u>Reminder:</u> Stockpile of dusty material should be properly covered by the impervious material near the western ventilation shaft for dust suppression.	As observed on 07 December 2017, stockpile was properly covered by the impervious sheet.
	07 December 2017	<u>Reminder:</u> Haul road was observed dry. The contractor was reminded to provide water spraying for	As observed on 14 December 2017, haul road was observed wet.

Parameters	Date	Observations and Recommendations	Follow-up
		dust suppression.	
	07 December 2017	<u>Reminder:</u> Stockpile of dusty material in MBME system should be sprayed with water for dust suppression.	As observed on 14 December 2017, stockpile of dusty material in MBME system was being sprayed with water by the worker.
	21 December 2017	<u>Reminder:</u> Stockpile of dusty material at MBME and haul road near MBME should be sprayed with water for dust suppression.	As observed on 28 December 2017, haul road and dusty material in MBME system was observed wet.
	28 December 2017	<u>Reminder:</u> Stockpile of dusty material should be properly covered by the impervious sheet near the western ventilation shaft.	The follow up action will be reported in the next reporting month.
Waste/ Chemical Management	30 November 2017	<u>Reminder:</u> To remove the general refuse found on the found at Diamond-Hill station L1 and provide proper waste storage bin.	As observed on 07 December 2017, general refuse were removed.
	14 December 2017	<u>Reminder:</u> Empty oil drums should be removed to avoid any chemical leakage.	As observed on 21 December 2017, oil drums were removed.
Permits/ Licenses	--	--	--

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

- 7.1 No exceedance of the Action and Limit Levels of the regular construction noise and 24-hour TSP monitoring was recorded during the reporting month. The summary of exceedance is provided in **Appendix G**.

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

- 7.3 No environmental Project-related complaints 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:

- Superstructure works of SCL DIH station;
- ABWF works at SCL-DIH station area;
- Foundation works, TTA for site access and temporary footpath diversion at Choi Hung Road and A2;
- Construction of Interchange Adit, West Unpaid Link Adit and East MOE (Entrance B);
- Alteration works for Entrance A2;
- Backfilling works;
- Stations breakthrough; and
- Drainage works.

Key Issues in the Next Month

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

- Dust arising from loading, unloading, transfer, handling or storage of bulk cement or dry PFA and excavated materials;
- Control of silty surface runoff;
- Preservation of Former Royal Air Force Hangar and Old Pillbox after dismantling and relocation;
- Preservation and protection of retained and transplanted trees; and
- Implementation of mitigation measures for noise nuisance from construction works.

Monitoring Schedule in the Next Month

8.3 The tentative schedule of regular construction noise monitoring and 24-hour TSP monitoring at Rhythm Garden in the next reporting period is presented in **Appendix D**. The regular construction noise monitoring and 24-hour TSP monitoring will be conducted at the same monitoring locations in the next reporting period.

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1st to 31st December 2017 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 No Project related environmental complaint and no successful prosecution or notification of summons were received in 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

- Sedimentation tank should be maintained more frequently to avoid accumulation of silt.
- Bunding should be provided at site boundaries to avoid any runoff overflow.

Noise

- Noise barrier should be erected for road surface breaking works at LCR.

Waste / Chemical Management

- Empty oil drums should be removed to avoid any chemical leakage.

Air Quality

- Frequent water spraying should be provided within site area to prevent dust generation.
- Stockpile of dusty material should be sprayed with water or covered by the impervious material for dust suppression.

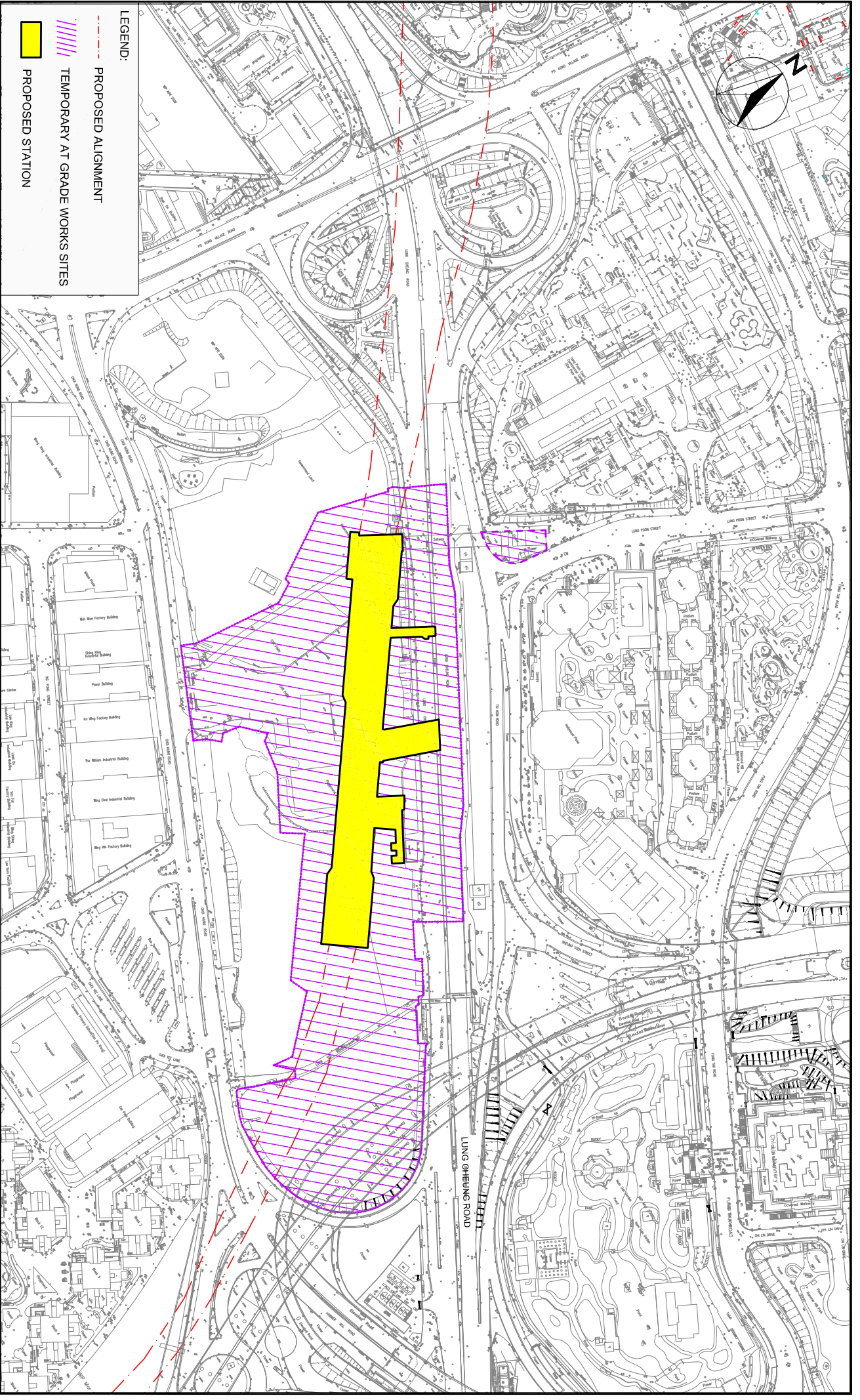
Landscape & Visual

- A proper tree protection zone should be established for the retained tree.

Permit & License

- N/A

FIGURES



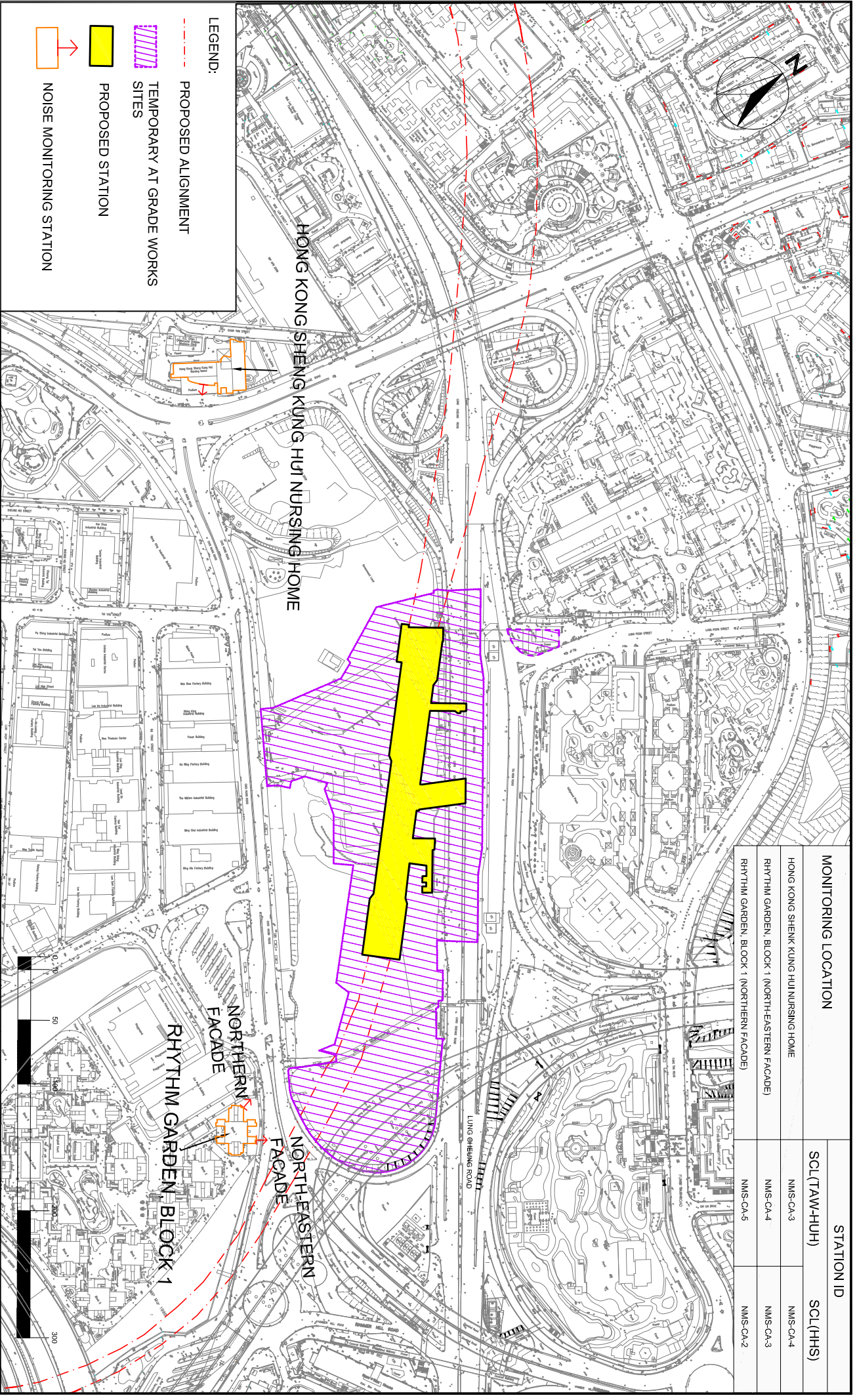
LEGEND:

- - - 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	SEP 2016
CHECK	BW	DRAWN	JW
JOB NO.	MA12051	FIGURE NO.	1
		REV	-

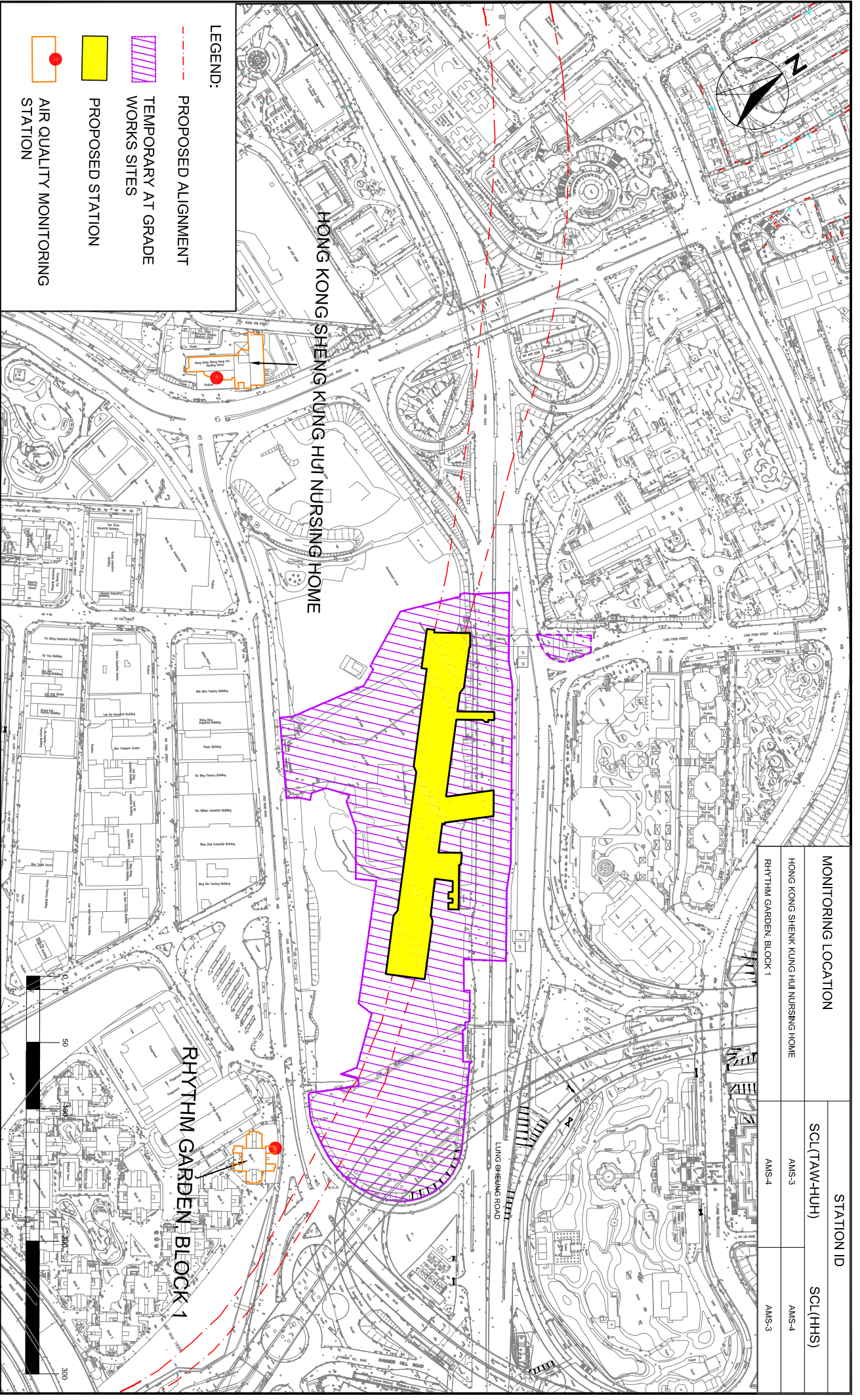


MONITORING LOCATION		STATION ID	
HONG KONG SHENG KUNG HUI NURSING HOME		SC1(TAW-HUH)	SC1(HHS)
RHYTHM GARDEN, BLOCK 1 (NORTH-EASTERN FACADE)	NMS-CA-3		NMS-CA-4
RHYTHM GARDEN, BLOCK 1 (NORTHERN FACADE)	NMS-CA-4		NMS-CA-3
	NMS-CA-5		NMS-CA-2

LEGEND:

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

SCALE	1:100	DATE	SEP 2016
CHECK	BW	DRAWN	JW
JOB NO.	MA12051	FIGURE NO.	2
		REV	-

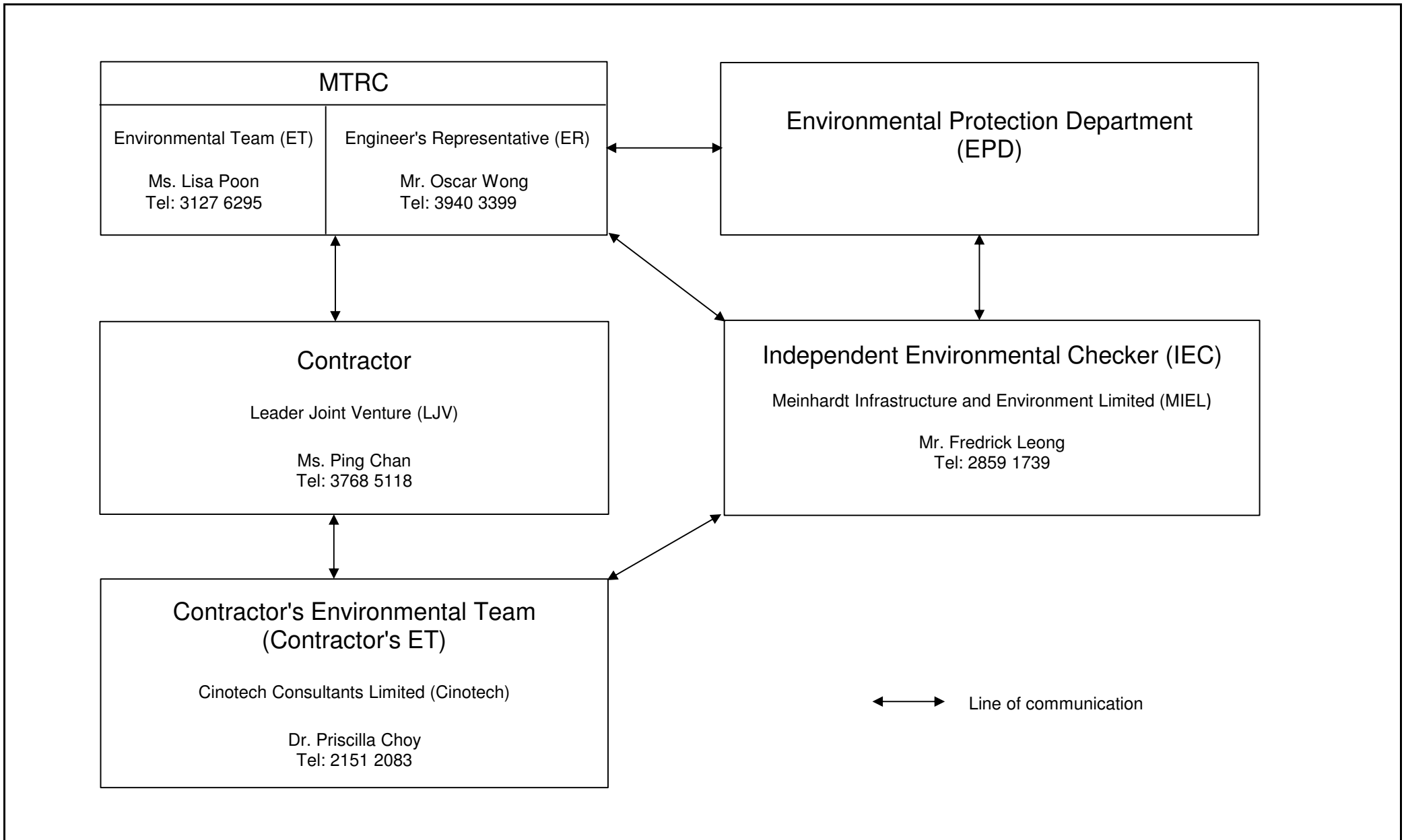


- LEGEND:**
- - - PROPOSED ALIGNMENT
 - TEMPORARY AT GRADE WORKS SITES
 - PROPOSED STATION
 - AIR QUALITY MONITORING STATION

MONITORING LOCATION	STATION ID
HONG KONG SHENG KUNG HUI NURSING HOME	SCL(TAW-HUH) AMS-3 AMS-4
RHYTHM GARDEN, BLOCK 1	AMS-4 AMS-3

SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION
LOCATION OF AIR QUALITY MONITORING STATIONS

SCALE	1:100	DATE	SEP 2016
CHECK	BW	DRAWN	JW
JOB NO.	MA12051	FIGURE NO.	3
		REV	-



Title	MTR SCL Works Contract 1106 Diamond Hill Station	Scale	N.T.S	Proposal No.	MA12051	CINOTECH
	Organisation Chart and Key Contact of the Project	Date	Mar-17	Figure	4	

**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**



Contract 1106 - Diamond Hill Station



Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	December				January				February				March				
						04	11	18	25	01	08	15	22	29	05	12	19	26	05	12	19	26
						260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276
Cost Centre B: SCL- DIH Station, Entrances and Adits																						
TTMS Implementation																						
Lung Cheung Road																						
TTA Implementation																						
C1106.TMS0582	TTA for the construction of SCL DIH MOE at Diamond Hill Station Entrance B (SLG/1106/017/DIH/004/001A)	166	14-Jul-16 A	30-Apr-18	82%																	
C1106.TMS0592	TTA for Temporary Lung Cheung Road Diversion (Stage 3) (SLG/1106/005/DIH/012/001G-002G)	147	07-Aug-16 A	31-Dec-17 A	100%																	TTA for Temporary Lung Cheung Road Diversion (Stage 3) (SLG/1106/005/DIH/012/001G-002G)
C1106.TMS0594	TTA for Repair Works at Lung Cheung Road Diversion(Stage 3-Westbound Middle & Fast Lane)(SLG/1106/019/DIH/012/001A-004A)	122	01-Sep-16 A	31-Dec-17 A	100%																	TTA for Repair Works at Lung Cheung Road Diversion(Stage 3-Westbound Middle & Fast Lane)(SLG/1106/019/DIH/012/001A-004A)
C1106.TMS0596	TTA for Repair Works at Lung Cheung Road Diversion(Stage 3-Westbound Middle & Slow Lane)(SLG/1106/019/DIH/013/001A-004A)	122	01-Sep-16 A	31-Dec-17 A	100%																	TTA for Repair Works at Lung Cheung Road Diversion(Stage 3-Westbound Middle & Slow Lane)(SLG/1106/019/DIH/013/001A-004A)
C1106.TMS0598	TTA for Repair Works at Lung Cheung Road Diversion(Stage 3-Eastbound Middle & Slow Lane)(SLG/1106/019/DIH/014/001A-004A)	108	15-Sep-16 A	31-Dec-17 A	100%																	TTA for Repair Works at Lung Cheung Road Diversion(Stage 3-Eastbound Middle & Slow Lane)(SLG/1106/019/DIH/014/001A-004A)
C1106.TMS0600	TTA for Repair Works at Lung Cheung Road Diversion(Stage 3-Eastbound Fast & Middle Lane)(SLG/1106/019/DIH/015/001A-004A)	108	15-Sep-16 A	31-Dec-17 A	100%																	TTA for Repair Works at Lung Cheung Road Diversion(Stage 3-Eastbound Fast & Middle Lane)(SLG/1106/019/DIH/015/001A-004A)
C1106.TMS0606	TTA for Construction Drainage and Manhole Works at Diamond Hill Station Entrance B(SLG/1106/020/DIH/001/001B)	200	15-Mar-17 A	30-Apr-18	75%																	
C1106.TMS0608	TTA for Construction of Diamond Hill Station Entrance A2 near Lung Cheung Road(SLG/1106/001/DIH/006/001A)	212	01-Sep-17 A	31-Mar-18	58%																	
C1106.TMS0613	TTA for UU Diversion & Reinstatement Works (Stage 4)(SLG/1106/005/DIH/006/001A)	122	17-Dec-17 A	17-Apr-18	13%																	
Choi Hung Road																						
TTA Implementation																						
C1106.TMS0369	TTA for Site Access and Temporary Footpath diversion at Ex-Tai Hom Village (SLG/001/DIH/003/001A)	185	04-Jul-16 A	30-Apr-18	80%																	
Structural Works																						
Public Access Level (Level L1)																						
Wall & Column																						
C1106.PLW6467	GL 31-34 Scaffold Removal (Public Access Level to Ground Level)	7	20-Nov-17 A	05-Dec-17 A	100%																	GL 31-34 Scaffold Removal (Public Access Level to Ground Level)
Ground Level (Level GL)																						
Wall & Column																						
C1106.BGW7492	GL 34-36.7 Scaffold Removal (Ground Level to First Floor Level)	6	06-Dec-17 A	13-Dec-17 A	100%																	GL 34-36.7 Scaffold Removal (Ground Level to First Floor Level)
C1106.BGW7494	GL 31-34 Scaffold Removal (Ground Level to First Floor Level)	6	12-Dec-17 A	18-Dec-17 A	100%																	GL 31-34 Scaffold Removal (Ground Level to First Floor Level)
First Floor Level (Level U1)																						
Beam & Slab																						
C1106.BFS7665	GL 34-36.7 Curing Concrete Level U1 Beam & Slab	7	26-Nov-17 A	02-Dec-17 A	100%																	GL 34-36.7 Curing Concrete Level U1 Beam & Slab
C1106.BFS7675	GL 32-34 Curing Concrete Level U1 Beam & Slab	7	01-Dec-17 A	07-Dec-17 A	100%																	GL 32-34 Curing Concrete Level U1 Beam & Slab
Wall & Column																						
C1106.BFW7700	GL 34-36.7 Scaffold Erection and Construct Wall to Roof Level	5	27-Nov-17 A	06-Dec-17 A	100%																	GL 34-36.7 Scaffold Erection and Construct Wall to Roof Level
C1106.BFW7695	GL 32-34 Scaffold Erection and Construct Wall and Roof Beam to Roof Level	7	01-Dec-17 A	07-Dec-17 A	100%																	GL 32-34 Scaffold Erection and Construct Wall and Roof Beam to Roof Level
C1106.BFW7705	GL 34-36.7 Scaffold Removal (First Floor Level to Roof Level)	6	09-Dec-17 A	15-Dec-17 A	100%																	GL 34-36.7 Scaffold Removal (First Floor Level to Roof Level)
C1106.BFW7697	GL 32-34 Scaffold Removal (First Floor Level to Roof Level)	6	09-Dec-17 A	15-Dec-17 A	100%																	GL 32-34 Scaffold Removal (First Floor Level to Roof Level)
Roof Level (RL)																						
Roof Slab																						
C1106.BRL8752	GL 34-36.7 Construct Beam & Roof Slab	3	06-Dec-17 A	07-Dec-17 A	100%																	GL 34-36.7 Construct Beam & Roof Slab
C1106.BRL8757	GL 34-36.7 Concrete Curing Beam & Roof Slab	14	08-Dec-17 A	21-Dec-17 A	100%																	GL 34-36.7 Concrete Curing Beam & Roof Slab
ABWF & Miscellaneous Works																						
Platform Level (Level L5)																						
Passenger Areas																						
C1106.BAF1122	GL 36-49 ABWF Deg.3 Works Platform Passenger Areas	191	25-Apr-16 A	31-Jan-18	55%																	GL 36-49 ABWF Deg.3 Works Platform Passenger Areas
C1106.BAF1152	GL 49-51 ABWF Deg.3 Works Platform Passenger Areas	108	06-Feb-17 A	31-Jan-18	60%																	GL 49-51 ABWF Deg.3 Works Platform Passenger Areas
C1106.BAF1175	GL 35-36 ABWF Deg.3 Works Platform Passenger Areas	52	25-Jul-17 A	31-Jan-18	45%																	GL 35-36 ABWF Deg.3 Works Platform Passenger Areas
Back of House & Plant Rooms																						
C1106.BAF1535	GL 49-53 ABWF Deg.3 Works Platform BOH Areas & Plant Rooms	116	26-Apr-16 A	31-Jan-18	60%																	GL 49-53 ABWF Deg.3 Works Platform BOH Areas & Plant Rooms
C1106.BAF1142	GL 36-40 ABWF Deg.3 Works Platform BOH Areas & Plant Rooms	55	30-Jun-17 A	31-Jan-18	55%																	GL 36-40 ABWF Deg.3 Works Platform BOH Areas & Plant Rooms
C1106.BAF2247	GL 34-36 ABWF Deg.3 Works Platform BOH Areas & Plant Rooms	65	25-Jul-17 A	31-Jan-18	36%																	GL 34-36 ABWF Deg.3 Works Platform BOH Areas & Plant Rooms
C1106.BAF2245	GL 31-34 ABWF Deg.3 Works Platform BOH Areas & Plant Rooms	35	25-Jul-17 A	31-Jan-18	36%																	GL 31-34 ABWF Deg.3 Works Platform BOH Areas & Plant Rooms
C1106.BAF1162	GL 42-49 ABWF Deg.3 Works Platform BOH Areas & Plant Rooms	53	07-Aug-17 A	31-Jan-18	45%																	GL 42-49 ABWF Deg.3 Works Platform BOH Areas & Plant Rooms
Mezzanine Level (Level L4)																						
Back of House & Plant Rooms																						
C1106.BMF3085	GL 36-49 ABWF Deg.3 Works Mezzanine BOH & Plant Rooms	206	01-Jun-16 A	28-Feb-18	51%																	GL 36-49 ABWF Deg.3 Works Mezzanine BOH & Plant Rooms
C1106.BMF3335	GL 49-53 ABWF Deg.3 Works Mezzanine BOH & Plant Rooms	178	22-Aug-16 A	28-Feb-18	56%																	GL 49-53 ABWF Deg.3 Works Mezzanine BOH & Plant Rooms
C1106.BMF3380	GL 34-36 ABWF Deg.2 Works Mezzanine BOH & Plant Rooms	35	14-Jul-17 A	22-Jan-18	75%																	GL 34-36 ABWF Deg.2 Works Mezzanine BOH & Plant Rooms
C1106.BMF3382	GL 34-36 ABWF Deg.3 Works Mezzanine BOH & Plant Rooms	45	24-Aug-17 A	28-Feb-18	20%																	GL 34-36 ABWF Deg.3 Works Mezzanine BOH & Plant Rooms
C1106.BMF3376	GL 31-34 ABWF Deg.2 Works Mezzanine BOH & Plant Rooms	21	24-Aug-17 A	22-Jan-18	75%																	GL 31-34 ABWF Deg.2 Works Mezzanine BOH & Plant Rooms
C1106.BMF3379	GL 31-34 ABWF Deg.3 Works Mezzanine BOH & Plant Rooms	19	24-Aug-17 A	28-Feb-18	20%																	GL 31-34 ABWF Deg.3 Works Mezzanine BOH & Plant Rooms
Concourse Level (Level L2)																						
Passenger Areas																						
C1106.BCF5230	GL 40-47 ABWF Deg.3 Works Concourse Passenger Areas	63	03-Aug-17 A	26-Mar-18	10%																	GL 40-47 ABWF Deg.3 Works Concourse Passenger Areas

- Remaining Work
- Critical Remaining Work
- Actual Work
- ◆ Baseline Milestone
- ◆ Milestone

**MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 Dec 2017**

3 Month Rolling Programme			
Date	Revision	Checked	Approved
31-Dec-17	C-1106-3MRP/ 60		



Contract 1106 - Diamond Hill Station



Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	December				January					February				March				
						04	11	18	25	01	08	15	22	29	05	12	19	26	02	09	16	23	
C1106.BCF5267	GL 36-40 ABWF Deg.3 Works Concourse Passenger Areas	60	19-Aug-17 A	13-Feb-18	10%																		
Back of House & Plant Rooms																							
C1106.BCF5324	GL 36-40 ABWF Deg.3 Works Concourse BOH & Plant Rooms	104	03-Mar-17 A	15-Feb-18	19%																		
C1106.BCF5335	GL 49-53 ABWF Deg.3 Works Concourse BOH & Plant Rooms	68	11-Sep-17 A	31-Jan-18	46%																		
C1106.BCF5260	GL 40-49 ABWF Deg.3 Works Concourse BOH & Plant Rooms	106	11-Sep-17 A	15-Feb-18	22%																		
C1106.BCF5343	GL 34-36 ABWF Deg.1 Works Concourse BOH & Plant Rooms	35	21-Sep-17 A	06-Jan-18	95%																		
C1106.BCF5340	GL 31-34 ABWF Deg.1 Works Concourse BOH & Plant Rooms	22	04-Oct-17 A	06-Jan-18	95%																		
C1106.BCF5349	GL 34-36 ABWF Deg.2 Works Concourse BOH & Plant Rooms	72	23-Oct-17 A	31-Jan-18	35%																		
C1106.BCF5346	GL 31-34 ABWF Deg.2 Works Concourse BOH & Plant Rooms	49	23-Oct-17 A	31-Jan-18	35%																		
C1106.BCF5357	GL 34-36 ABWF Deg.3 Works Concourse BOH & Plant Rooms	66	13-Nov-17 A	10-Mar-18	17%																		
C1106.BCF5354	GL 31-34 ABWF Deg.3 Works Concourse BOH & Plant Rooms	58	13-Nov-17 A	10-Mar-18	17%																		
Public Access Level (Level L1)																							
Passenger Areas																							
C1106.BPF6010	GL 36-38 ABWF Deg.1 Works Public Access Level Passenger Areas	18	01-Dec-17 A	21-Dec-17 A	100%																		
C1106.BPF7010	GL 31-36 ABWF Deg.1 Works Public Access Passenger Areas	26	11-Dec-17 A	06-Jan-18	25%																		
C1106.BPF6015	GL 36-38 ABWF Deg.2 Works Public Access Level Passenger Areas	36	15-Dec-17 A	30-Jan-18	30%																		
C1106.BPF7015	GL 31-36 ABWF Deg.2 Works Public Access Passenger Areas	28	02-Jan-18	02-Feb-18	0%																		
C1106.BPF7025	GL 31-36 ABWF Deg.3 Works Public Access Passenger Areas	43	13-Jan-18	07-Mar-18	0%																		
C1106.BPF6020	GL 36-38 ABWF Deg.3 Works Public Access Level Passenger Areas	31	31-Jan-18	10-Mar-18	0%																		
Back of House & Plant Rooms																							
C1106.BPF7135	GL 36-49 ABWF Deg.3 Works Public Access Level BOH & Plant Rooms	103	27-May-17 A	20-Mar-18	47%																		
C1106.BPF7270	GL 31-36 ABWF Deg.1 Works Public Access BOH & Plant Rooms	26	17-Nov-17 A	06-Jan-18	40%																		
C1106.BPF7275	GL 31-36 ABWF Deg.2 Works Public Access BOH & Plant Rooms	42	18-Nov-17 A	06-Feb-18	24%																		
C1106.BPF7280	GL 31-36 ABWF Deg.3 Works Public Access BOH & Plant Rooms	43	18-Dec-17 A	10-Mar-18	12%																		
Ground Level (Level GL)																							
Back of House & Plant Rooms																							
C1106.BGF7430	GL 49-53 ABWF Deg.3 Works Ground BOH & Plant Rooms	117	03-Oct-17 A	12-Jan-18	64%																		
C1106.BGF7325	GL 36-49 ABWF Deg.3 Works Ground BOH & Plant Rooms	151	23-Oct-17 A	31-Jan-18	31%																		
C1106.BGF7507	GL 32-36 ABWF Deg.1 Works Ground BOH & Plant Rooms	38	14-Dec-17 A	29-Jan-18	15%																		
C1106.BGF7515	GL 32-36 ABWF Deg.2 Works Ground BOH & Plant Rooms	40	18-Dec-17 A	09-Feb-18	13%																		
C1106.BGF7520	GL 32-36 ABWF Deg.3 Works Ground BOH & Plant Rooms	39	27-Dec-17 A	14-Mar-18	3%																		
First Floor Level (Level U1)																							
Back of House & Plant Rooms																							
C1106.BFF8150	GL 49-53 ABWF Deg. 3 Works First Floor BOH & Plant Rooms	46	31-May-17 A	31-Jan-18	33%																		
C1106.BFF8130	GL 36-49 ABWF Deg.3 Works First Floor BOH & Plant Rooms	75	16-Oct-17 A	12-Feb-18	30%																		
C1106.BFF8215	GL 32-36 ABWF Deg.1 Works First Floor BOH Areas	18	21-Dec-17 A	31-Jan-18	20%																		
Multi-Level																							
Staircase - Fitout																							
C1106.BSF5275	GL 47-48 ABWF Deg.2 Staircases	65	23-Nov-16 A	27-Feb-18	35%																		
C1106.BSF5540	GL 35-36 ABWF Deg.1 Staircases	45	01-Dec-17 A	25-Jan-18	50%																		
C1106.BSF5280	GL 47-48 ABWF Deg.3 Staircases	60	02-Jan-18	15-Mar-18	0%																		
C1106.BSF5545	GL 35-36 ABWF Deg.2 Staircases	45	02-Jan-18	26-Feb-18	0%																		
C1106.BSF5550	GL 35-36 ABWF Deg.3 Staircases	48	16-Jan-18	15-Mar-18	0%																		
Lung Cheung Road																							
Preliminary Site Works																							
Utilities and Drainages																							
C1106.BIA6143	Trench Excavation for UU	7	02-Jan-18	09-Jan-18	0%																		
C1106.BSA1105	Issue of WW046 Part3	21	04-Jan-18	27-Jan-18	0%																		
C1106.BIA6095	Modify PCCW Cables and Construct PCCW Manhole (By PCCW)	25	08-Jan-18	05-Feb-18	0%																		
C1106.BIA6129	Temporary Footpath Diversion	6	18-Jan-18	24-Jan-18	0%																		
C1106.BIA6111	Reinstatement of Gas Valve (By others)	14	22-Jan-18	06-Feb-18	0%																		
C1106.BIA6148	Reprovisioning of 375mm Storm Pipe(Including Testing and Inspection)	13	23-Jan-18	06-Feb-18	0%																		
C1106.BIA6133	CLP Cable Diversion (Stage 2)	18	25-Jan-18	14-Feb-18	0%																		
C1106.BIA6132	Reprovision of DN250 Fresh Water Main(AI Area)(Including Testing and Water Sampling)	16	29-Jan-18	15-Feb-18	0%																		
C1106.BIA6128	Reprovision of DN200 Salt Water Main(AI Area)(Including Inspection)	9	29-Jan-18	07-Feb-18	0%																		
C1106.BIA6168	Reprovisioning Drawpits of TV and Network (Including Cables)	16	08-Feb-18	07-Mar-18	0%																		
C1106.BIA6141	Submission of WW046 Part4	3	21-Feb-18	23-Feb-18	0%																		
C1106.BIA6163	Adjust the cover Level of Existing Draw Pits and Manholes in LCR Footpath (EVA Road Area)	15	28-Feb-18	16-Mar-18	0%																		
C1106.BIA6165	Install new Road Kerb and new pavement block (EVA Road Area)	12	07-Mar-18	20-Mar-18	0%																		
C1106.BIA6153	Adjust the cover Level of Existing Draw Pits and Manholes in LCR Footpath	28	08-Mar-18	13-Apr-18	0%																		
C1106.BIA6158	Construction of Run-in (EVA Road Area)	12	15-Mar-18	28-Mar-18	0%																		
C1106.BIA6155	Reprovision of ATC draw pits & associated Cable Duct (3-ways)	12	26-Mar-18	12-Apr-18	0%																		
C1106.BIA6137	FSD Inspection Commencement	0	29-Mar-18		0%																		
Lung Cheung Road and Footpath																							
C1106.BIA7089	Carry-out Road Markings	1	16-Dec-17 A	16-Dec-17 A	100%																		
C1106.BIA7101	TTM Implementation Stage4, Existing Traffic on Middle & Slow Lanes Diversion and Removal of Decking at WUL & IA	13	18-Dec-17 A	06-Jan-18	55%																		
Watermain, Gas Main and Foundation Works																							
C1106.BIA7091	WUL Reprovision of Gas Main(By Towngas)	12	08-Jan-18	20-Jan-18	0%																		
C1106.BIA7092	IA Reprovision Gas Main(By Towngas)	12	08-Jan-18	20-Jan-18	0%																		
C1106.BIA6110	Reinstatement of Gas Valve(By Towngas)	14	22-Jan-18	06-Feb-18	0%																		

- Remaining Work
- Critical Remaining Work
- Actual Work
- Baseline Milestone
- Milestone

2 of 3

MTR Contract 1106 - Diamond Hill Station Three Month Rolling Programme As of 31 Dec 2017

3 Month Rolling Programme			
Date	Revision	Checked	Approved
31-Dec-17	C-1106-3MRP/ 60		



Contract 1106 - Diamond Hill Station



Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	December				January				February				March						
						04	11	18	25	01	08	15	22	29	05	12	19	26	02	09	16	23		
C1106.BIA6120	Removal of Temporary Gas Main(Within 1106 Works Area)	34	07-Feb-18	21-Mar-18	0%																			
Construction of Interchange Adit																								
Construction of Interchange Adit																								
Civil & Structural Works																								
C1106.BIA8485	IA - Backfilling Works, Extract Sheetpile, Reinstate the Concrete and Asphalt Pavement	20	27-Nov-17 A	15-Dec-17 A	100%																			
ABWF Works																								
C1106.BIA8555	IA - ABWF Works Deg.1	20	31-Oct-17 A	03-Jan-18	80%																			
C1106.BIA8560	IA - ABWF Works Deg.2	35	02-Jan-18	10-Feb-18	0%																			
C1106.BIA8565	IA - ABWF Works Deg.3	50	20-Jan-18	22-Mar-18	0%																			
Construction of West Unpaid Link Adit																								
West Adit Link - Middle Section & North Section																								
Civil & Structural Works																								
C1106.BWA8598	WUL - Backfilling Works, Reinstate Concrete and Asphalt Pavement	15	04-Nov-17 A	06-Dec-17 A	100%																			
West Adit Link - South Section to North Section																								
ABWF Works																								
C1106.BWA8695	WUL - ABWF Works Deg.2	32	02-Jan-18	07-Feb-18	0%																			
C1106.BWA8698	WUL - ABWF Works Deg.3	43	15-Jan-18	08-Mar-18	0%																			
Construction of East MOE (Entrance B)																								
East MOE																								
Civil & Structural Works																								
C1106.BEB8826	East MOE - Scaffold Modification and Construct Wall and Staircase (ST15A)	24	30-Sep-17 A	08-Dec-17 A	100%																			
C1106.BEB8820	East MOE - Backfilling Works Compaction	5	06-Nov-17 A	06-Dec-17 A	100%																			
C1106.BEB8823	East MOE - Staircase Curing, Formwork and Scaffold Removal	12	28-Nov-17 A	16-Dec-17 A	100%																			
ABWF Works																								
C1106.BEB8830	L2-A05 & ST14 - ABWF Works Deg.1 (Except Breakthrough Area)	15	10-Nov-17 A	03-Jan-18	90%																			
C1106.BEB8834	L2-ST15A & L2-ST15B - ABWF Works Deg.1 (Remaining Area)	10	20-Dec-17 A	03-Jan-18	70%																			
C1106.BEB8832	L2-A05 - ABWF Works Deg.1 (Remaining Area)	7	27-Dec-17 A	03-Jan-18	50%																			
C1106.BEB8840	L2-A05 & ST14 - ABWF Works Deg.2 (Except Breakthrough Area)	35	04-Jan-18	13-Feb-18	0%																			
C1106.BEB8842	L2-A05 - ABWF Works Deg.2 (Remaining Area)	12	04-Jan-18	17-Jan-18	0%																			
C1106.BEB8860	L2-ST15A & L2-ST15B - ABWF Works Deg.2 (Remaining Area)	20	09-Jan-18	31-Jan-18	0%																			
C1106.BEB8845	L2-A05 , L2-ST14, L2-ST15A & L2-ST15B - ABWF Works Deg.3	40	01-Feb-18	22-Mar-18	0%																			
Disable Lift (LT07)																								
C1106.BEB9600	Lift (LT07): ABWF Works - Degree 1	12	02-Dec-17 A	09-Jan-18	25%																			
C1106.BEB9605	Lift (LT07) Installation by Others	60	10-Jan-18	23-Mar-18	0%																			
C1106.BEB9615	Lift (LT07) Testing and Commissioning / Statutory Inspection for Lift No. 07	21	24-Mar-18	21-Apr-18	0%																			
Cost Centre C: KTL - DIH Modification and Refurbishment Works																								
Entrance A2 (Alteration Works)																								
Existing Entrance A2																								
General																								
C1106.BEA1940	Setting-out and Predrilling Works(PD18) for Stage2	7	30-Nov-17 A	13-Dec-17 A	100%																			
C1106.BEA1942	Grouting Work	4	18-Dec-17 A	21-Dec-17 A	100%																			
C1106.BEA1945	Drilling Works and Install Raking Pile 610mm (RP1) for Stage2	9	28-Dec-17 A	06-Jan-18	50%																			
Civil & Structural Works																								
C1106.BEA2072	Erect Temp Falsework, Demolish the Remaining Structures and Excavate to Formation Level at +6.70mPD	34	08-Nov-17 A	01-Feb-18	60%																			
C1106.BEA2075	Construct the Remaining Base Slab at Level +8.40mPD for Stage2	11	02-Feb-18	14-Feb-18	0%																			
C1106.BEA2045	Shoring Modification and Repropping for Stage2	3	15-Feb-18	21-Feb-18	0%																			
C1106.BEA2076	FRP for Wall and Top Slab with Temporary Walkway Opening for Stage2	15	22-Feb-18	10-Mar-18	0%																			
C1106.BEA2077	Wall Formwork Removal and Scaffold Erection for Top Slab for Stage2	6	12-Mar-18	17-Mar-18	0%																			
C1106.BEA2086	Temporary Walkway & Bulkhead Wall Removal and Temporary Walkway Divers	11	12-Mar-18	23-Mar-18	0%																			
ABWF Works																								
C1106.BEA2087	ABWF Works Deg.1	15	08-Feb-18	28-Feb-18	0%																			
C1106.BEA2092	ABWF Works Deg.2	25	01-Mar-18	29-Mar-18	0%																			
C1106.BEA2097	Preparation Works and Sky Light Installation	32	24-Mar-18	05-May-18	0%																			

- Remaining Work
- Critical Remaining Work
- Actual Work
- ◆ Baseline Milestone
- ◆ Milestone

3 of 3

MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 Dec 2017

3 Month Rolling Programme			
Date	Revision	Checked	Approved
31-Dec-17	C-1106-3MRP/ 60		

**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⁾ / DMS-4 ⁽²⁾⁽³⁾	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.

Construction Noise

Regular Construction Noise Monitoring Location ⁽¹⁾	Description	Time Period	Action Level	Limit Level (Leq (30-min))
NMS-CA-3 ⁽¹⁾⁽³⁾ / NMS-CA-4 ⁽²⁾⁽³⁾	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⁾⁽⁴⁾ / NMS-CA-2 ⁽²⁾⁽⁴⁾	Block 1, Rhythm Garden (northern façade)			65 / 70 dB(A) ⁽⁵⁾

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

**APPENDIX C
CALIBRATION CERTIFICATES FOR
MONITORING EQUIPEMENT**

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA12051/64/0008

Station DMS-3 - Hong Kong Sheng Kung Hui Nursing Home Operator: WK
 Date: 27-Nov-17 Next Due Date: 26-Jan-18
 Equipment No.: A-01-64 Serial No. 3223

Ambient Condition			
Temperature, Ta (K)	293.8	Pressure, Pa (mmHg)	765

Orifice Transfer Standard Information					
Serial No.:	993	Slope, mc	0.0578	Intercept, bc	-0.0489
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)] ^{1/2} Y-axis
1	17.5	4.23	73.98	10.7	3.31
2	14.0	3.78	66.26	8.6	2.96
3	10.7	3.31	58.03	6.6	2.60
4	6.9	2.65	46.77	4.5	2.14
5	4.2	2.07	36.67	3.0	1.75

By Linear Regression of Y on X

Slope, mw = 0.0417 Intercept, bw = 0.2037
 Correlation coefficient* = 0.9995

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

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

Therefore, Set Point; W = (mw x Qstd + bw)² x (760 / Pa) x (Ta / 298) = 3.90

Remarks: _____

Conducted by: W.K. Tang Signature: [Signature]
 Checked by: [Signature] Signature: [Signature]

Date: 27/11/17
 Date: 27 November 2017

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

 File No. MA12051/57/0029

 Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 3-Nov-17 Next Due Date: 2-Jan-18
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	297.3	Pressure, Pa (mmHg)	765.3

Orifice Transfer Standard Information					
Serial No.	0993	Slope, mc	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

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 water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.4	3.39	59.56	7.4	2.73
2	9.7	3.13	55.01	6.3	2.52
3	7.6	2.77	48.79	5.0	2.25
4	5.4	2.33	41.26	3.4	1.85
5	3.2	1.80	31.95	2.2	1.49

By Linear Regression of Y on X

 Slope, mw = 0.0456 Intercept, bw = 0.0103
 Correlation coefficient* = 0.9989

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ <u>3.85</u>	

 Remarks: _____

 Conducted by: Wk Tang Signature: [Signature] Date: 3/11/2017
 Checked by: LA Signature: [Signature] Date: 3 November 2017



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 - Feb 28, 2017 Rootsmeter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 0993 Pa (mm) - 750.57

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	1.3860	3.2	2.00
2	NA	NA	1.00	0.9910	6.4	4.00
3	NA	NA	1.00	0.8840	7.9	5.00
4	NA	NA	1.00	0.8430	8.7	5.50
5	NA	NA	1.00	0.6970	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.7191	1.4149	0.9957	0.7184	0.8851
0.9925	1.0015	2.0010	0.9915	1.0005	1.2517
0.9904	1.1204	2.2372	0.9894	1.1192	1.3995
0.9894	1.1737	2.3464	0.9884	1.1725	1.4678
0.9842	1.4120	2.8299	0.9832	1.4106	1.7702
Qstd slope (m) = 2.04055			Qa slope (m) = 1.27776		
intercept (b) = -0.04890			intercept (b) = -0.03059		
coefficient (r) = 0.99995			coefficient (r) = 0.99995		
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}

TEST REPORT

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

Test Report No.:	C/N/170915
Date of Issue:	2017-09-18
Date Received:	2017-09-15
Date Tested:	2017-09-15
Date Completed:	2017-09-18
Next Due Date:	2018-09-17

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	: 60%

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/170915A
Date of Issue:	2017-09-18
Date Received:	2017-09-15
Date Tested:	2017-09-15
Date Completed:	2017-09-18
Next Due Date:	2018-09-17

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.	: 12563
Microphone No.	: 34377
Equipment No.	: N-08-03

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 60%

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/170825
Date of Issue:	2017-08-28
Date Received:	2017-08-25
Date Tested:	2017-08-25
Date Completed:	2017-08-28
Next Due Date:	2018-08-27

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.	: 21455
Microphone No.	: 43730
Equipment No.	: N-08-07

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 60 %

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/171215
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35924
Equipment No.	: N-13-01

Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 64%

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/170929
Date of Issue:	2017-09-30
Date Received:	2017-09-29
Date Tested:	2017-09-29
Date Completed:	2017-09-30
Next Due Date:	2018-09-29

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	: 60 %

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/170929A
Date of Issue:	2017-09-30
Date Received:	2017-09-29
Date Tested:	2017-09-29
Date Completed:	2017-09-30
Next Due Date:	2018-09-29

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description : Acoustical Calibrator
Manufacturer : SVANTEK
Model No. : SV30A
Serial No. : 24791
Equipment No. : N-09-04

Test conditions:

Room Temperature : 21 degree Celsius
Relative Humidity : 60 %

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

APPENDIX D
IMPACT MONITORING SCHEDULE

**Shatin to Central Link – Contract 1106 Diamond Hill Station
Impact Air Quality and Noise Monitoring Schedule for December 2017**

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

Air Quality Monitoring Station

DMS-3⁽¹⁾/4⁽²⁾: - Hong Kong Sheng Kung Hui Nursing Home

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

Noise Monitoring Station

NMS-CA-3⁽¹⁾/4⁽²⁾: - Hong Kong Sheng Kung Hui Nursing Home

NMS-CA-4⁽¹⁾/3⁽²⁾: - Block 1, Rhythm Garden (north-eastern façade)

NMS-CA-5⁽¹⁾/2⁽²⁾: - Block 1, Rhythm Garden (northern façade)

(1) NSR ID/ ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

(2) NSR ID/ ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

**Shatin to Central Link – Contract 1106 Diamond Hill Station
Tentative Impact Air Quality and Noise Monitoring Schedule for January 2018**

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

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

Air Quality Monitoring Station

DMS-3⁽¹⁾/4⁽²⁾: - Hong Kong Sheng Kung Hui Nursing Home

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

Noise Monitoring Station

NMS-CA-3⁽¹⁾/4⁽²⁾: - Hong Kong Sheng Kung Hui Nursing Home

NMS-CA-4⁽¹⁾/3⁽²⁾: - Block 1, Rhythm Garden (north-eastern façade)

NMS-CA-5⁽¹⁾/2⁽²⁾: - Block 1, Rhythm Garden (northern façade)

(1) NSR ID/ ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

(2) NSR ID/ ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

APPENDIX E
24-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATIONS

Appendix E - 24-hour TSP Monitoring Results

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

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			
6-Dec-17	9:00	Sunny	292.8	767.3	2.9285	3.0645	0.1360	3674.3	3698.3	24.0	1.22	1.22	1.22	1757.3	77.4
12-Dec-17	9:00	Cloudy	291.8	767.6	2.8675	3.0091	0.1416	3698.3	3722.3	24.0	1.22	1.22	1.22	1761.0	80.4
18-Dec-17	9:00	Sunny	285.5	773.3	2.8944	3.0512	0.1568	3722.3	3746.3	24.0	1.24	1.24	1.24	1789.9	87.6
23-Dec-17	9:00	Cloudy	291.9	766.7	2.8404	3.0124	0.1720	3746.3	3770.3	24.0	1.22	1.22	1.22	1759.5	97.8
29-Dec-17	9:00	Cloudy	292.4	769.1	2.8629	2.9470	0.0841	3770.3	3794.3	24.0	1.22	1.22	1.22	1760.9	47.8
														Min	47.8
														Max	97.8
														Average	78.2

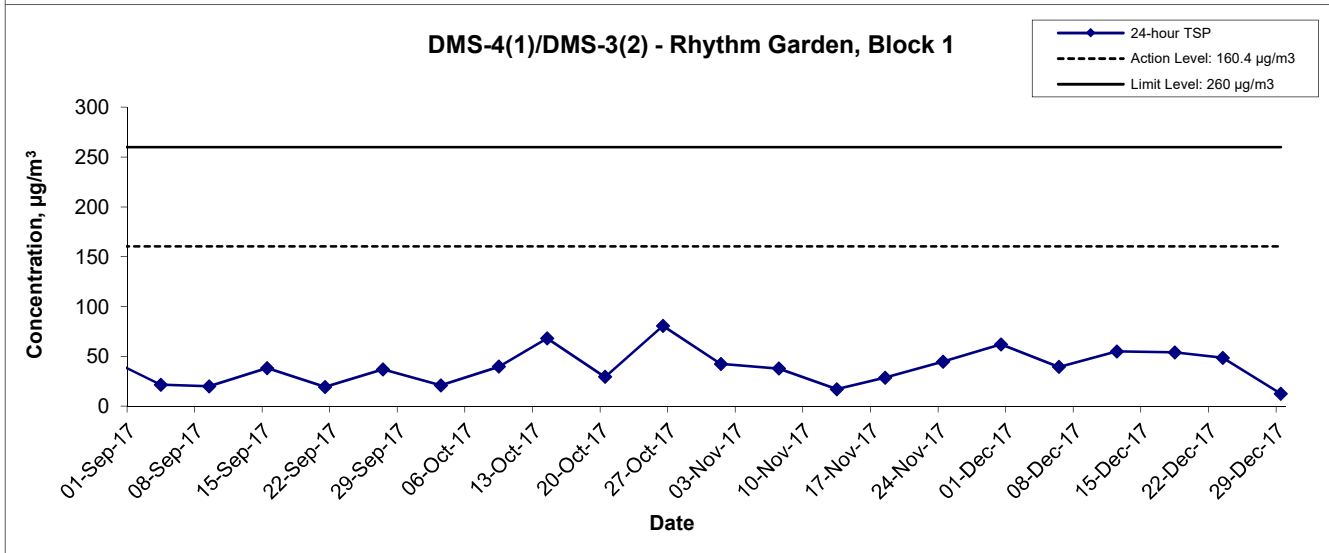
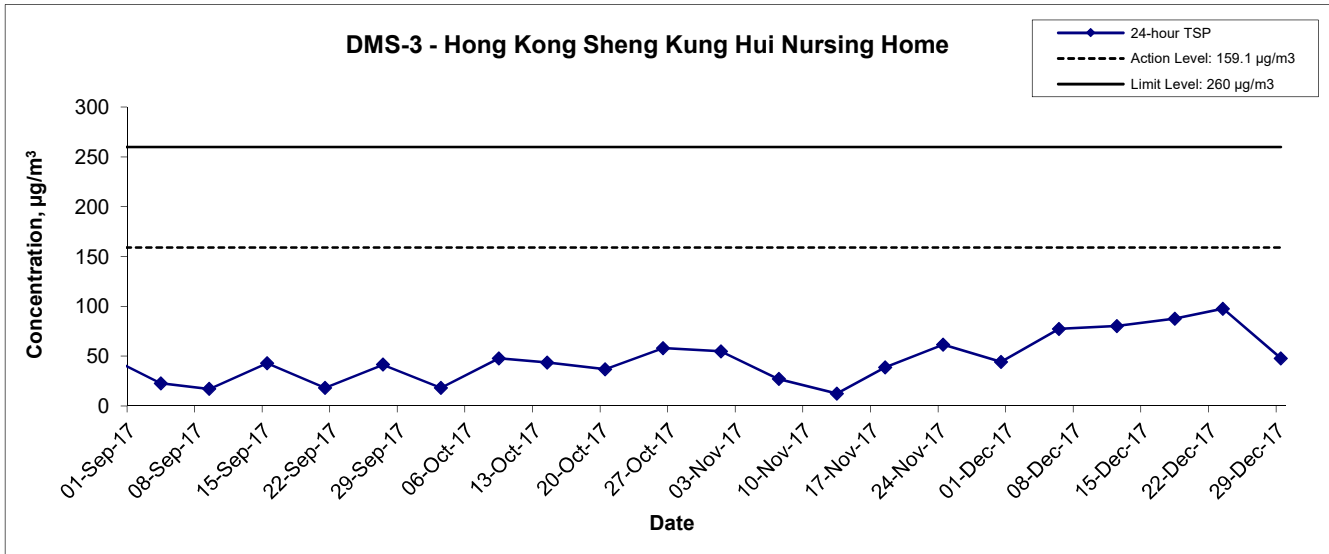
Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

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			
6-Dec-17	9:00	Sunny	292.8	767.3	2.8836	2.9537	0.0701	8206.6	8230.6	24.0	1.24	1.24	1.24	1779.8	39.4
12-Dec-17	9:00	Cloudy	291.8	767.6	2.8484	2.9466	0.0982	8230.6	8254.6	24.0	1.24	1.24	1.24	1783.2	55.1
18-Dec-17	9:00	Sunny	285.5	773.3	2.7819	2.8798	0.0979	8254.6	8278.6	24.0	1.26	1.26	1.26	1809.6	54.1
23-Dec-17	9:00	Cloudy	291.9	766.7	2.8804	2.9668	0.0864	8278.6	8302.6	24.0	1.24	1.24	1.24	1781.9	48.5
29-Dec-17	9:00	Cloudy	292.4	769.1	2.7981	2.8204	0.0223	8302.6	8326.6	24.0	1.24	1.24	1.24	1783.1	12.5
														Min	12.5
														Max	55.1
														Average	41.9

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:

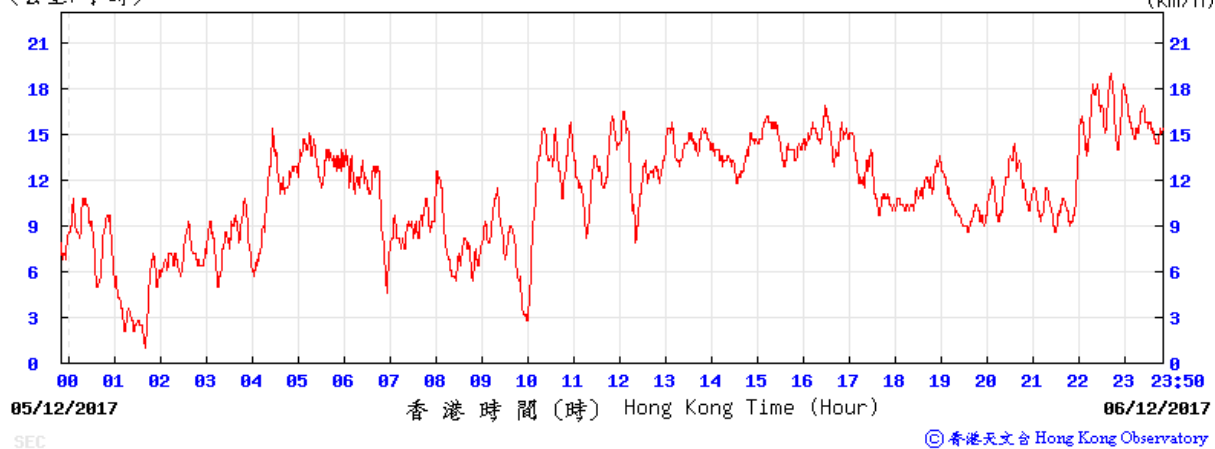
- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) 24 hours TSP concentration level of DMS-3 from July to September 2016 were extracted from the Project 1103.

Title Shatin to Central Link – Contract 1106 Diamond Hill Station Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA12051	CINOTECH
	Date Dec 17	Appendix E	

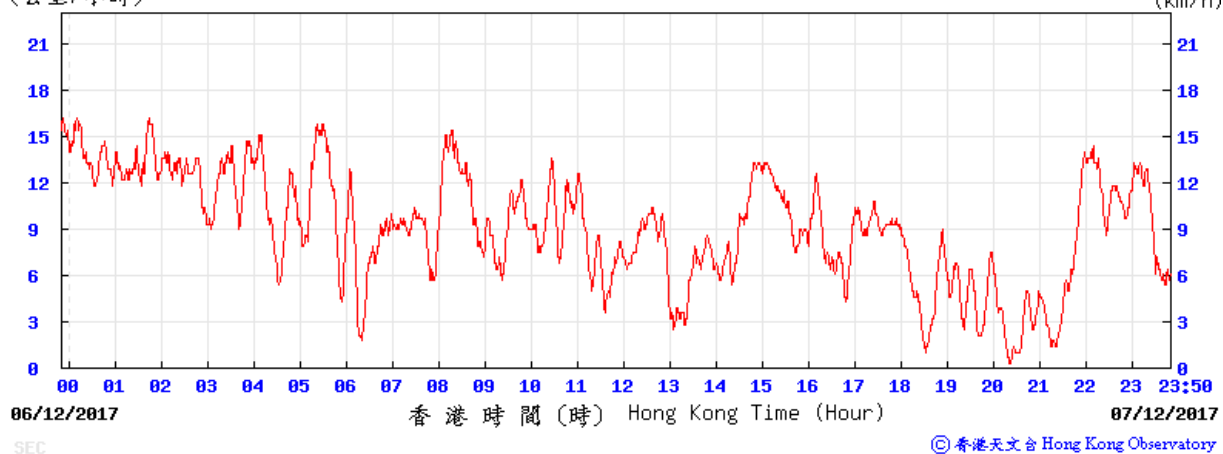
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

6-7 December 2017

(公里/小時) (於香港時間 2017 年12月 6日23時50分更新) (Updated at 23:50H on 6 Dec 2017) (km/h)

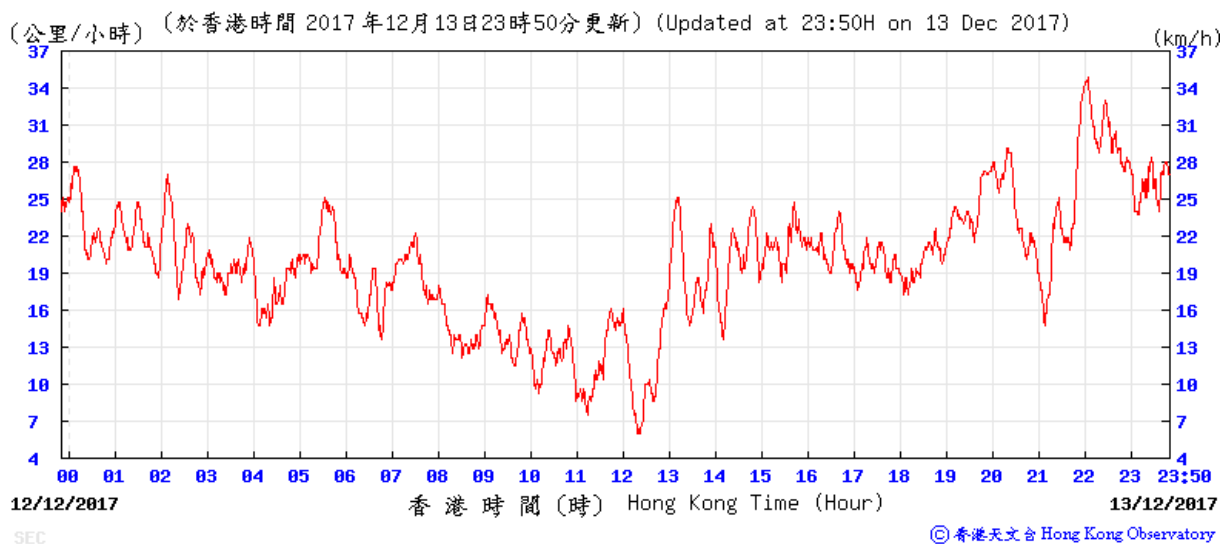
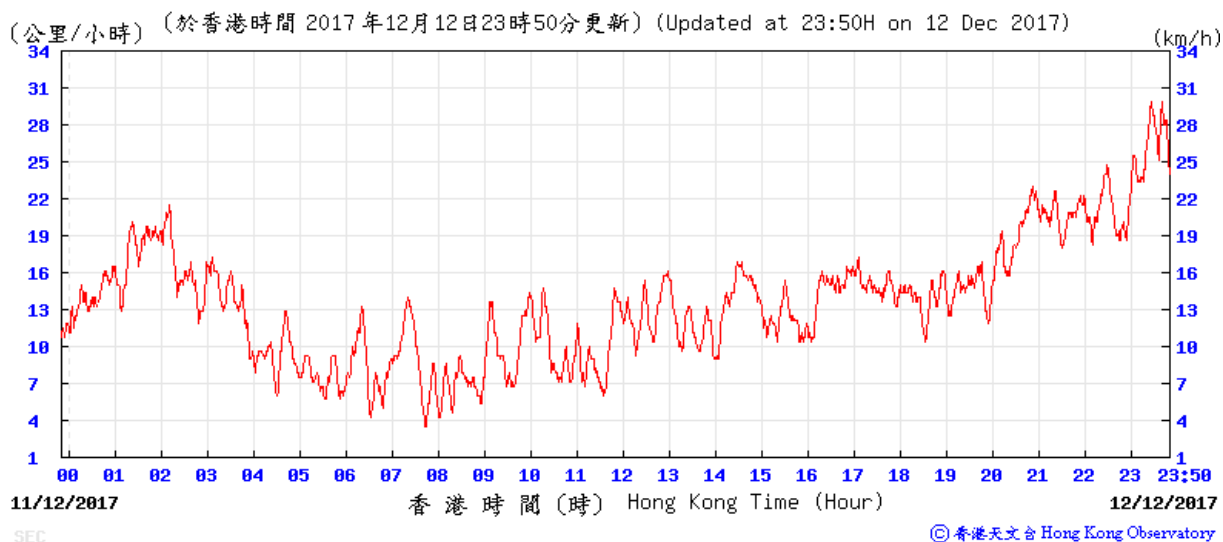


(公里/小時) (於香港時間 2017 年12月 7日23時50分更新) (Updated at 23:50H on 7 Dec 2017) (km/h)



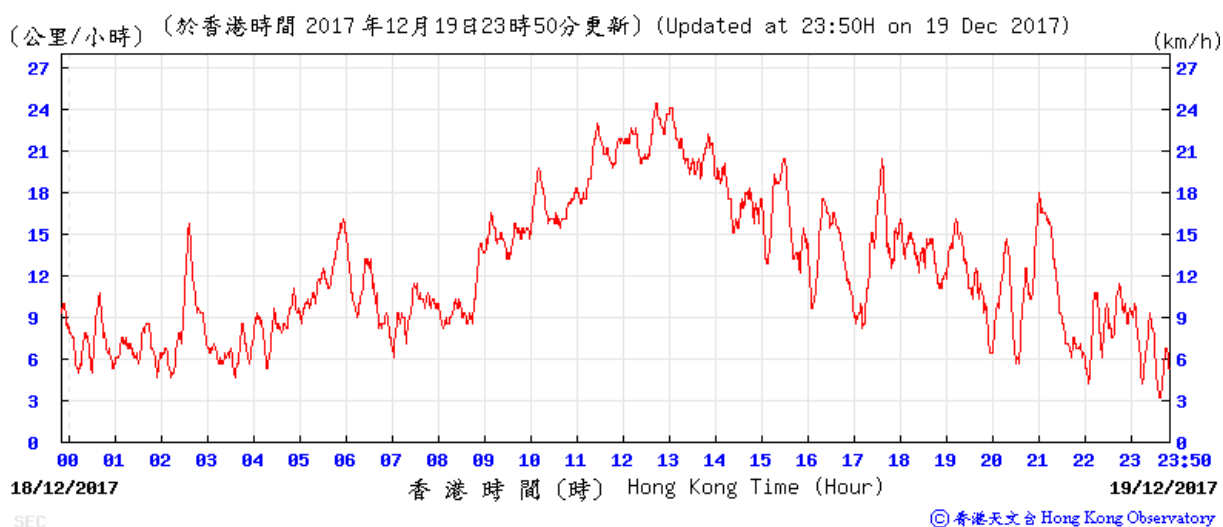
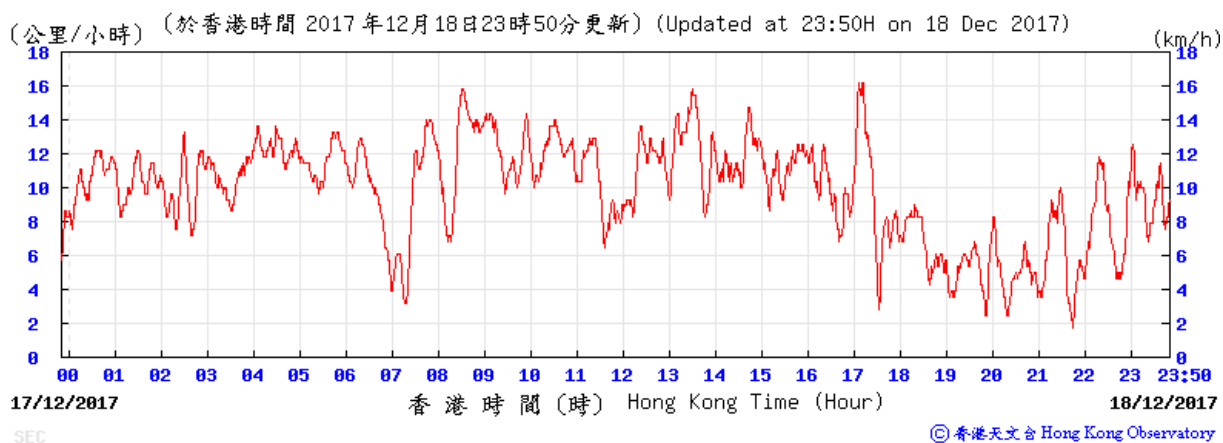
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

12-13 December 2017



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

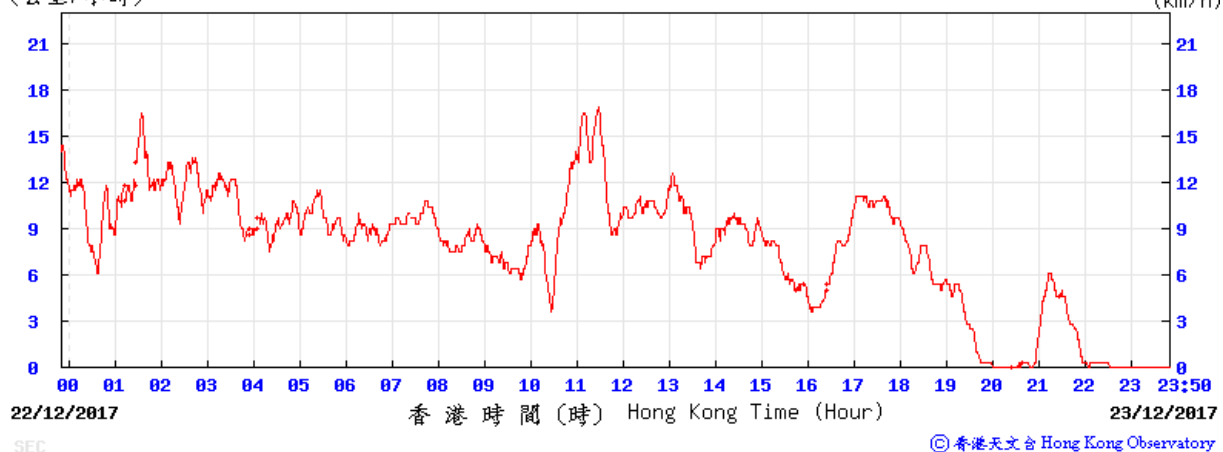
18-19 December 2017



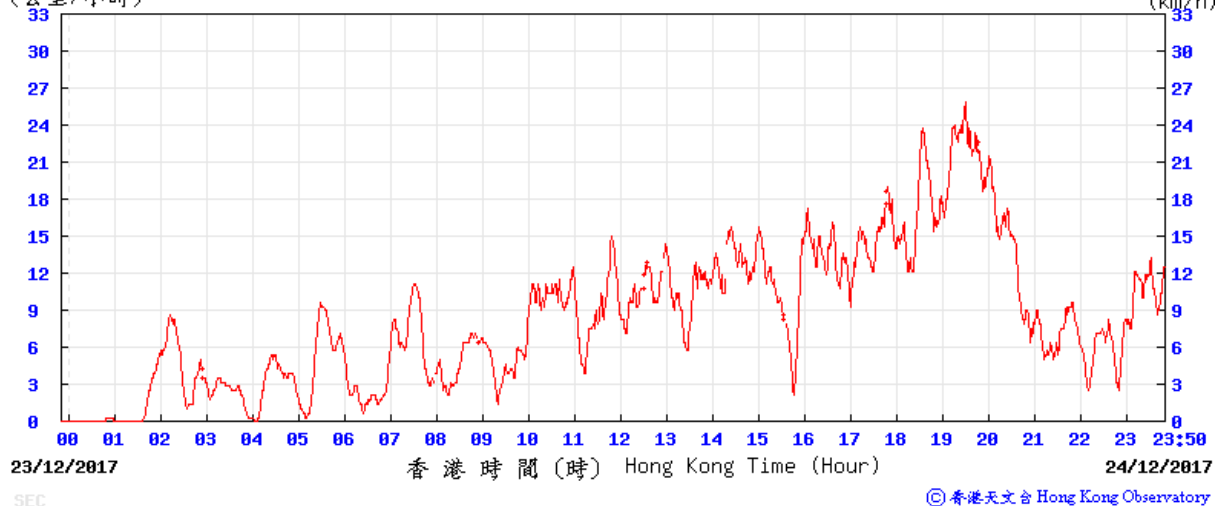
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

23-24 December 2017

(公里/小時) (於香港時間 2017 年12月23日23時50分更新) (Updated at 23:50H on 23 Dec 2017) (km/h)

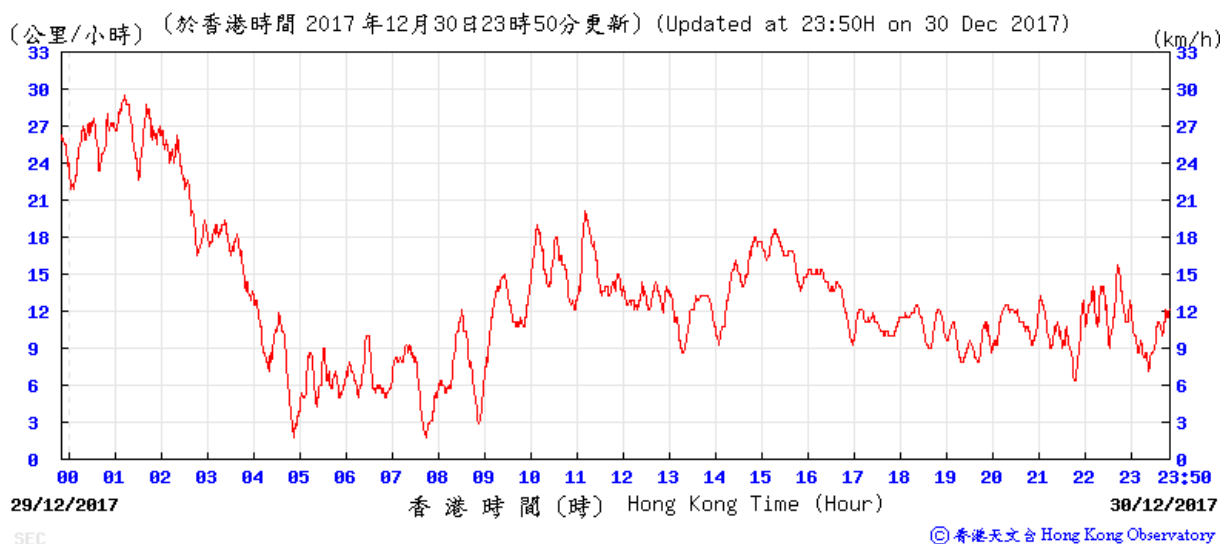
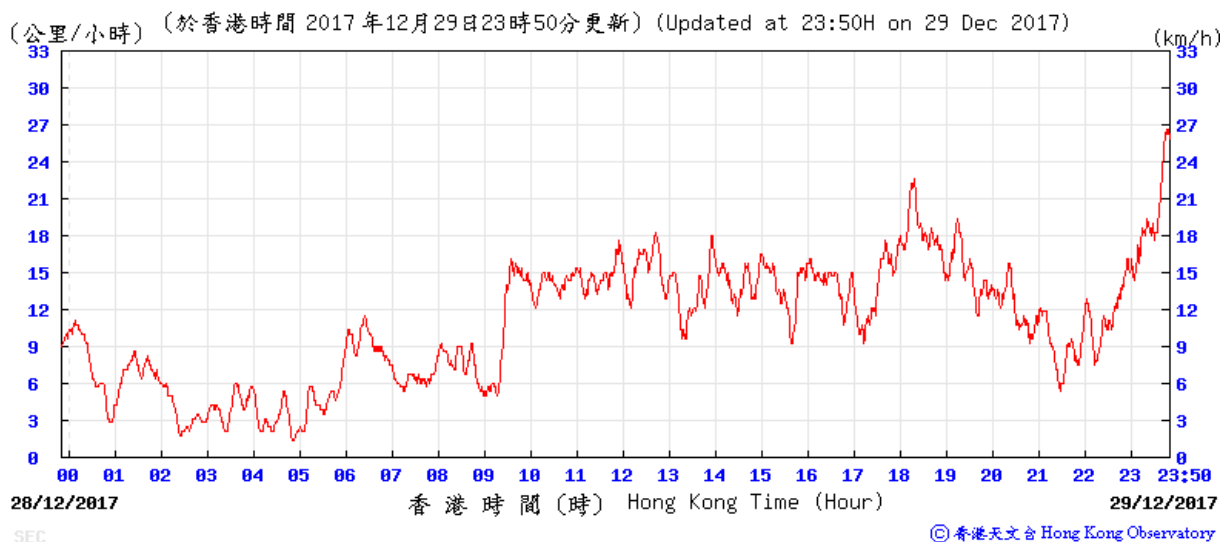


(公里/小時) (於香港時間 2017 年12月24日23時50分更新) (Updated at 23:50H on 24 Dec 2017) (km/h)



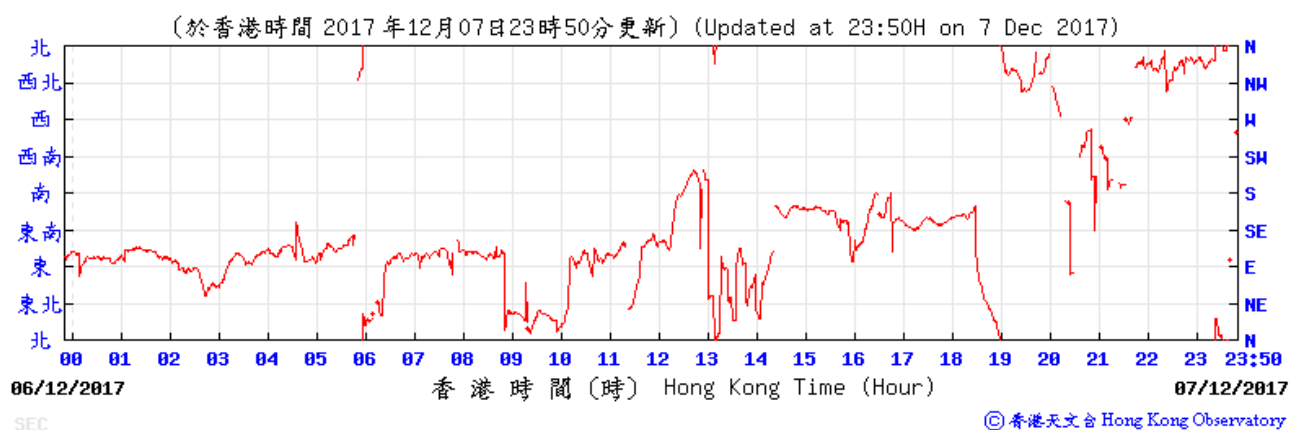
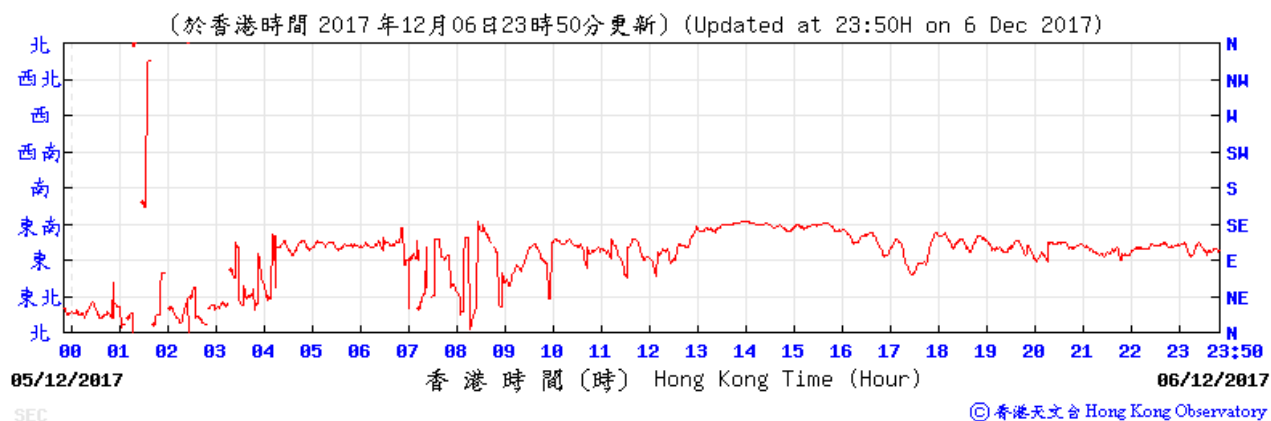
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

29-30 December 2017



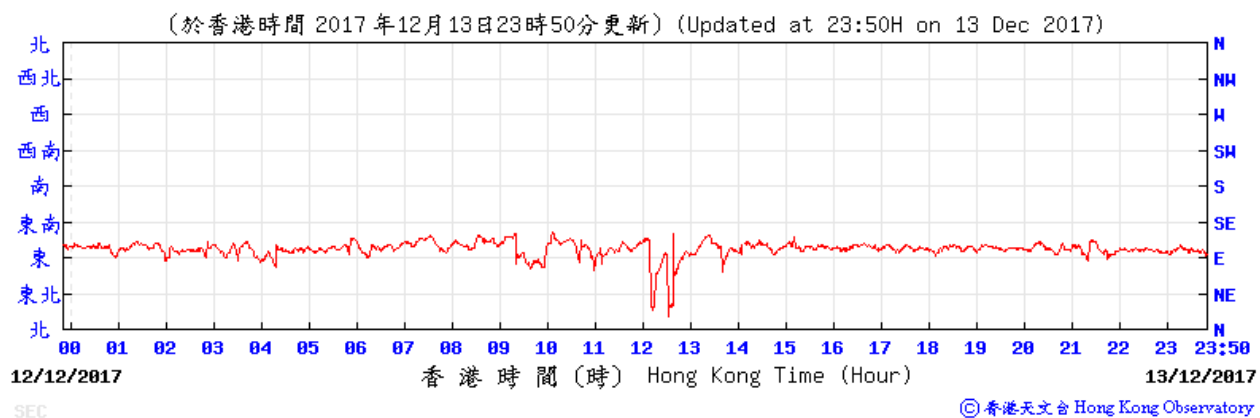
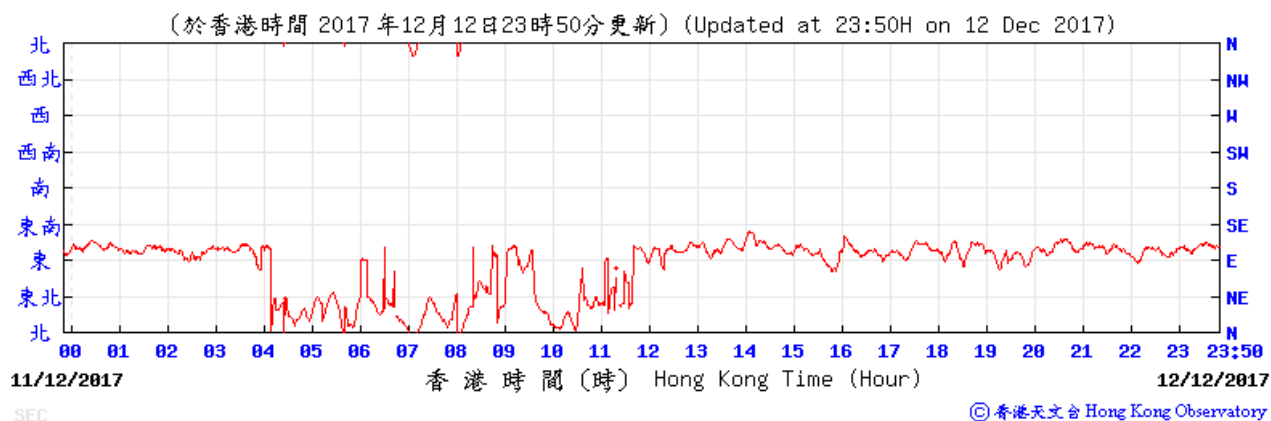
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

6-7 December 2017



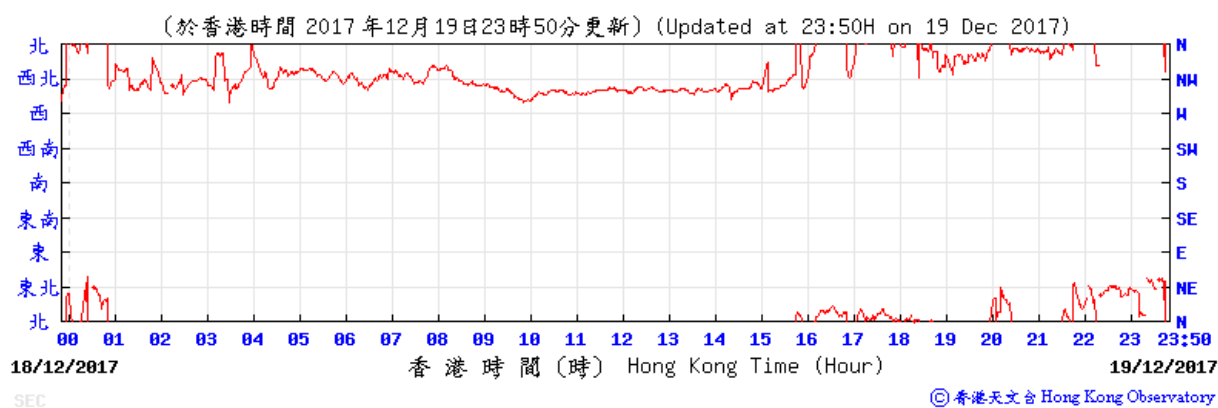
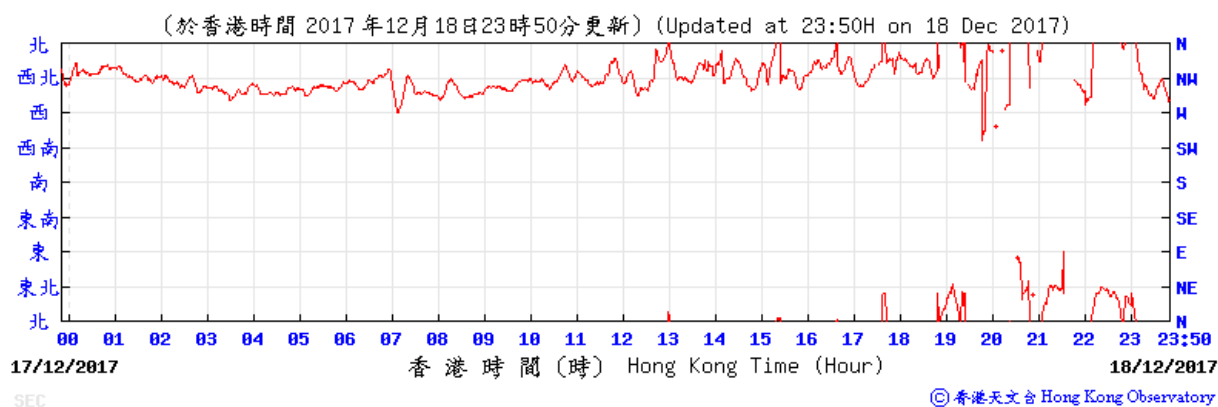
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

12-13 December 2017



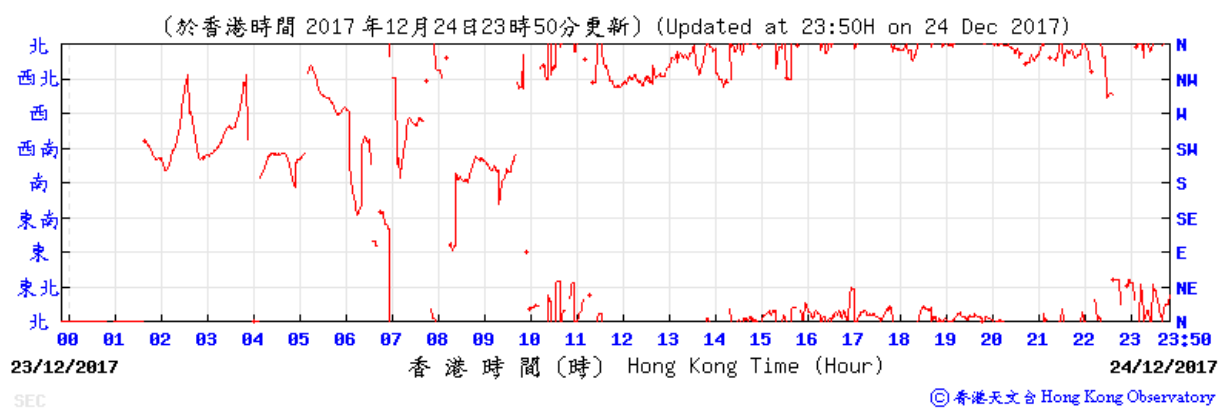
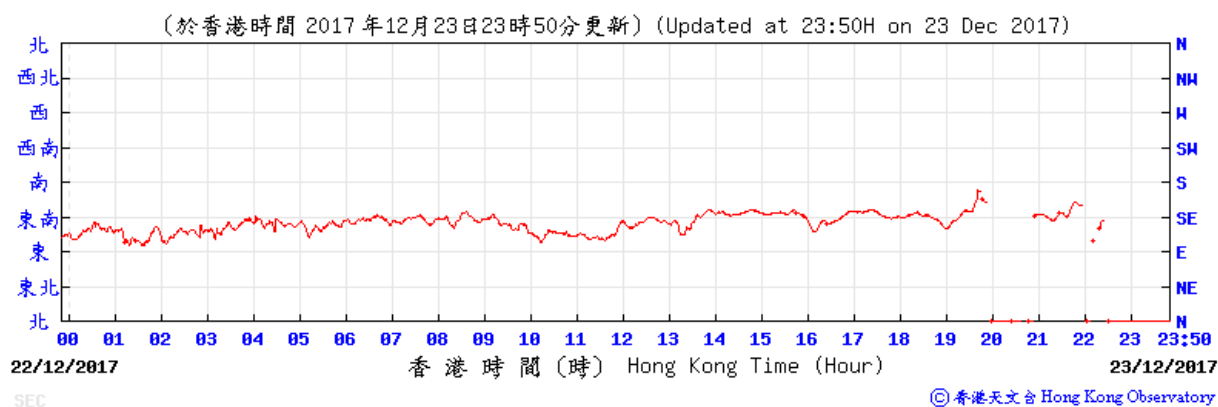
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

18-19 December 2017



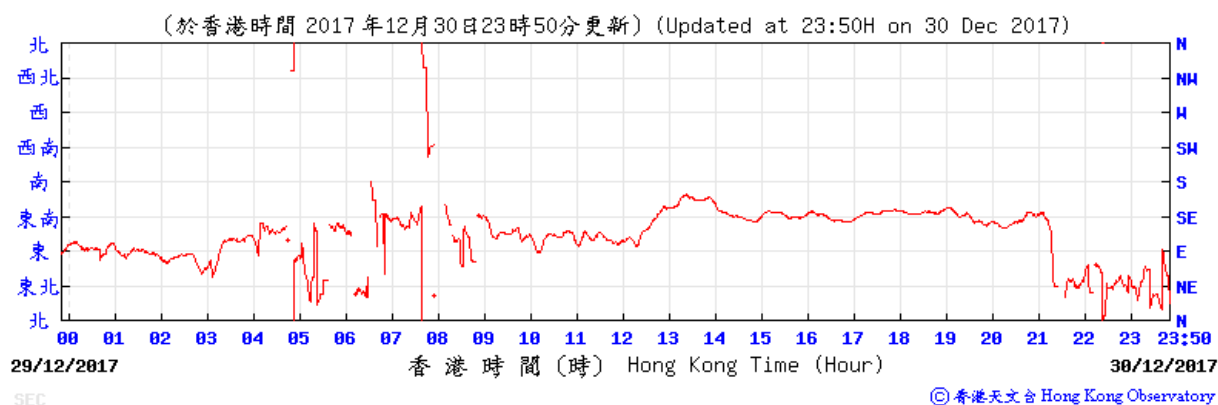
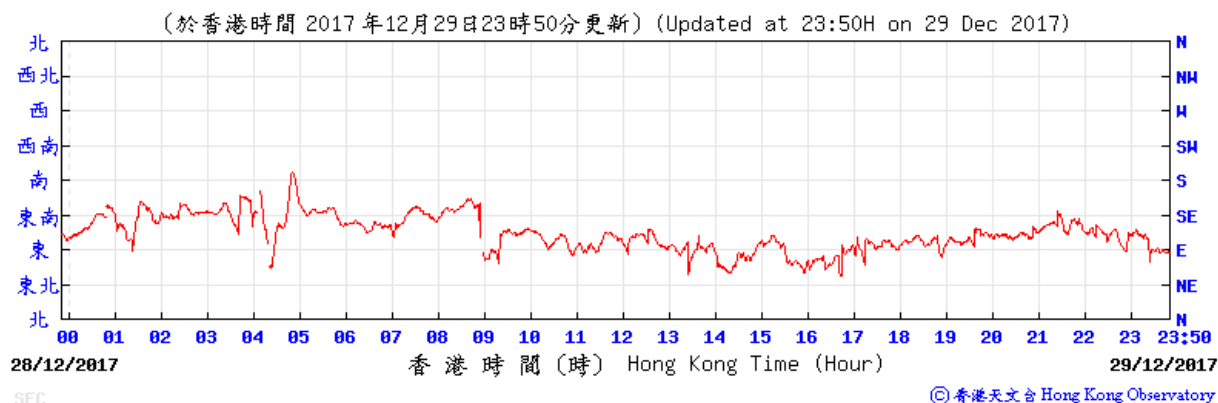
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

23-24 December 2017



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

29-30 December 2017



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

Appendix F - Noise Monitoring Results

Location NMS-CA-3 / MNS-CA-4 - Hong Kong S.K.H Nursing Home								
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}
7-Dec-17	Sunny	15:15	71.5	74.1	66.1	71.1	73	71.1 Measured ≤ Baseline Level
		15:20	70.7	73.2	66.5			
		15:25	71.2	74.3	65.3			
		15:30	70.7	73.6	66.6			
		15:35	71.7	74.9	66.1			
		15:40	71.0	73.5	66.3			
13-Dec-17	Cloudy	13:00	69.7	73.6	67.2	70.3	73	70.3 Measured ≤ Baseline Level
		13:05	70.7	73.9	66.8			
		13:10	70.2	74.1	67.3			
		13:15	69.8	73.7	67.1			
		13:20	70.6	73.1	67.4			
		13:25	70.7	73.5	67.8			
19-Dec-17	Sunny	11:30	71.8	74.3	67.4	71.8	73	71.8 Measured ≤ Baseline Level
		11:35	71.8	74.4	67.4			
		11:40	71.7	74.2	67.5			
		11:45	71.7	74.2	67.2			
		11:50	71.7	74.2	67.4			
		11:55	71.8	74.3	67.3			
27-Dec-17	Sunny	15:30	73.0	74.6	70.7	73.0	73	73.0 Measured ≤ Baseline Level
		15:35	72.7	74.4	67.1			
		15:40	72.3	74.9	70.2			
		15:45	73.1	74.2	70.1			
		15:50	73.6	75.1	69.8			
		15:55	72.9	74.1	67.0			

Remarks:

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

Appendix F - Noise Monitoring Results

Location NMS-CA-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}
7-Dec-17	Sunny	11:00	72.4	73.3	71.1	71.8	71	64.1
		11:05	71.9	73.1	70.4			
		11:10	72.0	73.1	70.6			
		11:15	71.7	72.9	70.5			
		11:20	71.6	72.9	70.4			
		11:25	71.4	72.6	70.1			
13-Dec-17	Cloudy	11:10	71.8	72.8	70.6	71.9	71	64.6
		11:15	72.1	73.2	70.8			
		11:20	71.8	73.1	70.3			
		11:25	71.5	72.7	70.8			
		11:30	71.9	73.0	70.7			
		11:35	72.2	73.3	70.9			
19-Dec-17	Sunny	10:15	71.9	73.1	70.4	72.1	71	65.6
		10:20	72.0	73.3	70.4			
		10:25	72.0	73.4	70.5			
		10:30	72.1	73.4	70.5			
		10:35	72.2	73.5	70.6			
		10:40	72.1	73.4	70.5			
27-Dec-17	Sunny	14:35	71.8	72.9	70.3	71.6	71	62.7
		14:40	71.2	72.4	67.8			
		14:45	71.1	71.9	70.1			
		14:50	71.5	72.0	70.3			
		14:55	71.7	73.0	70.1			
		15:00	72.4	73.5	71.1			

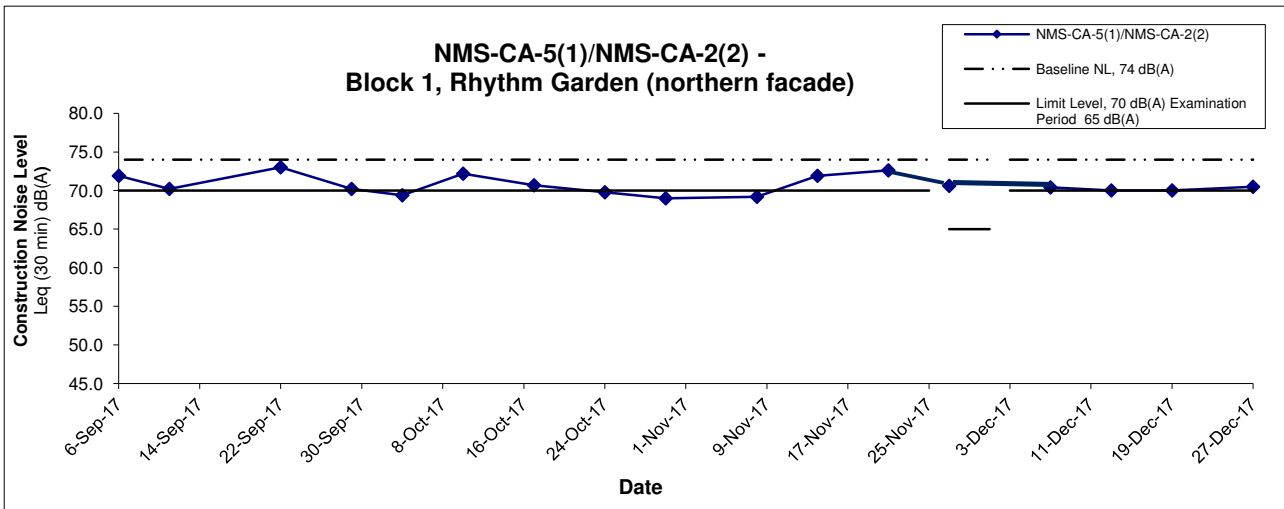
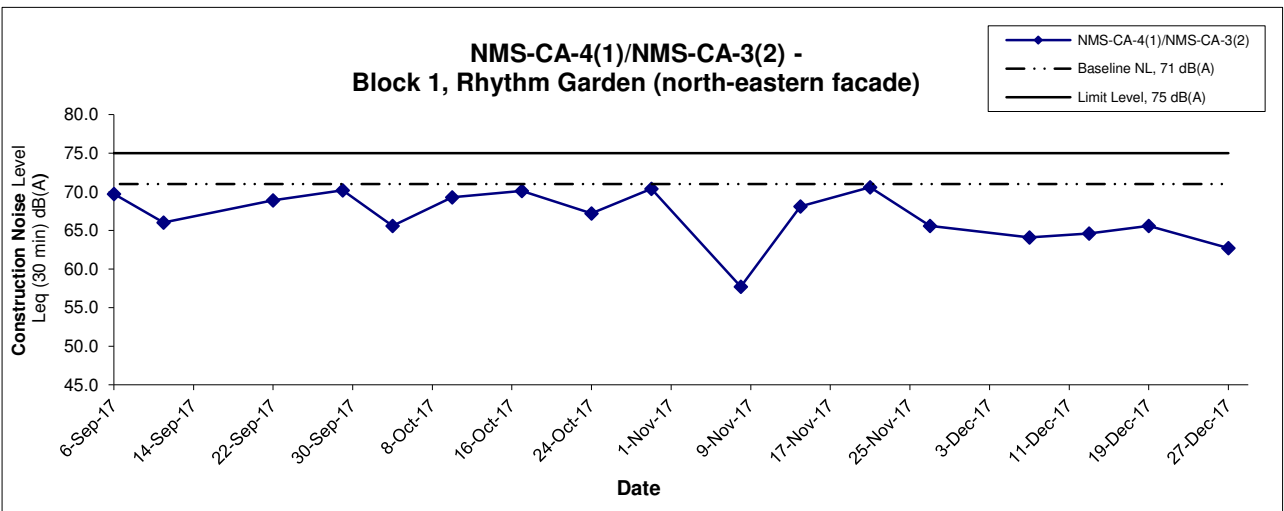
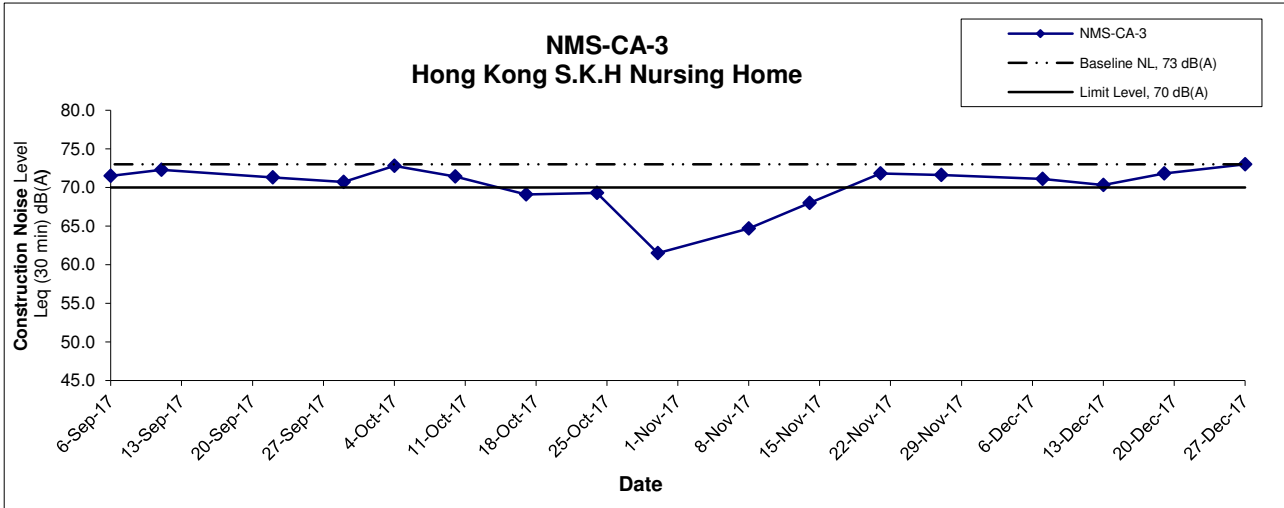
Remarks:

- (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}
7-Dec-17	Sunny	09:55	70.4	71.6	69.1	70.4	74	70.4 Measured ≤ Baseline Level
		10:00	69.8	70.9	68.6			
		10:05	70.4	71.5	69.3			
		10:10	70.5	71.7	69.3			
		10:15	70.8	72.1	69.5			
		10:20	70.7	71.9	69.5			
13-Dec-17	Cloudy	10:30	70.0	71.1	68.7	70.0	74	70.0 Measured ≤ Baseline Level
		10:35	70.1	71.2	68.5			
		10:40	70.6	71.6	69.3			
		10:45	69.9	71.1	68.5			
		10:50	69.7	71.0	68.3			
		10:55	69.7	70.9	68.4			
19-Dec-17	Sunny	10:50	69.8	70.9	68.4	70.0	74	70.0 Measured ≤ Baseline Level
		10:55	70.0	71.2	68.4			
		11:00	70.0	71.2	68.5			
		11:05	70.1	71.4	68.5			
		11:10	70.1	71.4	68.5			
		11:15	70.1	71.4	68.6			
27-Dec-17	Sunny	14:00	70.2	71.5	68.6	70.5	74	70.5 Measured ≤ Baseline Level
		14:05	70.5	71.5	69.3			
		14:10	70.6	71.9	69.1			
		14:15	70.7	71.7	69.3			
		14:20	70.1	70.8	69.2			
		14:25	70.7	72.4	69.2			

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.
- (4) Location NMS-CA-3

Title Shatin to Central Link - Contract 1106 - Diamond Hill Station Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA12051	
	Date Dec 17	Appendix F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: December 2017

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	171207
Date	07 December 2017 (Thursday)
Time	13:30-16:00

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

Ref. No.	Remarks/Observations	Related Item No.
171207-R01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	E5
171207-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"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> Haul road was observed dry. The contractor was reminded to provide water spraying for dust suppression. Stockpile of dusty material in MBME system should be sprayed with water for dust suppression. <p>Part F – Cultural Heritage</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part J – Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.: 171130), all the environmental deficiency was improved / rectified by the Contractor. 	E5 / E6

	Name	Signature	Date
Recorded by	Andy Chan		07 December 2017
Checked by	Dr. Priscilla Choy		07 December 2017

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



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	171214
Date	14 December 2017 (Thursday)
Time	13:30-16:00

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

Ref. No.	Remarks/Observations	Related Item No.
171214-R02	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Treat water was observed slightly unclear within the AquaSed. The contractor was reminded to enhance the sedimentation process to improve the effluent quality to comply with the criteria stated in the discharge license. <p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F – Cultural Heritage</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	B7
171214-R01	<p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> Empty oil drums should be removed to avoid any 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.: 171207), all the environmental deficiency was improved / rectified by the Contractor. 	H10

	Name	Signature	Date
Recorded by	Andy Chan		14 December 2017
Checked by	Dr. Priscilla Choy		14 December 2017

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



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	171221
Date	21 December 2017 (Thursday)
Time	11:00-13:00

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

Ref. No.	Remarks/Observations	Related Item No.
171221-R03	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Treat water was observed slightly unclear within the AquaSed. The contractor was reminded to enhance the sedimentation process to improve the effluent quality to comply with the criteria stated in the discharge license. 	B7
171221-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"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> Stockpile of dusty material at MBME and haul road near MBME should be sprayed with water for dust suppression. 	E5 / E6
171221-O01	<p>Part F – Cultural Heritage</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Construction Noise Impact</p> <ul style="list-style-type: none"> Noise barrier should be erected for road surface breaking works at LCR. <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.: 171214), item 171214-R02 was remarked as 171221-R03 and the follow-up action is needed to be reviewed. 	G7

	Name	Signature	Date
Recorded by	Andy Chan		21 December 2017
Checked by	Dr. Priscilla Choy		21 December 2017

Shatin to Central Link -

Contract 1106 Diamond Hill Station



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	171228
Date	28 December 2017 (Thursday)
Time	13:30-16:00

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

Ref. No.	Remarks/Observations	Related Item No.
171228-O01	Part B – Water Quality <ul style="list-style-type: none"> To clean the sand on the ground and provide the sandbag bund to avoid silty runoff out of the site. 	B20
171228-R05	<ul style="list-style-type: none"> Treat water was observed slightly unclear within the AquaSed. The contractor was reminded to enhance the sedimentation process to improve the effluent quality to comply with the criteria stated in the discharge license. 	B7
171228-O02	Part C – Ecology <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. Part D – Landscape & Visual <ul style="list-style-type: none"> A proper tree protection zone should be established for the retained tree. 	D2
171228-R03	Part E – Air Quality <ul style="list-style-type: none"> Stockpile of dusty material should be properly covered by the impervious sheet near the western ventilation shaft. Part F – Cultural Heritage <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	E5 / E6
171228-R04	Part G – Construction Noise Impact <ul style="list-style-type: none"> Noise barrier should be erected for road surface breaking works at LCR. Part H – Waste/Chemical Management <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. Part I – Permits/Licenses <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. Part J – Others <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.: 171221), item 171221-O01 and 171221-R03 were remarked as 171228-R04 and 171228-R05 and the follow-up action is needed to be reviewed. 	G7

	Name	Signature	Date
Recorded by	Andy Chan		28 December 2017
Checked by	Dr. Priscilla Choy		28 December 2017

APPENDIX I
EVENT AND ACTION PLANS

Event and Action Plan for Air Quality Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1106 ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 	<ol style="list-style-type: none"> 1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Inform the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

LIMIT LEVEL

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

Event and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1106 ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and EPD 2. Repeat measurement to confirm findings 3. Increase monitoring frequency 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event and Action Plan for Landscape and Visual during Construction Phase

Action Level	Works Contract 1106 ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

**APPENDIX J
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<i>Cultural Heritage Impact (Construction Phase)</i>								
S4.8.1	CH1	Submit an Archaeological Action Plan. Survey-cum-excavation shall be conducted prior to the construction works at the former Tai Hom Village site.	Salvage cultural remains at the Former Tai Hom Village Site	Contractor	Former Tai Hom Village Site	Prior to the Construction Phase of DIH site	<ul style="list-style-type: none"> • AMO's requirements 	^ ^
S4.8.2	CH2	Submit a Conservation Plan for the Former Royal Air Force Hangar and the Old Pillbox to AMO for agreement.	Proposal for conservation of 2 historical buildings	Contractor	Former Tai Hom Village Site	Prior to the Construction Phase of DIH site	<ul style="list-style-type: none"> • AMO's requirements • Principles for the Conservation of Heritage Sites in China • Burra Charter, the Australia's ICOMOS Charter for Places of Cultural Significance 	^
<i>Ecology (Construction Phase)</i>								
S5.7	E1	<u>Good Site Practices</u> Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for	Minimise ecological impacts	Contractor	All construction sites	During Construction	<ul style="list-style-type: none"> • ProPECC PN 1/94 	^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal. The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> • No on-site burning of waste; • Waste and refuse in appropriate receptacles. 						<p>^ ^</p>
Landscape & Visual (Construction Phase)								
S6.12	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> • To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	<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>control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.</p> <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> Trees of medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable. <p>Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.</p>						^
<i>Air Quality (Construction Phase)</i>								
/	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	^
<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	<p>Minimize dust impact at the nearby sensitive receivers</p>	Contractor	All Construction Sites	Construction stage	<p>• APCO</p> <p>• To control the dust</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
							impact to meet HKAQO and TM-EIA criteria	
S7.6.6	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m ² to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	*
S7.6.6	D3	<ul style="list-style-type: none"> • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the 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 	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	* ^ ^ ^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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 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; 						<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 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • Any 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 						<p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <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
		<ul style="list-style-type: none"> Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 						N/A
S7.6.6	D4	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
<i>Construction Airborne Noise</i>								
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 	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
		<p>and practicable;</p> <ul style="list-style-type: none"> material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise 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	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
		<p>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.</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 ph basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³.</p> <p>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 						<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>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 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, 						<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 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>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 						^
								^
								N/A

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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;">^</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 	<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
S10.7.1	W5	<p><u>Accidental Spillage</u></p> <p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> • Proper storage and handling facilities should be provided; • All the tanks, containers, storage area should be bunded and 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 	<p>^</p> <p>*</p> <p>^</p> <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 	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

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>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.</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 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 	<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>structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;</p> <ul style="list-style-type: none"> • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly 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 				19/2005	<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 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions Ordinance • Waste Disposal Ordinance • ETWB TCW No.19/2005 	<p style="text-align: center;">^</p>

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>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. 						^
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. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^ ^ ^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 						^
S11.5.1	WM6	<p><u>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 labelled and used solely for the storage of chemical waste; be enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; be covered to prevent rainfall entering; and be arranged so that incompatible 	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 	^ ^ ^

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
		materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; and be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.						^

Remarks: ^ Compliance of mitigation measure X Non-compliance of mitigation measure

• Non-compliance but rectified by the contractor

* Recommendation was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

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

Contract No: MTR SCL 1106 - Diamond Hill Station**Date of Report: December, 2017****Monthly Summary Waste Flow Table for 2017**

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 (See Note 5)	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste (See Note 3)	Others, e.g. general refuse	
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)	
Jan	0.081	0.000	0.045	0.000	0.036	0.000	0.000	0.266	0.000	0.000	0.116	
Feb	0.017	0.000	0.000	0.000	0.017	0.000	0.000	0.280	0.000	0.000	0.116	
Mar	0.912	0.000	0.000	0.000	0.912	0.000	0.000	0.210	0.000	0.000	0.163	
Apr	1.042	0.000	0.000	0.000	1.042	0.000	0.000	0.171	0.000	0.000	0.107	
May	0.032	0.000	0.000	0.000	0.032	0.000	0.000	0.483	0.000	0.000	0.105	
Jun	0.107	0.000	0.000	0.000	0.107	0.000	0.000	0.252	0.000	0.000	0.155	
Sub-total	2.191	0.000	0.045	0.000	2.146	0.000	0.000	1.662	0.000	0.000	0.762	
Jul	0.015	0.000	0.000	0.000	0.015	0.000	0.000	0.300	0.000	0.000	0.120	
Aug	0.033	0.000	0.000	0.000	0.033	0.555	0.000	0.277	0.000	0.000	0.159	
Sept	0.013	0.000	0.000	0.000	0.013	0.020	0.000	0.125	0.000	0.000	0.205	
Oct	0.007	0.000	0.000	0.000	0.007	0.000	0.000	0.165	0.000	0.000	0.220	
Nov	0.010	0.000	0.000	0.000	0.010	0.000	0.000	0.266	0.000	0.000	0.184 ^{*(6)}	
Dec	0.156	0.000	0.000	0.000	0.156	0.000	0.000	0.000 ^{*(7)}	0.000	0.000	0.157	
Total	2.425	0.000	0.045	0.000	2.380	0.575	0.000	2.795	0.000	0.000	1.807	

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 Contract 1108.
- 3) Chemical waste includes waste diesel oil. It is assumed density of diesel oil to be 0.8kg/L.
- 4) Figures are rounded up to 3 decimal places
- 5) Imported Fill from HKAA Contract 3501.
- 6) * Data was updated.
- 7) * Data will be updated in the next report.

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

Appendix L - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecution

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
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
September 2014	0	0	0
October 2014	0	0	0
November 2014	0	0	0
December 2014	0	0	0
January 2015	0	0	0
February 2015	3	0	0
March 2015	0	0	0
April 2015	0	0	0
May 2015	0	0	0
June 2015	0	0	0
July 2015	1	0	0
August 2015	0	0	0
September 2015	0	0	0
October 2015	0	0	0
November 2015	0	0	0
December 2015	0	0	0
January 2016	0	0	0
February 2016	0	0	0
March 2016	1	0	0
April 2016	1	0	0

May 2016	0	0	0
June 2016	1	0	0
July 2016	0	0	0
August 2016	3	0	0
September 2016	0	0	0
October 2016	0	0	0
November 2016	0	0	0
December 2016	1	0	0
January 2017	0	0	0
February 2017	0	0	0
March 2017	0	0	0
April 2017	0	0	0
May 2017	0	0	0
June 2017	1	0	0
July 2017	1	0	0
August 2017	0	0	0
September 2017	0	0	0
October 2017	1	0	0
November 2017	0	0	0
December 2017	0	0	0
Total	14	0	0

Environmental Complaint Log (December 2017)

Contractor Log Ref.	Complaint Location/ Nature	Incoming Complaint Reference no.	Complainant/ Date or Period of Complaint Received	Date of Complaint received from EPD	Details of Complaint	Investigation/ Mitigation Action	Status
--	--	--	--	--	--	--	--

Log for Notifications of Summons (December 2017)

Log Ref.	Location/Nature	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
--	--	--	--	--	--

Log for Successful Prosecutions (December 2017)

Log Ref.	Location/Nature	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
--	--	--	--	--	--

Appendix E

**56th 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. 56

[Period from 1 to 31 December 2017]

Works Contract 1107 – Diamond Hill to Kai Tak Tunnels

(January 2018)

Certified by: 
_____ Dr. Priscilla Choy _____

Position: Environmental Team Leader

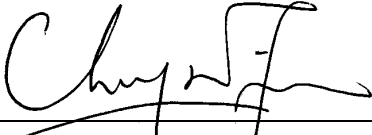
Date: 11th January 2018

Chun Wo – SELI Joint Venture

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

**Monthly Environmental
Monitoring and Audit Report
For December 2017**

(Version 1.0)

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 56th 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 1st to 31st December 2017.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:
 - ELS the K509 CCTV High Mast permanent footing.

Variation in Construction Method

3. Environmental Monitoring and Audit Progress:

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. Application for variation of Environmental Permit (VEP) was approved by the EPD for including the installation and operation of a Mobile Batching Machinery Equipment at Diamond Hill during the construction of SCL (TAW-HUH). The updated EP (EP No.: EP-438/2012/G) was issued by EPD on 14 August 2014. Application for variation of Environmental Permit (VEP) was approved by the EPD for varying Figure 11 of the previous Environment Permit. The variation of EP (EP No.: EP-438/2012/H) was issued by EPD on 10 September 2014, and superseded by an updated EP (EP No.: EP-438/2012/I) issued by EPD on 14 October 2015. The variation of EP (EP No.: EP-438/2012/J) was issued by EPD on 29 February 2016 for including the decommissioning of temporary magazine site at Tseung Kwun O Area 137. The latest variation of EP (EP No.:EP-438/2012/K) was issued by EPD on 4 October 2016.

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) 5 times

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Noise monitoring on NMS-CA-4⁽¹⁾/ NMS-CA-3⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade) is carried out by Environmental Team of SCL Works Contract 1106.
- (4) Noise monitoring on NMS-CA-5⁽¹⁾/ NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade) is carried out by Environmental Team of SCL Works Contract 1106.
- (5) Dust monitoring on DMS-4⁽¹⁾/ DMS-3⁽²⁾ (Block 1, Rhythm Garden) is carried out by Environmental Team of SCL Works Contract 1106.

Waste Management

5. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. Details of waste management data is presented in Section 5 and **Appendix K**.

Landscape and Visual

6. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 7th, 14th, 21st & 28th December 2017. 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 7th, 14th, 21st & 28th December 2017. The representative of the IEC joined the site inspection on 28th December 2017. Details of the audit findings and implementation status are presented in Section 6.

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

8. No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the reporting period.
9. No non-compliance event was recorded during the reporting period.
10. No Project related environmental complaint and notification of summons/successful prosecution was received in this reporting period.

Future Key Issues

11. Major site activities for the coming reporting month will include:
 - ELS and New footing construction.

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 56th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1st to 31st December 2017. The major construction works for Contract 1107 commenced on 27th 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**.
- ELS the K509 CCTV High Mast permanent footing.

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**. No Construction Noise Permit was granted under the Project in the 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/K	4/10/2016	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)			
---	---	---	---

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, works 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 and 12563) SVAN 957 (Serial no.: 21455) BSWA801 (Serial no.: 35924)
Calibrator	SV30A (Serial no.: 24803 and 24791)

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 (November 2017)	14 th December 2017

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 7th & 27th December 2017 exceeded the daytime construction noise criterion. However, the result is not considered as exceedance since the result was below the baseline noise level. The noise monitoring results recorded at NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) on 13th & 19th December 2017 did not exceed the daytime construction noise criterion. The noise monitoring results recorded at NMS-CA-4⁽¹⁾/NMS-CA-3⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade)) in December 2017 did not exceed the daytime construction noise criterion.
- 5.3 The noise monitoring results together with their graphical presentations are presented in **Appendix F**.
- 5.4 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period.

Regular Dust Monitoring

- 5.5 A total of 5 sets of 24-hour TSP monitoring were carried out at the designated monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. The monitoring results together with their graphical presentations are presented in **Appendix E** and a summary of the dust monitoring results in this reporting month is given in **Table 5.1**.

Table 5.1 Summary Table of Dust Monitoring Results during the reporting month

Parameter	Minimum µg/m ³	Maximum µg/m ³	Average µg/m ³	Action Level, µg/m ³	Limit Level, µg/m ³
24-hr TSP (DMS-4 ⁽¹⁾⁽³⁾ / DMS-3 ⁽²⁾⁽³⁾)	12.5	55.1	41.9	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.
- 5.6 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.7 Meteorological data were obtained from the Kai Tak Meteorological Station of Hong Kong Observatory and was shown on **Appendix E**.
- 5.8 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period.

Waste Management

- 5.9 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.2**. No general refuse, C&D materials, chemical waste, paper/cardboard packaging, plastics and metals were generated during this reporting month. Details of waste management data is presented in **Appendix K**.

Table 5.2 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)				
		General Refuse	Chemical Waste	Recycled materials		
Paper/ cardboard	Plastics			Metals		
December 2017	0 m ³	0 tonnes	0 litres	0 kg	0 kg	0 kg
Notes:						
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil,						
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.						

Landscape and Visual

- 5.10 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 14th & 28th December 2017. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audit

- 6.1 Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audit are attached in **Appendix H**.
- 6.2 Site audits were conducted on 7th, 14th, 21st & 28th December 2017 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 28th December 2017. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

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

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	---	---	---
<i>Noise</i>	---	---	---
<i>Landscape and Visual</i>	---	---	---
<i>Air Quality</i>	30 th November 2017	<u>Reminder:</u> The dusty stockpile should be covered by impervious material to prevent the dust emission in the storage area.	This item would be followed up on 7 th December 2017.
	7 th December 2017	<u>Reminder:</u> The dusty stockpile should be covered by impervious material to prevent the dust emission in the storage area.	As observed on 14 th December 2017, the dusty stockpile was covered by impervious material in the storage area.
	21 st December 2017	<u>Reminder:</u> The dusty stockpile should be covered by impervious material to prevent the dust emission in the storage area.	As observed on 28 th December 2017, the dusty stockpile was covered by impervious material.
<i>Waste / Chemical Management</i>	30 th November 2017	<u>Reminder:</u> The general refuse should be cleared regularly to prevent the accumulation in the storage area.	This item would be followed up on 7 th December 2017.
	7 th December 2017	<u>Reminder:</u> The general refuse should be cleared regularly to prevent the accumulation in the storage area.	As observed on 14 th December 2017, the general refuse was cleared in the storage area.
	28 th December 2017	<u>Reminder:</u> C&D waste should be disposed properly and regularly.	This item would be followed up in the next reporting month.

Parameters	Date	Observations and Recommendations	Follow-up
<i>Permits/Licenses</i>	---	---	---

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

- 7.1 No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the reporting period. The summary of exceedance is provided in **Appendix G**.

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

- 7.3 No environmental Project-related complaint was received in the reporting month. The Cumulative Complaint Log since the commencement of the Project is presented in **Appendix L**.

Summary of Environmental Summon and Successful Prosecution

- 7.4 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix L**.

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

- 8.1 A tentative construction programme is provided in **Appendix A**. The major construction activities in the coming month will include:
- ELS and New footing construction.

Key Issues in the Next Month

- 8.2 Key issues to be considered in the coming month include:
- 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 1st to 31st December 2017 in accordance with EM&A Manual and the requirement under EP.
- 9.2 No exceedance of the Action and Limit Levels of regular construction noise and 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting month.
- 9.3 4 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 2 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.
- 9.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.
- 9.5 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

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

Water Quality

- N/A

Landscape and Visual

- N/A

Noise

- N/A

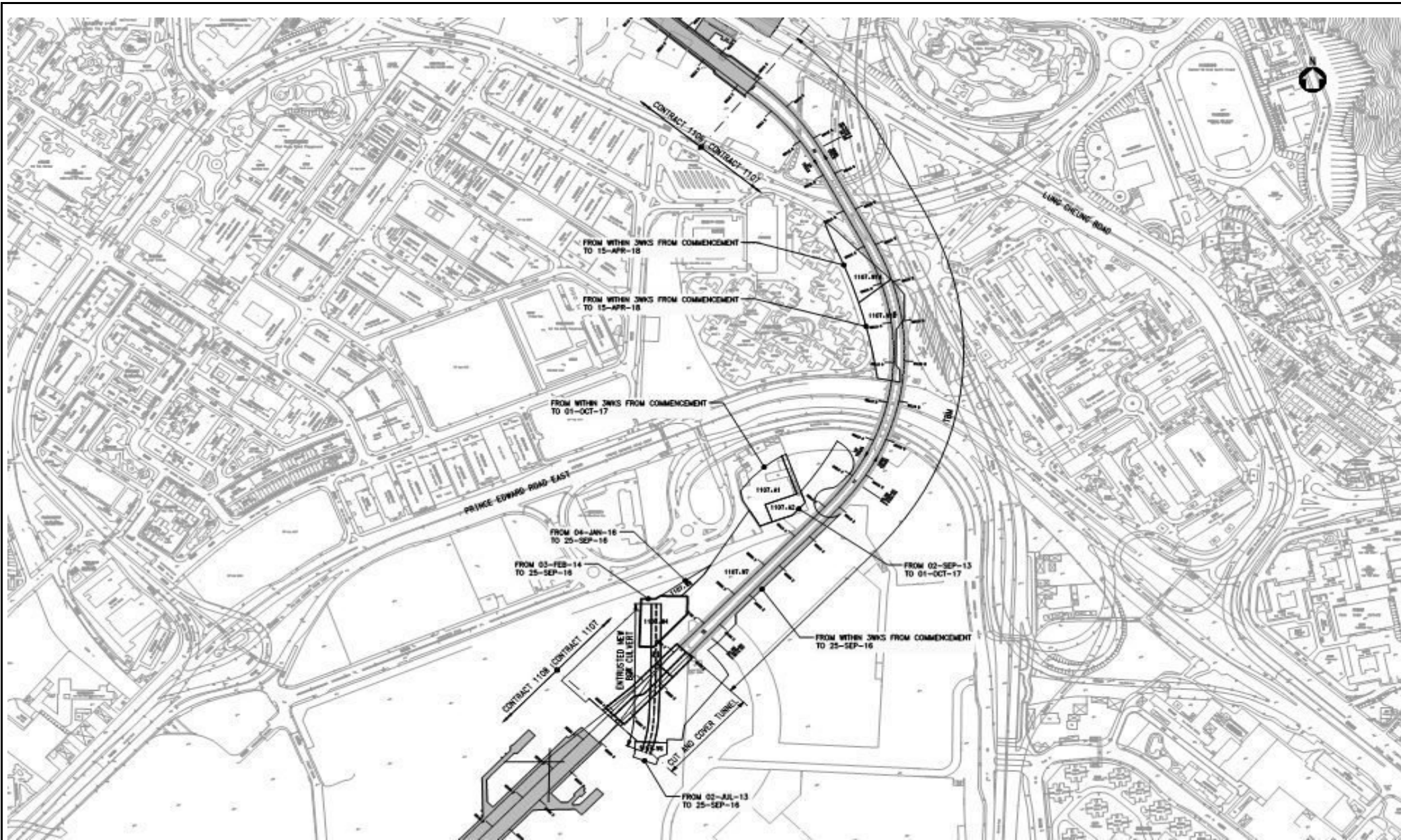
Air Quality

- The dusty material/stockpile should be covered by impervious material to prevent the dust emission in the site.

Waste/Chemical Management

- The general refuse should be cleared regularly to prevent the accumulation in the site; and
- C&D waste should be disposed out properly and regularly in the site.

FIGURES



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

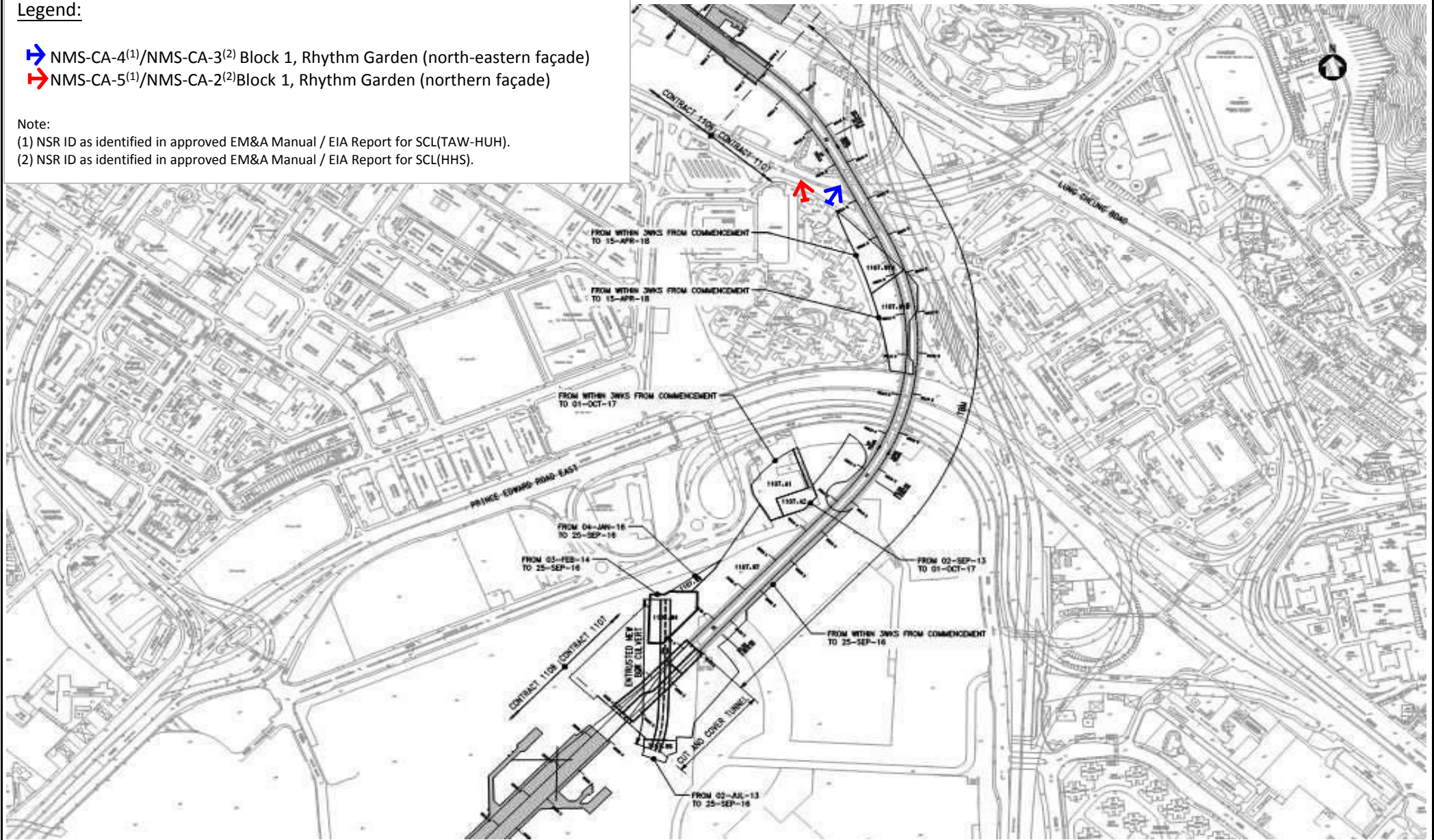


Legend:

- ➔ 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).



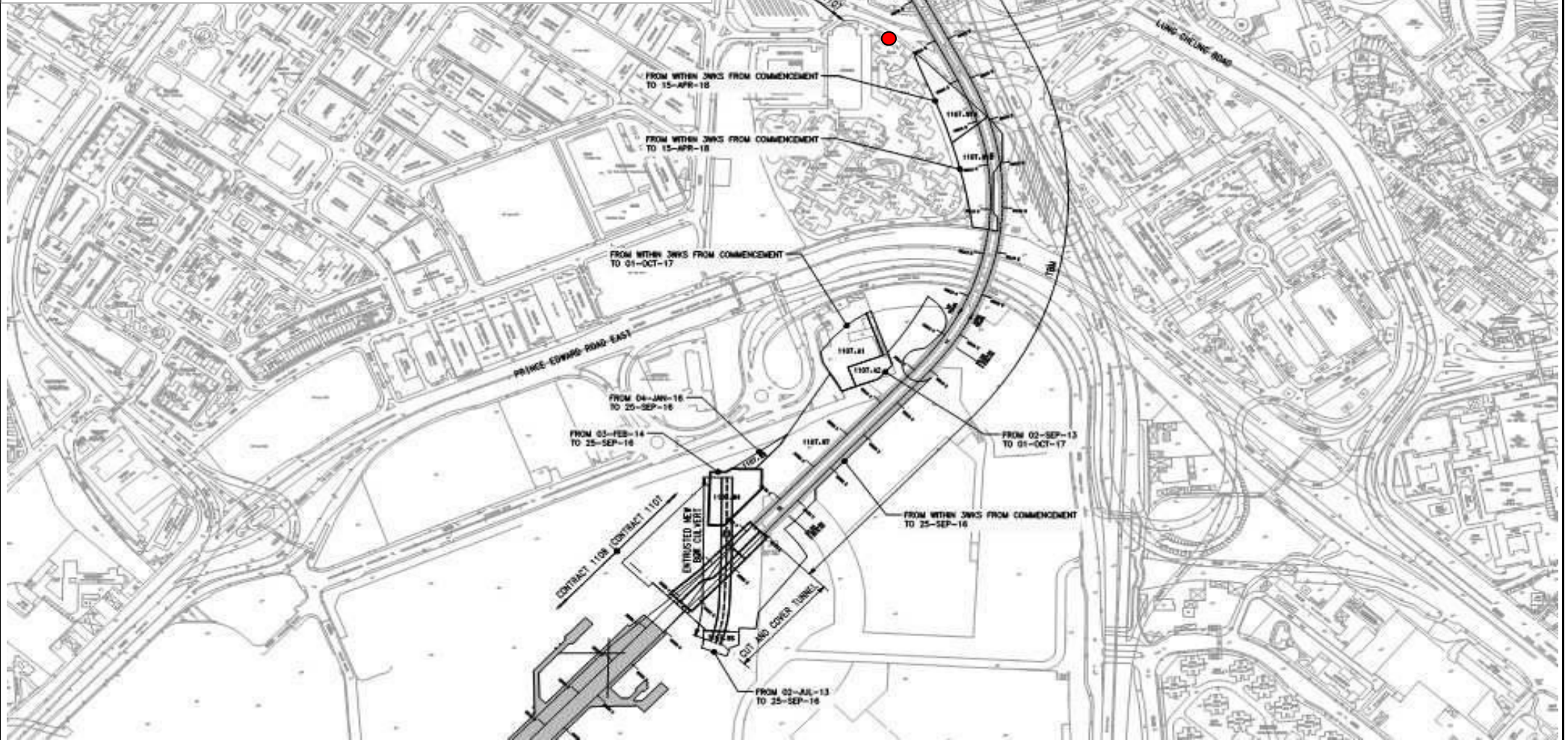
Title MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Locations of Construction Noise Monitoring	Scale N.T.S	Project No. MA13018	
	Date May-13	Figure 2	

Legend:

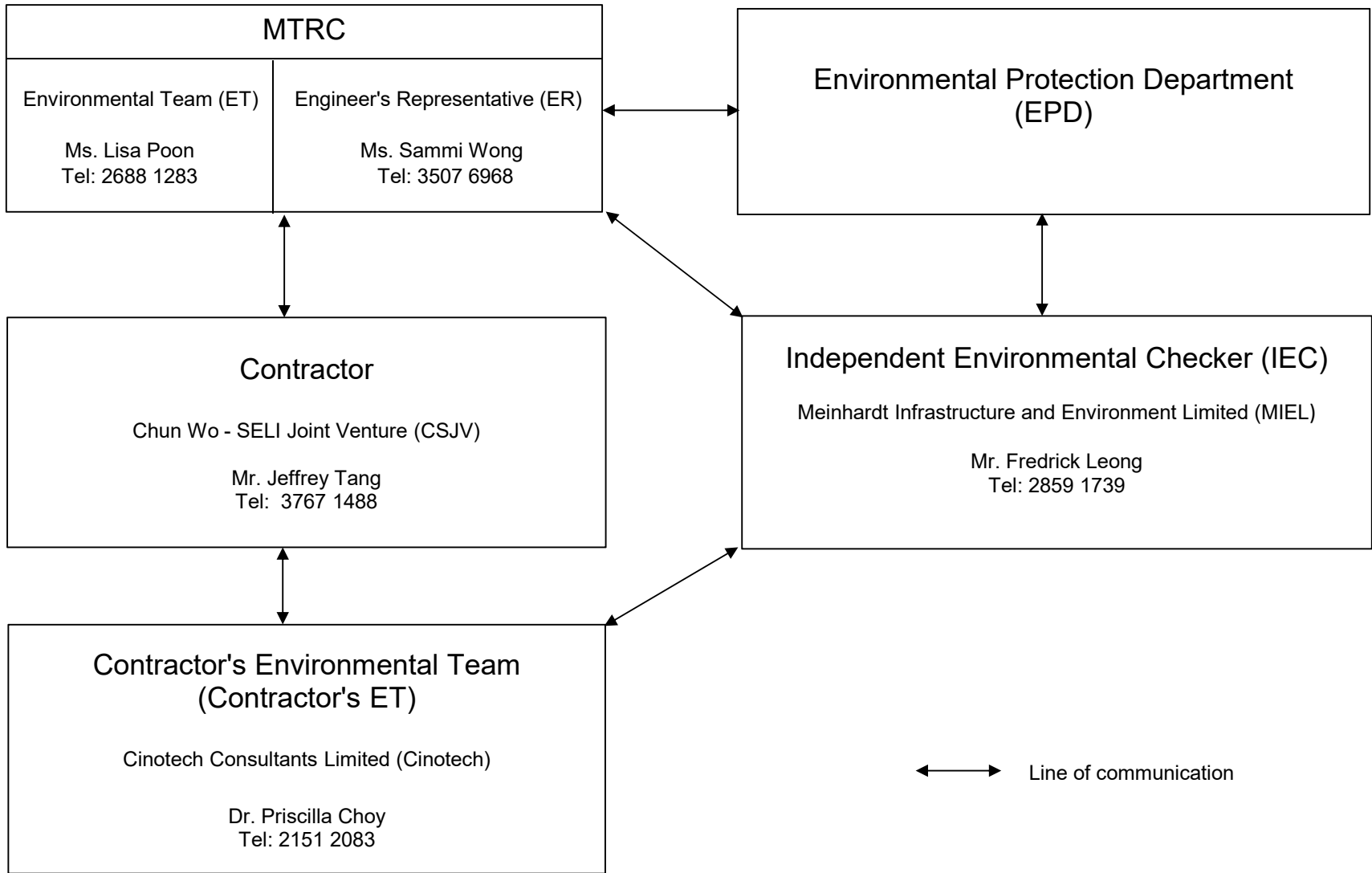
- DMS-4⁽¹⁾/DMS-3⁽²⁾ Block 1, Rhythm Garden

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).



Title	MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Location of Dust Monitoring	Scale	N.T.S	Project No.	MA13018	CINOTECH
		Date	May-13	Figure	3	



← → Line of communication

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

Jan 2018

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	2017				2
									Sep	Oct	Nov	Dec	
MTRC SCL 1107 DIH to KAT Tunnels 3 M													
Schedule of Completion Obligation & Otl													
Schedule of Milestone Dates - Cost Centre A													
1107.MS10320	A17 Approval of draft Operating and Maintenance Manuals and draft as-built drawings for Whole of the Works	0		31-Dec-17		31-Dec-17		31-Dec-17*					
Schedule of Vacate Dates for Works Areas													
1107.HD11140	Vacate Date for 1107.A1	0		01-Oct-17		01-Oct-17		01-Oct-17*					
1107.HD11150	Vacate Date for 1107.A2	0		01-Oct-17		01-Oct-17		01-Oct-17*					
Cost Centre A - Preliminaries													
Site Enabling Works													
Site Setup													
Misc Items													
1107.19120c	Provision of Site General Staff (Drivers, Amahs, etc) - 28Aug17 to 13Sep17	15			28-Aug-17	13-Sep-17	28-Aug-17 A	13-Sep-17 A					
1107.19120d	Provision of Site General Staff (Drivers, Amahs, etc) - 14Sep17 to 30Sep17	15			14-Sep-17	30-Sep-17	14-Sep-17 A	30-Sep-17 A					
1107.19130	Provision of Site General Staff (Drivers, Amahs, etc) - 03Oct17 to 20Oct17	15	03-Oct-17	30-Dec-17	03-Oct-17	20-Oct-17	03-Oct-17	20-Oct-17					
1107.191301	Provision of Site General Staff (Drivers, Amahs, etc) - 21Oct17 to 08Nov17	15			21-Oct-17	08-Nov-17	21-Oct-17	08-Nov-17					
1107.191302	Provision of Site General Staff (Drivers, Amahs, etc) - 09Nov17 to 25Nov17	15			09-Nov-17	25-Nov-17	09-Nov-17	25-Nov-17					
1107.191304	Provision of Site General Staff (Drivers, Amahs, etc) - 16Dec17 to 30Dec17	14			13-Dec-17	30-Dec-17	13-Dec-17	30-Dec-17					
1107.19140	Provision of Site General Staff (Drivers, Amahs, etc) - First Quarter of 2018	72	02-Jan-18	29-Mar-18	02-Jan-18	29-Mar-18	02-Jan-18	29-Mar-18					
1107.19310c	Provision of Site General Labour for Temporary Works - 28Aug17 to 13Sep17	15			28-Aug-17	13-Sep-17	28-Aug-17 A	13-Sep-17 A					
1107.19310d	Provision of Site General Labour for Temporary Works - 14Sep17 to 30Sep17	15			14-Sep-17	30-Sep-17	14-Sep-17 A	30-Sep-17 A					
1107.19320	Provision of Site General Labour for Temporary Works - 03Oct17 to 20Oct17	15	03-Oct-17	30-Dec-17	03-Oct-17	20-Oct-17	03-Oct-17	20-Oct-17					
1107.193201	Provision of Site General Labour for Temporary Works - 21Oct17 to 08Nov17	15			21-Oct-17	08-Nov-17	21-Oct-17	08-Nov-17					
1107.193202	Provision of Site General Labour for Temporary Works - 09Nov17 to 25Nov17	15			09-Nov-17	25-Nov-17	09-Nov-17	25-Nov-17					
1107.193203	Provision of Site General Labour for Temporary Works - 27Nov17 to 12Dec17	14			27-Nov-17	12-Dec-17	27-Nov-17	12-Dec-17					
1107.193204	Provision of Site General Labour for Temporary Works - 16Dec17 to 30Dec17	14			13-Dec-17	30-Dec-17	13-Dec-17	30-Dec-17					
1107.19330	Provision of Site General Labour for Temporary Works - First Quarter of 2018	72	02-Jan-18	29-Mar-18	02-Jan-18	29-Mar-18	02-Jan-18	29-Mar-18					

Data Date 01-Oct-17
Page 1 of 1
SCL1107 M-3MR-055
Printed 07-Sep-1708:39

MTRC SCL 1107 DIH to KAT Tunnels 3
Month Rolling Programme 055 with Phase 1
DRM
Data Date 01-Oct-17

Date	Revision	Checked	Approved
See 2nd Col	0	KCL	KCL

- █ Master Prog Baseline Bar
- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ Milestone
- ▼ Summary

**APPENDIX B
ACTION AND LIMIT LEVELS**

APPENDIX B – Action and Limit Levels**24-Hour TSP**

Regular Dust Monitoring Location	Description	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
DMS-4 ⁽¹⁾⁽³⁾ / DMS-3 ⁽²⁾⁽³⁾	Block 1, Rhythm Garden	160.4	260

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Dust monitoring on DMS-3⁽¹⁾/DMS-4⁽²⁾ is carried out by Environmental Team of SCL Works Contract 1106.

Construction Noise

Regular Construction Noise Monitoring Location⁽¹⁾	Description	Time Period	Action Level	Limit Level
NMS-CA-4 ⁽¹⁾⁽⁵⁾ / NMS-CA-3 ⁽²⁾⁽⁵⁾	Block 1, Rhythm Garden (north-eastern façade)	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)
NMS-CA-5 ⁽¹⁾⁽³⁾⁽⁵⁾ / NMS-CA-2 ⁽²⁾⁽³⁾⁽⁵⁾	Block 1, Rhythm Garden (northern façade)			65 / 70 dB(A) ⁽⁴⁾

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.
- (5) Noise monitoring on Block 1, Rhythm Garden are carried out by Environmental Team of SCL Works Contract 1106.

**APPENDIX C
CALIBRATION CERTIFICATES FOR
MONITORING EQUIPEMENT**

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0029

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 3-Nov-17 Next Due Date: 2-Jan-18
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	297.3	Pressure, Pa (mmHg)	765.3

Orifice Transfer Standard Information					
Serial No.	0993	Slope, mc	0.0578	Intercept, bc	-0.04890
Last Calibration Date:	28-Feb-17	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	27-Feb-18	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

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 water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.4	3.39	59.56	7.4	2.73
2	9.7	3.13	55.01	6.3	2.52
3	7.6	2.77	48.79	5.0	2.25
4	5.4	2.33	41.26	3.4	1.85
5	3.2	1.80	31.95	2.2	1.49

By Linear Regression of Y on X

Slope, mw = 0.0456 Intercept, bw = 0.0103
 Correlation coefficient* = 0.9989

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ <u>3.85</u>	

Remarks: _____

Conducted by: Wk Tang Signature: [Signature] Date: 3/11/2017
 Checked by: LA Signature: [Signature] Date: 3 November 2017



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 - Feb 28, 2017 Rootsmeter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 0993 Pa (mm) - 750.57

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	1.3860	3.2	2.00
2	NA	NA	1.00	0.9910	6.4	4.00
3	NA	NA	1.00	0.8840	7.9	5.00
4	NA	NA	1.00	0.8430	8.7	5.50
5	NA	NA	1.00	0.6970	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.7191	1.4149	0.9957	0.7184	0.8851
0.9925	1.0015	2.0010	0.9915	1.0005	1.2517
0.9904	1.1204	2.2372	0.9894	1.1192	1.3995
0.9894	1.1737	2.3464	0.9884	1.1725	1.4678
0.9842	1.4120	2.8299	0.9832	1.4106	1.7702
Qstd slope (m) = 2.04055			Qa slope (m) = 1.27776		
intercept (b) = -0.04890			intercept (b) = -0.03059		
coefficient (r) = 0.99995			coefficient (r) = 0.99995		
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}

TEST REPORT

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

Test Report No.:	C/N/170915
Date of Issue:	2017-09-18
Date Received:	2017-09-15
Date Tested:	2017-09-15
Date Completed:	2017-09-18
Next Due Date:	2018-09-17

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	: 60%

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/170915A
Date of Issue:	2017-09-18
Date Received:	2017-09-15
Date Tested:	2017-09-15
Date Completed:	2017-09-18
Next Due Date:	2018-09-17

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.	: 12563
Microphone No.	: 34377
Equipment No.	: N-08-03

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 60%

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/170825
Date of Issue:	2017-08-28
Date Received:	2017-08-25
Date Tested:	2017-08-25
Date Completed:	2017-08-28
Next Due Date:	2018-08-27

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.	: 21455
Microphone No.	: 43730
Equipment No.	: N-08-07

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 60 %

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/171215
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35924
Equipment No.	: N-13-01

Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 64%

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/170929
Date of Issue:	2017-09-30
Date Received:	2017-09-29
Date Tested:	2017-09-29
Date Completed:	2017-09-30
Next Due Date:	2018-09-29

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	: 60 %

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/170929A
Date of Issue:	2017-09-30
Date Received:	2017-09-29
Date Tested:	2017-09-29
Date Completed:	2017-09-30
Next Due Date:	2018-09-29

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24791
Equipment No.	: N-09-04

Test conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 60 %

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

APPENDIX D
IMPACT MONITORING SCHEDULE

**Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tak Tunnels
Impact Air Quality and Noise Monitoring Schedule for December 2017**

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

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)

**Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tak Tunnels
Tentative Impact Air Quality and Noise Monitoring Schedule for January 2018**

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

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

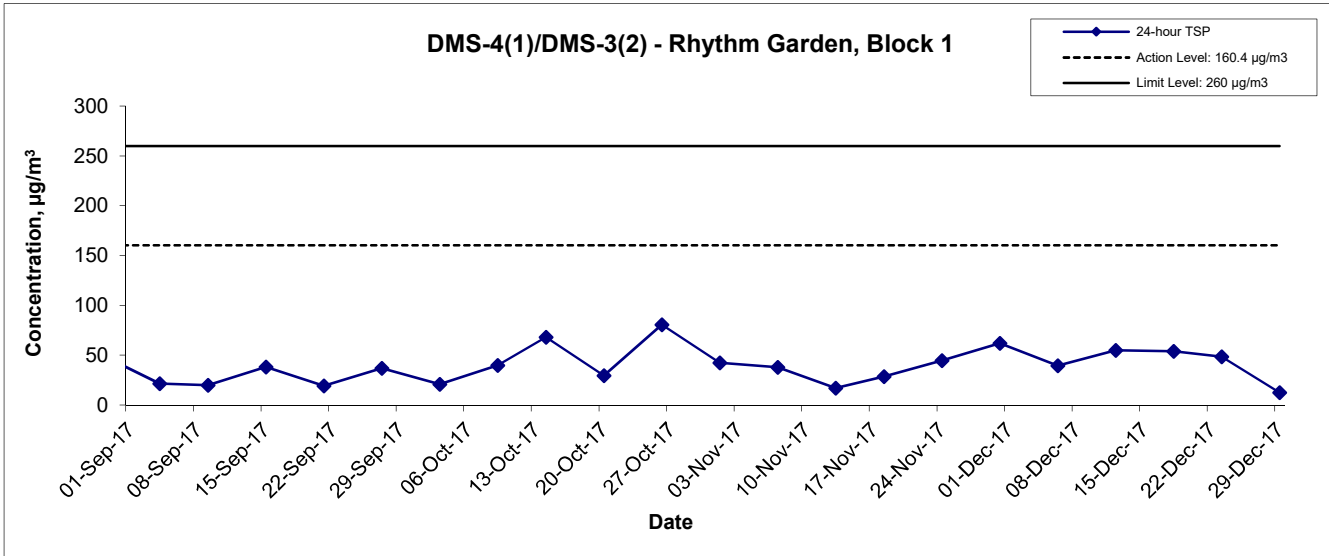
Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

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			
6-Dec-17	09:00	Sunny	292.8	767.3	2.8836	2.9537	0.0701	8206.6	8230.6	24.0	1.24	1.24	1.24	1779.8	39.4
12-Dec-17	09:00	Cloudy	291.8	767.6	2.8484	2.9466	0.0982	8230.6	8254.6	24.0	1.24	1.24	1.24	1783.2	55.1
18-Dec-17	09:00	Sunny	285.5	773.3	2.7819	2.8798	0.0979	8254.6	8278.6	24.0	1.26	1.26	1.26	1809.6	54.1
23-Dec-17	09:00	Cloudy	291.9	766.7	2.8804	2.9668	0.0864	8278.6	8302.6	24.0	1.24	1.24	1.24	1781.9	48.5
29-Dec-17	09:00	Cloudy	292.4	769.1	2.7981	2.8204	0.0223	8302.6	8326.6	24.0	1.24	1.24	1.24	1783.1	12.5
													Min	12.5	
													Max	55.1	
													Average	41.9	

Remarks:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

24-hour TSP Concentration Levels



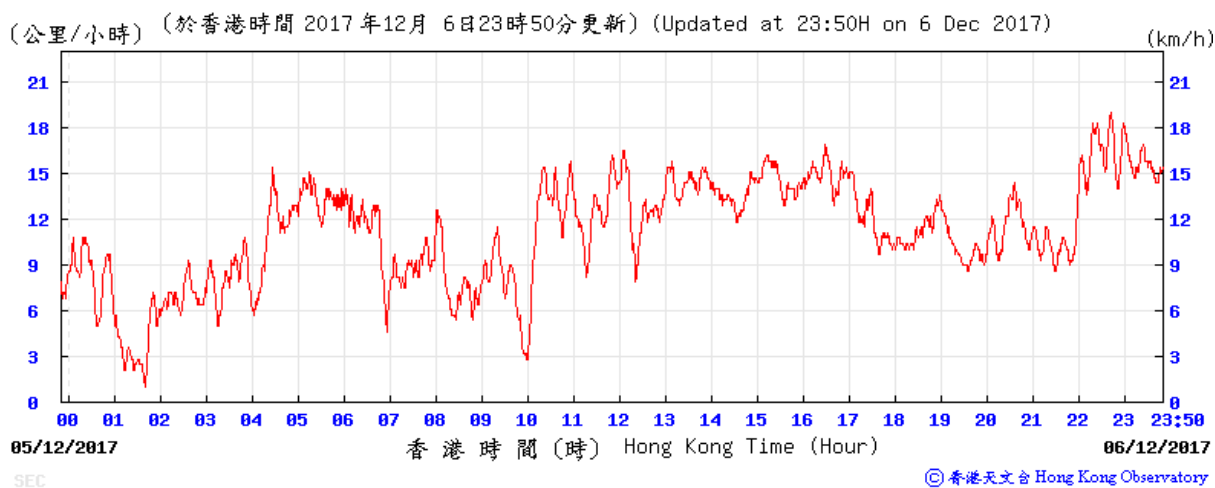
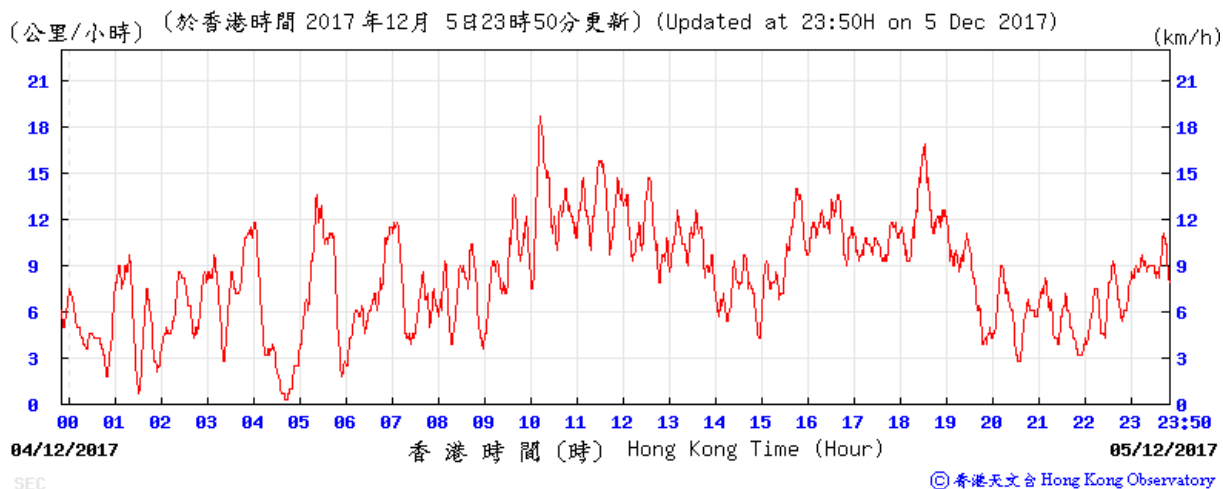
Remarks:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Title Shatin to Central Link - Contract 1107 - Diamond Hill to Kai Tak Tunnels Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA13018	
	Date Dec 17	Appendix E	

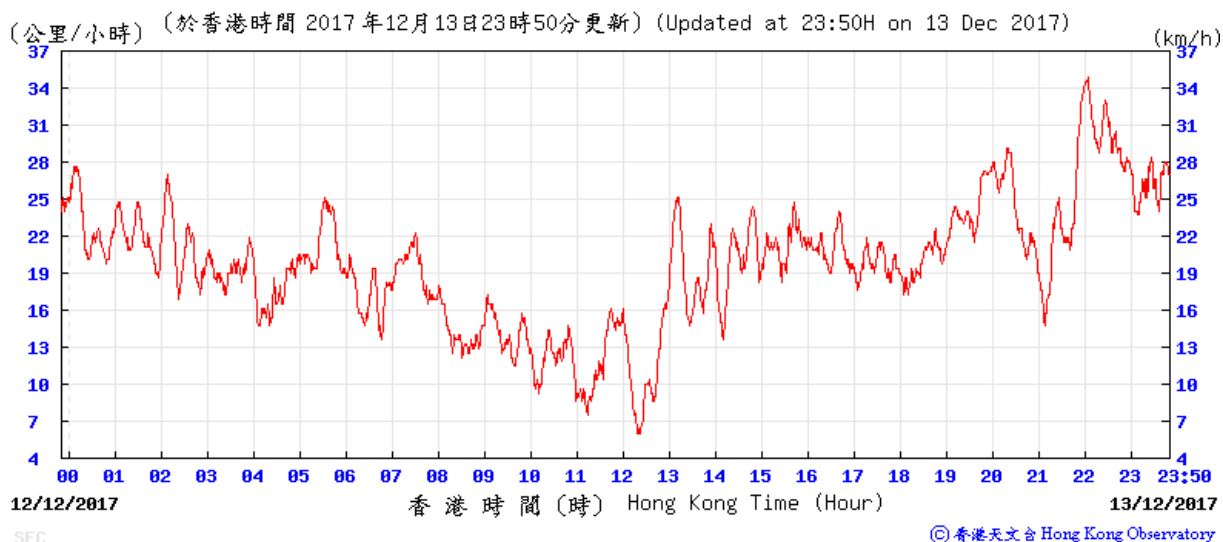
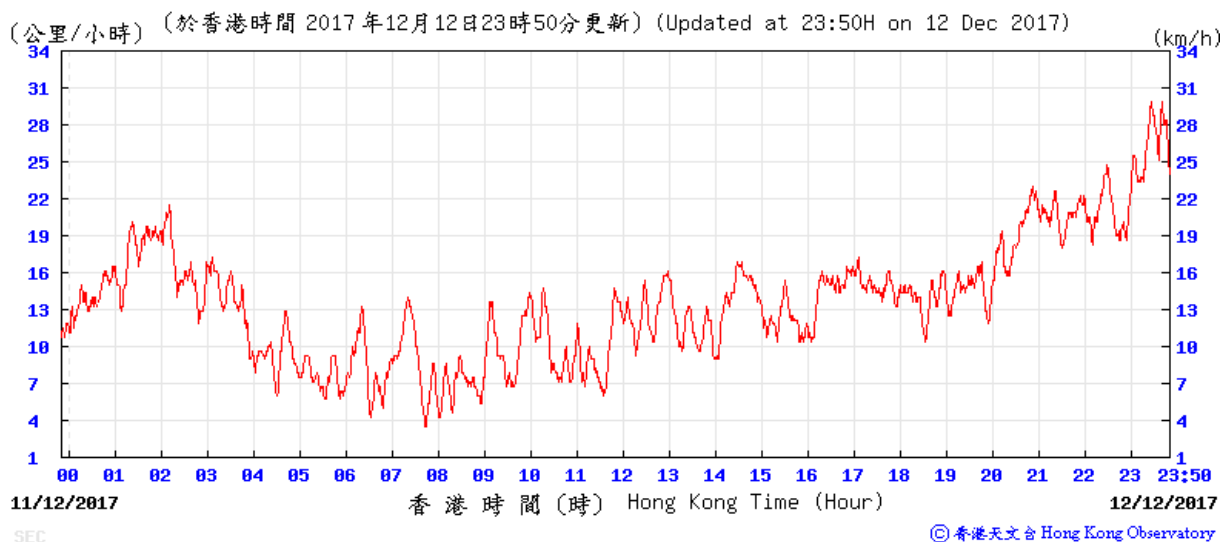
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

5-6 December 2017



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

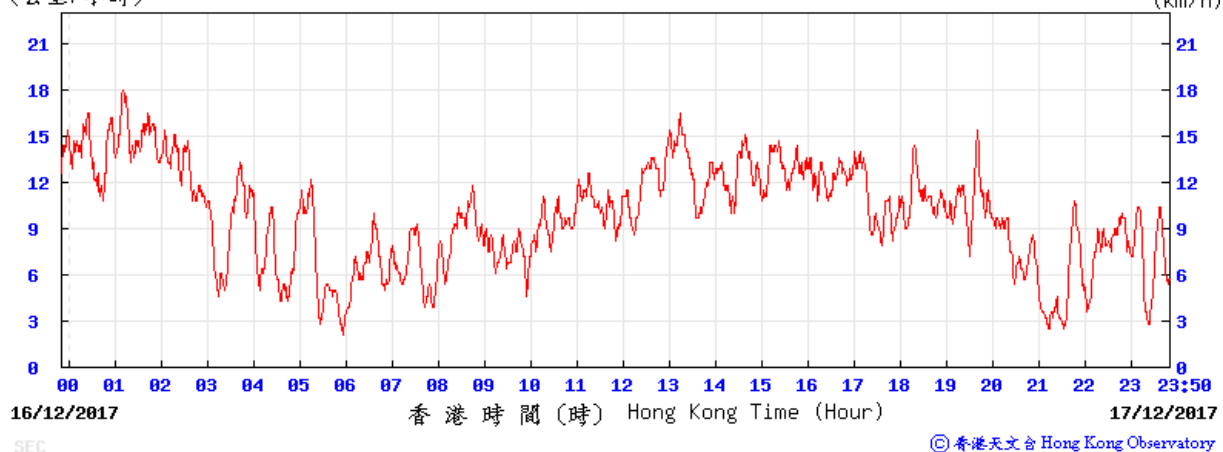
12-13 December 2017



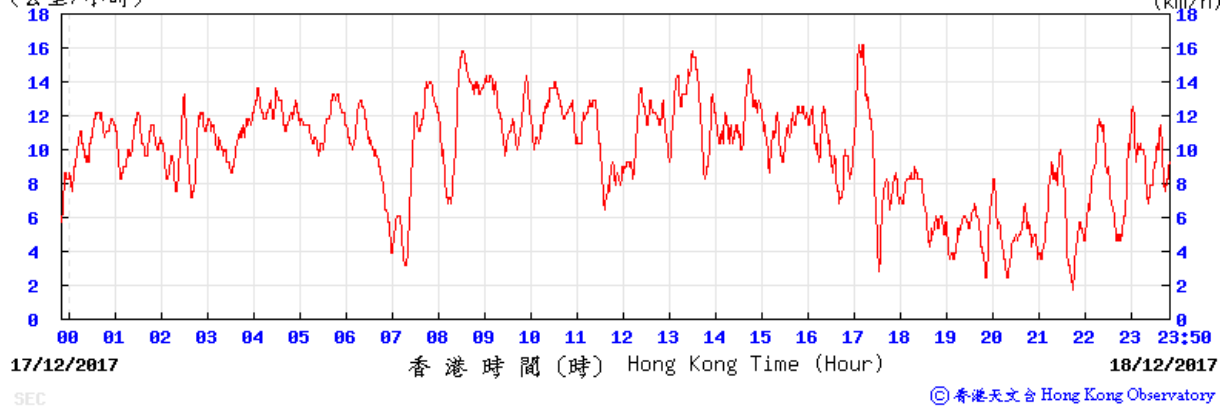
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

17-18 December 2017

(公里/小時) (於香港時間 2017 年12月17日23時50分更新) (Updated at 23:50H on 17 Dec 2017) (km/h)



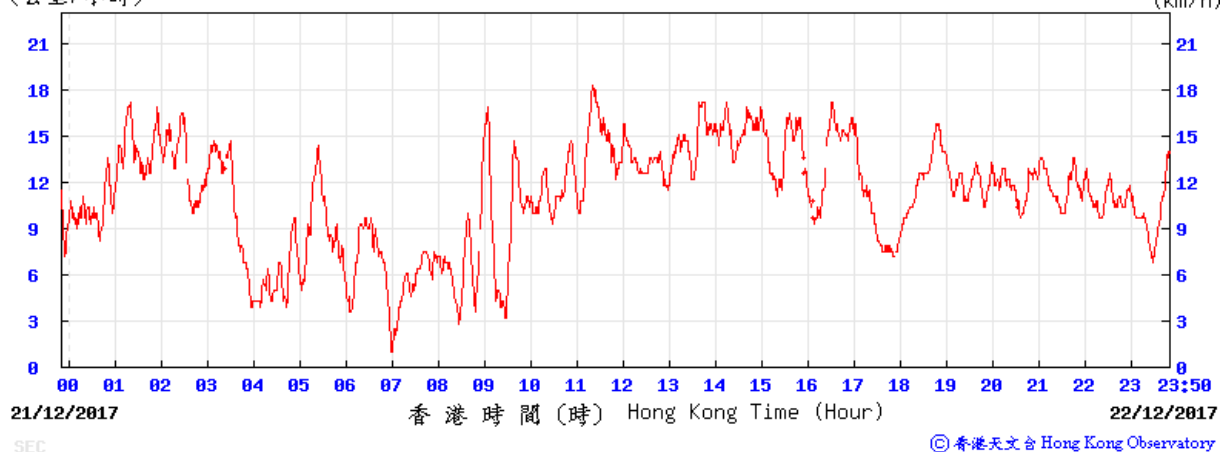
(公里/小時) (於香港時間 2017 年12月18日23時50分更新) (Updated at 23:50H on 18 Dec 2017) (km/h)



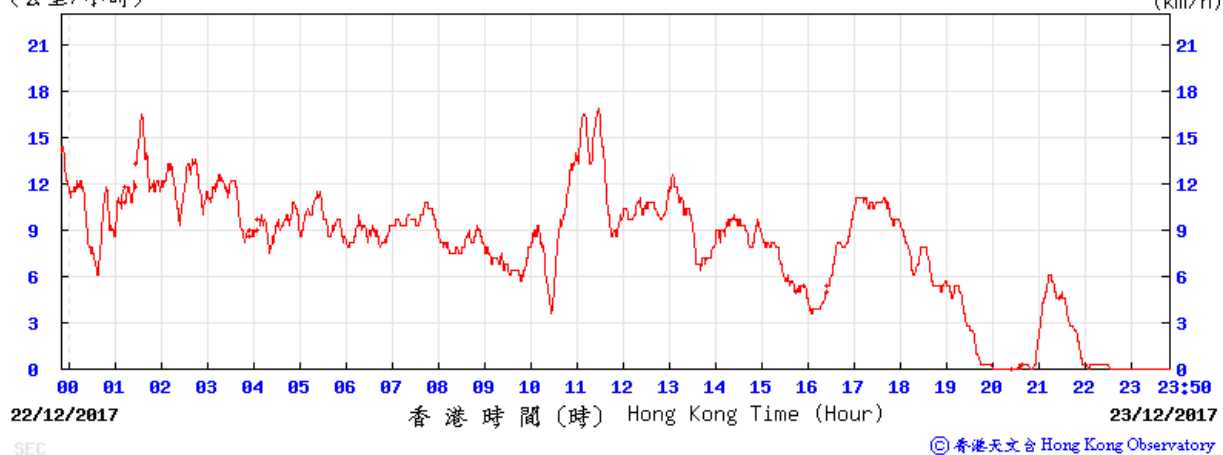
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

22-23 December 2017

(公里/小時) (於香港時間 2017 年12月22日23時50分更新) (Updated at 23:50H on 22 Dec 2017) (km/h)



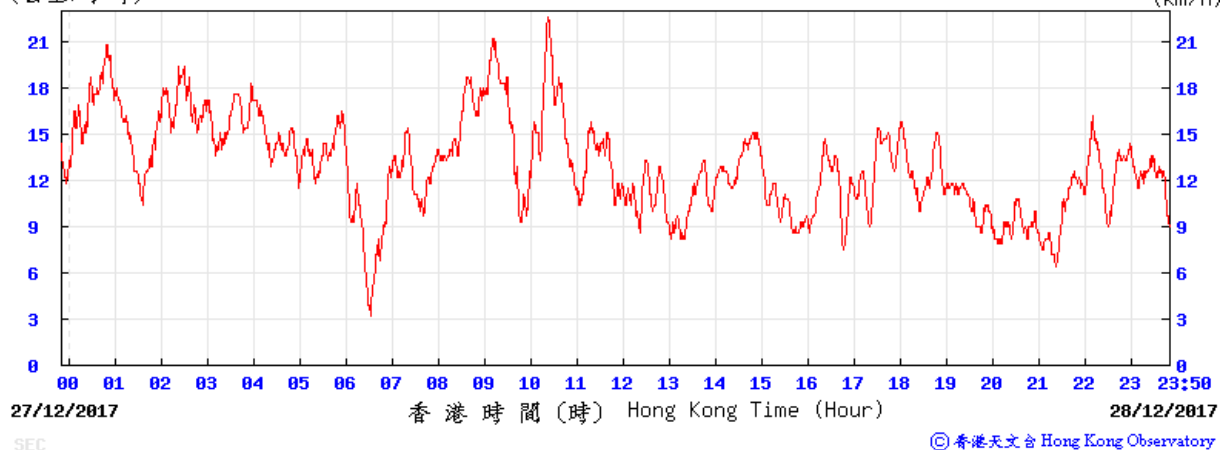
(公里/小時) (於香港時間 2017 年12月23日23時50分更新) (Updated at 23:50H on 23 Dec 2017) (km/h)



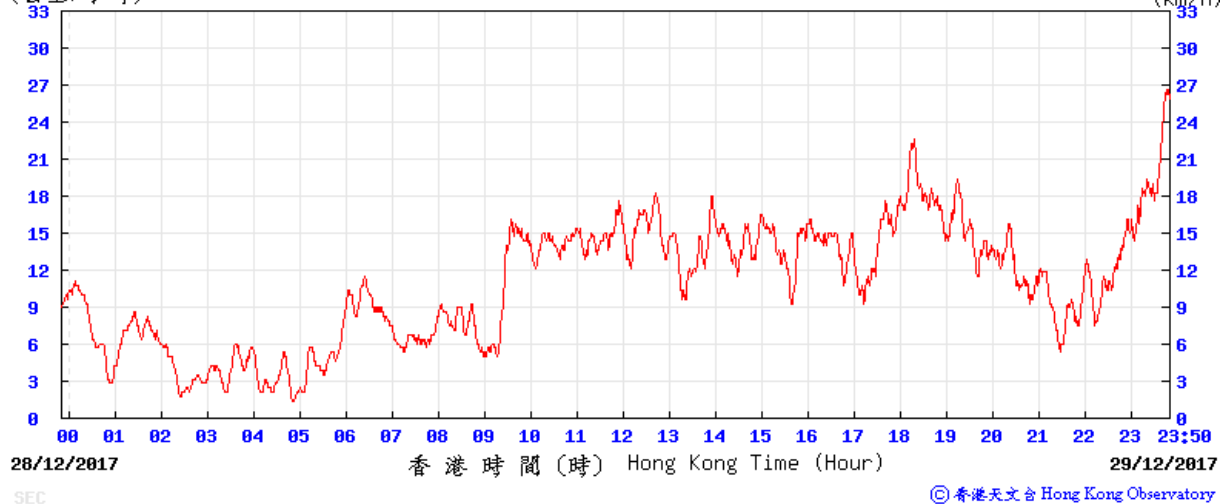
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

28-29 December 2017

(公里/小時) (於香港時間 2017 年12月28日23時50分更新) (Updated at 23:50H on 28 Dec 2017) (km/h)

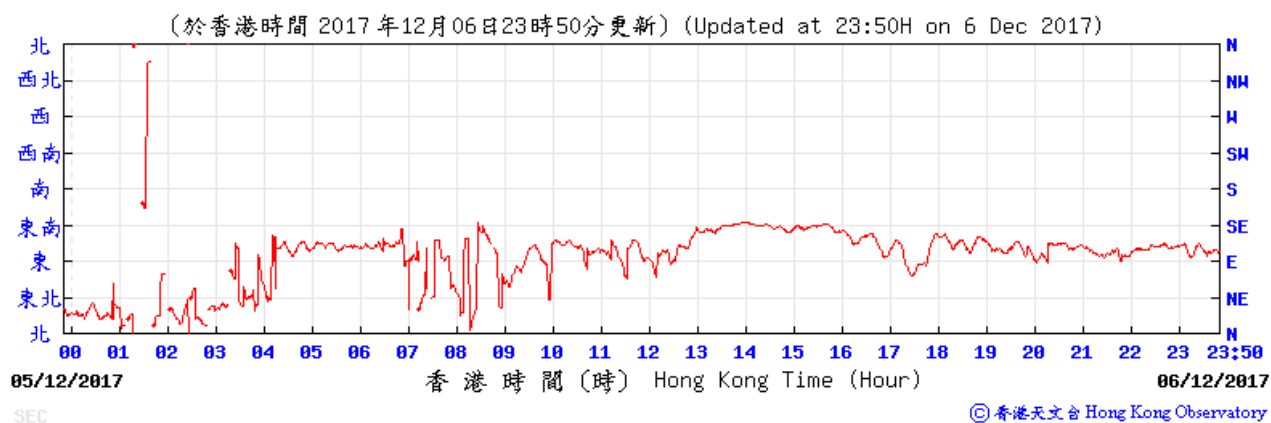
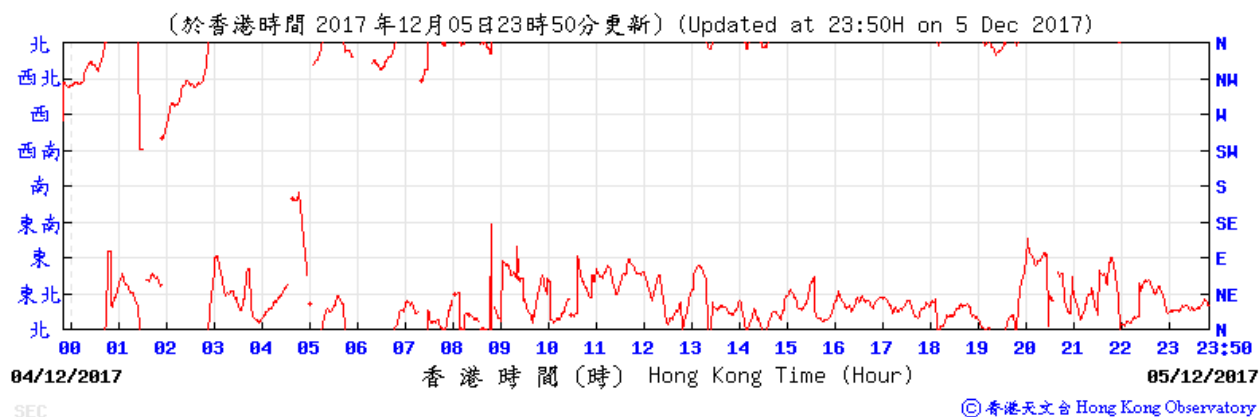


(公里/小時) (於香港時間 2017 年12月29日23時50分更新) (Updated at 23:50H on 29 Dec 2017) (km/h)



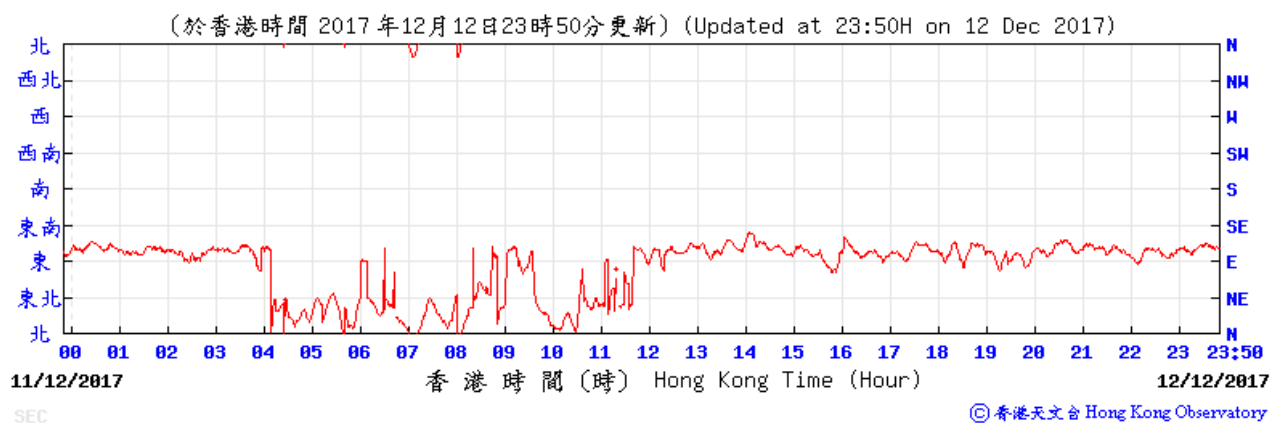
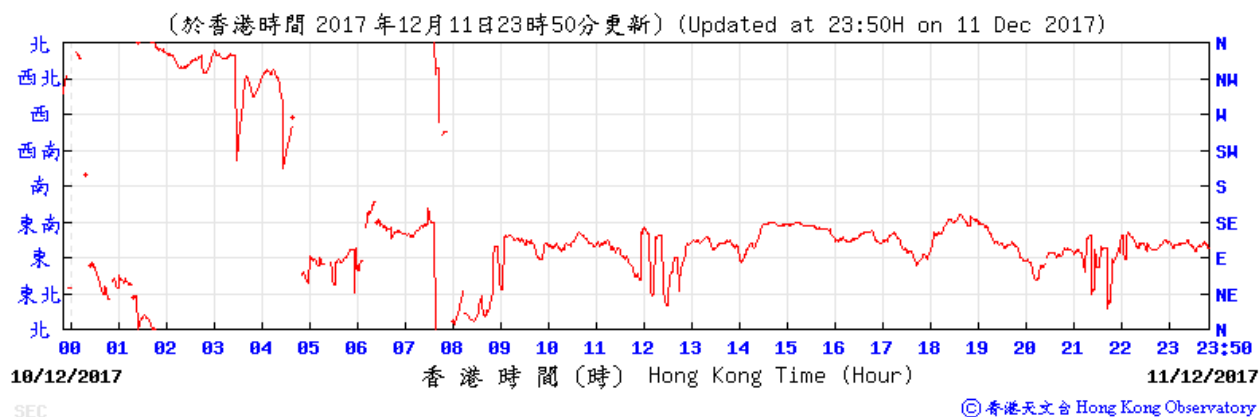
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

5-6 December 2017



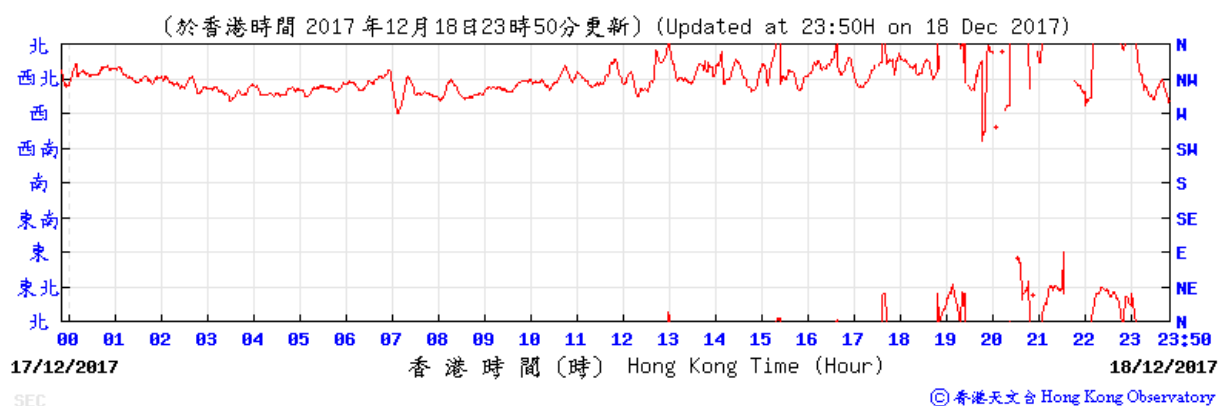
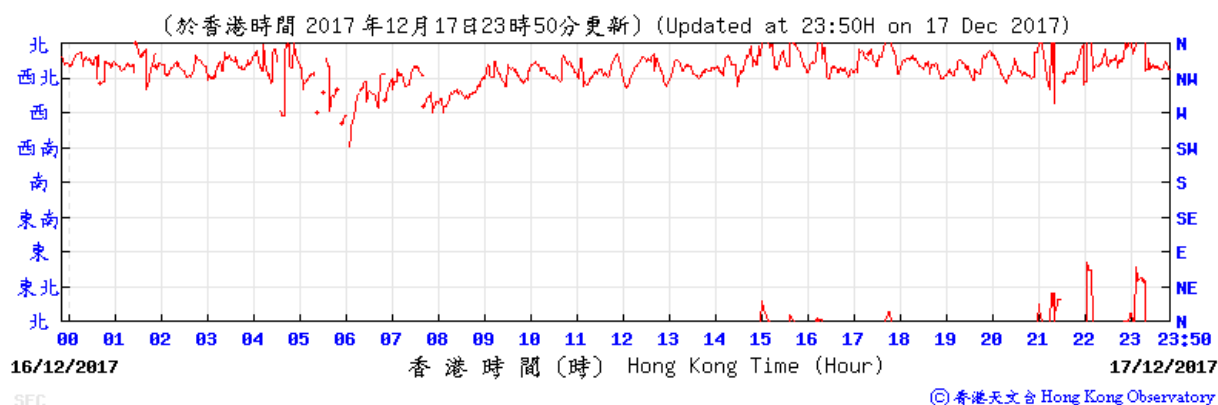
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

11-12 December 2017



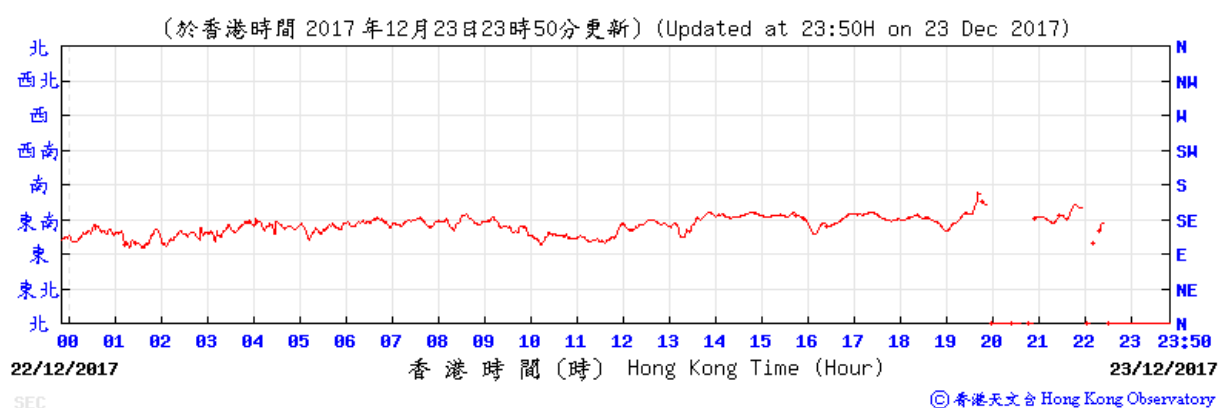
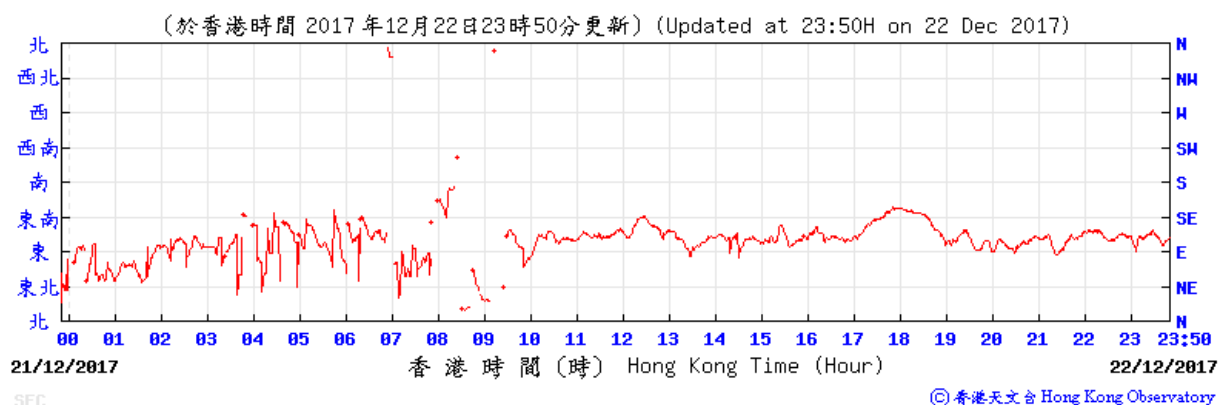
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

17-18 December 2017



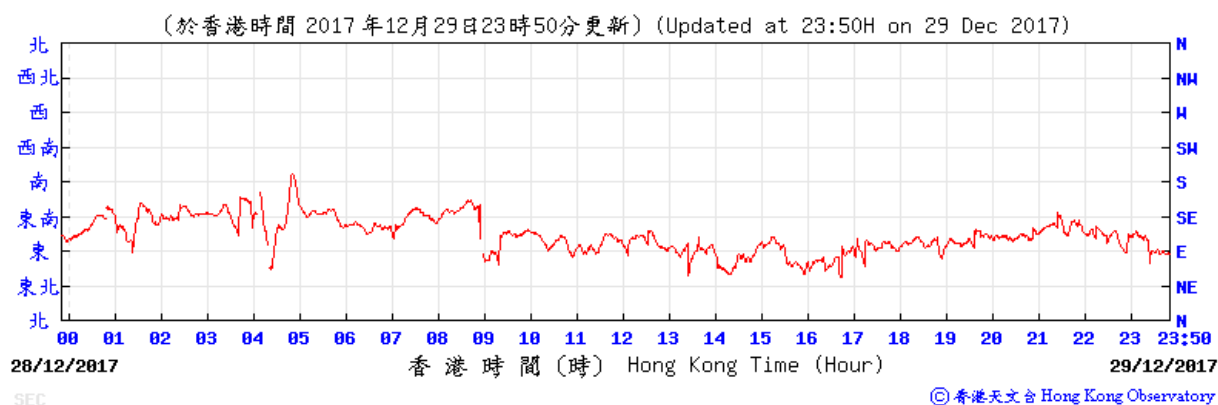
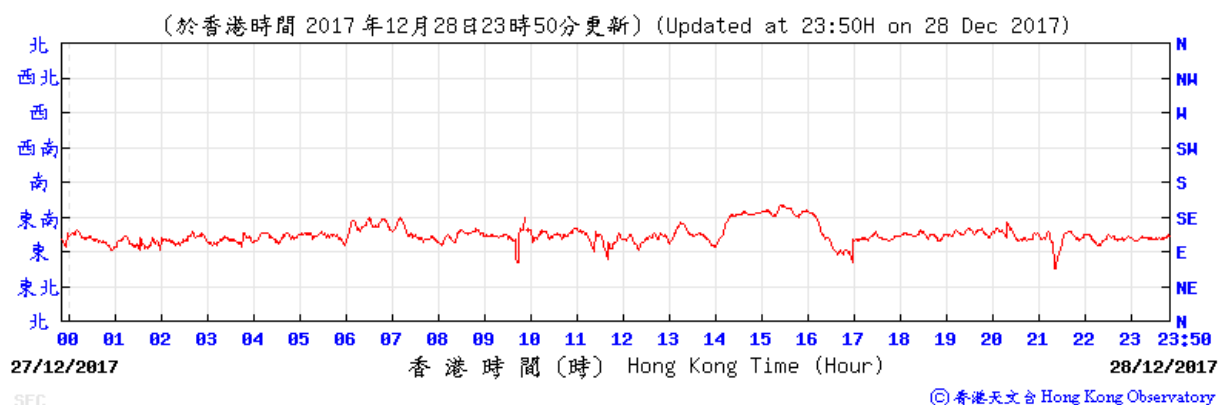
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

22-23 December 2017



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

28-29 December 2017



**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}
7-Dec-17	Sunny	11:00	72.4	73.3	71.1	71.8	71	64.1
		11:05	71.9	73.1	70.4			
		11:10	72.0	73.1	70.6			
		11:15	71.7	72.9	70.5			
		11:20	71.6	72.9	70.4			
		11:25	71.4	72.6	70.1			
13-Dec-17	Cloudy	11:10	71.8	72.8	70.6	71.9	71	64.6
		11:15	72.1	73.2	70.8			
		11:20	71.8	73.1	70.3			
		11:25	71.5	72.7	70.8			
		11:30	71.9	73.0	70.7			
		11:35	72.2	73.3	70.9			
19-Dec-17	Sunny	10:15	71.9	73.1	70.4	72.1	71	65.6
		10:20	72.0	73.3	70.4			
		10:25	72.0	73.4	70.5			
		10:30	72.1	73.4	70.5			
		10:35	72.2	73.5	70.6			
		10:40	72.1	73.4	70.5			
27-Dec-17	Sunny	14:35	71.8	72.9	70.3	71.6	71	62.7
		14:40	71.2	72.4	67.8			
		14:45	71.1	71.9	70.1			
		14:50	71.5	72.0	70.3			
		14:55	71.7	73.0	70.1			
		15:00	72.4	73.5	71.1			

Remarks:

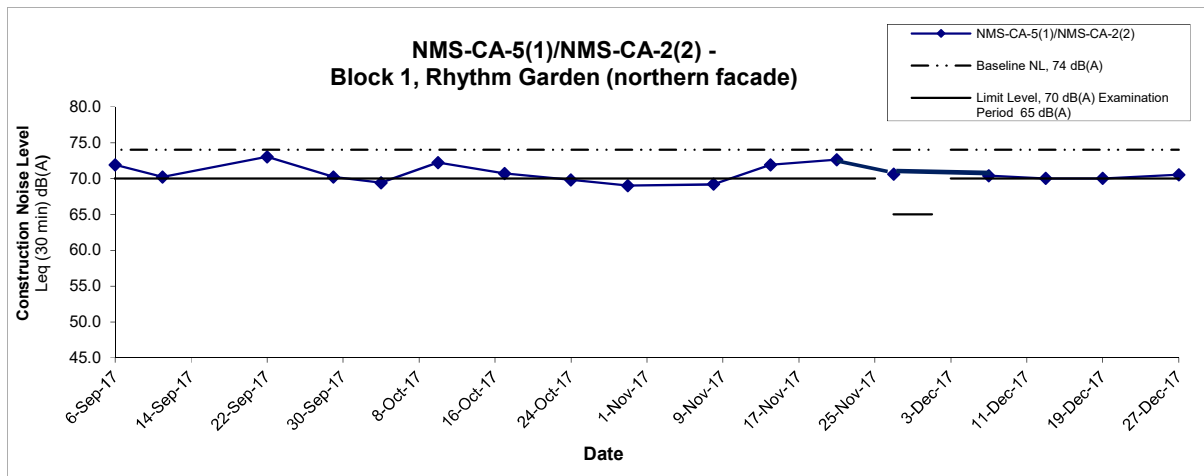
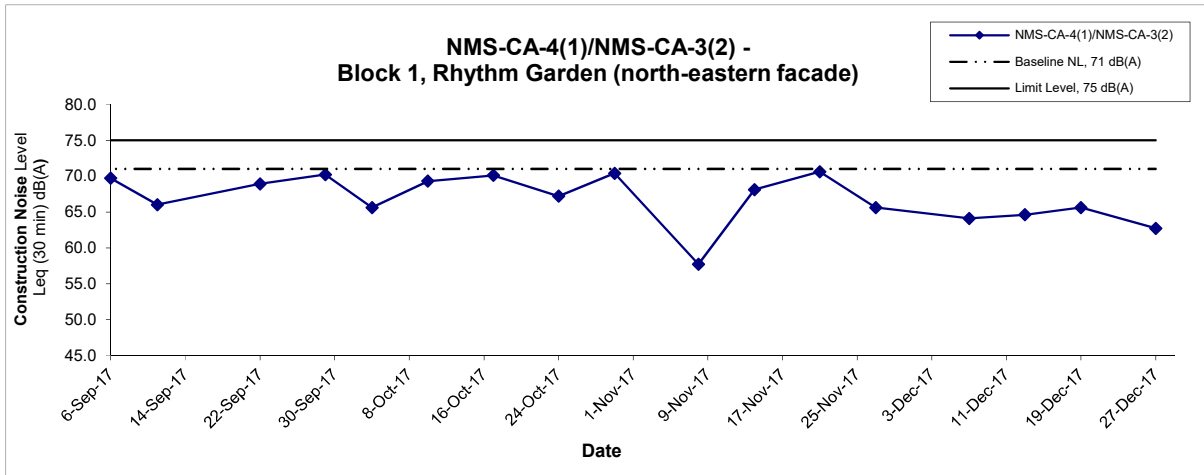
- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Appendix F - Noise Monitoring Results

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}
7-Dec-17	Sunny	09:55	70.4	71.6	69.1	70.4	74	70.4 Measured ≤ Baseline Level
		10:00	69.8	70.9	68.6			
		10:05	70.4	71.5	69.3			
		10:10	70.5	71.7	69.3			
		10:15	70.8	72.1	69.5			
		10:20	70.7	71.9	69.5			
13-Dec-17	Cloudy	10:40	70.0	71.1	68.7	70.0	74	70.0 Measured ≤ Baseline Level
		10:45	70.1	71.2	68.5			
		10:50	70.6	71.6	69.3			
		10:55	69.9	71.1	68.5			
		11:00	69.7	71.0	68.3			
		11:05	69.7	70.9	68.4			
19-Dec-17	Sunny	10:45	69.8	70.9	68.4	70.0	74	70.0 Measured ≤ Baseline Level
		10:50	70.0	71.2	68.4			
		10:55	70.0	71.2	68.5			
		11:00	70.1	71.4	68.5			
		11:05	70.1	71.4	68.5			
		11:10	70.1	71.4	68.6			
27-Dec-17	Sunny	14:00	70.2	71.5	68.6	70.5	74	70.5 Measured ≤ Baseline Level
		14:05	70.5	71.5	69.3			
		14:10	70.6	71.9	69.1			
		14:15	70.7	71.7	69.3			
		14:20	70.1	70.8	69.2			
		14:25	70.7	72.4	69.2			

Noise Levels



Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) In case of Measured Level \leq Baseline Level, only Measured Level is presented on the graphical presentation.

Title Shatin to Central Link - Contract 1107 - Diamond Hill to Kai Tak Tunnels Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA13018	CINOTECH
	Date Dec 17	Appendix F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: December 2017

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

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

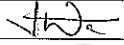

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	171207
Date	7 December 2017
Time	10:15-11:15

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

Ref. No.	Remarks/Observations	Related Item No.
171207-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"> The dusty stockpile should be covered by impervious material to prevent the dust emission in the storage area. 	D 6
171207-R02	<p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> The general refuse should be cleared regularly to prevent the accumulation in the storage area. <p>Part G - Permit / 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 action on previous audit section (Ref. No.: 171130), item 171130-R01 & 171130-R02 were remarked as 171207-R01 & 171207-R02 and should be reviewed during next site inspection. 	F 1i

	Name	Signature	Date
Recorded by	Janet Wai		7 December 2017
Checked by	Dr. Priscilla Choy		7 December 2017

Shatin to Central Link -

Contract 1107 Diamond Hill to Kai Tak Tunnels

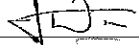

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	171214
Date	14 December 2017
Time	10:15-11:15

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

Ref. No.	Remarks/Observations	Related Item No.
	<p><i>Part B - Water Quality</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part C - Landscape & Visual</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part D - Air Quality</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part E - Construction Noise Impact</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part F - Waste/Chemical Management</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part G - Permit / Licenses</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part H - Others</i></p> <ul style="list-style-type: none"> • Follow-up action on previous audit section (Ref. No.: 171207), all environmental deficiencies were observed to be rectified/improved by the Contractor. 	

	Name	Signature	Date
Recorded by	Janet Wai		14 December 2017
Checked by	Dr. Priscilla Choy		14 December 2017

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

Record Summary of Environmental Site Inspection

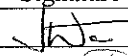

Inspection Information

Checklist Reference Number	171221
Date	21 December 2017
Time	10:15-11:15

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

⊕

Ref. No.	Remarks/Observations	Related Item No.
171221-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"> The dusty stockpile should be covered by impervious material to prevent the dust emission in the storage area. <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>Part H - Others</p> <ul style="list-style-type: none"> Follow-up action on previous audit section (Ref. No.: 171214), all environmental deficiencies were observed to be rectified/improved by the Contractor. 	D 6

	Name	Signature	Date
Recorded by	Janet Wai		21 December 2017
Checked by	Dr. Priscilla Choy		21 December 2017

Shatin to Central Link -

Contract 1107 Diamond Hill to Kai Tak Tunnels

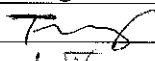

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	171228
Date	28 December 2017
Time	10:15-11:15

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

Ref. No.	Remarks/Observations	Related Item No.
171228-R01	<p><i>Part B - Water Quality</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part C - Landscape & Visual</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part D - Air Quality</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part E - Construction Noise Impact</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part F - Waste/Chemical Management</i></p> <ul style="list-style-type: none"> C&D waste should be disposed properly and regularly. <p><i>Part G - Permit / Licenses</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part H - Others</i></p> <ul style="list-style-type: none"> Follow-up action on previous audit section (Ref. No.: 171221), all environmental deficiencies were observed to be rectified/improved by the Contractor. 	F 4ii

	Name	Signature	Date
Recorded by	Tommy Cheng		28 December 2017
Checked by	Dr. Priscilla Choy		28 December 2017

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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<i>Landscape & Visual (Construction Phase)</i>								
S6.12	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> • To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> • All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	<p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system.</p> <ul style="list-style-type: none"> The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites. 						^
Table 6.9	LV2	<p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context. <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> Trees of medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB 	<p>Minimize the visual and landscape impact of the Project during construction phase</p>	Contractor	Within Project Site	Detailed design and construction stage	<ul style="list-style-type: none"> EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006 	<p>N/A</p> <p>N/A</p> <p>N/A</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

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		TCW No 3/2006.						
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	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	^
Construction Dust Impact								
S7.6.6	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• 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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		an equivalent intensity of no less than 1.8 L/m ² to achieve the dust removal efficiency						
S7.6.6	D3	<ul style="list-style-type: none"> • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary 	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 	* ^ ^ N/A ^ N/A

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</p> <ul style="list-style-type: none"> • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; 						<p>^</p> <p>^</p> <p>^</p> <p>N/A</p> <p>N/A</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<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; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 						N/A
								N/A
								N/A
								N/A
S7.6.6	D4	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
Construction Airborne Noise								
S8.5.6	AN1	Implement the following good site practices: <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant 	Control construction airborne	Contractor	All Construction Sites where	Construction stage	• Annex 5, TM-EIA	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

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		<p>should be serviced regularly during the construction programme;</p> <ul style="list-style-type: none"> • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	noise		practicable			^ ^ ^ ^ N/A
	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	Screen the noisy plant items to be used at all	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

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		plants including air compressor, generators and saw.	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), 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	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

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

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

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		<ul style="list-style-type: none"> • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via 						<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

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		<p>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 site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure 						<p>^</p> <p>^</p> <p>^</p> <p>^</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

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

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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.			practicable		• TM-water	
S10.7.1	W5	<p><u>Accidental Spillage</u></p> <p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> • Proper storage and handling facilities should be provided; • All the tanks, containers, storage area should be bunded and 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	<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 	Separation of unsuitable rock from ending up at concrete batching plants	Contractor	All construction sites	Construction stage	• DEVB TC(W) No. 6/2010	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

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		<p>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.</p>	<p>and be turned into concrete for structural use</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; 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance 	^ ^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

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		<ul style="list-style-type: none"> 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 	practicable so as to reduce the amount for final disposal				<ul style="list-style-type: none"> Waste Disposal Ordinance ETWB TCW No. 19/2005 	<p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <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 	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	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance 	*

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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>	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 stream by individual collectors if they are segregated and made easily 	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 1107 - Environmental Mitigation Implementation Schedule

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		<p>accessible. Separate labelled bins for their deposit should be provided if feasible.</p> <ul style="list-style-type: none"> Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 						^
S11.5.1	WM6	<p><u>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 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 	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 	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

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		<p>that area, whichever is the greatest; have adequate ventilation; be covered to prevent rainfall entering; and be arranged so that incompatible materials are adequately separated.</p> <ul style="list-style-type: none"> • Disposal of chemical waste should be via a licensed waste collector; and be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 						N/A

Remarks: ^ Compliance of mitigation measure X Non-compliance of mitigation measure

- Non-compliance but rectified by the contractor
- * Recommendation was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

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

CW - SELI Joint Venture

Name of Department: MTRC

Contract No.:1107

AppendixC1

Monthly Summary Waste Flow Table for 2017

Year	Estimated Quantities of Inert C&D Materials (in '000m ³) (see Note 4)										Estimated Quantities of C&D Wastes										
	Total Quantity Generated		Suitable for Recycled Aggregates		Reused in the Contract		Reused in other Projects		Disposed as Public Fill		Metals		Paper/cardboard packaging		Plastics (see Note 3)		Chemical Waste		Others, e.g. general refuse		
	(a)		(b)		(c)		(d)		(e=a-b-c-d)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000litre)		(in '000 tonne)		
	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	
January	0.050	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.035	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.005
February	0.050	0.015	0.000	0.000	0.010	0.000	0.000	0.000	0.040	0.015	0.000	0.000	0.100	0.242	0.000	0.000	0.000	0.000	0.100	0.025	
March	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.025	
April	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.100	0.000	0.100	0.010	
May	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.000	0.000	0.000	0.100	0.170	0.000	0.000	0.000	0.000	0.100	0.025	
June	0.050	0.025	0.000	0.000	0.020	0.000	0.000	0.000	0.030	0.025	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.110	
July	0.050	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.010	0.000	0.000	0.100	0.000	0.100	0.000	0.000	0.000	0.100	0.015	
August	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.020	
September	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.000	
October	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.000	1.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.000	
November	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.100	0.000	0.100	0.000	
December	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.000	0.000	0.000	0.100	0.000	0.100	0.000	0.000	0.000	0.100	0.000	
Total	0.600	0.085	0.000	0.000	0.030	0.000	0.000	0.000	0.570	0.085	1.000	0.000	1.200	0.412	0.200	0.000	0.200	0.000	1.200	0.235	

- 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 quantiles 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**

Complaint Location/ Nature	Incoming Complaint Reference no.	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Status
SCL Contract 1107's Construction Site near Shaft A/ Construction Noise	14-29958	A resident living in Kai Ching Estate/ 8 December 2014	A resident of Kai Ching Estate complained about an incident of construction noise disturbance generated from operation of equipment, at the area adjacent to Shaft A in the night.	<p>The Contractor had taken the following mitigation measures:</p> <ul style="list-style-type: none"> • Hoardings and noise absorption blankets were erected along the site boundary to shield residents of Kai Ching Estate from noisy works during the time of the complaint; • The equipment involved in this complaint: the water pump, was removed immediately after the complaint was received to reduce noise nuisance to nearby noise sensitive receivers; • The low area near shaft A enclosure was backfilled to eliminate the flooding issue, thus the need of the water pump; 	Closed

<p>SCL Contract 1107's Construction Site near Site Entrance/ Construction Noise and Dust</p>	<p>14-31154</p>	<p>A resident living in Kai Ching Estate/ 15 December 2014</p>	<p>A resident of Kai Ching Estate complained about the noise disturbance generated from some sort of alarm noise at night from the construction site entrance; and dust nuisance from the construction site in general.</p>	<p>The alarm bell was installed to alert pedestrians of moving vehicles. During the time of complaint, vehicles might had moved in or out of the site, thus triggering the alarm.</p> <p>To avoid the same incident from happening again, the Contractor has agreed to permanently terminate the alarm bell.</p> <p>The Contractor has provided sufficient measures to minimize the smoke and dust emission. These measures include:</p> <ul style="list-style-type: none"> • Covering stockpile of bagged cements and other dusty material with impervious material. • Regularly conducting water spray on work sites and major haul road. • Washing every vehicle leaving the construction site. <p>The 24-hr TSP level monitoring conducted in December showed that the dust levels at Block 1, Rhythm Garden were under the Action and Limit Levels.</p>	<p>Closed</p>
--	-----------------	--	---	---	---------------

<p style="text-align: center;">SCL Contract 1107's Construction Site/ Construction Noise and Dust</p>	<p style="text-align: center;">15-04622</p>	<p style="text-align: center;">N/A / 12 March 2015</p>	<p>A public complaint about noise and dust nuisance from the Kai Tak Development Area was received. Since this Project is within the development area, the complaint was referred to the Contractor of SCL Contract 1107.</p>	<p>The Contractor had implemented appropriate and sufficient measures to minimise the noise and dust nuisance to adjacent sensitive receivers.</p> <p>The noise mitigation measures include:</p> <ul style="list-style-type: none"> • Installing noise absorption blankets on the hoarding at the site boundary near Kai Ching Estate; • Erecting acoustic enclosures to seal up the noisy PME and construction works (see Photo 2) in the shaft. <p>The dust mitigation measures include:</p> <ul style="list-style-type: none"> • Covering of stockpile of bagged cement and other dusty materials to reduce dust generation. • Water spraying stockpile of dusty materials as well as major haul roads and work sites to keep the surface wet. • Washing every vehicle leaving the construction site. • Regular cleaning of the access roads connecting public roads to vehicle washing areas. <p>There was also no non-compliance on construction noise and air quality recorded during the site inspections in March.</p> <p>The construction noise and 24-hr TSP level monitoring conducted in March also showed that the noise and dust levels at the monitoring stations were under the Action and Limit Levels.</p>	<p style="text-align: center;">Closed</p>
---	---	--	---	--	---

<p>SCL Contract 1107's Construction Site/ Construction Noise and Dust</p>	<p>15-13442</p>	<p>N/A / 9 June 2015</p>	<p>A public complaint about noise and dust nuisance from the Kai Tak Development Area was received. Since this Project is within the development area, the complaint was referred to the Contractor of SCL Contract 1107.</p>	<p>Investigation conducted by the Contract ET and the results showed that sufficient mitigation measures were provided by the Contractor to minimize the noise and dust nuisance to adjacent sensitive receivers.</p> <p>The noise mitigation measures include:</p> <ul style="list-style-type: none"> • Noise absorption blankets were installed on the hoarding at the site boundary near Kai Ching Estate; • Acoustic enclosures were erected to seal up the noisy PME and construction works in the shaft; • The formwork erection was conducted inside the shaft which shield off the noisy operation. <p>The dust mitigation measures include:</p> <ul style="list-style-type: none"> • The stockpiles of dusty materials were covered by dust protective screens to reduce dust generation. Uncovered parts of the stockpile were provided with water spray to keep the dusty surface wet to reduce dust emission during stockpiling/backfilling work. • Watering on work sites and major haul roads was implemented regularly as stipulated in the Air Pollution Control Regulation and the Environmental Permit. Watering record is kept at the site entrance for easy inspection; • Vehicle movements were confined to designated haul roads. Automatic sprinkler system was installed at major haul roads to provide regular water spraying to reduce dust emission from vehicle movements; 	<p>Closed</p>
---	-----------------	------------------------------	---	--	---------------

				<ul style="list-style-type: none"> • Hoarding was provided along the entire length of the site boundary and beside roads or areas with public access; • Wheel washing facilities was provided at all vehicle exits and vehicle washing was provided for vehicles leaving the site. Access road leading to and exiting from vehicle washing areas were kept clean to ensure the public roads around site entrances were free from dust; <p>The construction noise and 24-hr TSP level monitoring conducted in May 2015 also showed that the noise and dust levels at the monitoring stations were under the Action and Limit Levels.</p>	
SCL Contract 1107's Construction Site/ Construction Noise and Dust	15-12472	N/A / 30 June 2015	<p>A public complaint about dust nuisance and muddy water discharge in the Kai Tak Development Area. Complainant alleged that uncovered dusty materials were found in Kai Tak development area and muddy water was found discharged into Kai Tak nullah.</p> <p>Since this Project is within the development area, the complaint was referred to the Contractor of SCL Contract 1107.</p>	<p>Investigation was conducted by the Contract ET. According to investigation results, the coverage for the stockpile was removed during the backfilling works, while the other parts of the stockpile were covered by dust protective screen. Mitigation measures including providing water spray and installation of waster sprinkler were implemented to keep the uncovered part wet during backfilling. The stockpile was completely covered after work.</p> <p>Wastewater was treated by sedimentation tanks with sufficient retention time before discharge into Kai Tak Nullah. All drainage facilities and erosion and sediment control structures were regularly inspected and maintained to ensure normal operation at</p>	Closed

				all times and during rainstorms. Water sampling was conducted monthly in accordance with the requirement of Effluent Discharge License (License No. WT00015861-2013). The lab test results complied with the conditions set in the Effluent Discharge License during the complaint period.	
SCL Contract 1107's Construction Site/ Construction Dust	16-29816	N/A / 16 November 2016	A public complaint about the construction dust from the construction work which would be affecting the complainant health. The complaint was referred to the Contractor of SCL Contract 1107.	Investigation conducted by the Contract ET and the results showed that sufficient mitigation measures were provided by the Contractor to minimize the dust nuisance to adjacent sensitive receivers. The dust mitigation measures include: <ul style="list-style-type: none"> • Inactive parts of stockpiles were covered by dust protective screens to minimize potential dust generation. Uncovered parts of the stockpile was compacted and kept wet to reduce dust emission during stockpiling/backfilling work; • Watering on work sites and major haul roads was implemented at least once per hour. Watering record is kept on site for ease of inspection; • Automatic sprinkler system was installed at major haul roads to provide regular water spraying to reduce dust emission from vehicle movements; • Wheel washing facilities was provided at all vehicle exits and site vehicle was fully washed before leaving site. Access road leading to 	Closed

				<p>and exiting from vehicle washing areas were kept clean to ensure the public roads around site entrances were free from dust; The 24-hr TSP level monitoring conducted in November 2016 also showed that the dust levels at the monitoring station were under the Action and Limit Levels.</p>	
--	--	--	--	--	--

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 F

**55th 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 December 2017]

(January 2018)

Certified by: Vivian Chan 

Position: Environmental Team Leader

Date: 8 January 2018



Member of the Surbana Jurong Group

55th Monthly EM&A Report for December 2017

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

January 2018

Project/Deliverable No.	7076187 D216/01 – Revision No. 2
Project Name	Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings
Report Name	55 th Monthly EM&A Report for December 2017
Report Date	January 2018
Report for	Leighton Contractors (Asia) Limited

PREPARATION, REVIEW AND AUTHORISATION

Revision #	Date	Prepared by	Reviewed by	Approved by
1.0 (Draft)	January 2018	Joanne PONG	Vivian CHAN	Alexi BHANJA
2.0 (Final)	January 2018	Joanne PONG	Vivian CHAN	Alexi BHANJA

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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	18
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	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 55th Monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 December 2017 in accordance with the EM&A manual.

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

- Building services works at SAT
- EVA Roadworks at SAT
- Drainage works at HHS
- Platform ABWF and E&M works at HUH
- Utility works at NAT
- Modification works at Concourse level, mid-level walkway

Landscape and Visual Monitoring

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 6 and 20 December 2017. All necessary mitigation measures have been implemented by the Contractor.

Air Quality Monitoring

Air quality (24-hour TSP) monitoring was carried out on 1, 7, 13, 19, 23 and 29 December 2017. 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

Receptacles for collection of general refuse were provided at the site. As advised by the Contractor, 446,480 kg of general refuse was generated from the Project and disposed of at NENT landfill. A total of 910 m³ inert construction and demolition (C&D) materials were generated from the Project, 910 m³ was reused in other projects. No chemical waste was disposed. No Type 1 and Type 2 marine sediments were generated from SCL1112. No paper/cardboard packaging, metals, plastics or asphalt were recycled from the Project.

Environmental Auditing

A total of 4 weekly environmental site audits were conducted on 7, 14, 20 and 27 December 2017. The IEC joint site audit was undertaken on 27 December 2017.

Complaint, Notification of Summons and Successful Prosecution

One environmental complaint regarding dust nuisance was received during the reporting month.

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:

- Modification of Hong Wan Path Ramp at SAT
- EVA Roadworks at SAT
- Drainage works at G.L J of HUH
- Platform ABWF and E&M works at HUH
- Utility works at NAT
- Modification works at Concourse level, mid-level walkway

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 March 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. An application for variation of the EP for SCL (TAW-HUH) was approved and a varied EP (EP No. EP-438/2012/K) was issued by Director of Environmental Protection (DEP) on 4 October 2016.

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 55th EM&A report which summarizes the monitoring results and audit findings during the reporting period from 1 to 31 December 2017.

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.
- Preparation works, operation, and reinstatement of an additional storage area near Muk Chui Street, Kai Tak.

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:

- Building services works at SAT
- EVA Roadworks at SAT
- Drainage work at HHS
- Platform ABWF and E&M works at HUH
- Utility works at NAT
- Modification works at Concourse level, mid-level walkway

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 Michael FU	3127 6201	3127 6422
	SCL Project Environmental Team Leader	Ms Lisa POON	3127 6295	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/A	28 Nov 2017	-	Valid	EP for SCL (MKK-HUH)
EP-438/2012/K	4 Oct 2016	-	Valid	EP for SCL (TAW-HUH)
Construction Noise Permit				
GW-RE0511-17	30 Jun 2017	29 Dec 2017	Valid until cancellation on 29 Dec 2017	Works in Concourse
GW-RE0676-17	28 Aug 2017	27 Feb 2018	Valid	Works for SAT, NAT and Under Podium
GW-RE0907-17	18 Nov 2017	17 Mar 2018	Valid	External work for Concourse involving TTM + Mid-level Walkway + Installation of Instrument near NAT Track + Painting outside Concourse for North East Corner + Hoarding Work for Concourse Stage 4
GW-RE1005-17	30 Dec 2017	29 Jun 2018	Valid	Works in Concourse
Wastewater Discharge License				
WT00027487-2017	21 Apr 2017	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	-

Permit / Licence No. / Notification / Reference No.	Valid Period		Status	Remark
	From	To		
Notification of Asbestos Abatement Works				
AX141187	11 Oct 2014 (earliest commencement date)	-	Notified	Demolition of International Mail Centre, 80 Salisbury Road, Hung Hom
AX141235	27 Oct 2014 (earliest commencement date)	-	Notified	Demolition of Freight Operation Building, MTR Hung Hom Depot

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)	1941

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 December 2017 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 December 2017	Submitted
	EP-438/2012/K	14 December 2017	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 6 and 20 December 2017. 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	44.7	41.3 – 49.7	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.

5.3.2 The Action and Limit levels for construction noise are summarised in *Table 5-2*.

Table 5-2 Action and Limit Levels

Time Period	Action Level	Limit Level
07:00-19:00 hours on normal weekdays	When one documented valid complaint is received	75dB(A)*

Note: 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.

* Reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

5.3.3 The Event and Action Plan for construction noise is provided in *Appendix I*.

5.4 Waste Management

5.4.1 Receptacles for collection of general refuse were provided at the site. As advised by the Contractor, 446,480 kg of general refuse was generated from the Project and disposed of at NENT landfill. A total of 910 m³ inert construction and demolition (C&D) materials

were generated from the Project, 910 m³ was reused in other projects. No chemical waste was disposed. No Type 1 and Type 2 marine sediments were generated from SCL1112. No paper/cardboard packaging, metals, plastics or asphalt were recycled from the Project. The waste flow table and marine sediment flow table were 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, 20 and 27 December 2017 during the reporting month. Representative of the IEC joined the site inspection on 27 December 2017. A summary of the implementation schedule of environmental mitigation measures is provided in **Appendix H**.
- 6.1.2 EPD inspections were carried out on 7 December 2017, where no major findings were found, and also on 11 December 2017 to follow up on a dust complaint.
- 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
Licenses and Permits	The most updated version of EP was observed missing. The Contractor should display the latest EP on display board/vehicular site entrance.	Gate 3	14 December 2017	The item was rectified by the Contractor on 20 December 2017.
Air Quality	Open stockpile was observed uncovered. The Contractor should cover the stockpile with impervious sheeting to prevent dust emission and silty runoff.	JP01	14 December 2017	The item was rectified by the Contractor on 20 December 2017.
	Haul roads were observed dry. The Contractor should provide sufficient water spraying to prevent dust emission.	SAT	14 December 2017	The item will be followed-up in the next reporting month.
Water Quality	Water quality was observed unsatisfactory. The Contractor should properly maintain treatment system to ensure adequate treatment of wastewater prior to discharge.	Gate 3	14 December 2017	The item was rectified by the Contractor on 20 December 2017.
	A flexible blue pipe connected to an excavated trench pumping seeping water from burst pipe was observed. The Contractor should remove the blue pipe or ensure wastewater is properly treated to prior	SAT	20 December 2017	The item will be followed-up in the next reporting month.

Parameters	Description	Works Area	Observation Date	Status
	to discharge.			
Waste/ Chemicals Management	General refuse was observed on the ground. The Contractor should remove the waste, provide garbage bins for collection and avoid waste accumulation.	Gate 3	7 December 2017	The item was rectified by the Contractor on 14 December 2017.
		Gate 3	27 December 2017	The item will be followed-up in the next reporting month.
	Chemical containers were observed without secondary containment. The Contractor should provide secondary containment to all chemical containers to prevent land contamination.	Gate 3	30 November 2017	The item was rectified by the Contractor on 20 December 2017.
		HHS BoH East	27 December 2017	The item will be followed-up in the next reporting month.

Note:

1. HUH: Hung Hom Station
2. HHS: Hung Hom Stabling Sidings
3. NAT: North Approach Tunnels
4. SAT: South Approach Tunnels
5. HKC: Hong Kong Coliseum
6. NSL: North South Line
7. BoH: Back of House
8. EWL: East West Line

6.1.4 Follow-up actions requested by Contractor’s ET and IEC during site inspections were undertaken by the Contractor and the work were confirmed in the following weekly site inspection. Follow-up actions that are still outstanding in the reporting month will be inspected in site inspections in following month, until the corresponding action has been satisfactorily completed 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 EPD received a public complaint on 7 December 2017 regarding dust nuisance at Hong Kong Coliseum at No. 9 Cheong Wan Road from grinding operations on the day of complaint. The investigation report was prepared and submitted to EPD on 15 December 2017.

7.3.2 Details and cumulative statistics on environmental complaints can be referred to **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:

- Modification of Hong Wan Path Ramp at SAT
- EVA Roadworks at SAT
- Drainage works at G.L.J of HUH
- Platform ABWF and E&M works at HUH
- Utility works at NAT
- Modification works at Concourse level, mid-level walkway

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 January 2018 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 have been implemented to include air quality monitoring and environmental site audits. This is the 55th Monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 December 2017.
- 9.1.2 6 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 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.
- 9.1.6 One environmental complaint regarding dust nuisance was received during the reporting month.

9.2 Recommendations

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

Licenses and Permits

- Display the latest EP on display board/vehicular site entrance.

Air Quality Impact

- Cover stockpile with impervious sheeting to prevent dust emission and silty runoff.
- Spray haul roads with water to maintain the entire surface wet for dust suppression.

Water Quality Impact

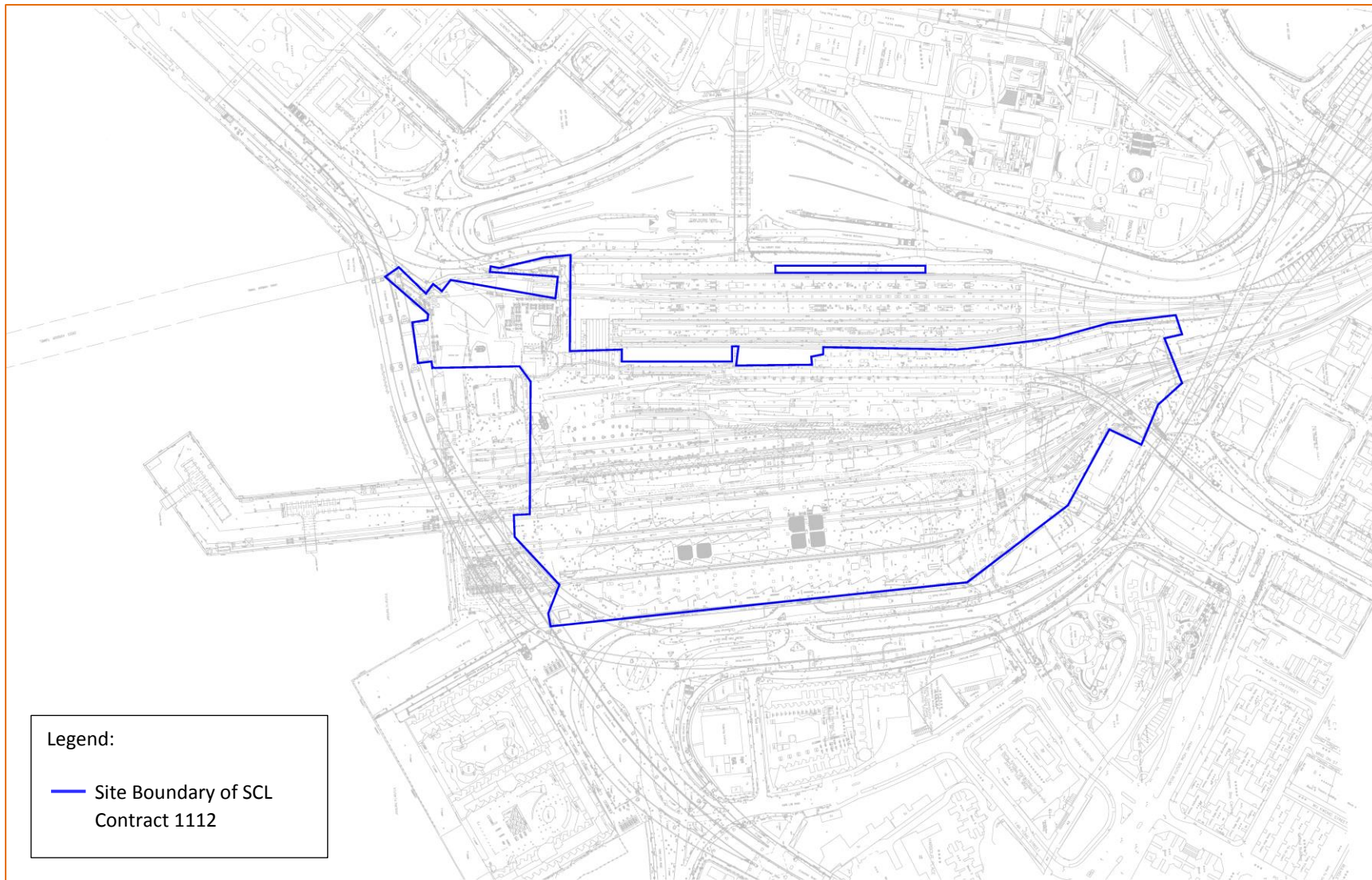
- Maintain treatment system to ensure adequate treatment of wastewater prior to discharge.
- Remove the blue pipe or ensure wastewater is properly treated prior to discharge.

Chemical and Waste Management

- Remove the waste, provide garbage bins for waste collection and avoid waste accumulation.
- Provide secondary containment to all chemical containers to prevent land contamination.

APPENDIX A

Project Works Boundary



APPENDIX B

Construction Programme

Shatin to Central Link – Contract 1112
 Hung Hom Station and Stabling Sidings
 55th Monthly EM&A Report for December 2017



Data Date : 25-Nov-17 Print Date : 05-Dec-17		MTR Shatin to Central Link - Contract 1112 Hung Hom Station and Stabling Sidings											2017					2018		
Activity ID	Activity Name	TCPI Early Start	TCPI Early Finish	Oct/2017 3MR Early Start	Oct/2017 3MR Early Finish	Oct/2017 Variance	Nov/2017 3MR Early Start	Nov/2017 3MR Early Finish	Nov/2017 Variance	Total Float	Activity % Complete	Nov	Dec	Jan	Feb	Mar				
MTR SCL 1112 - November 17 Report (TCP)																				
PRELIMINARIES																				
Salient Key Dates and Milestones																				
Specified Degrees of Completion																				
01112.COMPAK3	HUH Concourse Level, Mezzanine Level and Mid-Level - Stage 3 modification Deg 3 (43/17)	29-Oct-17	29-Oct-17	26-Feb-18	26-Feb-18	-120	26-Feb-18	26-Feb-18	0	0	100%									
Schedule of Access Dates for Works Areas (Return)																				
HUNG HOM STATION (HOM)																				
HUH South Approach Tunnel (SAT)																				
Utilities																				
01112.33010	SAT - Storm Drain DSD-1112-117 Hong Wan Path	25-Feb-16	13-Apr-16	26-Oct-17	28-Nov-17	-357	27-Nov-17	30-Dec-17	-508	-383	85%									
Modification of Hong Wan Path Ramp																				
01112.32780	HWP - Construct New Roadworks	21-Apr-16	27-Apr-16	29-Nov-17	14-Dec-17	-357	02-Jan-18	17-Jan-18	-510	-383	60%									
Building Services Works																				
A3170	PIO - Installation of new RWO (DR)	23-Jan-16	31-Mar-16	26-Oct-17	28-Nov-17	-357	27-Nov-17	30-Dec-17	-518	-383	70%									
EVA and Fireman Access																				
01112.32910	SAT - EVA Street Furniture & Signage	14-Jul-15	27-Jul-15	26-Oct-17	28-Nov-17	105	27-Nov-17	30-Dec-17	-716	79	90%									
HUH (New NSL and EWL)																				
HUH Area A (Grid 1 to 7)																				
Building Services at G.L. J & K																				
A3140	Installation of new cable containments (Col J1/18)	11-Jul-14	25-Sep-14	26-Oct-17	28-Nov-17	297	27-Nov-17	30-Dec-17	-958	271	95%									
HUH Area C3 (Grid 40 to 50)																				
ELS and Tunnel Structure																				
01112.28310	C3 - Construct Derailment Kerb for NSL	18-Jun-16	06-Jul-16	26-Oct-17	30-Nov-17	103	27-Nov-17	03-Jan-18	-442	77	95%									
Platform ABWF and E&M (Degree 2 & Degree 3 Works)																				
01112.29120	HUH - EWL Platform Level BOH ABWF to 4F Degree 2	05-Sep-16	16-Nov-16	26-Oct-17	12-Dec-17	-315	27-Nov-17	15-Jan-18	-341	-341	54.05%									
01112.29110	HUH - NSL Platform Level ABWF to 4B Degree 2	01-Aug-16	30-Sep-16	26-Oct-17	28-Dec-17	-343	27-Nov-17	29-Jan-18	-391	-369	76.41%									
01112.29170	HUH - NSL Platform Level BOH ABWF to 4A Degree 2	01-Aug-16	17-Oct-16	26-Oct-17	12-Jan-18	-46	27-Nov-17	12-Feb-18	-391	-72	76.41%									
01112.29270	HUH - EWL Platform Level ABWF to 4G Degree 2	05-Sep-16	14-Nov-16	15-Dec-17	03-Feb-18	-357	18-Jan-18	13-Mar-18	-386	-383	54.05%									
01112.29010	HUH - NSL Platform Level BOH ABWF to 4A Degree 3	03-Jan-17	17-Mar-17	12-Jan-18	27-Mar-18	-46	12-Feb-18	02-May-18	-327	-72	18.54%									
01112.29140	HUH - NSL Platform Level ABWF to 4B Degree 3 (Phase 1)	03-Jan-17	25-Feb-17	09-Mar-18	30-Apr-18	-343	13-Apr-18	01-Jun-18	-369	-369	18.54%									
01112.29130	HUH - EWL Platform Level BOH ABWF to 4F Degree 3	04-Feb-17	19-Apr-17	02-Mar-18	16-May-18	-85	06-Apr-18	16-Jun-18	-341	-111	45.88%									
01112.29240	HUH - EWL Platform Level ABWF to 4G Degree 3 (Phase 1)	04-Feb-17	25-Mar-17	26-Apr-18	15-Jun-18	-357	28-May-18	18-Jul-18	-383	-383	45.88%									
Utilities																				
01112.29050	HUH - Storm Drain DSD-1112-111, 112 for South Vent Shaft	18-Jun-15	22-Jul-15	26-Oct-17	28-Nov-17	-315	27-Nov-17	30-Dec-17	-720	-341	95%									
01112.29080	HUH - Water WM-1112-107	18-Jun-16	04-Jul-16	26-Oct-17	28-Nov-17	93	27-Nov-17	30-Dec-17	-442	67	60%									
01112.29090	HUH - Telecom TEL-1112-104	28-Nov-15	28-Dec-15	26-Oct-17	28-Nov-17	93	27-Nov-17	30-Dec-17	-599	67	90%									
Reinstatement																				
01112.29210	HUH - Reinstatement	30-Jun-16	08-Sep-16	07-Nov-17	12-Dec-17	93	07-Dec-17	15-Jan-18	-397	67	92%									
HUH North Approach Tunnel (NAT) & North Fan Area (NFA)																				
Utilities																				
01112.31910	NFA - Storm Drain DSD-1112-118 Cheung Wan Road Drainage Connect to New Box Culvert	24-Apr-15	06-Jun-15	26-Oct-17	09-Nov-17	133	27-Nov-17	09-Dec-17	-741	107	80%									
01112.32030	NFA - Water WM-1112-114	06-Aug-16	22-Aug-16	26-Oct-17	11-Nov-17	119	27-Nov-17	12-Dec-17	-386	93	0%									
01112.31960	NFA - Sewer DSDS-1112-117, Temporary Support & Abandon DSDS-1112-007	12-Sep-14	12-Nov-14	26-Oct-17	28-Nov-17	105	27-Nov-17	30-Dec-17	-919	79	95%									
01112.31970	NFA - Sewer DSDS-1112-118, Temporary Support & Abandon DSDS-1112-008	03-May-14	30-Jun-14	26-Oct-17	28-Nov-17	105	27-Nov-17	30-Dec-17	-1031	79	95%									
NSL/EWL Area 1 - NSL U100+347 to U100+408																				
Noise Barrier - Option 1																				
01112.31410	N1 - Noise Barrier Erect Steel Structure	04-Aug-16	29-Sep-16	26-Oct-17	07-Dec-17	97	27-Nov-17	23-Dec-17	-388	71	90%									
01112.31420	N1 - Install Absorptive Panels	01-Sep-16	29-Sep-16	10-Nov-17	07-Dec-17	97	11-Dec-17	10-Jan-18	-376	71	90%									
Noise Enclosure & Stabling Sidings Track																				
Noise Enclosure																				
01112.55120	NFA - Noise Metal Cladding	22-Aug-16	03-Oct-16	26-Oct-17	03-Nov-17	114	27-Nov-17	04-Dec-17	-345	88	98%									
01112.55060	NFA - Acoustic Test	04-Oct-16	18-Oct-16	04-Nov-17	17-Nov-17	114	05-Dec-17	18-Dec-17	-345	88	0%									
NSL/EWL Area 2 - NSL U100+408 to U100+466																				
06-Aug-16	24-Sep-16	26-Oct-17	23-Nov-17	27-Nov-17	23-Dec-17	-368	83													

**Three Month Rolling Programme
(25-November-2017)**

■ Remaining Level of Effort ■ Remaining Work
■ Actual Level of Effort ■ Critical Remaining Work
■ Actual Work ◆ Milestone

Project ID : 01112-3M57	Date	Revision	Checked	Approved
Layout : November 2017	13-May-13	Revision 1 - Recalled		
MPR	25-Jun-13	Revision 1		
Page 1 of 2	10-Oct-13	Revision 2		



Data Date : 25-Nov-17 Print Date : 05-Dec-17		MTR Shatin to Central Link - Contract 1112 Hung Hom Station and Stabling Sidings										2017					2018		
Activity ID	Activity Name	TCPI Early Start	TCPI Early Finish	Oct/2017 3MR Early Start	Oct/2017 3MR Early Finish	Oct/2017 Variance	Nov/2017 3MR Early Start	Nov/2017 3MR Early Finish	Nov/2017 Variance	Total Float	Activity % Complete	2017		2018					
												Nov	Dec	Jan	Feb	Mar			
EL S and Tunnel Structure																			
01112.81090	N2 - Install Noise Absorptive Panels	06-Aug-16	02-Sep-16	26-Oct-17	23-Nov-17	109	27-Nov-17	23-Dec-17	-386	83	80%								
Noise Barrier - Option 1																			
01112.31590	N2 - Noise Barrier Erect Steel Structure	13-Sep-16	24-Sep-16	26-Oct-17	07-Nov-17	123	27-Nov-17	07-Dec-17	-354	97	90%								
01112.31592	N2 - Install Absorptive Panels (Final Works to be completed after System Works)	21-Sep-16	24-Sep-16	03-Nov-17	07-Nov-17	123	04-Dec-17	07-Dec-17	-354	97	90%								
HUH MODIFICATION																			
Modification Podium Concourse Level																			
Stage 1																			
Area M12, M37, M36																			
Construction of Future Station Control Room and DEE & MOE Stairs at G.L. 21-22/K14																			
01112.35340	S1 - Construction of slab and wall Associated ABWF Works	27-Jun-15	29-Aug-15	26-Oct-17	12-Dec-17	-59	27-Nov-17	15-Jan-18	-699	-37	98%								
01112.35360	S1 - Station System Works (by other Designated Contractors)	31-Aug-15	27-Nov-15	13-Dec-17	13-Jan-18	-59	16-Jan-18	13-Feb-18	-650	-37	80%								
Area M35																			
Modification of Smoke Extract Duct and Revise MOE Staircase at G.L. 23-25/B-C																			
01112.35640	S1 - Modification of Smoke Extract Duct and Revise MOE Staircase at G.L. 23-25/B-C	28-Oct-14	20-Dec-14	26-Oct-17	06-Nov-17	174	27-Nov-17	06-Dec-17	-867	148	60%								
Stage 2																			
Area M17 & M38																			
Construction of new Mezzanine Floor For F&B at G.L. 31-37/J1-L1																			
01112.36110	S2 - Building Services Works (by 1173)	27-Jul-16	26-Nov-16	26-Oct-17	09-Nov-17	121	27-Nov-17	09-Dec-17	-304	95	99%								
Civil and ABWF works for escalator U2-ESC 03, 04, 11-14 at G.L. 26-34/L-L1																			
01112.36230	S2 - Installation of new escalators (by 1172)	27-Oct-16	30-Nov-16	26-Oct-17	30-Nov-17	103	27-Nov-17	03-Jan-18	-319	77	90%								
Stage 3																			
Area M26																			
Construction of New Concession area at G.L. 28-32/E-J1																			
01112.36490	S3 - ABWF works	26-May-17	23-Sep-17	26-Oct-17	12-Feb-18	-88	27-Nov-17	21-Mar-18	-141	-114	60%								
01112.36500	S3 - Building services works (by 1173)	08-Jun-17	23-Sep-17	26-Oct-17	12-Feb-18	-88	27-Nov-17	21-Mar-18	-141	-114	60%								
Civil and ABWF works for escalator U2-ESC 03, 04, 11-14 at G.L. 26-34/L-L1																			
01112.36507	S3 - Install new seating area	03-Apr-17	22-Aug-17	26-Oct-17	26-Feb-18	-94	27-Nov-17	28-Mar-18	-175	-120	0%								
01112.36510	S3 - Installation of new escalators (by 1172)	03-Apr-17	04-Jul-17	26-Oct-17	28-Dec-17	-75	27-Nov-17	30-Jan-18	-174	-101	80%								
01112.36520	S3 - Associated ABWF works	22-May-17	01-Aug-17	16-Nov-17	27-Jan-18	-75	16-Dec-17	06-Mar-18	-174	-101	50%								
01112.36508	S3 - Building services works (by 1173)	29-May-17	22-Aug-17	24-Nov-17	26-Feb-18	-94	27-Dec-17	28-Mar-18	-175	-120	50%								
Civil and ABWF works for Lift U2-LT-01 at G.L. 29-30/K1-M1																			
01112.36550	S3 - Construction of lift shaft Enclosure	19-Jun-17	25-Jul-17	26-Oct-17	30-Nov-17	-84	25-Nov-17	25-Nov-17	-102	-80	100%								
01112.36560	S3 - Installation of lift (by 1159) [JT-LT-01]	26-Jul-17	28-Sep-17	01-Dec-17	07-Feb-18	-84	27-Nov-17	02-Feb-18	-103	-80	30%								
Area M28																			
Extension of new F&B M/F & civil provision for escalator U2-ESC-20 & 21 at G.L. 37-39																			
01112.36370	S3 - Construction of new decking and associated ABWF works	22-May-17	01-Aug-17	26-Oct-17	01-Dec-17	-82	27-Nov-17	04-Jan-18	-128	-108	90%								
01112.36380	S3 - Building services work (by 1173)	26-Jun-17	03-Oct-17	26-Oct-17	03-Feb-18	-81	27-Nov-17	13-Mar-18	-127	-107	80%								
01112.36400	S3 - Installation of new escalators (by 1172)	02-Aug-17	03-Oct-17	02-Dec-17	05-Feb-18	-82	05-Jan-18	14-Mar-18	-128	-108	90%								
Area M29																			
Construction of Staircase U2-ST-49 (SEE) and MOE U2-ST-59 at G.L. 38-39/K1-M1																			
01112.36440	S3 - Finishes and associated ABWF works	13-Jun-17	06-Sep-17	26-Oct-17	22-Jan-18	-64	27-Nov-17	14-Feb-18	-138	-90	80%								
01112.36450	S3 - Building services work (by 1173)	13-Jun-17	06-Sep-17	26-Oct-17	22-Jan-18	-70	27-Nov-17	28-Feb-18	-138	-96	80%								
Area M19-M25																			
Upgrading wall Finishes at G.L. C-E/26-28																			
01112.36580	S3 - ABWF works (Install cladding)	04-May-17	31-May-17	26-Oct-17	23-Nov-17	-58	27-Nov-17	23-Dec-17	-172	-84	80%								
Area M33, M34																			
Modification Walkway Level (Mid Level)																			
01112.99974	ENT E-Setup the temp frame (1172) & install lifting beams for escalators installation at concourse slab (GL 26-28,32-34)	31-Dec-15	30-Jan-16	26-Oct-17	18-Nov-17	-224	25-Nov-17	25-Nov-17	-527		100%								
01112.99986	ENT E - Floor finish (NTH)	06-Sep-16	06-Oct-16	26-Oct-17	24-Nov-17	-269	27-Nov-17	27-Dec-17	-360	-255	30%								
01112.99988	ENT E - Wall finish & ceiling (NTH) up to 4K Degree 1 Completion	08-Oct-16	09-Nov-16	25-Nov-17	28-Dec-17	-269	28-Dec-17	29-Jan-18	-359	-255	90%								
01112.99990	ENT E - Escalator enclosure (NTH) - up to 4K Degree 2 Completion	10-Nov-16	09-Jan-17	25-Nov-17	13-Jan-18	-269	28-Dec-17	28-Dec-17	-257		100%								
01112.99982	ENT E - Install escalator & remove temporary lifting frame (by 1172) - Up to 4K Degree 3 Completion	10-Jan-17	24-Jan-17	15-Jan-18	29-Jan-18	-269	28-Dec-17	12-Jan-18	-283	-255	60%								

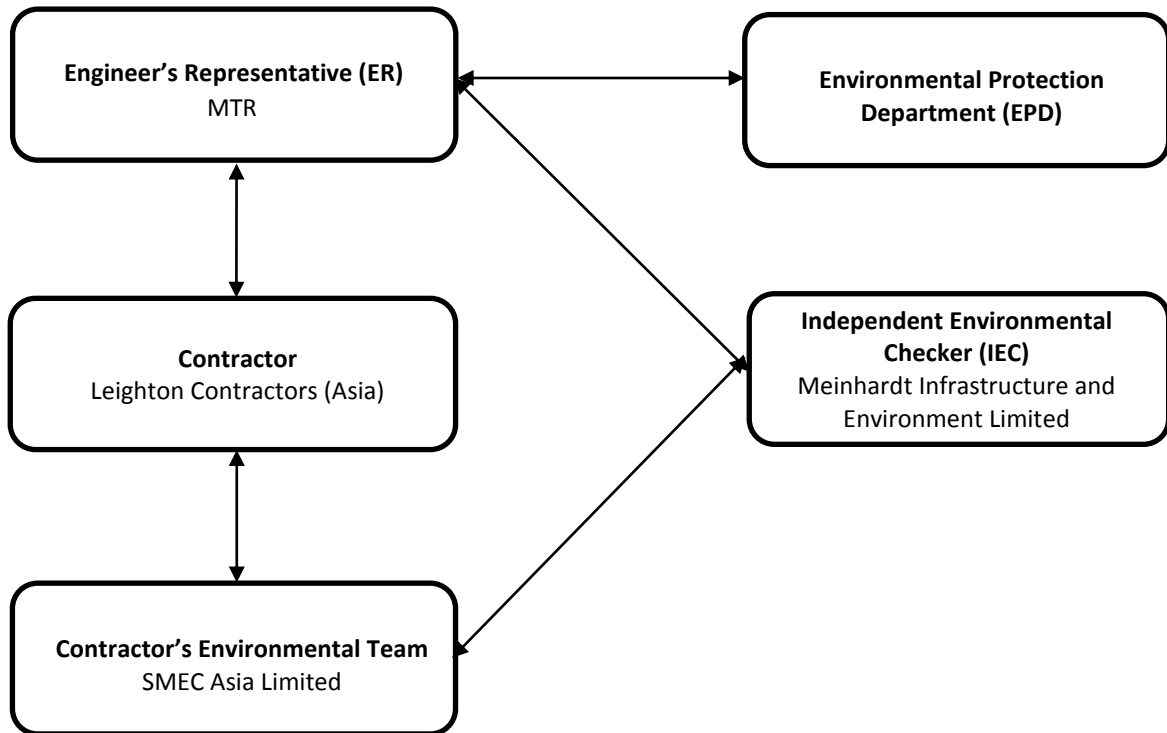
█ Remaining Level of Effort █ Remaining Work
█ Actual Level of Effort █ Critical Remaining Work
█ Actual Work ● Milestone

**Three Month Rolling Programme
(25-November-2017)**

Project ID : 01112-3M57	Date	Revision	Checked	Approved
Layout : November 2017	13-May-13	Revision 1 - Recalled		
MPR	25-Jun-13	Revision 1		
Page 2 of 2	10-Oct-13	Revision 2		

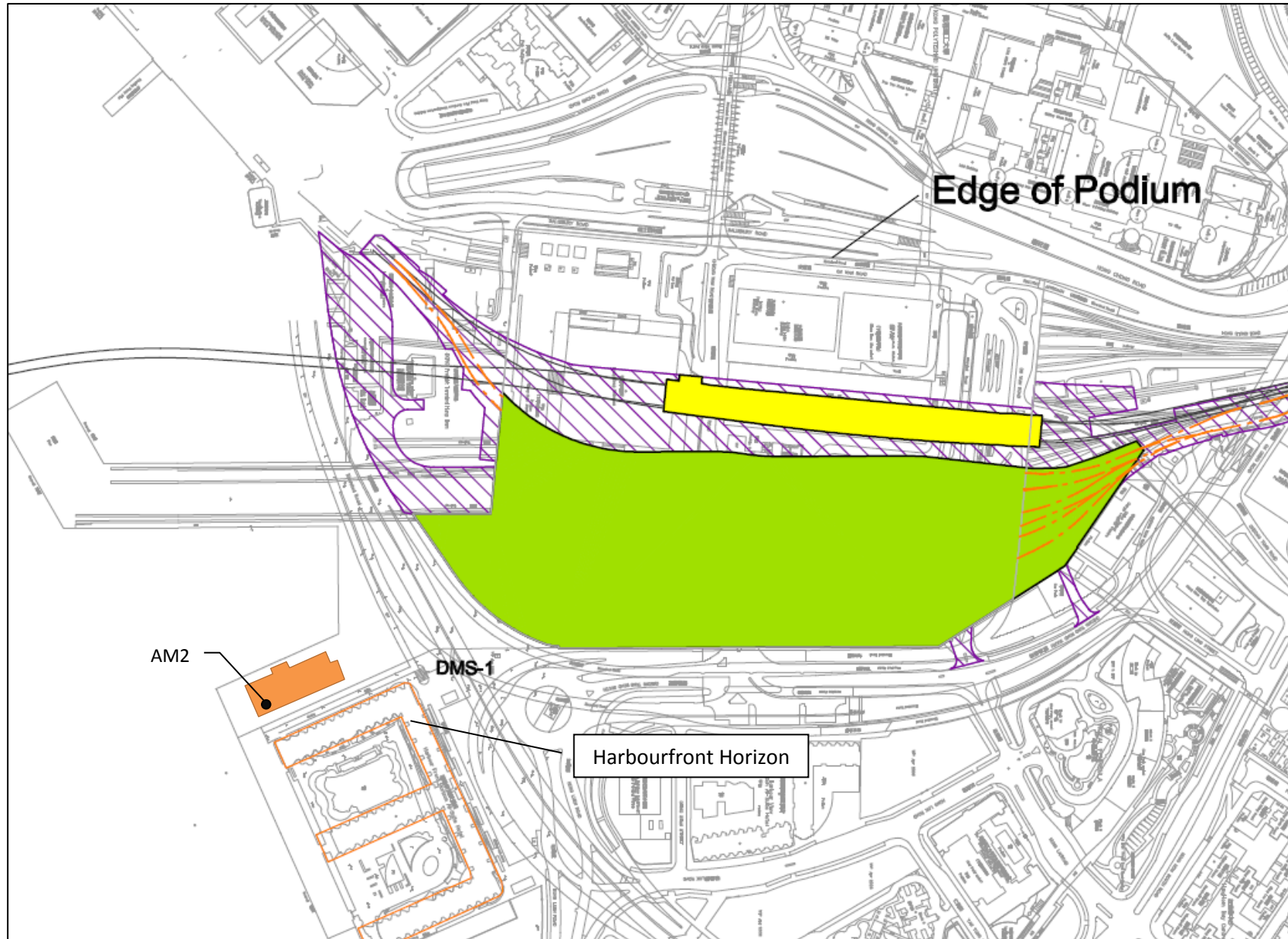
APPENDIX C

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
 Sampler: Hunghom MTR TSP
 Serial No 694-0665
 Calibration Date: November 14, 2017
 Next Calibration Date: January 14, 2018
 Tech: Sam Wong

CONDITIONS

Barometric Pressure (in Hg):	39.95	Corrected Pressure (mm Hg):	1015
Temperature (deg F):	75	Temperature (deg K):	297
Average Press. (in Hg):	39.95	Corrected Average (mm Hg):	1015
Average Temp. (deg F):	75	Average Temp. (deg K):	297

-2017-2017-2017-2017-2017

CALIBRATION ORIFICE

Make: Tisch
 Model: TE-5025A
 Serial#: 1941
 Qstd Slope: 2.11965
 Qstd Intercept: -0.02696
 Date Certified: February 28, 2017

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	12.00	1.905	58.0	67.14	Slope =	34.9050
2	10.00	1.740	54.0	62.51	Intercept =	1.3032
3	7.80	1.538	48.0	55.57	Corr. coeff.=	0.9992
4	5.00	1.234	38.0	43.99		
5	3.00	0.959	30.0	34.73	# 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

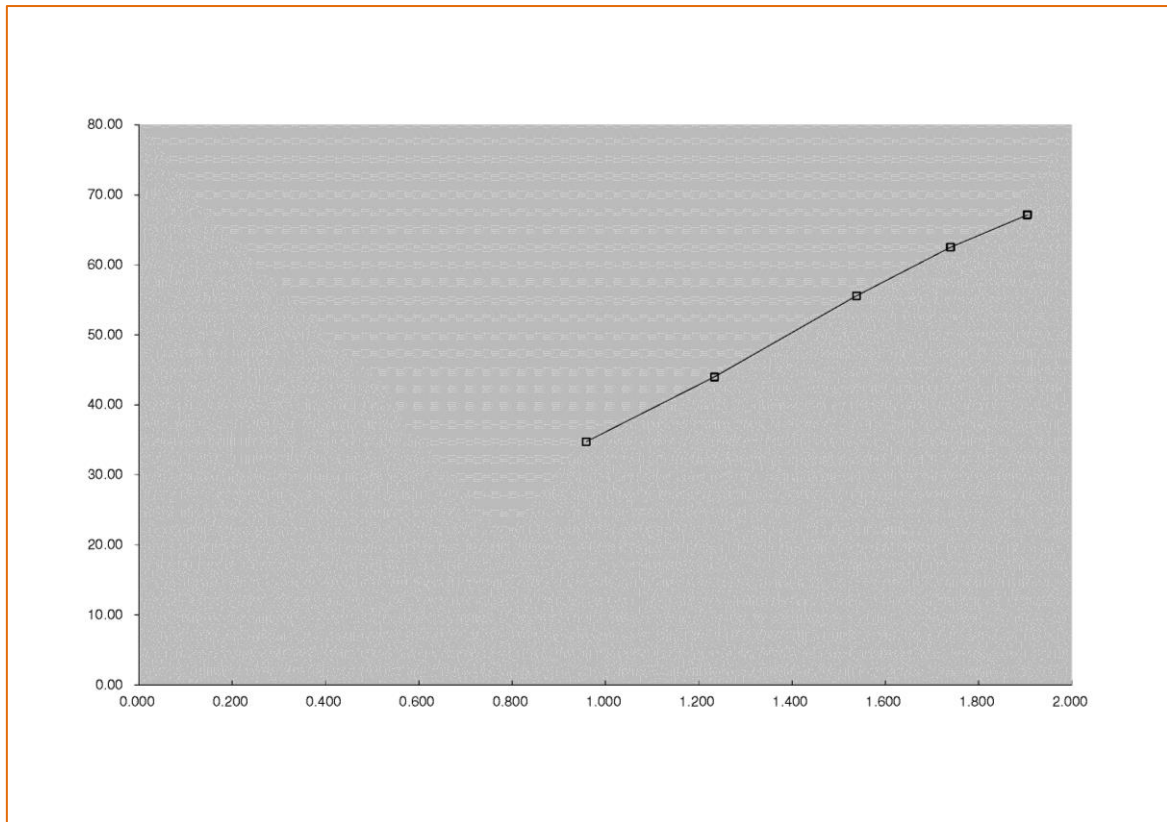
For subsequent calculation of sampler flow:
 $1/m((I[\text{Sqrt}(298/Tav)(Pav/760)]-b)$

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

Reviewer: Sam Wong

Signature: 

Date: November 14, 2017





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 - Feb 28, 2017 Rootmeter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 1941 Pa (mm) - 750.57

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	1.4600	3.2	2.00
2	NA	NA	1.00	1.0410	6.4	4.00
3	NA	NA	1.00	0.9280	7.9	5.00
4	NA	NA	1.00	0.8840	8.7	5.50
5	NA	NA	1.00	0.7290	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.6827	1.4149	0.9957	0.6820	0.8851
0.9925	0.9534	2.0010	0.9915	0.9524	1.2517
0.9904	1.0672	2.2372	0.9894	1.0661	1.3995
0.9894	1.1192	2.3464	0.9884	1.1181	1.4678
0.9840	1.3499	2.8299	0.9830	1.3485	1.7702
Qstd slope (m) = 2.11965			Qa slope (m) = 1.32729		
intercept (b) = -0.02696			intercept (b) = -0.01686		
coefficient (r) = 0.99991			coefficient (r) = 0.99991		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

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

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

For subsequent flow rate calculations:

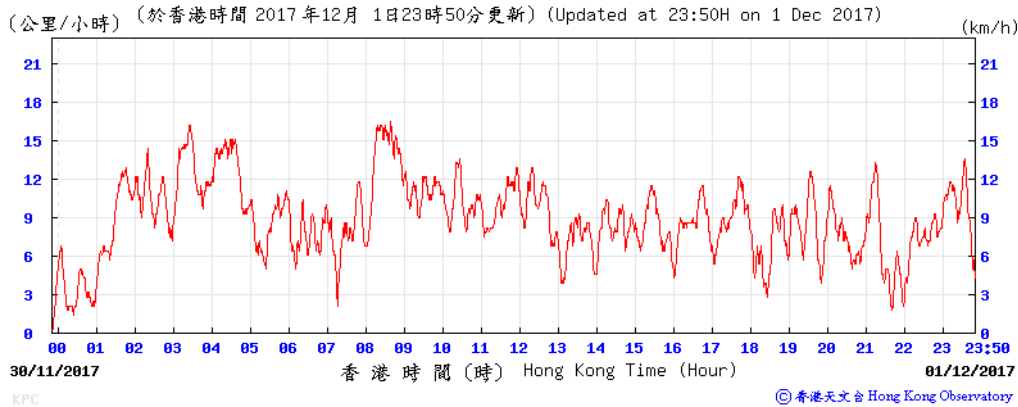
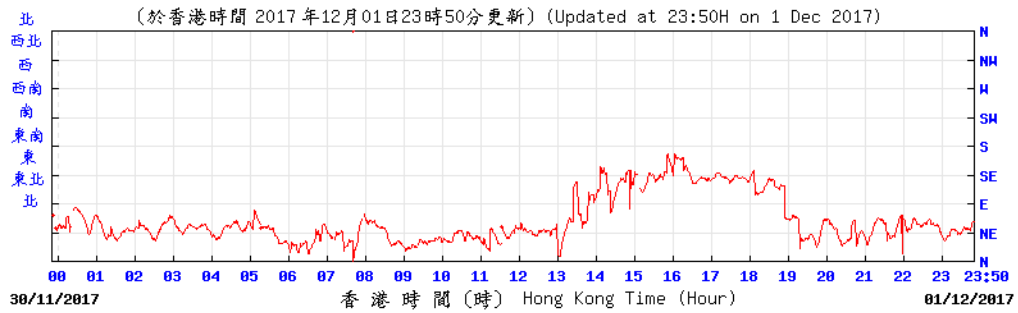
$$Qstd = 1/m \{ [\text{SQRT}(\text{H2O}(\text{Pa}/760) (298/\text{Ta}))] - b \}$$

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

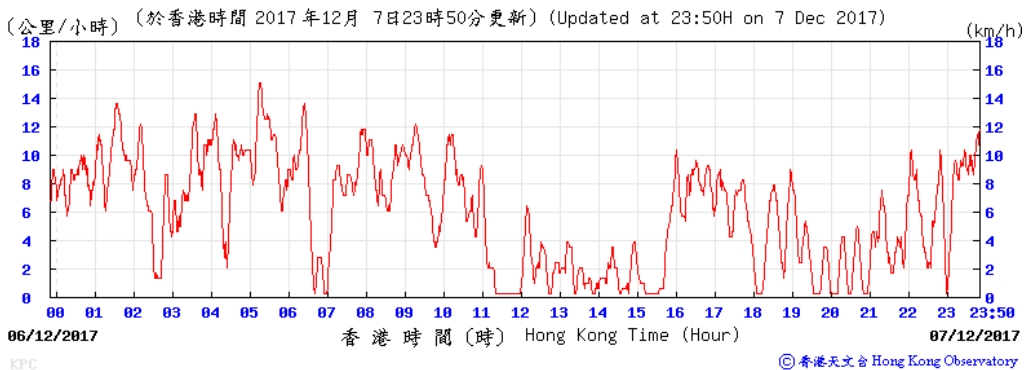
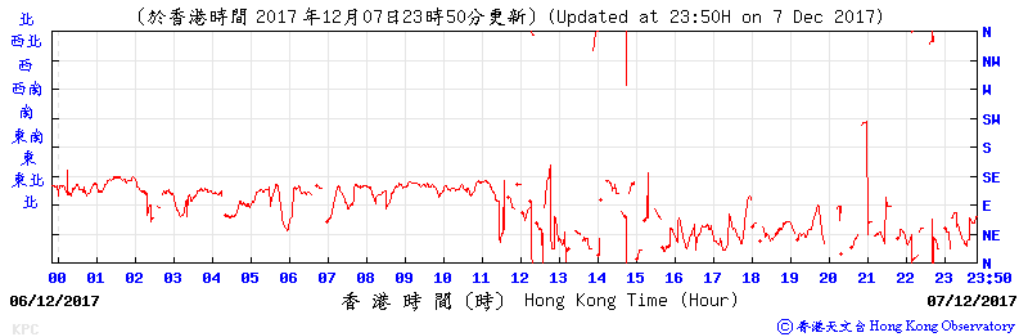
APPENDIX F

Wind Data

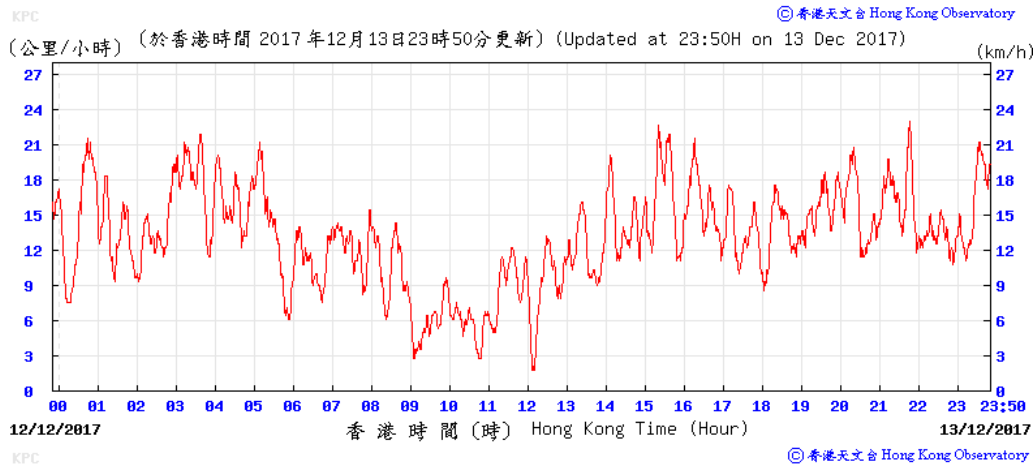
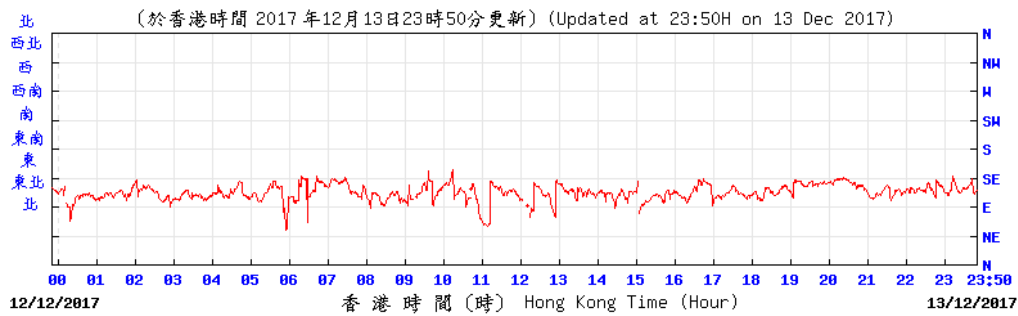
1 December 2017



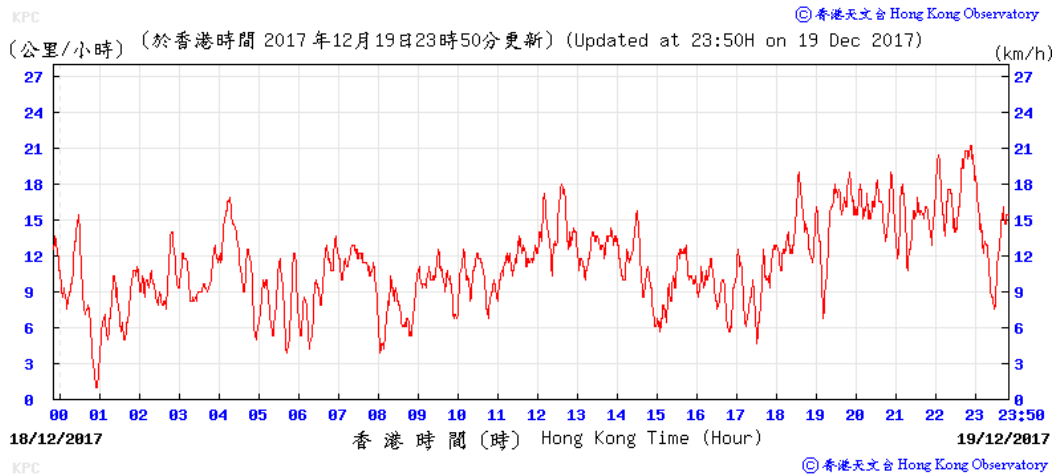
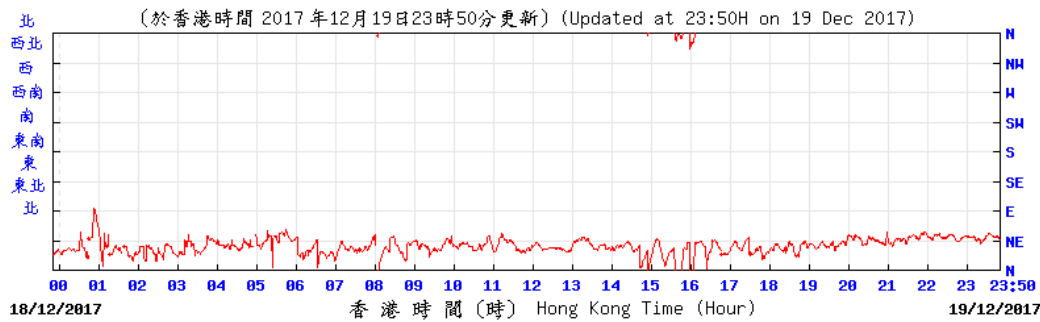
7 December 2017



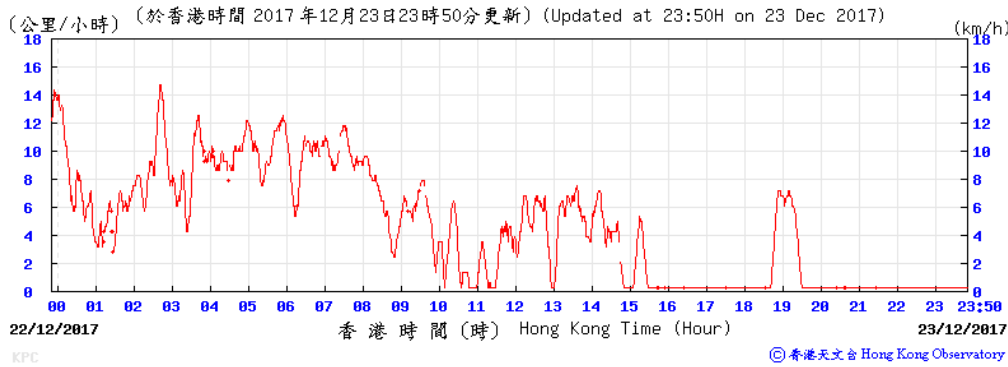
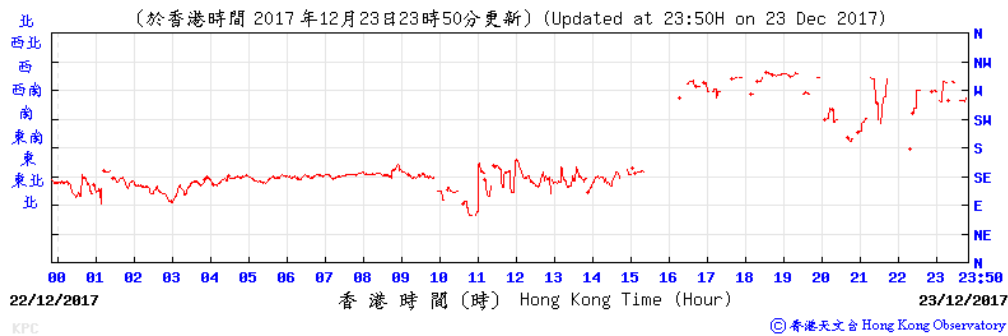
13 December 2017



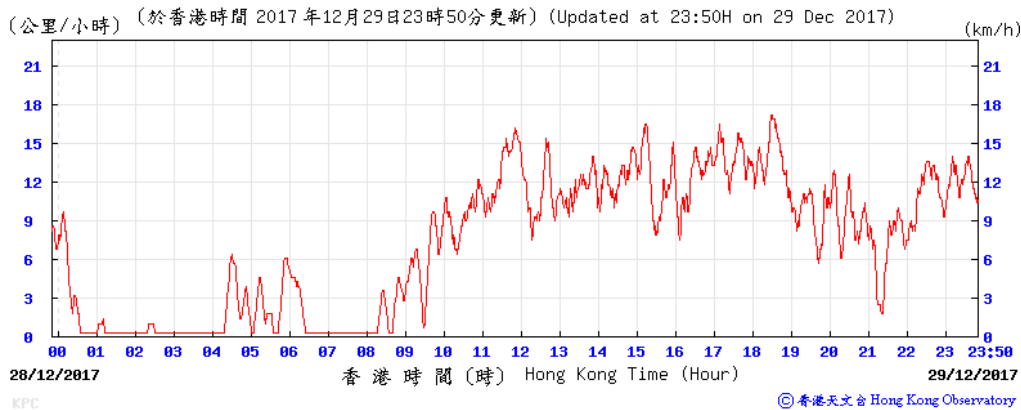
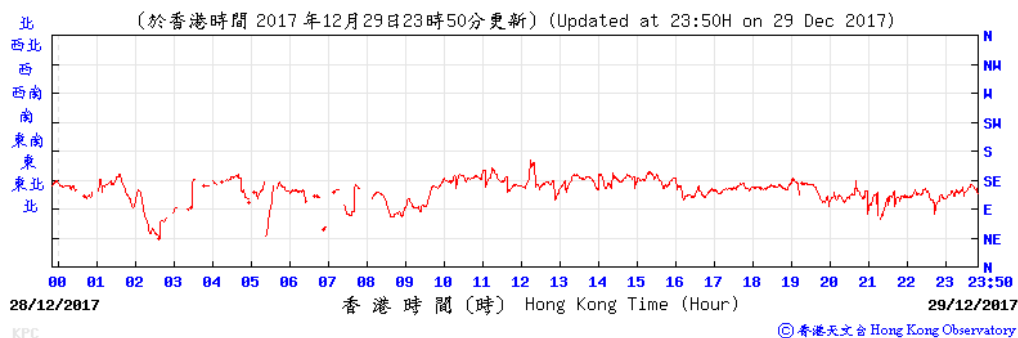
19 December 2017



23 December 2017



29 December 2017



Appendix G

Environmental Monitoring Programme

Environmental Monitoring Schedule for SCL1112 in December 2017

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

Environmental Monitoring Schedule for SCL1112 in January 2018

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

APPENDIX H

Implementation Schedule of Environmental Mitigation Measures

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
Landscape & Visual (Construction Phase)							
S6.9.3 and S6.12 of Ref.1; Table 4.9 of Ref. 2; S6.12 of Ref. 3	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of existing soil</u></p> <ul style="list-style-type: none"> For soil conservation, existing topsoil will be re-used where possible for new planting areas within the project. The construction programme will consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up onsite as necessary. <p><u>No-intrusion zone</u></p> <ul style="list-style-type: none"> To maximise protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor will closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. <p><u>Protection of retained trees</u></p> <ul style="list-style-type: none"> All retained trees will be recorded photographically at the commencement of the contract, and carefully protected during the construction period. The contractor will be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor’s works sites. 	Minimise visual and landscape impact	Contractor	Within project site	Construction Stage	EIAO-TM	^ ^ ^ ^
S6.12 of Ref.1; Table 4.9 of Ref. 2; Table 6.9 of Ref. 3	<p><u>Decorative hoarding</u></p> <ul style="list-style-type: none"> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding will be designed to be compatible with the existing urban context. <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the facilities on the site, give control on the height and disposition/ arrangement of all facilities on the works site to minimise visual impact to adjacent VSRs. <p><u>Tree transplanting</u></p> <ul style="list-style-type: none"> Trees of medium to high survival rate that would be affected by the works will be transplanted where possible and 	Minimise the visual and landscape impact of the Project during construction phase	Contractor	Within project site	Detailed design and construction stage	EIAO-TM ETWB TCW 2/2004 ETWB TCW 3/2006	^ ^ ^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	practicable. Tree transplanting proposal including final location for transplanted trees will be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.						
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	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
	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 stockpiles are removed will be wetted and cleared from the surface of roads. A stockpile of dusty material will not be extended 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	* ^ ^ ^ ^ ^ ^

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>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	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
Construction Airborne Noise							
S8.3.6 of Ref. 1; S6.61 of Ref. 2; S8.5.6 of Ref. 3	Implement the following good site practices: <ul style="list-style-type: none"> Only well-maintained plant will be operated on-site and plant will be serviced regularly during the construction programme. Machines and plant (such as trucks, cranes) that may be in intermittent use will be shut down between work periods or will be throttled down to a minimum. Plant known to emit noise strongly in one direction, where possible; be orientated so that the noise is directed away from nearby NSRs. Silencers or mufflers on construction equipment will be properly fitted and maintained during the construction works. Mobile plant will be sited as far away from NSRs as possible and practicable. Material stockpiles, mobile container site office and other structures will be effectively utilised, where practicable, to screen noise from onsite construction activities. 	Control construction airborne noise	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^ ^ ^ ^ ^ ^
S8.3.6 of Ref. 1; S6.68 of Ref. 2; S8.5.6 of Ref. 3	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings will be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S6.64 – 6.67 and Table 6.20 of Ref. 2; S8.5.6 of Ref. 3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S6.62 – 6.63 and Table 6.19 of Ref. 2; S8.5.6 of Ref. 3	The following quiet PME should be used: <ul style="list-style-type: none"> Asphalt Paver (SWL=101dB(A)) Backhoe (SWL=106dB(A)) Backhoe with Hydraulic Breaker (SWL=110dB(A)) Concrete lorry mixer (SWL=96dB(A)) Concrete mixer truck (SWL=96dB(A)) Concrete Pump (SWL=106dB(A)) Concrete Pump Truck (SWL=106dB(A)) 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	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<ul style="list-style-type: none"> • Drill, hand-held (SWL=98dB(A)) • Dump truck (SWL=104dB(A)) • Excavator (SWL=106dB(A)) • Flat Bed Lorry (SWL=102dB(A)) • Generator (SWL=95dB(A)) • Giken Piler and Power-pack (SWL=94dB(A)) • Hydraulic breaker (SWL=110dB(A)) • Hydraulic excavator (SWL=106dB(A)) • Lorry (SWL=102dB(A)) • Lorry with crane/ grab (SWL=94dB(A)) • Mini Piling Rig (SWL=112dB(A)) • Piling Rig (SWL=112dB(A)) • Poker, vibrator, hand-held (SWL=98dB(A)) • Road Roller (SWL=101dB(A)) • Rock Drill (SWL = 108dB(A)) • Roller (SWL = 101dB(A)) • Truck (SWL=103dB(A)) • Vibratory Hammer (SWL=118dB(A)) 						
S8.3.6 of Ref. 1; S8.5.6 of Ref. 3	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S8.5.6 of Ref. 3	Implement noise monitoring under EM&A programme.	Monitoring of construction noise impact	Contractor	Wing Fung Building	Construction stage as required by IEC	TM-EIA	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
Water Quality (Construction Phase)							
S10.7.1 of Ref. 1; S8.41 – 8.39 and S8.50 of Ref. 2; S10.7.1 of Ref. 3	<p>In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, EPD, 1994 (ProPECC PN1/94), construction phase mitigation measures will include the following:</p> <p><u>Construction runoff and site drainage</u></p> <ul style="list-style-type: none"> At the start of site establishment, perimeter cut-off drains to direct off-site water around the site will be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers will be provided onsite to direct stormwater to silt removal facilities. The design of the temporary onsite drainage system will be undertaken by the contractor prior to commencement of construction. The dikes or embankments for flood protection will be implemented around the boundaries of earthwork areas. Temporary ditches will be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps will be incorporated in the permanent drainage channels to enhance deposition rates. The design of silt removal facilities will be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps will be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5m³/s the basin would be 150m³. Detailed design of the sand/silt traps will be undertaken by the contractor prior to the commencement of works. All exposed earth areas will be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces will be covered by tarpaulin or other means. All drainage facilities and erosion and sediment control structures will be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit will be removed regularly and disposed of by spreading evenly over stable, 	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	Water Pollution Control Ordinance (WPCO) ProPECC PN1/94 EIAO-TM TM-Water Technical Memorandum on Effluent Discharge Standard (TM-DSS)	^ ^ ^ *

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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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	<p>the oil interceptors to prevent flushing during heavy rain.</p> <ul style="list-style-type: none"> Construction solid waste, debris and rubbish on site will be collected, handled and disposed of properly to avoid water quality impacts. All fuel tanks and storage areas will be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. All the earth works involving will be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Adopt Best Management Practices. 						<p>^</p> <p>^</p> <p>^</p> <p>^</p>
S10.7.1 of Ref. 1; S10.7.1 of Ref. 3	<p><u>Tunnelling works</u></p> <ul style="list-style-type: none"> Cut-and-cover/ open-cut tunnelling work will be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Uncontaminated discharge will pass through sedimentation tanks prior to off-site discharge. The wastewater with a high concentration of SS will be treated (eg, by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It will be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) will be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 will be adhered to in the handling and disposal of bentonite slurries. 	To minimize construction water quality impact from tunnelling works	Contractor	All tunnelling portion	Construction stage	WPCO ProPECC PN1/94 EIAO-TM TM-Water	<p>^</p> <p>^</p> <p>^</p> <p>^</p>

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S8.68 of Ref. 2; S10.7.1 of Ref. 1	<p><u>Operation of Barging Facilities</u> The following good practice shall apply for the barging facilities operations:</p> <ul style="list-style-type: none"> All barges should be fitted with tight bottom seals to prevent leakage of materials during transport; Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or transportation; All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water. Mitigation measures as outlined for control of <i>construction runoff and site drainage</i> provide above should be applied to minimise water quality impacts from site runoff and open stockpile spoils at the proposed barging facilities where appropriate. 	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	WPCO TM-EIA	N/A N/A N/A N/A N/A
S8.51 – 8.52 of Ref. 2	<p><u>Bentonite Slurries:</u></p> <ul style="list-style-type: none"> Bentonite slurries used in diaphragm wall construction should be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry should either be dewatered or mixed with inert fill material for disposal to a public filling area. If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS. 	To minimize water quality impact from bentonite slurries	Contractor	All works area	Construction stage	WPCO TM-EIA	^ ^
S8.53 – 8.54 of Ref. 2	<p><u>Wastewater from Building Construction:</u></p> <ul style="list-style-type: none"> Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of 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	<u>C&D waste</u> <ul style="list-style-type: none"> Standard formwork or pre-fabrication will be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works will be considered. Use of wooden hoardings will not be used, as in other projects. Metal hoarding will be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The contractor will recycle as much of the C&D materials as possible onsite. Public fill and C&D waste will be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites will be considered for such segregation and storage. 	Good site practice to minimise the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW Ref 19/2005	^ ^
S11.5.1 of Ref.1; S9.100-9.102 of Ref.2; S11.5.1 of Ref. 3	<u>General refuse</u> <ul style="list-style-type: none"> General refuse generated onsite will be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector will be employed by the contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimise odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans will be often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit will be provided if feasible. Office wastes will be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme will be considered by the contractor. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance	# ^ ^ ^

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S11.5.1 of Ref.1; S9.84 – 9.93 of Ref. 2	<p><u>Land-based sediment</u></p> <ul style="list-style-type: none"> The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. The Project Proponent should agree in advance with MFC of CEDD on the site allocation. Subject to the final decision by MFC, Type 1 sediments are typically disposed to South Cheung Chau and/or East of Ninepin as open sea disposal while Type 2 sediments are disposed to East Sha Chau as confined marine disposal. Sampling and Testing Plan(s) should be prepared in accordance with ETWB TC(W) No. 34/2002. Site investigation, based on the Sediment Sampling and Testing Plan(s), should be carried out in order to confirm the disposal arrangements for the proposed excavated sediments. A Sediment Quality Report (SQR) should then be submitted to EPD for agreement prior to the tendering of the construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal. The excavated sediments is expected to be loaded onto the dumping trucks and transferred to the barging point where the sediments would be transported via barge to the existing designated disposal sites allocated by the MFC. The excavated sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002. Requirements of the Air Pollution Ordinance (Construction Dust) Regulation, where relevant, shall be adhered to during excavation, transportation and disposal of sediments. Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be 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

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	<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 equipment (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. 						<p>N/A</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 arranged so that incompatible materials are adequately separated. 	<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</p> <p>Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</p>	<p>^</p> <p>^</p> <p>^</p>

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	<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

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Land Contamination							
S10.24 – 10.34 of Ref 2	<p><u>Precautionary measures</u></p> <ul style="list-style-type: none"> Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. The inspection process should involve a visual observation of excavated soils for discolouration and the presence of oils, together with identifying the presence of odours, which may also indicate soil and/or groundwater contamination. If soil discolouration or the presence of oil/unnatural odour is noted during visual inspection, sampling and testing should also be undertaken to verify the presence of contamination. 	To act as a general precautionary measure to screen soils for the presence of contamination during construction	Contractor	All construction sites	Construction stage	“Guidance Note for Contaminated Land Assessment and Remediation” “Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management”	^ ^
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	“Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair /Dismantling Workshop“	N/A N/A N/A N/A N/A

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	<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
							N/A
							N/A
							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>	N/A
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	^

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

Event	ET	IEC	ER	Contractor
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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.

Event and Action Plan for Construction Noise

Event	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 and assess the effectiveness. 3. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by Contractor. 2. 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 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 measure. 2. Report the results of investigation to the IEC, ET and ER. 3. Submit noise mitigation proposals to ER with a copy to ET and IEC within three working days of notification 4. Implement noise mitigation proposal.
Limit Level	<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. 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 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

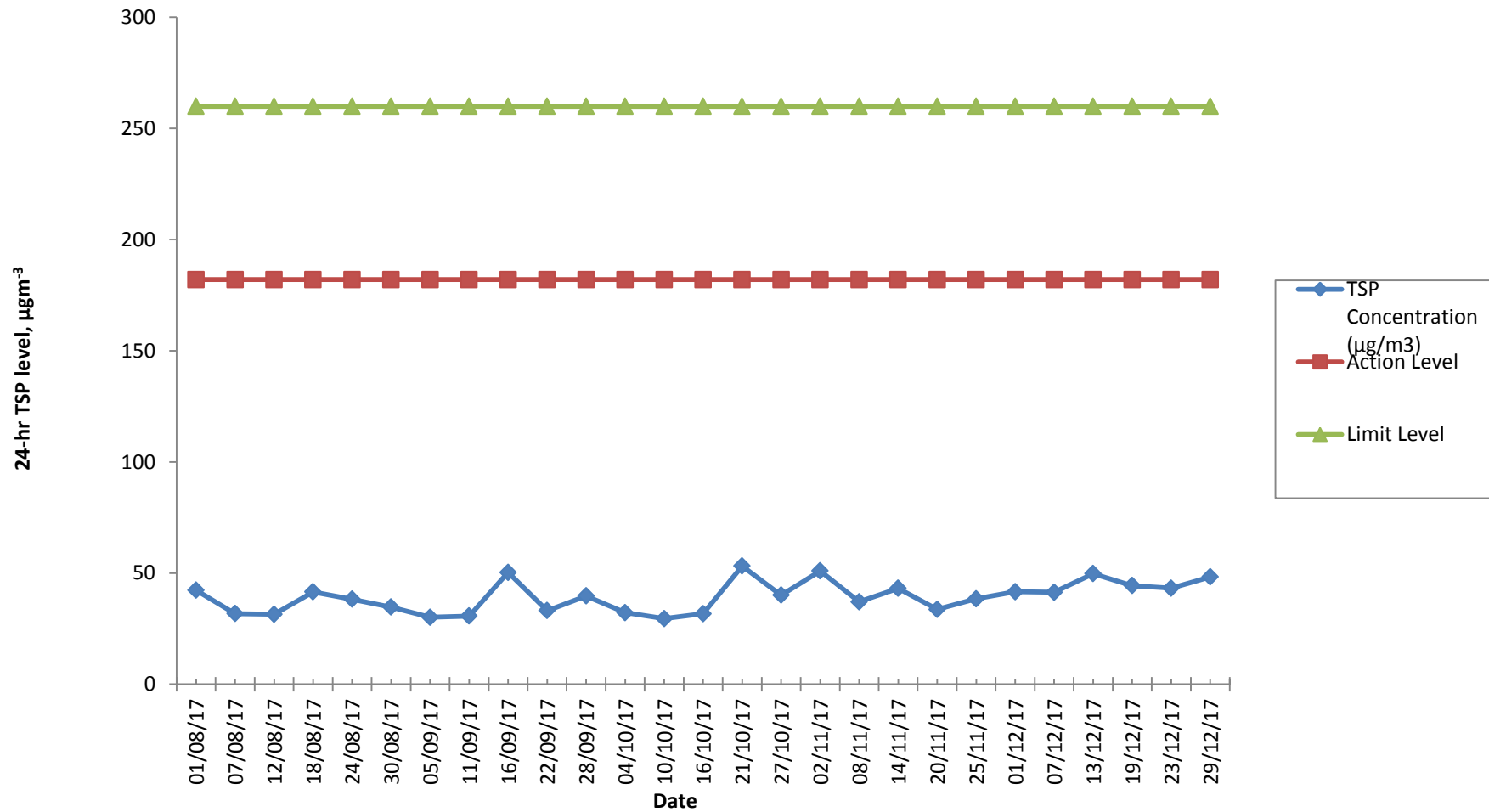
APPENDIX J

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	Remark
	Paper No.	Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate				
01/12/17	C406	2.8568	2.9246	0.0678	16545.30	16569.30	24.00	40	40	40.0	1631.05	41.5683	Sunny	-
07/12/17	C407	2.8488	2.9162	0.0674	16569.30	16593.30	24.00	40	40	40.0	1631.05	41.3231	Sunny	-
13/12/17	C408	2.8676	2.9487	0.0811	16593.30	16617.30	24.00	40	40	40.0	1631.05	49.7226	Cloudy	-
19/12/17	C409	2.8612	2.9335	0.0723	16617.30	16641.30	24.00	40	40	40.0	1631.05	44.3273	Sunny	-
23/12/17	C410	2.8279	2.8983	0.0704	16641.30	16665.30	24.00	40	40	40.0	1631.05	43.1624	Sunny	-
29/12/17	C411	2.8406	2.9193	0.0787	16665.30	16689.30	24.00	40	40	40.0	1631.05	48.2511	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		
	Imported from SCL1111	Imported from SCL1121	Total Quantity Generated	Hard Rock and Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fills at HH Barging Point	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Metals	Paper/ Cardboard Packaging	Asphalt	Plastics	Chemical Waste	General Refuse	
Unit	(in '000m ³)									(in '000Kg)				(in '000Kg)	(in '000L)	(in '000Kg)
Jun-13	0	-	0	0	0	0	0	0	0	137.3	0	0	0	0	-	6.55
Jul-13	0	-	0.36	0	0	0	0	0	0.36	365.34	0	0	0	0	-	16.87
Aug-13	0	-	1.68	0	0	0	0.05	0	1.63	69.98	0.25	0	0	0	-	12.67
Sep-13	0	-	3.39	0	0	0	0.20	0	3.19	131.18	0.22	0	0.46	0	-	16.25
Oct-13	0	-	4.04	0	0	0	0.78	0	3.26	179.97	0.63	8.28	2.04	0	-	39.87
Nov-13	0	-	6.09	0	0	0	2.09	0.18	3.82	125.70	0.45	160.35	0	0	-	28.69
Dec-13	0	-	5.69	0	0	0	1.74	0.01	3.94	72.15	0.39	4.13	0	0	-	18.04
Jan-14	0	-	4.58	0	0	0	0	0.27	4.31	117.57	0.26	147.67	0.26	0	-	30.09
Feb-14	0	-	3.80	0	0	0.14 ^[Note1]	0	0.19	3.46	28.32	0.29	414.67	0	0	-	15.73
Mar-14	0	-	10.10	0	0	6.18 ^[Note2]	0	0.29	3.63	96.26	0.25	0	0	0	-	47.76
Apr-14	0	-	6.67	0	0	4.82 ^[Note3]	0	0.0053	1.85	75.43	0.23	1,322.39	0	0.2	-	78.63
May-14	0.52	-	5.77	0	0.43	2.00 ^[Note4]	0	0.12	3.65	48.86	0.28	501.45	0	0	-	66.03
Jun-14	0.47	-	4.56	0	0	1.73 ^[Note5]	0	0.29	2.54	42.95	0.25	0	0	0.4	-	45.97
Jul-14	0.34	-	8.61	0	0	2.89 ^[Note6]	0	0.87	4.84	70.99	0	0	0	0	-	40.50
Aug-14	0.20	-	8.57	0	0	3.56 ^[Note7]	0	0.44	4.57	227.86	0	0	0	0	-	76.93
Sep-14	0.23	-	11.11	0	0	5.82 ^[Note8]	0	0.23	5.06	220.85	0.29	0	0	0	-	43.01
Oct-14	0.54	-	12.79	0	0	6.04 ^[Note9]	0	0.06	6.69	174.82	0.71	329.16	0	0	-	97.92
Nov-14	0.93	-	10.63	0	0	3.78 ^[Note10]	0	0.15	6.70	163.72	0.56	376.40	0	0	-	81.91
Dec-14	3.72	-	8.59	0	0	2.97 ^[Note11]	0	0	5.62	385.80	0.53	166.98	0	5.4	-	130.83
Jan-15	3.72	-	19.29	0	0	10.03 ^[Note12]	0	0	9.26	543.40	0.80	179.01	0	0	1.60	318.66

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		
	Imported from SCL1111	Imported from SCL1121	Total Quantity Generated	Hard Rock and Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fills at HH Barging Point	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Metals	Paper/ Cardboard Packaging	Asphalt	Plastics	Chemical Waste	General Refuse	
Unit	(in '000m ³)									(in '000Kg)				(in '000Kg)	(in '000L)	(in '000Kg)
Feb-15	3.03	-	13.96	0	0	8.41 ^[Note13]	0	0	5.54	263.10	0.46	168.82	0	0	0	180.27
Mar-15	5.68	-	22.28	0	0	12.45 ^[Note14]	0	0	9.82	346.70	0.61	11.45	0	0	0	429.13
Apr-15	4.71	-	18.51	0	0	11.25 ^[Note15]	0	0.23	7.26	275.99	0.32	0	0	0	0	376.98
May-15	4.62	-	20.64	0	0	11.53 ^[Note16]	0	0	9.10	353.88	0.67	0	0	0	0	266.43
Jun-15	5.04	-	13.49	0	0	6.29 ^[Note17]	0	0	7.20	317.14	0.43	0	0	0.20	1.00	258.01
Jul-15	6.21	0.09	21.64	0	0	16.15 ^[Note18]	0	0	5.50	706.38	0.69	0	0	0	0	270.73
Aug-15	0.40	0	26.43	0	0	19.29 ^[Note19]	0	0	7.14	45.53	0.57	0	0	0	0	261.04
Sep-15	-	-	20.91	0	0	13.16 ^[Note20]	0	0	7.75	317.36	0.58	0	0	0.45	0	240.74
Oct-15	-	-	26.22	0	0	14.19 ^[Note21]	0	0	12.03	251.95	0.48	0	0	0	0	422.80
Nov-15	-	-	18.66	0	0	7.03 ^[Note22]	0	0	11.64	446.80	0.53	0	0	0	0	283.46
Dec-15	-	-	17.02	0	0	9.81 ^[Note23]	0	0	7.21	198.11	0.50	0	0	0	0	355.24
Jan-16	-	-	24.58	0	0	13.22 ^[Note24]	0	0	11.37	273.64	0.62	0	0	0	0	347.67
Feb-16	-	-	9.34	0	0	4.31 ^[Note25]	0	0	5.04	269.58	0.46	0	0	0	0	251.30
Mar-16	-	-	9.75	0	0	3.48 ^[Note26]	0	0	6.27	750.85	0	0	0	0	0	288.35
Apr-16	-	-	12.83	0	0	5.68 ^[Note27]	0	0	7.15	549.43	0.65	0	0	0.09	1.30	282.05
May-16	-	-	7.22	0	0	2.08 ^[Note28]	0	0	5.14	356.66	0.55	0	0	0	0	318.75
Jun-16	-	-	2.83	0	0	2.38 ^[Note29]	0	0	0.45	228.10	0.40	0	0	0	4.21	410.03
Jul-16	-	-	8.67	0	0	8.50 ^[Note30]	0	0.01	0.16	172.90	0.16	0	0	0	0	418.44
Aug-16	-	-	2.08	0	0	1.95 ^[Note31]	0	0	0.12	334.40	0.30	0	0	0	0	542.00
Sep-16	-	-	1.44	0	0	1.44 ^[Note32]	0	0	0	47.10	0.37	0	0	0	0	542.44

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		
	Imported from SCL1111	Imported from SCL1121	Total Quantity Generated	Hard Rock and Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fills at HH Barging Point	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Metals	Paper/ Cardboard Packaging	Asphalt	Plastics	Chemical Waste		General Refuse
Unit	(in '000m ³)									(in '000Kg)				(in '000Kg)	(in '000L)	(in '000Kg)
Oct-16	-	-	3.00	0	0	3.00 ^[Note33]	0	0	0	99.79	0.44	0	0	0	0	633.27
Nov-16	-	-	1.29	0	0	1.29 ^[Note34]	0	0	0	29.71	0.45	0	0	0	0	866.16
Dec-16	-	-	1.10	0	0	1.10 ^[Note35]	0	0	0	45.80	0.48	0	0	0	0	978.39
Jan-17	-	-	2.19	0	0	2.19 ^[Note36]	0	0	0	26.10	0.25	0	0	0	0	730.48
Feb-17	-	-	1.04	0	0	1.04 ^[Note37]	0	0	0	0	0.45	0	0	0	0	564.62
Mar-17	-	-	0.89	0	0	0.89 ^[Note38]	0	0	0	0	0.49	0	0.31	0	0	688.72
Apr-17	-	-	0.83	0	0	0.83 ^[Note39]	0	0	0	0	0.36	0	0	0	0	567.73
May-17	-	-	1.23	0	0	1.23 ^[Note40]	0	0	0	0	0.16	0	0	0	0	597.93
Jun-17	-	-	0.70	0	0	0.70 ^[Note41]	0	0	0	0	0.17	0	0	0	0	440.50
Jul-17	-	-	0.98	0	0	0.98 ^[Note42]	0	0	0	0	0.31	0	0	0	0	371.00
Aug-17	-	-	0.63	0	0	0.63 ^[Note43]	0	0	0	0	0.17	0	0	0	0	393.48
Sep -17	-	-	0.21	0	0	0.21 ^[Note44]	0	0	0	0	0.23	0	0.11	0	0	362.47
Oct-17	-	-	0.25	0	0	0.25 ^[Note45]	0	0	0	0	0.10	0	0	0	0	377.69
Nov-17	-	-	0.66	0	0	0.66 ^[Note46]	0	0	0	11.77	0.35	0	0	0	0	788.65
Dec-17	-	-	0.91	0	0	0.91 ^[Note47]	0	0	0	0	0	0	0	0	0	446.48
TOTAL	40.35	0.09	451.72	0.00	0.42	238.45	4.86	3.36	205.28	9671.01	21.30	3790.76	3.18	6.74	8.11	16776.98

Note:

1. 137 m³ of the Inert C&D materials were reused in South Island Line (SIL) Project Contract 904.

2. 267 m³ of the Inert C&D materials were reused in 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.
3. 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 TM-CLKL and TMWB Project Contract HY/2012/08.
4. 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 TM-CLKL and TMWB Project Contract HY/2012/08.
5. 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 TM-CLKL and TMWB Project Contract HY/2012/08.
6. 2,894 m³ of the Inert C&D materials were reused in TM-CLKL and TMWB Project Contract HY/2012/08.
7. 575.5 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 2907.6 m³ of the Inert C&D materials were reused in TM-CLKL and 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.
8. 4,905.4 m³ of the Inert C&D materials were reused in TM-CLKL and 912.3 m³ of the Inert C&D materials were reused in SIL Project Contract 904.
9. 5,522.9 m³ of the Inert C&D materials were reused in TM-CLKL and 515.9 m³ of the Inert C&D materials were reused in SIL Project Contract 904.
10. 3,774.6 m³ of the Inert C&D materials were reused in TM-CLKL.
11. 2,968.9 m³ of the Inert C&D materials were reused in TM-CLKL (HY/2012/08).
12. 9,988.1 m³ of the Inert C&D materials were reused in WENT (SITA) and 46.34 m³ of the Inert C&D materials were reused in SIL Project Contract 904.
13. 8,212.8 m³ of the Inert C&D materials were reused in WENT (SITA) and 200.9 m³ of the Inert C&D materials were reused in SIL Project Contract 904.
14. 11,757 m³ of the Inert C&D materials were reused in WENT (SITA), 23.41 m³ of the Inert C&D materials were reused in SIL Project Contract 904 and 672.78 m³ of the Inert C&D materials were reused in XRL822.
15. 10,633 m³ of the Inert C&D materials were reused in WENT (SITA) and 0.61176 m³ of the Inert C&D materials were reused in XRL822.
16. 11,533 m³ of the Inert C&D materials were reused in WENT (SITA).
17. 6,290 m³ of the Inert C&D materials were reused in WENT (SITA).
18. 16,145 m³ of the Inert C&D materials were reused in WENT (SITA).
19. 878 m³ of the Inert C&D materials were reused in WENT (SITA) and 18,415 m³ of the Inert C&D materials were reused in SCL1121.
20. 13,163 m³ of the Inert C&D materials were reused in SCL1121.
21. 14,189 m³ of the Inert C&D materials were reused in SCL1121.
22. 7,030 m³ of the Inert C&D materials were reused in SCL1121.
23. 9,811 m³ of the Inert C&D materials were reused in SCL1121.
24. 13,218 m³ of the Inert C&D materials were reused in SCL1121.
25. 4,306 m³ of the Inert C&D materials were reused in SCL1121.
26. 3,478 m³ of the Inert C&D materials were reused in SCL1121.
27. 5,680 m³ of the Inert C&D materials were reused in SCL1121.
28. 2,080 m³ of the Inert C&D materials were reused in SCL1121.
29. 2,380 m³ of the Inert C&D materials were reused in SCL1121.

30. 8,500 m³ of the Inert C&D materials were reused in SCL1121.
31. 1,950 m³ of the Inert C&D materials were reused in SCL1121.
32. 1,440 m³ of the Inert C&D materials were reused in SCL1121.
33. 3,004 m³ of the Inert C&D materials were reused in SCL1121.
34. 1,290 m³ of the Inert C&D materials were reused in SCL1121.
35. 1,100 m³ of the Inert C&D materials were reused in SCL1121.
36. 2,190 m³ of the Inert C&D materials were reused in SCL1121.
37. 1,040 m³ of the Inert C&D materials were reused in SCL1121.
38. 890 m³ of the Inert C&D materials were reused in SCL1121.
39. 830 m³ of the Inert C&D materials were reused in SCL1121.
40. 1,230 m³ of the Inert C&D materials were reused in SCL1121.
41. 700 m³ of the Inert C&D materials were reused in SCL1121.
42. 980 m³ of the Inert C&D materials were reused in SCL1121.
43. 630 m³ of the Inert C&D materials were reused in SCL1121.
44. 210 m³ of the Inert C&D materials were reused in SCL1121.
45. 250 m³ of the Inert C&D materials were reused in SCL1121.
46. 660 m³ of the Inert C&D materials were reused in SCL1121.
47. 910 m³ of the Inert C&D materials were reused in SCL1121.

Marine Sediment Flow Table						
Month	Actual Quantities of Marine Dumping Monthly					
	Type 1			Type 2		
	Generated from SCL1111 [Note1]	Generated from SCL1112 [Note3]	Disposed	Generated from SCL1111 [Note2]	Generated from SCL1112 [Note4]	Disposed
Unit	(in '000m ³)			(in '000m ³)		
Jan-15	0	0	0	2.22	0.06	2.28
Feb-15	1.29	0	0.82	0	0	0
Mar-15	2.43	0	2.48	0	0	0
Apr-15	3.97	0.14	5.27	0	0	0
May-15	8.26	0.09	8.35	0	0	0
Jun-15	9.71	0.12	9.83	0	0	0
Jul-15	5.29	0	5.18	0	0	0
Aug-15	0	0	0	0	0	0
Sep-15	-	0	0	-	1.94	1.94
Oct-15	-	0.53	0.53	-	0	0
Nov-15	-	5.67	5.67	0	2.32	2.32
Dec-15	-	14.44	-	-	1.02	-
Jan-16	-	16.59	-	-	0.02	-
Feb-16	-	1.25	-	-	4.04	-
Mar-16	-	3.85	-	-	2.30	-
Apr-16	-	0	-	-	0.36	-
May-16	-	0	-	-	4.06	-
Jun-16	-	0	-	-	6.45	-
Jul-16	-	0	-	-	0	-
Aug-16	-	0	-	-	0	-
Sep-16	-	0	-	-	0	-
Oct-16	-	0	-	-	0	-

Marine Sediment Flow Table						
Month	Actual Quantities of Marine Dumping Monthly					
	Type 1			Type 2		
	Generated from SCL1111 ^[Note1]	Generated from SCL1112 ^[Note3]	Disposed	Generated from SCL1111 ^[Note2]	Generated from SCL1112 ^[Note4]	Disposed
Unit	(in '000m ³)			(in '000m ³)		
Nov-16	-	0	-	-	0	-
Dec-16	-	0	-	-	0	-
Jan-17	-	0	-	-	0	-
Feb-17	-	0	-	-	0	-
Mar-17	-	0	-	-	0	-
Apr-17	-	0	-	-	0	-
May-17	-	0	-	-	0	-
Jun-17	-	0	-	-	0	-
Jul-17	-	0	-	-	0	-
Aug-17	-	0	-	-	0	-
Sep-17	-	0	-	-	0	-
Oct-17	-	0	-	-	0	-
Nov-17	-	0	-	-	0	-
Dec-17	-	0	-	-	0	-
TOTAL	31.69	42.67	38.11	2.22	22.57	6.54

Note:

1. Type 1 Marine Sediment generated from SCL1111 was delivered to the Barging Point at SCL1121 for disposal.
2. Type 2 Marine Sediment generated from SCL1111 was delivered to the Barging Point at SCL1121 for disposal.
3. Type 1 Marine Sediment generated from SCL1112 was delivered to the Barging Point at SCL1121 for disposal.
4. Type 2 Marine Sediment generated from SCL1112 was delivered to the Barging Point at SCL1121 for disposal.

APPENDIX L

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Reference No.	Subject	Location of Concern	Status
Environmental Complaints	7 December 2017	Public comment received by EPD, EPD's Ref. No. K01/RE/00039690-17	Dust Nuisance	Hong Kong Coliseum, 9 Cheong Wan Road, Hung Hom	<ul style="list-style-type: none"> The Contractor immediately reviewed environmental performance at the site and implementation status of dust mitigation measures upon receipt of Notice of Complaint from EPD. The Contractor confirmed that remediation work of concrete wall on top of the vent shaft was on-going at SAT (near the podium of the Hong Kong Coliseum). Tarpaulin sheet as a construction dust barrier was implemented as dust mitigation measures during the course of the remediation work, and additional mitigation measure in the form of water spraying for dust suppression in the works area was immediately provided by the Contractor after site review. Given the fact that remediation works surrounding the podium are completed and mitigation measures in place are considered sufficient and effective, the construction works for Contract 1112 is unlikely to cause any dust nuisance. Investigation report submitted to EPD on 15 December 2017.
Environmental Complaints	10 April 2017	Public comment received by EPD, EPD's Ref. No. K01/RE/00010598-17	General construction noise except renovation (within Restricted Hours)	The Metropolis, No. 7-10 Metropolis Drive, Tsim Sha Tsui	<ul style="list-style-type: none"> ET conducted inspection to examine the environmental performance of the site on 13 April 2017. The Contractor confirmed bulkhead wall demolition work using coring machine at SAT was carried out on 7 & 8 April 2017 during 1 am – 5 am behind the door leaves and no machinery that would generate beeping sound was involved. On the two nights from 6 to 8 April 2017, installation of smoke barrier was conducted under podium which required the use of a cherry picker. During cherry picker platform mobilization, safety warning signal, i.e.

	Date Received	Reference No.	Subject	Location of Concern	Status
Environmental Complaints					<p>“beeping” sound, would be emitted. Since the cherry picker was located under the podium with no direct line of sight from the Metropolis Residence, safety warning signal should not be audible from above the podium or at the Metropolis Residence.</p> <ul style="list-style-type: none"> • There was works involving the use of scissor lifts inside the concourse during April 2017 from 1 am – 5 am. However, such works were carried out with the main door closed. • On 6 & 7 April 2017, there were loading and unloading works using a crane lorry at the north side outside the Concourse from 1 am – 5 am. Backwards movement of the crane lorry would also emit a “beeping” sound as the safety warning signal to alert nearby worker of the movement of the vehicle. • All works carried out by SCL Contract 1112 in early April 2017 are covered by valid CNPs. • Investigation report submitted to EPD on 2 May 2017.
	13 March 2017	Public comment received by EPD, EPD’s Ref. No. EP3/K01/RE/0000 7049-17	General construction noise except renovation (within Restricted Hours)	Hong Kong Coliseum at No. 9 Cheong Wan Road, Tsim Sha Tsui	<ul style="list-style-type: none"> • ET conducted inspection to examine the environmental performance of the site on 16 March 2017. • The Contractor confirmed no construction works was carried out at the uncovered site area to the south of the Hong Kong Coliseum podium on 12 March 2017. • It is confirmed that general housekeeping works were carried out under the Hong Kong Coliseum podium to prepare site hand over. No noisy operation with PME or hammering works was carried out that could lead to generation of noise nuisance. • A valid Construction Noise Permit (CNP No. GW-RE0124-17) valid from 28 February 2017 to 27 August 2017 was granted for construction works, including the housekeeping works, carried out under the podium during all restricted hours. • Given the fact that only housekeeping works were

	Date Received	Reference No.	Subject	Location of Concern	Status
					<p>carried out under the podium of the Hong Kong Coliseum on 12 March 2017, noise nuisance reported by the complainant shall not be generated from the site managed under SCL Contract 1112.</p> <ul style="list-style-type: none"> Investigation report submitted to EPD on 21 March 2017.

	Date Received	Reference No.	Subject	Location of Concern	Status
Environmental Complaints	8 April 2016	Public comment received by EPD, EPD's Ref. No. K01/RE/00008018-16	Air nuisance, other than dark smoke, from construction machine	Hung Hom Station, Tsim Sha Tsui	<ul style="list-style-type: none"> ET conducted inspection to examine the environmental performance of the site on 14 April 2016. Both the site and machineries were in normal operation during the site inspection. No air nuisance or smell of diesel exhaust was noticed at the concourse by any of the attending personnel. No diesel powered equipment was found at the concourse, as all of the powered mechanical equipment was powered by electricity. It is confirmed that the fresh air intake location of the air conditioning system serving the concourse level is located above the podium at the southern façade of the concourse, away from the construction work under the podium. It is also confirmed that the sealed system is totally separated from the construction site under the podium.

	Date Received	Reference No.	Subject	Location of Concern	Status
Environmental Complaints					<p>No air from the construction area under the podium will be drawn into the air conditioning system for distribution within the station.</p> <ul style="list-style-type: none"> The source of strong diesel exhaust smell at the concourse, as mentioned by the complainant, could not be identified. Investigation report submitted to EPD on 26 April 2016.
	11 April 2016	Public comment received by EPD, EPD's Ref. No. K01/RE/00008149-16	Complaint of other air nuisance at Hung Hom Station, Tsim Sha Tsui	Hung Hom Station, Tsim Sha Tsui	<ul style="list-style-type: none"> Complaint confirmed to be irrelevant to the construction works of the Project, no follow up required.

	Date Received	Reference No.	Subject	Location of Concern	Status
Environmental Complaints	24 March 2016	Public comment received by EPD, EPD's Ref. No. K01/RE/00006851-16	"General construction noise except renovation (within Restricted Hours) from Hung Hom Station, Tsim Sha Tsui"	Hung Hom Station, Tsim Sha Tsui	<ul style="list-style-type: none"> The Contractor confirmed that only mobilization, i.e. transportation of the equipment itself, of the scissor lift platforms were carried out during night time. During scissor lift platforms mobilization, safety warning signal (the "beeping" noise) would be emitted. The audible warning signal device cannot be switched off so as to alert nearby workers of the movement of the equipment. Silencing the device could induce safety concern and not advisable. At night time of 22 and 23 March 2015, a forklift was deployed for the transportation of concrete blocks to be used as the footings for hoarding construction outside the concourse area (Photo 2). Backward

	Date Received	Reference No.	Subject	Location of Concern	Status
Environmental Complaints					<p>movement of the forklift would also generate safety warning signal.</p> <ul style="list-style-type: none"> • There is another valid CNP (CNP No. GW-RE0176-16) for construction works to be carried out inside the concourse during night time. However, this is not applicable to the works of concern, located outside the concourse area. Whereas CNP No. GW-RE0207-16, effective from 10 March 2016 to 28 April 2016, allows mobilization of scissor lift platforms and use of forklift for transportation of construction material outside the MTR Hung Hom Station. • Investigation report submitted to EPD on 20 April 2016.
	28 September 2015	Public comment received by EPD, K01/RE/00024658-15	Complaint of general construction noise except renovation (within Restricted Hours) from construction site at Hung Hom	Harbour Plaza Metropolis, Tsim Sha Tsui	<ul style="list-style-type: none"> • A valid construction noise permit (CNP) (CNP no. GW-RN0969-15) was granted for such works from 25 September 2015 to 24 March 2016. • Noise mitigation measures were implemented at the site. • Due to the limited construction works being carried out during the evening period and most of the active construction works being carried out under the podium which had no direct line of sight from the nearest sensitive receiver, Harbour Plaza Metropolis, construction noise nuisance from Shatin to Central Link (SCL) Contract 1112 should not be anticipated. • Investigation report submitted to EPD on 3 November 2015.

	Date Received	Reference No.	Subject	Location of Concern	Status
Environmental Complaints	10 March 2015	Public comment received by EPD, K01/RE/00005632 -15	Complaint of malodour from Hung Hom Station (near Exit B1)	Hung Hom Station, Tsim Sha Tsui	<ul style="list-style-type: none"> ET conducted inspection to examine the environmental performance of the site on 12 Mar 2015 No odour was noticed by all attending parties. It was observed that excavation, predrilling, welding, box culvert construction and installation of TAM grout pipeworks were carried out at the NAT works area, located to the west and east of the footbridge The source of malodour could not be identified A barrier was erected on the eastern side of footbridge, with the barrier already in place on the western side of the footbridge since November 2014, so now both sides of the footbridge contain barriers to shield off any dust or odour from the site No noticeable malodour was observed and the air quality control was found to be satisfactory according to conversation between EPD and the Contractor Investigation Report submitted to EPD on 26 Mar 2015

	Date Received	Reference No.	Subject	Location of Concern	Status
Environmental Complaints	7 Feb 2015	Public comment received by EPD, EPD's Ref. No. K01/RE/00003309 -15	Complaint of construction dust from the construction site at MTR Hung Hom Building, 8-8 Cheong Wan Road, Tsim Sha Tsui	MTR Hung Hom Station Building, 8-8 Cheong Wan Road	<ul style="list-style-type: none"> ET conducted inspection to examine the environmental performance of the site on 10 Feb 2015 No demolition works carried out inside Hung Hom Station and Freight Operation Building during the complaint period Watering and dust screen (site enclosed with bamboo scaffold and tarpaulin sheet) were provided for the demolition work at International Mail Centre Renovation works on-going inside the Hung Hom Station with dust mitigation measures implemented A joint inspection was then conducted by the Contractor and EPD on 13 Feb 2015 and no adverse

	Date Received	Reference No.	Subject	Location of Concern	Status
Environmental Complaints					comment was provided by EPD • Investigation Report submitted to EPD on 23 Feb 2015
	11 Nov 2014	Public comment received by EPD, EPD's Ref. No. K01/RE/00028087-14	Complaint of welding smell and air nuisance other than dark smoke, from construction machine from Hung Hom Station, Tsim Sha Tsui	At footbridge between Hung Hom Station and Hung Hom Region, near Royal Peninsula	• Barrier was erected on the side of footbridge facing the construction site • ET conducted followed-up inspection of the implemented mitigation measures on 20 Nov 2014 and air quality control was found to be satisfactory • Investigation Report submitted to EPD on 3 Dec 2014
Environmental Complaints	11 Nov 2014	Public comment received by EPD, EPD's Ref. No. K01/RE/00028181-14	Complaint of construction dust from Hung Hom Station, Tsim Sha Tsui	At footbridge between Hung Hom Station and Hung Hom Region, near Royal Peninsula	• Barrier was erected on the side of footbridge facing the construction site • ET conducted followed-up inspection of the implemented mitigation measures on 20 Nov 2014 and air quality control was found to be satisfactory • Investigation Report submitted to EPD on 3 Dec 2014

	Date Received	Reference No.	Subject	Location of Concern	Status
Notification of Summons	3 Oct 2016	Summon received by Mr. MAK Wong-Chuen, Case No.: KTS16747/2016	On 1 April 2016, Mr. MAK Wong-Chuen operated a hand-held electric breaker at around 0053hr outside the Concourse, in violation of Section 6 (1) (a) and 6 (5) of the Noise Control Ordinance (Cap. 400). Mr. Mak Wong-Chuen was employed by Palgo	Entrance C2 of Hung Hom Station	• The hearing took place on 3 Nov 2016 at Kwun Tong Magistrates' Courts. Remarks: The summon was only sent to the individual. Neither Palgo Company Limited nor Leighton Contractors (Asia) Limited received the summons.

	Date Received	Reference No.	Subject	Location of Concern	Status
Successful Prosecution			Company Limited, which is a sub-contractor for SCL Contract 1112's main contractor, Leighton Contractors (Asia) Limited.		
	3 Nov 2016	Summon received by Mr. MAK Wong-Chuen, Case No.: KTS16747/2016	On 1 April 2016, Mr. MAK Wong-Chuen operated a hand-held electric breaker at around 0053hr outside the Concourse, in violation of Section 6 (1) (a) and 6 (5) of the Noise Control Ordinance (Cap. 400). Mr. Mak Wong-Chuen was employed by Palgo Company Limited, which is a sub-contractor for SCL Contract 1112's main contractor, Leighton Contractors (Asia) Limited.	Entrance C2 of Hung Hom Station	<ul style="list-style-type: none"> • The hearing took place on 3 Nov 2016 at Kwun Tong Magistrates' Courts. • The worker pleaded guilty and paid a HKD 15,000 fine. • After the incident, Leighton has reviewed their internal procedures/ working methods to identify the cause of non-compliance and potential improvements. • Upon review, Leighton's current system is found to be adequate to ensure proper implementation of their construction work undertaken at night and they will continue to implement the environmental management systems with the objective of ensuring environmental compliance.

Appendix G

**55th 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. 55

[Period from 1 to 31 December 2017]

Works Contract 1108 – Kai Tak Station and Associated
Tunnels

(January 2018)

Certified by: Goldie Fung 

Position: Environmental Team Leader

Date: 11 January 2018

Kaden – Chun Wo Joint Venture (KCJV)

Shatin to Central Link –

Contract 1108

Kai Tak Station and Associated Tunnels

Monthly Environmental Monitoring & Auditing Report for

December 2017

The Contents of this report have been certified by:



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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	8
2.5 Status of Environmental Licences, Notification and Permits	8
2.6 Summary of EM&A Requirements	8
3 Environmental Monitoring Requirements	9
3.1 Culture Heritage	9
3.2 Landscape and Visual	9
4 Implementation Status on Environmental Protection Requirements	10
5 Monitoring Results	11
5.1 Cultural Heritage	11
5.2 Landscape and Visual	11
5.3 Waste Management	11
6 Environmental Site Inspection	12
6.1 Site Audit	12
6.2 Implementation Status of Environmental Mitigation Measures	12
7 Environmental Non-Conformance	14
7.1 Summary of Environmental Exceedances	14
7.2 Summary of Environmental Non-Compliance	14
7.3 Summary of Environmental Complaint	14
7.4 Summary of Environmental Summon and Successful Prosecution	14
8 Future Key Issues	15
9 Conclusions and Recommendations	16
9.1 Conclusions	16
9.2 Recommendations	16

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 fifty fifth 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 December 2017 to 31st December 2017.

Summary of the Construction Works undertaken during the Reporting Month

The major site activities in this reporting period were including:

- Open cut tunnel: General cleaning and defect rectification and SUA EVA construction.
- Cut and cover tunnel: General cleaning and defect rectification.
- Station: Leveling to F.F.L. in Area 3, installation of roof cladding and reflected ceiling at Entrance A, B & D, installation of glass canopy at DEE and SEE, installation of aluminum fins and external cladding at NVS and SVS, and installation of metal screen wall at DEE and SEE.

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

Since the construction of the mined tunnel was completed, the works area near FKCP lies within the Project was handed-over to Land Department on 6th January 2017. No inspection of the Form Kowloon City Pier was conducted during this reporting period. 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, a total of 0m³ of inert C&D materials were generated and received from other construction site, which 0m³ were disposed to the receiving facility of Contract 1108A and 0m³ were reused in the contract. 73m³ of general refuse were generated and disposed at landfill site. 71kg of paper, 0kg of plastic, 0kg of metal and 0kg of chemical waste were sent to recyclers for recycling.

Environmental Site Inspection

Joint weekly inspections were conducted by representatives of the Contractor, Engineer and ET on 5th, 12th, 19th & 28th December 2017. The representative of the IEC joined the site inspection on 12th December 2017. Details of the audit findings and implementation status are presented in Section 6.

Environmental Exceedance / Non-conformance / Complaint / 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:

- Open cut tunnel: General cleaning and defect rectification, SUA EVA construction.
- Cut and cover tunnel: General cleaning and defect rectification.
- Station: Installation of roof cladding and reflected ceiling at Entrance A, B & D, leveling to F.F.L in Area 3, installation of glass canopy at DEE & SEE, installation of aluminum fins and external cladding at NVS and SVS, and installation of metal screen wall at DEE and SEE.

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 fifty fifth monthly EM&A Report which summarises the audit findings for the EM&A programme during the reporting period from 1st December 2017 to 31st December 2017.

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**.

- Open cut tunnel: General cleaning and defect rectification and SUA EVA construction.
- Cut and cover tunnel: General cleaning and defect rectification.
- Station: Leveling to F.F.L. in Area 3, installation of roof cladding and reflected ceiling at Entrance A, B & D, installation of glass canopy at DEE and SEE, installation of aluminum fins and external cladding at NVS and SVS, and installation of metal screen wall at DEE and SEE.

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/K	04/10/2016	N/A	Valid	/
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				
N/A				
Construction Noise Permit for General Works				
N/A				
Effluent Discharge License				
WT00025980-2016	14/11/2016	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	/

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	Fifty Fourth EM&A Report	14 th December 2017

5 Monitoring Results

5.1 Cultural Heritage

Since the construction of the mined tunnel was completed, the works area near FKCP lies within the Project was handed-over to Land Department on 6th January 2017. No inspection of the Form Kowloon City Pier was conducted during this reporting period. 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. Inert C&D materials were disposed to the receiving facility of Contract 1108A or reused in the Contract. General refuse was disposed to designated landfill site. Plastics, paper and metal were sent to recycler for recycling. Chemical waste generated was collected by licensed collector. 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
December 2017	0 m ³	73 m ³	0 kg	71 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.

According to the approved Sediment Management Plan, a portion of the excavated marine sediment, which is classified as uncontaminated Type 1 sediment and suitable for Open Sea Disposal, should be reused on site for backfilling material. The uncontaminated sediment is mixed with cement and general materials to Cement Stabilized Marine Mud (CSMM). There are total 125.12m³ of CSMM were cumulatively backfilled.

During this reporting period, no CSMM backfilling work was conducted.

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, 12th, 19th & 28th December 2017. The representative of the IEC joined the site inspection on 12th December 2017. The details of observations during site audit can refer to Table 6.1.

6.2 Implementation Status of Environmental Mitigation Measures

According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. Updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix G**.

During site inspections in the reporting month, no non-conformance was identified. The observations, reminders 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	21 & 28 Nov 17 5 Dec 17	Open stockpile was observed at Area 1 and Area 3.	Contractor was advised to cover it with tarpaulin sheet for dust suppression.	Open stockpile at Area 1 was removed by contractor on 5 Dec 17. Open stockpile at Area 3 was covered with tarpaulin sheet for dust suppression.	12 Dec 17	/
	21 Nov 17	Part of the haul road was observed dry and dusty at Area 2.	Contractor was reminded to increase the watering frequencies on the haul road to prevent dust generation.	Haul road at Area 2 was sprayed with water and kept in wet for dust suppression	5 Dec 17	/
	5 Dec 17	Part of the haul road was observed dry and dusty at Area 3.	Contractor was reminded to increase the watering frequencies on the haul road to prevent dust generation.	Haul road at Area 3 was sprayed with water for dust control.	12 Dec 17	/
	12, 19 & 28 Dec 17	Exposed stockpile at Area 1 and Area 3 was covered partially and without proper mitigation measures.	Contractor was reminded to cover the dust materials with tarpaulin sheet entirely for dust suppression.	Exposed stockpile at Area 1 was removed by contractor. However, Exposed stockpile at Area 3 was covered partially and without proper mitigation measures. Follow-up action will be inspected during next reporting month.	N/A	/
Water	N/A	N/A	N/A	N/A	N/A	/
Waste / Chemical Management	N/A	N/A	N/A	N/A	N/A	/
Cultural Heritage	N/A	N/A	N/A	N/A	N/A	/
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 were 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

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:

- Open cut tunnel: General cleaning and defect rectification, SUA EVA construction.
- Cut and cover tunnel: General cleaning and defect rectification.
- Station: Installation of roof cladding and reflected ceiling at Entrance A, B & D, leveling to F.F.L in Area 3, installation of glass canopy at DEE & SEE, installation of aluminum fins and external cladding at NVS and SVS, and installation of metal screen wall at DEE and SEE.

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 fifty fifth monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during 1st December 2017 to 31st December 2017 in accordance with the EM&A Manual and the requirement under EP-438/2012/K.

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, notification of summons and prosecution were received during the reporting period.

The ET will keep tracking of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all the necessary mitigation measures.

9.2 Recommendations

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

Noise Impact

- N/A

Air Quality Impact

- Cover the open stockpiles with tarpaulin sheet to prevent dust generation.
- Increase the watering frequencies on the haul road to prevent dust generation.

Water Quality Impact

- N/A

Chemical Management

- N/A

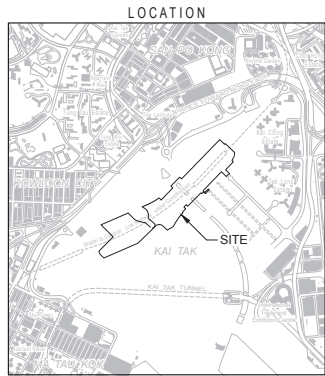
Waste Management

- N/A

Cultural Heritage

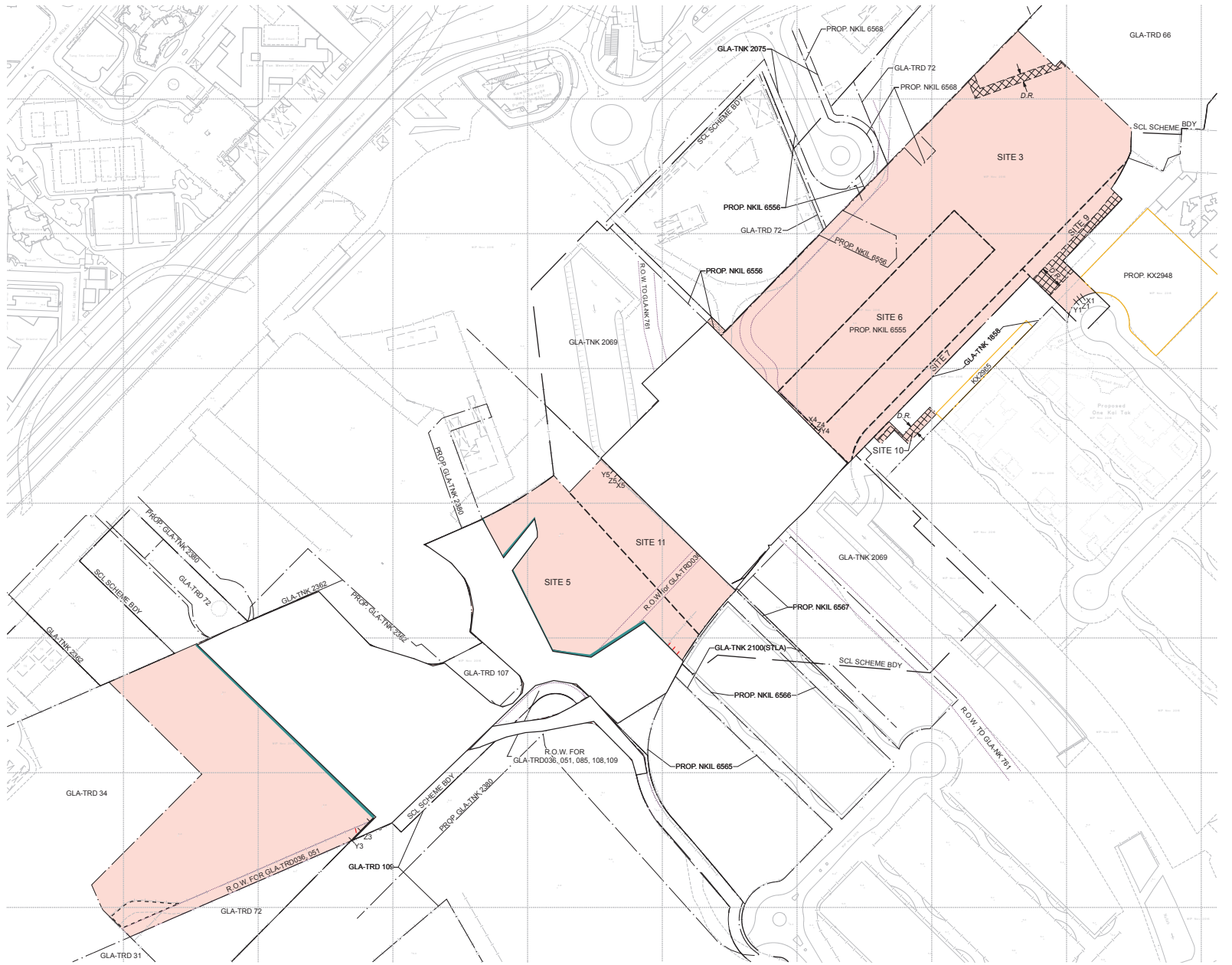
- N/A

Appendix A – Site Location Plan

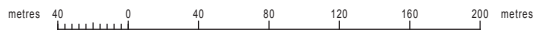


SCALE 1:20 000

 SCL Works Area



SCALE 1:2 000



SCL/P/SCL/MTR/P01/202F (MTRCL)
 SCL/P/SCL/MTR/P01/203C (MTRCL)
 SKETCH 620 (MTRCL)
 SK-259A (CEDD)
 SK-787 (MTRCL)

Appendix B – Construction Programme

Activity ID	Activity Name	Activity % Complete	Start	Finish	December				January				February				March				April	
					57				58				59				60				61	
					03	10	17	24	31	07	14	21	28	04	11	18	25	04	11	18	25	01
Contract 1108 Kai Tak Station and Associated Tunnels																						
Contractual Dates and Project Key Dates																						
Critical Dates																						
Schedule of Options																						
Latest Exercising Date																						
01108.CDO1a-ED	Option 1a - Temporary passenger access roads within KTD & EVA above KAT- Latest Exercising Date (31-Dec-15)	0%	31-Dec-17*																			
01108.CDO1b-ED	Option 1b - Temporary passenger access road to connect Entrance D - Latest Exercising Date (31-Dec-15)	0%	31-Dec-17*																			
01108.CDO2a-ED	Option 2a - Roads L9 & L16 & Associated Works, except the works in Options 2b & 2c - Latest Exercising Date (31-Mar-15)	0%	31-Dec-17*																			
01108.CDO2b-ED	Option 2b - Landscape hardwork, irrigation facilities, softworks & pavers - Latest Exercising Date (31-Mar-15)	0%	31-Dec-17*																			
01108.CDO2c-ED	Option 2c - Establishment works of the landscape softworks in Option 2b - Latest Exercising Date (31-Mar-15)	0%	31-Dec-17*																			
Specified Parts Completion of the Works (General Damages Applicable)																						
01108.CD3C	3C - Complete backfill of KAT station (Grid 12-19)&ready for EMSD/ DCScontractor for laying DCS pipe(Wk.09/15,01-Mar-15)	0%	31-Dec-17*																			
01108.CD3D	3D - Complete backfill to ex.ground level of necessary station area for CLP cable lead-in (Wk.33/15,16-Aug-15)	0%	02-Jan-18*																			
Specified Degrees of Completion (General Damages / * Liquidated Damages Applicable)																						
Structures																						
01108.CD4A3	4A3 - Deg3, KAT Platform level (Week No. 48/15, 29-Nov-15)	0%	05-Jan-18*																			
01108.CD4C1	4C1 - Deg1, KAT Entrances & Supplementary Emergency Entrance (Week No. 44/15, 01-Nov-15)	0%	09-Jan-18*																			
01108.CD4C2	4C2 - Deg2, KAT Entrances & Supplementary Emergency Entrance (Week No. 08/16, 28-Feb-16)	0%	26-Jan-18*																			
01108.CD4C3	4C3 - Deg3, KAT Entrances & Supplementary Emergency Entrance (Week No. 22/16, 05-Jun-16)	0%	02-Feb-18*																			
01108.CD4F2	4F2 - Deg2, Sung Wong Toi Emergency Egress Point (Week No. 39/15, 27-Sep15)	0%	05-Feb-18*																			
01108.CD4B2	4B2 - Deg2, KAT Concourse level, exclude 4G (Week No. 52/15, 27-Dec-15)	0%	01-Mar-18*																			
01108.CD4B3	4B3 - Deg3, KAT Concourse level, exclude 4G (Week No. 20/16, 22-May-16)	0%	01-Mar-18*																			
Trackwork Accesses																						
01108.CD4J1	4J1 - Deg1, Trackwork Access - Down Track Tunnel- CH.D99275.225~D99175.225 (Wk.No.08/16, 28-Feb-16)	0%	29-Jan-18*																			
01108.CD4K1	4K1 - Deg1, Trackwork Access - Up Track Tunnel- CH.D99257.140~U99157.140 (Wk.No.08/16, 28-Feb-16)	0%	29-Jan-18*																			
IPS Milestone Dates																						
Cost Centre B - Kai Tak Station, Entrances and Adits																						
01108.MSB09	B9 - All floor, wall & ceiling finishes to all area on Concourse Level completed (Week No. 52/15, 27-Dec-15)	0%	26-Jan-18																			
01108.MSB10	B10 - All floor, wall & ceiling finishes to all area on Above-Ground Level completed (Week No. 08/16, 28-Feb-16)	0%	26-Jan-18																			
Cost Centre D - Associated Works																						
01108.MSD020	D2 - Complete External Drainage (Week No. 52/15, 27-Dec-15)	0%	10-Jan-18																			
Cost Centre F - Option 2 - CEDD Works for Roads L9 & L16 and Associated Works																						
01108.MSF01	F1 - Contractor's dwgs submission schedule & All permanent works Material Control Schedule approved (WN.33/15,16-Aug-15)	0%	05-Feb-18																			
01108.MSF02	F2 - Shop drawings & material submissions approved (Week No. 50/15, 13-Dec-15)	0%	15-Mar-18																			
Schedule of Access & Vacate Dates for Works Areas																						
Vacation Dates																						
Works Areas																						
01108.VAWA1	Works Area 1108.A1 (31-Dec-16)	0%	02-Jan-18*																			
01108.VAW13	Works Area 1108.W13 (25-Aug-17)	0%	02-Jan-18*																			
01108.VAWA2	Works Area 1108.A2 (31-Dec-16)	0%	02-Jan-18*																			
01108.VAWA3	Works Area 1108.A3 (31-Dec-14)	0%	03-Jan-18*																			
Schedule of Access Dates for Designated Contractors																						
DC 1159 Lifts & DC 1172 Escalator																						
01108.IF1172.2	DC1172 Escalator - KAT - Concourse Station Computer Room, SCR (Week No. 53/15, 04-Jan-16)	0%	02-Mar-18*																			
Various Systems - DC1152, DC1153, DC1154, DC1155, DC1166, DC1169A, DC1162A & DC1163																						
01108.IF1155.2	DC1155 PSS&TA - KAT Station - All lift shafts (platform to concours) (Week No. 08/16, 29-Feb-16)	0%	04-Jan-18*																			
01108.IF1166	DC1166 MCS - KAT - SCR, SCPR (Week No. 17/16, 02-May-16)	0%	03-Feb-18*																			
01108.IF1169A	DC1166A Comm.Systems-SCLPhase1-KAT-Ticket M.Rm, AFCGate,PL,CL,MCL,All entrances,SCR,TER,CTR,CTER (Wk.No.17/16,02-May)	0%	03-Feb-18*																			
A - Preliminaries																						
B - Kai Tak Station, Entrances and Adits																						
B1 KAT Station																						
B1.3 Station - U/G C&S Works (Below Concourse Level Soffit)																						
Metalworks, BWIC with Services and BS Works																						
01108.STN.BW12-24	GL 12~24 BWIC and BS works	99%	28-Feb-15 A	02-Jan-18																		

▲ Milestone	— RMP Rev F
▲ Critical Milestone	▨ Last Report
▨ Critical Remaining Work	▬ Actual Work
▨ Remaining Work	
▨ Remaining Level of Effort	

Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (Dec 2017)

1 of 4




Kaden – Chun Wo Joint Venture

Activity ID	Activity Name	Activity % Complete	Start	Finish	December				January				February				March				April	
					57				58				59				60				61	
					03	10	17	24	31	07	14	21	28	04	11	18	25	04	11	18	25	01
01108.STN.BW00-04	GL 00-04 BWIC and BS works	99%	28-Feb-15 A	02-Jan-18																		
01108.STN.BW04-12	GL 04~12 BWIC and BS works	99%	28-Feb-15 A	02-Jan-18																		
B1.4 Station U/G C&S Works (Concourse Level and Above)																						
Backfilling																						
Backfilling to Finish Ground Level																						
01108.MSB07bP	Completion of Station backfill and compaction for outside works - Programmed	0%		02-Jan-18																		
01108.CD3DP	Completion of Station backfill to ex. ground level of necessary atation for CLP cable lead-in - Programmed	0%		02-Jan-18																		
Water Tanks & CLP Transformer Rooms																						
CLP Transformer Rooms																						
01108.STN.CP215	CLP Transformer Rooms Dedicated Access 2 - AWBF Works	95%	23-Feb-16 A	03-Jan-18																		
01108.STN.CP115	CLP Transformer Rooms Dedicated Access 2 - BS Works	80%	31-Oct-17 A	08-Jan-18																		
CLP Interface Works																						
01108.STN.CP620	CLP Transformer Rooms 1~2 - Installation Works (By CLP)	0%	14-Mar-16 A	15-Mar-18																		
Metalworks, BWIC with Services and BS Works																						
01108.STN.BW120	KAT Concourse level - BWIC with services	98%	15-Jul-15 A	02-Jan-18																		
01108.STN.BW130	KAT Concourse level - BS works	98%	15-Jul-15 A	02-Jan-18																		
01108.STN.BW220	KAT Concourse level - BWIC with services	98%	15-Jul-15 A	02-Jan-18																		
01108.STN.BW230	KAT Concourse level - BS works	98%	15-Jul-15 A	02-Jan-18																		
B1.5 Station - A/G C&S Works (Vent Shaft)																						
Souther Vent Shaft																						
01108.STN.SS030	Drainage	96%	04-Dec-15 A	02-Jan-18																		
B1.6 Station - Station - A/G C&S Works (Entrance D & DEE)																						
Entrance D																						
01108.STN.ED040	Metal works	85%	01-Sep-17 A	11-Jan-18																		
Designated Emergency Entrance (DEE)																						
01108.STN.DE030	Drainage	85%	31-Aug-17 A	04-Jan-18																		
B1.7 Station - ABWF Works (Below Concourse Level Soffit)																						
ABWF Works - Degree 1 of Completion																						
01108.STN.CD4A1P3a	KAT Platform level - GL 4~1 Degree 1 of completion - Blockwork, partition wall, plastering, finish, staircase, etc.	99%	28-Feb-15 A	02-Jan-18																		
ABWF Works - Degree 2 of Completion																						
01108.STN.CD4A2P3a	KAT Platform level - GL 4~1 Degree 2 of completeion - Door,wall&ceiling frame/support, strut. steel, finish, fixture, etc	99%	02-Jun-15 A	02-Jan-18																		
01108.STN.CD4A2P2a	KAT Platform level - GL 12~4 Degree 2 of completeion - Door frame, m. staircase, strut. steel, fixture, etc.	99%	03-Aug-15 A	02-Jan-18																		
01108.STN.CD4A2P1a	KAT Platform level - GL 24~12 Degree 2 of completeion - Door frame, m. staircase, strut .steel, fixture, etc	99%	03-Aug-15 A	02-Jan-18																		
01108.CD4A2P	KAT Platform level - Degree 2 of completion (Week No. 33/15, 16-Aug-15) - Programmed	0%		02-Jan-18																		
ABWF Works - Degree 3 of Completion																						
01108.STN.CD4A3P1a	KAT Platform level GL 24~12 Degree 3 of completeion - Int.&ext. to ceiling/ wall/ floor finish, incl.lift lobby, etc.	96%	03-Oct-15 A	03-Jan-18																		
01108.STN.CD4A3P2a	KAT Platform level GL 12~4 Degree 3 of completeion - Int.&ext. to ceiling/ wall/ floor finish, incl.lift lobby, etc.	96%	07-Oct-15 A	03-Jan-18																		
01108.STN.CD4A3P3a	KAT Platform level GL 4~1 Degree 3 of completion - Int&ext. to ceiling/ wall/ floor finish, incl.lift lobby, tc.	95%	11-Nov-15 A	05-Jan-18																		
01108.STN.CD4A3P1b	KAT Platform level GL 24~12 Degree 3 of completeion - Glazing, permanent door, ironmongery, etc.	93%	29-Aug-16 A	05-Jan-18																		
01108.STN.CD4A3P2b	KAT Platform level GL 12~4 Degree 3 of completeion - Glazing, permanent doors, ironmongery, etc.	93%	29-Aug-16 A	05-Jan-18																		
01108.CD4A3P	KAT Platform level - Degree 3 of completion (Week No. 48/15, 29-Nov-15) - Programmed	0%		05-Jan-18																		
B1.8 Station - ABWF Works (Concourse Level and Above)																						
ABWF Works - Degree 1 of Completion																						
01108.STN.CD4B1P1a	KAT Concourse level, exclude 4G - GL 24~12 Degree 1 of completion - Blockwork, partition wall, plastering, etc.	99%	10-Feb-15 A	02-Jan-18																		
01108.STN.CD4B1P2a	KAT Concourse level, exclude 4G - GL 12~4 Degree 1 of completion - Blockwork, partition wall, plastering, etc.	99%	10-Feb-15 A	02-Jan-18																		
01108.STN.CD4B1P3a	KAT Concourse level, exclude 4G - GL 4~1 Degree 1 of completion - Blockwork, part.wall, plastering, finish, staircase, etc	99%	03-Oct-15 A	02-Jan-18																		
01108.STN.CD4B1P2b	KAT Concourse level, exclude 4G - GL 12~4 Degree 1 of completion - E&M opening, finish, staircase, shaft&pit, etc.	99%	17-May-16 A	02-Jan-18																		
01108.STN.CD4B1P1b	KAT Concourse level, exclude 4G - GL 24~12 Degree 1 of completion - E&M opening, finish, staircase, shaft&pit, etc.	99%	17-May-16 A	02-Jan-18																		
01108.CD4B1P	KAT Concourse level, exclude 4G - Degree 1 of completion (Week No. 36/15, 06-Sep-15) - Programmed	0%		02-Jan-18																		
ABWF Works - Degree 2 of Completion																						
01108.STN.CD4B2P2a	KAT Concourse level, exclude 4G - GL 12~4 Degree 2 of completeion - Blockwall, partition wall, plastering, etc.	99%	22-Sep-15 A	02-Jan-18																		
01108.STN.CD4B2P1a	KAT Concourse level, exclude 4G - GL 24~12 Degree 2 of completeion - Blockwork, partition wall, plastering, etc.	99%	22-Sep-15 A	02-Jan-18																		
01108.STN.CD4B2P3a	KAT Concourse level, exclude 4G - GL 4~1 Degree 2 of completeion - Blockwork, p.wall, platering, finish, staircase, etc.	99%	20-Oct-15 A	02-Jan-18																		
01108.STN.CD4B2P3b	KAT Concourse level, exclude 4G - GL 4~1 Degree 2 of completeion - E&M opening, finish, staircase, shaft&pit, etc.	95%	20-Jun-16 A	04-Jan-18																		
01108.STN.CD4B2P1b	KAT Concourse level, exclude 4G - GL 24~12 Degree 2 of completeion - E&M opening, finish, staircase, shaft&pit, etc.	95%	20-Jun-16 A	04-Jan-18																		
01108.STN.CD4B2P2b	KAT Concourse level, exclude 4G - GL 12~4 Degree 2 of completeion - E&M opening, finish, staircase, shaft&pit, etc.	95%	20-Jun-16 A	04-Jan-18																		
01108.CD4B2P	KAT Concourse level, exclude 4G - Degree 2 of completion (Week No. 52/15, 27-Dec-15) - Programmed	0%		04-Jan-18																		

▲ Milestone
 ▲ Critical Milestone
 ■ Critical Remaining Work
 ■ Remaining Work
 ■ Remaining Level of Effort
 — RMP Rev F
 — Last Report
 ■ Actual Work

Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (Dec 2017)



Kaden – Chun Wo Joint Venture

Activity ID	Activity Name	Activity % Complete	Start	Finish	December				January				February				March				April	
					57				58				59				60				61	
					03	10	17	24	31	07	14	21	28	04	11	18	25	04	11	18	25	01
ABWF Works - Degree 3 of Completion																						
01108.STN.CD4B3P2a	KAT Concourse level, exclude 4G - GL 12~4 Degree 3 of completion - Int.&ext. to ceiling/wall/floor finish, lobby, etc.	98%	20-Oct-15 A	03-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.CD4B3P3a	KAT Concourse level, exclude 4G - GL 4~1 Degree 3 of completion - Int.&ext. to ceiling/wall/floor finish, lobby, etc.	97%	20-Oct-15 A	03-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.CD4B3P1a	KAT Concourse level, exclude 4G - GL 24~12 Degree 3 of completion - Int.&ext. to ceiling/wall/floor finish, lobby, etc.	98%	20-Oct-15 A	03-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.CD4B3P1b	KAT Concourse level, exclude 4G - GL 24~12 Degree 3 of completion - Glazing, permanent door, ironmongery, etc.	95%	18-Apr-16 A	04-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.CD4B3P2b	KAT Concourse level, exclude 4G - GL 12~4 Degree 3 of completion - Glazing, permanent door, ironmongery, etc.	95%	18-Apr-16 A	04-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.CD4B3P3b	KAT Concourse level, exclude 4G - GL 4~1 Degree 3 of completion - Glazing, permanent door, ironmongery, etc.	95%	18-Apr-16 A	04-Jan-18	[Actual Work]				[Remaining Work]													
01108.CD4B3P	KAT Concourse level, exclude 4G - Degree 3 of Completion (Week No. 22/16, 22-may-16) - Programmed	0%		01-Mar-18									[Milestone]									
B1.9 Station- ABWF Works (A/G Vent Shaft)																						
01108.STN.VS120	Wall finishes	93%	25-Apr-16 A	06-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.VS140	External wall finishes	95%	13-Jun-16 A	04-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.VS110	Floor finishes	85%	28-Mar-17 A	13-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.VS160	Metal works and architectural elements	80%	13-Apr-17 A	17-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.VS130	Ceiling finishes	85%	31-May-17 A	13-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.VS150	External roof finishes	85%	08-Jul-17 A	11-Jan-18	[Actual Work]				[Remaining Work]													
B1.10 Station - ABWF (A/G Entrance D & DEE)																						
01108.STN.DE060	Lift - ABWF Works	70%	31-Oct-17 A	22-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.ED060	Escalators - ABWF Works	40%	01-Nov-17 A	12-Feb-18	[Actual Work]				[Remaining Work]													
01108.STN.DE070	E&M Works for Lift installation	20%	30-Nov-17 A	01-Mar-18	[Actual Work]				[Remaining Work]													
01108.STN.ED070	E&M Works for Escalators installation	0%	02-Jan-18	15-Mar-18	[Actual Work]				[Remaining Work]													
01108.IF1184	DC1172 Station Escalators & All Entrances (21-Dec-15) - Programmed	0%		15-Mar-18									[Milestone]									
B2 Entrance A, Adit & SEE																						
B2.2 Entrance A, Adit & SEE - C&S Works																						
Entrance A, Adit and SEE																						
01108.STN.PF610	Backfill and compaction, 3165 m3 for Adit & See	98%	01-Apr-16 A	02-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.PF600	Backfill and compaction, 3165 m3 for Entrance A	98%	01-Apr-16 A	02-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.EA100	Drainage for Adit & See	85%	07-Apr-17 A	08-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.EA90	Metal works and finishes for Adit & See	80%	31-Aug-17 A	17-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.EA030	Drainage for Entrance A	80%	31-Aug-17 A	09-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.EA040	Metal works and finishes for Entrance A	80%	31-Aug-17 A	12-Jan-18	[Actual Work]				[Remaining Work]													
B2.3 Entrance A, Adit & SEE - ABWF Works																						
Entrance A, Adit and SEE																						
01108.STN.EA050	ABWF Works	95%	31-May-16 A	05-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.EA070	E&M Works for Escalators installation	0%	18-Jan-18	19-Apr-18	[Actual Work]				[Remaining Work]													
KAT Entrances & SEE ABWF																						
01108.STN.CD4C1	KAT Entrances & SEE - Works for Degree 1 of completion	95%	14-Sep-16 A	05-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.CD4C2	KAT Entrances & SEE - Works for Degree 2 of completion	80%	04-May-17 A	17-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.CD4C3	KAT Entrances & SEE - Works for Degree 3 of completion	60%	27-Oct-17 A	02-Feb-18	[Actual Work]				[Remaining Work]													
01108.CD4C1P	KAT Entrances & SEE - Degree 1 of Completion (01-Nov-15) - Programmed	0%		09-Jan-18					[Milestone]													
01108.CD4C2P	KAT Entrances & SEE - Degree 2 of Completion (28-Feb-16) - Programmed	0%		17-Jan-18					[Milestone]													
01108.CD2BP	Complete works at Works Area 1108.W1 & ready for handover	0%		02-Feb-18					[Milestone]													
01108.CD4C3P	KAT Entrances & SEE - Degree 3 of Completion (01-Aug-16) - Programmed	0%		02-Feb-18					[Milestone]													
01108.IF1159P	DC1159 Lifts - KAT Station - All lift shats (Entrance) (01-Aug-16) - Programmed	0%		01-Mar-18					[Milestone]													
B3 Entrance B and Adit																						
B3.1 Entrance B and Adit - C&S Works																						
Entrance B and Adit																						
01108.STN.EB050	Drainage	85%	10-Apr-17 A	06-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.EB060	Metal works and finishes	70%	19-Sep-17 A	26-Jan-18	[Actual Work]				[Remaining Work]													
B3.2 Entrance B and Adit - ABWF Works																						
Entrance B and Adit																						
01108.STN.EB110	ABWF Works	95%	04-Jan-16 A	04-Jan-18	[Actual Work]				[Remaining Work]													
01108.STN.EB120	E&M Works for Escalators installation	20%	20-Nov-17 A	01-Mar-18	[Actual Work]				[Remaining Work]													
C - South Approach Tunnel																						
D - Associated Works																						
D2 Drainage																						

	Milestone		RMP Rev F
	Critical Milestone		Last Report
	Critical Remaining Work		Actual Work
	Remaining Work		
	Remaining Level of Effort		

Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (Dec 2017)



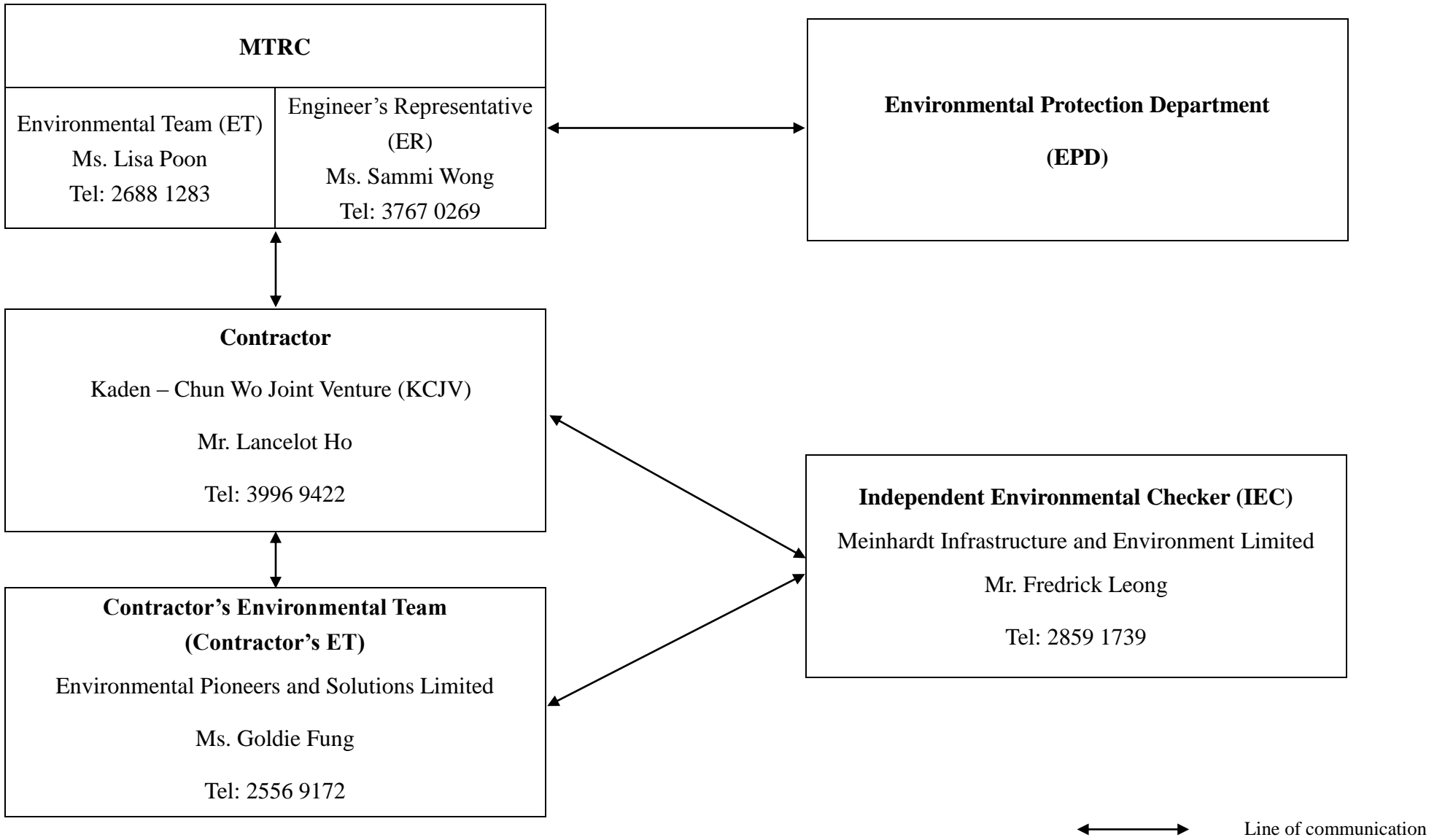
Activity ID	Activity Name	Activity % Complete	Start	Finish	December				January				February				March				April	
					57				58				59				60				61	
					03	10	17	24	31	07	14	21	28	04	11	18	25	04	11	18	25	01
Sewerage and Stormwater																						
01108.AWD.S010	Storm sewer, S1.2~S1.3~S1.6, S1.4~S1.3, S2.1~S2.4~S1.6; DP-7~S2.4: 633m, 10 nr. MH	95%	15-Dec-15 A	08-Jan-18	[Actual Work]				[Critical Remaining Work]													
01108.AWD.F010	Foul sewer, F1.3~F1.4~MH10, F1.7~F.14: 180m, 6 nr. MH	95%	15-Dec-15 A	04-Jan-18	[Actual Work]				[Critical Remaining Work]													
01108.AWD.S020	Storm sewer, S1.1~S1.2: 35m, 1 nr. MH	90%	15-Nov-16 A	03-Jan-18	[Actual Work]				[Critical Remaining Work]													
01108.AWD.C010	U-channels, 197 m straight, 24 m curved	75%	03-Jul-17 A	10-Jan-18	[Actual Work]				[Critical Remaining Work]													
D3 Instrumentation and Monitoring																						
Instrumentation Installation and Monitoring																						
01108.AWM.0030	Regular Monitorings and Submit Monitoring Reports (weekly for 50 months)	99%	01-Aug-13 A	14-Jan-18	[Actual Work]				[Critical Remaining Work]													
D4 Landscape																						
External Road and Paving																						
01108.AWR.0010	Filling to road formation level, 5430 m3	60%	20-Nov-17 A	30-Jan-18	[Actual Work]				[Critical Remaining Work]													
01108.AWR.0020	Kerb foundation, concrete kerbs & edgings, 830 m	50%	12-Dec-17 A	06-Feb-18	[Actual Work]				[Critical Remaining Work]													
01108.AWR.0030	Type 1 granular sub-base, road base, sand base, geotextile soil & coping layer, 2537 m2	30%	05-Jan-18 A	28-Feb-18	[Actual Work]				[Critical Remaining Work]													
01108.AWR.0040	Recycle aggregate concrete blocks, heavy duty 2537 m2 & light duty 84 m2	0%	26-Jan-18	16-Apr-18	[Actual Work]				[Critical Remaining Work]													
01108.AWR.0050	Chainlink fence, 1747 m; traffic signs, 33 nr.; manholes & utilities pits frames & covers, etc.	0%	06-Mar-18	23-May-18	[Actual Work]				[Critical Remaining Work]													
D5 Utilities Diversion																						
Diversion of Existing Nullah																						
Temporary Works & Hydraulic Assessment																						
01108.AWD.DNA1.3	KTND Hydraulic Assessment - No-adverse-comment by DSD	98%	08-Aug-13 A	02-Jan-18	[Actual Work]				[Critical Remaining Work]													
01108.AWD.DN09.5.3	KTND Temporary Channel - Design - No-adverse-comment by DSD & RDO/BD/GEO	98%	16-Jan-14 A	02-Jan-18	[Actual Work]				[Critical Remaining Work]													
E Option 1 SCL Works																						
Option 1a Temp. Passenger Access Roads connecting Station Entrances with Carriageways																						
Preliminaries																						
01108.O1A.PRE.010	Submission of drawings & permanent works material control schedules & Approval	60%	31-Aug-17 A	12-Jan-18	[Actual Work]				[Critical Remaining Work]													
01108.O1A.PRE.020	Submission of shop drawings & materials & Approval	50%	28-Sep-17 A	15-Jan-18	[Actual Work]				[Critical Remaining Work]													
Temporary Passenage Access Road ER3, 4, 5, 7 & 8																						
01108.O1A.TPA.010	Formation leveling, 2280 m2	60%	31-Aug-17 A	03-Feb-18	[Actual Work]				[Critical Remaining Work]													
01108.O1A.TPA.020	Kerb foundation, concrete kerbs & edgings, 976 m	30%	30-Sep-17 A	05-Mar-18	[Actual Work]				[Critical Remaining Work]													
01108.O1A.TPA.030	Type 1 granular sub-base, sand base, geotextile soil & coping layer, 2280 m2	20%	31-Oct-17 A	13-Mar-18	[Actual Work]				[Critical Remaining Work]													
01108.O1A.TPA.040	Recycle aggregate concrete blocks, 2280 m2	0%	16-Jan-18	29-Mar-18	[Actual Work]				[Critical Remaining Work]													
01108.O1A.TPA.050	Chain link fence & 1m r/c concrete footing, 976m, & temporary lighting and testing	0%	02-Feb-18	20-Apr-18	[Actual Work]				[Critical Remaining Work]													
Option 1b Temp. Passenger Access Roads connecting Entrance D with Pedestrian Strip																						
Temporary Passenage Acces Road ER6																						
01108.O1B.TPA.010	Formation leveling, 2343 m2	80%	07-Oct-17 A	18-Jan-18	[Actual Work]				[Critical Remaining Work]													
01108.O1B.TPA.020	Kerb foundation, concrete kerbs & edgings, 368 m	50%	31-Oct-17 A	12-Feb-18	[Actual Work]				[Critical Remaining Work]													
01108.O1B.TPA.030	Type 1 granular sub-base, sand base, geotextile soil & coping layer, 2343 m2	30%	30-Nov-17 A	05-Mar-18	[Actual Work]				[Critical Remaining Work]													
01108.CDO1B.EDP	Option 1b SCL Works - Temp. Passenger Access Road - Latest Exercinsg Date (31-Dec-15)	0%	31-Dec-17		[Actual Work]				[Critical Remaining Work]													
01108.O1B.TPA.040	Recycle aggregate concrete blocks, 2343 m2	0%	02-Jan-18	29-Mar-18	[Actual Work]				[Critical Remaining Work]													
01108.O1B.TPA.050	Chain link fence & 1m r/c concrete footing, 368m, & temporary lighting and testing	0%	30-Jan-18	02-May-18	[Actual Work]				[Critical Remaining Work]													
F Option 2 CEDD Entrusted Works for Roads L9 & L16 & Associated Works																						
G Option 3 CEDD Entrusted Works for Reconstruction of Kai Tak Nullah																						

▲ Milestone	— RMP Rev F
▲ Critical Milestone	— Last Report
█ Critical Remaining Work	█ Actual Work
█ Remaining Work	
█ Remaining Level of Effort	

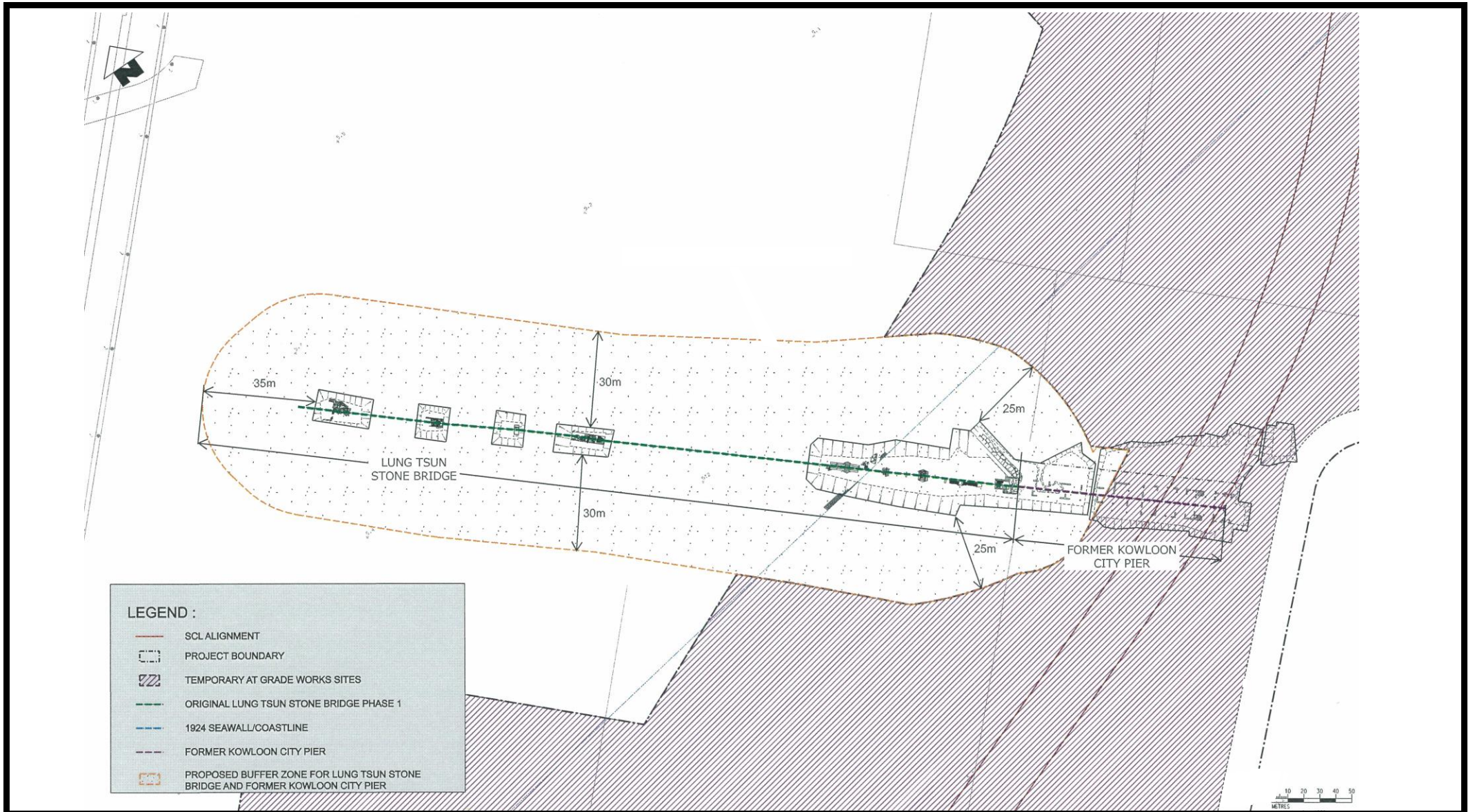
Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (Dec 2017)



Appendix C –Project Organization Chart & Contact Details



***Appendix D – Buffer Zone for Lung Tsun Stone Bridge & Former
Kowloon City Pier***



Project Title
工程名稱

Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section(TAW-HUH)
沙田至中環綫 - 大圍至紅磡段

Environmental Permit No.: EP-438/2012/H
環境許可證編號：EP-438/2012/H

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 2017 (year)

Month	<u>Actual Quantities of Inert C&D Materials Generated Monthly</u>						<u>Actual Quantities of Non-inert C&D Materials Generated Monthly</u>				
	Total Quantity Generated/ Received	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.064	0.001	0.000	0.263
Feb	0.093	0.000	0.093	0.000	0.000	0.000	0.000	0.071	0.001	0.000	0.074
Mar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.000	0.000	0.104
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.074	0.000	0.000	0.085
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060	0.000	0.000	0.146
Jun	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.070	0.000	0.000	0.070
Sub-total	0.093	0.000	0.093	0.000	0.000	0.000	0.000	0.419	0.002	0.000	0.742
July	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.085	0.000	0.000	0.095
August	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.079	0.000	0.000	0.132
September	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.081	0.000	0.000	0.081
October	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.075	0.000	0.000	0.043
November	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.078	0.000	0.000	0.051
December	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.071	0.000	0.000	0.073
Total	0.093	0.000	0.093	0.000	0.000	0.000	0.000	0.888	0.002	0.000	1.217
Year 2016	915.150	0.000	915.150	0.000	0.000		66.004	0.927	0.008	1.000	1.742
Year 2015	368.534	0.000	322.676	0.000	45.857		208.770	1.042	0.163	1.280	2.171
Year 2014	311.876	0.000	39.476	0.000	272.400		103.280	0.855	0.056	1.540	1.484
Year 2013	144.512	0.000	0.000	0.000	144.512		93.330	0.030	0.000	0.480	2.568
Grand Total	1740.165	0.000	1277.395	0.000	462.769		471.384	3.742	0.229	4.300	9.182

Notes: * MTR SCL Contract 1108A barging point.

Government (CEDD) Public Fill Reception Facilities

Monthly Summary Waste Flow Table for 2017 (year)

Month	<u>Actual Quantities of Inert C&D Materials Generated Monthly</u>						<u>Actual Quantities of Non-inert C&D Materials Generated Monthly</u>				
	Total Quantity Generated/ Received	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.064	0.001	0.000	0.263
Feb	0.093	0.000	0.093	0.000	0.000	0.000	0.000	0.071	0.001	0.000	0.074
Mar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.080	0.000	0.000	0.104
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.074	0.000	0.000	0.085
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060	0.000	0.000	0.146
Jun	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.070	0.000	0.000	0.070
Sub-total	0.093	0.000	0.093	0.000	0.000	0.000	0.000	0.419	0.002	0.000	0.742
July	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.085	0.000	0.000	0.095
August	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.079	0.000	0.000	0.132
September	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.081	0.000	0.000	0.081
October	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.075	0.000	0.000	0.043
November	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.078	0.000	0.000	0.051
December	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.071	0.000	0.000	0.073
Total	0.093	0.000	0.093	0.000	0.000	0.000	0.000	0.888	0.002	0.000	1.217
Year 2016	915.150	0.000	915.150	0.000	0.000		66.004	0.927	0.008	1.000	1.742
Year 2015	368.534	0.000	322.676	0.000	45.857		208.770	1.042	0.163	1.280	2.171
Year 2014	311.876	0.000	39.476	0.000	272.400		103.280	0.855	0.056	1.540	1.484
Year 2013	144.512	0.000	0.000	0.000	144.512		93.330	0.030	0.000	0.480	2.568
Grand Total	1740.165	0.000	1277.395	0.000	462.769		471.384	3.742	0.229	4.300	9.182

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	✓
-	-	Adopt best management practices.	-	MTR Corporation Contractor	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>	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
		<ul style="list-style-type: none"> <li data-bbox="365 379 1099 603">• 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. <li data-bbox="365 667 1099 1082"> <p data-bbox="427 667 611 691"><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> <li data-bbox="365 715 1099 1082">• 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. <li data-bbox="365 1153 1099 1417"> <p data-bbox="427 1153 707 1177"><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> <li data-bbox="365 1201 1099 1417">• 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 					<ul style="list-style-type: none"> <li data-bbox="1946 379 2136 707">✓ <li data-bbox="1946 715 2136 1137">✓ <li data-bbox="1946 1145 2136 1417">✓

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>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, 					✓
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. <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. 	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and construction stage	<p>✓</p> <p>✓</p> <p>N/A</p>

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>Air Quality (Construction Phase)</i>							
/	A1	<u>Emission from Vehicles and Plants</u> <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	✓ ✓ ✓
/	A2	Open burning shall be prohibited.	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	✓
<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	✓
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 	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>within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</p> <ul style="list-style-type: none"> • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry 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 					<p>✓</p> <p>✓</p> <p>N/A</p> <p>✓</p> <p>✓</p> <p>✓</p>

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>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</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 construction site or part of the construction site where the exposed earth lies. 					N/A
Construction Noise (Airborne)							
S8.3.6	N1	<p>Implement the following good site practices:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from 	Control construction airborne noise	Contractor	All construction sites	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p>

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
		nearby NSRs; <ul style="list-style-type: none"> • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 					✓ ✓ ✓
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	✓
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	✓
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	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
			noise				
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 	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	<p>✓</p> <p>✓</p>

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>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. • All drainage facilities and erosion and sediment control structures 					<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>

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 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.</p> <ul style="list-style-type: none"> • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are 					<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>

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

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>collected, handled and disposed of properly to avoid water quality impacts.</p> <ul style="list-style-type: none"> • 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>
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. 	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p>

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"> 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. 					✓
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	✓
S10.7.1	W4	<u>Groundwater from Contaminated Area:</u> <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 	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found	Construction stage	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>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.</p> <ul style="list-style-type: none"> • If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers. • If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality 					<p>N/A</p> <p>N/A</p>

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>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 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p>

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
		Waste) (General) Regulation.					
<i>Waste Management (Construction Waste)</i>							
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 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 	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
		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 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. 	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	✓ ✓ ✓ ✓ ✓ ✓
S11.5.1	WM3	<u>C&D Waste</u>	Good site practice to	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
		<ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal			stage	<ul style="list-style-type: none"> ✓ ✓
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 	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"> ✓ ✓

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>construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</p> <ul style="list-style-type: none"> • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 					<p>✓</p> <p>✓</p>
S11.5.1	WM6	<p><u>Land-based and Marine-based Sediment</u></p> <ul style="list-style-type: none"> • All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location; • All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be 	To control pollution due to marine sediment	Contractor	Within Project Site Area	Construction Stage	<p>✓</p> <p>N/A</p> <p>N/A</p>

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>dumped into the sea except at the approved locations;</p> <ul style="list-style-type: none"> • Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action. • The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers; • The Contractors shall comply with the conditions in the dumping licence. • All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material; • The material shall be placed into the disposal pit by bottom dumping; • Contaminated marine mud shall be transported by spit barge of not less 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 					<p>N/A</p> <p>N/A</p> <p>✓</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

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>closed until the barge returns to the disposal site.</p> <ul style="list-style-type: none"> 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. 					N/A
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 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p>

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>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.</p> <ul style="list-style-type: none"> Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 					✓
EM&A Project							
S14.2 – 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	✓ ✓ ✓

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 2017	0	0	0	0
February 2017	0	0	1	0
March 2017	0	0	0	0
April 2017	0	0	0	0
May 2017	0	0	0	0
June 2017	0	0	0	0
July 2017	0	0	0	0
August 2017	0	0	0	0
September 2017	0	0	0	0
October 2017	0	0	0	0
November 2017	0	0	0	1
December 2017	0	0	0	0
Total	0	0	1	1
Year 2013	0	0	0	0
Year 2014	0	0	0	0
Year 2015	0	16	0	0
Year 2016	0	9	1	0
Grand Total	0	25	2	1

Appendix H

**51st Monthly EM&A Report for Works Contract 1102 –
Hin Keng Station and Approach Structures**

MTR Corporation Limited

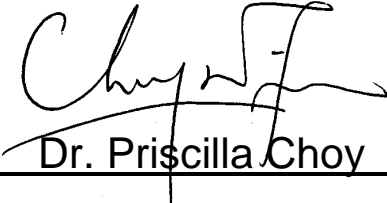
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 51

[Period from 1 to 31 December 2017]

Works Contract 1102 –
Hin Keng Station and Approach Structures

(January 2018)

Certified by: 
_____ Dr. Priscilla Choy

Position: _____ Environmental Team Leader

Date: _____ 11th January 2018

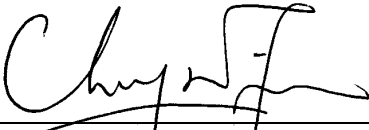
Penta-Ocean Construction Co. Ltd.

**Shatin to Central Link –
Contract 1102
Hin Keng Station and Approach
Structures**

**Monthly Environmental Monitoring
and Audit Report**

(Version 1.0)

December 2017

Approved By	 _____ (Contractor's Environmental Team Leader)
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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
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	Log and Cumulative Summary Table for Complaints, Notifications of Summons and Successful Prosecutions

EXECUTIVE SUMMARY**Introduction**

1. This is the 51th 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 December 2017.

Summary of Construction Works undertaken during the Reporting Month

2. The major site activities undertaken in the reporting month include:
 - Soft Landscaping;
 - ABWF works at Hin Keng Station;
 - Modification of Retaining Wall and Installation of Noise Barrier;
 - Hard Landscape;
 - E&M Works; and
 - Backfilling Works

Environmental Monitoring and Audit Progress

3. A summary of the monitoring activities in this reporting period is listed below and the monitoring works were undertaken by Contractor ET of Works Contract SCL 1103:

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours
Noise Monitoring Station ID
 - NMS-CA-1⁽¹⁾ (C.U.H.K.A.A Thomas Cheung School) 5 times
- Construction Dust (24-hour TSP) Monitoring
Dust Monitoring Station ID
 - DMS-1⁽¹⁾ (C.U.H.K.A.A Thomas Cheung School) 5 times

Remarks:

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

Waste Management

4. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 65.0 m³ of inert C&D materials were generated from the Project and sent to Tuen Mun Area 38 Fill Bank and Tseung Kwan O Area 137 Fill Bank during the reporting month. No non-recyclable non-inert C&D materials and 63.1 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 inspections of the implementation of landscape and visual mitigation measures were conducted on 5 and 19 December 2017. 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 7, 12 and 21 December 2017. The representative of the IEC joined the site inspection on 21 December 2017. 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 public complaint referred from Environmental Protection Department (EPD) was received in this reporting period.

Future Key Issues

11. Major site activities for the coming reporting month will include:
 - Soft Landscaping;
 - ABWF works at Hin Keng Station;
 - Modification of Retaining Wall and Installation of Noise Barrier;
 - Hard Landscape;
 - E&M Works;
 - Artificial Granite Tile Laying; and
 - Backfilling Works.

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 51th 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 December 2017.

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**.
- Soft Landscaping;
 - ABWF works at Hin Keng Station;
 - Modification of Retaining Wall and Installation of Noise Barrier;
 - Hard Landscape;
 - E&M Works; and
 - Backfilling Works.

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/K	4/10/2016	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	03/9/2013	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-RN0407-17	30/6/2017	29/12/2017	Cancelled with effect from 6 Nov 2017
GW-RN0699-17	6/11/2017	24/4/2018	Valid
GW-RN0711-17	6/11/2017	24/4/2018	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 (November 2017)	14 December 2017

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 5 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays during the reporting period by ET of SCL 1103. No exceedance of the limit level was recorded at designated monitoring station.
- 5.2 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.3 The detailed noise monitoring results together with their graphical presentations are presented in Appendix H of SCL 1103 monthly EM&A report.

Table 5.1 Summary Table of Construction Noise Monitoring Results

Parameter	Minimum Leq(30min), dB(A)	Maximum Leq(30min), dB(A)	Action Level	Limit Level, Leq(30min), dB(A)
Noise	51.6	55.6	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 5 sets of 24-hour TSP monitoring were carried out at the designated monitoring station of the reporting period by ET of Works Contract SCL 1103. The monitoring results together with their graphical presentations are presented in Appendix E of SCL 1103 monthly EM&A report and a summary of the dust monitoring results in this reporting month is given in **Table 5.2**.

Table 5.2 Summary Table of Dust Monitoring Results

Parameter	Minimum $\mu\text{g}/\text{m}^3$	Maximum $\mu\text{g}/\text{m}^3$	Average $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
24-hr TSP	43.0	119.5	78.8	148.7	260

- 5.6 Wind monitoring data obtained from Kai Tak Meteorological Station of Hong Kong Observatory is shown in Appendix F of SCL 1103 monthly EM&A report.
- 5.7 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.8 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period.

Waste Management

5.9 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and paper/cardboard packaging materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.3**. No chemical waste, steel material, plastics, paper/cardboard packaging was generated during this reporting month. Details of waste management data is presented in **Appendix G**.

Table 5.3 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)				
		General Refuse	Chemical Waste	Recycled materials		
Paper/ cardboard	Plastics			Metals		
December 2017 ^(c)	65.0 m ³	63.1 m ³	0 kg	0 kg	0 kg	0 kg

Notes:

- (a) Inert C&D materials include excavated soil and rock. 65.0 m³ of inert C&D materials were delivered to Tuen Mun Area 38 Fill Bank and Tseung Kwan O Area 137 Fill Bank during the reporting month.
- (b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. General refuse was delivered to designated landfill for disposal.
- (c) The cut-off date of the waste flow table in reporting month was 31 December 2017.

Landscape and Visual

5.10 Bi-weekly inspections of the implementation of landscape and visual mitigation measures were conducted on 5 and 19 December 2017. 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 7, 12 and 21 December 2017 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 21 December 2017. 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>	7 December 2017 and 12 December 2017	<u>Reminder:</u> WetSeq should be undergone regular check, and maintenance is needed.	WetSeq was functioning properly on 21 December 2017.
<i>Noise</i>	N/A	There was no observation in the reporting period.	N/A
<i>Landscape and Visual</i>	N/A	There was no observation in the reporting period.	N/A
<i>Air Quality</i>	12 December 2017	<u>Reminder:</u> Dusty stockpile near site entry should be covered by impervious material.	Dusty stockpile near site entry were covered by impervious material on 21 November 2017.
	21 December 2017	<u>Reminder:</u> Water spraying should be provided more frequently to haul roads within the site for dust suppression.	Follow up actions will be reported in the next month.

Waste / Chemical Management	7 December 2017	<u>Reminder:</u> Refuse bin placed under the viaduct should be disposed regularly.	Refuse bin placed under the viaduct was disposed on 12 December 2017.
	12 December 2017	<u>Reminder:</u> Cement baggings and chemical containers near site entry should be put in proper chemical storage area.	Cement baggings and chemical containers near site entry were removed on 21 December 2017.
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 Complaint Log in reporting month and cumulative summary table 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 Log for environmental summon and successful prosecution in reporting month and cumulative summary table 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:

- Soft Landscaping;
- ABWF works at Hin Keng Station;
- Modification of Retaining Wall and Installation of Noise Barrier;
- Hard Landscape;
- E&M Works;
- Artificial Granite Tile Laying; and
- Backfilling Works

Key Issues in the Next Month

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

- Dust arising from loading, unloading, transfer, handling or storage of bulk cement, excavated materials and soil erosion in dry days;
- Control of silty surface runoff;
- 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;
- Regular removal of silt, mud and sand along drainage channels and sedimentation tanks; and
- Proper storage and mitigation measures for oil/chemical containers.

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 December 2017 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 3 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 2 times of bi-weekly inspections 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

- Discharge of untreated wastewater should be avoided. Sedimentation tanks or other wastewater treatment facilities should be used to treat any discharge of wastewater out of the Site.

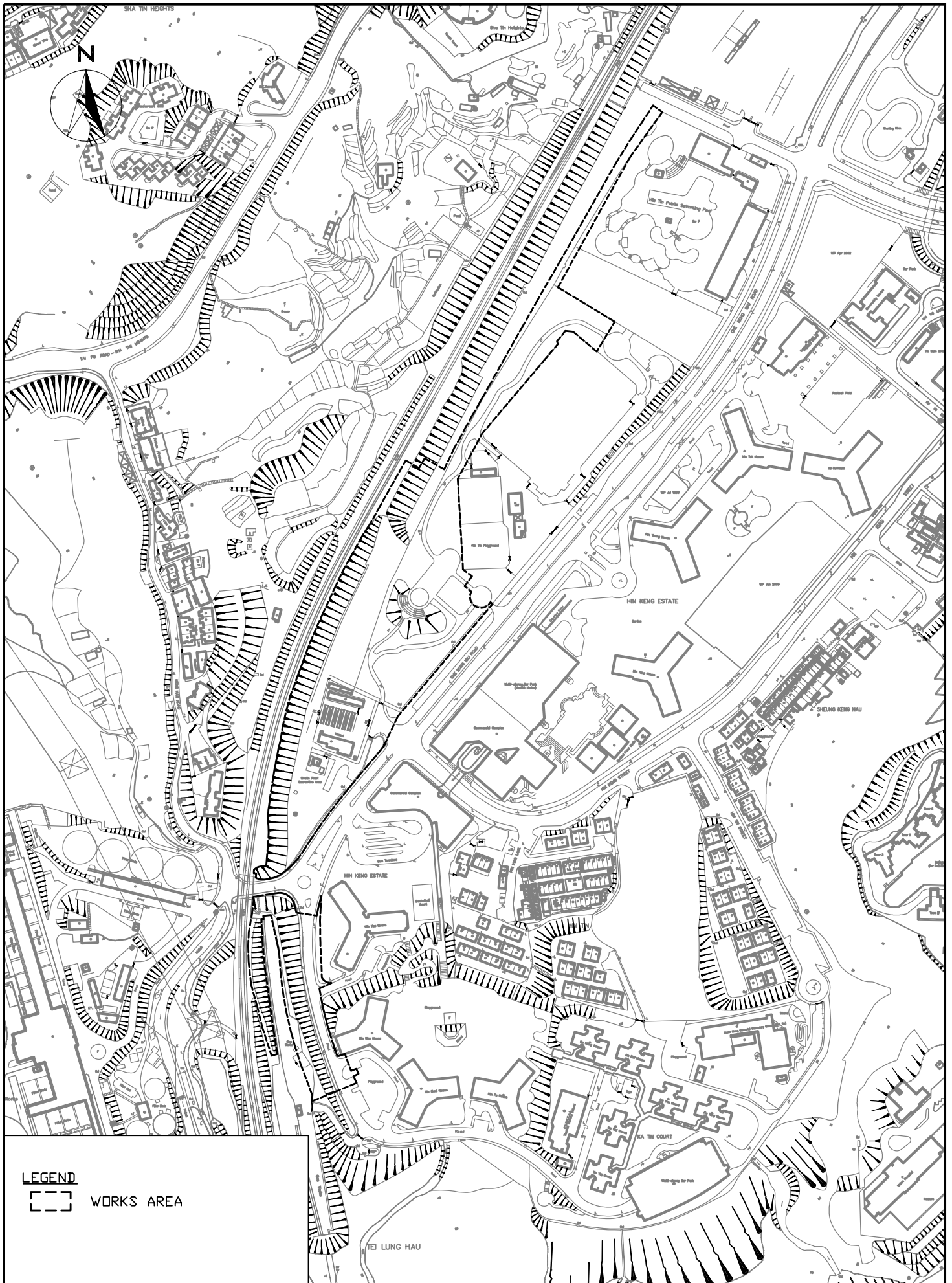
Air Quality

- Stockpiles or dusty materials should be completely covered with impervious sheets to prevent dust generation.
- Water spraying should be provided frequently to prevent dust generation.

Waste / Chemical Management

- Drip tray should be provided to oil and chemical containers with adequate capacity and well maintained.
- General refuses outside the site entry should be cleaned up regularly.

FIGURES



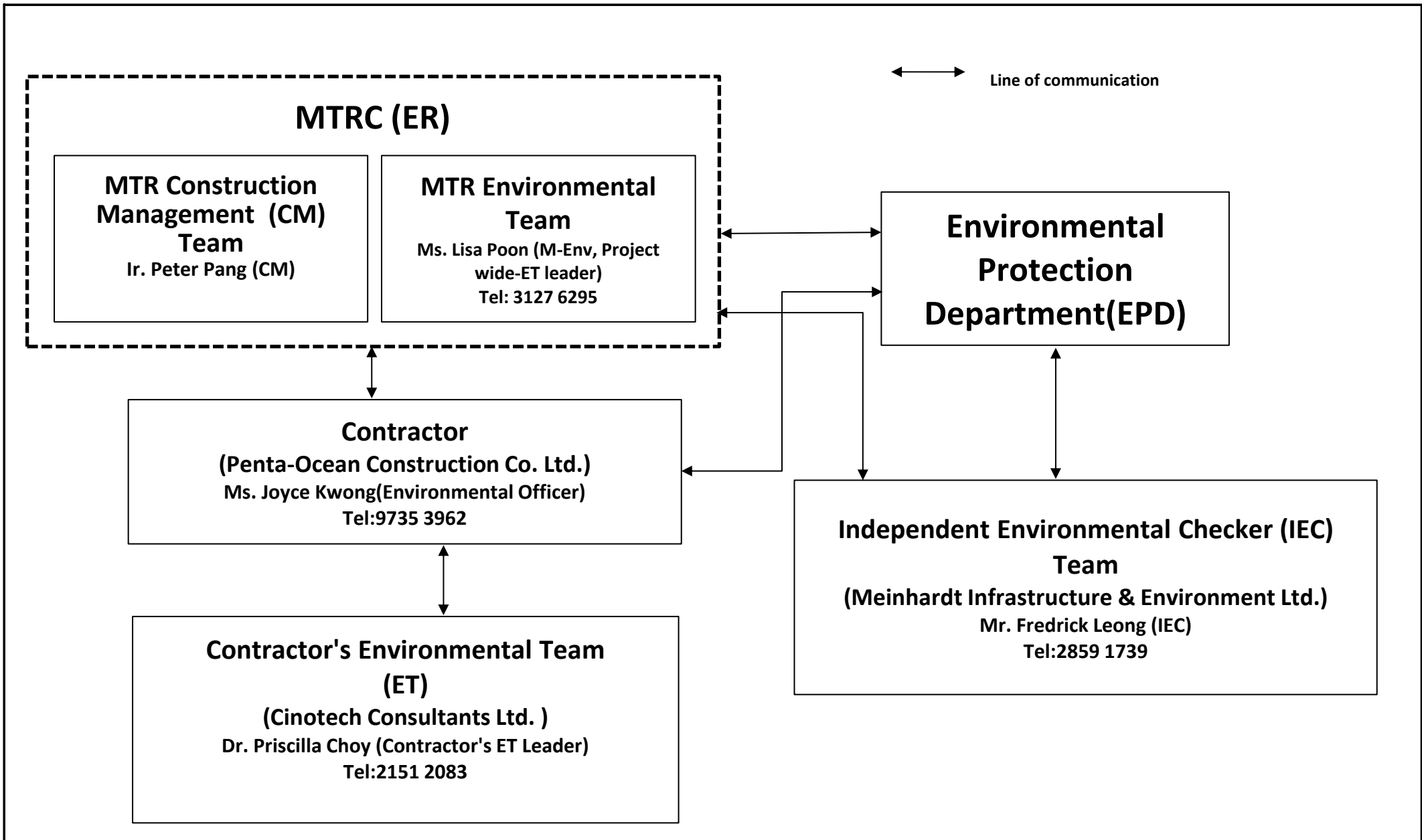
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 WORKS AREA

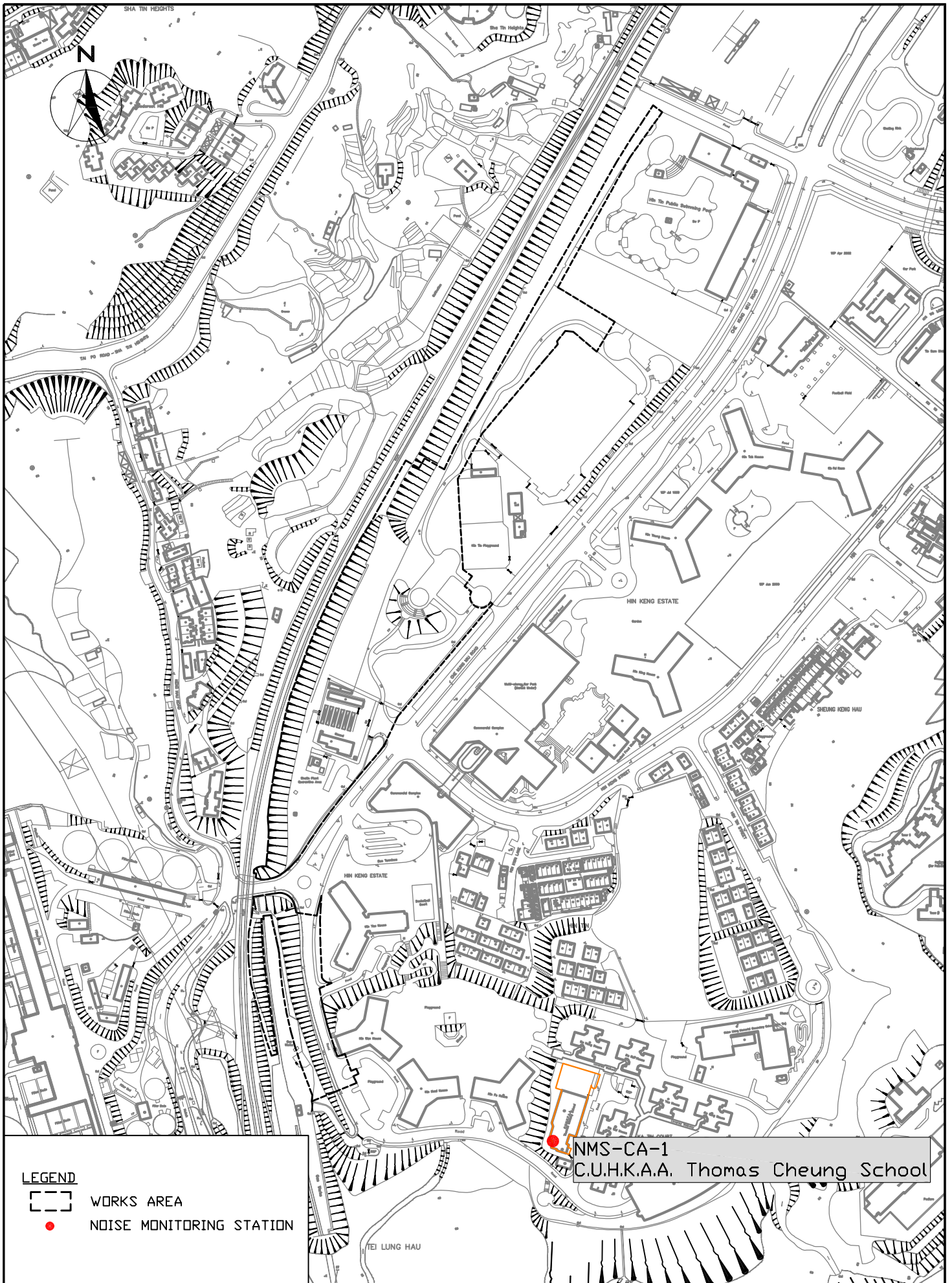


SCL CONTRACT 1102
 THE SHATIN TO CENTRAL LINK -
 HIN KENG STATION AND APPROACH STRUCTURES
**SITE LAYOUT PLAN OF
 WORKS CONTRACT 1102**

SCALE	1:10000@A4	DATE	NOV 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 1
		REV	-



Title	SCL Contract 1102 The Shatin to Central Link - Hin Keng Station and Approach Structures Organization Chart and Key Contact of the Project		Scale	N.T.S	Project	MA13040
	Date	Jan-18	Figure	z	2	CINOTECH



LEGEND

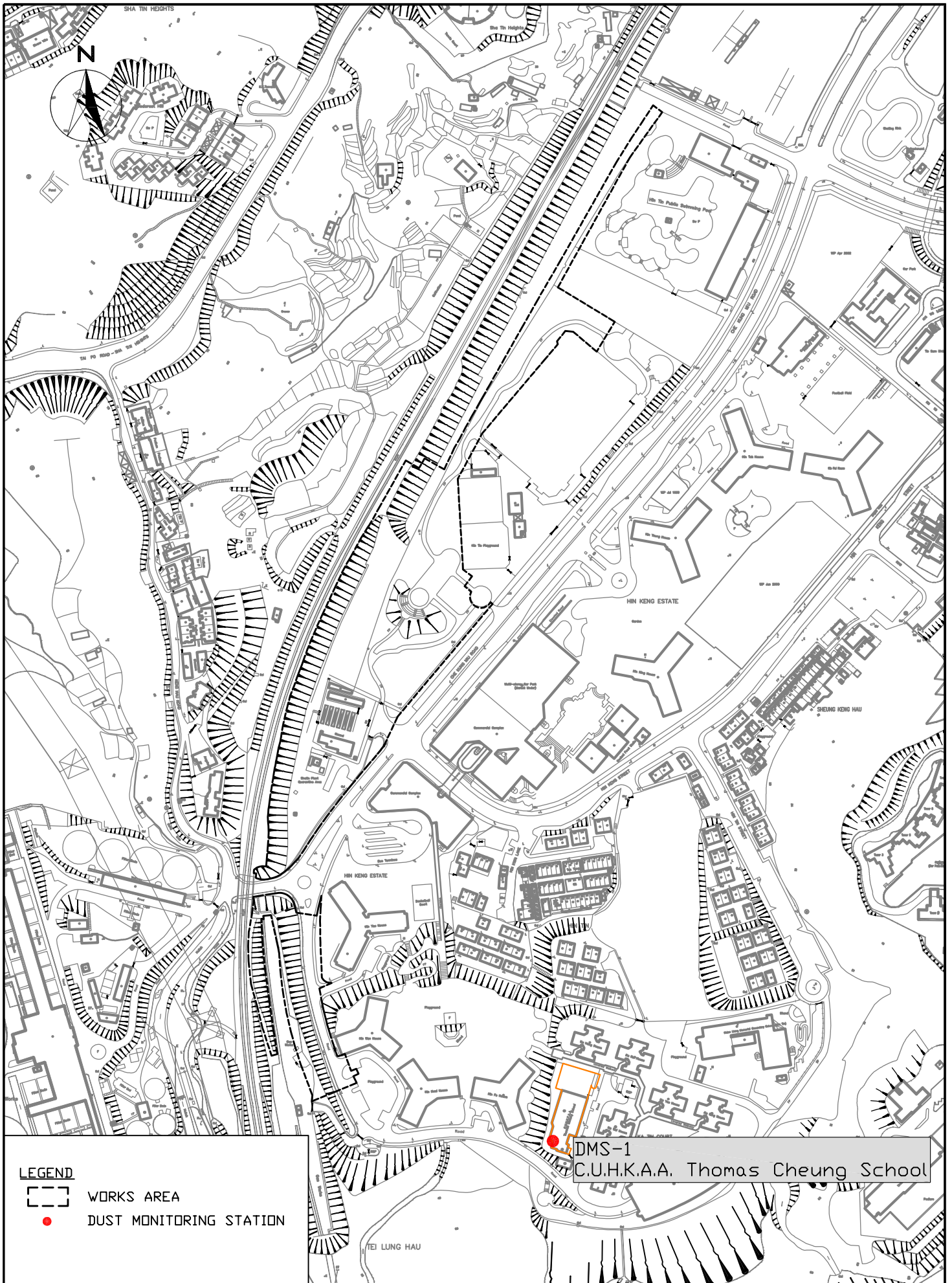
- WORKS AREA
- NOISE MONITORING STATION

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.	REV
		FIG 3	-



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	2017	2018			
						Dec	Jan	Feb	Mar	pr
3-month Rolling Programme Summary (Jan to Mar 2018)		1099.00	313.00	21-Oct-13 A	15-Jan-19					
Hin Keng Station		296.00	10.00	04-Mar-15 A	12-Jan-18					
Superstructure		296.00	10.00	04-Mar-15 A	12-Jan-18					
ABWF		296.00	10.00	04-Mar-15 A	12-Jan-18					
Ma On Shan Line & Tail Track		378.00	101.23	21-Oct-13 A	14-May-18					
Noise Barrier behind Hin Tin Swimming Pool		378.00	101.23	21-Oct-13 A	14-May-18					
Noise Barrier Work		157.00	50.00	15-Jul-14 A	26-Mar-18					
Hin Tin Playground		621.00	313.00	15-Nov-16 A	15-Jan-19					
Hard Landscape		215.80	28.00	25-Mar-17 A	28-Jun-18					
Artificial Granite Tile Laying		33.00	30.00	20-Nov-17 A	23-Aug-18					
ABWF (Finishing) - Store Room & Plant Room		17.70	18.00	01-Dec-17 A	06-Feb-18					
E&M Works		372.00	87.00	15-Nov-16 A	26-Apr-18					
Soft Landscape		171.00	40.00	18-Sep-17 A	15-Jan-19					



- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- % Complete

MTRC SCL Project Contract 1102
Hin Keng Station and Approach Structures

3 Months Rolling Programme
Summary
(Period - Jan to Mar 2018)

Date	Revision	Checked	Approved
02-Jan-18	0	SC	

**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: December 2017

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*

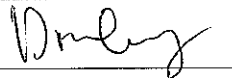

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	171207
Date	7 December 2017 (Thursday)
Time	14:00 – 15:30

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

Ref. No.	Remarks/Observations	Related Item No.
171207-R01	<p><i>Part B – Water Quality</i></p> <ul style="list-style-type: none"> WetSep should be undergone regular check, and maintenance is needed. 	B7
	<p><i>Part C – Ecology</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p><i>Part D – Landscape & Visual</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p><i>Part E – Air Quality</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p><i>Part F – Construction Noise Impact</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
171207-R02	<p><i>Part G – Waste/Chemical Management</i></p> <ul style="list-style-type: none"> Refuse bin placed under the viaduct should be disposed regularly. 	G1iii
	<p><i>Part H – Permits/Licenses</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p><i>Part I – Others</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	

	Name	Signature	Date
Recorded by	Donley Fung		7 December 2017
Checked by	Dr. Priscilla Choy		7 December 2017

*Shatin to Central Link -
Contract 1102 Hin Keng Station and Approach Structures*

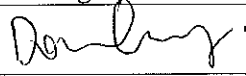

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	171212
Date	12 December 2017 (Tuesday)
Time	09:30 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
171212-R01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> WetSep should be undergone regular check, and maintenance is needed. 	B7
171212-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"> Dusty stockpile near site entry should be covered by impervious material. <p>Part F – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	E6
171212-R02	<p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> Cement baggings and chemical containers near site entry should be put in proper chemical storage area. <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. 	G2ii

	Name	Signature	Date
Recorded by	Donley Fung		12 December 2017
Checked by	Dr. Priscilla Choy		12 December 2017

*Shatin to Central Link -
Contract 1102 Hin Keng Station and Approach Structures*



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	171221
Date	21 December 2017 (Thursday)
Time	09:30 – 12:30

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

Ref. No.	Remarks/Observations	Related Item No.
171221-R01	<p><i>Part B – Water Quality</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part C – Ecology</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part D – Landscape & Visual</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part E – Air Quality</i></p> <ul style="list-style-type: none"> Water spraying should be provided more frequently to haul roads within the site for dust suppression. <p><i>Part F – Construction Noise Impact</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part G – Waste/Chemical Management</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part H – Permits/Licenses</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p><i>Part I – Others</i></p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	E 5

	Name	Signature	Date
Recorded by	Kelvin Koo		21 December 2017
Checked by	Dr. Priscilla Choy		21 December 2017

**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
		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 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	Contractor	Within Project Site	Detailed design and Construction stage	EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006	^ ^ ^

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 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;">^</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>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; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the 						<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
		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 structures should be effectively utilised, where practicable, to 	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
		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 representative locations	Contractor	Selected representative noise	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
					monitoring station			
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. <p>Channels (both temporary and permanent drainage pipes and culverts), earthbunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. <p>Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates.</p>	<p>To minimize water quality impact from construction site runoff and general construction activities</p>	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>

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 design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction. • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control 						<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>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.</p> <ul style="list-style-type: none"> • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions be taken at any time of year when rainstorms are 						<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>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.</p> <ul style="list-style-type: none"> • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil 						<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>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 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 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
S12.12	LC2	<p><u>Re-sampling at NTSAMC</u></p> <ul style="list-style-type: none"> The soil re-sampling and analysis of cyanide (free) at Site L1 (NT South Animal Centre) should be conducted after the site is resumed and handed over to the Project Proponent. Following the completion of re-sampling and lab testing works of this site, a second Supplementary CAR and Supplementary RAP (if contamination is confirmed) shall be prepared and submitted to EPD for agreement. Supplementary Remediation Report (RR) shall also be prepared and submitted to EPD for endorsement prior to the commencement of any construction/ development works at Site L1 (NT South Animal Centre) 	To analyse cyanide (free) at Site L1 (NT South Animal Centre)	Contractor	Site L1 (NT South Animal Centre)	After the site is resumed and handed over to the Project Proponent	<ul style="list-style-type: none"> Practice Guide (PG) for Investigation and Remediation of Contaminated Land GN/GM for land contamination Risk-Based Remediation Goals 	^ ^ ^
Hazard to Life								
Chapter 13.13	A13C.8	Installation of on-site gas monitors in all relevant SCL construction/operation areas;	To reduce the risks to the SCL staff, construction workers and passengers	MTRC/ Contractor	Guardhouse next to Site Entrance (Opposite to Hin	Construction and operation		^

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

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

Event and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1102 ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and EPD 2. Repeat measurement to confirm findings 3. Increase monitoring frequency 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event and Action Plan for Landscape and Visual during Construction Phase

Action Level	Works Contract 1102 ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

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

Name of Contractor: Penta-Ocean Construction Co. Ltd.

Waste Flow Table for Year 2017

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill (See Note 1)	Disposed as Sorting Facility	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan-17	0.2040	0	0	0	0.2040	0	0	0	0	0	0.0660
Feb-17	0.5803	0	0	0	0.5650	0.0153	0	0	0	0	0.1602
Mar-17	0.2185	0	0	0	0.2185	0	0	0	0	0	0.0610
Apr-17	0.2893	0	0	0	0.2893	0	0	0	0	0	0.0543
May-17	0.4862	0	0	0	0.4862	0	0	0	0	0	0.0488
Jun-17	0.2659	0	0	0	0.2659	0	0	0	0	0	0.0410
Sub-total	2.0442	0	0	0	2.0289	0	0	0	0	0	0.4313
Jul-17	0.1273	0	0	0	0.1273	0	0	0	0	0	0.0211
Aug-17	0.4165	0	0	0	0.4165	0	0	0	0	0	0.0880
Sep-17 (See Note 2)	0.1997	0	0	0	0.1997	0	0	0	0	0	0.0540
Oct-17	0.6426	0	0	0	0.6426	0.4408	0	0	0	0	0.0454
Nov-17	0.2193	0	0	0	0.2193	0	0	0	0	0	0.0580
Dec-17	0.0650	0	0	0	0.0650	0					0.0631
Total	3.7146	0	0	0	3.6993	0.4561	0	0	0	0	0.7609

Note: (1) Inert C&D materials include excavated soil and rock. 65.0 m³ and 0.0 m³ of inert C&D materials were delivered to Tuen Mun Area 38 Fill Bank and Tseung Kwan O Area 137 Fill Bank respectively during the reporting month.

Note: (2) The cut-off date of waste flow table in reporting month was 31 December 2017.

**APPENDIX H
LOG AND CUMULATIVE SUMMARY
TABLE FOR COMPLAINTS,
NOTIFICATIONS OF SUMMONS AND
SUCCESSFUL PROSECUTIONS**

Appendix H - Log and Cumulative Summary Table for Complaints, Notifications of Summons and Successful Prosecutions**Reporting Month:** December 2017**Complaint Log**

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

Log for Notifications of Summons

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
--	--	--	--	--	--

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
--	--	--	--	--	--

Cumulative Summary Table for Complaints, Notifications of Summons and Successful Prosecution

Reporting Month	Number of Complaints	Number of Notifications of Summons	Number of Successful Prosecution
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
September 2014	0	0	0
October 2014	0	0	0
November 2014	1	0	0
December 2014	0	0	0

Reporting Month	Number of Complaints	Number of Notifications of Summons	Number of Successful Prosecution
January 2015	0	0	0
February 2015	0	0	0
March 2015	0	0	0
April 2015	0	0	0
May 2015	0	0	0
June 2015	0	0	0
July 2015	0	0	0
August 2015	0	0	0
September 2015	0	0	0
October 2015	0	0	0
November 2015	0	0	0
December 2015	0	0	0
January 2016	0	0	0
February 2016	0	0	0
March 2016	0	0	0
April 2016	0	0	0

Reporting Month	Number of Complaints	Number of Notifications of Summons	Number of Successful Prosecution
May 2016	0	0	0
June 2016	0	0	0
July 2016	0	0	0
August 2016	0	0	0
September 2016	0	0	0
October 2016	0	0	0
November 2016	0	0	0
December 2016	0	0	0
January 2017	0	0	0
February 2017	0	0	0
March 2017	0	0	0
April 2017	0	0	0
May 2017	0	0	0
June 2017	1	0	0
July 2017	0	0	0
August 2017	0	0	0

Reporting Month	Number of Complaints	Number of Notifications of Summons	Number of Successful Prosecution
September 2017	0	0	0
October 2017	0	0	0
November 2017	0	0	0
December 2017	0	0	0
Total	2	0	0

Appendix I

**3rd Monthly EM&A Report for Works Contract 11240 –
Excavation, Sorting and Disposal of Stockpiled Spoils to
Approved Receptor Site**

**Shatin to Central Link -
Works Contract 11240
Excavation, Sorting and Disposal of
Stockpiled Spoils to Approved Receptor Site**

**Monthly EM&A Report for
December 2017**

[January 2018]

Table of Contents

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

List of Tables

Table 2.1	Project Organization structure
Table 2.2	Status of Environmental Licenses, Notifications and Permits
Table 4.1	Status of Required Submission under Environmental Permit
Table 5.1	Quantities of Waste Generated from the Project
Table 6.1	Observations and Recommendations of Site Audit

List of Appendices

Appendix A	Construction Programme
Appendix B	Environmental Mitigation Implementation Schedule
Appendix C	Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions
Appendix D	Monthly Summary Waste Flow Table

EXECUTIVE SUMMARY

Shatin to Central Link Contract 11240 – Excavation, Sorting and Disposal of Stockpiled Spoils to Approved Receptor Site (hereafter called “the Project”) which comprise the excavation, sorting and delivery of stockpiled spoils from stockpiling area; and provide landing pontoon services for dump truck unloading material to approved receptor sites.

The EM&A programme commenced on 3 October 2017.

This report documents the findings of EM&A works conducted in the period between 1 and 31 December 2017. As informed by the Contractor, major activities in the reporting period were:

- Sorting and handling of spoil material and operation of barging point.
- Marine transportation of spoil to approved receptor sites for beneficial reuse.

Complaint, Notification of Summons and Successful Prosecution

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

Reporting Changes

There was no reporting change in the reporting month.

Future Key Issues

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

- Sorting and handling of spoil material and operation of barging point.
- Marine transportation of spoil to approved receptor sites for beneficial reuse.
- Site clearance.

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

1 INTRODUCTION

Crown Asia Engineering Limited (CAEL) was commissioned by MTR as the Civil Contractor for Works Contract 11240. MTR act 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 third monthly EM&A Report which summaries audit findings for the Project during the reporting period between 1 and 31 December 2017.

1.2 Report Structure

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

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

2 PROJECT INFORMATION

2.1 Background

2.1.1 The Shatin to Central Link – 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).

2.1.2 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 11240 which comprise the excavation, sorting and delivery of stockpiled spoils from stockpiling area; and provide landing pontoon services for dump truck unloading material to approved receptor sites.

2.2 Site Description

2.2.1 The major activities of the project are:

- Materials sorting and handling and operation of barging point

2.3 Construction Programme and Activities

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

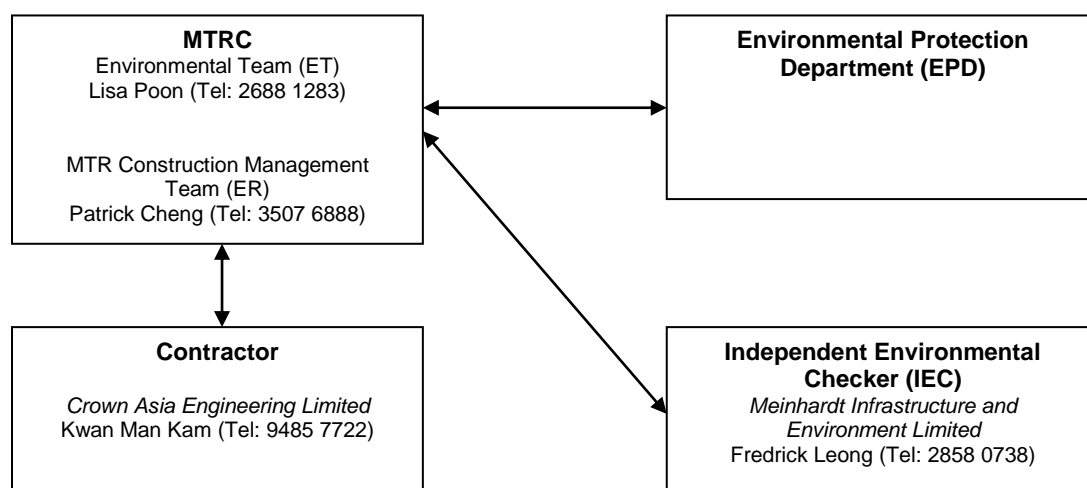
- Sorting and handling of spoil material and operation of barging point.
- Marine transportation of spoil to approved receptor sites for beneficial reuse.

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

2.4 Project Organisation

2.4.1 The project organization structure and contact details are shown in **Table 2.1**.

Table 2.1 Project Organization structure



2.5 Status of Environmental Licences, Notification and Permits

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

Table 2.2 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
<i>Environmental Permit</i>				
EP-438/2012/K	4 Oct 2016	-	Valid	-
<i>Chemical Waste Producer Registration</i>				
5213-286-C4241-01	3 Nov 2017	End of Project	Valid	-
<i>Billing Account for Construction Waste Disposal</i>				
7028857	19 Sep 2017	End of Project	Account Active	-

2.6 Summary of EM&A Requirements

EM&A programme under 11240 require construction phase environmental site audits. The advices on the implementation status of environmental protection and pollution control/mitigation measures summarized in Section 6 of this report.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Landscape and Visual

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

3.2 Ecology

- 3.2.1 As per 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.

3.3 Cultural Heritage

- 3.3.1 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.
- 3.3.2 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.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

- 4.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix B**. Status of required submissions under the EP during the reporting period is summarised in **Table 4.1**.

Table 4.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.4	EM&A Report (November 2017)	14 December 2017

5 MONITORING RESULTS

5.1 Waste Management

- 5.1.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 5.1.2 The waste flow table with detail breakdown is annexed in **Appendix D**.

Table 5.1 Quantities of Waste Generated from the Contract

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)	Chemical Waste	Recycled materials		
				Paper/cardboard	Plastics	Metals
December 2017	13,857.8m ³	0m ³	0Kg	0Kg	0Kg	0Kg
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.						

- 5.1.3 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.
- 5.1.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

5.2 Landscape and Visual

- 5.2.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted on 4 and 18 December 2017. No observation and recommendation was made during the audit sessions.

5.3 Ecology

- 5.3.1 No observation and recommendation was made during the audit sessions.

5.4 Culture Heritage

- 5.4.1 No observation and recommendation was made during the audit sessions.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

- 6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix B**.
- 6.1.2 In the reporting month, 4 site inspections were carried out on 6, 13, 20 and 28 November 2017. Joint inspection with the IEC, ER, the Contractor and the ET was conducted on 13 November 2017. No non-compliance was recorded during the site inspections. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	11 Dec 17	Haul road was observed dry and dusty. The contractor should provide water spraying on site for dust suppression.	Rectified on 13 Dec 17.
	11 Dec 17	Parts of stockpile were not covered properly. The contractor should cover the stockpile entirely.	Rectified on 13 Dec 17.
	18 Dec 17	Parts of stockpile should be covered properly.	Rectified on 23 Dec 17.
Noise	Nil	Nil	Nil
Water Quality	Nil	Nil	Nil
Waste/ Chemical Management	Nil	Nil	Nil
Ecology/ Landscape and Visual	Nil	Nil	Nil
Permits/ Licenses	Nil	Nil	Nil

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Environmental Non-Compliance

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

7.2 Summary of Environmental Complaints

7.2.1 No environmental complaint was recorded in the reporting month. Cumulative statistics on environmental complaints is provided in **Appendix C**.

7.3 Summary of Environmental Summon and Successful Prosecutions

7.3.1 No environmental related prosecution or notification of summons was received in the reporting month. Cumulative statistics on environmental summon and successful prosecutions is provided in **Appendix C**.

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Next Three Month

8.1.1 The tentative major activities in January 2018 will be:

- Materials sorting and handling and operation of barging point; and
- Site clearance.

8.2 Key Issues for the Coming Month

8.2.1 The construction programme is provided in **Appendix A**.

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

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

- 9.1.1 4 nos. of environmental site inspections were carried out in December 2017. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.
- 9.1.2 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

- Provide sufficient water spraying on the haul road for dust suppression;
- Improvements on the stockpile cover.

Water Quality Impact

- N/A

Noise Impact

- N/A

Chemical and Waste Management

- N/A

Ecology/Landscape and Visual Impact

- N/A

Appendix A
Construction Programme



冠亞工程有限公司
Crown Asia Engineering Limited

Contract No. 11240 Crown Asia Engineering Limited		Programme for the Contract No. 11240 - Excavation, Sorting and Disposal of Stockpiled Spoils to Approved Receptor Sites																																																																											
Description		Oct-17							Nov-17							Dec-17							Jan-18																																																						
		4	6	7	9	10	11	12	13	14	16	17	18	19	20	21	23	24	25	26	27	30	31	1	2	3	4	6	7	8	9	10	11	13	14	15	16	17	18	20	21	22	23	24	25	27	28	29	30	1	2	4	5	6	7	8	9	11	12	13	14	15	16	18	19	20	21	22	23	27	28	29	30	2	3	4	5
Site Operation																																																																													
1	Construction Plants on Site	2 days																																																																											
2	Materials sorting and handling	54 days																																																																											
3	Site clearance	2 days																																																																											

Appendix B

Environmental Mitigation Implementation Schedule

Environmental Mitigation Implementation Schedule

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
Ecology (Construction Phase)							
S5.7	E5	<p>Good Site Practices 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.</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 earthmoving 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. 	Minimise ecological impacts	Contractor	All construction sites	Construction stage	✓
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> <ul style="list-style-type: none"> • <u>Re-use of Existing Soil</u> 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	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
Air Quality (Construction Phase)							
/	A1	<u>Emission from Vehicles and Plants</u> <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	✓ ✓ ✓
/	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 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 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 	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>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 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, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six 					<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">N/A</p>

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
		months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					
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 Points	Construction stage	<ul style="list-style-type: none"> ✓ ✓ ✓ ✓
S7.6.5	D5	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	✓
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	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> ✓ ✓ ✓ N/A ✓ N/A
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	Screen the noisy plant items to be	Contractor	All construction sites	Construction stage	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	used at all construction sites		where practicable		
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	N/A
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 	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	<p>✓</p> <p>✓</p> <p>N/A</p>

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>rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly 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. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and 					<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>

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>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.</p> <ul style="list-style-type: none"> • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the 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;">N/A</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>
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 	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<p style="text-align: center;">✓</p>

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
		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 standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers. • If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge 	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found	Construction stage	<p>N/A</p> <p>N/A</p> <p>N/A</p>

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
		licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.					
S10.7.1	W6	<p>Operation of Barging Facilities</p> <p>The following good practice shall apply for the barging facilities operations:</p> <ul style="list-style-type: none"> • All barges should be fitted with tight bottom seals to prevent leakage of materials during transport; • Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or transportation; • 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. 	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	<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>
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	<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>

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
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 from ended up at concrete batching plants and be turned into concrete for structural use Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored. 	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	N/A
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	<p>N/A</p> <p>✓</p> <p>N/A</p> <p>N/A</p> <p>✓</p> <p>✓</p>

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
S11.5.1	WM6	<p><u>Land-based and Marine-based Sediment</u></p> <ul style="list-style-type: none"> • All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location; • All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations; • Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action. • The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers; • The Contractors shall comply with the conditions in the dumping licence. • All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material; • The material shall be placed into the disposal pit by bottom dumping; • Contaminated marine mud shall be transported by spit barge of not less 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 	To control pollution due to marine sediment	Contractor	Within Project Site Area	Construction Stage	<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

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
		method is a method whereby the sediments are sealed in geosynthetic containers and, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping at the disposal site, thereby fulfil confined mud disposal.					
S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> • Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 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.	Contractor	All construction sites	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>

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 C

Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions

Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
October 2017	0	0	0
November 2017	0	0	0
December 2017	0	0	0

Appendix D
Monthly Summary Waste Flow Table

