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. 81

[Period from 1 to 31 May 2019]

(June 2019)

Verified by:	Fredrick Leong	

Position: Independent Environmental Checker

Date:	13 June	2019	
Dato.			

MTR Corporation Limited

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Certified by:	Lisa Poon	1.	

Position: Environmental Team Leader

Date: 13 Jun 2019

AECOM

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. 81

[Period from 1 to 31 May 2019]

	Name	Signature
Prepared & Checked:	Joanne Tsoi	(. J.
Reviewed & Approved:	Josh Lam	(Var

Version:

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Date: 13 June 2019

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AECOM Asia Co. Ltd.

8/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong Tel: (852) 3922 9000 Fax: (852) 3922 9797 www.aecom.com

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1 INTRODUCTION

1.1 Background

- 1.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai to Hung Hom via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH) and Stabling Sidings at Hung Hom Freight Yard (HHS); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 1.1.2 Shatin to Central Link Tai Wai to Hung Hom Section [SCL (TAW-HUH)] and Shatin to Central Link Mong Kok East to Hung Hom Section [SCL (MKK-HUH) (hereafter referred to as "the Project") are parts of the SCL. Shatin to Central Link Stabling Sidings at Hung Hom Freight Yard [SCL (HHS)] is a proposed stabling sidings option for SCL (TAW HUH) at the former freight yard in Hung Hom.
- 1.1.3 The Environmental Impact Assessment (EIA) Reports for SCL (TAW-HUH) (Register No.: AEIAR-167/2012), SCL (MKK-HUH) (Register No.: AEIAR-165/2012) and SCL (HHS) (Register No.: AEIAR-164/2012) were approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Reports, two Environmental Permits (EPs) were granted on 22 March 2012, one covers SCL (TAW-HUH) and SCL (HHS) (EP No: EP-438/2012) and the other covers SCL (MKK-HUH) and SCL (HHS) (EP No: EP-438/2012) and the other covers SCL (MKK-HUH) and SCL (HHS) (EP No: EP-438/2012), 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.

	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 ⁽⁶⁾	Hin Keng Station and Approach Structures	October 2013	Penta-Ocean Construction Co. Ltd.	Wellab Limited (Wellab)
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 ⁽⁴⁾	Diamond Hill to Kai Tak Tunnels	May 2013	Chun Wo - SELI Joint Venture	Cinotech Consultants Ltd. (Cinotech)

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Works Contract	Description	Construction Start Date	Contractor	Environmental Team
1108 ⁽⁵⁾	Kai Tak Station and Associated Tunnels	June 2013	Kaden -Chun Wo Joint Venture	Environmental Pioneers & Solutions Ltd.
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 ⁽³⁾	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.

- (3) All construction works (Excavation, Sorting and Disposal of Stockpiled Spoils to Approved Receptor Site) under Works Contract 11240 were completed on 3 January 2018.
- (4) All construction works (Diamond Hill to Kai Tak Tunnels) under Works Contract 1107 were completed on 22 February 2018.
- (5) All construction works (Kai Tak Station and associated tunnels) under Works Contract 1108 were completed in July 2018.
- (6) All construction works (Hin Keng Station and Approach Structures) under Works Contract 1102 were completed in December 2018. The Environmental Team was taken over by Wellab Limited starting from 1st January 2019.

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 eighty-first 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 May 2019.

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

Works Contract	Contract Title	Works Covered in Environmental Permit No.
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
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 and 1112 prepared by the respective Contractor's ETs are provided in Appendices A to E respectively. The EM&A Reports provide details of the project information, EM&A requirements, impact monitoring and audit results for the corresponding Contracts.
- A summary of the major construction activities undertaken by the respective Contractors 2.1.3 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	
	Fung Tak Area	Site clearance	
1103	Ma Chai Hang Area	Civil & Structural (C&S) Works, Site Clearance	
	Shui Chuen O	Storage area	
1106	Diamond Hill Station Area	 Defect rectification for SCL DIH station: remaining minor ABWF works; TTMS implementation: TTA for site access and temporary footpath diversion at Choi Hung Road; and General site clearance works 	
	Works in To Kwa Wan	ABWF works; and	
1100	(TKW) (formerly named as Ma Tau Wai (MTW))	 External wall stone installation at TKW Ventilation Shaft, Entrance A, B, C and D 	
1109	Works in Sung Wong Toi	ABWF works; and	
	(SUW) (formerly named as	External wall stone installation at SUW	
	To Kwa Wan (TKW))	Ventilation Shaft, Entrance A, B2, B3 and D	
	Ho Man Tin	Defect rectification	
	NSL (South)	Defect rectification	
1111	OB2 / TB1	Defect rectification	
	OB2A / TB2	Defect rectification	
	NSL 9 & Oi Sen Path	Defect rectification and reinstatement works	
1112	Hung Hom Station (HUH)	Minor services connection at G.L J of HUH;	

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Works Contract	Site	Construction Activities
		Platform ABWF and E&M works;
		 Gate 3 excavation works; and
		Asphalt works to HHS
	SAT Ventilation Shaft	Landscape preparation works
	Concourse level &	Modification works
	Mid-level walkway	

- 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 E.
- 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 No environmental complaint, 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.

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Table 2.2	Summary of 24-Hou	r TSP Monitoring	Results in	the Repo	rting Period
Monitoring Station ID	Location	TSP Concentration (µg/m³)	Action Level (µg/m³)	Limit Level (µg/m³)	Exceedance due to the Project Construction (Yes/ No/ N/A)
Works Contra	acts 1102 and 1103	_			
DMS-1 ⁽¹¹⁾	C.U.H.K.A.A. Thomas Cheung School	N/A	148.7	260	N/A
Works Contra	act 1103				
DMS-2	Price Memorial Catholic Primary School	16.9 – 70.4	167.4	260	No
Works Contra	acts 1103 and 1106				
DMS-3	Hong Kong S.K.H Nursing Home ⁽¹⁾	20.9 - 80.8	159.1	260	No
Works Contra	act 1106 ⁽¹⁰⁾	·			
DMS-4	Block 1, Rhythm Garden	10.7 - 44.4	160.4	260	No
Works Contra	act 1108 ⁽⁵⁾				
Works Contra	act 1109				
DMS-6	Katherine Building ⁽²⁾	36 – 61	156.8	260	No
DMS-7	Parc 22 ⁽³⁾	31 – 56	166.7	260	No
DMS-8	SKH Good Shepherd Primary School	28 – 53	152.2	260	No
DMS-9	No. 12 Pau Chung Street ⁽⁴⁾⁽⁹⁾	37 – 75	160.9	260	No
DMS-10	Chat Ma Mansion	34 – 67	170.4	260	No
Works Contra	act 1111				
AM1 ⁽⁶⁾	No. 234 – 238 Chatham Road North (7)	20.2 - 56.9	183.9	260	No
Works Contra	act 1112				
AM2	Site Boundary of Finger Pier Adjacent To Harbourfront Horizon ⁽⁸⁾	42.7 - 54.9	182	260	No
Works Contra Notes:					

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
- (10) The 24-hour TSP monitoring works would be taken up by Works Contract 1106 since the completion of Works Contract 1107 in Feb 2018.
- (11) The cessation of monitoring works at DMS-1 was approved by EPD and the last monitoring was conducted on 16 Jul 2018.

Consultancy Agreements No. C11033 & C11033B SCL (TAW-HUH) & SCL (MKK-HUH) Monthly EM&A Report No.81

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Monitoring	Noise Level (L _{Aeq,30mins} , dB(A))			Limit Level	Exceedance due to the		
Station ID		Measured	Baseline	Corrected ⁽⁷⁾	(dB(A))	Project Construction (Yes/No)	
Works Contract	s 1102 and 1103						
NMS-CA-1 ⁽¹²⁾	C.U.H.K.A.A. Thomas Cheung School	N/A	57.0	N/A	70 (65 during examination period)	No	
Works Contract	1103						
NMS-CA-2	Price Memorial Catholic Primary School	61.1 - 62.5	66.0	< Baseline	70 (65 during examination period)	No	
Works Contract	s 1103 and 1106						
NMS-CA-3	Hong Kong S.K.H Nursing Home ⁽¹⁾	69.8 - 74.0	73.0	< Baseline – 67.1	70	No	
Works Contract	s 1106 ⁽¹¹⁾						
NMS-CA-4	Block 1, Rhythm Garden (north-eastern façade)	70.6 - 76.0	71.0	< Baseline – 74.3	75	No	
NMS-CA-5	Block 1, Rhythm Garden (northern façade) ⁽²⁾	69.1 - 74.8	74.0	< Baseline – 67.1	70 (65 during examination period)	No	
Works Contract	1108 ⁽⁶⁾						
Works Contract	1109						
NMS-CA-6	No. 16-23 Nam Kok Road ⁽³⁾	62.1 - 63.0	76.1	< Baseline	75	No	
NMS-CA-7	Skytower Tower 2	65.9 - 66.6	70.0	< Baseline	75	No	
NMS-CA-8	SKH Good Shepherd Primary School	72.8 - 73.3	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⁾	70.1 – 70.9	69.2	62.8 - 66.0	75	No	
NMS-CA-10	Chat Ma Mansion	75.5 - 76.2	76.6	< Baseline	75	No	

Consultancy Agreements No. C11033 & C11033B SCL (TAW-HUH) & SCL (MKK-HUH) Monthly EM&A Report No.81

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Monitoring Station ID		Noise Level (L _{Aeq,30mins} , dB(A))		Limit Level	Exceedance due to the	
	Location	Measured	Baseline	Corrected ⁽⁷⁾	(dB(A))	Project Construction (Yes/No)
NM1	Carmel Secondary School (South Block)	61.7 - 66.3	68.0	< Baseline	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⁾	65.9 - 72.2	79.0	< Baseline	75 (77) ⁽¹⁰⁾	No
Works Contract	t 1112 ⁽⁶⁾					
Works Contract	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.
- (11) The construction noise monitoring works would be taken up by Works Contract 1106 since the completion of Works Contract 1107 in Feb 2018.
- (12) The cessation of monitoring works at NMS-CA-1 was approved by EPD and the last monitoring was conducted on 17 Jul 2018.

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

Works	Environmental	Notification of	Successful
Contract	Complaints	Summons	Prosecutions
1103	0	0	0
1106	0	0	0
1109	0	0	0
1111	0	0	0
1112	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.

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 (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)

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

Consultancy Agreements No. C11033 & C11033B SCL (TAW-HUH) & SCL (MKK-HUH) Monthly EM&A Report No.81

EP Condition (EP-438/2012/K)	Submission	Submission date
		26 Feb 2014 (Approved) 7 Oct 2014 (11 th submission 23 Oct 2014 (Approved)
0 1111 0.44	Construction and Demolition Materials	6 Jul 2012 (1 st submission)
Condition 2.11	Management Plan (C&DMMP)	12 Sep 2012 (2 nd submission
		10 Oct 2012 (Approved)
		6 Jul 2012 (1st submission)
		12 Sep 2012 (2 nd submission
		5 Oct 2012 (3 rd submission)
Condition 2.12	Sediment Management Plan	10 Oct 2012 (Approved)
Condition 2.12	Sediment Management Flan	4 Mar 2013 (4 th submission)
		9 May 2013 (5 th submission)
		24 Jul 2013 (6th submission)
		26 Jul 2013 (Approved)
		6 Jul 2012 (1st 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)
Condition 2.12	Visual, Landscape, Tree Planting & Tree	
Condition 2.13	Protection Plan	18 Jun 2013 (7 th submission
		12 Jul 2013 (Approved)
		23 Mar 2017 (8 th submission
		7 Mar 2018 (9 th submission)
		30 Jul 2018 (10 th submission
		28 Feb 2019 (11 th submissio
		5 Mar 2019 (12 th submission
		29 May 2019 (13 th submissio
		22 Aug 2012 (1 st submission
Condition 2.14	Transplantation Proposal for Plant	5 Oct 2012 (2 nd submission)
00110110112.14	Species of Conservation Importance	26 Nov 2012 (3 rd submission
		4 Dec 2012 (Approved)
		31 Jan 2013 (1 st submission
Condition 2.15	Conservation Plan	18 Mar 2013 (2 nd submission
		24 Apr 2013 (Approved)
		10 Aug 2012 (1 st submission
	Archaeological Action Disc(-) (AAD(-)) (3 Sep 2012 (2 nd submission)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for	21 Sep 2012 (Approved)
	Works Contract 1109	11 Oct 2013 (3 rd submission
		1 Nov 2013 (Approved)
		29 Jan 2013 (1 st submission
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for	19 Mar 2013 (2 nd submission
50Hall0H 2.10	Works Contract 1106	8 Apr 2013 (Approved)
	Supplementary Contamination	
Condition 2.23	Assessment Report for New Territories	28 Sep 2012
5011011011 2.23	South Animal Centre	25 Oct 2012 (Approved)
		10 Mar 2016 (Datab 1 Varia
		18 Mar 2016 (Batch 1 Versio
		A submission)
		28 Apr 2016 (Batch 1 Versio
		submission)
Condition 2.27	Operational Ground-borne Noise	28 Apr 2016 (Batch 2 Versio
	Mitigation Measures Plan	submission)
		1 Jun 2016 (Batch 1 Version
		submission)
		1 Jun 2016 (Batch 2 Version
		submission)

EP Condition (EP-438/2012/K)	Submission	Submission date
		23 Jun 2016 (Batch 1 Version D submission) 23 Jun 2016 (Batch 2 Version C submission) 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)
Condition 2.28	As-built Drawings for Operational Ground-borne Noise Mitigation Measures	20 Jul 2017 (Approved) 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) 20 Mar 2018 (3 rd submission)
Condition 2.31	Performance Test Report for Train Noise – Operational Airborne Railway and Ground-borne Noise	15 Nov 2018 (Batch 1 Version A submission) 30 Jan 2019 (Batch 2 Version A submission) 29 Mar 2019 (Batch 1 Version A & Batch 2 Version B submission) 15 April 2019 (Approved)
Condition 2.32	Proposal for Updating Maximum Allowable Sound Power Levels of Fixed Plant Sources	30 Jan 2019 (Batch 1 Version A submission) 27 Feb 2019 (Batch 1 Version B submission) 13 Mar 2019 (Batch 1 Version B approved) 15 Mar 2019 (Batch 2 Version A submission) 8 Apr 2019 (Batch 2 Version A approved) 24 April 2019 (Batch 3 & 4 Version A submission) 9 May 2019 (Batch 4 Version A approved) 21 May 2019 (Batch 3 Version B submission)
Condition 2.32	Fixed Plant Noise Audit Report	30 Jan 2019 (Batch 1 Version A submission) 15 Mar 2019 (Batch 1 Version B submission) 16 April 2019 (Batch 2 Version A submission) 21 May 2019 (Batch 4 Version A submission)

EP Condition (EP-438/2012/K)	Submission	Submission date
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) 22 Aug 2018 (3 rd submission) 5 Nov 2018 (4 th submission)
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 3.1	Proposal for Cessation of EM&A Works at Hin Keng	9 May 2018 (1 st submission) 16 July 2018 (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. 1-79 Monthly EM&A Report No. 80	Reported in previous Monthly EM&A Reports 14 May 2019

Table 3.2 Sum	nmary of Status of Required Submission	s 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 (1st 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 (VLTTP)	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) 17 Apr 2018 (6 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. 5-79	Reported in previous Monthly EM&A Reports
	Monthly EM&A Report No. 80	14 May 2019

Appendix A

81st Monthly 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. 81

[Period from 1 to 31 May 2019]

Works Contract 1109 - Stations and Tunnels of Kowloon City Section

(13 June 2019)

	Mandy 2.		
Certified by:	///////////	Mandy To	

Position: Environmental Team Leader

Date: <u>13 June 2019</u>

MONTHLY EM&A REPORT

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.81*

May 2019

Environmental Resources Management

16/F Berkshire House 25 Westlands Road Quarry Bay, Hong Kong Telephone: (852) 2271 3000 Facsimile: (852) 2723 5660 E-mail: post.hk@erm.com http://www.erm.com

MONTHLY EM&A REPORT

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.81*

May 2019

Reference 0171181

For and on behalf of ERM-Hong Kong, Limited		
Approved by:	Frank Wan	
Signed:	Warch T.	
Position:	Partner	
Date:	13 June 2019	

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- Annex B Construction Programme for the Reporting Month and Coming Month
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- Annex D Locations of Monitoring Stations for Noise and Dust Monitoring
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EXECUTIVE SUMMARY

The construction works of **MTR Shatin to Central Link Works Contract 1109 – Stations and Tunnels of Kowloon City Section** commenced on 1 September 2012. This is the eighty-first monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 May 2019 to 31 May 2019 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 To Kwa Wan (TKW) (formerly named as Ma Tau Wai (MTW))
• ABWF works; and
• External wall stone installation at TKW Ventilation Shaft, Entrance A, B, C and D.
Works in Sung Wong Toi (SUW) (formerly named as To Kwa Wan (TKW))
• ABWF works; and
• External wall stone installation at SUW Ventilation Shaft, Entrance A, D, B2 and B3.
Regular Construction Noise and Construction Dust Monitoring
0
A summary of the monitoring activities in this reporting period is listed
below:

• Regular construction noise monitoring during normal working hours

-		
٠	NMS-CA-6	4 times
•	NMS-CA-7	4 times
•	NMS-CA-8	4 times
•	NMS-CA-9	4 times
٠	NMS-CA-10	4 times
Сс	onstruction dust (24-hour TSP) monitoring	
٠	DMS-6	5 times
•	DMS-7	5 times
•	DMS-8	5 times
٠	DMS-9	5 times
٠	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-cumexcavation 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 surveycum-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. Artefacts handover to AMO was completed on 27 April 2018.

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. 823 m³ of inert C&D material was generated from the Project during the reporting month. 401 kg of plastics was generated and sent to recyclers for recycling during the reporting period. About 244 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. No 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 inspections of the implementation of landscape and visual mitigation measures were conducted on 6 and 20 May 2019. 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 6, 14, 20 and 27 May 2019. The representative of the IEC joined the site inspection on 20 May 2019. 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:

Cons	Construction Activities to be undertaken		
Work	<u>Work in To Kwa Wan (TKW) (formerly named as Ma Tau Wai (MTW))</u>		
•	ABWF works;		
•	External wall stone installation at TKW Ventilation Shaft, Entrance A, B, C and D;		
•	Floor board installation to TKW Entrance A, B, D and Ventilation Shaft; and		
٠	Link box cover installation to TKW Entrance A, B, C, D and Ventilation Shaft.		

Work in Sung Wong Toi (SUW) (formerly named as To Kwa Wan (TKW))

- ABWF works;
- External wall stone installation at SUW Ventilation Shaft, Entrance B2 and B3;
- Floor board installation at SUW Entrance A and D; and
- Link box cover installation at Entrance A, D, B2, B3 and Ventilation Shaft.

1 INTRODUCTION

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 eighty-first EM&A report which summarises the monitoring results and audit findings during the reporting period from 1 May to 31 May 2019.

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

2.1 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 Sung Wong Toi (SUW) (formerly named as To Kwa Wan (TKW)) and To Kwa Wan (TKW) (formerly named as Ma Tau Wai (MTW)), and the tunnels between the SUW station and Ho Man Tin station (HOM).

2.2 GENERAL SITE DESCRIPTION

For the Works Contract 1109, the alignment runs from SUW station below Ma Tau Chung Road/Ma Tau Wai Road towards the west, reaching the TKW station. After leaving TKW 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 SUW and HOM stations will be constructed by bored tunneling. Both the SUW and TKW 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 2.1Summary of the Construction Activities Undertaken during the Reporting
Month

Cor	nstruction Activities undertaken
Wo	ks in To Kwa Wan (TKW) (formerly named as Ma Tau Wai (MTW))
•	ABWF works; and
•	External wall stone installation at TKW Ventilation Shaft, Entance A, B, C and D.
Wo	ks in Sung Wong Toi (SUW) (formerly named as To Kwa Wan (TKW))
•	ABWF works; and
•	External wall stone installation at SUW Ventilation Shaft, Entrance A, D, B2 and B3.

PROJECT ORGANISATION 2.4

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 Lie	cence		
Site at TKW	WT00019555-2014	30-September-2017	-
Site at MTW	WT00019556-2014	30-September-2017	-
Chemical Waste Produce	r Registration		
Site at TKW	5213-286-S3682-01	Throughout the Contract	-
Site at MTW	5213-242-S3682-02	Throughout the Contract	-
Construction Noise Perm	it		
- PME at SUW works Area (TBM)	GW-RE0257-19	19 April 2019 – 18 July 2019	-
- PME at SUW works Area	GW-RE0234-19	1 April 2019 – 30 September 2019	-
- PME at Olympic Garden	GW-RE0258-19	19 April 2019 – 18 October 2019	-
- PME at TKW works area	GW-RE0059-19	6 February 2019 – 5 August 2019	-
- PME at Lok Shan Road and Kiang Su Street	GW-RE0064-19	5 February 2019 – 4 August 2019	-
SP-Licence for TBM operation	L-3-249(1)	19 May 2015 - 18 May 2018	Notification for the cancellation of the Specified Process Licence has been given to EPD in Nov 2016
Billing Account for Disposal of Construction Waste	7015758	Throughout the Contract	-

ENVIRONMENTAL RESOURCES MANAGEMENT

ENVIRONMENTAL MONITORING REQUIREMENT

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.

5

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 3.2Noise Monitoring Equipment

Monitoring Stations	Monitoring Equipment (Sound Level Meter and Calibrator)
NMS-CA-6, NMS-CA-7,	Calibrator: NC 73 (Serial No. 10786708)
NMS-CA-8, NMS-CA-9 and NMS-CA-10	Sound Level Meter: NL 18 (Serial No. 00360030)

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 3.3Action and Limit Levels for Noise Monitoring

Time Period	Regular Noise Monitoring Location	Action Level	Limit Level
0700 - 1900 hours on normal	NMS CA-6	When one documented valid complaint is received	75 dB(A)
weekdays	NMS- CA-7	When one documented valid complaint is received	75 dB(A)
	NMS- CA-8	When one documented	70 dB(A)
		valid complaint is received	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 3.4Proposed 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)Descriptionreview 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.*

Proposed Continuous Noise Monitoring	Description	Action/ Limit Level	Measurement Period ^(a)
Stations		(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 2015Թ
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,
		79 (c)	22 August 2013 - December 2013, August 2014 - March 2016

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

Notes:

(a) The A/L Levels and Measurement Periods will be subject to the latest Construction Noise Mitigation Measures Plan (CNMP) 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 3.7Construction 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 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 3.8Construction 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 3.9Construction Dust Monitoring Equipment

Monitoring Equipment (HVS and Calibrator)
TE-5170 (Serial No. 0107), CM-AIR-43 (Orifice ID 2454)
TE-5170 (Serial No. 3574), CM-AIR-43 (Orifice ID 2454)
TE-5170 (Serial No. 3572), CM-AIR-43 (Orifice ID 2454)
TE-5170 (Serial No. 0814), CM-AIR-43 (Orifice ID 2454)
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 ± 3°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 runtemperature 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**.

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

Table 3.10Action and Limit Levels for Dust Monitoring

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-cumexcavation 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 surveycum-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. Artefacts handover to AMO was completed on 27 April 2018.

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 4.1Status of Required Submission under Works Contract 1109

4

EP Condition	Submission	Submission Date
Condition 3.4	Eightieth Monthly EM&A Report	14 May 2019

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 5.1Summary of the Dust Monitoring Results in this Reporting Month

Monitoring Station		24-hour TSP Monitoring Results measured, μgm ^{-3 (a)}		Limit Level, µgm ⁻³
	Average	Range		
DMS-6	47	36 - 61	156.8	260
DMS-7	43	31 - 56	166.7	260
DMS-8	39	28 - 53	152.2	260
DMS-9 (a)	52	37 – 75	160.9	260
DMS-10	48	34 - 67	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 averged 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.

CULTURAL HERITAGE

5.4

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-cumexcavation 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. Artefacts handover to AMO was completed on 27 April 2018.

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.

5.5 WASTE MANAGEMENT

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

Table 5.2Quantities of Waste Generated from the Project

Reporting			Quantity			
Month	Inert C&D	Chemical	Non-	inert C&D M	aterials	
	Materials (a)	Waste (c)	^{c)} General R		cled materi	als
	(b)		Refuse/Vegetative Waste	Paper/card board	Plastics	Metals
May 2019	823 m ³	0 kg	244 m ³	0 kg	401 kg	0 kg
Notes:						
(a) Inert	C&D materials in	nclude bricks	s, concrete, building d	lebris, rubble a	and excavat	ed spoil.
(b) 823 m	n ³ of inert C&D m	naterials was	generated from the F	Project during	the reporting	ng month.
(a) Cham	ical wasta in alu	loo waata ail	It is assumed done	iter of supports of	1 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 +	~ / I

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

5.6 LANDSCAPE AND VISUAL MITIGATION MEASURES

Bi-weekly inspections of the implementation of landscape and visual mitigation measures were conducted on 6 and 20 May 2019. Most of the mitigation measures given in *Annex H* have been implemented. Required Actions that were found are listed below:

<u>6 May 2019</u>

• No observation was reported during the site inspection.

<u>20 May 2019</u>

• 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 6, 14, 20 and 27 May 2019. The representative of the IEC joined the site inspection on 20 May 2019. No non-compliance was recorded during the site inspections.

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

6 May 2019

• There was no major observation during site inspection.

<u>14 May 2019</u>

• There was no major observation during site inspection.

<u>20 May 2019</u>

• The Contractor was reminded to provide sufficient covers on stockpiles at SUW works area..

<u>27 May 2019</u>

• The Contractor was reminded to provide drip trays for chemical stored 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.

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

Wor	k in To Kwa Wan (TKW) (formerly named as Ma Tau Wai (MTW))
•	ABWF works;
•	External wall stone installation at TKW Ventilation Shaft, Entrance A, B, C and D;
•	Floor board installation at TKW Entrance A, B, D and Ventilation Shaft; and
•	Link box cover installation at TKW Entrance A, B, C, D and Ventilation Shaft
Wor	k in Sung Wong Toi (SUW) (formerly named as To Kwa Wan (TKW))
•	ABWF works;
•	External wall stone installation at SUW Ventilation Shaft, Entrance B2 and B3;
•	Floor board installation at SUW Entrance A and D; and

• Link box cover installation at Entrance A, D, B2, B3 and Ventilation Shaft.

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*.

CONCLUSIONS

This 81th monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 May 2019 to 31 May 2019 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.

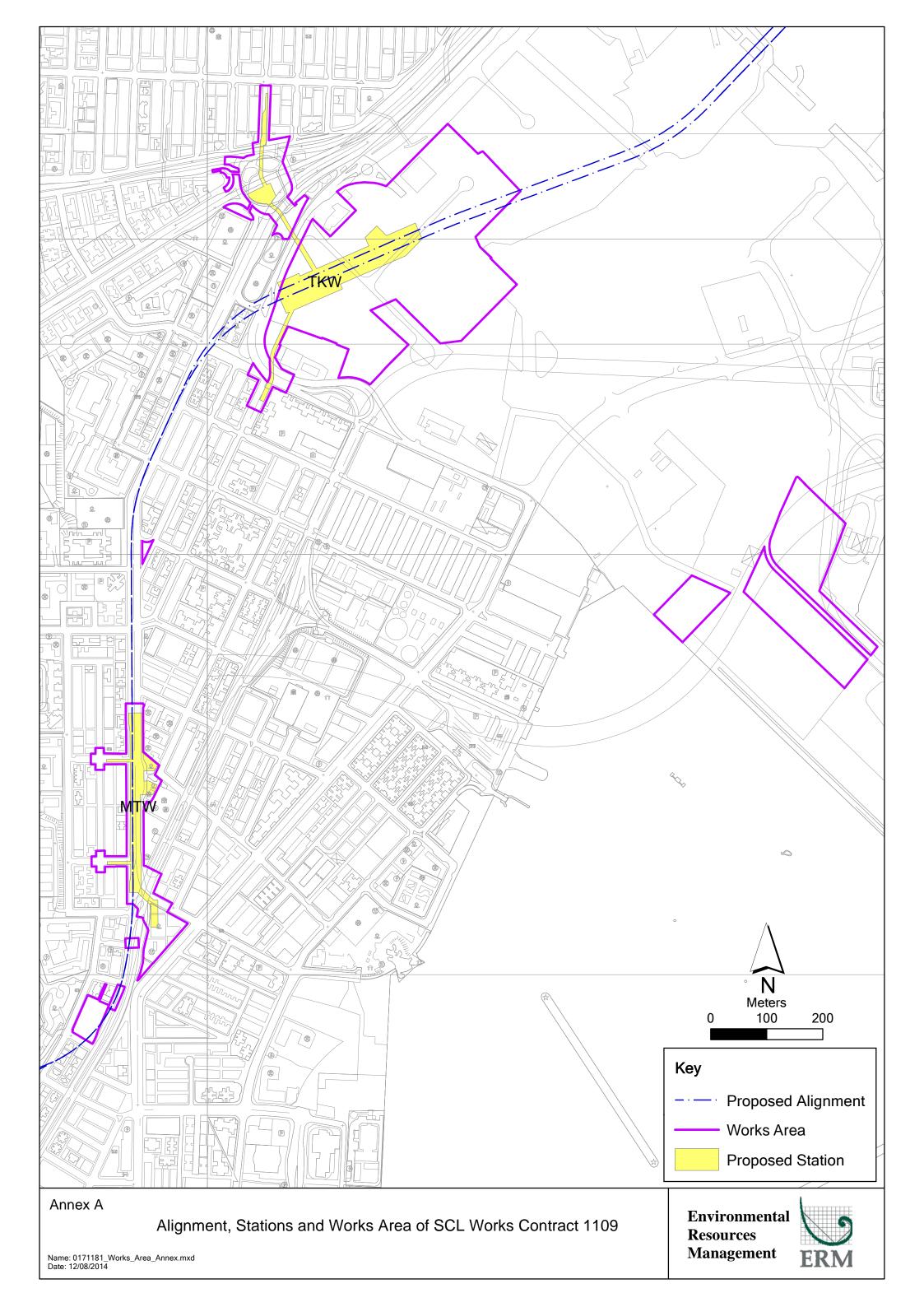
No complaint was received during reporting period.

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 B

Construction Programme for the Reporting Month and the Coming Month

Data	Date:	31-Ma	v-10
Data	Date.	JIIIIa	y 13

SAMSUNG-HSIN CHONG JOINT VENTURE

SAMSUNG - HSIN CHONG JOINT VENTURE

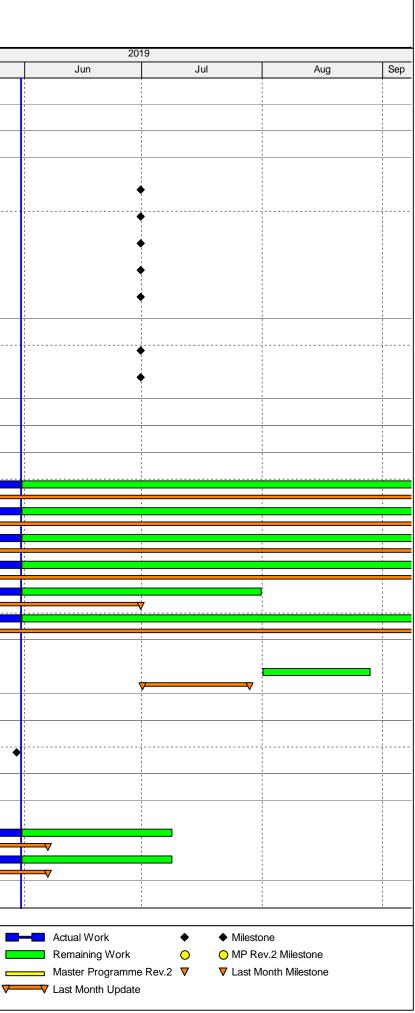
THREE MONTH ROLLING PROGRAMME - MAY 2019

Printed:04-Jun-19

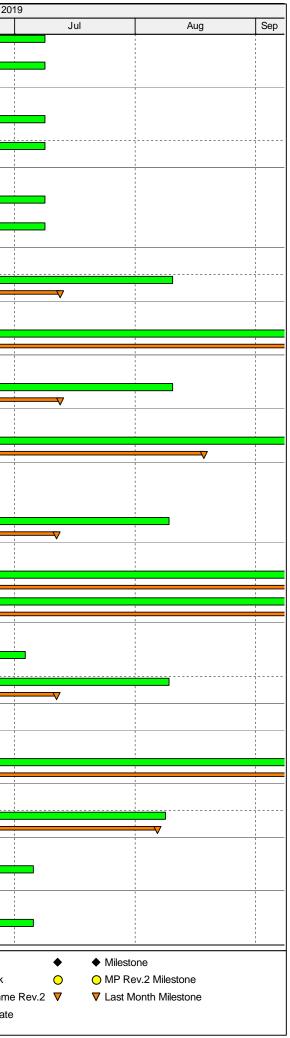
V

Activity ID	Activity Name		Remaining	Physical %	Start	Finish			2
			Duration	Complete				Мау	Jun
1109 - SUW & TKV	V Stations and Tunnel	s May 2019 (MPR2)							
PROJECT DATES									
Specified Milestone Da	ates (Revised)								
CC-E Milestones									1 1 1 1 1 1
01109.MSE06i-R10	E06(i) - Reinstatement of SWT	playground complete	0	0%		30-Jun-19*			
01109.MSE07i-P10	E07(i) - Reinstatement of Olym	npic Gdn complete	0	0%		30-Jun-19*			
01109.MSE06ii-P10	E06(ii) - All civil and structural v Oct 2017)	wks at Lok Shan Rd & TKW complex playground complete(1	0	0%		30-Jun-19*	-		
01109.MSE07iv-P10	E07(iv) - All civil and structural Dec 2017)	works at Ma Tau Wai Rd/Tam Kung Rd Garden complete (31	0	0%		30-Jun-19*	_		
01109.MSE08i-P10	E08(i) - All ABWF & E&M wks t comp (25 Feb 2018)	for reprovisioned LCSD toilet at Ma Tau Wai Rd/TKW Rd Gdn	0	0%		30-Jun-19*	_		
CC-F Milestones			· · · · · · · · · · · · · · · · · · ·	,					
01109.MSF03ii-P	F03(ii) - All works complete & s the Eng.(29 Apr 2018)	stat inspections successfully undertaken to the satisfaction of	0	0%		30-Jun-19*			
01109.MSF03i-P10	F03(iii) - All Operations & Maint	tenance manuals & As Built dwgs submitted.	0	0%		30-Jun-19*	_		
CC-A - PRELIMINA	RIES AND GENERAL R	EQUIREMENTS							
Management Systems	5					_			
Other Specified Requir	ements - Submission								
01109.PDA3410	Prepare and submit Operations	s & Maintenance manuals & As Built dwgs for TKW	171	30%	18-Feb-18 A	17-Nov-19			
01109.PDA3441	Prepare and submit Operations	s & Maintenance manuals & As Built dwgs for TKA, EEP and	162	30%	19-Mar-18 A	08-Nov-19			
01109.PDA3380	Prepare and submit Operations others RRIW areas	s & Maintenance manuals & As Built dwgs for Olympic Gdn and	162	30%	19-Mar-18 A	08-Nov-19			
01109.PDA3450	Prepare and submit Operations	s & Maintenance manuals & As Built dwgs for remaining	107	30%	19-Mar-18 A	14-Sep-19			
01109.PDA3430	Prepare and submit Operations	s & Maintenance manuals & As Built dwgs for SUW	62	30%	19-Mar-18 A	31-Jul-19			
01109.PDA3440	Prepare and submit Operations	s & Maintenance manuals & As Built dwgs for HOM	162	30%	19-Mar-18 A	08-Nov-19			
Other Specified Requir	ements - Approval								
01109.PDA3520	Review & Approve - Operations Apr 2018)	s & Maintenance manuals & As Built dwgs for SUW(DRM: 29	28	0% (01-Aug-19	28-Aug-19	_		
CC-B - SUW STATI	ON, ENTRANCES AND	ADITS							
SUW Station Construc	tion Works								1 1 1 1 1 1
01109.PDB10201RB2	Ready for RB inspections for S	SUW	0	100%		29-May-19 A		◆	
Station - ABWF Works	- Degree 3							• • • • • • • • • • • • • • • • • • •	1 1 1 1 1
GL 1 - 5 - Works to De	gree 3, Platform Level								
01109.PDB17060B	Rectify and Complete all ABWF	Defect and outstanding work (BoH)	31	80%	01-Dec-18 A	08-Jul-19			
01109.PDB17160B	Rectify and Complete all ABWF	Defect and outstanding work (FoH)	31	80% (01-Dec-18 A	08-Jul-19			
GL 5 - 23 - Works to D	egree 3, Platform Level								
									1
		MTR Corporation Limi	ited		1109-MPR2-2F	R5, Page 1 of 5			Actual Work
SAMSU	NG H	Shatin to Central Link Contr			MAY 2019 TAS	K filters: 3MRP Dates,	MTRC 110		Remaining Work

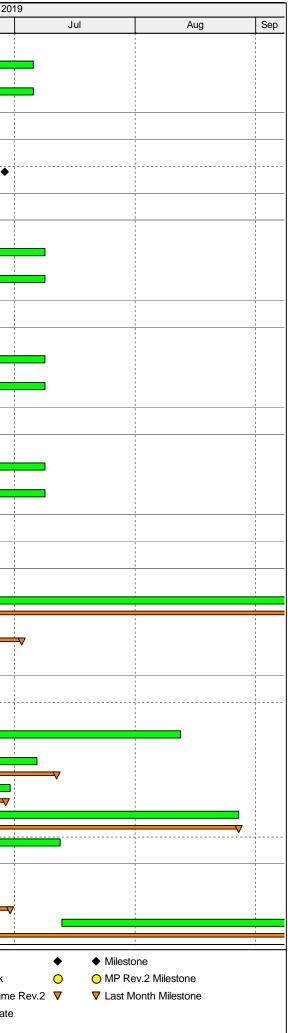
Shatin to Central Link Contract 1109



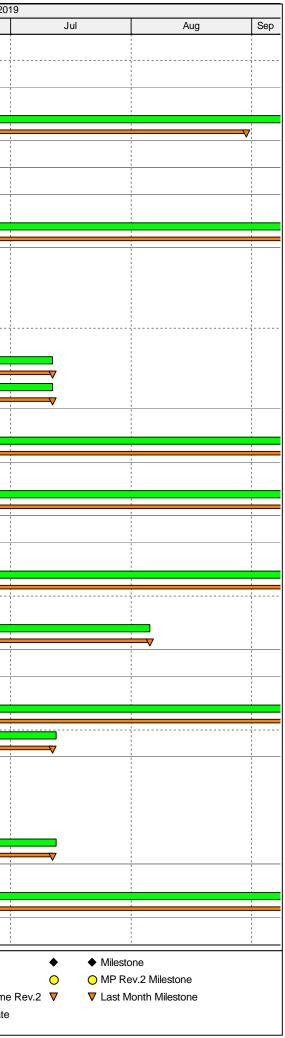
ctivity ID	Activity Name		Remaining Duration	Physical % Start Complete	Finish	May	Jun
01109.PDB18020B	Rectify and Complete all ABWF	Defect and outstanding work (BoH)	31	80% 01-Dec-18 A	08-Jul-19		
01109.PDB18120B	Rectify and Complete all ABWF	Defect and outstanding work (FoH)	31	80% 01-Dec-18 A	08-Jul-19		
GL 1 - 5 - Works to De	egree 3, Concourse Level						
01109.PDB18340B	Rectify and Complete all ABWF	Defect and outstanding work (BoH)	31	100% 01-Dec-18 A	08-Jul-19		
01109.PDB18440B	Rectify and Complete all ABWF	Defect and outstanding work (FoH)	31	100% 01-Dec-18 A	08-Jul-19		
GL 5 - 23 - Works to D	Degree 3, Concourse Level						
01109.PDB18660B	Rectify and Complete all ABWF	Defect and outstanding work (BoH)	31	91% 01-Dec-18 A	08-Jul-19		
01109.PDB18760B	Rectify and Complete all ABWF	Defect and outstanding work (FoH)	31	85% 01-Dec-18 A	08-Jul-19		
Entrance A							
01109.3MS10220B1	Rectify and Complete all ABWF	Defect and outstanding work (Entrance A)	60	95% 01-Dec-18 A	10-Aug-19		
Entrance A - Works for	r Degree 3 Finish						
01109.PDB19110	ABWF Works Entrance A - to D	egree 3 completion (DRM: 15 Apr 18, 15/18)	157	95% 15-Jan-18 A	05-Dec-19		
Entrance D							
01109.3MS10220B2	Rectify and Complete all ABWF	Defect and outstanding work (Entrance D)	60	70% 01-Dec-18 A	10-Aug-19		
Entrance D - Works for	r Degree 3 Finish						
01109.PDB16280	ABWF Works Entrance D - to D	legree 3 completion	111	92% 15-Jan-18 A	18-Sep-19		
Vent Shaft							
01109.3MS10220E	SUW Vent Shaft External Stone	Cladding Installation	0	100% 19-Mar-18 A	31-May-19 A		
01109.3MS10220B3	Rectify and Complete all ABWF	Defect and outstanding work (Vent Shaft)	59	35% 01-Dec-18 A	09-Aug-19		
Vent Shaft - Works for	Degree 3 Finish						
01109.PDB16180	ABWF Works Vent Shaft - to De	gree 3 completion (DRM: 15 Apr 18, 15/18)	157	93% 15-Jan-18 A	05-Dec-19		
01109.PDB14181	For 4J Deg 3 handover, parepar	e SUW Vent shafts & ducts etc.(DRM: 15 Apr 18, 15/18)	157	93% 01-Mar-18 A	05-Dec-19		
Entrance B & Adit B							
01109.3MS10220B	SUW Entrance B2 & B3 Externa	I Stone Cladding Installation	27	92% 19-Mar-18 A	03-Jul-19		
01109.3MS10220B4	Rectify and Complete all ABWF	Defect and outstanding work (NKR)	59	75% 01-Dec-18 A	09-Aug-19		
Entrance B & Adit B - E	External Works						
Portion 2							
01109.PDB14630	Complete Civil reinstatement of (Olympic Garden in Works Area 1109.W1	118	0% 10-Sep-18 A	25-Sep-19		
Entrance B & Adit B -	Works for Degree 3 Finish						
01109.PDB13523	For 4K Deg 3 handover, prepare	SUW Adits B incl Ent, all rooms and vent shafts at Adit B	70	94% 19-Mar-18 A	08-Aug-19		
Portion 1	(DRM: 15 Apr 18, 15/18)						
01109.PDB14920	ABWF Internal Works Adit B; GI	B2 to B12 - to Degree 3 completion	29	94% 15-Jan-18 A	05-Jul-19		
Portion 2							
01109.PDB14940	ABWF Internal Works Adit B; GI	_ B12 to B23 - to Degree 3 completion	29	94% 15-Jan-18 A	05-Jul-19		
l	 		itad	1109-MDR2-2	R5, Page 2 of 5		
SAMSU	NG HI	MTR Corporation Lim Shatin to Central Link Cont		MAY 2019 TA	SK filters: 3MRP Dates, N	MTRC 1109 - 3MRP.	Actual Work Remaining Wor Master Program
	HONG JOINT VENTURE			Printed:04-Ju	n-19		Last Mont



	Activity Name		Remaining Duration	Physical % Complete	Start	Finish	May		2 Jun
Portion 3							iviay		Jun
01109.PDB14960	ABWF External & Internal Works Ad	it B; GL B23 to B31 - to Degree 3 completion	29	94%	19-Mar-18 A	05-Jul-19			
01109.PDB15970	E&M Internal & External Works Adit	B; GL B23 to B31 - to Degree 3 completion	29	94%	19-Mar-18 A	05-Jul-19			
CC-C - TKW STATIO	ON, ENTRANCES AND ADI	TS							
TKW Station									
01109.PDC28291RB2	Ready for RB inspections for TKW		0	0%		28-Jun-19*	 		
Station - ABWF Works (Concourse Level and Above)							Y	
Major Works to Degree	3								
01109.PDC27000B	Rectify and Complete all ABWF Defe	ect and outstanding work (BoH)	31	65%	01-Dec-18 A	08-Jul-19			
01109.PDC27930B	Rectify and Complete all ABWF Defe	ect and outstanding work (FoH)	31	65%	01-Dec-18 A	08-Jul-19			
Station - ABWF Works (Upper Platform Level)								
Major Works to Degree	3								
01109.PDC28150B	Rectify and Complete all ABWF Defe	ect and outstanding work (BoH)	31	65%	01-Dec-18 A	08-Jul-19			
01109.PDC28250B	Rectify and Complete all ABWF Defe	ect and outstanding work (FoH)	31	65%	01-Dec-18 A	08-Jul-19			
Station - ABWF Works (Lower Platform Level)								
Major Works to Degree	3								
01109.PDC28460B	Rectify and Complete all ABWF Defe	ect and outstanding work (BoH)	31	65%	01-Dec-18 A	08-Jul-19			
01109.PDC28560B	Rectify and Complete all ABWF Defe	ect and outstanding work (FoH)	31	65%	01-Dec-18 A	08-Jul-19			
TKW Station External La	andscaping Works							V	
RRIW (TKW)									
	-Wall and TTMS (TKW Entrance D)								
	-Wall and TTMS (TKW Entrance D) TKW Road Garden Stage 1		102	40%	31-Mar-19 A	30-Sep-19			
TKW Road Garden, D		e 1 only	102 15		31-Mar-19 A 31-Mar-19 A	30-Sep-19 14-Jun-19			
TKW Road Garden, D 01109.PDC1460A	TKW Road Garden Stage 1			80%					•
TKW Road Garden, D 01109.PDC1460A 01109.PDC1470A20 01109.PDC1470A30	TKW Road Garden Stage 1 Works under TTMS for Pier 15 Stag	019)	15	80%	31-Mar-19 A				•
TKW Road Garden, D 01109.PDC1460A 01109.PDC1470A20 01109.PDC1470A30	TKW Road Garden Stage 1 Works under TTMS for Pier 15 Stag TTMS for Pier 15 Stage 2 (15 Jun 20	D19) TMS (TKW Vent Shaft)	15	80%	31-Mar-19 A				•
TKW Road Garden, D 01109.PDC1460A 01109.PDC1470A20 01109.PDC1470A30 Covered Walkway, Vol	TKW Road Garden Stage 1 Works under TTMS for Pier 15 Stag TTMS for Pier 15 Stage 2 (15 Jun 20 Iley Ball Court, Garden, D-Wall and T	D19) TMS (TKW Vent Shaft)	0	80% 0% 50%	31-Mar-19 A 15-Jun-19*	14-Jun-19		I I	•
TKW Road Garden, D 01109.PDC1460A 01109.PDC1470A20 01109.PDC1470A30 Covered Walkway, Vol 01109.PDC1450C20	TKW Road Garden Stage 1 Works under TTMS for Pier 15 Stag TTMS for Pier 15 Stage 2 (15 Jun 20 Iley Ball Court, Garden, D-Wall and T D-Wall & Drainage at East-BMW/Sh	D19) TMS (TKW Vent Shaft)	15 0 13	80% 0% 50% 30%	31-Mar-19 A 15-Jun-19* 15-Jan-19 A	14-Jun-19 15-Jun-19			•
TKW Road Garden, D 01109.PDC1460A 01109.PDC1470A20 01109.PDC1470A30 Covered Walkway, Vol 01109.PDC1450C20 01109.PDC1450A	TKW Road Garden Stage 1 Works under TTMS for Pier 15 Stage TTMS for Pier 15 Stage 2 (15 Jun 20 Iley Ball Court, Garden, D-Wall and T D-Wall & Drainage at East-BMW/Sh Covered Walkway	019) TMS (TKW Vent Shaft) ell Ingress - TTMS Stage 2	15 0 13 61	80% 0% 50% 30% 30%	31-Mar-19 A 15-Jun-19* 15-Jan-19 A 01-Feb-19 A	14-Jun-19 15-Jun-19 12-Aug-19			•
TKW Road Garden, D 01109.PDC1460A 01109.PDC1470A20 01109.PDC1470A30 Covered Walkway, Vol 01109.PDC1450C20 01109.PDC1450A 01109.PDC1450A 01109.PDC1450B	TKW Road Garden Stage 1 Works under TTMS for Pier 15 Stage TTMS for Pier 15 Stage 2 (15 Jun 20 Itey Ball Court, Garden, D-Wall and T D-Wall & Drainage at East-BMW/Sh Covered Walkway VolleyBall Court	019) TMS (TKW Vent Shaft) ell Ingress - TTMS Stage 2	15 0 13 13 61 30	80% 0% 50% 30% 30%	31-Mar-19 A 15-Jun-19* 15-Jan-19 A 01-Feb-19 A 01-Feb-19 A	14-Jun-19 15-Jun-19 12-Aug-19 06-Jul-19	V		► •
TKW Road Garden, D 01109.PDC1460A 01109.PDC1470A20 01109.PDC1470A30 Covered Walkway, Vol 01109.PDC1450C20 01109.PDC1450C20 01109.PDC1450A 01109.PDC1450A 01109.PDC1450A 01109.PDC1450B 01109.PDC1450C	TKW Road Garden Stage 1 Works under TTMS for Pier 15 Stage TTMS for Pier 15 Stage 2 (15 Jun 20 Itey Ball Court, Garden, D-Wall and T D-Wall & Drainage at East-BMW/Sh Covered Walkway VolleyBall Court PermanentBus Stop at south bound	019) TMS (TKW Vent Shaft) ell Ingress - TTMS Stage 2	15 0 13 13 61 30 25	80% 0% 50% 30% 20% 10%	31-Mar-19 A 15-Jun-19* 15-Jan-19 A 01-Feb-19 A 01-Feb-19 A 01-Feb-19 A	14-Jun-19 15-Jun-19 12-Aug-19 06-Jul-19 29-Jun-19			■
TKW Road Garden, D 01109.PDC1460A 01109.PDC1470A20 01109.PDC1470A30 Covered Walkway, Vol 01109.PDC1450C20 01109.PDC1450C20 01109.PDC1450A 01109.PDC1450A 01109.PDC1450B 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C	TKW Road Garden Stage 1 Works under TTMS for Pier 15 Stage TTMS for Pier 15 Stage 2 (15 Jun 20 Itey Ball Court, Garden, D-Wall and T D-Wall & Drainage at East-BMW/Sh Covered Walkway VolleyBall Court PermanentBus Stop at south bound RemainingDrainage Work / Finishing	019) TMS (TKW Vent Shaft) ell Ingress - TTMS Stage 2 9 ell Ingress - TTMS Stage 3	15 0 15 0 13 61 30 25 74	80% 0% 50% 30% 20% 10%	31-Mar-19 A 15-Jun-19* 15-Jan-19 A 01-Feb-19 A 01-Feb-19 A 01-Feb-19 A 03-Apr-19 A	14-Jun-19 14-Jun-19 15-Jun-19 12-Aug-19 06-Jul-19 29-Jun-19 27-Aug-19			 <!--</td-->
TKW Road Garden, D 01109.PDC1460A 01109.PDC1470A20 01109.PDC1470A30 Covered Walkway, Vol 01109.PDC1450C20 01109.PDC1450C20 01109.PDC1450A 01109.PDC1450A 01109.PDC1450B 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C	TKW Road Garden Stage 1 Works under TTMS for Pier 15 Stage TTMS for Pier 15 Stage 2 (15 Jun 20 Iter Ball Court, Garden, D-Wall and T D-Wall & Drainage at East-BMW/Sh Covered Walkway VolleyBall Court PermanentBus Stop at south bound RemainingDrainage Work / Finishing D-Wall & Drainage at East-BMW/Sh	D19) TMS (TKW Vent Shaft) ell Ingress - TTMS Stage 2 ell Ingress - TTMS Stage 3 hepherd Primary School and TTMS	15 0 15 0 13 61 30 25 74	80% 0% 50% 30% 20% 10%	31-Mar-19 A 15-Jun-19* 15-Jan-19 A 01-Feb-19 A 01-Feb-19 A 01-Feb-19 A 03-Apr-19 A	14-Jun-19 14-Jun-19 15-Jun-19 12-Aug-19 06-Jul-19 29-Jun-19 27-Aug-19			
TKW Road Garden, D 01109.PDC1460A 01109.PDC1470A20 01109.PDC1470A30 Covered Walkway, Vol 01109.PDC1450C20 01109.PDC1450C20 01109.PDC1450C4 01109.PDC1450A 01109.PDC1450B 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C	TKW Road Garden Stage 1 Works under TTMS for Pier 15 Stage TTMS for Pier 15 Stage 2 (15 Jun 20 Iley Ball Court, Garden, D-Wall and T D-Wall & Drainage at East-BMW/Sh Covered Walkway VolleyBall Court PermanentBus Stop at south bound RemainingDrainage Work / Finishing D-Wall & Drainage at East-BMW/Sh	D19) TMS (TKW Vent Shaft) ell Ingress - TTMS Stage 2 ell Ingress - TTMS Stage 3 hepherd Primary School and TTMS	15 0 13 13 61 30 25 74 22	80% 0% 50% 30% 20% 10% 0%	31-Mar-19 A 15-Jun-19* 15-Jan-19 A 01-Feb-19 A 01-Feb-19 A 01-Feb-19 A 03-Apr-19 A 17-Jun-19	14-Jun-19 14-Jun-19 15-Jun-19 12-Aug-19 06-Jul-19 29-Jun-19 27-Aug-19 12-Jul-19			
TKW Road Garden, D 01109.PDC1460A 01109.PDC1470A20 01109.PDC1470A30 Covered Walkway, Vol 01109.PDC1450C20 01109.PDC1450C20 01109.PDC1450C4 01109.PDC1450A 01109.PDC1450B 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C30 Sheung Heung Road 01109.PDE1130A11	TKW Road Garden Stage 1 Works under TTMS for Pier 15 Stage TTMS for Pier 15 Stage 2 (15 Jun 20 Itey Ball Court, Garden, D-Wall and T D-Wall & Drainage at East-BMW/Sh Covered Walkway VolleyBall Court PermanentBus Stop at south bound RemainingDrainage Work / Finishing D-Wall & Drainage at East-BMW/Sh Garden, D-Wall next to SKH Good S D-Wall & Drainage at West (Bay 13)	2) TMS (TKW Vent Shaft) ell Ingress - TTMS Stage 2 ell Ingress - TTMS Stage 3 hepherd Primary School and TTMS 2)	 15 0 13 61 30 25 74 22 74 160 	80% 0% 50% 30% 20% 10% 0%	31-Mar-19 A 15-Jun-19* 15-Jan-19 A 01-Feb-19 A 01-Feb-19 A 01-Feb-19 A 03-Apr-19 A 17-Jun-19 04-Mar-19 A 13-Jul-19	14-Jun-19 14-Jun-19 15-Jun-19 12-Aug-19 06-Jul-19 29-Jun-19 27-Aug-19 12-Jul-19 17-Jun-19 19-Dec-19			
TKW Road Garden, D 01109.PDC1460A 01109.PDC1470A20 01109.PDC1470A30 Covered Walkway, Vol 01109.PDC1450C20 01109.PDC1450C20 01109.PDC1450C4 01109.PDC1450A 01109.PDC1450B 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C 01109.PDC1450C30 Sheung Heung Road 01109.PDE1130A11	TKW Road Garden Stage 1 Works under TTMS for Pier 15 Stage TTMS for Pier 15 Stage 2 (15 Jun 20 Itey Ball Court, Garden, D-Wall and T D-Wall & Drainage at East-BMW/Sh Covered Walkway VolleyBall Court PermanentBus Stop at south bound RemainingDrainage Work / Finishing D-Wall & Drainage at East-BMW/Sh Garden, D-Wall next to SKH Good S D-Wall & Drainage at West (Bay 13) D-Wall & Drainage at West (Bay 5-1	D19) TMS (TKW Vent Shaft) ell Ingress - TTMS Stage 2 ell Ingress - TTMS Stage 3 hepherd Primary School and TTMS	 ■ ■	80% 0% 50% 30% 20% 10% 0%	31-Mar-19 A 15-Jun-19* 15-Jan-19 A 01-Feb-19 A 01-Feb-19 A 01-Feb-19 A 03-Apr-19 A 17-Jun-19 04-Mar-19 A 13-Jul-19 1109-MPR2-21	14-Jun-19 14-Jun-19 15-Jun-19 12-Aug-19 06-Jul-19 29-Jun-19 27-Aug-19 12-Jul-19 17-Jun-19			◆



tivity ID	Activity Name	Remaining	Physical %	Start	Finish				2	201
Tam Kung Road Gard	den and TTMS	Duration	Complete				Мау		Jun	1
			00/	o						
01109.PDE1130A52	TKA Rain Shelter Type C Roof & chairs installation (3 sets)	19	0%	31-May-19	22-Jun-19	V	V	1 1 1		
Chikiang Street Amer	nity Area and TTMS									
01109.PDE1130A71	D-Wall & Drainage at West (Bay 1-4)	102	0%	31-May-19	30-Sep-19	—				-
General Works for Ach	ievement of Degree Completions				` `					
Remaining Works to D	Degree 3									
TKW Adits and Entra	nces									
01109.PDC22590	For 4T Deg 3 handover, prepare TKW Adits and Entrances (DRM: 10 Dec 17, 49/17)	157	92%	22-Jan-18 A	05-Dec-19			1		_
Entrance A & Vent Sha	ft A									_
01109.3MT10050	TKW Internal Wall Stone Installation at Entrance A	0	95%	12-Mar-18 A	31-May-19					
01109.3MT10050A	TKW Entrance A External Stone Cladding Installation	0	95%	19-Mar-18 A	31-May-19					1
01109.PDC27510A	TKW Vent Shaft External Stone Cladding Installation	0	100%	19-Mar-18 A	30-Apr-19 A					•
01109.3MT10050B	Rectify and Complete all ABWF Defect and outstanding work (Entrance A)	34	55%	01-Dec-18 A	11-Jul-19					
01109.PDC27510B	Rectify and Complete all ABWF Defect and outstanding work (Vent Shaft)	34		01-Dec-18 A	11-Jul-19					
Vent Shaft - ABWF Wor			0270							_
01109.PDC27510	Deg 3 - ABWF to Vent Shaft A (DRM: 10 Dec 17, 49/17)	157	93%	15-Jan-18 A	05-Dec-19					_
Entrances - ABWF Wor										
01109.PDC26980	Deg 3 - ABWF to Entrance A (DRM: 10 Dec 17, 49/17)	157	93%	15-Jan-18 A	05-Dec-19					
Entrance B								1		
Entrances - ABWF World	ks									
01109.PDC27220	Deg 3 - ABWF to Entrance B (DRM: 10 Dec 17, 49/17)	157	93%	15-Jan-18 A	05-Dec-19					
01109.PDC27220A	TKW Entrance B External Stone Cladding Installation	15	93%	19-Mar-18 A	18-Jun-19		<u> </u>	<mark></mark>		
01109.PDC27220B	Rectify and Complete all ABWF Defect and outstanding work (Entrance B)	55	65%	01-Dec-18 A	05-Aug-19		V			
Entrance C								1 1 1		_
Entrances - ABWF World	ks									
01109.PDC27250	Deg 3 - ABWF to Entrance C	157	100%	15-Jan-18 A	05-Dec-19					_
01109.PDC27250B	Rectify and Complete all ABWF Defect and outstanding work (Entrance C)	35		11-Feb-19 A	12-Jul-19					
Entrance D & Vent Sha										-
01109.3MT10060		c	100%	40 Mar 40 A	00 lun 40			1 1 1 1	•	
	TKW Internal Wall Stone Installation at Entrance D	6		12-Mar-18 A	06-Jun-19	_	- V			
01109.3MT10060A	TKW Entrance D External Stone Cladding Installation	15		19-Mar-18 A	18-Jun-19		V			
01109.3MT10060B	Rectify and Complete all ABWF Defect and outstanding work (Entrance D)	35	65%	01-Dec-18 A	12-Jul-19			i i		_
Entrances - ABWF Wor	ks									
01109.PDC27280	Deg 3 - ABWF to Entrance D (DRM: 10 Dec 17, 49/17)	157	92%	15-Jan-18 A	05-Dec-19					=
CC-D - BORED TU	NNELS FROM SUW STATION TO HOM STATION									_
	MTR Corporation Li	mited		1109-MPR2-21	R5, Page 4 of 5				Actual Work	_
SAMSU					SK filters: 3MRP Dates	MTRC 1109	- 3MRP.		Actual Work Remaining Work Master Programr	
SAMSUNG-HSIN CH	HONG JOINT VENTURE			Printed:04-Jur	n-19			V	Last Month Upda	



vity ID	Activity Name	Remaining	Physical % Start	Finish			2019			
		Duration	Complete		Мау	/ Jun	Jul	Aug		
To Kwa Wan Ancillar	y Building									
External Finishes and	I External Works									
External Wall Finishe	25									
01109.PDD3920	Earthworks & Landscaping	25	90% 01-Jun-18 A	29-Jun-19			, ,			
01109.PDD3890	Stone cladding (315m2)	12	80% 30-Mar-19 A	14-Jun-19						
CC-E - REPROVIS	SIONING, REMEDIAL AND IMPROVEMENT WORKS (RRIW)				· · · · ·					
Landscaping & other	External Works									
01109.PDE1090	Irrigation installation	42	0% 02-Jul-19	19-Aug-19						
01109.PDE1090	Irrigation installation	42	0% 02-Jul-19	19-Aug-19						

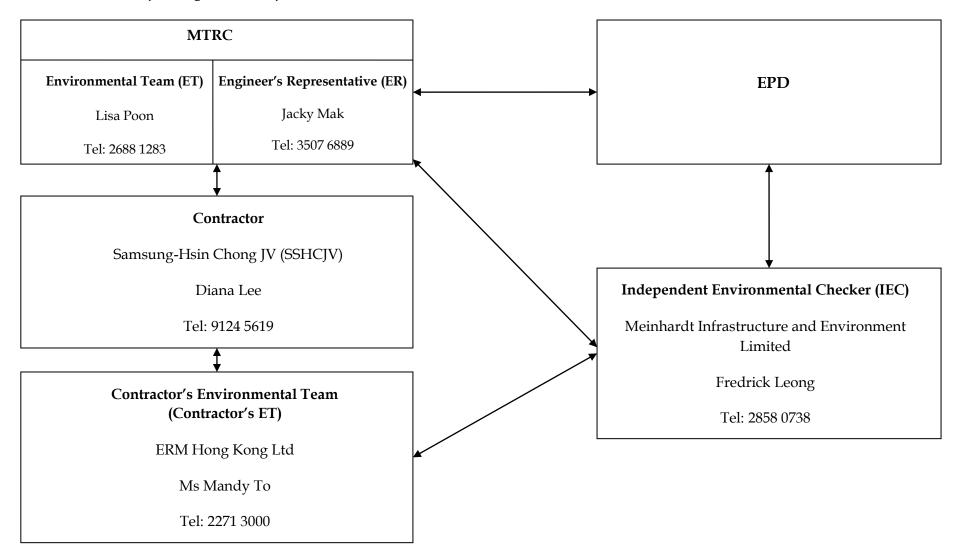
	MTR Corporation Limited	1109-MPR2-2R5, Page 5 of 5	Actual Work
SAMSUNG H	Shotin to Control Link Control 1100	MAY 2019 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.	Remaining Work
	Shatin to Central Link Contract 1109	Printed:04-Jun-19	Master Programme
SAMSUNG-HSIN CHONG JOINT VENTURE		Finted.04-501F15	Last Month Update
			L

♦ O ev.2 ▼ Milestone
 MP Rev.2 Milestone
 Last Month Milestone

ne Rev.2 ▼ ▼ Last Month Milestone

Annex C

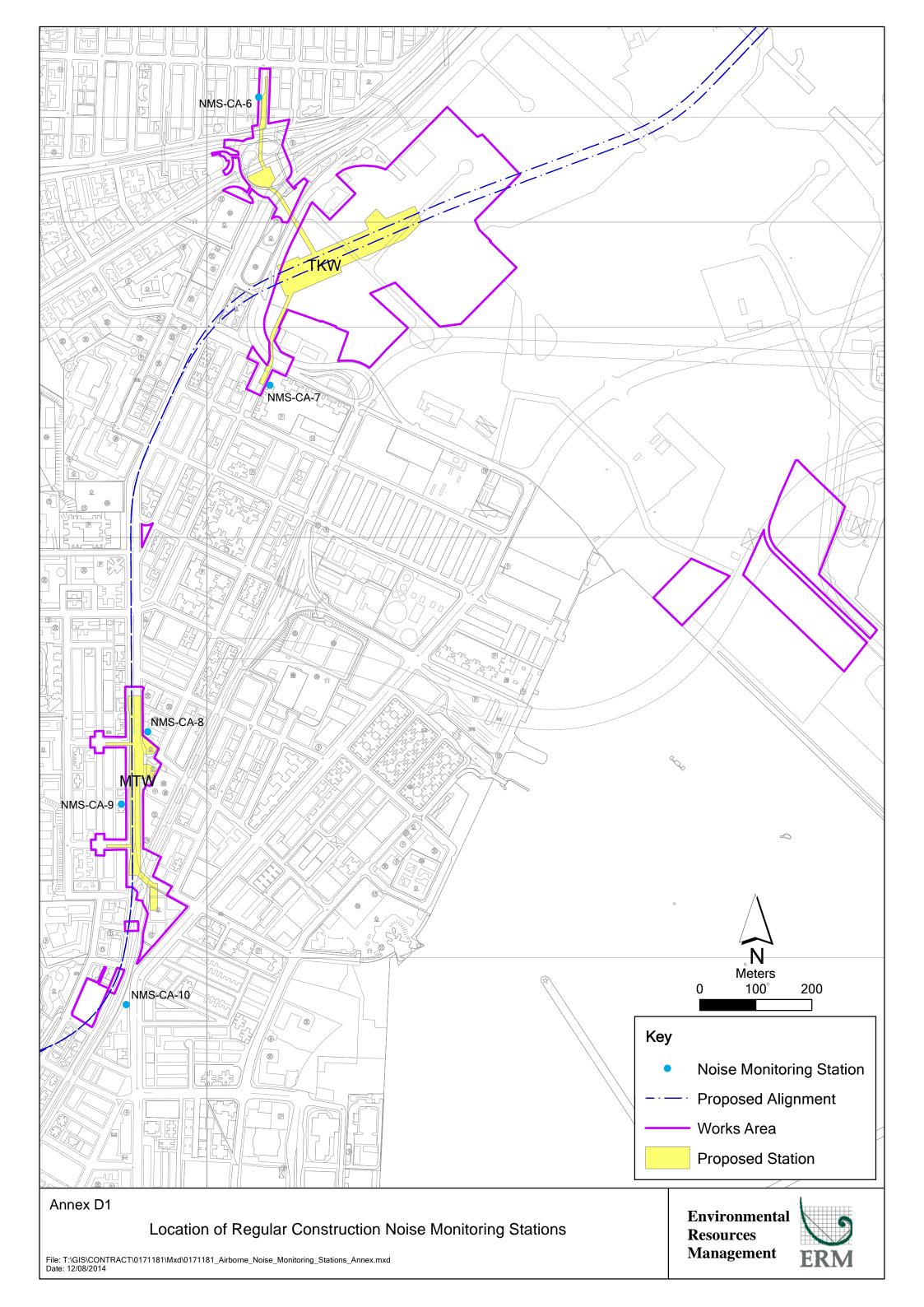
Project Organization Chart and Contact Detail

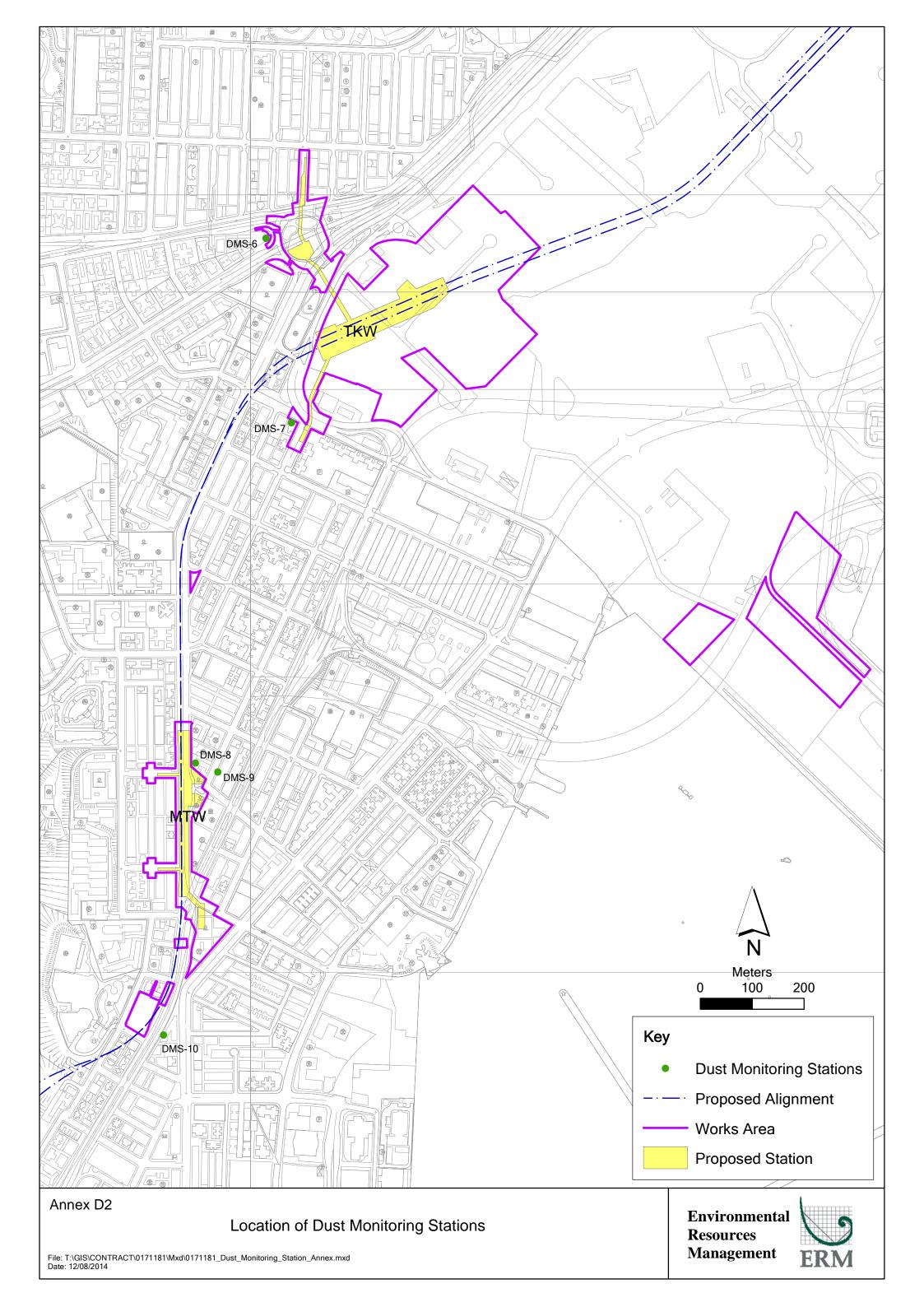


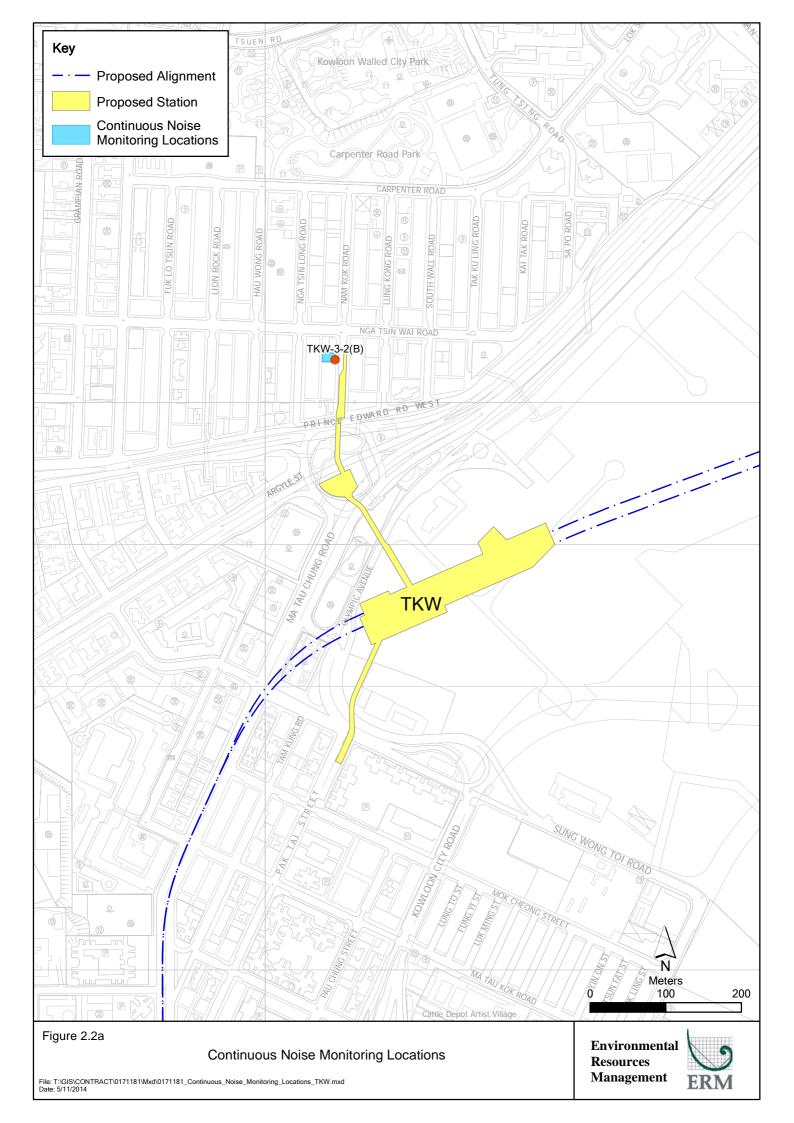
Annex C Project Organization of SCL Works Contract 1109

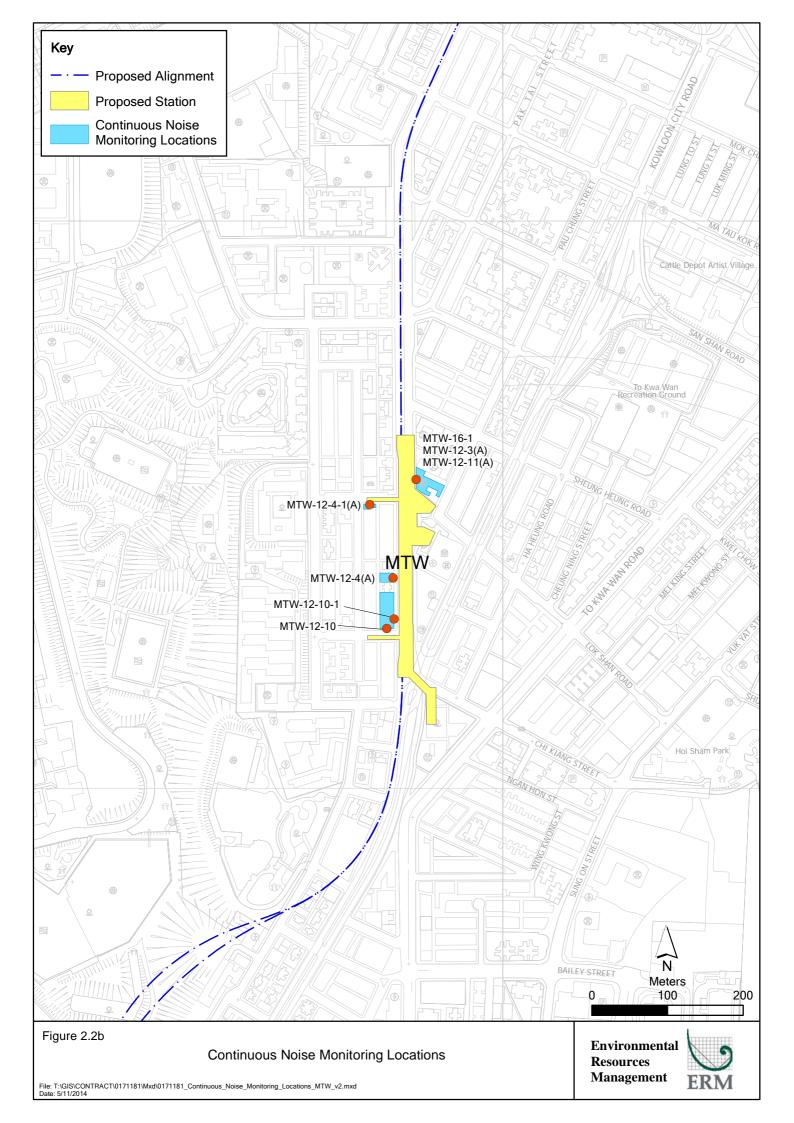
Annex D

Locations of Noise and Dust Monitoring Stations









Annex 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 Dust Monitoring Schedule

24-hr TSP Monitoring Stations: DMS-6, DMS-7, DMS-8, DMS-9 and DMS-10 Monitoring Month: May 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			01-May	02-May	03-May	04-May
			Public Holiday			
05-May	06-May	07-May	08-May	09-May	10-May	11-May
	24 - hr TSP Monitoring					24 - hr TSP Monitoring
12-May	13-May	14-May	15-May	16-May	17-May	18-May
	Public Holiday				24 - hrs TSP Monitoring	
19-May	20-May	21-May	22-May	23-May	24-May	25-May
				24-hr TSP Monitoring		
26-May	27-May	28-May	29-May	30-May	31-May	
			24-hr TSP 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: June 2019

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

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 : May 2019

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

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 : June 2019

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

Annex F

Calibration Reports

Annex F Calibration Reports

Dust Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment	Monitoring Equipment		Next Calibration Date
24-hr TSP		HVS	Calibrator		
DMS-6	Katherine Building	TE-5170 (S/N 0107)	CM-AIR-43 (Orifice I.D. 2454)	5 November 2018	5 May 2019
DMS-6	Katherine Building	TE-5170 (S/N 0107)	CM-AIR-43 (Orifice I.D. 2454)	5 May 2019	5 November 2019
DMS-7	Parc 22	TE-5170 (S/N 3574)	CM-AIR-43 (Orifice I.D. 2454)	5 November 2018	5 May 2019
DMS-7	Parc 22	TE-5170 (s/N 3574)	CM-AIR-43 (Orifice I.D. 2454)	5 May 2019	5 November 2019
DMS-8	SKH Good Shepherd Primary School	TE-5170 (S/N 3572)	CM-AIR-43 (Orifice I.D. 2454)	5 November 2018	5 May 2019
DMS-8	SKH Good Shepherd Primary School	TE-5170 (S/N 3572)	CM-AIR-43 (Orifice I.D. 2454)	5 May 2019	5 November 2019
DMS-9	No. 12 Pau Chung Street	TE-5170 (S/N 0814)	CM-AIR-43 (Orifice I.D. 2454)	5 November 2018	5 May 2019
DMS-9	No. 12 Pau Chung Street	TE-5170 (S/N 0814)	CM-AIR-43 (Orifice I.D. 2454)	5 May 2019	5 November 2019
DMS-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. 2454)	5 November 2018	5 May 2019
DMS-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. 2454)	5 May 2019	5 November 2019

Noise Monitoring Equipment

Monitoring Station ID	Monitoring Equipment	Model & Serial No.	Last Calibration Date	Next Calibration Date
NMS-CA-6, NMS-CA-7, NMS-	Calibrator	Rion NC-73 (S/N 10786708)	14 October 2018	14 October 2019
CA-8, NMS-CA-9 and NMS-CA-10	Sound Level Meter	Rion NL-18 (S/N 00360030)	17 March 2019	17 March 2020

ENVIROTECH SERVICES CO.

	High-Volume TSP Sampler			
	5-Poin	t Calibration Record		
Location	:	DMS-6(Katherine Building)		
Calibrated by	:	K.T.Ho		
Date	:	05/11/2018		
<u>Sampler</u>				
Model	:	TE-5170		
Serial Number	:	S/N 0107		
Calibration Orifice and Standard	Calibrati	ion Relationship		
Serial Number	:	2454		
Service Date	:	19 Mar 2018		
Slope (m)	:	2.05242		
Intercept (b)	:	-0.01383		
Correlation Coefficient(r)	:	0.99994		
Standard Condition				
Pstd (hpa)	:	1013		
Tstd (K)	:	298.18		
Calibration Condition				
Pa (hpa)	:	1015		
Ta(K)	:	296		

Resi	stance Plate	dH [green liquid]	Ζ	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	12.6	3.565	1.744	55	55.24
2	13 holes	9.0	3.013	1.475	44	44.19
3	10 holes	6.6	2.580	1.264	36	36.16
4	7 holes	4.2	2.058	1.010	28	28.12
5	5 holes	2.8	1.681	0.826	16	16.07

Sampler Calibration Relationship (Linear Regression)

Slope(m):40.823Intercept(b): -15.626Correlation Coefficient(r): 0.9940

Checked by: Magnum Fan

Date: 09/11/2018

ENVIROTECH SERVICES CO.

	-	<u>High-Volume TSP Sampler</u> <u>5-Point Calibration Record</u>			
Location Calibrated by Date	:	DMS-6(Katherine Building) K.T.Ho 05/05/2019			
Sampler Model		TE-5170			
Serial Number	:	S/N 0107			
Calibration Orifice and Star	ndard Calibratio	-			
Serial Number	:	2454			
Service Date	:	25 February 2019			
Slope (m)	:	2.07076			
Intercept (b)	:	-0.02917			
Correlation Coefficient(r)	:	1.00000			
Standard Condition					
Pstd (hpa)	:	1013			
Tstd (K)	:	298.18			
Calibration Condition					
Pa (hpa)	:	1010			
Ta(K)	:	295			

Resi	stance Plate	dH [green liquid]	Ζ	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	12.8	3.591	1.748	54	54.19
2	13 holes	9.4	3.077	1.500	48	48.17
3	10 holes	7.2	2.693	1.315	38	38.14
4	7 holes	4.4	2.105	1.031	28	28.10
5	5 holes	3.0	1.738	0.854	20	20.07

Sampler Calibration Relationship (Linear Regression)

Slope(m):<u>38.943</u> Intercept(b): <u>-12.477</u>

Correlation Coefficient(r): 0.9949

Checked by: <u>Magnum Fan</u>

Date: 09/05/2019

Location Calibrated by Date	: : :	DMS-7(Parc 22) K.T.Ho 05/11/2018
<u>Sampler</u> Model Serial Number	:	TE-5170 S/N 3574
Calibration Orifice and Standard Serial Number Service Date Slope (m) Intercept (b) Correlation Coefficient(r)	Calibrat : : :	tion Relationship 2454 19 Mar 2018 2.05242 -0.01383 0.99994
<u>Standard Condition</u> Pstd (hpa) Tstd (K) <u>Calibration Condition</u> Pa (hpa) Ta(K)	::	1013 298.18 1015 296

Resi	stance Plate	dH [green liquid]	Ζ	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	12.2	3.508	1.716	64	64.28
2	13 holes	8.4	2.911	1.425	50	50.22
3	10 holes	6.2	2.501	1.225	40	40.17
4	7 holes	4.0	2.009	0.985	32	32.14
5	5 holes	2.6	1.619	0.796	20	20.09

Sampler Calibration Relationship (Linear Regression)

Slope(m):<u>46.622</u> Coefficient(r):<u>0.9970</u>

Intercept(b):-15.941

Correlation

Checked by: Magnum Fan

Date: 09/11/2018

Location Calibrated by Date	: : :	DMS-7(Parc 22) K.T.Ho 05/05/2019
<u>Sampler</u> Model Serial Number	:	TE-5170 S/N 3574
Calibration Orifice and Star	ndard Calibra	tion Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000
Standard Condition		
Pstd (hpa)	:	1013
Tstd (K)	:	298.18
Calibration Condition		
Pa (hpa)	:	1010
Ta(K)	:	295

Resi	stance Plate	dH [green liquid]	Ζ	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	12.4	3.534	1.721	64	64.23
2	13 holes	9.6	3.109	1.516	56	56.20
3	10 holes	7.8	2.803	1.368	50	50.18
4	7 holes	4.4	2.105	1.031	40	40.14
5	5 holes	3.0	1.738	0.854	30	30.11

Sampler Calibration Relationship (Linear Regression)

Slope(m):<u>37.706</u>

Intercept(b):-0.757

Correlation Coefficient(r): 0.9960

Checked by: <u>Magnum Fan</u>

Date: 09/05/2019

Location	:	DMS-8(SHK Good Shepherd Primary School)
Calibrated by	:	K.T.Ho
Date	:	05/11/2018
<u>Sampler</u>		
Model	:	TE-5170
Serial Number	:	S/N 3572
Calibration Orifice and Standa	rd Calibra	
Serial Number	:	2454
Service Date	:	19 Mar 2018
Slope (m)	:	2.05242
Intercept (b)	:	-0.01383
Correlation Coefficient(r)	:	0.99994
Standard Condition		
Pstd (hpa)	:	1013
Tstd (K)	:	298.18
~		
Calibration Condition		
Pa (hpa)	:	1015
Ta(K)	:	296

Resi	stance Plate	dH [green liquid]	Z	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	12.2	3.508	1.716	60	60.26
2	13 holes	8.6	2.945	1.442	52	52.23
3	10 holes	6.4	2.541	1.245	40	40.17
4	7 holes	4.2	2.058	1.010	30	30.13
5	5 holes	2.8	1.681	0.826	22	22.10

Sampler Calibration Relationship (Linear Regression)

Slope(m):<u>44.260</u>

Intercept(b):14.239

Correlation Coefficient(r): 0.9950

Checked by: <u>Magnum Fan</u>

Date: 09/11/2018

Location Calibrated by Date	: :	DMS-8(SHK Good Shepherd Primary School) K.T.Ho 05/05/2019
Sampler		
Model	:	TE-5170
Serial Number	:	S/N 3572
Calibration Orifice and Standar	rd Calibra	tion Relationship
Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000
Standard Condition		
Pstd (hpa)	:	1013
Tstd (K)	:	298.18
Calibration Condition		

Pa (hpa)	:	1010
Ta(K)	:	295

Resi	stance Plate	dH [green liquid]	Ζ	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	12.4	3.534	1.721	62	62.22
2	13 holes	9.6	3.109	1.516	56	56.20
3	10 holes	7.6	2.767	1.350	50	50.18
4	7 holes	4.6	2.152	1.054	40	40.14
5	5 holes	3.2	1.795	0.881	30	30.11

Sampler Calibration Relationship (Linear Regression)

Slope(m):<u>37.426</u> Intercept(b):-1.042

Correlation Coefficient(r): 0.9935

Checked by: Magnum Fan

Date: 09/05/2019

Location	:	DMS-9(No. 12 Pau Chung Street)
Calibrated by	:	K.T.Ho
Date	:	05/11/2018
Sampler_		
Model	:	TE-5170
Serial Number	:	S/N 0814
Calibration Orifice and Stand	ard Calibra	tion Relationship
Serial Number	:	2454
Service Date	:	19 Mar 2018
Slope (m)	:	2.05242
Intercept (b)	:	-0.01383
Correlation Coefficient(r)	:	0.99994
Standard Condition		
Pstd (hpa)	:	1013
Tstd (K)	:	298.18
Calibration Condition		
Pa (hpa)	:	1015
Ta(K)	:	296
	1 11	Z V O (1

Resi	stance Plate	dH [green liquid]	Z	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	12.5	3.551	1.737	64	64.28
2	13 holes	8.8	2.979	1.458	52	52.23
3	10 holes	6.4	2.541	1.245	40	40.17
4	7 holes	4.2	2.058	1.010	30	30.13
5	5 holes	2.6	1.619	0.796	18	18.08

Sampler Calibration Relationship (Linear Regression)

Slope(m):<u>49.032</u>

Intercept(b): <u>-20.627</u>

Correlation Coefficient(r): 0.9989

Checked by: Magnum Fan

Date: 9/11/2018

Location Calibrated by Date	: : :	DMS-9(No. 12 Pau Chung Street) K.T.Ho 05/05/2019
<u>Sampler</u>		
Model	:	TE-5170
Serial Number	:	S/N 0814
Calibration Orifice and Standard Serial Number	<u>l Calibra</u> :	tion Relationship 2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000
<u>Standard Condition</u> Pstd (hpa) Tstd (K)	:	1013 298.18
Calibration Condition		
Pa (hpa)	:	1010
Ta(K)	:	295

Resistance Plate		dH [green liquid]	Ζ	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	12.8	3.591	1.748	68	68.24
2	13 holes	9.8	3.142	1.531	58	58.21
3	10 holes	7.6	2.767	1.350	50	50.18
4	7 holes	4.6	2.152	1.054	40	40.14
5	5 holes	2.8	1.679	0.825	28	28.10

Sampler Calibration Relationship (Linear Regression)

Slope(m):<u>42.207</u>

Intercept(b): <u>-5.962</u>

Correlation Coefficient(r): 0.9978

Checked by: Magnum Fan

Date: 09/05/2019

Location	:	DMS-1	0(Chat Ma Mansion)	
Calibrated by	:	K.T.Ho		
Date	:	05/11/2	018	
Sampler_				
Model	:	TE-517	0	
Serial Number	:	S/N 357		
Calibration Orific	e and Standard Calib	ration Relation	onshin	
Serial Number	:	2454		
Service Date	:	19 Mar	2018	
Slope (m)	:	2.05242	2	
Intercept (b)	:	-0.0138	3	
Correlation Coeff	icient(r) :	0.99994		
Standard Condition	<u>on</u>			
Pstd (hpa)	:	1013		
Tstd (K)	:	298.18		
Calibration Cond	tion			
Pa (hpa)	:	1015		
Ta(K)	:	296		
Resistance Plate	dH [green liquid]	Z	X=Qstd	IC
	(inch water)		(cubic meter/min)	(cha

Resistance Plate		dH [green liquid]	Z	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes 11.6		3.421	1.673	60	60.26
2	13 holes	8.0	2.841	1.391	52	52.23
3	10 holes	5.6	2.377	1.165	46	46.20
4	7 holes	3.4	1.852	0.909	36	36.16
5	5 holes	2.0	1.420	0.699	28	28.12

Sampler Calibration Relationship (Linear Regression)

Slope(m):32.968

Intercept(b): 6.107

Correlation Coefficient(r): 0.9961

Checked by: Magnum Fan

Date: 09/11/2018

Location Calibrated by Date	: : :	DMS-10(Chat Ma Mansion) K.T.Ho 05/05/2019
<u>Sampler</u> Model Serial Number	:	TE-5170 S/N 3573
Calibration Orifice and Standard	Calibrati	on Relationship
Serial Number Service Date	:	2454 25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000
Standard Condition		
Pstd (hpa)	:	1013
Tstd (K)	:	298.18
Calibration Condition		
Pa (hpa)	:	1010
Ta(K)	:	295

Resistance Plate		dH [green liquid]	Ζ	X=Qstd	IC	Y
		(inch water)		(cubic meter/min)	(chart)	(corrected)
1	18 holes	12.4	3.534	1.721	60	60.21
2	13 holes	9.4	3.077	1.500	52	52.19
3	10 holes	7.2	2.693	1.315	46	46.16
4	7 holes	4.8	2.199	1.076	34	34.12
5	5 holes	2.8	1.679	0.825	26	26.09

Sampler Calibration Relationship (Linear Regression)

Slope(m):<u>38.997</u> 0.9973 Intercept(b): -6.442

Correlation Coefficient(r):

Checked by: Magnum Fan

Date: 09/05/2019



RECALIBRATION DUE DATE: March 19, 2019

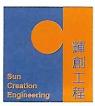
nmental Certificate of Calibration

Calibration Certification Information										
Cal. Date:	March 19,	2018	Roots	meter S/N:	: 438320 Ta: 294			°K		
Operator:	Jim Tisch					Pa:	746.8	mm Hg		
Calibration	Model #:	TE-5025A	Calil	orator S/N:	2454	N		0		
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔH]		
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)			
	1	1	2	1	1.4300	3.2	2.00			
	2	3	4	1	1.0040	6.4	4.00	1		
	3	5	6	1	0.9030	7.9	5.00			
	4	7	8	1	0.8590	8.7	5.50			
	5	9	10	1	0.7080	12.8	8.00			
			E	Data Tabula	tion			ĺ		
	Vstd Qstd $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$)(<u>Tstd</u>)		Qa	$\sqrt{\Delta H(Ta/Pa)}$			
	(m3)	(x-axis)	(y-ax	is)	Va	(x-axis)	(y-axis)			
	0.9917	0.6935	1.41:	13	0.9957	0.6963	0.8874			
	0.9874	0.9835	1.995	59	0.9914	0.9875	1.2549			
	0.9854	1.0913	2.233	15	0.9894	1.0957	1.4030			
	0.9843	1.1459	2.340	05	0.9883	1.1506	1.4715			
	0.9789	1.3826	2.822	27	0.9829	1.3882	1.7747			
		m= 2.0		242		m=	1.28519			
	QSTD	b=	-0.013		QA [b=	-0.00869			
	L	r=	0.999	94		r=	0.99994			
				Calculations						
			/Pstd)(Tstd/Ta	a)	Va=	∆Vol((Pa-∆I	P)/Pa)			
	Qstd=	Vstd/∆Time			Qa=	Va/∆Time				
			For subsequ	ent flow ra	te calculation	15:				
	Qstd=	1/m ((\\ \ \ \ \ \ \ H (Pa <u>(Tstd</u> Pstd Ta))-b)	Qa=	1/m ((√∆⊦	I(Ta/Pa))-b)			
		Conditions	1							
Tstd:						RECA	LIBRATION			
Pstd:	1	mm Hg (ey			US FPA reco		nual recalibratio	n nor 1000		
AH: calibrat		er reading (i	n H2O)				Regulations Part 5			
		eter reading						10 50		
		perature (°K)			Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in					
		essure (mm	Hg)							
: intercept					the	e Atmosphe	re, 9.2.17, page 3	30		

Tisch Environmental, Inc. 145 South Miami Avenue Village of Cleves, OH 45002

b: intercept m: slope

1S nviro				J)			CALIBRATION DUE DATE: Jary 25, 202
		tifu	cate	/			ntion	
C-1 D-1			Calibration					
	February 25 lim Tisch	, 2019	Roots	meter S/N:	438320		294 762.0	°K
Calibration N		TE-5025A	Cali	brator S/N:	2454	Pa:	762.0	mm Hg
	1040111							
	Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)	
	1	1	2	(m3)	1.4400	(mm ng) 3.2	2.00	
	2	3	4	1	1.0200	6.4	4.00	
	3	5	6	1	0.9120	7.9	5.00 5.50	
	5	9	10	1	0.7180	12.8	8.00	
Í			8	Data Tabula	tion			
	Vstd	Qstd	√∆H(<u>Pa</u> Pstc	$T \left(\frac{1310}{Ta} \right)$		Qa	√∆H(Ta/Pa)	
	(m3)	(x-axis)	(y-a)		Va	(x-axis)	(y-axis)	
	1.0120	0.7028	1.42		0.9958	0.6915	0.8784	
	1.0057	1.1028	2.25	42	0.9896	1.0851	1.3889	
	1.0045	1.1546	2.36		0.9885	1.1362 1.3694	1.4567 1.7569	
	0.9992	1.5910 m=	2.05		0.9632	1.5094 m=	1.29667	
	QSTD	b=	-0.02		QA	b=	-0.01797	
		r=	1.000	000		r=	1.00000	
			10-+-11/2-+-1/2	Calculatio			2) /0-)	
		ΔVol((Pa-ΔP) Vstd/ΔTime	/Pstd)(Tstd/T	aj		ΔVol((Pa-Δl Va/ΔTime	-//Pa)	
			For subsequ	uent flow ra	te calculatio			
	Qstd=	1/m ((_AH(Pa Pstd / Tstd Ta	-))-b)	Qa=	1/m ((√∆H	l(Ta/Pa))-b)	
		Conditions]				
Tstd: Pstd:	298.15 760	°K mm Hg				RECA	LIBRATION	
	ŀ	ley	110.61		10000000000000000000000000000000000000		nnual recalibratio	
ΔH: calibrato	ter manomet	er reading (i eter reading	(mm Hg)		and the second second second		Regulations Part , Reference Meth	and the second
Ta: actual ab	solute tem	perature (°K)					ended Particulat	
Par actual ba	rometric pr	ressure (mm	Hg)		th	e Atmosphe	ere, 9.2.17, page	30
b: intercept								



Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C191409 證書編號

	ITEM TESTED / 送檢項	E	(Job No. / 序引編號: IC19-0396) Date of Receipt / 收件日期: 26 February 2019
	Description / 儀器名稱 :		Precision Integrating Sound Level Meter
	Manufacturer / 製造商 :		Rion
	Model No. / 型號 :		NL-18
	Serial No. / 編號 :		00360030
	Supplied By / 委託者 :		Envirotech Services Co.
			Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
			New Territories, Hong Kong
-			

TEST CONDITIONS / 測試條件

DEF MEN COMPANY INCLASSING

Temperature / 溫度 : (23 ± 2)°C Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 : (50±25)%

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 17 March 2019

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 :

21

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By	:	-A
測試		K/C Lee Engineer
Certified By	:	chan Um Ch
核證		H C Chan
		Engineer

Date of Issue 簽發日期 :

18 March 2019

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

Equipment ID	
CL280	
CL281	

<u>Description</u> 40 MHz Arbitrary Waveform Generator Multifunction Acoustic Calibrator <u>Certificate No.</u> C190176 CDK1806821

- 5. Test procedure : MA101N.
- 6. Results :
- 6.1 Sound Pressure Level
- 6.1.1 Reference Sound Pressure Level

	UU	JT Setting		Applie	d Value	UUT	IEC 60651 Type 1 Spec. (dB)	
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)		
50 - 110	LA	A	Fast	94.00	1	93.8	± 0.7	

6.1.2 Linearity

	UUT Setting				l Value	UUT	
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	
60 - 120	LA	A	Fast	94.00	1	93.9 (Ref.)	
				104.00		103.9	
				114.00		113.9	

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

6.2 Time Weighting

6.2.1 Continuous Signal

	UUT Setting			Applie	d Value	UUT	IEC 60651 Type 1
Range (dB)	Mode	Frequency Weighting	Time	Level	Freq.	Reading	Spec.
<u>(uB)</u> 50 - 110	LA	A	Weighting Fast	(dB) 94.00	<u>(kHz)</u> 1	(dB) 93.8	(dB) Ref.
			Slow			93.8	± 0.1

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



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Certificate No. : C191409 證書編號

6.2.2 <u>Tone Burst Signal (2 kHz)</u>

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

6.3 Frequency Weighting

6.3.1 A-Weighting

Hi dala	UU	JT Setting		Appl	ied Value	UUT	IEC 60651 Type 1
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Spec. (dB)
50 - 110	LA	А	Fast	94.00	31.5 Hz	54.2	-39.4 ± 1.5
		1		63 Hz	67.5	-26.2 ± 1.5	
	Service and			125 Hz	77.5	-16.1 ± 1.0	
					250 Hz	85.1	-8.6 ± 1.0
					500 Hz	90.5	-3.2 ± 1.0
					1 kHz	93.8	Ref.
		이야지가 잘 하는			2 kHz	95.1	$+1.2 \pm 1.0$
					4 kHz	94.9	$+1.0 \pm 1.0$
					8 kHz	92.8	-1.1 (+1.5 ; -3.0
					12.5 kHz	89.6	-4.3 (+3.0 ; -6.0

6.3.2 C-Weighting

	UL	JT Setting		Appl	ied Value	UUT	IEC 60651 Type 1
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Spec. (dB)
50 - 110	LC	C	Fast	94.00	31.5 Hz	90.9	-3.0 ± 1.5
				63 Hz	93.0	-0.8 ± 1.5	
					125 Hz	93.6	-0.2 ± 1.0
				here's	250 Hz	93.8	0.0 ± 1.0
					500 Hz	93.9	0.0 ± 1.0
					1 kHz	93.8	Ref.
					2 kHz	93.7	-0.2 ± 1.0
					4 kHz	93.1	-0.8 ± 1.0
					8 kHz	90.8	-3.0 (+1.5 ; -3.0)
					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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Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C191409 證書編號

6.4

UUT Setting				1		UUT	IEC 60804			
Range (dB)	Mode	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
50 - 110	LAeq	A	10 sec.	4	1	1/10 1/10 ²	110	100 90	100.1 90.0	± 0.5 ± 0.5
			60 sec.			1/10 ³		80	79.6	± 1.0
			5 min.			1/104		70	69.8	± 1.0

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

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

- Uncertainties of Applied Value :	94 dB	: 31.5 Hz - 125 Hz	: ± 0.35 dB
		250 Hz - 500 Hz	: ± 0.30 dB
		1 kHz	: ± 0.20 dB
		2 kHz - 4 kHz	: ± 0.35 dB
		8 kHz	$:\pm 0.45 \text{ dB}$
		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 ec	uivalent level	$\pm 0.2 \text{ dB}$ (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所書面批准。



0

輝創工程有限公司

Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C185606 證書編號

ITEM TESTED Description / 儀 Manufacturer / 集 Model No. / 型勁 Serial No. / 編號 Supplied By / 委	器名稱 : 製造商 : 虎 :	(Job No. / 序引編號: IC Sound Level Calibrator Rion NC-73 10786708 Envirotech Services Co. Room 113, 1/F, My Loft, 9 New Territories, Hong Kor	9 Hoi Wing	Date of Receipt / 收件日期:27 S Road, Tuen Mun,	eptember 201
TEST CONDIT Temperature / 涩 Line Voltage / 習	温度 : (2	式條件 3 ± 2)°C -	-	Relative Humidity / 相對濕度 :	(50 ± 25)%
TEST SPECIF		/ 測試規範			
DATE OF TES	T/測試日其	朝 : 14 October 2018			
The results do not	to the particul t exceed manu	果 lar unit-under-test only. ıfacturer's specification. ubsequent page(s).			
The GovernmentThe Bruel & Kj	nt of The Hon jaer Calibratic logies / Keysi arz Laborator				
		4 pm			
Tested By 測試		K C/Lee Engineer			

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。

E-mail/電郵: callab@suncreation.com Website/網:



Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C185606 證書編號

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

3. Test equipment :

Equipment ID CL130 CL281 TST150A <u>Description</u> Universal Counter Multifunction Acoustic Calibrator Measuring Amplifier <u>Certificate No.</u> C183775 CDK1806821 C181288

- 4. Test procedure : MA100N.
- 5. Results :
- 5.1 Sound Level Accuracy

UUT	Measured Value	Mfr's Spec.	Uncertainty of Measured Value
Nominal Value	(dB)	(dB)	(dB)
94 dB, 1 kHz	94.0	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's	Uncertainty of Measured Value
(kHz)	(kHz)	Spec.	(Hz)
1	0.986	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.

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Annex G

Summary of Event/ Action Plans

EVENT	Action					
	Contractor's Environmental Team	Independent Environmental	Engineer Representative (ER)	The Contractor		
	(Contractor's ET)	Checker (IEC)				
Exceeding Action Level	Contractor on the remedial measures required;3. Increase the monitoring frequency to check mitigation effectiveness.	submitted by the contractor;2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	 Review and agree on the remedial measures proposed by the Contractor; Supervise the implementation of remedial measures. 	 Investigate the complaint and propose remedial measures; Report the results of investigation to the IEC, ET and ER; Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; Implement noise mitigation proposals. 		
Exceeding Limit Level	1. Notify the IEC, Contractor and EPD;	 Check the monitoring data submitted by the ET; 	 Confirm receipt of notification of exceedance in writing; 	1. Identify reason(s) and investigate the causes of exceedance;		
	Repeat measurement to confirm findings;	 Check the Contractor's working method; 	 Notify the Contractor, IEC and ET; In consultation with the ET and IEC, agree with 	2. Take immediate action to avoid further exceedance;		
	 Increase the monitoring frequency; Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; Inform the IEC, ER and EPD the causes and actions taken for the exceedances Assess the effectiveness of the Contractor's remedial measures and keep the IEC, ER and EPD informed of the results 	Contractor on the potential remedial measures;	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.	 Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; Implement the agreed proposals; Revise and resubmit proposals if problem is still not under control; Stop the relevant portion of works as determined by the ER until the exceedance is abated. 		

Annex G1 Event and Action Plan for Regular Construction Noise Monitoring

Event	Ac	tion							
	We	orks Contract 1109 ET	IEC	0	ER		Co	ntractor	
Exceeding Action/Limit	1. 2.	Identify source Repeat measurement. If two	1.	Check monitoring data submitted by the Works Contract 1109 ET	1.	Confirm receipt of notification of exceedance in writing	1.	Identify source with Works Contract 1109 ET	
Level	3. 4.	consecutive measurements exceed Action/Limit Level, the exceedance is then confirmed If exceedance is confirmed, notify IEC, ER and Contractor Investigate the cause of exceedance	2. 3. 4.	Check the Contractor's working method Discuss with the ER, Works Contract 1109 ET and Contractor on the potential remedial measures Review and advise the Works	2. 3. 4.	Notify the Contractor and IEC In consultation with the Works Contract 1109 ET and IEC, agree with the Contractor on the remedial measures to be implemented Ensure the proper implementation of	2.	If exceedance is confirmed, investigate the cause of exceedance and take immediate action to avoid further exceedance Submit proposals for remedial measures to the ER with copy to the IEC and ET of notification	
	5.	and check Contractor's working procedures to determine possible mitigation to be implemented Discuss jointly with the IEC, ER and Contractor and formulate remedial	Contract 1109 ET and ER on the effectiveness of the remedial measures proposed by the Contractor	5.	remedial measures If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of	4. 5.	Implement the agreed proposals Liaise with ER to optimize the effectiveness of the agreed mitigation		
	6.	measures Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results				work until the exceedance is abated	6. 7.	Revise and resubmit proposals if problem still not under control 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			
	Contractor's Environmental Team	Independent Environmental Checker	Engineer Representative (ER)	The Contractor
	(Contractor's ET)	(IEC)		
Action Level				
Exceedance for one sample	 Inform the IEC, Contractor and ER; Discuss with the Contractor, IEC and ER on the remedial 	 Check the monitoring data submitted by the ET; Check the Contractor's working method; 	 Confirm receipt of notifications of exceedance in writing; 	 Identify reason(s), investigate the causes of exceedance and propose remedial measures; Implement and other activity of the proposed in the proposed
		3. Review and advise the ET and ER on		 Implement remedial measures; Amend working methods and
	measures required;3. Repeat measurement to confirm findings;			agree them with the ER as appropriate.
	4. Increase the monitoring			
	frequency			
Exceedance for two or more consecutive samples	1. Inform the IEC, Contractor and ER;	 Check the monitoring data submitted by the ET; 	 Confirm receipt of notification of exceedance in writing; 	1. Identify reasons and investigate the causes of exceedance;
L.	 Discuss with the ER, IEC and Contractor on the remedial measures required; 	 Check the Contractor's working method; Review and advise the ET and ER on 	 Notify the Contractor, IEC and ET; Review and agree on the remedial measures proposed by the 	 Submit proposals of remedial measures to the ER with a copy to the ET and IEC within three
	 Repeat measurements to confirm findings; 	the effectiveness of the proposed remedial measures.	Contractor; 4. Supervise the Implementation of	working days of notification;3. Implement the agreed proposals,
	 Increase the monitoring frequency to daily; 		remedial measures.	 Amend the proposal as appropriate.
	5. If exceedance continues, arrange meeting with the IEC, ER and Contractor:			
	 If exceedance stops, the monitoring frequency will resume normal. 			

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
Limit Level				
Exceedance for one sample	 Inform the IEC, Contractor and ER; Repeat measurement to confirm findings; Increase the monitoring frequency to daily; Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness. 	 Check the monitoring data submitted by the ET; Check the Contractor's working method; Discuss with the ET, ER and Contractor on possible remedial measures; Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. 	 Confirm receipt of notification of exceedance in writing; Notify the Contractor, IEC and ET; Review and agree on the remedial measures proposed by the Contractor; Supervise the implementation of remedial measures. 	 Identify reason(s) and investigate the causes of exceedance; Take immediate action to avoid further exceedance; Submit proposals of remedial measures to ER with a copy to the ET and IEC within three working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
Exceedance for two or more consecutive samples	findings;3. Increase the monitoring frequency to daily;4. Carry out analysis of the	 Check the monitoring data submitted by the ET; Check the Contractor's working method; Discuss with the ET, ER, and Contractor on the potential remedial measures; Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. 	exceedance in writing;Notify the Contractor, IEC and ET;In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented;	 Identify reason(s) and investigate the causes of exceedance; Take immediate actions to avoid further exceedance; Submit proposals of remedial measures to the ER with a copy to the IEC and ET within three working days of notification; Implement the agreed proposals; Revise and resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event	Action			
	Contractor's Environmental Team	Independent Environmental Checker	Engineer Representative (ER)	The Contractor
	(Contractor's ET)	(IEC)		
Non-conformity on one occasion	 Inform the Contractor, the IEC and the ER. Discuss remedial actions with the IEC, ER and Contractor. Monitor remedial actions until rectification has been completed. 	 Check the inspection report. Check the Contractor's working method. Discuss with the ET, ER and Contractor on possible remedial measures. Advise the ER on the effectiveness of proposed remedial measures. 	 Confirm receipt of notifications of nonconformity in writing. Review and agree on the remedial measures proposed by the Contractor. Supervise the implementation of remedial measures. 	 Identify reasons and investigate the non-conformity. Implement remedial measures Amend working methods and agree them with the ER as appropriate. Rectify the damage and undertake any necessary
Repeated Nonconformity	 Identify Reasons. Inform the Contractor, IEC and ER. Increase the inspection frequency. Discuss remedial actions with the IEC, ER and Contractor. Monitor remedial actions until rectification has been completed. If non-conformity stops, the inspection frequency return to normal (ie,. Once every two 	 Check the inspection report. Check the Contractor's working method. Discuss with the ET and Contractor on possible remedial measures. Advise the ER on the effectiveness of proposed remedial measures. 	 Notify the Contractor. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented. Supervise the implementation of remedial measures. 	 replacement. Identify Reasons and investigate the non-conformity. Implement remedial measures. Amend working methods and agree them with the ER as appropriate. Rectify the damage and undertake any necessary replacement. Stop relevant works as determined by the ER until the non-conformity is abated.

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

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.
- \checkmark Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by Samsung-Hsin Chong JV
- Δ Deficiency of Mitigation Measures but rectified by Samsung-Hsin Chong JV
- N/A Not Applicable in Reporting Period

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
Cultural l	Heritage Imp	pact					
S4.9	CH3	Submit an Archaeological Action Plan 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	\checkmark
Ecology (Construction	n Phase)					
S5.7	E5	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.	Minimise ecological impacts	Contractor	All construction sites	Construction Stage	\checkmark

EIA Ref.	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
		The following good site practices should also be implemented:					
		 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. 					
Landscap	e & Visual ((Construction Phase)					
S6.9.3	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	√
		 <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 					

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to implement	Implementation
	Log Ref*		Recommended Measures &	implement	implementation of	the measures?	Status
			Main Concerns to address	the	measures		
				measures?			

ground may be set up on-site as necessary.

No-intrusion Zone

• To maximize protection to existing trees, ground vegetation and associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing. The contractor should closely monitor and restrict the site working staff from entering the "nointrusion zone", even for indirect construction activities and storage of equipment.

Protection of Retained Trees

- 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	 trees in Contractor's works sites. <u>Decorative Hoarding</u> 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. 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	√
		 Management of facilities on work sites 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). 					
		 Tree Transplanting 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. 					
Construc	tion 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	\checkmark

EIA Ref.	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	 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
	 sheeting to ensure that the dusty materials do not leak from the vehicle; Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; The portion of any road 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 powerdriven 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 		measures?			

EIA Ref.	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
		 a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain an entirely wet surface 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 exhaust should be carried out in a totally enclosed system or facility, and any vent or exhaust should 		measures?			
		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 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	\checkmark
EP Conditio n 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	\checkmark
EP Conditio n 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	\checkmark
Construct	ion Noise (A	Airborne)					
58.3.6	N1	 Implement the following good site practices: 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	V

EIA Ref.	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
		 periods or should be throttled down to a minimum; 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	\checkmark
58.3.6	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	\checkmark
8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	\checkmark
68.3.6	N5	Sequencing operation of construction plants	Operate sequentially within	Contractor	Contractor All	Construction stage	\checkmark

EIA Ref.	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	\checkmark
Water Qu	ality						
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> 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. 	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
		 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. 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 		measures?			
		potential of surface water flows, and all traffic areas and access roads protected by					

Log Ref*		Recommended Measures & Main Concerns to address	implement the measures?	implementation of measures	the measures?	Status
advanta the posi prolong and the • All drai sedimer regularl ensure p all timer rainstor should dispose over sta • Measur ingress If the ex is neces backfille practica trencher be disch remova • Open st (for exa materia covered during p taken to construct	stone ballast. An additional age from the use of crushed stone is itive traction gained during ged periods of inclement weather reduction of surface sheet flows. mage facilities and erosion and at control structures should be ly inspected and maintained to proper and efficient operations at s and particularly following rms. Deposited silts and grits be removed regularly and d of by spreading them evenly able, vegetated areas. es should be taken to minimise the of site drainage into excavations. acavation of trenches in wet periods sary, trenches should be dug and ed in short sections wherever able. Water pumped out from s or foundation excavations should harged into storm drains via silt 1 facilities. tockpiles of construction materials mple, aggregates, sand and fill 1) of more than 50m ³ should be with tarpaulin or similar fabric rainstorms. Measures should be o prevent the washing away of ction materials, soil, silt or debris y drainage system.		measures?			

EIA Ref.	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
		 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 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 		measures?			

EIA Ref.	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
		 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 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. 					
S10.7.1	W2	 <u>Tunnelling Works</u> Uncontaminated discharge should pass through sedimentation tanks prior to offsite 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
		 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. 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	Sewage Effluent 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.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	\checkmark
S10.7.1	W4	Groundwater from Contaminated Area in case contamination is found: • 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

IA Ref.	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
		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.					
		• 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
		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	\checkmark

EIA Ref.	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
		 All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	spillage				
	-	Construction Waste)					
S11.4.1.1	WM1	 <u>On-site sorting of C&D (Construction and</u> <u>Demolition) material</u> 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
S11.5.1	WM2	 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. Construction and Demolition (C&D) Material 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		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	WM3	 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 C&D Waste 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 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	 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. <u>General Refuse</u> 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 litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme 	Minimize the production of general refuse and minimise odour, pest and litter impacts	Contractor	All construction sites	Construction stage	1

	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 V	WM7	 should be considered by the Contractor. Chemical Waste 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 	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
		• 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
06-May-19	11:17	11:47	Cloudy	63.0	76.1	-(b)	-	Traffic noise	22	0.5	NL-18 00360030	NC-73 10786708
17-May-19	11:20	11:50	Cloudy	62.5	76.1	-(b)	-	Traffic noise	30	0.5	NL-18 00360030	NC-73 10786708
23-May-19	11:15	11:45	Cloudy	62.3	76.1	-(b)	-	Traffic noise	26	0.5	NL-18 00360030	NC-73 10786708
29-May-19	11:17	11:47	Cloudy	62.1	76.1	-(b)	-	Traffic noise	24	0.5	NL-18 00360030	NC-73 10786708

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
06-May-19	10:22	10:52	Cloudy	66.4	70.0	-(b)	-	Traffic noise	22	0.5	NL-18 00360030	NC-73 10786708
17-May-19	10:25	10:55	Cloudy	65.9	70.0	-(b)	-	Traffic noise	30	0.5	NL-18 00360030	NC-73 10786708
23-May-19	10:20	10:50	Cloudy	66.3	70.0	-(b)	-	Traffic noise	26	0.5	NL-18 00360030	NC-73 10786708
29-May-19	10:22	10:52	Cloudy	66.6	70.0	-(b)	-	Traffic noise	24	0.5	NL-18 00360030	NC-73 10786708

SKH Good Shepherd Primary School Station NMS-CA-8

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
06-May-19	8:00	8:30	Cloudy	73.2	75.4	-(b)	-	Traffic noise	22	0.5	NL-18 00360030	NC-73 10786708
17-May-19	8:00	8:30	Cloudy	72.8	75.4	-(b)	Backhoe	Traffic noise	30	0.5	NL-18 00360030	NC-73 10786708
23-May-19	8:00	8:30	Cloudy	73.3	75.4	-(b)	-	Traffic noise	26	0.5	NL-18 00360030	NC-73 10786708
29-May-19	8:00	8:30	Cloudy	73.2	75.4	-(b)	Backhoe	Traffic noise	24	0.5	NL-18 00360030	NC-73 10786708

Station	NMS-CA-9		Kong Yiu Ma	Insion								
		End		Measured Noise level	Baseline (dB(A)), L _{Aeq} (30	Corrected	Major Construction Noise	Other Noise		Wind Speed	Noise Meter	Calibrator Model /
Date	Start Time	Time	Weather	(dB(A)), L _{Aeq} (30 min)	min)	LAeq(dBA) ^(a)	Source(s) Observed	Source(s) Observed	Temp. (℃)	(m/s)	Model / ID	ID
06-May-19	9:25	9:55	Cloudy	70.1	69.2	62.8	Backhoe	Traffic noise	22	0.5	NL-18 00360030	NC-73 10786708
17-May-19	9:24	9:54	Cloudy	70.6	69.2	65.0	-	Traffic noise	30	0.5	NL-18 00360030	NC-73 10786708
23-May-19	9:25	9:55	Cloudy	70.9	69.2	66.0	-	Traffic noise	26	0.5	NL-18 00360030	NC-73 10786708
29-May-19	9:27	9:57	Cloudy	70.6	69.2	65.0	Backhoe	Traffic noise	24	0.5	NL-18 00360030	NC-73 10786708

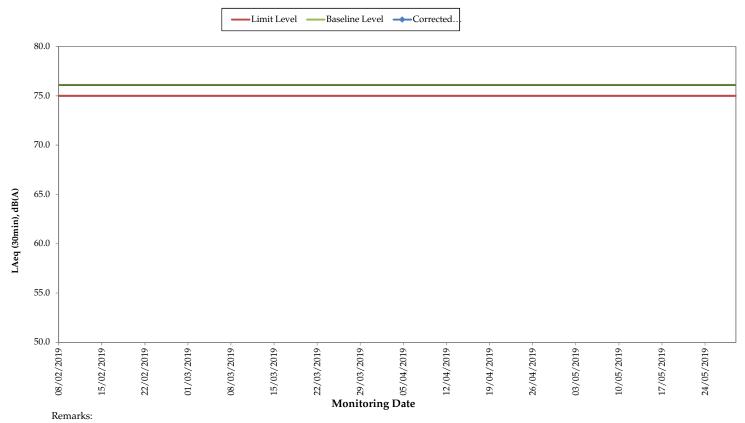
Station NMS-CA-10 Chat Ma Mansion

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
06-May-19	8:42	9:12	Cloudy	76.2	76.6	-(b)	Backhoe	Traffic noise	22	0.5	NL-18 00360030	NC-73 10786708
17-May-19	8:42	9:12	Cloudy	75.9	76.6	-(b)	Backhoe	Traffic noise	30	0.5	NL-18 00360030	NC-73 10786708
23-May-19	8:43	9:13	Cloudy	75.8	76.6	-(b)	-	Traffic noise	26	0.5	NL-18 00360030	NC-73 10786708
29-May-19	8:45	9:15	Cloudy	75.5	76.6	-(b)	Backhoe	Traffic noise	24	0.5	NL-18 00360030	NC-73 10786708

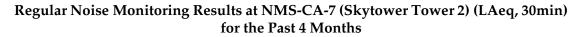
Remarks:

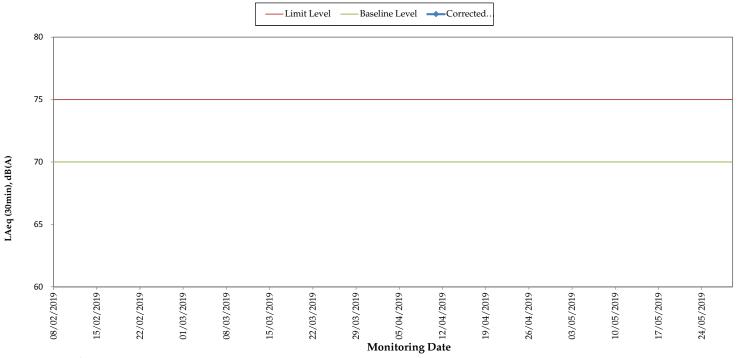
(a) The Measured LAeq is corrected against the corresponding Baseline Level.
(b) No correction was made as the measured noise levels were equal to or below the baseline noise levels.
(c) The noise monitoring results carried out at NMS-CA-8 and NMS-CA-10 on 6, 17, 23 and 29 May are higher than the daytime 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



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





Remarks:

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

-Limit Level 80 75 70 LAeq (30min), dB(A) 65 60 55 50 08/02/2019 15/02/2019 01/03/2019 15/03/2019 22/03/2019 29/03/2019 12/04/2019 19/04/2019 26/04/2019 03/05/2019 10/05/201917/05/2019 24/05/201922/02/2019 08/03/2019 05/04/2019 **Monitoring Date**

Remarks:

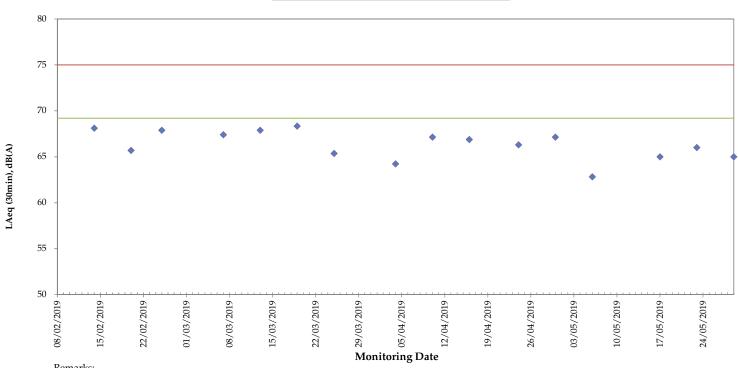
- For those corrected noise levels that are not shown in this graph, the measured noise level s are equal to or below baseline level.

- 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

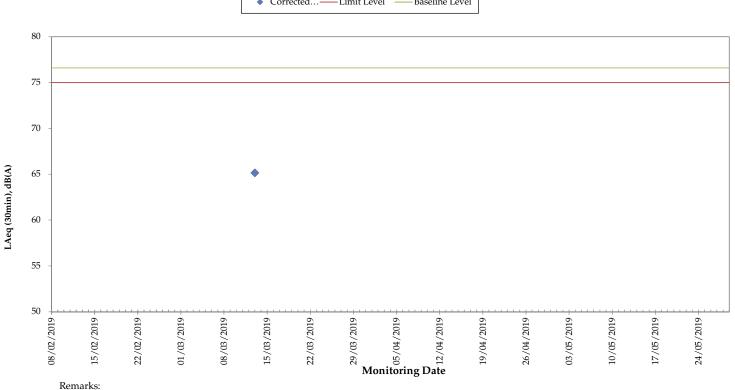
Regular Noise Monitoring Results at NMS-CA-9 (Kong Yiu Mansion) (LAeq, 30min)) for the Past 4 Months

 Corrected...—Limit Level -Baseline Level



Remarks:

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

 Corrected...—Limit Level -Baseline Level _

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

Annex J

Construction Dust Monitoring Results and Wind Data Monitoring Results

Annex J Construction Dust Monitoring Results

		Katherine B							Sampling					Action	Limit	Observations /		
Start		Finish		Weather	Filter Weight	(g)	Elapsed Tir	me Reading	Time	Flow Rat	e (m ³ /min)		TSP Conc.	Level	Level	Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(µg/m ³)	(µg/m³)	(µg/m ³)		ID	ID
06-May-19	11:05	07-May-19	11:05	Cloudy	2.7192	2.8119	20360.30	20384.30	24.00	1.45	1.45	1.45	44	156.8	260	-	0107	057614
11-May-19	8:40	12-May-19	8:40	Sunny	2.7148	2.8430	20384.30	20408.30	24.00	1.45	1.45	1.45	61	156.8	260	-	0107	057621
17-May-19	11:10	18-May-19	11:10	Cloudy	2.7066	2.7827	20408.30	20432.30	24.00	1.45	1.45	1.45	36	156.8	260	-	0107	057725
23-May-19	11:03	24-May-19	11:03	Cloudy	2.6666	2.7456	20432.30	20456.30	24.00	1.45	1.45	1.45	38	156.8	260	-	0107	057982
29-May-19	11:05	30-May-19	11:05	Cloudy	2.6861	2.8051	20456.30	20480.30	24.00	1.45	1.45	1.45	57	156.8	260	-	0107	057989
												Minimum	36					
												Average	47					
												Maximum	61	7				

Station	DMS-7	Parc 22					-									B		
									Sampling		•			Action	Limit	Observations /		
Start		Finish		Weather	Filter Weight	t (g)	Elapsed Tir	me Reading	Time	Flow Rat	e (m³/min)		TSP Conc.	Level	Level	Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(µg/m ³)	(µg/m³)	(µg/m ³)		ID	ID
06-May-19	10:10	07-May-19	10:10	Cloudy	2.7095	2.7741	9608.17	9632.17	24.00	1.13	1.13	1.13	40	166.7	260	-	3574	057613
11-May-19	8:27	12-May-19	8:27	Sunny	2.7120	2.8025	9632.17	9656.17	24.00	1.13	1.13	1.13	56	166.7	260	-	3574	057620
17-May-19	10:12	18-May-19	10:12	Cloudy	2.7104	2.7653	9656.17	9680.17	24.00	1.13	1.13	1.13	34	166.7	260	-	3574	057724
23-May-19	10:10	24-May-19	10:10	Cloudy	2.6983	2.7483	9680.17	9704.17	24.00	1.13	1.13	1.13	31	166.7	260	-	3574	057981
29-May-19	10:10	30-May-19	10:10	Cloudy	2.6812	2.7672	9704.17	9728.17	24.00	1.13	1.13	1.13	53	166.7	260	-	3574	057988
												Minimum	31					

Average 43 Maximum 56

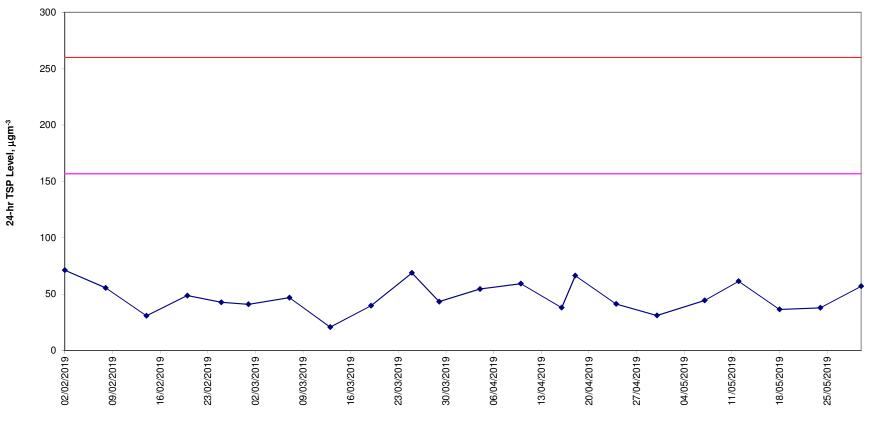
									Sampling					Action	Limit	Observations /		
Start		Finish		Weather	Filter Weight	t (g)	Elapsed Til	me Reading	Time	Flow Rat	te (m ³ /min)		TSP Conc.	Level	Level	Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(µg/m ³)	(µg/m³)	(µg/m ³)		ID	ID
06-May-19	8:05	07-May-19	8:05	Cloudy	2.7361	2.7965	10565.11	10589.11	24.00	1.15	1.15	1.15	36	152.2	260	-	3572	057612
11-May-19	8:15	12-May-19	8:15	Sunny	2.7158	2.8033	10589.11	10613.11	24.00	1.15	1.15	1.15	53	152.2	260	-	3572	057619
17-May-19	8:05	18-May-19	8:05	Cloudy	2.7176	2.7674	10613.11	10637.11	24.00	1.15	1.15	1.15	30	152.2	260	-	3572	057626
23-May-19	8:05	24-May-19	8:05	Cloudy	2.6851	2.7314	10637.11	10661.11	24.00	1.15	1.15	1.15	28	152.2	260	-	3572	057980
29-May-19	8:05	30-May-19	8:05	Cloudy	2.6990	2.7766	10661.11	10685.11	24.00	1.15	1.15	1.15	47	152.2	260	-	3572	057987
												Minimum	28					
												Average	39					
												Maximum	53					

Station	DMS-9	No. 12 Pau	Chung St	reet														
									Sampling					Action	Limit	Observations /		
Start		Finish		Weather	Filter Weight	(g)	Elapsed Tir	me Reading	Time	Flow Rate	e (m³/min)		TSP Conc.	Level	Level	Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(µg/m ³)	(µg/m ³)	(µg/m ³)		ID	ID
06-May-19	8:15	07-May-19	8:15	Cloudy	2.6554	2.7319	20532.40	20556.40	24.00	1.14	1.14	1.14	47	160.9	260	-	0814	057611
11-May-19	8:10	12-May-19	8:10	Sunny	2.7035	2.8264	20556.40	20580.40	24.00	1.14	1.14	1.14	75	160.9	260	-	0814	057618
17-May-19	8:15	18-May-19	8:15	Cloudy	2.7383	2.8065	20580.40	20604.40	24.00	1.14	1.14	1.14	42	160.9	260	-	0814	057625
23-May-19	8:15	24-May-19	8:15	Cloudy	2.7000	2.7607	20604.40	20628.40	24.00	1.14	1.14	1.14	37	160.9	260	-	0814	057979
29-May-19	8:15	30-May-19	8:15	Cloudy	2.6782	2.7788	20628.40	20652.40	24.00	1.14	1.14	1.14	61	160.9	260	-	0814	057986
												Minimum	37					
												Average	52					
												Maximum	75					

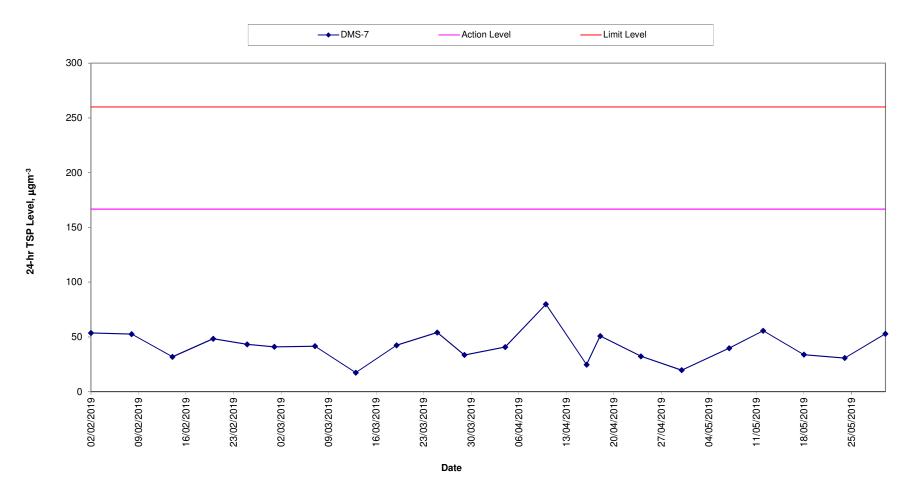
Station	DMS-10	Chat Ma Ma	ansion															
									Sampling					Action	Limit	Observations /		
Start		Finish		Weather	Filter Weight	: (g)	Elapsed Tir	ne Reading	Time	Flow Rat	e (m³/min)		TSP Conc.	Level	Level	Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(µg/m ³)	(µg/m ³)	(µg/m ³)		ID	ID
06-May-19	8:44	07-May-19	8:44	Cloudy	2.6910	2.7684	10981.40	11005.40	24.00	1.24	1.24	1.24	43	170.4	260	-	3573	057610
11-May-19	8:00	12-May-19	8:00	Sunny	2.7085	2.8275	11005.40	11029.40	24.00	1.24	1.24	1.24	67	170.4	260	-	3573	057617
17-May-19	8:45	18-May-19	8:45	Cloudy	2.7230	2.7835	11029.40	11053.40	24.00	1.24	1.24	1.24	34	170.4	260	-	3573	057624
23-May-19	8:45	24-May-19	8:45	Cloudy	2.7022	2.7825	11053.40	11077.40	24.00	1.24	1.24	1.24	45	170.4	260	-	3573	057978
29-May-19	8:47	30-May-19	8:47	Cloudy	2.6822	2.7770	11077.40	11101.40	24.00	1.24	1.24	1.24	53	170.4	260	-	3573	057985

Minimum	34
Average	48
Maximum	67

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



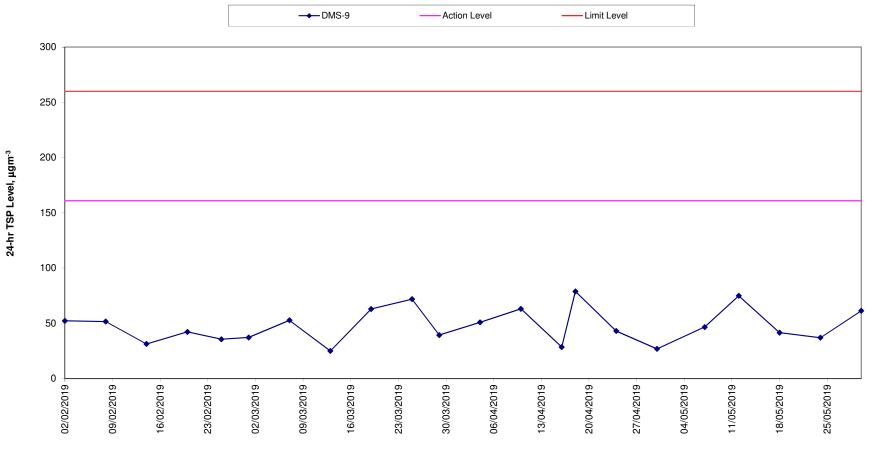
Construction Dust Monitoring Results for the Past 4 Months DMS- 7 (Parc 22)



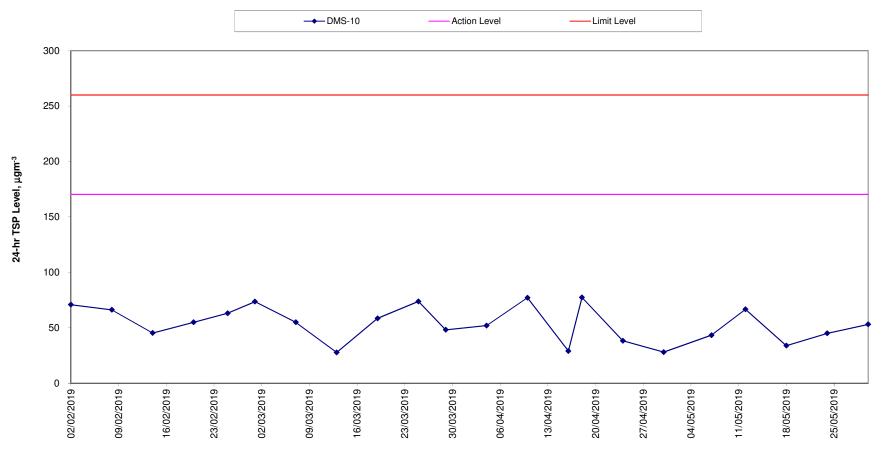
Construction Dust Monitoring Results for the Past 4 Months DMS-8 (SKH Good Shepherd Primary School)



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

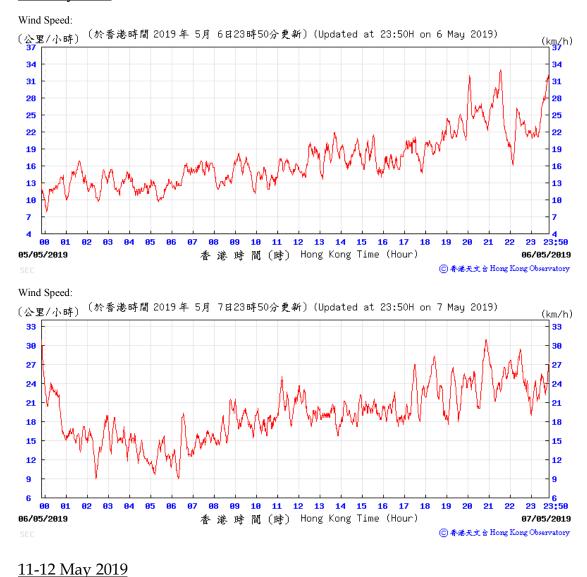


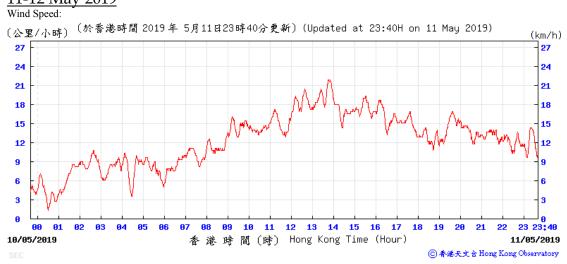
Construction Dust Monitoring Results for the Past 4 Months DMS-10 (Chat Ma Mansion)

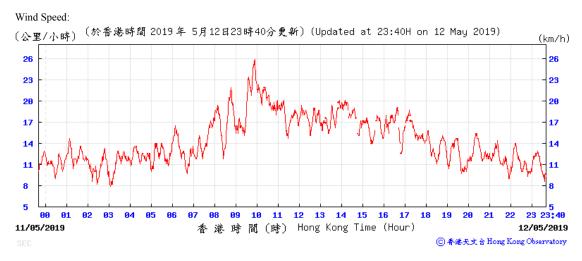


Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

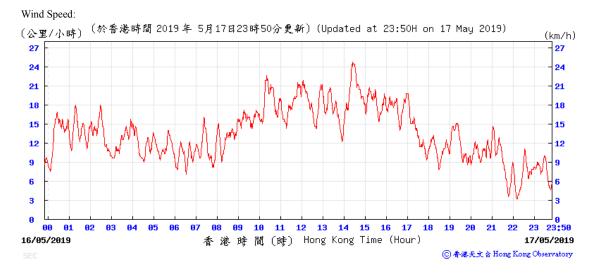
6-7 May 2019

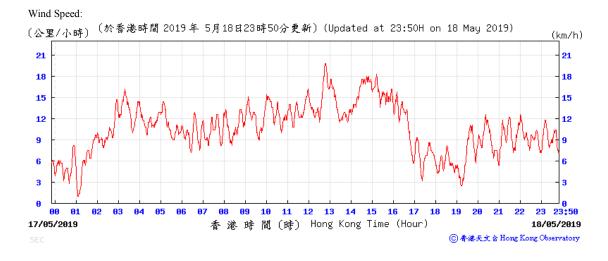




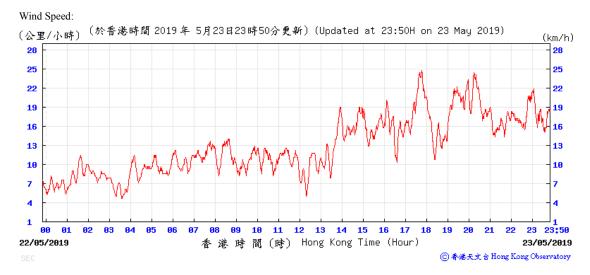


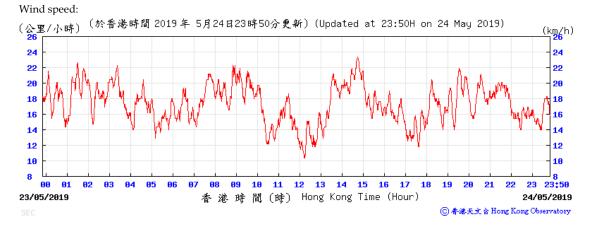




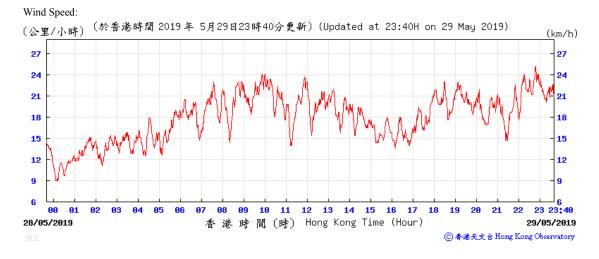


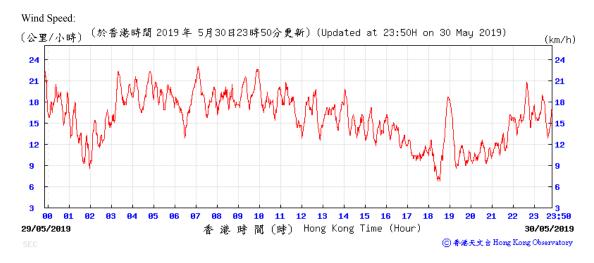
23-24 May 2019





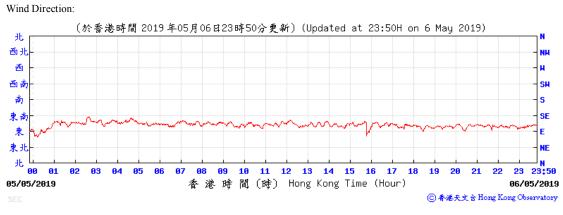
29-30 May 2019



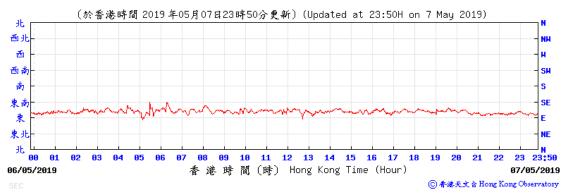


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

6-7 May 2019

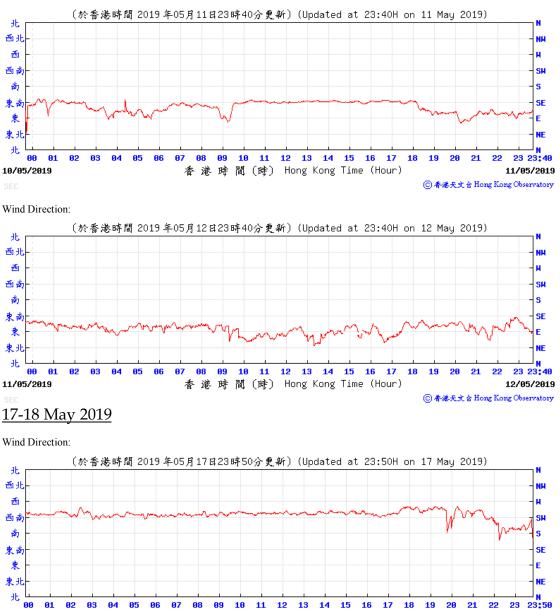






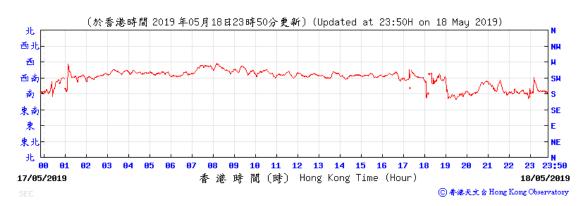
11-12 May 2019

Wind Direction:



Wind Direction:

16/05/2019



香港時間(時) Hong Kong Time (Hour)

17/05/2019

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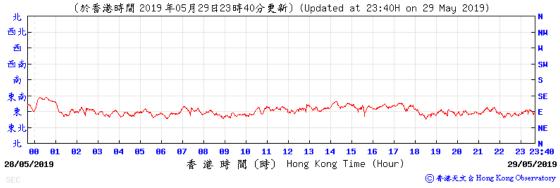
23-24 May 2019

Wind Direction:

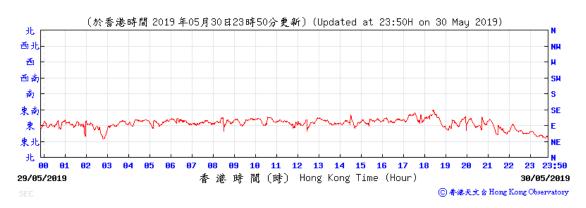


Wind Direction:





Wind direction:



Annex K

Waste Flow Table

Monthly Summary Waste Flow Table for the year 2012-2018

	4	ctual Quantities of I	nart C&D Matarials	Ganaratad Monthly	,					Actual Quantities of N	on inart C&D Wast	as Canaratad Month	ly.	
	A	ctual Quantities of I	incre Coco iviaterilais	Generated wonthly						Actual Quantities of N	on-men Cad wast	es Generateu Month	uy	
Month	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)	Inert C&D Materials Delivered to Receptor Site of Green Valley Landfill Ltd. (See Note 13)	Metals	Paper/ cardboard packaging	Plastics (See Note 2)	Chemical Waste	Others, e.g. general refuse (See Note 5)	Imported Fill
	(in (000m ³)		(in '000m3)	(in (000m ³)	. ,	(in (000m ³)	(in '000m3)	(in (000m3)	(in '000kg)	(in '000kg)				(in (000m ³)
S-= 2012	(in '000m ³)	(in '000m ³) 0.000	(In 000m ²)	(in '000m ³)	(in '000m ³)	(in '000m ³)	. ,	(in '000m ³)	(in '000kg) 0.000	(in 000kg) 0.000	(in '000kg) 5.300	(in'000kg) 0.000	(in '000m ³) 0.144	(in '000m ³) 0.000
Sep 2012 Oct 2012	0.004	0.000	0.000	0.000	0.004	-	-	-	12.800	0.000	0.013	0.000	0.144	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	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	0.000	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	0.000	1.048	4.573	2.335	1.314	0.000

	A	ctual Quantities of In	nert C&D Materials	Generated Monthly	Ţ					Actual Quantities of N	on-inert C&D Wast	es Generated Month	ly	
Month	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)	Inert C&D Materials Delivered to Receptor Site of Green Valley Landfill Ltd. (See Note 13)	Metals	Paper/ cardboard packaging	Plastics (See Note 2)	Chemical Waste (See Note 10)	Others, e.g. general refuse (See Note 5)	Imported Fill
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000m ³)	(in '000m3)
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	0.000	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	0.000	2.016	9.096	16.960	4.665	0.000

	A	ctual Quantities of In	nert C&D Materials	Generated Monthly						Actual Quantities of N	on-inert C&D Wast	es Generated Month	ly	
Month	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)	Inert C&D Materials Delivered to Receptor Site of Green Valley Landfill Ltd. (See Note 13)	Metals	Paper/ cardboard packaging	Plastics (See Note 2)	Chemical Waste (See Note 10)	Others, e.g. general refuse (See Note 5)	Imported Fill
	(in '000m3)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m3)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000m ³)	(in '000m3)
Jan 2017	0.000	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	-	0.000	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	-	0.000	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	-	0.000	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	0.099	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	0.000	1.347	5.713	0.000	9.325	0.000
Jan 2018	2.938	0.000	0.000	0.000	2.938	0.000	0.000	-	0.000	0.095	0.617	4.480	0.846	0.000
Feb 2018	5.529	0.000	0.000	0.000	5.529	0.000	0.000	-	0.000	0.117	0.227	0.000	0.374	0.000
Mar 2018	3.746	0.000	0.000	0.000	3.746	0.000	0.000	-	0.000	0.000	0.450	0.000	0.468	0.000
Apr 2018	11.039	0.000	0.000	0.628	8.235	0.000	0.000	2.176	0.000	0.104	1.430	0.000	0.473	0.000
May 2018	6.787	0.000	0.000	0.150	6.145	0.000	0.000	0.492	0.000	0.068	0.735	0.000	0.595	0.000
Jun 2018	6.956	0.000	0.000	1.777	5.179	0.000	0.000	0.000	0.000	0.314	1.696	0.000	0.461	0.000
Jul 2018	4.751	0.000	0.000	0.494	4.257	0.000	0.000	0.000	0.000	0.131	0.568	0.000	0.490	0.000
Aug 2018	2.416	0.000	0.000	0.401	2.015	0.000	0.000	0.000	0.000	0.198	0.827	0.000	0.560	0.000
Sep 2018	1.533	0.000	0.000	0.409	1.124	0.000	0.000	0.000	0.000	0.054	0.316	0.000	0.403	0.000
Oct 2018	1.537	0.000	0.000	0.298	1.239	0.000	0.000	0.000	0.000	0.050	0.216	0.000	0.450	0.000
Nov 2018	1.569	0.000	0.000	0.743	0.826	0.000	0.000	0.000	0.000	0.108	0.589	0.000	0.395	0.000
Dec 2018	0.713	0.000	0.000	0.326	0.387	0.000	0.000	0.000	0.000	0.099	0.146	0.000	0.389	0.000
Sub-total	49.514	0.000	0.000	5.226	41.620	0.000	0.000	2.668	0.000	1.338	7.817	4.480	5.904	0.000
Jan 2019	1.075	0.000	0.000	0.738	0.337	0.000	0.000	0.000	0.000	0.027	0.131	0.000	0.196	0.000
Feb 2019	0.392	0.000	0.000	0.047	0.345	0.000	0.000	0.000	0.000	0.077	0.084	0.000	0.264	0.000
Mar 2019	0.620	0.000	0.000	0.075	0.545	0.000	0.000	0.000	0.000	0.000	0.136	0.000	0.200	0.000
Apr 2019	1.744	0.000	0.000	0.186	1.558	0.000	0.000	0.000	0.000	0.000	0.092	0.000	0.202	0.000
May 2019	0.823	0.000	0.000	0.000	0.823	0.000	0.000	0.000	0.000	0.000	0.401	0.000	0.244	0.000
Sub-total	4.654	0.000	0.000	1.046	3.608	0.000	0.000	0.000	0.000	0.104	0.844	0.000	1.106	0.000
Total	1024.465	0.000	0.605	9.137	49.256	938.732	24.066	2.668	12.800	7.696	60.936	31.123	28.326	6.804

Notes:

-1

-2

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.

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.

-13 Inert C&D Material was delivered to Receptor Site of Green Valley Landfill Ltd. from April 2018.

Annex L

(Not Used)

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

Annex M Environmental Complaint, Environmental Summon and Prosecution Log

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
January 2018	0	0
February 2018	0	0
March 2018	0	0
April 2018	2	0
May 2018	0	0
June 2018	0	0

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
July 2018	0	0
August 2018	0	0
September 2018	1	0
October 2018	0	0
November 2018	0	0
December 2018	0	0
January 2019	0	0
February 2019	0	0
March 2019	0	0
April 2019	1	0
May 2019	0	0
Overall Total	45	0

Appendix B

77th Monthly 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 May 2019

[June 2019]

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

Version:	0
	•

Date: 11 June 2019

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.

AECOM Asia Co. Ltd. 15/F, Grand Central Plaza, Tower 1, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong Tel: (852) 3922 9000 Fax: (852) 2317 7609 www.aecom.com

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EXECUTIVE SUMMARY

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

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

This report documents the findings of EM&A works conducted in the period between 1 and 31 May 2019. As informed by the Contractor, major activities in the reporting period were:

Location	Site Activities
Ho Man Tin	Defect rectification
NSL (South)	Defect rectification
OB2 / TB1	Defect rectification
OB2A / TB2	Defect rectification
NSL 9 & Oi Sen Path	Defect rectification and reinstatement works

Noise mitigation measure of vertical noise barrier P3 substantially completed in March 2018.

Breaches of Action and Limit Levels for Air Quality

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

Breaches of Action and Limit Levels for Noise

Regular Noise Monitoring

No Action Level exceedance was recorded since no noise related complaint 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	Defect rectification
NSL (South)	Defect rectification
OB2 / TB1	Defect rectification
OB2A / TB2	Defect rectification
NSL 9 + Oi Sen Path	Defect rectification

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 seventy-seventh monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 31 May 2019.

1.2 Report Structure

- 1.1.2 This monthly EM&A Report is orgainised as follows:
 - Section 1: Introduction
 - Section 2: Project Information
 - Section 3: Environmental Monitoring Requirement
 - Section 4: Implementation Status of Environmental Mitigation Measures
 - Section 5: Monitoring Results
 - Section 6: Environmental Site Inspection
 - 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	Defect rectification
NSL (South)	Defect rectification
OB2 / TB1	Defect rectification
OB2A / TB2	Defect rectification
NSL 9 & Oi Sen Path	Defect rectification and reinstatement works

2.3.2 Noise mitigation measure of vertical noise barrier P3 substantially completed in March 2018.

2.3.3 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**.

Party	Role	Position	Name	Telephone	Fax
	Residential Engineer (ER)	Construction Manager	Mr. Michael Fu	3127 6201	3124 6422
MTR		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
		Project Manager	Mr. Alan Yan	9855 0361	
GKSCKJV	Contractor	Environmental Manager	Ms. Michelle Tang	3904 9663	3904 9630
		Environmental Officer	Ms. Phoebe Ng	3904 9665	
AECOM	Contractor's Environmental Team (ET)	ET Leader	Mr. Y T Tang	3922 9393	2317 7609

 Table 1.1
 Contact Information of Key Personnel

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**.

Permit / License No. / Notification/	Valid F	Period	Status	Remarks
Reference No.	From	То		
Environmental Permit	L	•		
EP-437/2012/A	28 Nov 2017	-	Valid	
EP-438/2012/K	4 Oct 2016	-	Valid	-
Construction Noise Pe	rmit			
GW-RE0307-19	6 May 2019	5 Aug 2019	Valid	CNP for OB2 & OB2A Maintenance Work at Chatham Rd North
Wastewater Discharge				
WT00019068-2014	25 Jun 2014	30 Jun 2019	Valid	For Oi Sen Path
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
WT00022080-2015	13 Aug 2015	31 Aug 2020	Valid	For near Chatham Road North, EWL 9
WT00030411-2018	21 Feb 2018	28 Feb 2023	Valid	For near Winslow Street
Chemical Waste Produ	cer 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 Con				1
7016658	24 Jan 2013	End of Project	Account Active	
Notification Under Air				Γ
353991	02 Jan 2013	End of Project	Notified	
Clinical Waste Produce	er 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.: 0843))	

Monitoring Locations

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

Table 3.2 Locations of Construction Dust Monitoring Stations

ID	Location	Monitoring Station
AM1	No. 234 – 238 Chatham	Roof top of the premises facing Chatham Road
AIVIT	Road North	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 ±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 ±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 May 2019 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&K2238 (S/N: 2800927)	
Acoustic Calibrator	Model No. B&K4231 (S/N: 3006428) Model No. Rino Co., Ltd. NC-74 (S/N: 34246490)	

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-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}, L₁₀ and L₉₀ 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 May 2019 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 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 April 2019	14 May 2019

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 (µg/m ³)	verage (µg/m ³) Range (µg/m ³)		Limit Level (µg/m³)
AM1	41.4	20.2 – 56.9	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< th=""><th>70 (65)⁽¹⁾</th></baseline<>	70 (65) ⁽¹⁾
NM 2 ⁽²⁾	<baseline< td=""><td>75</td></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, 11 m³ of inert C&D material was generated. No public fill was disposed at TM38. 11 m³ were disposed as public fills at TKO137. No public fills was delivered to Hung Hom Barging Point, handled by other project and reused in the Contract. While 26,080 kg of general refuse was disposed at NENT landfill in the reporting month, No metal, paper and plastic 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 2, 15 and 30 May 2019. A summary of the site inspection is provided in Appendix C. The observations and recommendations made during the site inspections are presented in Table 6.1.
- 5.5.2 The event and action plan is annexed in **Appendix I**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

- 6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the site inspection is provided in **Appendix C**.
- 6.1.2 In the reporting month, 5 site inspections were carried out on 2, 9, 15, 23 and 30 May 2019. The one held on 15 May 2019 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**.

Parameters	Date	Observations and Recommendations	Follow up
Water Quality	N/A	N/A	N/A
Air Quality	N/A	N/A	N/A
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

 Table 6.1
 Observations and Recommendations of Site Audit

6.1.3 All 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. No outstanding follow-up action 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 June 2019 and July 2019 will be:

Location	Site Activities
Ho Man Tin	Defect rectification
NSL (South)	Defect rectification
OB2 / TB1	Defect rectification
OB2A / TB2	Defect rectification
NSL 9 + Oi Sen Path	Defect rectification

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 June 2019 and July 2019 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 5 nos. of environmental site inspections were carried out in May 2019. 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

• No specific observation was identified in the reporting month.

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.

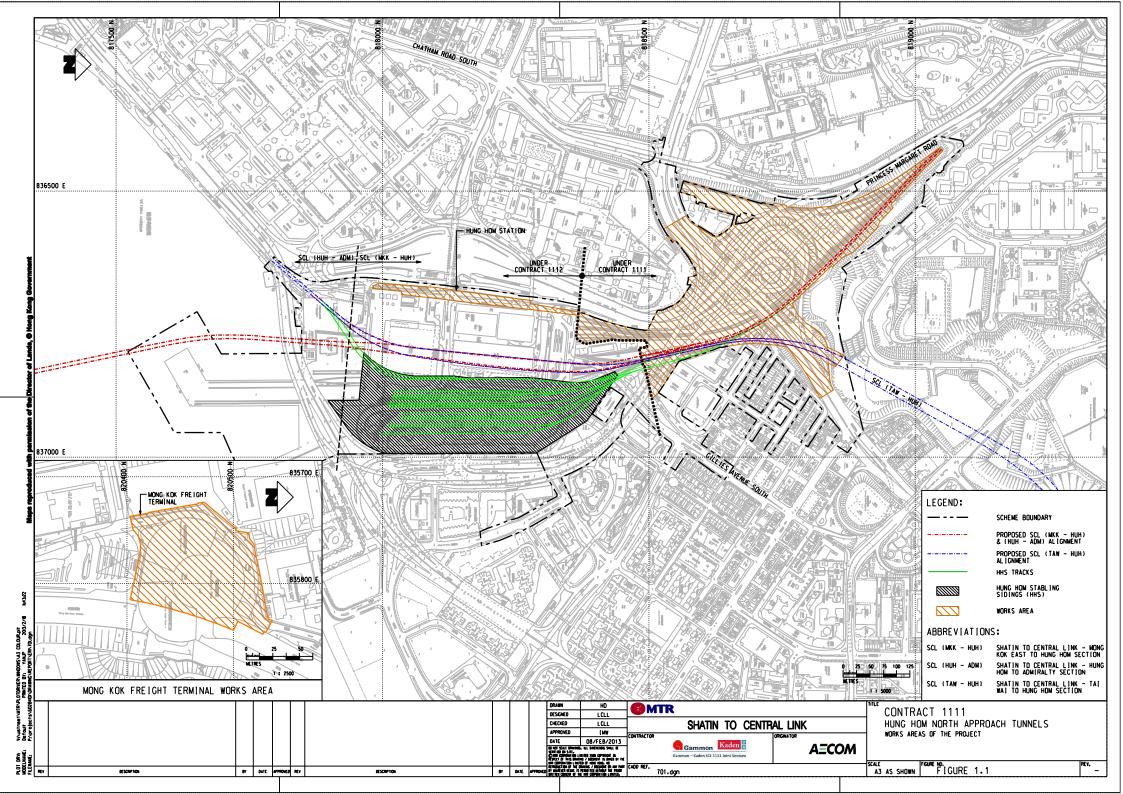
Landscape and Visual Impact

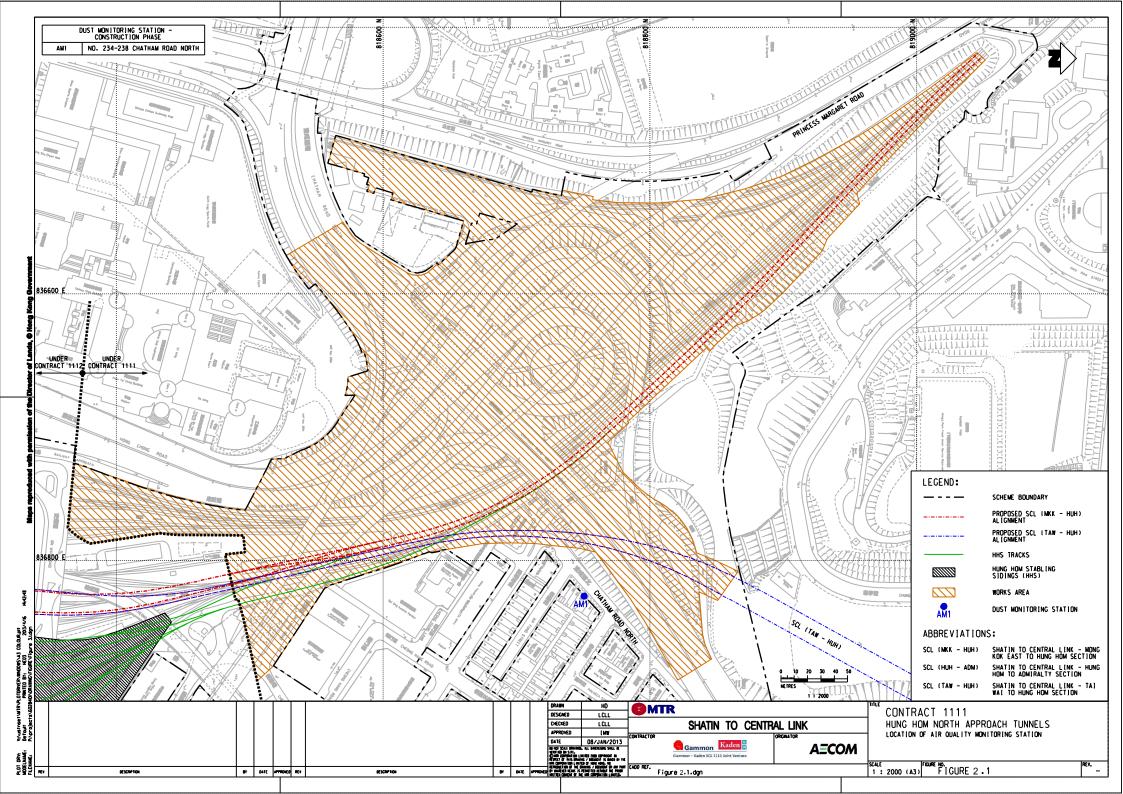
• No specific observation was identified in the reporting month.

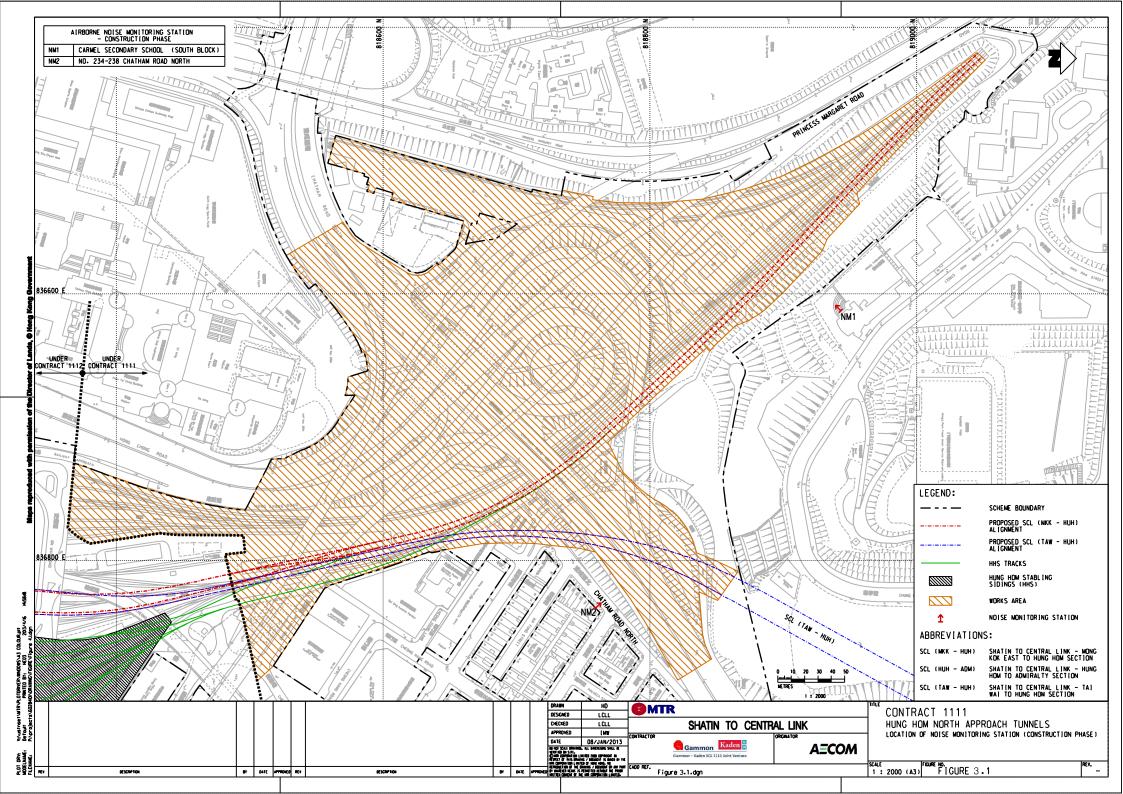
Permits/Licenses

• No specific observation was identified in the reporting month.

FIGURES







APPENDIX A

Construction Programme

	Activity Name	Dur	Start	Finich	
Activity ID	Activity Name	Dur	Start	Finish	2015 2016 2017 2018
					DIFMAMJJASIONDJFMAMJJASIONDJFMAMJJASIONDJFMA
NDMP - Rev B	Demise and a Outlan O	<u></u>			
OP2-010	Barrier under Option 2 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		02-May-15	30-Sep-15	
OP2-040	Delivery to Site	30d		06-Nov-15	↓ ↓
OP2-050	Steelwork & Panel Installation		07-Nov-15	02-Apr-16	
CLP Cable Layin CLP-010	g from Winslow Street to NSL9 (Drawing 1111/C/000/C CLP Cable Laying from Zone 7 to Zone 1		08-Sep-16	25 Jan 17	
CLP-010 CLP-020	CLP Cable Laying from Zone 7 to Zone 1	0d	08-Sep-16	30-Jan-17*	
North South Line					
(1) NSL/EWL Are					
Preparation Worl					
N3A-1010 N3A-1020	Possess areas and site clearance Trial pits / expose existing utilities	24d 24d		14-Apr-14 24-Apr-14	
N3A-1020	Remove existing track (by MTR)	12d	24-Mar-14		
N3A-1040	Predrilling (19 no.s)	19d		25-Apr-14	
STA Buiding Den					
N3A-1280	BD amendment for demolition	60d		31-May-14	
N3A-1290 N3A-1300	Vacate Building Erect protective measures	6d 12d		17-May-14 31-May-14	
N3A-1310	Demolish building structure	24d		30-Jun-14	
Cofferdam					
N3A-1050	Install 2.4m Height Hoarding (NTH)	24d		10-May-14	<u>↓</u>
N3A-1060 N3A-1070	West Side Pipe Piles (42 no.s), 2 Rigs Drive sheetpile at south side of cofferdam	42d 48d		19-Aug-14 26-Aug-14	╂╻ <mark>┫</mark> ╍╍╍╍┥┥╍╍╍╸╡╍╍╍╸╡╍╍╍╸╡╍╍╍╸╡╍╍╍╸╡╍╍╍╸╡╍╍╍
N3A-1070	Sheetpile rectification works	48d		15-Nov-14	
N3A-1090	East Side Pipe Piles (42 no.s) & SHP (20 no.s), 1 Rig	124d		24-Oct-14	
N3A-1100	Grout Curtain	60d		15-Nov-14	
N3A-1110	Grout curtain cut off wall between Area 3A & 3B	18d		15-Oct-14	
N3A-1120 N3A-1130	Instrumentation & Dewatering System Pumping Test	6d 7d		15-Nov-14 26-Nov-14	
Excavation and L		70		201101 14	
N3A-1140	Pre-pumping test ELS (not affected by shunt neck piling)	7d		26-Nov-14	
N3A-1150	Excavate to Below S1 - Stage 1 (south side)	3d		11-Dec-14	
N3A-1160 N3A-1170	Install S1 & decking - Stage 1 (south side) Break RC structure & ELS to S2 (south side)	6d 31d		17-Dec-14 24-Jan-15	
N3A-1170 N3A-1180	Southside Shunt Neck piles completed & site clearance	0d	17-Dec-14	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		03-Feb-15	
N3A-1210	Excavation to Below S2	5d		09-Feb-15	
N3A-1220 N3A-1230	Install S2 Excavation to Below S3	5d 7d		14-Feb-15 26-Feb-15	
N3A-1240	Install S3	7d 7d		06-Mar-15	
N3A-1250	Excavation to S4	9d		17-Mar-15	
N3A-1260	Install S4	9d		27-Mar-15	
N3A-1270 Tunnel Structure	Excavation to Formation Level @ -10.6 mPD	10d	28-Mar-15	13-Apr-15	
Bay N3A-01	(0 54)5)				
	Place Blinding Layer	1d		14-Apr-15	
	Construct Tunnel Base with Kicker	12d	15-Apr-15		
N3A01-130 N3A01-140	Place Infill Concrete/Compacted Fill up to S4 Remove S4	10d 3d		11-May-15 14-May-15	
	Construct NSL Wall up to S3			27-May-15	
	Place Infill Concrete/Compacted Fill up to S3	14d	28-May-15		
N3A01-170		3d		16-Jun-15	
	Construct NSL Roof (Travelling Form) Tunnel Walkway & Degree 1 Works & Bulkhead Wall	12d	17-Jun-15 03-Jul-15		
	Place Infill Concrete/compacted fill up to S2	12d 14d	03-Jul-15		
N3A01-210	Remove S2	3d	20-Jul-15		
	Construct EWL Lower Wall	12d		05-Aug-15	
N3A01-230	Place compacted fill to bottom of 1650 Drain	5d		11-Aug-15	
	Lay 1650 Stormwater Drain Place compacted fill to S1	6d	12-Aug-15 19-Aug-15	18-Aug-15	
	Remove S1	3d		03-Sep-15	
	Construct EWL Upper Wall	12d		17-Sep-15	
	Place compacted fill to final formation level	6d	18-Sep-15	24-Sep-15	
N3A01-300 Bay N3A-02	Key Date 3G	0d		24-Sep-15	
	Place Blinding Layer	1d	15-Apr-15	15-Apr-15	
	Construct Tunnel Base with Kicker	12d		13-May-15	
N3A02-130	Place Infill Concrete/Compacted Fill up to S4	9d		23-May-15	D
N3A02-140	Remove S4	2d		27-May-15	
	Construct NSL Wall up to S3 Place Infill Concrete/Compacted Fill up to S3	10d 13d		08-Jun-15 24-Jun-15	
	Remove S3	2d		24-Jun-15	
N3A02-180	Construct NSL Roof (Travelling Form)	12d	03-Jul-15	16-Jul-15	
	Tunnel Walkway & Works for Degree 1 Completion	12d	17-Jul-15		
	Place Infill Concrete/compacted fill up to S2 Remove S2	13d	17-Jul-15		<mark>┟╻<mark>┠</mark>╍╍╍╸╡╺╍╍╸╡╺╌╍╸╡╍╍╸╸╡╍╍╸╴╡╍╍╸╴╡╍╍╸╸╡╍╸╸╸╡╸╸╸╸╡</mark>
	Construct EWL Lower Wall	2d 12d		03-Aug-15 19-Aug-15	
N3A02-230	Place compacted fill to bottom of 1650 Drain	3d		22-Aug-15	
N3A02-240	Lay 1650 Stormwater Drain	6d	24-Aug-15	29-Aug-15	
N3A02-250	Place compacted fill to S1	10d		10-Sep-15	
	Remove S1 Construct EWL Upper Wall	2d 10d		12-Sep-15 30-Sep-15	╂╊╍╍┋╍╍┋╍╍┋╍╍┋╍╍┋╍╍┋╍╍┋╍╍┋╍╍┋
N3A02-290	Place compacted fill to final formation level	2d		03-Oct-15	
Bay N3A-03			10.4.15		

Bay N3A-03														
N3A03-120	Place Blinding Lay	<i>i</i> er	1d				<u> </u>							
N3A03-130	Construct Tunnel E	Base with Kicker	12d	14-May-15	28-May-15					<u> </u>				
N3A03-140	Place Infill Concre	te/Compacted Fill up to S4	9d	29-May-15	08-Jun-15									
N3A03-150	Remove S4		2d	09-Jun-15	10-Jun-15		<u> </u>							
N3A03-160	Construct NSL Wa	all up to S3	10d	11-Jun-15	23-Jun-15									
N3A03-170	Place Infill Concre	te/Compacted Fill up to S3	13d	24-Jun-15	09-Jul-15		P			<u>.</u>				
N3A03-180	Remove S3		2d	10-Jul-15	11-Jul-15		<u> </u>			<u> </u>				
N3A03-190	Construct NSL Ro	of (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 Concre	te/compacted fill up to S2	13d	31-Jul-15	14-Aug-15									
N3A03-220	Remove S2		2d	15-Aug-15	17-Aug-15					<u>.</u>				
N3A03-230	Construct EWL Lo	ower Wall	12d	20-Aug-15	02-Sep-15					<u> </u>				
N3A03-240	Place compacted	fill to bottom of 1650 Drain	3d	03-Sep-15	05-Sep-15			I						
N3A03-250	Lay 1650 Stormwa	iter Drain	6d	07-Sep-15	12-Sep-15			0						
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					<u>.</u>				
N3A03-280	Construct EWL Up	oper Wall	10d	02-Oct-15	13-Oct-15					<u> </u>				
N3A03-300	Place compacted	fill to final formation level	2d	14-Oct-15	15-Oct-15			1						
Bay N3A-04 - D	epends on NSL3B	Excavation												
N3A04-100	Excavation reache	ed approx -10.5 mPD	0d		11-Jun-15		•							
						-		Dete		Devie			Cheeked	Approved
		NON-DEMOLII	ION MASTE	ER PROC	JRAMME	-							Checked	Approved
	17.1基								<u> </u>					
Gammon	Kaden 📊		REVISION	B				16-Jul-15	meeting co	omments	s incorpo	rated		
Gammon				0				17-Sep-15	activity lag	gging tim	ne remov	ed		
on – Kaden SCL 11	11 Joint Venture	NDMPB-35			P	l of 16								
									1					
	N3A03-120 N3A03-130 N3A03-130 N3A03-140 N3A03-150 N3A03-150 N3A03-160 N3A03-170 N3A03-170 N3A03-180 N3A03-190 N3A03-200 Bay N3A-04 - D N3A04-100	N3A03-120 Place Blinding Lay N3A03-130 Construct Tunnel I N3A03-140 Place Infill Concre N3A03-150 Remove S4 N3A03-160 Construct NSL Wa N3A03-170 Place Infill Concre N3A03-170 Place Infill Concre N3A03-190 Construct NSL Ro N3A03-200 Tunnel Walkway & N3A03-200 Tunnel Walkway & N3A03-210 Place Infill Concre N3A03-220 Remove S2 N3A03-220 Remove S2 N3A03-230 Construct EWL Lo N3A03-240 Place compacted N3A03-250 Lay 1650 Stormwa N3A03-260 Place compacted N3A03-270 Remove S1 N3A03-280 Construct EWL Up N3A03-300 Place compacted N3A03-300 Place compacted Bay N3A-04 - Depends on NSL3B N3A04-100 Excavation reache	N3A03-120 Place Blinding Layer N3A03-130 Construct Tunnel Base with Kicker N3A03-140 Place Infill Concrete/Compacted Fill up to S4 N3A03-150 Remove S4 N3A03-160 Construct NSL Wall up to S3 N3A03-170 Place Infill Concrete/Compacted Fill up to S3 N3A03-170 Place Infill Concrete/Compacted Fill up to S3 N3A03-180 Remove S3 N3A03-190 Construct NSL Roof (Travelling Form) N3A03-200 Tunnel Walkway & Works for Degree 1 Completion (inside) N3A03-200 Tunnel Walkway & Works for Degree 1 Completion (inside) N3A03-210 Place Infill Concrete/compacted fill up to S2 N3A03-220 Remove S2 N3A03-220 Remove S2 N3A03-230 Construct EWL Lower Wall N3A03-240 Place compacted fill to bottom of 1650 Drain N3A03-250 Lay 1650 Stormwater Drain N3A03-260 Place compacted fill to S1 N3A03-270 Remove S1 N3A03-280 Construct EWL Upper Wall N3A03-280 Construct EWL Lower Vall N3A03-280 Construct EWL Lower Vall N3A04-100 Excavation reached approx -1	N3A03-120 Place Blinding Layer 1d N3A03-130 Construct Tunnel Base with Kicker 12d N3A03-140 Place Infill Concrete/Compacted Fill up to S4 9d N3A03-150 Remove S4 2d N3A03-160 Construct NSL Wall up to S3 10d N3A03-170 Place Infill Concrete/Compacted Fill up to S3 13d N3A03-180 Remove S3 2d N3A03-190 Construct NSL Roof (Travelling Form) 12d N3A03-200 Tunnel Walkway & Works for Degree 1 Completion (inside) 12d N3A03-200 Tunnel Walkway & Works for Degree 1 Completion (inside) 12d N3A03-200 Tunnel Walkway & Works for Degree 1 Completion (inside) 12d N3A03-200 Tunnel Walkway & Works for Degree 1 Completion (inside) 12d N3A03-200 Construct EWL Lower Wall 12d N3A03-200 Construct EWL Lower Wall 12d N3A03-200 Place compacted fill to bottom of 1650 Drain 3d N3A03-201 Place compacted fill to S1 10d N3A03-202 Remove S1 2d N3A03-203 Place compacted fill to final formation level 2d	N3A03-120 Place Blinding Layer 1d 16-Apr-15 N3A03-130 Construct Tunnel Base with Kicker 12d 14+May-15 N3A03-140 Place Infill Concrete/Compacted Fill up to S4 9d 29-May-15 N3A03-150 Remove S4 2d 09-Jun-15 N3A03-160 Construct NSL Wall up to S3 10d 11-Jun-15 N3A03-170 Place Infill Concrete/Compacted Fill up to S3 13d 24-Jun-15 N3A03-180 Remove S3 2d 10-Jul-15 N3A03-190 Construct NSL Roof (Travelling Form) 12d 17-Jul-15 N3A03-200 Tunnel Walkway & Works for Degree 1 Completion (inside) 12d 31-Jul-15 N3A03-210 Place Infill Concrete/compacted fill up to S2 13d 31-Jul-15 N3A03-220 Remove S2 2d 15-Aug-15 N3A03-230 Construct EWL Lower Wall 12d 20-Aug-15 N3A03-240 Place compacted fill to bottom of 1650 Drain 3d 03-Sep-15 N3A03-260 Place compacted fill to S1 10d 14-Sep-15 N3A03-260 Place compacted fill to S1 10d 14-Sep-15 N3A03-26	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 10-Jun-15 N3A03-150 Remove S4 2d 09-Jun-15 10-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 09-Jul-15 N3A03-190 Construct NSL Roof (Travelling Form) 12d 17-Jul-15 09-Jul-15 N3A03-200 Tunnel Walkway & Works for Degree 1 Completion (inside) 12d 17-Aug-15 13-Aug-15 N3A03-220 Remove S2 2d 15-Aug-15 17-Aug-15 17-Aug-15 N3A03-220 Construct EWL Lower Wall 12d 20-Aug-15 07-Sep-15 12-Sep-15 N3A03-220 Construct EWL Lower Wall 12d 20-Aug-15 12-Sep-15 N3A03-250 Lay 1650 Stormwater Drain	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 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 N3A03-170 Place Infill Concrete/Compacted Fill up to S3 13d 24-Jun-15 09-Jul-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 13-Jul-15 13-Jul-15 N3A03-200 Tunnel Walkway & Works for Degree 1 Completion (inside) 12d 17-Jul-15 30-Jul-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 02-Sep-15 16-Sep-15 N3A03-230 Construct EWL Lower Wall 12d 20-Aug-15 02-Sep-15 16-Sep-15	N3A03-120 Place Blinding Layer 1d 16-Apr-15 16-Apr-15 1 N3A03-130 Construct Tunnel Base with Kicker 12d 14-May-15 28-May-15 0 N3A03-140 Place Infill Concrete/Compacted Fill up to S4 9d 29-May-15 08-Jun-15 0 N3A03-150 Remove S4 2d 09-Jun-15 10-Jun-15 0 N3A03-160 Construct NSL Wall up to S3 10d 11-Jun-15 23-Jun-15 0 N3A03-170 Place Infill Concrete/Compacted Fill up to S3 13d 24-Jun-15 09-Jul-15 0 N3A03-180 Remove S3 2d 10-Jul-15 11-Jul-15 0 0 N3A03-200 Construct NSL Roof (Travelling Form) 12d 17-Jul-15 30-Jul-15 0 0 N3A03-200 Tunnel Walkway & Works for Degree 1 Completion (inside) 12d 13-Jul-15 14-Aug-15 0 0 N3A03-200 Tunnel Walkway & Works for Degree 1 Completion (inside) 12d 13-Jul-15 14-Aug-15 0 0 N3A03-200 Place Infill Concrete/compacted fill up to S2 13d 31-Jul-15 14-Aug-15 0<	N3A03-120 Place Blinding Layer 1d 16-Apr-15 1-Apr-15 1 N3A03-130 Construct Tunnel Base with Kicker 12d 14-May-15 28-May-15 0 N3A03-140 Place Infill Concrete/Compacted Fill up to S4 9d 29-May-15 08-Jun-15 0 1 N3A03-150 Remove S4 2d 09-Jun-15 10-Jun-15 1 1 1 N3A03-160 Construct NSL Wall up to S3 10d 11-Jun-15 23-Jun-15 0 1	N3A03-120 Place Blinding Layer 1d 16-Apr-15 16-Apr-15 1 N3A03-130 Construct Tunnel Base with Kicker 12d 14-Max-15 28-Max-15 0 N3A03-140 Place Infill Concrete/Compacted Fill up to S4 9d 29-Max-15 00-Jun-15 1 N3A03-160 Construct NSL Wall up to S3 10d 11-Jun-15 23-Jun-15 0 N3A03-170 Place Infill Concrete/Compacted Fill up to S3 13d 24-Jun-15 0-Jul-15 1 N3A03-180 Construct NSL Roof (Travelling Form) 12d 17-Jul-15 0 0 N3A03-100 Place Infill Concrete/compacted fill up to S2 13d 31-Jul-15 1 0 N3A03-100 Construct NSL Roof (Travelling Form) 12d 17-Jul-15 0 0 N3A03-200 Tunnel Walkway & Works for Degree 1 Completion (inside) 12d 17-Jul-15 0 0 N3A03-200 Place Infill Concrete/compacted fill up to S2 13d 31-Jul-15 14-Aug-15 0 N3A03-200 Place compacted fill to bottom of 1650 Drain 3d 03-Sep-15 1 0 N3A03-260 <	N3A03-120 Place Blinding Layer 1d 16-Apr-15 1-Apr-15 1 N3A03-130 Construct Tunnel Base with Kicker 12d 14-May-15 28-May-15 0 N3A03-140 Place Infill Concrete/Compacted Fill up to S4 9d 29-May-15 0-Jun-15 1 1 N3A03-160 Construct NSL Wall up to S3 10d 11-Jun-15 2-Jun-15 0 1 N3A03-170 Place Infill Concrete/Compacted Fill up to S3 10d 11-Jun-15 2-Jun-15 0 1 N3A03-170 Place Infill Concrete/Compacted Fill up to S3 10d 11-Jun-15 1 <td>N3A03-120 Place Binding Layer 1d 16-Apr-15 16-Apr-15 1 N3A03-130 Construct Turnel Base with Kicker 12d 14-May-15 28-May-15 08-Jun-15 0. N3A03-140 Place Infill Concrete/Compacted Fill up to S4 9d 29-May-15 08-Jun-15 0. 0. N3A03-160 Construct NSL Wall up to S3 10d 11-Jun-15 0. 0. 0. N3A03-160 Construct NSL Wall up to S3 10d 11-Jun-15 0. 0. 0. N3A03-160 Construct NSL Roof (Travelling Form) 12d 17-Jul-15 0. 0. 0. N3A03-190 Construct NSL Roof (Travelling Form) 12d 17-Jul-15 10-Jul-15 0. 0. N3A03-200 Turnel Walkway & Works for Degree 1 Completion (inside) 12d 17-Jul-15 0. 0. 0. N3A03-200 Findill Concrete/compacted fill up to S2 12d 13-Jul-15 14-Aug-15 0. 0. 0. N3A03-200 Place Infill Concrete/compacted fill up to S2 13d 13-Jul-15 14-Aug-15 0. 0. 0. 0. 0.</td> <td>N3A03-120 Place Blinding Layer 1d 16-Apr-15 16-Apr-15 16-Apr-15 1 N3A03-130 Construct Tunnel Base with Kicker 12d 14-May-15 28-May-15 0 </td> <td>N3A03-120 Place Binding Layer 1 1 1 1 1 1 N3A03-130 Construct Tunnel Base with Kicker 12d 14 May 15 28 May 15 0</td>	N3A03-120 Place Binding Layer 1d 16-Apr-15 16-Apr-15 1 N3A03-130 Construct Turnel Base with Kicker 12d 14-May-15 28-May-15 08-Jun-15 0. N3A03-140 Place Infill Concrete/Compacted Fill up to S4 9d 29-May-15 08-Jun-15 0. 0. N3A03-160 Construct NSL Wall up to S3 10d 11-Jun-15 0. 0. 0. N3A03-160 Construct NSL Wall up to S3 10d 11-Jun-15 0. 0. 0. N3A03-160 Construct NSL Roof (Travelling Form) 12d 17-Jul-15 0. 0. 0. N3A03-190 Construct NSL Roof (Travelling Form) 12d 17-Jul-15 10-Jul-15 0. 0. N3A03-200 Turnel Walkway & Works for Degree 1 Completion (inside) 12d 17-Jul-15 0. 0. 0. N3A03-200 Findill Concrete/compacted fill up to S2 12d 13-Jul-15 14-Aug-15 0. 0. 0. N3A03-200 Place Infill Concrete/compacted fill up to S2 13d 13-Jul-15 14-Aug-15 0. 0. 0. 0. 0.	N3A03-120 Place Blinding Layer 1d 16-Apr-15 16-Apr-15 16-Apr-15 1 N3A03-130 Construct Tunnel Base with Kicker 12d 14-May-15 28-May-15 0	N3A03-120 Place Binding Layer 1 1 1 1 1 1 N3A03-130 Construct Tunnel Base with Kicker 12d 14 May 15 28 May 15 0

	Activity Name	Dur	Start	Finish	2015 DJFMAMJJ		2016 JFMAMJJAS		2017 AMJJJAISION	VD.
	Place Blinding Layer	1d	12-Jun-15							1-1-
	Construct Tunnel Base with Kicker Place Infill Concrete/Compacted Fill up to S4	12d 9d	13-Jun-15 29-Jun-15							
N3A04-140	Remove S4	2d	10-Jul-15	11-Jul-15		 		· · · · · · · · · · · · · · · · · · ·		
	Construct NSL Wall up to S3 Place Infill Concrete/Compacted Fill up to S3	10d 13d	13-Jul-15 24-Jul-15	23-Jul-15 07-Aug-15	•••••••••••••••••••••••••••••••••••••••					
N3A04-170	Remove S3	2d	08-Aug-15	10-Aug-15		<u> </u>				
	Construct NSL Roof (Travelling Form) Tunnel Walkway & Works for Degree 1 Completion	12d 12d	11-Aug-15 25-Aug-15			•				
	Place Infill Concrete/compacted fill up to S2	12d	25-Aug-15	08-Sep-15						
N3A04-210	Remove S2 Construct EWL Lower Wall	2d	09-Sep-15							
	Place compacted fill to bottom of 1650 Drain	12d 3d	11-Sep-15 25-Sep-15			···· · ;				
	Lay 1650 Stormwater Drain	6d	30-Sep-15	07-Oct-15						
N3A04-250 N3A04-260	Place compacted fill to S1 Remove S1	10d 2d	08-Oct-15 20-Oct-15			<mark>-</mark>				
N3A04-270	Construct EWL Upper Wall	10d	23-Oct-15	03-Nov-15		0	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
	Place compacted fill to final formation level epends on NSL3B Excavation	2d	04-Nov-15	05-Nov-15						
	Place Blinding Layer	1d	13-Jun-15	13-Jun-15			· · · · · · · · · · · · · · · · · · ·			1
	Construct Tunnel Base with Kicker	12d	29-Jun-15							
N3A05-130	Place Infill Concrete/Compacted Fill up to S4 Remove S4	9d 2d	14-Jul-15 24-Jul-15	23-Jul-15 25-Jul-15						
N3A05-150	Construct NSL Wall up to S3	10d	27-Jul-15	06-Aug-15						
	Place Infill Concrete/Compacted Fill up to S3 Remove S3	13d 2d	07-Aug-15 22-Aug-15			•				
N3A05-180	Construct NSL Roof (Travelling Form)	12d	25-Aug-15	07-Sep-15						
	Tunnel Walkway & Works for Degree 1 Completion Place Infill Concrete/compacted fill up to S2	12d 13d	08-Sep-15 08-Sep-15							
N3A05-200	· · · · · ·	2d	23-Sep-15			-				
	Construct EWL Lower Wall	12d	25-Sep-15	10-Oct-15		_		· · · · · · · · · · · · · · · · · · ·		
	Place compacted fill to bottom of 1650 Drain Lay 1650 Stormwater Drain	3d 6d	12-Oct-15 15-Oct-15							
	Place compacted fill to S1	10d	23-Oct-15					······································		
	Remove S1	2d	04-Nov-15							
	Construct EWL Upper Wall Place compacted fill to final formation level	10d 2d	06-Nov-15 18-Nov-15							
(2) NSL/EWL Area	a 3B,4,5 (108m)									
Cofferdam N3B-1010	Install 2.4m Height Hoarding (NTH)	6d	18-Mar-14	29-Mar-14						
N3B-1020	Protective Grouting for settlement prevention	24d	17-Dec-14	07-Jan-15	· · · · · · · · · · · · · · · · · · ·			·		
	SHP (51 no.s) & East Side Pipe Piles (131 no.s), 2 Rigs		27-May-14							
N3B-1040 N3B-1050	Demolish footing of STA building West Side Pipe Piles (140 no.s), 2 Rigs	18d	02-Jul-14 A 23-Jul-14 A							
N3B-1060	Grout Curtain	60d	19-Nov-14	19-Jan-15						
	Grout curtain cut off wall (between NSL4 and NSL5) Dewatering System & Wells	24d 12d	16-Dec-14 20-Jan-15							
	Pumping Test	7d	03-Feb-15		1		· · · · · · · · · · · · · · · · · · ·			
Excavation and L		4.1								
	Excavation to Below S1 Install S1 & decking	4d 12d	10-Feb-15 14-Feb-15							
N3B-1100	Excavation to Start S2 Installation	6d	04-Mar-15	10-Mar-15			L	· · · · · · · · · · · · · · · · · · ·	L	
	Remaining excavation to S2	11d	11-Mar-15							
	Install S2 Excavation to Start S3 Installation	17d 6d	11-Mar-15 31-Mar-15							
N3B-1125	Remaining excavation to S3	10d	11-Apr-15	22-Apr-15						
	Install S3 Excavation to Start S4 Installation	16d 6d	11-Apr-15 30-Apr-15							
	Remaining excavation to S4	10d	08-May-15		••••••					
	Install S4	16d	08-May-15	27-May-15						
N3B-1160 Tunnel Structure	Excavation to Formation Level @ -10.6 mPD	13d	28-May-15	11-Jun-15	· · · · · · · · · · · · · · · · · · ·					
Bay N3B-01			1					· · · · · · · · · · · · · · · · · · ·		
	Place Blinding Layer Construct Tunnel Base with Kicker	1d 12d	15-Jun-15 14-Jul-15		<mark> </mark> ¹					
N3B01-130	Place Infill Concrete/Compacted Fill up to S4	9d	28-Jul-15	06-Aug-15				·		
	Remove S4 Construct NSL Wall up to S3	2d	07-Aug-15			I				
	Place Infill Concrete/Compacted Fill up to S3	10d 13d	10-Aug-15 21-Aug-15			•				
N3B01-170	Remove S3	2d	05-Sep-15	07-Sep-15						
	Construct NSL Roof (Travelling Form)	12d 12d	08-Sep-15 22-Sep-15							
	Tunnel Walkway & Works for Degree 1 Completion (inside) Place Infill Concrete/compacted fill up to S2	12d	22-Sep-15 22-Sep-15			····•				
N3B01-210	Remove S2	2d	09-Oct-15	10-Oct-15		<u> </u>		· · · · · · · · · · · · · · · · · · ·		
	Construct EWL Lower Wall Place compacted fill to bottom of 1650 Drain	12d 3d	12-Oct-15 27-Oct-15							
N3B01-240	Lay 1650 Stormwater Drain	30 6d	30-Oct-15	05-Nov-15			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
N3B01-250	Place compacted fill to S1	10d	06-Nov-15							
	Remove S1 Construct EWL Upper Wall	2d 10d	18-Nov-15 20-Nov-15		<mark>-</mark>		· · · · · · · · · · · · · · · · · · ·			
N3B01-290	Place compacted fill to final formation level	2d	02-Dec-15					·		
Bay N3B-02	Place Rinding Lover		16 100 15	16 100 15						{
	Place Blinding Layer Construct Tunnel Base with Kicker	1d 12d	16-Jun-15 28-Jul-15		<u> </u>	•••••	·			
N3B02-130	Place Infill Concrete/Compacted Fill up to S4	9d	11-Aug-15	20-Aug-15		•				
	Remove S4 Construct NSL Wall up to S3	2d 10d	21-Aug-15 24-Aug-15							
	Place Infill Concrete/Compacted Fill up to S3	10d 13d	24-Aug-15 04-Sep-15				·	·····		
N3B02-170	Remove S3	2d	19-Sep-15	21-Sep-15		!				
	Construct NSL Roof (Travelling Form) Tunnel Walkway & Works for Degree 1 Completion	12d 12d	22-Sep-15 08-Oct-15		<mark> </mark>					
N3B02-200	Place Infill Concrete/compacted fill up to S2	13d	08-Oct-15	23-Oct-15	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	·		
N3B02-210	Remove S2	2d	24-Oct-15			 				
	Construct EWL Lower Wall Place compacted fill to bottom of 1650 Drain	12d 3d	27-Oct-15 10-Nov-15			-				
N3B02-240	Lay 1650 Stormwater Drain	6d	13-Nov-15	19-Nov-15						
	Place compacted fill to S1 Remove S1	10d 2d	20-Nov-15 02-Dec-15					· · · · · · · · · · · · · · · · · · ·		
N3B02-270	Construct EWL Upper Wall	20 10d	04-Dec-15	15-Dec-15	-			+		
N3B02-290	Place compacted fill to final formation level	2d	16-Dec-15							
Bay N3B-03 N3B03-110	Place Blinding Layer	1d	17-Jun-15	17-Jun-15				· · · · · · · · · · · · · · · · · · ·		
N3B03-120	Construct Tunnel Base with Kicker	12d	11-Aug-15	24-Aug-15	· · · · · · · · · · · · · · · · · · ·					
	Place Infill Concrete/Compacted Fill up to S4	9d 2d	25-Aug-15			•				
	Remove S4 Construct NSL Wall up to S3	2d 10d	04-Sep-15 07-Sep-15		-					
N3B03-160	Place Infill Concrete/Compacted Fill up to S3	13d	18-Sep-15	05-Oct-15				· · · · · · · · · · · · · · · · · · ·		
	Remove S3 Construct NSL Roof (Travelling Form)	2d 12d	06-Oct-15 08-Oct-15							}-
1000-100								<u>· · · · · · · · · · · · · · · · · · · </u>		
	NON-DEMOLITIO	ON MASTE	ER PRO	GRAMM	=	Date 15-Jul-1	-	vision nts incorporated	Checked	Ap
								· · ·		+
Gammon	Kaden 🐰	EVISION	R			16-JUI-1	5 meeting commer	nts incorporated		

					DJFMAM	2015 IUUUAIS		2016 MAIMLULIA			17 LIIAISION	J
N3B03-190	Tunnel Walkway & Works for Degree 1 Completion (inside)	12d	23-Oct-15	05-Nov-15								Ľ
	Place Infill Concrete/compacted fill up to S2	13d		06-Nov-15								
	Remove S2 Construct EWL Lower Wall	2d 12d		09-Nov-15 23-Nov-15							L	
	Place compacted fill to bottom of 1650 Drain	3d		26-Nov-15			1					
	Lay 1650 Stormwater Drain	6d		03-Dec-15			0					
N3B03-250 N3B03-260	Place compacted fill to S1 Remove S1	10d 2d		15-Dec-15 17-Dec-15								
	Construct EWL Upper Wall	10d		31-Dec-15							L	-
N3B03-290	Place compacted fill to final formation level	2d	02-Jan-16	04-Jan-16)					_
Bay N3B-04	Place Plinding Lover	1d	10 Jun 15	12-Jun-15								
	Place Blinding Layer Construct Tunnel Base with Kicker	10 12d		27-Jun-15							 	
N3B04-130	Place Infill Concrete/Compacted Fill up to S4	9d	29-Jun-15	09-Jul-15			L	·			L	
	Remove S4	2d		11-Jul-15								
	Construct NSL Wall up to S3 Place Infill Concrete/Compacted Fill up to S3	10d 13d	13-Jul-15 24-Jul-15	23-Jul-15 07-Aug-15								
	Remove S3	2d		10-Aug-15								
	Construct NSL Roof (Travelling Form)	12d		24-Aug-15			 				 	
	Tunnel Walkway & Works for Degree 1 Completion Place Infill Concrete/compacted fill up to S2	12d 13d		07-Sep-15 08-Sep-15				+		·		
	Remove S2	2d		10-Sep-15						·	,	
	Construct EWL Lower Wall	12d	11-Sep-15	24-Sep-15								
	Place compacted fill to bottom of 1650 Drain	3d		29-Sep-15								
	Lay 1650 Stormwater Drain Place compacted fill to S1	6d 10d		07-Oct-15 19-Oct-15				+				
N3B04-260	Remove S1	2d	20-Oct-15	22-Oct-15			<u> </u>					
	Construct EWL Upper Wall	10d		03-Nov-15	ļ							
N3B04-290 Bay N3B-05	Place compacted fill to final formation level	2d	04-Nov-15	05-Nov-15				+				
	Place Blinding Layer	1d	13-Jun-15	13-Jun-15				· · · · · · · · · · · · · · · · · · · 				
N3B05-120	Construct Tunnel Base with Kicker	12d	29-Jun-15	13-Jul-15	ļ							
	Place Infill Concrete/Compacted Fill up to S4 Remove S4	9d 2d	14-Jul-15 24-Jul-15	23-Jul-15 25-Jul-15	 							
N3B05-150	Construct NSL Wall up to S3	2d 10d	24-Jul-15 27-Jul-15	25-Jul-15 06-Aug-15	11		·				·	
N3B05-160	Place Infill Concrete/Compacted Fill up to S3	13d	07-Aug-15	21-Aug-15				· · · · · · · · · · · · · · · · · · ·	- 1			
N3B05-170	Remove S3	2d		24-Aug-15								
	Construct NSL Roof (Travelling Form) Tunnel Walkway & Works for Degree 1 Completion	12d 12d		07-Sep-15 21-Sep-15	+			+				
	Place Infill Concrete/compacted fill up to S2	13d		21-Sep-15 22-Sep-15			L				L	
N3B05-210	Remove S2	2d	23-Sep-15	24-Sep-15	ļ							
N3B05-220 N3B05-230	Construct EWL Lower Wall Place compacted fill to bottom of 1650 Drain	12d 3d		10-Oct-15 14-Oct-15	 							
	Lay 1650 Stormwater Drain	30 6d		22-Oct-15							 	
	Place compacted fill to S1	10d		03-Nov-15							L 	
	Remove S1 & deck	2d		05-Nov-15								
N3B05-270 N3B05-290	Construct EWL Upper Wall Place compacted fill to final formation level	10d 2d		17-Nov-15 19-Nov-15								
Bay N3B-06		20	10-110-113	19-1100-13							L	
	Place Blinding Layer	1d		15-Jun-15		1						
	Construct Tunnel Base with Kicker	12d		27-Jul-15 06-Aug-15								
N3B06-130 N3B06-140	Place Infill Concrete/Compacted Fill up to S4 Remove S4	9d 2d		06-Aug-15 08-Aug-15							 	
	Construct NSL Wall up to S3	10d		20-Aug-15				· · · · · · · · · · · · · · · · · · ·			LL	
	Place Infill Concrete/Compacted Fill up to S3	13d		04-Sep-15	·······		 					
N3B06-170 N3B06-180	Remove S3 Construct NSL Roof (Travelling Form)	2d 12d		07-Sep-15 21-Sep-15							, , , , , , , , , , , , , , , , , , ,	
	Tunnel Walkway & Works for Degree 1 Completion (inside)	12d		07-Oct-15]					
N3B06-200	Place Infill Concrete/compacted fill up to S2	13d	22-Sep-15	08-Oct-15								
	Remove S2	2d		10-Oct-15			•					
	Construct EWL Lower Wall Place compacted fill to bottom of 1650 Drain	12d 3d		26-Oct-15 29-Oct-15								
	Lay 1650 Stormwater Drain	6d		05-Nov-15							Þ I I I I	
	Place compacted fill to S1	10d		17-Nov-15						· 	,	
	Remove S1 & deck Construct EWL Upper Wall	2d 10d		19-Nov-15 01-Dec-15								
	Place compacted fill to final formation level	2d		03-Dec-15								
Bay N3B-07							· · · · · · · · · · · · · · · · · · ·					
	Place Blinding Layer	1d		16-Jun-15								
	Construct Tunnel Base with Kicker Place Infill Concrete/Compacted Fill up to S4	12d 9d		10-Aug-15 20-Aug-15								
N3B07-140	Remove S4	2d	21-Aug-15	22-Aug-15				· · · · · · · · · · · · · · · · · · ·				
	Construct NSL Wall up to S3	10d		03-Sep-15	ļ							
	Place Infill Concrete/Compacted Fill up to S3 Remove S3	13d 2d		18-Sep-15 21-Sep-15								
	Construct NSL Roof (Travelling Form)	20 12d		07-Oct-15								
N3B07-190	Tunnel Walkway & Works for Degree 1 Completion	12d	08-Oct-15	22-Oct-15	1							
	Place Infill Concrete/compacted fill up to S2 Remove S2	13d		23-Oct-15 26-Oct-15	 							
	Construct EWL Lower Wall	2d 12d		26-Oct-15 09-Nov-15	+						· · · · · · · · · · · · · · · · · · ·	
	Place compacted fill to bottom of 1650 Drain	3d		12-Nov-15			1	·				
	Lay 1650 Stormwater Drain	6d		19-Nov-15	ļ							
	Place compacted fill to S1 Remove S1 & deck	10d 2d		01-Dec-15 03-Dec-15								
	Construct EWL Upper Wall	20 10d		15-Dec-15	11							
N3B07-290	Place compacted fill to final formation level	2d		17-Dec-15								
	m Bay 3A-01 to 3B-07	40.1	20 Oct 15	10 Nov 15	 - 							
	Construct Shunt Neck Base (Bays 1-3) Construct Shunt Neck Base (Bays 4-6)	18d 18d	20-Oct-15 11-Nov-15	10-Nov-15 01-Dec-15	† - † ∳			<u> </u>				
	Construct Shuft Neck Base (Bays 4-6)		02-Dec-15				-	· · · · · · · · · · · · · · · · · · ·			L	
N3ASN-026	Construct Shunt Neck Base (Bays 10-12)	18d	23-Dec-15	15-Jan-16								
	Construct Shunt Neck Wall (Bays 1-3) Construct Shunt Neck Wall (Bays 4-6)	18d		01-Dec-15	 - 							
	Construct Shunt Neck Wall (Bays 4-6) Construct Shunt Neck Wall (Bays 7-9)	18d 18d		22-Dec-15 15-Jan-16								
N3ASN-036	Construct Shunt Neck Wall (Bays 10-12)	18d	16-Jan-16	05-Feb-16								
N3ASN-040	Backfill to Final Level	21d	06-Feb-16	04-Mar-16								
	Place Mass Concrete Fill (12 Bays) epends on NSL6 Excavation	21d	05-Mar-16	01-Apr-16								
	NSL6 Excavation Completed (South Side only)	0d		07-Aug-15		•	L					
N3B08-120	Place Blinding Layer	1d		08-Aug-15				·			 	
	Construct Tunnel Base with Kicker	12d		24-Aug-15								
	Place Infill Concrete/Compacted Fill up to S4 Remove S4	13d 2d	∠o-Aug-15 09-Sen-15	08-Sep-15 10-Sep-15	 							
	Construct NSL Wall up to S3	10d		22-Sep-15			L				L	
N3B08-170	Place Infill Concrete/Compacted Fill up to S3	10d	23-Sep-15	06-Oct-15	ļ							
	Remove S3 Construct NSL Boof / EWL Base (Travelling Form)	2d 18d		08-Oct-15 30-Oct-15	 							
	Construct NSL Roof / EWL Base (Travelling Form) Construct EWL Lower Wall up to S2	18d 12d		30-Oct-15 23-Nov-15	†••••••							
	Place Infill Concrete/compacted fill up to S2	10d		04-Dec-15		k					· · · · · · · · · · · · · · · · · · ·	
				GRAMM			Date		vision		Checked	T

Gammon – Kaden SCL 1111 Joint Venture

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Date	Revision	Checked	Approved
5-Jul-15	meeting comments incorporated		
6-Jul-15	meeting comments incorporated		
7-Sep-15	activity lagging time removed		

Activity ID	Activity Name	Dur	Start	Finish			2015			2016				017		2018
					DUIE								JFMAMJ			
N3B08-220	Remove S2	2d	05-Dec-15	07-Dec-15												
N3B08-230		15d		05-Jan-16				••••						++		
N3B08-240		12d		19-Jan-16												
N3B08-250		8d		14-Jan-16					1							
N3B08-260		6d		21-Jan-16					1							
N3B08-270		10d		02-Feb-16		+								+		
N3B08-280		2d		04-Feb-16						j	i			·ii		
N3B08-290		12d		22-Feb-16												
N3B08-300		2d		24-Feb-16					1							
	Depends on NSL6 Excavation	24	2010010													
N3B09-110		1d	10-Aug-15	10-Aug-15												
N3B09-120		12d		07-Sep-15										1		
N3B09-130		13d		22-Sep-15												
N3B09-140		2d		24-Sep-15				I								
N3B09-150		10d		08-Oct-15						·····						
N3B09-160		10d		20-Oct-15							i			1		
N3B09-170		2d		23-Oct-15				1								
N3B09-180		18d		20-Nov-15												
N3B09-190		12d	24-Nov-15	07-Dec-15												
N3B09-200		10d		18-Dec-15]							
N3B09-210		2d		21-Dec-15					E]				1		
N3B09-220	Construct EWL Upper Wall with Strut Beam	15d	22-Dec-15	11-Jan-16												
N3B09-230		12d		25-Jan-16												
N3B09-240		8d		20-Jan-16					0							
N3B09-250		6d	21-Jan-16	27-Jan-16					0					1		
N3B09-260		10d		11-Feb-16										1		
	Remove S1 & working deck	2d		13-Feb-16					1	-i						
N3B09-280		12d		07-Mar-16												
N3B09-290		2d		09-Mar-16			 							i		i
	Depends on NSL6 Excavation	20	00 1110													
	Place Blinding Layer	1d	11-Aug-15	11-Aug-15										·;;-		
	Construct Tunnel Base with Kicker	12d		21-Sep-15										·;+		
N3B10-130		12d		08-Oct-15												
N3B10-140		2d		10-Oct-15				····						+		
		10d		23-Oct-15				•								
N3B10-150				04-Nov-15						÷				++		
N3B10-160		10d										·		++		
N3B10-170		2d		06-Nov-15								·				
N3B10-180		18d		11-Dec-15				····•				·				
N3B10-190	•	12d		28-Dec-15			<u>-</u>	····-				·		. .	·····	·····
N3B10-200		10d		09-Jan-16				····-				·			·	
N3B10-210		2d		12-Jan-16					<u></u>	<u></u>						
N3B10-220		15d		29-Jan-16												
N3B10-230		12d		16-Feb-16						ļ						
N3B10-240		8d		11-Feb-16												
N3B10-250		6d		18-Feb-16												
N3B10-260		10d		01-Mar-16						<u>.</u>						
N3B10-270	Remove S1 & working deck	2d		03-Mar-16					<u></u>					ļ		
N3B10-280		12d	08-Mar-16	21-Mar-16								l.				
	Place compacted fill to final formation level	2d	22-Mar-16	23-Mar-16						ļ						
(3) NSL/EWL 6	(NSL/EWL-77m, EWL-41m)									<u>.</u>						
Stage 1 Piling	- Winslow Street Area															
N06-1010	Possess Areas W1, W1A & Site clearance	18d	19-Feb-13	11-Mar-13										1		
N06-1020	Expose & protect utilities	24d	12-Mar-13	12-Apr-13												
N06-1030	East Side Pipe Piles (41 no.s)	82d	13-Apr-13	22-Jul-13 A	A									1		
N06-1040	Grout Curtain	24d	23-Jul-13 A	19-Aug-13										1		
N06-1050	Expose existing utilities	70d	20-Aug-13	12-Nov-13												
N06-1060	Support/Divert Utilities	53d		16-Jan-14												
N06-1070	Pipe Piles (54 no.s)	81d		29-Apr-14										1		
N06-1080	Grout Curtain	24d		29-May-14												
Stage 2 Piling														1		
N06-1090	Possess Areas M1 & Site clearance	24d	17-Mar-14	14-Apr-14										1		
N06-1100	Install 6m Hoarding (NTH)	68d		18-Sep-14										1		
N06-1110	Trip wire system (NTH)	68d		21-Oct-14												
N06-1120	OHL Diversions	83d		10-Nov-14										7		
N06-1120	Trial pits & expose utilities	95d		08-Dec-14		;				7				·[····		
N06-1140	Pregrouting	111d		22-Dec-14										1		
N06-1150	West Side Pipe Piles (92 no.s) SM, 1-3 rigs	138d		06-Feb-15												<i>د</i> ــــــ
N06-1160	Grout Curtain (include windows)	12d		24-Feb-15												
N06-1170	Grout Curtain cut off wall (between NSL 6 and NSL 7)	24d		31-Dec-14										· · · · · · · · · · · · · · · · · · ·		
N06-1180	Dewatering System	6d		03-Mar-15		0								·····		
N06-1190	Pumping Test	7d		10-Mar-15		0										
N06-1190	Tril pits for additional piles	25d		29-Jan-15												
N06-1210	Additional piles to separate EWL from NSL (30 no.s)	60d		17-Apr-15		<u>+</u>										· · · · · · · · ·
N06-1210	Demobilization & site clearance	6d		24-Apr-15										· · · · · · · · · · · · · · · · · · ·		
	- Remaining Piles in Winslow Playground and Mortuary	Ju	10 / 01-10													
N06-1320	Site clearance & preparation works	14d	15-Oct-14	30-Oct-14										1		
N06-1330	Piling (32 no.s) near NSL5 and NSL7 cross walls	48d		27-Dec-14										·•••••		i
N06-1340	Kingposts	6d		05-Jan-15						·						
N06-1350	Grout Curtain	24d		26-Jan-15										· · · · · · · · · · · · · · · · · · ·		}
	or N06-01 to N06-04 & 6E-01 to 6E-04)		10 000 14		1. F.					÷						
N06-1230	Excavation to Below S1	3d	25-Apr 15	28-Apr-15												
N06-1230	Install S1 & decking	30 16d		18-May-15												
N06-1240 N06-1250	Excavation to Below S2	6d		26-May-15			•			+				- <u>+</u> <u>+</u>		
N06-1250 N06-1260				26-May-15 05-Jun-15						+	i-	j-		-+÷		
	Install S2	9d	-							+				·;····-;		
N06-1270	Excavation to Below S3	6d		12-Jun-15												
N06-1280	Install S3	8d		23-Jun-15	_ _		-	····-		÷				- ¦ļ		
N06-1290	Excavation to Below S4	6d		30-Jun-15			····• <mark>.</mark>					·		. .		
N06-1300	Install S4	17d	02-Jul-15				📒			Įį						
N06-1310	Excavation to EWL Formation Level	10d		13-Jul-15						<u></u>				İ		
N06-1315	Plate Load Test	28d	14-Jul-15	10-Aua-15		1	i 🗖	1	1	1	1	i i	1		i i	

				•			1						
- all			NDMPB-35			P 4	of 16						
Gam	nmon – Kaden SCL 111	11 Joint Venture								999 tin			
	Gammon	利		REVISION	В				-		ne removed	1	
	0	Kaden 🐰			Р						s incorporated	1	
		1P					-	15-Jul-15	meetina c	omment	s incorporated		
			NON-DEMOLIT					Date		Revi	sion	Checked	Approved
	Bay N06-01												
		nt Neck Integrated S	Structure (40m) at South Side - 4 Bays										
	Tunnel Structure												
			ort underneath utilities windows	3d	02-Mar-16	05-Mar-16							
	N06-1510	Excavation to tunne		54d	23-Dec-15								
	N06-1500		ort underneath utilities windows	6d	16-Dec-15		-						
	N06-1490	Install S4		6d	16-Dec-15								
	N06-1480	Excavation to S4 (3	l.8m)	68d	24-Sep-15	16-Dec-15				Į			
	N06-1470	Install lagging supp	ort underneath utilities windows	6d	17-Sep-15	24-Sep-15							
	N06-1460	Install S3		6d	17-Sep-15	24-Sep-15		.		1 I.			
	N06-1450	Excavation to S3 (2		52d	18-Jul-15	17-Sep-15			1	1 1			
	N06-1440		ort underneath utilities windows	6d	11-Jul-15	18-Jul-15							
	N06-1430	Install S2		6d	11-Jul-15	18-Jul-15							
	N06-1420	Excavation to S2 (1		32d	02-Jun-15								
	N06-1410	Install support for u	2	12d	18-May-15								
		Install S1 & Deckin	,	12d	18-May-15			i i		i i		i i	- i - i - I
	N06-1380	Excavation to S1 (1	2 Abandoned Windows (For N06-05 to N0	18d	25-Apr-15	16-May-15							
	N06-1390	Excavation to NSL		15d	22-Jul-15	07-Aug-15							
	N06-1315	Plate Load Test		28d		10-Aug-15							
	N06-1310	Excavation to EWL	Formation Level	10d		13-Jul-15		<u> </u>					

	Place Blinding Laver (at approx -10 mPD)				DJHV	ЛАМJ	UJAS	SQND	J∣⊢∣N	AMJJJAS	SOND	JFMAM	JJASC	ND	JHI
	Place Billinging Laver (at approx - 10 mPD)	1d	08-Aua-15	08-Aug-15	1	1	1								
	Construct Tunnel Base with Kicker	12d	10-Aug-15	22-Aug-15	[]]				
N0601-130 N0601-140	Place Infill Concrete/Compacted Fill up to S4	7d 2d		31-Aug-15 02-Sep-15											
	Construct NSL Wall up to S3	20 10d		14-Sep-15			•								
N0601-160	Place Infill Concrete/Compacted Fill up to S3	5d	15-Sep-15	19-Sep-15	[[
N0601-170		2d		22-Sep-15	 										
	Construct NSL Roof / EWL Base (Travelling Form) Construct EWL Lower Wall up to S2	18d		12-Nov-15 26-Nov-15	<u> </u>						· · · · · · · · · · · · · · · · · · ·				
	Place Infill Concrete/compacted fill up to S2	5d		02-Dec-15	† <mark>-</mark>										
N0601-210	Remove S2	2d	03-Dec-15	04-Dec-15	[.										
	Construct EWL Upper Wall & Roof	12d		18-Dec-15	 										
	Tunnel Walkway & Works for Degree 1 Completion Place compacted fill to bottom of 1650 Drain	6d 4d		28-Dec-15 23-Dec-15	<u>+</u>						· · · · · · · · · · · · · · · · · · ·				
	Lay 1650 Stormwater Drain	40 6d		02-Jan-16	†- <mark>-</mark>]						
	Place compacted fill to S1	5d		08-Jan-16	[0						
	Remove S1/working deck & fill to shunt neck	6d		15-Jan-16	 				<u> </u>						
	Construct Shunt Neck & Retaining Wall near Trackside	16d 2d	16-Jan-16	03-Feb-16 05-Feb-16	 										
Bay N06-02 (w		20	04-160-10	05-1-60-10	†- <mark>-</mark>										
	Place Blinding Layer (at approx -11 mPD)	1d	10-Aug-15	10-Aug-15	[1								
	Construct Tunnel Base with Kicker	12d		05-Sep-15	 										
N0602-130 N0602-140	Place Infill Concrete/Compacted Fill up to S4	7d 2d		14-Sep-15 16-Sep-15	 						· · · · · · · · 				
1	Construct NSL Wall up to S3	20 10d		29-Sep-15	- <mark> </mark>						· +				
	Place Infill Concrete/Compacted Fill up to S3	5d		06-Oct-15				Ó			1	·			
N0602-170		2d		08-Oct-15	İ			1							
	Construct NSL Roof / EWL Base (Travelling Form)	18d		03-Dec-15	 										
	Construct EWL Lower Wall up to S2 Place Infill Concrete/compacted fill up to S2	12d 5d		17-Dec-15 23-Dec-15	- <mark> </mark>			····							
N0602-210		2d		28-Dec-15	<mark>-</mark>	-+		Ī							
N0602-220	Construct EWL Upper Wall	10d	29-Dec-15	09-Jan-16	ļ. .										
	Place compacted fill to bottom of 1650 Drain	4d		02-Jan-16	- <mark> </mark>				 						
	Lay 1650 Stormwater Drain Place compacted fill to S1	6d 5d		09-Jan-16 15-Jan-16	<u>∤-</u> <mark> </mark>				u 0						
	Remove S1/working deck & fill to shunt neck	6d		22-Jan-16	[]	-+			0 0		1	·····		····	
	Construct Shunt Neck & Retaining Wall near Trackside	16d		13-Feb-16	[]		[
	Construct EWL roof	12d		05-Feb-16	 - 										
	Tunnel Walkway & Works for Degree 1 Completion	6d		16-Feb-16	 				0		·				
Bay N06-03	Place compacted fill to final formation level	2d	15-Feb-16	16-Feb-16	<u> </u>						• • • • • • • • • • • • • • • • • • • •				
	Place Blinding Layer (at approx -9 mPD)	1d	11-Aug-15	11-Aug-15	<mark>-</mark>	-+	t T				· † †				
	Construct Tunnel Base with Kicker	12d		19-Sep-15											
i	Place Infill Concrete/Compacted Fill up to S4	7d		29-Sep-15	 			ļ							
N0603-140		2d		02-Oct-15	 						· { {·				
	Construct NSL Wall up to S3 Place Infill Concrete/Compacted Fill up to S3	10d 5d	03-Oct-15	14-Oct-15 20-Oct-15	- <mark>-</mark>						·				
N0603-170		2d		23-Oct-15	<u> </u>			1			· † †				
	Construct NSL Roof / EWL Base (Travelling Form)	18d		24-Dec-15	[]					 		·			
	Construct EWL Lower Wall up to S2	12d		11-Jan-16											
- i	Place Infill Concrete/compacted fill up to S2	5d		16-Jan-16	 										
N0603-210	Remove S2 Construct EWL Upper Wall & Roof	2d 12d		19-Jan-16 02-Feb-16	<u>+</u>										
	Tunnel Walkway & Works for Degree 1 Completion	6d		12-Feb-16	<u>∤</u>				•		· .				
	Place compacted fill to bottom of 1650 Drain	4d		06-Feb-16					I						
N0603-250	Lay 1650 Stormwater Drain	6d		17-Feb-16	Í				l						
Í	Place compacted fill to S1	5d		23-Feb-16	.				ļ		·				
l l	Remove S1/working deck & fill to shunt neck Construct Shunt Neck & Retaining Wall near Trackside	6d 16d		01-Mar-16 19-Mar-16	<u> </u>						· 				
	Place compacted fill to final formation level	2d		22-Mar-16	<mark>-</mark>				<u>-</u>						
Bay N06-04					(
	Place Blinding Layer (at approx -7.5 mPD)	1d		12-Aug-15	.		1				·				
	Construct Tunnel Base with Kicker Place Infill Concrete/compacted fill up to S4	12d 5d	21-Sep-15	06-Oct-15 12-Oct-15	+- <mark>-</mark>										
N0604-130		2d		12-Oct-15	<mark>-</mark>						· { {				
	Construct NSL Wall /EWL Base up to S3	12d	15-Oct-15												
	Place Infill Concrete/compacted fill up to S3	5d	30-Oct-15	04-Nov-15	[
N0604-170		2d		06-Nov-15	 										
	Construct NSL Roof/EWL lower wall up to S2 (Travelling Form) Place Infill Concrete/compacted fill up to S2	18d 5d		18-Jan-16 23-Jan-16	+- <mark>-</mark>						· { {				
N0604-200		2d		23-Jan-16 26-Jan-16	+- <mark>-</mark>				•		·				
	Construct EWL Upper Wall & Roof	12d	03-Feb-16	19-Feb-16	[]							·			
N0604-230	Tunnel Walkway & Works for Degree 1 Completion	6d	20-Feb-16	26-Feb-16					0						
	Place compacted fill to bottom of 1650 Drain	4d		24-Feb-16	- <mark> </mark>				ļ						
	Lay 1650 Stormwater Drain Place compacted fill to S1	6d 5d		02-Mar-16 08-Mar-16	- 			·	1		·				
i i	Remove S1/working deck & fill to shunt neck	5d		14-Mar-16	- 				····						
N0604-280	Construct Shunt Neck & Retaining Wall near Trackside	12d	15-Mar-16		[]				•						
	Place compacted fill to final formation level	2d	01-Apr-16	02-Apr-16											
	((37m) at North Side - 4 Bays				- 		·	·			· { {				
	SL/Shunt Neck) (with Towngas Pipe Jacking) Place Blinding Layer (at approx -7.5 mPD)	1d	05-Mar-16	07-Mar-16	<u>∤-</u> 				1		· · · · · · · 				
	Construct Tunnel Base with Kicker	12d	07-Mar-16		[]										
N0605-130	Place Infill Concrete/compacted fill up to S4	10d	21-Mar-16	06-Apr-16								· · · · · · · · · · · · · · · · · · ·			
N0605-140		3d		09-Apr-16	- 										
	Construct NSL Wall up to S3	12d		23-Apr-16	- 			÷							
N0605-160 N0605-170	Place Infill Concrete/compacted fill up to S3 Remove S3	10d 3d		06-May-16 10-May-16	<u> </u> - <mark> </mark>										
N0605-180	Construct NSL Roof (Travelling Form)			25-May-16	[]										
N0605-185	Pipe Jacking for Towngas on NSL roof (partial NTH)	44d	25-May-16	18-Jul-16											
N0605-188	Remove jacking assembly	6d	18-Jul-16		- 										
	Place concrete/compacted fill up to S2	7d		02-Aug-16	- <mark> </mark>						· · · · · · · · · · · · · · · · · · ·				
	Remove S2 & utilities support Lay 1650 Stormwater Drain	12d 6d		16-Aug-16 23-Aug-16	- 										
	Place compacted fill to Shunt Neck Formation	3d		26-Aug-16						I					
N0605-240	Construct Shunt Neck Trough (bottom part)	10d	26-Aug-16	07-Sep-16	ļ. .										
	Place compacted fill up to S1	3d		10-Sep-16	- 			+							
N0605-260		3d		14-Sep-16	- <mark> </mark>					•••••	<u>.</u>				
	Construct Shunt Neck Trough (upper part) Backfill to Formation	10d 3d		27-Sep-16 30-Sep-16	- 						1				
	SL/Shunt Neck)	Ju	-1 Och-10	00 0cp-10	- 		+								
	Place Blinding Layer (at approx -7.5 mPD)	1d		08-Mar-16	[]		[I						
N0606-130	Construct Tunnel Base with Kicker	12d	21-Mar-16	08-Apr-16	ļ. ļ]					
i i	Place infill concrete/compacted fill up to S4	10d	08-Apr-16		- 					□ Ⅰ					
N0606-150		3d		23-Apr-16	- 		·	·}		- -	·{				
	Construct NSL Wall up to S3 Place infill oncrete /compacted fill up to S3	12d 10d		09-May-16 21-May-16	- 						· • • • • • • • • • • • • • • • • • • •				
N0606-180		3d		25-May-16			· · · · · ·			0					
	Construct NSL Roof (Travelling Form)	12d	25-May-16												

		PRUUSRAIVIIVIE	Duic	TICVISION	Onconco	rippioved
			15-Jul-15	meeting comments incorporated		
Gammon Kaden	REVISION B		16-Jul-15	meeting comments incorporated		
Gammon			17-Sep-15	activity lagging time removed		
Gammon – Kaden SCL 1111 Joint Venture	NDMPB-35	P 5 of 16				

Activity ID		Activity Name	Dur	Start	Finish		0015	0010		0017 00
							2015 JJASONDJFMA	2016 MULUAISION		2017 20 MUUUAISIONIDUIF
	N0606-200	Tunnel Walkway & Works for Degree 1 Completion	6d	08-Jun-16	16-Jun-16					
		Place infill concrete/compacted fill up to S2	7d		17-Jun-16					·····
		Remove S2 & utilities support	12d		02-Jul-16					
		Place compacted fill to Shunt Neck Formation	6d	02-Jul-16	09-Jul-16			D		
		Construct Shunt Neck Trough (bottom part)	10d	09-Jul-16	21-Jul-16					
		Place compacted fill to S1	6d	21-Jul-16	28-Jul-16			0		
		Remove S1	3d		01-Aug-16			0		
		Construct Shunt Neck Trough (upper part)	10d		12-Aug-16					
		Place compacted fill to final formation	3d		16-Aug-16			0		
	Bay N06-07 (I	NSL/Shunt Neck)								
		Place Blinding Layer (at approx -7.5 mPD)	1d	08-Mar-16	09-Mar-16					
		Construct Tunnel Base with Kicker	12d	08-Apr-16	22-Apr-16					
		Place infill concrete/compacted fill up to S4	10d		05-May-16					
		Remove S4	3d		09-May-16					
	N0607-150	Construct NSL Wall up to S3	10d	09-May-16	21-May-16					
		Place infill oncrete /compacted fill up to S3	10d		02-Jun-16			0		
		Remove S3	3d		06-Jun-16			0		
	N0607-180	Construct NSL Roof (Travelling Form)	12d		23-Jun-16					
		Tunnel Walkway & Works for Degree 1 Completion	6d		30-Jun-16			C		
		Place infill concrete/compacted fill up to S2	7d		02-Jul-16			٥		
		Remove S2 & utilities support	12d	02-Jul-16	16-Jul-16					
		Place compacted fill to Shunt Neck Formation	6d		23-Jul-16			0		·····
		Construct Shunt Neck Trough (bottom part)	10d	23-Jul-16	04-Aug-16					
		Place compacted fill to S1	6d		11-Aug-16					·····
		Remove S1	3d		15-Aug-16	<u> -</u>		····		·····
		Construct Shunt Neck Trough (upper part)	10d		26-Aug-16	<u> -</u>				
		Place compacted fill to final formation	3d		30-Aug-16	+		····		····
			30	20-Aug-10	30-Aug-16			····		·····
		NSL/Shunt Neck) Place Blinding Layer (at approx -7.5 mPD)	1d	00 Mar 10	10-Mar-16	<u> -</u>	······			
		Construct Tunnel Base with Kicker	12d		07-May-16]		
		Place infill concrete/compacted fill up to S4	10d		20-May-16					
		Remove S4	3d		24-May-16	<mark> </mark>		<u> </u>		
		Construct NSL Wall up to S3	10d		04-Jun-16	······				
		Place infill oncrete /compacted fill up to S3	10d		17-Jun-16					
		Remove S3	3d		21-Jun-16			0		
		Construct NSL Roof (Travelling Form)	12d		08-Jul-16					
		Tunnel Walkway & Works for Degree 1 Completion	6d	08-Jul-16	15-Jul-16			0		·····
		Place infill concrete/compacted fill up to S2	7d	08-Jul-16	16-Jul-16					
	N0608-210	Remove S2 & utilities support	12d	16-Jul-16	30-Jul-16					
	N0608-220	Place compacted fill to Shunt Neck Formation	6d	30-Jul-16	06-Aug-16			0		
	N0608-230	Construct Shunt Neck Trough (bottom part)	10d	06-Aug-16	18-Aug-16					
	N0608-240	Place compacted fill to S1	6d	18-Aug-16	25-Aug-16					
	N0608-250	Remove S1	3d	25-Aug-16	29-Aug-16			1		
	N0608-260	Construct Shunt Neck Trough (upper part)	10d	29-Aug-16	09-Sep-16					
	N0608-270	Place compacted fill to final formation	3d	09-Sep-16	13-Sep-16			0		
	EWL Structure	(41m) - 4 Bays								
	Bay E06-01									
		Excavation in EWL6 reached approx - 4.5 mPD	0d		13-Jul-15	1	•			
	E0601-115	Site formation to reach EWL formation (after Bay N06-04)	31d	05-Nov-15	10-Dec-15					
		Place Blinding Layer (at approx -4.5mPD)	1d		11-Dec-15		1			
		Construct Tunnel Base with Kicker	15d		31-Dec-15					
		Place infill concrete/compacted fill up to S3	12d		15-Jan-16					
		Remove S3	3d		19-Jan-16					· · · · · · · · · · · · · · · · · · ·
		Construct EWL Wall up to S2	12d		02-Feb-16					· · · · · · · · · · · · · · · · · · ·
		Place infill concrete/compacted fill up to S2	13d		20-Feb-16					
		Remove S2	3d		24-Feb-16					
		Construct EWL Roof (Travelling Form)	15d		12-Mar-16					
		Tunnel Walkway & Works for Degree 1 Completion	6d		19-Mar-16					
		Place compacted fill up to S1	5d		18-Mar-16					·····
		Remove S1	3d		22-Mar-16					·····
		Place compacted fill to final formation level	3d		22-Mar-16	† †	·····			
		Depends on EWL7 Excavation)	50	iviai-10		†- †				
		Excavation in EWL7 completed	0d		16-Oct-15	1.1	•			
		Place Blinding Layer (at approx -5mPD)	1d	17-0ot 15	17-Oct-15	<u>+-</u>				
		Construct Tunnel Base with Kicker	12d		02-Nov-15	<u> -</u>				
		Place infill concrete/compacted fill up to S3	12d		16-Nov-15	<u> -</u>		····	···	·····
					16-Nov-15 18-Nov-15	<u></u> ∦- <mark>1</mark> ∔				·····
		Remove S3	2d			<u> </u>				
		Construct EWL Wall up to S2	10d		30-Nov-15	∤ - <mark>∙</mark>				····
		Place infill concrete/compacted fill up to S3	13d		15-Dec-15	+ <mark>-</mark>				····
		Remove S2	2d		17-Dec-15	∤ - <mark> </mark>				····
		Construct EWL Roof (Travelling Form)	15d		07-Jan-16					
		Tunnel Walkway & Works for Degree 1 Completion	6d		14-Jan-16	<u> -</u>				····-
		Place compacted fill up to S1	2d		09-Jan-16	∤ - <mark>,</mark>		·	···	····-
		Remove S1	2d		12-Jan-16	∤ - <mark>,</mark> ∔				····
		Place compacted fill to final formation level	5d	13-Jan-16	18-Jan-16	<u> -</u>	······			····
		Depends on EWL7 Excavation)		10.0	10.0 : :-	<u> -</u>				
		Place Blinding Layer (at approx -6mPD)	1d		19-Oct-15	<u> -</u>				····-
		Construct Tunnel Base with Kicker	12d		16-Nov-15	∤ - <mark>,</mark>		·	···	····-
		Place infill concrete/compacted fill up to S3	12d		30-Nov-15	↓				·····
		Remove S3	2d		02-Dec-15	 				
		Construct EWL Wall up to S2	10d		14-Dec-15	ļ. <mark>.</mark>				
		Place infill concrete/compacted fill up to S3	13d		31-Dec-15	. <mark> </mark>				
		Remove S2	2d		04-Jan-16	ļ., <mark>.</mark>				
		Construct EWL Roof (Travelling Form)	15d	08-Jan-16	25-Jan-16					
	E0603-190	Tunnel Walkway & Works for Degree 1 Completion	6d		01-Feb-16					
		Place compacted fill up to S1	2d		27-Jan-16		I I I			
		Remove S1	2d		29-Jan-16				- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	
		Place compacted fill to final formation level	5d		04-Feb-16		0			
		Depends on EWL7 Excavation)								
		Place Blinding Laver (at approx -6mPD)	1d	20 Oct 15	20-Oct-15					

		Bay E06-04 (L	Depends on EWL/	Excavation)							J		
		E0604-110	Place Blinding Laye	er (at approx -6mPD)	1d	20-Oct-15	20-Oct-15						
		E0604-120	Construct Tunnel B	Base with Kicker	12d	17-Nov-15	30-Nov-15						
		E0604-130	Place infill concrete	e/compacted fill up to S3	12d	01-Dec-15	14-Dec-15						
		E0604-140	Remove S3		2d	15-Dec-15	16-Dec-15		E		}		
		E0604-150	Construct EWL Wa	all up to S2	10d	17-Dec-15	30-Dec-15				ļ		
		E0604-160	Place infill concrete	e/compacted fill up to S3	13d	31-Dec-15	15-Jan-16						
			Remove S2		2d	16-Jan-16	18-Jan-16				·····		
		E0604-180	Construct EWL Ro	of (Travelling Form)	15d	26-Jan-16	15-Feb-16						
				Works for Degree 1 Completion	6d	16-Feb-16				0 ; ;			
			Place compacted f	ill up to S1	2d	16-Feb-16				<u>I. j</u>	·		
		E0604-210	Remove S1		2d	18-Feb-16	19-Feb-16			1			
		E0604-220	Place compacted f	ill to final formation level	5d	20-Feb-16	25-Feb-16			0			
		CLP Ducts from	n NSL3-6										
		A12290	Filling completed u	p to bottom of retaining wall	0d		18-Jan-16						
		A12300	Construct retaining	wall	24d	19-Jan-16	18-Feb-16				1		
		A12310	Backfill to retaining) wall	6d	19-Feb-16	25-Feb-16			<u> </u>			
		A12320	Construct draw pits	s & lay cable ducts	20d	26-Feb-16	19-Mar-16						
		A12330	Backfill to formatio	n level	6d	21-Mar-16	30-Mar-16						
	(4) NSL7, 8A, 8B- ⁻	1 (80m)										
		Preparation Work											
		•						•					
				NON-DEMOL	ITION MASTE	ER PRO	GRAMME		Date	Rev	vision	Checked	Approved
			エア 1 基						15-Jul-15	meeting commer	nts incorporated		
	6	iammon	Kaden 🎆		REVISION	R			16-Jul-15	meeting commer	nts incorporated		
_			44			D			17-Sep-15	activity lagging ti	me removed		
Gar	nmo	n – Kaden SCL 111	1 Joint Venture	NDMPB-35			ВС	of 16				<u> </u>	
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	Activity Name		Start		DJ		201 A M J 、			2016 JFMAMJJASON		2017 MAMJJA	SOND
N07-1200	Possess Areas M1 & Site clearance	48d	17-Mar-14										
	Install 6.0m Height Hoarding (NTH) Trip wire system (NTH)	18d 9d	20-May-14 01-Jul-14 A										
Cofferdam Piling	in NSL7												
N07-1010 N07-1020	Pregrouting	20d	21-Jul-14 A										
	West side Pipe piles (48 no.s), SM, 1.5 Rigs Traffic diverted to TB1 W/B (TTM Stage 5B)	96d 0d	13-Aug-14	14-Dec-14									
N07-1032	Site clearance	16d	15-Dec-14	05-Jan-15									
N07-1034 N07-1040	Mobilisation Middle SHP (24 no.s), SM	11d 84d	06-Jan-15 17-Dec-14										
N07-1040	East Side Pipe Piles (52 no.s)		06-Jan-15			·····							
	East Side SHP (24 no.s)	48d	19-Jan-15	18-Mar-15									
N07-1058 N07-1060	Erect platfom for post grout works Remaining Grout Curtain	12d 20d	02-May-15 16-May-15										
N07-1070	Instrumentation & Dewatering System	6d	10-Jun-15										
	Pumping Test	7d	17-Jun-15	23-Jun-15	.		0						
Underpinning t N07-1090	o OB2 Deck Install lower frame	12d	01-Apr-15	18-Apr-15		.							
	Install upper frame	18d	20-Apr-15	11-May-15									
	Install restraint frame Load Transfer (NTH)	6d	12-May-15 19-May-15										
	Demolish existing east abutment	4d 24d	10-Jun-15									-+	
Underpinning t	o Subway within NSL7												
	Local excavation to below subway	20d 18d	10-Jun-15 06-Jul-15					•••••					
	Construct support connection to subway		27-Jul-15				·····						
	in NSL8A & NSL8B-1												
	d During TB1 & TB2 Construction West side Pipe piles (72 no.s), SM	288d	16-Sep-13	05-Sen-14									
N07-1140	Stage 1 SHP (19 no.s)	2000 38d	01-Apr-14	21-May-14								- !	
N07-1150	East Side Pipe Piles (65 no.s)	96d	01-Apr-14										
Piles After TB2 N07-1160	Diversion Traffic Diverted to TB2	0d		29-Nov-14									
N07-1170	Site formation & form access	24d	29-Nov-14	29-Dec-14									
	Form access	12d	30-Dec-14		┼┡	·····							
	Remove old depot structure Demolish OB2 Wingwall & slope	6d 6d	14-Jan-15 21-Jan-15		┼╬								
N07-1190	Stage 2 SHP (23 no.s), SM	81d	28-Jan-15	11-May-15									
	Grout Curtain Cut off Wall near NSL8B1 & NSL8B2	12d	27-Apr-15										
N07-1380 Excavation and L	Loading Test ateral Support	28d	12-May-15	บช-Jun-15									
N07-1260	Excavation to S1 break pipe piles	7d	24-Jun-15				Ó						
	Install S1 & decking		03-Jul-15		- - -								
N07-1280 N07-1290	Excavation to S2 & break pipe piles	12d 25d	17-Aug-15 31-Aug-15		- - 								
N07-1290	Excavation to S3 & break pipe piles	250 12d	30-Sep-15				·····	7				- 1	
N07-1310	Install S3	25d	15-Oct-15	13-Nov-15									
N07-1320 N07-1330	Excavation to S4 (EWL formation) & break pipe piles	12d 25d	14-Nov-15 28-Nov-15		- - 								
N07-1340	Excavation to S5 in NSL 8A only	9d	30-Dec-15	09-Jan-16]			
	Install S5 Execution to Examplian in NSL 84 only	9d	11-Jan-16		- - 					0			
N07-1360 Tunnel Structure	Excavation to Formation in NSL 8A only (8 Bays)	9d	21-Jan-16	งบ-มสก-16	╁╂╌								
Bay N07-01						i-							
	Place Blinding Layer (at approx -6.5 mPD)	1d	10-Mar-16		- - 								
	Construct Tunnel Base with Kicker Place infill concrete/compacted fill up to S3	12d 6d	07-May-16 23-May-16										
N0701-140	Remove S3	2d	30-May-16	01-Jun-16	11		·····			1			
	Construct NSL Wall up to S2	8d	04-Jun-16		- - -					0			
	Place infill concrete /compacted fill up to S2 Remove S2	6d 2d	15-Jun-16 22-Jun-16		- <u> -</u>					 I			
N0701-180	Construct NSL Roof & CRN1 abutment lower wall (Travelling Form)	18d	08-Jul-16	29-Jul-16									
	Tunnel Walkway & Works for Degree 1 Completion Place infill concrete/compacted fill up to S1	6d 6d	29-Jul-16 29-Jul-16		- - 								
	Remove S1	60 2d	29-Jul-16 05-Aug-16		<u>+</u> -					I	 		
N0701-220	Construct CRN1 East Abutment middle wall	12d	08-Aug-16	22-Aug-16	11								
	Construct CRN1 East Abutment upper wall Construct Shunt Neck	12d 12d	22-Aug-16 05-Sep-16				·····-						
Bay N07-02		120	-00-0ep-16	20-3eb-16	 -								
N0702-110	Place Blinding Layer (at approx -6.5 mPD)	1d	01-Feb-16		11								
	Construct Tunnel Base with Kicker Place infill concrete/compacted fill up to S3	12d 6d	02-Feb-16 19-Feb-16		- - 		·····						
	Remove S3	2d	26-Feb-16		<u> </u> -								
	Construct NSL Wall up to S2	8d	29-Feb-16										
	Place infill concrete /compacted fill up to S2 Remove S2	6d 2d	09-Mar-16 16-Mar-16		- - -		·····-						
N0702-180	Construct NSL Roof & CRN1 abutment lower wall (Travelling Form)	18d	18-Mar-16	12-Apr-16									
	Tunnel Walkway & Works for Degree 1 Completion	6d	13-Apr-16		- - -					0			
	Place infill concrete/compacted fill up to S1 Remove S1	6d 2d	13-Apr-16 20-Apr-16		- - 							- <u>1</u> <u>1</u>	
N0702-220	Construct CRN1 East Abutment middle wall	12d	22-Apr-16	06-May-16	11	+-	· · · · · · · · · · · · · · · · · · ·			0			
	Construct CRN1 East Abutment upper wall Construct Shunt Neck	12d 12d	07-May-16		- - 								
Bay N07-03		120	23-May-16	04-JUII-10	 -								
N0703-110	Place Blinding Layer (at approx -6.5 mPD)	1d	02-Feb-16										
	Construct Tunnel Base with Kicker Place infill concrete/compacted fill up to S3		19-Feb-16		- - 								
	Remove S3	6d 2d	04-Mar-16 11-Mar-16		<u>+</u> -								
N0703-150	Construct NSL Wall up to S2	8d	14-Mar-16	22-Mar-16	11					0			
	Place infill concrete /compacted fill up to S2 Remove S2	6d 2d	23-Mar-16 02-Apr-16							 n			
	Construct NSL Roof & CRN1 abutment lower wall (Travelling Form)	20 18d	13-Apr-16		<u> </u> -								
N0703-190	Tunnel Walkway & Works for Degree 1 Completion	6d	05-May-16	11-May-16	11					0			
	Place infill concrete/compacted fill up to S1 Remove S1	6d 2d	05-May-16 12-May-16		- - 		· · · · · · · · ·			·····			
N0703-220	Construct CRN1 East Abutment middle wall	12d	16-May-16	28-May-16			· · · · · · · · · · · · · · · · · · ·			0		-+	
N0703-230	Construct CRN1 East Abutment upper wall	12d	30-May-16	13-Jun-16	11								
N0703-240 Bay N07-04	Construct Shunt Neck	12d	14-Jun-16	27-Jun-16							;		
	Place Blinding Layer (at approx -6.5 mPD)	1d	03-Feb-16	03-Feb-16	<u>+-</u> +-								
N0704-120	Construct Tunnel Base with Kicker	12d	04-Mar-16	17-Mar-16	11								
	Place infill concrete/compacted fill up to S3 Remove S3	6d 2d	18-Mar-16 29-Mar-16		- - 					U			
	Construct NSL Wall up to S2	2d 8d	29-Mar-16 31-Mar-16		<u>+</u> -								
N0704-160	Place infill concrete /compacted fill up to S2	6d	11-Apr-16	16-Apr-16	11	+-	·····			0			
N0704-170	Remove S2 Construct NSL Roof & CRN1 abutment lower wall (Travelling Form)	2d 18d	18-Apr-16 05-May-16		- - 					I			
		180	- up-ivialy- lb	CO-IVIAV-16		1							
N0704-180	Tunnel Walkway & Works for Degree 1 Completion	6d	27-May-16							0			

		15-Jul-15	meeting comments incorporated	
Gammon Kaden	REVISION B	16-Jul-15	meeting comments incorporated	
Gainmon		17-Sep-15	activity lagging time removed	
Gammon – Kaden SCL 1111 Joint Venture	NDMPB-35 P 7 of 16			

Notatais	Remove 01	0.1	00.1.75	04.1.1.1	DJF	20 MAMJ		QNDJFN		016 JJJAS	OND			
	Remove S1 Construct CRN1 East Abutment middle wall	2d 12d	03-Jun-16 06-Jun-16							 				
	Construct CRN1 East Abutment upper wall	12d	21-Jun-16	05-Jul-16					[
Remaining Shu	Construct Shunt Neck nt Neck 4ffected by TB1 & TB2	12d	06-Jul-16	19-Jul-16										
	Tunnel above Chatham Rd Completed (Bays N0701-N0704) Construct Chatham Road to Original Condition	0d 24d	20-Sep-16	20-Sep-16						•				
N0704-260	Divert TB1 W/B to Chatham Rd W/B	1d	20-Oct-16	21-Oct-16									·····	
	Dismantle TB1 W/B portion (Partial NTH) Construct Watermain Bridge, Type L4 parapet	30d 48d	21-Oct-16 25-Nov-16											
N0704-290	Divert TB1 E/B to Chatham Rd E/B	1d	23-Jan-17	24-Jan-17							 	-	·	
	Dismantle TB1 E/B portion (Partial NTH) Shunt Neck above Bay 07-05 to Bay 07-07 (3 Bays)	30d 36d	24-Jan-17 28-Feb-17											
N0704-305	Tunnel above Slip Rd Completed (Bays 8B02-8B03)	0d		07-Apr-17								•	· · · · · · · · · · · · · · · · · · ·	
	Construct Hong Chong Rd Slip Rd to Original Condition Divert TB2 to Hong Chong Slip Rd	24d 1d	08-Apr-17 06-May-17				·····							
N0704-320	Dismantle TB2 (Partial NTH)	24d	08-May-17	03-Jun-17									÷	
N0704-330 Bay N07-05 (wit	Construct Shunt Neck above Bay 07-08 (1 Bay)	12d	05-Jun-17	17-Jun-17							, , , , , , , , , , , , , , , , , , ,		. 	
N0705-110	Place Blinding Layer (at approx -12.5 mPD)	1d	04-Feb-16					1			{		·····	
	Construct Sump Pit Base with Kicker Place infill concrete/compacted fill up to S5	12d 4d	05-Feb-16 23-Feb-16											
N0705-140	Remove S5	2d	27-Feb-16											·
	Construct Sump Pit Wall up to S4 Place infill concrete /compacted fill up to S4	8d 6d	01-Mar-16	09-Mar-16 16-Mar-16							¦			
	Remove S4	2d	17-Mar-16					i			{		·	
	Construct Tunnel Base with Kicker & Sump Pit Wall Place infill concrete up to S3	12d 5d	19-Mar-16 07-Apr-16											
	Remove S3	2d	13-Apr-16										·	
	Construct NSL Wall & Sump Pit Roof up to S2 Place infill concrete/compacted fill up to S2	8d 3d	15-Apr-16 25-Apr-16						0					
N0705-230	Remove S2	2d	23-Apr-16 28-Apr-16						i					
	Construct NSL Roof/Strut Beam (Travelling Form)	18d	27-May-16							-l				
	Tunnel Walkway & Works for Degree 1 Completion Place compacted fill up to S1	6d 5d	18-Jun-16 18-Jun-16	1] [[]]				
	Remove S1	2d	24-Jun-16	25-Jun-16						Ļ				
Bay N07-06 (wit N0706-110	Place Blinding Layer (at approx -12.5 mPD)	1d	05-Feb-16	05-Feb-16										
N0706-120	Construct Sump Pit Base with Kicker	12d	23-Feb-16	1										
	Place infill concrete/compacted fill up to S5 Remove S5	4d 2d	08-Mar-16 12-Mar-16	11-Mar-16 14-Mar-16										
N0706-150	Construct Sump Pit Wall up to S4	8d	15-Mar-16	23-Mar-16				0						
	Place infill concrete /compacted fill up to S4 Remove S4	6d 2d	24-Mar-16 05-Apr-16											
N0706-180	Construct Tunnel Base with Kicker & Sump Pit Wall	12d	07-Apr-16	20-Apr-16					•				·····	
	Place infill concrete up to S3 Remove S3	10d 2d	21-Apr-16 04-May-16											
N0706-210	Construct NSL Wall & Sump Pit Roof up to S2	8d	06-May-16	16-May-16					D					
	Place infill concrete/compacted fill up to S2 Remove S2	3d 2d	17-May-16 20-May-16						<u> </u>					
	Construct NSL Roof/Strut Beam (Travelling Form)	20 18d	18-Jun-16		1				'	<u> </u>				
	Tunnel Walkway & Works for Degree 1 Completion Place compacted fill up to S1	6d 5d	11-Jul-16 11-Jul-16											
	Remove S1	2d	16-Jul-16	1						j.				
Bay N07-08 - Aft	er Bay N8B-01 Excavation Reached Formation in NSL8B	0d		19-Aug-16										
	Place Blinding Layer (at approx -4 mPD)	1d		15-Sep-16						• 1			·	
N0708-130	Construct Tunnel Base with Kicker	12d	19-Dec-16	1								 	· · · · · · · · · · · · · · · · · · ·	
	Place infill concrete/compacted fill up to S3 Remove S3	6d 2d	05-Jan-17 12-Jan-17									u 		
N0708-160	Construct NSL Wall up to S2	8d	17-Jan-17	25-Jan-17								0		
	Place infill concrete /compacted fill up to S2 Remove S2	6d 2d	26-Jan-17 06-Feb-17	04-Feb-17 07-Feb-17										
N0708-190	Construct NSL Roof up to S1	18d	07-Mar-17	27-Mar-17									· · · · · · · · · · · · · · · · · · ·	
	Tunnel Walkway & Works for Degree 1 Completion Place infill concrete/compacted fill up to S1	6d 3d	28-Mar-17 28-Mar-17				·····							
N0708-220	Remove S1	2d	31-Mar-17	01-Apr-17								i		
	Construct NSL Roof/Strut Beam (Travelling Form) Backfilling	18d 6d	26-Apr-17 19-May-17											
Bay N07-07 (wit	n Sump Pit)	0U	19-1viay-17	23-111ay-17										
	Further ELS from -4 to approx -12.5 mPD for Sump Pit	24d	20-Aug-16 19-Sep-16										· · · · · ·	
	Place Blinding Layer (at approx -12.5 mPD) Construct Sump Pit Base with Kicker	1d 12d	20-Sep-16							[
	Place infill concrete/compacted fill up to S5	4d	05-Oct-16								0			
	Remove S5 Construct Sump Pit Wall up to S4	2d 8d	11-Oct-16 13-Oct-16								0			
N0707-170	Place infill concrete /compacted fill up to S4	6d	22-Oct-16	28-Oct-16			;				0			
	Remove S4 Construct Tunnel Base with Kicker & Sump Pit Wall	2d 12d	29-Oct-16 05-Jan-17	1	<u> </u>				 			0		
N0707-200	Place infill concrete up to S3	5d	19-Jan-17	24-Jan-17	 							0		
	Remove S3 Construct NSL Wall & Sump Pit Roof up to S2	2d 8d	25-Jan-17 27-Jan-17	26-Jan-17 08-Feb-17	<u> </u> -									
N0707-230	Place infill concrete/compacted fill up to S2	3d	09-Feb-17	11-Feb-17	11								·····	
	Remove S2 Construct NSL Roof/Strut Beam (Travelling Form)	2d 18d		14-Feb-17 09-Jun-17										
N0707-260	Tunnel Walkway & Works for Degree 1 Completion	6d	10-Jun-17	16-Jun-17	1.		·····				;		·	·
N0707-270 N0707-280	Place compacted fill up to S1 Remove S1	5d 2d	10-Jun-17 16-Jun-17											
(5) NSL 8B-2, 9, O		120									· · · · · · · · · · · · · · ·	••••••	L	
Cofferdam Piling		34d	30-Dec-14	07 Eab 15										
N8B-1065	East Side 273 minipiles (34 no.s) SHP (13 no.s), SM	34d 39d	30-Dec-14 01-Apr-15								·			
	Curtain Grout	12d	22-May-15	05-Jun-15										{-
Cofferdam Piling N8B-1070	n NSL9 East side 273 minipiles (34 no.s) - Stage 1	34d	17-Apr-14	31-May-14				 					·	
N8B-1080	PEM's Decomissioned & Removed	0d		15-Sep-14										
	PregroutingSite clearance	24d 12d	16-Sep-14 18-Oct-14	1	<u> </u> -		·····}				 			
N8B-1110	Trial pits	6d	01-Nov-14	07-Nov-14										
	East side 273 minipiles (72 no.s) - Stage 2	144d 24d	19-Nov-14 15-Apr-15	14-Apr-15 13-May-15										
N8B-1123	Relocate access in NSL9	0d		13-May-15	11	•							·	
N8B-1124 N8B-1125	Trial pit East side 273 minipiles (17 no.s) - Stage 3	12d 17d	14-May-15 29-May-15											
N8B-1150	SHP (27 no.s) - not affected by OB2A east abutment	81d	22-May-15	27-Aug-15	11								·	·
N8B-1160	Remaining curtain grout	24d	28-Aug-15	24-Sep-15	 								· · · · · · · · · · · · · · · · · · ·	
	Traffic Diverted to TB2 West side 273 minipiles (91 no.s), SM	0d 184d	29-Nov-14	29-Nov-14 23-Apr-15	- <u> </u>								·	
1102 1110	Piling under OB2 A completed	0d		23-Apr-15	111	•				1	i	· · · · · · · · · · · · · · · · · · ·	1	100

Gammon	Kaden #
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REVISION B

 16-Jul-15
 meeting comments incorporated

 17-Sep-15
 activity lagging time removed

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						20 AIML1				2016		DJFMA	201		N
N8B-1185	Curtain grout under OB2A	22d	24-Apr-15										4101010	1490	1 4
	Modify hoarding	18d	29-Apr-15												
Underpinning t N8B-1010	o OB2A Deck Install lower frame & columns (5 sets)	10d	21-May-15	00 lun 15											
	Install upper frame & cross beams	5d	03-Jun-15	1											
	Install restrain frame (NTH)	4d	09-Jun-15			0									
N8B-1030	Expose existing pile cap of OB2A @ approx +3 mPD	6d	17-Jun-15			0	<u> </u>								
N8B-1040	Demolish existing east abutment and pile cap	24d	25-Jun-15												
N8B-1050 N8B-1170	Raking strut SHP (12 no.s) - after OB2A east abutment demolition	10d 36d	24-Jul-15 05-Aug-15												
	o Subway within NSL8B & NSL9	000	00 Aug 10	10 060 10											
N8B-1180	Excavation to below subway (3000m3)	10d	28-Aug-15												
	Demolish existing pile cap under wingwall		09-Sep-15												
	Install bracket for underpinning Construct connection to subway (incl CLP protection)	12d 24d	23-Sep-15 09-Oct-15					•	÷						
	at Oi Sen Path (For 400 kV Diversion)	240	09-001-15	00-1107-15											
Piling at North	Side Timber Platform (Stage 1)														
	Erect Working Platform for East Side Piling Works	63d	10-Sep-13												
	Cofferdam East Side 273mm Pipe Piles (63 no.s, Rig MI4) Grout Curtain		17-Oct-13 10-Feb-14												
N8B-1410 Piling at South	Side Existing Footpath (Stage 2)	24d	10-Feb-14	08-11121-14											
	Construct temporary walkway at south side of OSP (for piling)	39d	03-Oct-13	18-Nov-13											
N8B-1300	Local Pedestrian Diversion	6d	19-Nov-13												
	Cofferdam East Side 273mm Pipe Piles (49 no.s, Rig HD90)	53d	26-Nov-13						÷		····-				
N8B-1320 N8B-1330	Expose CLP cables and CLP inspection Cofferdam East Side 273mm Pipe Piles (6 no.s, Rig HD90)	12d 12d	30-Jan-14 17-Feb-14												
	Grout Curtain	120 24d	17-Feb-14 10-Feb-14				<u>.</u>								
	kway & Pedestrian Diversion (OSP North) 180m														
N8B-1450	Drill rock dowels (110 no.s)	28d	05-Feb-14												
	Erect pedestrian walkway - 75 bays		10-Mar-14				·}		÷						
	Pedestrian Diversion (north side & south side) kway & Pedestrian Diversion (OSP South) 90m	1d	18-Jun-14	To-JUII-14											
N8B-1350	Dismantle timber piling platform	6d	10-Mar-14												
N8B-1420	Erect working platform for slope excavation/tie back soil nails	6d	17-Mar-14	22-Mar-14											
N8B-1430	Excavation and tie back soil nails to existing OSP	36d	24-Mar-14				·								
N8B-1440 400 kV Diversio	Construct Pedestrian Walkway	41d	28-Apr-14	17-Jun-14											
N8B-1380	Expose existing 400 kV to cable tiles (by GKJV)	48d	19-Jun-14	14-Aua-14					·····						
	Construct Temporary Cable Hanger	48d	15-Aug-14	15-Sep-14											
N8B-1400	Hand over to CLP to expose 400 kV (by CLP)		16-Sep-14						ļ						
N8B-1480	Slew 400kV (by CLP) an Tin Trackside Area	18d	25-Sep-14	17-Oct-14											
	an Tin Trackside Area Sewerage & Drainage Works within HMT Track Area	145d	01-Nov-14	30-Anr-15	· · · · · · · · · · · · · · · · · · ·										
	at Oi Sen Path (Remaining)	1100													
	orks & Rock Slopes Excavation														
	Install 2.4m Height Hoarding (NTH)	12d	03-May-14 31-May-14	29-May-14											
N8B-1560 N8B-1570	Install 6.0m Height Hoarding (NTH) Expose/Protect utilities	12d 24d		25-Jul-14 A											
	Trip wire system (NTH)	12d	26-Jul-14 A												
N8B-1590	PEM Stage D Decomissioned	0d		31-Jan-15*	•										
N8B-1595	Remove PEM	6d		07-Feb-15											
N8B-1600 N8B-1610	Form Haul Road Working platform for slopwork	36d 36d	16-Sep-14 25-Sep-14												
N8B-1620	Rock Slope CH 100850-101090 (Top 4m), 25m3/Day		08-Nov-14												
N8B-1630	Form additional haul road from north side	28d	09-Feb-15						ļ						
N8B-1660	Rock Slope CH 100850-101090 (Remaining), 50m3/Day		17-Mar-15						<u>.</u>						
N8B-1665 Piling Affected	Rock mapping, inspection, rock dowels (as required) by Slope Excavation CH 100+890 to 101+090	17d	23-Jul-15	11-Aug-15											
	6m hoarding & tripwire (NTH)	14d	05-May-15*	04-Jun-15											
N8B-1510	West side 273 minipiles (137 no.s), SM - 2 Rigs	137d	12-Aug-15	25-Jan-16			_								
	East side (41) & middle (22) minipiles (Total 63 no.s)		12-Aug-15												
	Middle SHP (74 no.s) - 2 Rigs Remaining Curtain Grout	111d 24d	12-Aug-15 26-Jan-16												
	Dewatering System	12d	26-Feb-16						<u></u>						
	Pumping Test (NSL 8B-2, 9, OSP)	7d	22-Mar-16	28-Mar-16					l I						
OHL A0+911 Di															
N8B-1840 N8B-1850	Construct foundation for A0+902 Erect Portal Structure (NTH) for A0+902	6d 2d	26-Jan-16 02-Feb-16	01-Feb-16					U 1						
N8B-1850 N8B-1860	OHL Diversion (NTH)	20 3d	02-Feb-16 06-Feb-16						0						
N8B-1870	Remove existing OHL A0+911 (NTH)	3d	13-Feb-16						0						
	ted by Slope Excavation CH 100+840 to 100+890		40.11	00.5											
	Piling for OHL Diversion West side 273 minipiles (145 no.s), SM - outside slopes	18d	19-Nov-14 24-Nov-14	09-Dec-14			<u>.</u>	<u>.</u>							
N8B-1690	Curtain Grout		17-Nov-15						·····						
N8B-1750	Dewatering System	12d	08-Mar-16												
Excavation and L															
N8B-1220 N8B-1230	Trim Formation to Below S1 (1000m3 soft), 500m3/Day Install S1 & decking (including existing CLP support)	2d 30d	29-Mar-16 31-Mar-16						.						
N8B-1230 N8B-1240	ELS to S2 (7000m3 soft), 350m3/Day	26d	07-May-16							-			l.		
N8B-1260	ELS to S3 (8050m3 soft), 350m3/Day	29d	08-Jun-16	13-Jul-16			· • • • • • • • • • • • • • • • • • • •		·						
N8B-1280	ELS to Formation (3555m3 soft,800m3 rock),350m/D,50m/D		14-Jul-16												
N8B-1285	Plate Load Test / SPT	7d	13-Aug-16	19-Aug-16							•				
Tunnel Structure Bay N8B-23 (We	• • •								<u></u>						
	Place Blinding Layer (at approx 2.4 mPD)	1d	20-Aua-16	20-Aug-16			·		·		1				
N8B23-120	Construct Tunnel Base with Kicker		22-Aug-16	03-Sep-16			[[
	Place infill concrete/compacted fill up to S1	8d		13-Sep-16											
	Remove S1 Construct NSL Lower Wall	2d	14-Sep-16 17-Sep-16	15-Sep-16											
	Construct NSL Lower Wall Construct NSL Upper Wall with retaining structure	8d 15d	17-Sep-16 27-Sep-16	-			·								
	Place infill concrete	2d	17-Oct-16	18-Oct-16					·		Ī				
N8B23-180	Tunnel Walkway & Works for Degree 1 Completion	6d	19-Oct-16	25-Oct-16							0				
	Backfilling to OSP	6d	19-Oct-16	25-Oct-16							0				
Bay N8B-22 (We N8B22-110	ork Front 1) Place Blinding Layer (at approx 2.4 mPD)	1d	22-Aug-16	22-Aug-16					<u> </u>			{			
	Construct Tunnel Base with Kicker		05-Sep-16				·								
N8B22-130	Place infill concrete/compacted fill up to S1	8d	20-Sep-16	28-Sep-16			[[C				
	Remove S1	2d		30-Sep-16							<u> </u>				
	Construct NSL Lower Wall Construct NSL Upper Wall with retaining structure	8d 15d	03-Oct-16 17-Oct-16				¦		<u> </u>						
	Place infill concrete	150 2d		02-Nov-16 04-Nov-16			+	+							
N8B22-180	Tunnel Walkway & Works for Degree 1 Completion	6d	05-Nov-16	11-Nov-16							0				
N8B22-190	Backfilling to OSP	6d	05-Nov-16								0				
Bay N8B-21 (We		4.4	22 Aura 40	22 Aug 10					<u> </u>						
	Place Blinding Layer (at approx 2.4 mPD) Construct Tunnel Base with Kicker	1d 12d	23-Aug-16 20-Sep-16	23-Aug-16 04-Oct-16	- 		÷		÷						
N8B21-130	Place infill concrete/compacted fill up to S1	8d	05-Oct-16	14-Oct-16							0				
	Remove S1	2d	15-Oct-16	17-Oct-16							1				
	Construct NSL Lower Wall	8d	18-Oct-16												

		·	15-Jul-15	meeting comments incorporated	
Gammon Kaden 🖉	REVISION B	ŀ		meeting comments incorporated	
		ľ	17-Sep-15	activity lagging time removed	í – – – – – – – – – – – – – – – – – – –
Gammon – Kaden SCL 1111 Joint Venture	NDMPB-35 P 9 of 16	·			

	Activity Name		Dur	Start	Finish				2016	SIONE			
N8B21-160	Construct NSL Upp	per Wall with retaining structure	15d	03-Nov-16	19-Nov-16		MAMJJJA	SONDJEN	/IAIMIJIJIA		JFMAM	JJASO	
	Place infill concrete	e Works for Degree 1 Completion	2d 6d		22-Nov-16					l n			
N8B21-190	Backfilling to OSP		6d		29-Nov-16					Ū			
Bay N8B-20 (V N8B20-110		er (at approx 2.4 mPD)	1d	24-Aug-16	24-Aug-16								
N8B20-120	Construct Tunnel B	Base with Kicker	12d	05-Oct-16	19-Oct-16								
	Place infill concrete Remove S1	e/compacted fill up to S1	8d 2d		28-Oct-16 31-Oct-16								·
N8B20-150	Construct NSL Low		8d	01-Nov-16	09-Nov-16				<u> </u>	0			
N8B20-160 N8B20-170	Construct NSL Upp Place infill concrete	per Wall with retaining structure	15d 2d		07-Dec-16 09-Dec-16								
N8B20-180	Tunnel Walkway &	Works for Degree 1 Completion	6d	10-Dec-16	16-Dec-16				<u></u>	Ō			
N8B20-190 Bay N8B-19 (V	Backfilling to OSP		6d	10-Dec-16	16-Dec-16				÷	0			·
N8B19-110	Place Blinding Laye	er (at approx 2.4 mPD)	1d		25-Aug-16		-+						·····
N8B19-120 N8B19-130	Construct Tunnel B	Base with Kicker e/compacted fill up to S1	12d 8d		02-Nov-16 11-Nov-16								
N8B19-140	Remove S1		2d	12-Nov-16	14-Nov-16					l			
N8B19-150 N8B19-160	Construct NSL Low	ver Wall Der Wall with retaining structure	8d 15d		23-Nov-16 24-Dec-16				<u> </u>				····-
N8B19-170	Place infill concrete	e	2d	28-Dec-16	29-Dec-16								
N8B19-180 N8B19-190	Tunnel Walkway & Backfilling to OSP	Works for Degree 1 Completion	6d 6d		06-Jan-17 06-Jan-17				+]		·····
Bay N8B-18 (V	/ork Front 1)												·····
	Place Blinding Laye Construct Tunnel B	er (at approx 2.4 mPD) Base with Kicker	1d 12d	26-Aug-16 03-Nov-16	26-Aug-16								
N8B18-130	Place infill concrete	e/compacted fill up to S1	8d	17-Nov-16	25-Nov-16					0			
N8B18-140 N8B18-150	Remove S1 Construct NSL Low	ver Wall	2d 8d		28-Nov-16 07-Dec-16				÷	····			·
N8B18-160	Construct NSL Upp	per Wall with retaining structure	15d	28-Dec-16	14-Jan-17		-+						
N8B18-170 N8B18-180	Place infill concrete	e Works for Degree 1 Completion	2d 6d		17-Jan-17 24-Jan-17						1		
N8B18-190	Backfilling to OSP		6d		24-Jan-17						0		
Bay N8B-17 (V		er (at approx 2.0 mPD)	1d	27-Aug-16	27-Aug-16				÷				·····
N8B17-120	Construct Tunnel B	Base with Kicker	12d	29-Aug-16	10-Sep-16		-+						
	Place infill concrete Remove S2	e/compacted fill up to S2	8d 2d		21-Sep-16 23-Sep-16				+				
N8B17-140	Construct NSL Wa	II up to S1	8d		04-Oct-16				·····	ļ			····-
N8B17-160 N8B17-170	Place infill concrete Remove S1	e /compacted fill up to S1	8d 2d		14-Oct-16 17-Oct-16				+				
		of/Strut Beam (Travelling Form)	18d		07-Nov-16								
		Works for Degree 1 Completion	6d		14-Nov-16				·····	0			
N8B17-200 Bay N8B-16 (V			6d	08-1107-16	14-Nov-16				+	·			·
N8B16-110	Place Blinding Laye	er (at approx 1.6 mPD)	1d		29-Aug-16								
	Construct Tunnel B Place infill concrete	e/compacted fill up to S2	12d 8d	12-Sep-16 27-Sep-16	26-Sep-16 06-Oct-16				+	•			
N8B16-140	Remove S2		2d	07-Oct-16	08-Oct-16					1			
N8B16-150 N8B16-160	Construct NSL Wa	II up to S1 e /compacted fill up to S1	8d 8d		19-Oct-16 28-Oct-16				+				·
N8B16-170	Remove S1		2d		31-Oct-16			· · · · · · · · · · · · · · · · · · ·					
		of/Strut Beam (Travelling Form) Works for Degree 1 Completion	18d 6d	08-Nov-16 29-Nov-16	28-Nov-16 05-Dec-16					– 1			
N8B16-200	Backfilling		6d		05-Dec-16					0			
Bay N8B-15 (V N8B15-110		er (at approx 1.2 mPD)	1d	30-Aug-16	30-Aug-16				+				
N8B15-120	Construct Tunnel B	Base with Kicker	12d	27-Sep-16	12-Oct-16								
	Place infill concrete Remove S2	e/compacted fill up to S2	8d 2d		21-Oct-16 24-Oct-16				++				
N8B15-150	Construct NSL Wa		8d	25-Oct-16	02-Nov-16					0			
	Place infill concrete Remove S1	e /compacted fill up to S1	8d 2d		11-Nov-16 14-Nov-16				ļ				
N8B15-180	Construct NSL Roo	of/Strut Beam (Travelling Form)	18d		19-Dec-16				<u></u>				
N8B15-190 N8B15-200		Works for Degree 1 Completion	6d 6d		28-Dec-16 28-Dec-16				+				
Bay N8B-14 (V	/ork Front 2)		0d	20-Dec-10	20-Dec-10				<u> </u>				
	Place Blinding Laye Construct Tunnel B	er (at approx 0.8 mPD)	1d	31-Aug-16 13-Oct-16	31-Aug-16				<u></u>	 			
		e/compacted fill up to S2	12d 8d		26-Oct-16 04-Nov-16				÷				
N8B14-140	Remove S2		2d	05-Nov-16	07-Nov-16					I			
	Construct NSL Wa	II up to S1 e /compacted fill up to S1	8d 8d		16-Nov-16 25-Nov-16				J	0			·····
N8B14-170	Remove S1		2d	26-Nov-16	28-Nov-16					I	÷		
		of/Strut Beam (Travelling Form) Works for Degree 1 Completion	18d 6d		12-Jan-17 19-Jan-17						.		····;
N8B14-200	Backfilling		6d		19-Jan-17	 					0		
Bay N8B-13 (V N8B13-110		er (at approx 0.8 mPD)	1d	01-Son-16	01-Sep-16					1			·
N8B13-120	Construct Tunnel B	Base with Kicker	12d	27-Oct-16	09-Nov-16								
	Place infill concrete Remove S2	e/compacted fill up to S2	8d 2d		18-Nov-16 21-Nov-16					0			
N8B13-150	Construct NSL Wa		8d	22-Nov-16	30-Nov-16					0			
N8B13-160		e /compacted fill up to S1	8d		09-Dec-16					0			}
		of/Strut Beam (Travelling Form)	2d 18d	10-Dec-16 13-Jan-17	12-Dec-16 06-Feb-17								
N8B13-190	Tunnel Walkway &	Works for Degree 1 Completion	6d		13-Feb-17						0		
N8B13-200 Bay N8B-12 (V			6d	u/-⊢eb-17	13-Feb-17	<u> </u>							
N8B12-110	Place Blinding Lay	er (at approx 0 mPD)	1d		02-Sep-16								
	Construct Tunnel B Place infill concrete	Base with Kicker e/compacted fill up to S3	12d 2d	10-Nov-16 24-Nov-16	23-Nov-16 25-Nov-16								
N8B12-140	Remove S3		2d	26-Nov-16	28-Nov-16		-						
N8B12-150 N8B12-160	Construct NSL Wa	II up to S2 e /compacted fill up to S2	8d 10d		09-Dec-16 21-Dec-16								
N8B12-170	Remove S2		2d	22-Dec-16	23-Dec-16								
	Construct NSL Wa	II up to S1 e /compacted fill up to S2	12d 8d		10-Jan-17 19-Jan-17						J D		
N8B12-200	Remove S1		2d	20-Jan-17	21-Jan-17	1	-+				-		·
N8B12-210		of/Strut Beam (Travelling Form) Works for Degree 1 Completion	18d		27-Feb-17 06-Mar-17								
N8B12-220 N8B12-230	· · ·		6d 6d		06-Mar-17 06-Mar-17						0		
Bay N8B-11 (W	ork Front 2)												
N8B11-110 N8B11-120	Place Blinding Laye Construct Tunnel B	er (at approx 0 mPD) Base with Kicker	1d 12d	03-Sep-16 24-Nov-16	03-Sep-16 07-Dec-16								
N8B11-130	Place infill concrete	e/compacted fill up to S3	2d	08-Dec-16	09-Dec-16								
N8B11-140 N8B11-150	Remove S3 Construct NSL Wa	II up to S2	2d 8d		12-Dec-16 21-Dec-16				+	l D			
		-						· · ·	. 1		. 1		d Ar
		NON-DEMOLI	I ION MASTE	EK PRO	GRAMN	ΊĿ		Date 15-Jul-15 me		levision ents inco	roorated	Checked	<u> </u>
	Kaden 🐰		REVISION					16-Jul-15 me				ļ	

Gammon		
Gammon – Kaden SCL 1111 Joint Venture	NDMPB-35	

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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	201
							ASONDJFMAMJJASOND	JFM		
		Place infill concrete /compacted fill up to S2	10d	22-Dec-16				ļ		
		Remove S2	2d	06-Jan-17				<u>.</u>		÷
	N8B11-180	Construct NSL Wall up to S1	12d	11-Jan-17						÷
	N8B11-190	Place infill concrete /compacted fill up to S2 Remove S1	8d	25-Jan-17 07-Feb-17						÷
	N8B11-200 N8B11-210	Construct NSL Roof/Strut Beam (Travelling Form)	2d 18d	28-Feb-17		+- <mark>-</mark>		·····		+
		Tunnel Walkway & Works for Degree 1 Completion	6d	20-Feb-17 21-Mar-17				·····		++
		Backfilling	6d	21-Mar-17						
	Bay N8B-10 (W		04							
		Place Blinding Layer (at approx -1 mPD)	1d	05-Sep-16	05-Sep-16					
		Construct Tunnel Base with Kicker	12d	08-Dec-16						
		Place infill concrete/compacted fill up to S3	2d	22-Dec-16						ļ
		Remove S3	2d	24-Dec-16						
		Construct NSL Wall up to S2	8d	29-Dec-16				J	·	÷
		Place infill concrete /compacted fill up to S2	10d	09-Jan-17				.		÷
		Remove S2 Construct NSL Wall up to S1	2d 12d	20-Jan-17 25-Jan-17						· · · · · · · · · · · · · · · · · · ·
		Place infill concrete /compacted fill up to S2	8d	11-Feb-17				- 		+
		Remove S1	2d	21-Feb-17						+
		Construct NSL Roof/Strut Beam (Travelling Form)	18d	21-Mar-17						++
		Tunnel Walkway & Works for Degree 1 Completion	6d	12-Apr-17						*
	N8B10-230		6d	12-Apr-17			······	i		
	Bay N8B-09 (W									
		Place Blinding Layer (at approx -1 mPD)	1d	06-Sep-16	06-Sep-16					
	N8B09-120	Construct Tunnel Base with Kicker	12d	22-Dec-16	07-Jan-17		Ľ]		
		Place infill concrete/compacted fill up to S3	2d	09-Jan-17		1		I		
		Remove S3	2d	11-Jan-17		 		<u>.</u>		
		Construct NSL Wall up to S2	8d	13-Jan-17		<u> </u>		•		ļļ
		Place infill concrete /compacted fill up to S2	10d	23-Jan-17					· · · · · · · · · · · · · · · · · · ·	
		Remove S2	2d	07-Feb-17					·····	
		Construct NSL Wall up to S1	12d	09-Feb-17		<u>+-</u>				<u>.</u>
		Place infill concrete /compacted fill up to S2	8d	23-Feb-17					·····	·····
		Remove S1	2d	04-Mar-17						+
		Construct NSL Roof/Strut Beam (Travelling Form) Tunnel Walkway & Works for Degree 1 Completion	18d 6d	12-Apr-17 09-May-17		+- <mark>-</mark>				·}
	N8B09-260	Backfilling	6d		15-May-17					÷
	Pipe Jacking f		ou	05 10 ay 17	15 May 17					+
	N8B-1770	Construct launching pit at Ho Man Tin	72d	01-Dec-15*	29-Feb-16					
	N8B-1780	Assemble TBM	24d	01-Mar-16						
		Drive 1200 Dia casing (60m) - 1st trip (partial NTH)		01-Apr-16	24-Aug-16					
	N8B-1800	Reposition TBM for drilling in opposite direction	24d	25-Aug-16						
	N8B-1810	Drive 1200 Dia casing (15m) - 2nd trip (partial NTH)	30d	23-Sep-16						
	N8B-1820	Retrieve TBM from Receiving Pit	12d	31-Oct-16	12-Nov-16					
		Dismantle driving pit & receiving pit & reinstate area	12d	14-Nov-16	26-Nov-16					
		ork Front 2) - with New CLP Ducts & Existing CLP							·	
		Further ELS to formation of CLP duct (approx -3.2 mPD)	12d	20-Aug-16						÷
		Lay CLP Ducts within cofferdam section	4d	03-Sep-16						÷
		CLP Cable Laying		08-Sep-16	25-Jan-17 03-Dec-16				·····	
		Filling to tunnel formation level Place Blinding Layer	18d 1d	05-Dec-16		+- <mark>-</mark>				+
		Construct Tunnel Base with Kicker	12d	06-Dec-16						++
		Place infill concrete/compacted fill up to S3	2d		21-Dec-16	1				÷
	N8B08-190		2d	22-Dec-16						
		Construct NSL Wall up to S2	8d	24-Dec-16				1		
		Place infill concrete /compacted fill up to S2	10d	06-Jan-17	17-Jan-17					
		Remove S2	2d	18-Jan-17	19-Jan-17			1		
		CLP Power on	0d		30-Jan-17			•		
		New CLP Cable Connection (by CLP)		01-Feb-17		ļ				
		Diversion of existing CLP	0d		28-Feb-17	<u> .</u>		•		
		Remove Abandoned CLP Cables	6d	01-Mar-17		<u> </u>		0	· · · · · · · · · · · · · · · · · · ·	÷
		Construct NSL Wall up to S1	12d	08-Mar-17						<u> </u>
		Place infill concrete /compacted fill up to S2	8d	22-Mar-17		<u>+-</u>		u	·····	
	N8B08-250		2d	31-Mar-17		+·····				
		Construct NSL Roof/Strut Beam (Travelling Form) Tunnel Walkway & Works for Degree 1 Completion	18d 6d	09-May-17		+- -				÷
	N8B08-270 N8B08-280		6d 6d	31-May-17 31-May-17		+			0	÷
	Bay N8B-07 (W		DO	- 0 1 - IVIAY- I /	00-0011-17	 			·····	÷
		Place Blinding Layer (at approx -1 mPD)	1d	07-Sen-16	07-Sep-16	1-1			·	
		Construct Tunnel Base with Kicker		07 Sep 10						
		Place infill concrete/compacted fill up to S3	2d	23-Sep-16	24-Sep-16		Ī			
	N8B07-140	• •	2d		27-Sep-16			+		
		Construct NSL Wall up to S2	8d	28-Sep-16	07-Oct-16					
	N8B07-160	Place infill concrete /compacted fill up to S2	10d	08-Oct-16	20-Oct-16	1		+		
	N8B07-170		2d	21-Oct-16		ļ				ļ
		Construct NSL Wall up to S1	12d	24-Oct-16		 . 				Ļ
		Place infill concrete /compacted fill up to S2	8d	07-Nov-16		<u> </u>	·····			
	N8B07-200		2d	16-Nov-16		 				<u> </u>
		Construct NSL Roof/Strut Beam (Travelling Form)	18d	18-Nov-16						
		Tunnel Walkway & Works for Degree 1 Completion	6d	09-Dec-16		+······				÷
	N8B07-230		6d	09-Dec-16	15-Dec-16		U			÷
	Bay N8B-06 (W	/ork Front 3) Place Blinding Layer (at approx -2 mPD)	4.1	08 0 10	09 0 10				·····	÷
		Construct Tunnel Base with Kicker	1d 12d	08-Sep-16 23-Sep-16		+·•····				
		Place infill concrete/compacted fill up to S2	12d	23-Sep-16 08-Oct-16		+				
		Remove S2	2d	08-Oct-16 24-Oct-16		+				÷
		Construct NSL Wall up to S1	20 8d	24-Oct-16 26-Oct-16		+- <mark> </mark>	·····		·	+
		Place infill concrete /compacted fill up to S1		04-Nov-16		+- -			·····	++
	N8B06-160		2d		21-Nov-16	+- 				÷
		Construct NSL Roof/Strut Beam (Travelling Form)		09-Dec-16		†• † •••••••			·····	· · · · · · · · · · · · · · · · · · ·
		Tunnel Walkway & Works for Degree 1 Completion		03-Jan-17		1.1		n	·	·····

	N8B06-180	Construct NSL Ro	of/Strut Beam (Travelling Form)	18d	09-Dec-16	31-Dec-16						
	N8B06-190	Tunnel Walkway &	Works for Degree 1 Completion	6d	03-Jan-17	09-Jan-17				ja 🕴		
	N8B06-200	Backfilling		6d	03-Jan-17	09-Jan-17				0		
	Bay N8B-05 (W	ork Front 3)										
	N8B05-110	Place Blinding Lay	ver (at approx -3 mPD)	1d	09-Sep-16	09-Sep-16						
	N8B05-120	Construct Tunnel E	Base with Kicker	12d	08-Oct-16	22-Oct-16						
	N8B05-130	Place infill concret	e/compacted fill up to S2	12d	24-Oct-16	05-Nov-16						
	N8B05-140	Remove S2		2d	07-Nov-16	08-Nov-16				1		
	N8B05-150	Construct NSL Wa	all up to S1	8d	09-Nov-16	17-Nov-16				0		
	N8B05-160	Place infill concret	te /compacted fill up to S1	13d	18-Nov-16	02-Dec-16						
	N8B05-170	Remove S1		2d	03-Dec-16	05-Dec-16				<u> </u>		
	N8B05-180	Construct NSL Ro	of/Strut Beam (Travelling Form)	18d	03-Jan-17	23-Jan-17						
	N8B05-190	Tunnel Walkway &	Works for Degree 1 Completion	6d	24-Jan-17	02-Feb-17				0		
	N8B05-200	Backfilling		6d	24-Jan-17	02-Feb-17				0		
	Bay N8B-04 (W	ork Front 3)										
	N8B04-110	Place Blinding Lay	ver (at approx -3 mPD)	1d	10-Sep-16	10-Sep-16						
	N8B04-120	Construct Tunnel E	Base with Kicker	12d	24-Oct-16	05-Nov-16						
	N8B04-130	Place infill concret	e/compacted fill up to S2	12d	07-Nov-16	19-Nov-16						
	N8B04-140	Remove S2		2d	21-Nov-16	22-Nov-16				<u> </u>		
	N8B04-150	Construct NSL Wa	all up to S1	8d	23-Nov-16	01-Dec-16						
	N8B04-160	Place infill concret	te /compacted fill up to S1	13d	02-Dec-16	16-Dec-16						
			-					•				
			NON-DEMOLI	TION MASTE	ER PROC	GRAMME		Date	Revis	-	Checked	Approved
					_			15-Jul-15	meeting comments	incorporated		
	Gammon Kaden 🚆 REV				R			16-Jul-15	meeting comments	incorporated		
					Ъ			17-Sep-15	activity lagging time	e removed		
Gammo	Gammon – Kaden SCL 1111 Joint Venture					D 11	1 of 16					
	NDMPB-35					PI						
							1			1		

Activity ID		Activity Name	Dur	Start	Finish				
						2015 DJFMAMJJASOI			
	N8B04-170	Remove S1	2d	17-Dec-16	19-Dec-16				
		Construct NSL Roof/Strut Beam (Travelling Form)	18d		16-Feb-17				
		Tunnel Walkway & Works for Degree 1 Completion	6d		23-Feb-17				
	N8B04-200		6d	17-Feb-17		• - • • • • • • • • • • • • • • • • • •		0	
	Bay N8B-03 (W								
	N8B03-110	Place Blinding Layer (at approx -3 mPD)	1d		12-Sep-16				······
		Construct Tunnel Base with Kicker	12d		19-Nov-16				·····
		Place infill concrete/compacted fill up to S2	12d		03-Dec-16				· · · · · · · · · · · · · · · · · · ·
	N8B03-140	Remove S2	2d		06-Dec-16			····	++
		Construct NSL Wall up to S1 Place infill concrete /compacted fill up to S1	8d 13d	16-Dec-16	15-Dec-16				++
	N8B03-170		2d		05-Jan-17			i	++
		Construct NSL Roof/Strut Beam (Travelling Form)	18d	17-Feb-17					
		Tunnel Walkway & Works for Degree 1 Completion	6d		16-Mar-17			0	
	N8B03-200		6d		16-Mar-17			0	
	Bay N8B-02 (W	ork Front 3)						· · · · · · · · · · · · · · · · · · ·	
		Place Blinding Layer (at approx -4 mPD)	1d		13-Sep-16				
		Construct Tunnel Base with Kicker	12d		03-Dec-16				ļļļ.
	N8B02-130	Place infill concrete/compacted fill up to S3	12d		17-Dec-16				
	N8B02-140	Remove S3	2d		20-Dec-16			······!	
		Construct NSL Wall up to S2	8d		31-Dec-16				
		Place infill concrete /compacted fill up to S2 Remove S2	13d	03-Jan-17	17-Jan-17 19-Jan-17				
		Construct NSL Roof up to S1	2d 18d		13-Feb-17				
		Tunnel Walkway & Works for Degree 1 Completion	6d		20-Feb-17				
	N8B02-190	Place infill concrete/compacted fill up to S1	7d		21-Feb-17			 	
	N8B02-210	Remove S1	2d		23-Feb-17			I	
	N8B02-220	Construct NSL Roof/Strut Beam (Travelling Form)	18d	10-Mar-17					
	N8B02-230	Backfilling	6d	31-Mar-17	07-Apr-17				
	Bay N8B-01 (W								ļ
		Place Blinding Layer (at approx -4 mPD)	1d		14-Sep-16				+
		Construct Tunnel Base with Kicker	12d		17-Dec-16				
	N8B01-130	Place infill concrete/compacted fill up to S3	12d	19-Dec-16					
	N8B01-140 N8B01-150	Remove S3 Construct NSL Wall up to S2	2d 8d	05-Jan-17 07-Jan-17					
	N8B01-150	Place infill concrete /compacted fill up to S2	13d	17-Jan-17					· †
		Remove S2	2d		06-Feb-17				
	N8B01-180	Construct NSL Roof up to S1	18d	14-Feb-17					
		Tunnel Walkway & Works for Degree 1 Completion	6d	07-Mar-17				0	
	N8B01-200	Place infill concrete/compacted fill up to S1	7d	07-Mar-17	14-Mar-17			0	
	N8B01-210	Remove S1	2d	15-Mar-17	16-Mar-17				
	N8B01-220	Construct NSL Roof/Strut Beam (Travelling Form)	18d	31-Mar-17			· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
	N8B01-230	Backfilling	6d	26-Apr-17	04-May-17				
		at Oi Sen Path							ļļ.
		+063 to CH 101+155 (9 Bays)							
F		ks & Base for Noise Enclosure	4.1	40.0.144	00 D 44				
	NB-010 NB-020	Slope Excavation Plate load test	1d 6d		23-Dec-14 31-Dec-14				
	NB-020 NB-030	Plate Load Test Completed	0d	24-Dec-14	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		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		28-Mar-15				
	NB-310	Site formation	18d	30-Mar-15					
	NB-320	Construct Base for Bay 7	12d	04 4 4		—			
	NB-330	Install bearings for NS3 & NS4			08-May-15				
	Bay 1 (Precast SI		24d		08-May-15 29-Sep-15				
		kin)		01-Sep-15	29-Sep-15				
	NB01-010	kin) Place precast wall skin (3m x 4 pieces) - NTH	5d	01-Sep-15 17-Mar-15	29-Sep-15 26-Mar-15				
	NB01-010 NB01-020	kin) Place precast wall skin (3m x 4 pieces) - NTH Erect working platform, protective measures, and fix rebar	5d 8d	01-Sep-15 17-Mar-15 27-Mar-15	29-Sep-15 26-Mar-15 09-Apr-15				
	NB01-010	kin) Place precast wall skin (3m x 4 pieces) - NTH Erect working platform, protective measures, and fix rebar Place concrete (2 pours)	5d	01-Sep-15 17-Mar-15	29-Sep-15 26-Mar-15 09-Apr-15 13-Apr-15				
	NB01-010 NB01-020 NB01-030	kin) Place precast wall skin (3m x 4 pieces) - NTH Erect working platform, protective measures, and fix rebar	5d 8d 3d	01-Sep-15 17-Mar-15 27-Mar-15 10-Apr-15 14-Apr-15	29-Sep-15 26-Mar-15 09-Apr-15 13-Apr-15				
	NB01-010 NB01-020 NB01-030 NB01-040	kin) Place precast wall skin (3m x 4 pieces) - NTH Erect working platform, protective measures, and fix rebar Place concrete (2 pours) Erect steework platform above Bay 1 - NTH Make good surfacing kin)	5d 8d 3d 6d	01-Sep-15 17-Mar-15 27-Mar-15 10-Apr-15 14-Apr-15 27-Apr-15	29-Sep-15 26-Mar-15 09-Apr-15 13-Apr-15 25-Apr-15 27-Apr-15				
E	NB01-010 NB01-020 NB01-030 NB01-040 NB01-050 Bay 2 (Precast SI NB02-010	kin) Place precast wall skin (3m x 4 pieces) - NTH Erect working platform, protective measures, and fix rebar Place concrete (2 pours) Erect steework platform above Bay 1 - NTH Make good surfacing kin) Place precast wall skin (3m x 4 pieces) - NTH	5d 8d 3d 6d 1d	01-Sep-15 17-Mar-15 27-Mar-15 10-Apr-15 14-Apr-15 27-Apr-15 28-Apr-15	29-Sep-15 26-Mar-15 09-Apr-15 13-Apr-15 25-Apr-15 27-Apr-15 05-May-15				
	NB01-010 NB01-020 NB01-030 NB01-040 NB01-050 Bay 2 (Precast SI NB02-010 NB02-020	kin) Place precast wall skin (3m x 4 pieces) - NTH Erect working platform, protective measures, and fix rebar Place concrete (2 pours) Erect steework platform above Bay 1 - NTH Make good surfacing kin) Place precast wall skin (3m x 4 pieces) - NTH Erect working platform, protective measures, and fix rebar	5d 8d 3d 6d 1d 4d 5d	01-Sep-15 77-Mar-15 27-Mar-15 10-Apr-15 14-Apr-15 27-Apr-15 28-Apr-15 06-May-15	29-Sep-15 26-Mar-15 09-Apr-15 13-Apr-15 25-Apr-15 27-Apr-15 05-May-15 11-May-15				
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	NB06-010	Place precast wall	skin (3m x 4 pieces) - NTH	4d	30-Jul-15	06-Aug-15	0						
	NB06-020	Erect working platf	orm, protective measures, and fix rebar	2d	07-Aug-15	08-Aug-15	I						
	NB06-030	Place concrete		1d	10-Aug-15	10-Aug-15	1						
	NB06-040	Erect steework plat	tform above Bay 6 - NTH	4d	11-Aug-15	18-Aug-15							
	NB06-050	Make good surfaci	ng	1d	19-Aug-15	19-Aug-15							
	Bay 7 (Precast S	Skin)											
	NB07-010	Place precast wall	skin (3m x 4 pieces) - NTH	4d	20-Aug-15	27-Aug-15	[1					
	NB07-020	Erect working platf	orm, protective measures, and fix rebar	2d	28-Aug-15	29-Aug-15		I					
	NB07-030	Place concrete		1d	31-Aug-15	31-Aug-15	1 1	<u> </u>					
	NB07-040	Erect steework plat	tform above Bay 7 - NTH	4d	01-Sep-15	08-Sep-15		<u>0 (</u>					
	NB07-050	Make good surfaci	ng	1d	09-Sep-15	09-Sep-15		<u> </u>		<u> </u>			
	Piling for Steel	Platform								<u> </u>			
	NB-070	Mobilize piling rig		3d	12-Aug-15	14-Aug-15	1						
	NB-080	273mm Minipiles for	or temporary platform (Stage 1)	4d	15-Aug-15		0			. j j.			
	NB-085	Relocate piling rig		3d	20-Aug-15	22-Aug-15							
	NB-088	273mm Minipiles for	or temporary platform (Stage 2)	4d	24-Aug-15	27-Aug-15		l <u> </u>		<u> </u>			
	NB-090	Demobilize piling ri	g	3d	28-Aug-15	31-Aug-15		0		<u> </u>			
	Bay 8 (Conventi	onal)											
	NB08-010	Slope Excavation (Completed	0d		11-Aug-15	•			. j j.			
	NB08-020	Construct Base		7d	01-Sep-15	08-Sep-15		0					
	NB08-030	Construct Wall		10d	09-Sep-15	19-Sep-15							
							-	Date	1	Revi	aian	Checked	Approved
			NON-DEMOLITI	JN MASTE	ER PROC	JRAMME	2					Checkeu	Appioveu
		Kaden 🐰							-		s incorporated	i	
5	Gammon	Kaden 🔊	REVISION	B				0		s incorporated	ļ		
_					-			17-Sep-15	activity la	lgging tin	ne removed	I	
iam	mon – Kaden SCL 1	111 Joint Venture	NDMPB-35			P 1	2 of 16						
							_ 0. 10						
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ID	Activity Name	Dur	Start	Finish	_		r					
					DJIFIN	2015 //A/M/J/J/A	SIGNIDIJIF	2016 FMAMJJASON)17 	2018 J F M
Bay 9 (Conve									····		·····	
NB09-010	Construct Base	7d		16-Sep-15]; 					, , ,
NB09-020	Construct Wall m at Bay 8 & Bay 9	10d	21-Sep-15	03-Oct-15								
NB-100	Install posts on noise footing base (4 no.s)	4d	05-Oct-15	08-Oct-15			1					
NB-110	Install deck with barrier	12d		23-Oct-15						-+		
	e Enclosue Panel Erectiion											
NB-120	Erect Steelwork (Erect-NTH, Assemble-Day), Bay 1	22d		18-Nov-15								
NB-130	OHL Diversion @ CH 101+145 by MTR (NTH)	4d		26-Nov-15				<u></u>				
NB-140 NB-150	Erect Steelwork (Erect-NTH, Assemble-Day), Bay 2-Bay 5 OHL Diversion @ CH 101+101 by MTR (NTH)	88d 4d		15-Mar-16 24-Mar-16								
NB-160	Erect Steelwork (Erect-NTH, Assemble-Day), Bay 6-Bay 9	74d		27-Jun-16								
NB-170	Erect Bracing, Purlin, and Panel (NTH)		28-Nov-15									
	101+022 to CH 101+063 (4 Bays)											
Bay 10 (Conv	ventional)					· · · · · · · · · · · · · · · · · · ·						
NB10-010	Construct Base	7d		24-Sep-15								
NB10-020	Construct Wall	10d	06-Oct-15	16-Oct-15					····			
Bay 11 (Conv NB11-010	Construct Base	7d	OF Cop 15	05-Oct-15								
NB11-010	Construct Wall	10d		29-Oct-15	+							
Bay 12 (Conv		100		20 001 10								
NB12-010	Construct Base	7d	06-Oct-15	13-Oct-15			0					
NB12-020	Construct Wall	10d	30-Oct-15	10-Nov-15								
Bay 13 (Conv												
NB13-010	Construct Base	7d		22-Oct-15								
NB13-020	Construct Wall	10d	11-Nov-15	21-Nov-15		·						
Stage 2 Noise NB-180	e Enclosue Panel Erectiion OHL Diversion @ CH 101+055 by MTR (NTH)	4d	24 Nov 15	01-Dec-15	1-1							
NB-180 NB-190	Site clearance & preparation	40 12d		15-Dec-15	+							
NB-200	Erect Steelwork (Erect & Assemble-NTH), Bay 10-Bay 13	8d		02-Jan-16			· · · · · · · · · · · · · · · · · · ·					
NB-210	Erect Bracing, Purlin, and Panel (NTH)	40d		05-Apr-16								
NB-220	Install downpipes and gutter (NTH)	12d	07-Apr-16	03-May-16								
Noise Enclos	ure Underslung, Accessories, and Inspection											
NB-225	Temporary support for underslung structure (NTH)	6d		06-Aug-16								
NB-230	Erect underslung structure (Drop Panel) (NTH)	39d		05-Nov-16								
NB-240	Additional subframe at Grid 18-21 (NTH)	2d		11-Aug-16								
NB-250	Aerofoil lourver (NTH)	10d		03-Sep-16								
NB-260 NB-270	Access opening for bearing (NTH) Touchup, make good, and inspection (NTH)	13d 8d		04-Oct-16 22-Oct-16								
NB-270	Remove temporary working platform (NTH)	10d		15-Nov-16								
ast West Lir		100	20 001 10									
(7) EWL Area												
Control Roor												
E07-1040	Liaise with CLP for power supply - Phase 1	72d	17-Dec-12	16-Mar-13								
E07-1050	Liaise with CLP for power supply - Phase 2	72d	18-Mar-13	17-Jun-13								
E07-1060	BS submission and approval for control room - Phase 1	72d		16-Mar-13								
E07-1070	BS submission and approval for control room - Phase 2	72d		17-Jun-13								
E07-1080	ELS Design for Control Room	60d		27-Aug-13								
E07-1090	Method statement and procurement	24d		25-Sep-13								
E07-1100 E07-1110	194mm Pipe Piles (92 no.s) Construct retaining wall (including ELS)	40d 55d		13-Nov-13 20-Jan-14	+							
E07-1120	BS Works	45d		17-Mar-14								
E07-1120	Draw pits and cable duct	60d		26-May-14								
E07-1140	Change over (diversion by LCSD and EMSD)	14d		12-Jun-14	1.1							
E07-1180	Demolish existing control room	12d		14-Aug-14				· · · · · · · · · · · · · · · · · · ·				
	erdam Piling (Winslow Street area)											
E07-1290	Demolish existing planter & roadwork for TTA implementation	33d		27-Mar-14								
E07-1300	Implement no-right-turn TTA	1d		28-Mar-14	+							
E07-1310 E07-1320	Trial pits for utilities Pre-grouting at Wing Fung Mansion	60d 24d		14-Jun-14 14-Jul-14 A	+							
E07-1320	Construct retaining wall for underpass TTA	240 18d		14-Jun-14	†• † ••••••					-+	·	÷
E07-1340	ELS and demolition of existing wingwall	24d		14-Jul-14 A	1.1							
E07-1350	Erect road deck with utilities support	24d	23-Jun-14	21-Jul-14 A							· · · · · · · · · · · · · · · · · · ·	
E07-1360	Construct road connection for TTA	24d	03-Jul-14 A	30-Jul-14 A								
E07-1370	Implement underpass TTA	1d		31-Jul-14 A								ļ
E07-1380	Trial pits for utilities & pregrouting	48d	01-Aug-14	09-Sep-14						- <u>+</u>		
	erdam Piling (After Chatham Rd W/B Diversion)		00 NL 44	00 NL 44								
E07-1010	Implement TTM Stage 5A	1d		22-Nov-14	.		- L				·	
E07-1020 E07-1030	Trial Pits Pipe Piles (61 no.s), - Swing Leaders	24d 109d	01-Dec-14	20-Dec-14 29-Apr-15		<u> </u>	+		···;····		·	
E07-1030	Pipe piles at Chatham Rd (43 no.s)	32d		03-Mar-15						-+		
E07-1045	Site formation at exitsing Chatham Rd	12d		14-May-15	11				·;			
E07-1150	Remaining Grout Curtain & utilities windows grouting	12d		29-May-15	1						· · · · · · · · · · · · · · · · · · ·	
E07-1160	Dewatering System	12d	30-May-15	12-Jun-15								
E07-1170	Pumping Test	6d		19-Jun-15	 - 	<u> </u>						
E07-1175	600mm Watermain Diversion	48d	30-May-15		 - 							
E07-1185	Sewerage Diversion	30d	30-Apr-15	05-Jun-15	 - 							
	Ind Lateral Support	74	00 lun 15	29-Jun-15	.						L	
E07-1190 E07-1200	Excavation to Below 1st Level Strut Install S1 & Decking	7d 24d	22-Jun-15 30-Jun-15		<u>+-</u>	· · · · · · · · · · · · · · · · · · ·					+	
E07-1200 E07-1220	ELS to S2	240 14d		13-Aug-15	+-+							
E07-1220	ELS to S2 (incl CLP Support)	21d		07-Sep-15	11	· · · · · · · · · · · · · · · · · · ·			;			
E07-1240	ELS to S3 (Incl OLL Support)	21d		03-Oct-15	11	1						
E07-1280	Excavation to Formation Level	11d		16-Oct-15	11					-+ 		
Tunnel Struc												
Bay E07-05					ļ.					4		ļ
E0701-11		1d		17-Oct-15								
E0701-12				02-Nov-15	<u> </u>					-+	·	
E0701-13	30 Place infill concrete/compacted fill up to S3 (2.5m)	8d	U3-INOV-15	11-Nov-15	11					1	: :	:

	E0701-130	Place infill concret	e/compacted fill up to S3 (2.5m)	8d	03-Nov-15	11-Nov-15						
	E0701-140	Remove S3		2d	12-Nov-15	13-Nov-15		1				
	E0701-150	Construct EWL Wa	all up to S2	10d	14-Nov-15	25-Nov-15						
	E0701-160	Place infill concret	e/compacted fill up to S2 (4m)	13d	26-Nov-15	10-Dec-15						
	E0701-170	Remove S2		2d	11-Dec-15	12-Dec-15		I				
	E0701-180	Construct EWL Ro	oof (Travelling Form)	15d	14-Dec-15	02-Jan-16						
	E0701-190	Tunnel Walkway &	Works for Degree 1 Completion	6d	04-Jan-16	09-Jan-16		0				
	E0701-200	Place compacted	fill up to S1 (1.5m)	5d	04-Jan-16	08-Jan-16		0				
	E0701-210	Remove S1		2d	09-Jan-16	11-Jan-16						
	E0701-220	Place compacted	fill to final formation level (0.5m)	2d	12-Jan-16	13-Jan-16		<u> </u>				
	Bay E07-04											
	E0702-110	Place Blinding Lay	er (at approx -6mPD)	1d	19-Oct-15	19-Oct-15						
	E0702-120	Construct Tunnel E	Base with Kicker	12d	03-Nov-15	16-Nov-15						
	E0702-130	Place infill concret	e/compacted fill up to S3 (2.5m)	8d	17-Nov-15	25-Nov-15						
	E0702-140	Remove S3		2d	26-Nov-15	27-Nov-15						
	E0702-150	Construct EWL Wa	all up to S2	10d	28-Nov-15	09-Dec-15						
	E0702-160	Place infill concret	e/compacted fill up to S2 (4m)	13d	10-Dec-15	24-Dec-15						
	E0702-170	Remove S2		2d	28-Dec-15	29-Dec-15		<u> </u>				
	E0702-180	Construct EWL Ro	oof (Travelling Form)	15d	04-Jan-16	20-Jan-16						
	E0702-190	Tunnel Walkway &	Works for Degree 1 Completion	6d	21-Jan-16	27-Jan-16		0				
	E0702-200	Place compacted	fill up to S1 (1.5m)	5d	21-Jan-16	26-Jan-16		0				
			NON-DEMOLI					Date	Re	vision	Checked	Approved
-		105					-	15-Jul-15	meeting comme	nts incorporated		1
	-	Kaden 🐰			_				meeting comme			
	Gammon	IXaden 利		REVISION	В				activity lagging t	1		
C	an Kadan CCI 11	11 Laint Vantuura						17-Sep-15				
Gamm	on – Kaden SCL 11	LTT Joint venture	NDMPB-35			P 1	3 of 16					

Activity ID		Activity Name	Dur	Start	Finish											
			Dui	Start		D	JFMA	2015 MJJJASONDJF)16 J A S		JFM	2017 A M J J		ND.	2018
	E0702-210	Remove S1	2d		28-Jan-16								1			
	E0702-220	Place compacted fill to final formation level (0.5m)	2d	29-Jan-16	30-Jan-16			·····							····	
	Bay E07-03 E0703-110	Place Blinding Layer (at approx -6mPD)	1d	20-Oct-15	20-Oct-15											
	E0703-120	Construct Tunnel Base with Kicker	12d	17-Nov-15	30-Nov-15											
	E0703-130	Place infill concrete/compacted fill up to S3 (2.5m)	8d		09-Dec-15											
	E0703-140 E0703-150	Remove S3 Construct EWL Wall up to S2	2d 10d		11-Dec-15 23-Dec-15											
	E0703-160	Place infill concrete/compacted fill up to S2 (4m)	13d		11-Jan-16											
	E0703-170	Remove S2	2d		13-Jan-16											
	E0703-180	Construct EWL Roof (Travelling Form)	15d		06-Feb-16									····		
	E0703-190 E0703-200	Tunnel Walkway & Works for Degree 1 Completion Place compacted fill up to S1 (1.5m)	6d 5d		17-Feb-16 16-Feb-16									·····		
	E0703-210	Remove S1	2d		18-Feb-16											
	E0703-220	Place compacted fill to final formation level (0.5m)	2d	19-Feb-16	20-Feb-16											
	Bay E07-02 E0704-110	Place Blinding Layer (at approx -6mPD)	1d	22-Oct-15	22-Oct-15											
	E0704-120	Construct Tunnel Base with Kicker	12d		14-Dec-15			•••••								
	E0704-130	Place infill concrete/compacted fill up to S3 (2.5m)	8d		23-Dec-15											
	E0704-140	Remove S3	2d		28-Dec-15											
	E0704-150 E0704-160	Construct EWL Wall up to S2 Place infill concrete/compacted fill up to S2 (4m)	10d 13d		09-Jan-16 25-Jan-16											
	E0704-170	Remove S2	2d		27-Jan-16											
	E0704-180	Construct EWL Roof (Travelling Form)	15d		27-Feb-16											
	E0704-190	Tunnel Walkway & Works for Degree 1 Completion	6d		05-Mar-16											
	E0704-200 E0704-210	Place compacted fill up to S1 (1.5m) Remove S1	5d 2d		04-Mar-16 07-Mar-16											
	E0704-210 E0704-220	Place compacted fill to final formation level (0.5m)	2d 2d		07-Mar-16 09-Mar-16				i I							
	Bay E07-01												· · · · · · · · · · · · · · · · · · ·	·····		
	E0705-110	Place Blinding Layer (at approx -6mPD)	1d		23-Oct-15			I								
	E0705-120 E0705-130	Construct Tunnel Base with Kicker Place infill concrete/compacted fill up to S3 (2.5m)	12d 8d		30-Dec-15 09-Jan-16									····	····	
	E0705-130	Remove S3	2d		12-Jan-16											
	E0705-150	Construct EWL Wall up to S2	10d	13-Jan-16	23-Jan-16		<u>+</u>									
	E0705-160	Place infill concrete/compacted fill up to S2 (4m)	13d		11-Feb-16					¦				····		
	E0705-170	Remove S2 Construct EWL Roof (Travelling Form)	2d		13-Feb-16											
	E0705-180 E0705-190	Tunnel Walkway & Works for Degree 1 Completion	15d 6d		16-Mar-16 23-Mar-16				•							
	E0705-200	Place compacted fill up to S1 (1.5m)	5d		22-Mar-16				ī							
	E0705-210	Remove S1	2d		24-Mar-16				l.							
	E0705-220	Place compacted fill to final formation level (0.5m)	2d	29-Mar-16	30-Mar-16											
	B) EWL Area 8 (6 Cofferdam	52m)														
	E08-1180	Implement TTA	60d	08-Jan-13	21-Mar-13					 	¦¦					
	E08-1190	Site clearance	30d	22-Mar-13	30-Apr-13											
	E08-1200	Expose & Protect Utilities - Stage 1	36d		14-Jun-13											
	E08-1210 E08-1220	Stage 1 Pipe Piles (50 no.s), 2 Rigs Stage 1 Grout Curtain	75d 24d		24-Aug-13 23-Sep-13									····	····	
	E08-1230	Expose & Protect Utilities - Stage 2	32d		03-Oct-13					 						
	E08-1240	Predrilling	6d	04-Oct-13	10-Oct-13											
	E08-1250	Stage 2 Pipe Piles (15 no.s) & EWL8/9 Cross Wall (30 no.s), 2 Rigs	34d		13-Nov-13											
	E08-1260	Kingposts (4 no.s) or Hong Chong Rd Diversion	4d	14-Nov-13	18-Nov-13										····	
	E08-1010	Excavation for Traffic Decking	12d	19-Nov-13	02-Dec-13											
	E08-1020	Install Steel Memebrs for Traffic Decking (with utilities support)	24d		02-Jan-14											
	E08-1030	Deck and Concrete for Traffic Decking	20d		25-Jan-14											
	E08-1040	Asphalt Surface for Traffic Decking	6d		05-Feb-14											
	E08-1050 E08-1060	Construct Road Connections to existing road Divert Chatham Rd North Slip Rd (TTA Stage 3c)	50d 6d		05-Feb-14 12-Feb-14											
		or Chatham Rd Partial E/B Diversion														
	E08-1170	Expose cables and watermain	24d		12-Mar-14											
	E08-1270 E08-1280	Protection works to cables and watermain Pipe piles (30 no.s) and kingposts	6d 45d		19-Mar-14 09-May-14											
	E08-1280 E08-1290	Curtain grout	450 24d		23-May-14											
	E08-1300	Install Steel Memebrs for Traffic Decking	12d		07-Jun-14											
	E08-1310	Deck and Concrete for Traffic Decking	12d		21-Jun-14											
	E08-1320	Construct Road Connections to existing road	38d		24-Jun-14					<u> </u>					····	
	E08-1330 E08-1360	Asphalt pavement & roadwork for traffic diversion Implement TTA for partial diversion (Stage 4B)	7d 1d		03-Jul-14 A 13-Jul-14 A											
		or TB1 W/B Diversion	Tu			• 		· · · · · · · · · · · · · · · · · · ·								
	E08-1340	Traffic partially diverted (Stage 4B)	0d		13-Jul-14 A											
	E08-1350	Demolish existing pavement and expose/protect utilities	28d		06-Aug-14				<u>-</u>					·····	·····	
	E08-1370 E08-1380	Pipe piles (20 no.s) Curtain grout	40d 24d		01-Nov-14 10-Nov-14											
	E08-1390	Excavation & Install Steel Memebrs for Traffic Decking	240 26d		14-Nov-14						;;					
	E08-1400	Deck and Concrete for Traffic Decking	12d	07-Nov-14	19-Nov-14											
	E08-1410	Construct Road Connections to existing road	32d		21-Nov-14								·····	·····ķ.	·····-	
	E08-1420	Asphalt pavement & roadwork for traffic diversion	5d 18d		22-Nov-14 13-Dec-14											
	E08-1430 E08-1440	Expose utilities Remaining PP at Chatham Rd+cut off wall (39 no.s)-2 Rigs	18d 36d		13-Dec-14 21-Jan-15											
	E08-1450	Remaining Curtain grout	12d		04-Feb-15											
	E08-1460	Remaining Dewatering System	8d	05-Feb-15	13-Feb-15											
	E08-1470	Pumping Test	7d	14-Feb-15	20-Feb-15		•									
	Excavation and E08-1070	Lateral Support Pre-Pumping test excavation for traffic deck (3000m3 soft)	6d	04-Feb-14	05-Nov-14											
	E08-1070	Remaining Excavation to Below S1	2d		24-Feb-15		1			-i						
	E08-1090	Install remaining S1 & decking @ +4.1 mPD	6d	25-Feb-15	03-Mar-15											
	E08-1100	ELS to S2	11d		16-Mar-15						 					
	E08-1120	ELS to S3	28d	17-Mar-15	22-Apr-15											

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						F I							
Gamm	non – Kaden SCL 11	11 Joint Venture	NDMPB-35			P 1	4 of 16						
	Gammon	210			D			17-Sep-15	activity laggi	ng time remo	ved		
	Gammon	Kaden 🐰		REVISION	R			16-Jul-15	meeting com	nments incorp	orated		
		*** 1 基					-	15-Jul-15	meeting com	nments incorp	orated		
			NON-DEMOLIT	ION MASTE	R PRO	GRAMME		Date		Revision		Checked	Approved
		, <u> </u>					•		•				
	E0802-110	Place Blinding Lav	er	1d	20-Oct-15	20-Oct-15		1					
	Bay E08-05												
	E0801-220	Place General Fill		7d	17-Dec-15			0					
	E0801-210	Remove 2nd Level		3d	14-Dec-15								
	E0801-200	Place General Fill		8d	04-Dec-15								
	E0801-190	Remove 3rd Level		3d	01-Dec-15								
	E0801-180		/ Infill Concrete up to 3rd Level Strut	7d	23-Nov-15			0					
	E0801-170		rks Required for Degree 1 Completion	6d	23-Nov-15								
	E0801-160		Roof (Travelling Form)	12d	09-Nov-15								
	E0801-140	Construct Tunnel V		6d	02-Nov-15			· · · · · · · · · · · · · · · · · · ·					
	E0801-130	Remove 4th Level		3d	28-Oct-15							·	·
	E0801-120	Place Infill Concret		1d		27-Oct-15 28-Oct-15							
	E0801-110 E0801-120	Place Blinding Lay Construct Tunnel B		1d 6d	19-Oct-15 20-Oct-15								
	Bay E08-06	Diego Dlinding Law		1.0	10 Oct 15	10 Oct 15							
	Tunnel Structure	(6 Bays)											
	E08-1175		nation @-9.2 mPD (3500m3 rock), 32m3/Day	109d	09-Jun-15	17-Oct-15							
	E08-1166	Plate Load Test		28d	09-Jun-15		- · · · · · · · · · · · · · · · · · · ·	<u></u>					
	E08-1165		(2760m3 soft), 250m3/Day	11d	27-May-15								
	E08-1140	ELS to S4		27d		26-May-15							
	E08-1120	ELS to S3		28d	17-Mar-15	22-Apr-15							

Activity ID		Activity Name	Dur	Start	Finish		001E		0010			2017		2010
							2015 JIFIMIAIMIJIJIAIS		2016			2017 1		2018 JIFIMIA
	E0802-120	Construct Tunnel Base with Kicker	6d	28-0ct-15	03-Nov-15									
	E0802-120	Place Infill Concrete	1d		03-Nov-15	†• † ••		. 						
	E0802-140	Remove 4th Level Strut	3d		07-Nov-15	<u>+-</u> +		····i						
	E0802-150	Construct Tunnel Wall	6d		14-Nov-15	1.1			La cara da cara					
	E0802-160	Construct Tunnel Roof (Travelling Form)	12d	23-Nov-15										
	E0802-170	Miscellaneous Works Required for Degree 1 Completion	6d		12-Dec-15			0						
	E0802-180	Place General Fill / Infill Concrete up to 3rd Level Strut	7d	07-Dec-15				0						
	E0802-190	Remove 3rd Level Strut	3d	15-Dec-15	17-Dec-15									
	E0802-200	Place General Fill to 2nd Level Strut	8d		29-Dec-15				[]					
	E0802-210	Remove 2nd Level Strut	3d	30-Dec-15		.			<u> </u>		·			
	E0802-220	Place General Fill to 1st Level Strut	7d	04-Jan-16	11-Jan-16	.			0					
	Bay E08-04			1 -										
	E0803-110	Place Blinding Layer	1d		22-Oct-15				·		·			
	E0803-120	Construct Tunnel Base with Kicker	6d		10-Nov-15	+								
	E0803-130	Place Infill Concrete	1d	11-Nov-15						·····				
	E0803-140	Remove 4th Level Strut	3d		14-Nov-15	+								
	E0803-150	Construct Tunnel Wall	6d		21-Nov-15			····•						
	E0803-160	Construct Tunnel Roof (Travelling Form)	12d	07-Dec-15							· · · · · · · · · · · · · · · · · · ·			·
	E0803-170 E0803-180	Miscellaneous Works Required for Degree 1 Completion Place General Fill / Infill Concrete up to 3rd Level Strut	6d 7d	21-Dec-15	29-Dec-15 30-Dec-15	+-+		· · · · · · · · · · · · · · · · · · ·			•		÷	·
	E0803-190	Remove 3rd Level Strut	3d	31-Dec-15					,		· • • • • • • • • • • • • • • • • • • •		÷	·····
	E0803-200	Place General Fill to 2nd Level Strut	8d	05-Jan-16		+-+					·		÷	· · · · · · · · · · · · · · · · · · ·
	E0803-200	Remove 2nd Level Strut	3d	14-Jan-16										
	E0803-210	Place General Fill to 1st Level Strut	7d		25-Jan-16				0		· · · · · · · · · · · · · · · · · · ·		i	
	Bay E08-03		70	10 041-10	- 20 0di-10	† - †					· {		÷	· · · · · · · · · · · · · ·
	E0804-110	Place Blinding Layer	1d	23-Oct-15	23-Oct-15	1-1							÷}	
	E0804-110	Construct Tunnel Base with Kicker	6d	11-Nov-15		<u>†</u> • † ••		 D					÷	
	E0804-120	Place Infill Concrete	1d		18-Nov-15	1-1		····			·····			
	E0804-130	Remove 4th Level Strut	3d		21-Nov-15	<u>†</u> ∙ † ∙∙		····i				L	i	
	E0804-150	Construct Tunnel Wall	6d		28-Nov-15	1-1								
	E0804-160	Construct Tunnel Roof (Travelling Form)	12d	21-Dec-15		1.1							·	
	E0804-170	Miscellaneous Works Required for Degree 1 Completion	6d	07-Jan-16		1.1			0				Ţ	
	E0804-180	Place General Fill / Infill Concrete up to 3rd Level Strut	7d	07-Jan-16		1.1			0					
	E0804-190	Remove 3rd Level Strut	3d		18-Jan-16	11								
	E0804-200	Place General Fill to 2nd Level Strut	8d		27-Jan-16	11			0					
	E0804-210	Remove 2nd Level Strut	3d	28-Jan-16	30-Jan-16	11								
	E0804-220	Place General Fill to 1st Level Strut	7d	01-Feb-16	11-Feb-16	11								
	Bay E08-02					.							ļĪ	
	E0805-110	Place Blinding Layer	1d	24-Oct-15					ļļļ.				ļĪ	
	E0805-120	Construct Tunnel Base with Kicker	6d		24-Nov-15	.								
	E0805-130	Place Infill Concrete	1d		25-Nov-15	.		!						
	E0805-140	Remove 4th Level Strut	3d		28-Nov-15	.		!						
	E0805-150	Construct Tunnel Wall	6d		05-Dec-15	- - 		0						
	E0805-160	Construct Tunnel Roof (Travelling Form)	12d	07-Jan-16						·····				
	E0805-170	Miscellaneous Works Required for Degree 1 Completion	6d	21-Jan-16		- - 			0				÷	·····
	E0805-180	Place General Fill / Infill Concrete up to 3rd Level Strut	7d	21-Jan-16		- - 			0				÷	
	E0805-190	Remove 3rd Level Strut	3d	-	01-Feb-16	- - 								
	E0805-200	Place General Fill to 2nd Level Strut	8d	02-Feb-16						·····	. <u>.</u>		÷	·····
	E0805-210	Remove 2nd Level Strut	3d	15-Feb-16	17-Feb-16 25-Feb-16	 -							÷	
	E0805-220	Place General Fill to 1st Level Strut	7d	10-FeD-16	∠ວ-⊢ຍ⊡-16	<u>+-</u> +					· {		· · · · · · · · · · · · · · · · · · ·	
	Bay E08-01 E0806-110	Place Blinding Layer	1d	26-00+ 1E	26-Oct-15	+-+					·		+	
	E0806-110 E0806-120	Construct Tunnel Base with Kicker	6d	-	01-Dec-15	<u>+-</u> +		!						
	E0806-120 E0806-130	Place Infill Concrete	1d	02-Dec-15		<u>+-</u> +		<u>u</u> I			·			
	E0806-130	Remove 4th Level Strut	3d	02-Dec-15 03-Dec-15		<u>+</u> - !		·····¦		·····			·	
	E0806-140	Construct Tunnel Wall	6d		12-Dec-15	<u>+-</u> +		····· · ·					· · · · · · · · · · · · · · · · · · ·	
	E0806-160	Construct Tunnel Roof (Travelling Form)	12d	21-Jan-16		<u>+-</u> +							÷	
	E0806-170	Miscellaneous Works Required for Degree 1 Completion	6d	04-Feb-16		<u>+-</u> +				·····	· · · · · · · · · · · · · · · · · · ·			
	E0806-180	Place General Fill / Infill Concrete up to 3rd Level Strut	7d	04-Feb-16		<u>+-</u> +			••••					
	E0806-190	Remove 3rd Level Strut	3d		18-Feb-16	1-1			1				1	
	E0806-200	Place General Fill to 2nd Level Strut	8d		27-Feb-16	1.1					·		÷	
	E0806-210	Remove 2nd Level Strut	3d		02-Mar-16	1-1			I		1		Ţ	
	E0806-220	Place General Fill to 1st Level Strut	7d		10-Mar-16	1.1			B					
		nd Filling to Formation												
	E08-1480	Remove S1 & Traffic Decking	11d	11-Mar-16	23-Mar-16	1-1								
	E08-1490	Place General Fill to Final Formation Level	2d		29-Mar-16									
	E08-1500	Ket Date 4G achieved	0d		29-Mar-16	11			•					
(9) EWL Area 9 (3													
		g & Traffic Decking				1.1					1		i i i	
	E09-1010	Possess Area W4	0d	18-Jun-15		1.1	•						Ţ	
	E09-1020	Site Clearance and expose Utilities	6d	18-Jun-15										
	E09-1030	Implement TTA Stage 6	1d	26-Jun-15										
	E09-1070	Install edge beam and remaining traffic decking	12d	27-Jun-15			Þ							
	Curtain Grout for	r Temporary Cut Slope												
	E09-1080	Curtain grout for temporary cut slope	15d	27-Jun-15		.								
	E09-1090	Instrumentation & dewatering system	6d	16-Jul-15		.							ļĪ	
	E09-1110	Pumping Test	6d	23-Jul-15	29-Jul-15	.							ļļ	
		lope at East Side				.							ļļ	
	E09-1120	Excavation to below +6.00 mPD	5d	30-Jul-15		.								
	E09-1130	Tie back soil nails (32 no.s) at +6.00 mPD, 2 rigs	6d	05-Aug-15		.								
	E09-1140	Shotcrete to excavated surface	1d		12-Aug-15									·
	E09-1150	Excavation to below +4.00 mPD	5d		18-Aug-15	.	D				· { {			
	E09-1160	Tie back soil nails (32 no.s) at +4.00 mPD, 2 rigs	6d		25-Aug-15	+-+								
	E09-1170	Shotcrete to excavated surface	1d		26-Aug-15	.	<u>-</u>						ļļ	
	E09-1180	Install support for 900 dia watermain	12d	27-Aug-15		.								
	E09-1190	Excavation to below +2.00 mPD	5d		15-Sep-15									
	E09-1200	Tie back soil nails (35 no.s) at +2.00 mPD, 2 rigs	7d		23-Sep-15		D		·	·····				
	E09-1210	Shotcrete to excavated surface	1d		24-Sep-15	- - 	<u> </u> <u> </u> <u> </u>			·····			÷	·····
	E09-1220	Excavation to below +0.00 mPD	5d	25-Sep-15		.								
	E09-1230	Tie back soil nails (35 no.s) at +0.00 mPD 2 rigs	7d	03-Oct-15	10-Oct-15	1		u I		1	1	1	1	

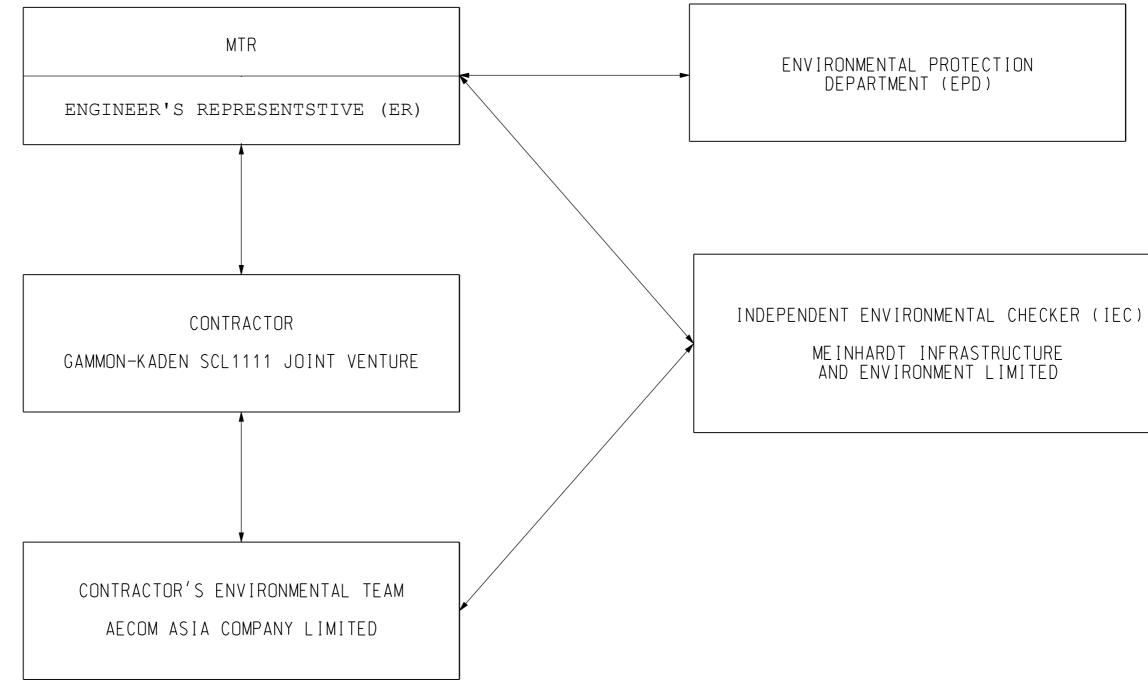
	E09-1220	Excavation to below	w +0.00 mPD	5d	25-Sep-15	02-Oct-15		0		<u>.</u>			
	E09-1230	Tie back soil nails	(35 no.s) at +0.00 mPD, 2 rigs	7d	03-Oct-15	10-Oct-15		0					
	E09-1240	Shotcrete to excav	ated surface	1d	12-Oct-15	12-Oct-15							
	E09-1250	Excavation to below	w -2.00 mPD	5d	13-Oct-15	17-Oct-15				<u> </u>			
	E09-1260	Tie back soil nails	(35 no.s) at -2.00 mPD, 2 rigs	7d	19-Oct-15	27-Oct-15		0					
	E09-1280	Shotcrete to excav	ated surface	1d	28-Oct-15	28-Oct-15							
	E09-1290	Excavation to below	w -4.00 mPD	5d	29-Oct-15	03-Nov-15		0					
	E09-1300	Tie back soil nails	(35 no.s) at -4.00 mPD, 2 rigs	7d	04-Nov-15	11-Nov-15							
	E09-1310	Shotcrete to excav	ated surface	1d	12-Nov-15	12-Nov-15				<u>.</u>			
	E09-1320	Excavation to below	w -6.00 mPD	5d	13-Nov-15	18-Nov-15		0					
	E09-1330	Tie back soil nails	(35 no.s) at -6.00 mPD, 2 rigs	7d	19-Nov-15	26-Nov-15		0					
	E09-1340	Shotcrete to excav	ated surface	1d	27-Nov-15	27-Nov-15							
	E09-1350	Excavation to below	w -8.00 mPD	5d	28-Nov-15	03-Dec-15							
	E09-1360	Tie back soil nails	(35 no.s) at -8.00 mPD, 2 rigs	7d	04-Dec-15	11-Dec-15							
	E09-1370	Shotcrete to excav	ated surface	1d	12-Dec-15	12-Dec-15		<u> </u>					
	E09-1380	Excavation to tunne	el formation	5d	14-Dec-15	18-Dec-15		0					
	E09-1390	Shotcrete to excav	ated surface	1d	19-Dec-15	19-Dec-15		<u>I</u>					
	Temporary Cut S	Slope at West Side											
	E09-1400	Excavation to below	w +15.40 mPD	5d		04-Aug-15							
	E09-1410	Tie back soil nails	(6 no.s) at +15.40 mPD, 1 rig	4d	05-Aug-15	08-Aug-15							
	E09-1420	Shotcrete to excav	ated surface	1d	10-Aug-15	10-Aug-15							
							-	Data	1	Daviaia	-	Ohaaliad	American
			NON-DEMOL	ITION MASTE	ER PROC	GRAMME		Date		Revisio		Checked	Approved
	44							15-Jul-15	<u> </u>		ncorporated	ļ	
5	Gammon Kaden 🛱 RE			REVISION B					<u> </u>		ncorporated		
					D			17-Sep-15	activity lag	ging time	removed	1	
Gam	mon – Kaden SCL 11	11 Joint Venture	NDMPB-35			P 1	5 of 16						
		NDMPB-35					0 01 10						
									1				1

Activity I	D	Activity Name	Dur	Start	Finish												
ACTIVITY	D	Activity Name		Start	FILISI				2015			016			2017		2018
						D	JFN	AM	JJA	SON	DJFMAM	JJAS	OND	JFMAN	ИJJAS	OND	JFMA
	E09-1430	Excavation to below +11.50 mPD	5d	11-Aug-15													
	E09-1440	Tie back soil nails (5 no.s) at +11.50 mPD, 1 rig	3d	17-Aug-15				¦	!				.				
	E09-1450	Shotcrete to excavated surface	1d	20-Aug-15		+-+		¦									
	E09-1460	Excavation to below +8.00 mPD	5d	21-Aug-15									įį.				
	E09-1470	Tie back soil nails (10 no.s) at +8.00 mPD, 1 rig	4d	27-Aug-15		+-+		; ;						· · · · · · · · · · · · · · · · · · ·			
	E09-1480	Shotcrete to excavated surface	1d	01-Sep-15				¦		<u> </u>	<u> </u>			·····			
	E09-1490	Excavation to below +6.00 mPD	5d	02-Sep-15				¦									
	E09-1500	Tie back soil nails (17 no.s) at +6.00 mPD, 2 rigs	4d	08-Sep-15													
	E09-1510	Shotcrete to excavated surface	1d	12-Sep-15				į		<u> </u>							·····
	E09-1520	Excavation to below +4.00 mPD	5d	14-Sep-15		+-+		¦		. <u></u>		4		· · · · · · · · · · · · · · · · · · ·			
	E09-1530	Tie back soil nails (30 no.s) at +4.00 mPD, 2 rigs	6d	19-Sep-15				ļ		.		4	¦				
	E09-1540	Shotcrete to excavated surface	1d	26-Sep-15						<u>-</u>							
	E09-1550	Excavation to below +2.00 mPD	5d	29-Sep-15													
	E09-1560	Tie back soil nails (34 no.s) at +2.00 mPD, 2 rigs	6d	06-Oct-15				; ;						·			·····
	E09-1570	Shotcrete to excavated surface	1d	13-Oct-15				¦				4	¦	·····			
	E09-1580	Excavation to below +0.00 mPD	5d	14-Oct-15				¦					¦				
	E09-1590	Tie back soil nails (35 no.s) at +0.00 mPD, 2 rigs	6d	20-Oct-15				¦									
	E09-1600	Shotcrete to excavated surface	1d	28-Oct-15				ļ									
	E09-1610	Excavation to below -2.00 mPD	5d	29-Oct-15		+-+											·····
	E09-1620	Tie back soil nails (33 no.s) at -2.00 mPD, 2 rigs	6d	04-Nov-15				÷					{{·	·····			
	E09-1630	Shotcrete to excavated surface	1d	11-Nov-15		+-+		¦					¦	·····			
	E09-1640	Excavation to below -4.00 mPD (rock expected)	10d	12-Nov-15				¦									
	E09-1650	Tie back soil nails (18 no.s) at -4.00 mPD, 2 rigs	4d	24-Nov-15				¦					ļ				
	E09-1660	Shotcrete to excavated surface	1d	28-Nov-15													
	E09-1670	Excavation to below -6.00 mPD (rock expected)	10d	30-Nov-15													
	E09-1680	Tie back soil nails (14 no.s) at -6.00 mPD, 2 rigs	4d	11-Dec-15		1.1		¦			<u> </u>		¦				
	E09-1690	Excavation to below -8.00 mPD (rock expected)	10d	16-Dec-15				¦			.		.				
	E09-1700	Shotcrete to excavated surface	1d	30-Dec-15				ļ					ļ				
	E09-1710	Tie back soil nails (10 no.s) at -8.00 mPD, 1 rig	4d	31-Dec-15		1.1		¦					ļļ.				
	E09-1720	Excavation to tunnel formation (rock expected)	10d	06-Jan-16		1.1		; ;									
	E09-1730	Shotcrete to excavated surface	1d	18-Jan-16	18-Jan-16			ļ			<u> </u>						
	Tunnel Structure	e (3 Bays)				+-+		ļ									
	Bay E09-01		i	1				¦					ļ				
	E0901-110	Place blinding layer	1d	19-Jan-16		+-+											
	E0901-120	Tunnel base	6d	20-Jan-16													
	E0901-130	Lower Wall	6d	27-Jan-16				¦			I		¦	·····			
	E0901-140	Upper wall & roof	10d	04-Feb-16	18-Feb-16	+-+											
	Bay E09-02			1				ļ									
	E0902-110	Place blinding layer	1d	20-Jan-16		+-+											
	E0902-120	Tunnel base	6d	27-Jan-16													
	E0902-130	Lower Wall	6d	03-Feb-16				¦					¦	·····			
	E0902-140	Upper wall & roof	10d	19-Feb-16	01-Mar-16	+-+											
	Bay E09-03			1				ļ									
	E0903-110	Place blinding layer	1d	21-Jan-16										·			
	E0903-120	Tunnel base	6d	03-Feb-16				¦			···		¦¦	·····			·····
	E0903-130	Lower Wall	6d	13-Feb-16				¦				4	¦¦-				
	E0903-140	Upper wall & roof	10d	02-Mar-16	12-Mar-16	.											
		ove 900mm Watermain Support															
	E09-1740	Backfilling to bottom of 900 dia watermain	24d	19-Feb-16				į									·····
	E09-1750	Remove support to 900 dia watermain	5d		23-Mar-16			¦			<u>4</u>			· · · · · · · · · · · · · · · · · · ·			·····
	E09-1760	Backfill to formation	6d	24-Mar-16	02-Apr-16	.		ļ				4	¦				
		al and Reinstatement Works						ļ									
	RW-000	NSL Tunnel Substantially Completed	0d		03-Jul-17*										•		
	RW-010	NSL 3A Hoarding Removal (NTH)	10d	04-Jul-17	25-Jul-17			¦]				
	RW-10	NSL 3B-5 Hoarding Removal (NTH)	20d	27-Jul-17	09-Sep-17			ļ]]			[Ē	
	RW-20	NSL 6 Hoarding Removal (NTH)	16d	12-Sep-17				ļ]]][
	RW-30	NSL 7 Hoarding Removal (NTH)	16d	19-Oct-17	23-Nov-17												
	RW-40	NSL 8 Hoarding Removal (NTH)	16d	25-Nov-17	30-Dec-17			ļ									
	RW-50	NSL 9-OSP Hoarding Removal (NTH)	45d	02-Jan-18	14-Apr-18			1					1				
	RW-60	Reinstatement works at Winslow St, Chatham Rd, OSP	180d	03-Jul-17	03-Feb-18			-					<u> </u>			· ·	
1																	

	NON-DEMOLITION MASTER PRO	BRAMME	Date	Revision	Checked	Approved
Gammon Kaden	REVISION B			meeting comments incorporated activity lagging time removed		
Gammon – Kaden SCL 1111 Joint Venture	NDMPB-35	P 16 of 16				

APPENDIX B

Project Organization Structure



									DR	AWN	HD		
									DE	SIGNED	LCLL		
									СН	ECKED	LCLL	SHATIN TO CENTRAL LINK HUNG HOM NORTH APPROACH TUNNELS	
									AP	PROVED	[MW	CONTRACTOR ORIGINATOR PROJECT ORGANISATION	
									DA	TE	08/JAN/2013		
									DO N Verti	IT SCALE DRAWIN	NGS, ALL DIMENSIONS SHALL BE	L RE Gammon Kaden 21 Juli Joint Venture AECOM	
									RESPI	CT OF THIS DR	ILINIIED 2008 CUPTRIGHT IN Anting / Document is onned by the Nited of hong kong, no		<u></u>
REV	DESCRIPTION	BY	DATE	APPRO	VED R	ev l	DESCRIPTION	BY	DATE APPROVED REPRI	DUCTION OF TH HATEVER MEANS TEN CONSENT OF	E DRAWING / DOCUMENT OR ANY PART IS PERMITTED WITHOUT THE PRIOR THE WTR CORPORATION LINITED.	It Ret is a ret in the second seco	·· –

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APPENDIX C

Implementation Schedule of Environmental Mitigation Measures

Appendix C - Implementation Schedule of Environmental Mitigation Measures

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

Construction No	oise Impact			
8.3.6 (TAW-HUH) , S8.5.6 (HHS) &	To control construction airborne noise	• Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme.	All construction sites	V
S6 (MKK-HUH)		• Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	All construction sites	V
		• Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs.	All construction sites	V
		• Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works.	All construction sites	V
		Mobile plant should be sited as far away from NSRs as possible and practicable.	All construction sites	V
		• Material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	All construction sites	V
		The following quiet PME should be used:	Works areas where	N/A
		 Asphalt Paver (SWL=101dB(A)) Backhoe (SWL=106dB(A)) Dealth as with the dealth is Deceler (O)//L 440dB(A)) 	required	
		 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))		

Construction N	oise Impact			
		 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)) 		
		 Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. 	All construction sites	V
		Install movable noise barriers, acoustic mat or full enclosure, screen the noisy plants	All construction sites	V
		Sequencing operation of construction plants where practicable.	All construction sites	V
		Particularly noisy construction activities will be scheduled to avoid school examination period as far as practicable.	Works areas near the Carmel Secondary School	V
/	To control construction airborne noise	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	V

Construction Air S7.6.5	Minimize dust	Watering once per hour on exposed worksites and haul road should be	All construction sites	V											
(TAW-HUH) ,	impact at	conducted to achieve dust removal efficiencies of 91.7%.		v											
S7.6.6 (HHS), S5.50, 5.51 &5.57 (MKK-HUH)	nearby sensitive receivers	• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet.	All construction sites	V											
		• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads	All construction sites	V											
		A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones.	All construction sites	V											
		• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle	All construction sites	N/A											
		• Vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point.	All construction sites	V											
		• The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	All construction sites	V											
		• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided.	All construction sites	V											
	•	•	• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials.	All construction sites	V										
											-	•	• 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	N/A
										• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet.	All construction sites	N/A			
		• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building.	All construction sites	N/A											

		Any skip hoist for material transport should be totally enclosed by impervious sheeting.	All construction sites	N/A
		• Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.	All construction sites	N/A
/	Minimize dust impact at nearby	• Every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.	All construction sites	N/A
	sensitive receivers	• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed.	All construction sites	N/A
		• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system.	All construction sites	N/A
		• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site.	All construction sites	N/A
		Imposition of speed controls for vehicles on site haul roads.	All construction sites	N/A
		Open burning shall be prohibited.	All construction sites	V
/	Emission from	All vehicles shall be shut down in intermittent use.	All construction sites	V
	Vehicles and Plants	Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.	All construction sites	V
		All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD).	All construction sites	V

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

 Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. 	All construction sites	V
• Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area.	All construction sites	V
• All vehicles and plant should be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads.	All construction sites	V
Bentonite slurries used in diaphragm wall construction should be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry should either be dewatered or mixed with inert fill material for disposal to a public filling area.	All construction sites	N/A
• A cofferdam wall should be built as necessary to limit groundwater inflow to the excavation works areas.	Excavation works areas	N/A
Wastewater generated should not be discharged into the stormwater drainage system.	All construction sites	V
 Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. 	All construction sites	N/A
Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site.	All construction sites	V
The Contractor should apply for a discharge license under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.	All construction sites where practicable	N/A
Appropriate measures will be deployed to minimize the intrusion of groundwater into excavation works areas.	All construction sites	N/A
 Measures should be put in place in order to mitigate any drawdown effects to the groundwater table during the operation of the temporary dewatering works. 	All construction sites	N/A

Waste Managem									
S11.5.1 (TAW-HUH),	Good site practice to	 Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement. 	All construction sites	N/A					
. ,	minimize the generation and	 Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions. 	All construction sites	V					
	impact of the waste.	• Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.	All construction sites	V					
		• Proper storage and site practices to minimize the potential for damage or contamination of construction materials.	All construction sites	V					
		•	•	•	•	Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.	All construction sites	N/A	
						• Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution.	All construction sites	V	
		Maintain and clean storage areas routinely.	All construction sites	V					
		• Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away.	All construction sites	V					
		Waste should be removed in timely manner.	All construction sites	V					
		Waste collectors should only collect wastes prescribed by their permits.	All construction sites	V					
		Waste should be disposed of at licensed waste disposal facilities.	All construction sites	V					
	-	 disposal of C&D materials are properly documented and verified. 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. The storage area for chemical wastes should be clearly labelled and use solely for the storage of chemical waste; enclosed on at least 3 sides. 	• 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				
			All construction sites	V					
			_	• The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides.	All construction sites	V			
								•	•
		Disposal of chemical waste should be via a licensed waste collector.	All construction sites	V					

Waste Management								
	Stockpiling of contaminated sediments should be avoided as far as possible.	All construction sites	N/A					
	• All storage of asbestos waste should be carried out properly in a secure place isolated from other substances so as to prevent any possible release of asbestos fibres into the atmosphere and contamination of other substances.	All construction sites	N/A					
	 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. 							

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

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

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels

ID	Location	Action Level	Limit Level
AM1	No. 234 – 238 Chatham Road North	183.9 μg/m³	260.0 μg/m³

Table 2Action 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	65 / 70 dB(A) ⁽¹⁾
NM2	No. 234 – 238 Chatham Road North	normal weekdays, is received from any one of the sensitive receivers.	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 3Action 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



RECALIBRATION DUE DATE: December 31, 2019

Certificate of Calibration

				<i></i>					
			Calibration	Certificat	ion Informa	tion			
Cal. Date:	December	31, 2018	Roots	meter S/N	: 438320	Та	293	°K	
Operator:	Jim Tisch								
Calibration	Model #:	TE-5025A	Calil	brator S/N	0843	r a	741.7	mm Hg	
			cum	514(01 5/14	. 0043				
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔΡ	ΔΗ	1	
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)		
	1	1	2	1		3.2	2.00		
	2 3 4 3 5 6			1	0.9820	6.4	the second second second second second second second second second second second second second second second s		
				1	0.8780	7.9	5.00		
	4 7 8		1	0.8360	8.7	5.50			
	5	9	10	1	0.6890	12.7	8.00		
			D	ata Tabula	ition				
			Ан(_Ра	/ Tstd					
	Vstd	Qstd	√ ^{∆H} (Pstd	$\frac{1310}{Ta}$		Qa	$\sqrt{\Delta H(Ta/Pa)}$		
				(y-axis)	Va	(x-axis)	(y-axis)		
	0.9883 0.7146 1.4089			9	0.9957	0.7199	0.8889		
	0.9840	1.0020	1.992	5	0.9914	1.0095	1.2571		
	0.9820	1.1184	2.227	7	0.9893	1.1268	1.4054		
	0.9809	1.1733	2.336	5	0.9883		1.4740		
	0.9756 1.4159 2.8179				0.9829	1.4265	1.7777		
	OCTO	m=	2.0099			m=	1.25862		
	QSTD	b=	-0.023		QA	b=	-0.01504		
l		r=	0.9999	38		r=	0.99998		
				Calculation	15				
			/Pstd)(Tstd/Ta)		Va= ΔVol((Pa-ΔP)/Pa)				
	Qstd= \	/std/∆Time			Qa= Va/ATime				
			For subseque	nt flow rat	w rate calculations:				
Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)$)-ь)	Qa=	1/m ((√ΔH	(Та/Ра))-ь)		
	Standard (Conditions]						
Tstd:	298.15 °			Г		RECAL	BRATION		
Pstd:	the second second second second second second second second second second second second second second second se	nm Hg		F					
H: calibrato	Ke	er reading (in	1120)		US EPA recon	nmends ani	nual recalibration	per 1998	
		er reading (in ter reading (r			40 Code o	t Federal Re	gulations Part 50	to 51,	
: actual abs	olute tempe	erature (°K)	1115/		Appendix B	to Part 50, I	Reference Methor	d for the	
		ssure (mm H	g)		Determinatio	on of Suspe	nded Particulate	Matter in	
intercept					the	Atmospher	e, 9.2.17, page 30		
: slope				L.					

Tisch Environmental, Inc.

145 South Miami Avenue Village of Cleves, OH 45002 <u>www.tisch-env.com</u> TOLL FREE: (877)263-7610 FAX: (513)467-9009

AECOM Asia Company Limited <u>TSP High Volume Sampler</u> <u>Field Calibration Report</u>

34 - 238 Chathan	n Road North; S	SCL - DMS - 11 Operat	or:	Choi Wing Ho	
29-Mar-19	lar-19	Next Due Da	Next Due Date:	29-May-19	
		Serial N	10.	8259	
		Ambient Condition			
, Ta (K)	296	Pressure, Pa (mmHg)		763.5	
	29-Mar-19	29-Mar-19	29-Mar-19 Next Due Da Serial N Ambient Condition	29-Mar-19 Next Due Date:	29-Mar-19 Next Due Date: 29-May-19 Serial No. 8259 Ambient Condition

Orifice Transfer Standard Information									
Serial No:	988	Slope, mc	2.01748	Intercept, bc	-0.02651				
Last Calibration Date: 22-May-18									
Next Calibration Date:	22-May-19	mc x Qstd + bc = [H x (Pa/760) x (298/Ta)] ^{1/2}							

Resistance		Orfice			Class Decender	
Resistance			HVS Flow Recorder			
Plate No.	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 Recorde Reading IC (CFM) Y-axis	
18	6.8	2.62	1.31	44.0	44.25	
13	5.5	2.36	1.18	37.0	37.21	
10	4.5	2.13	1.07	30.0	30.17	
7	4.0	2.01	1.01	26.0	26.15	
5	2.8	1.68	0.85	17.0	17.10	
*If Correlation Co	oefficient < 0.990, o	check and recalibrate.				
		Cat Daint	Calculation			
From the TSD F	ield Calibration Cur	ve, take Qstd = 1.30m ³ /min	Calculation			
		"Y" value according to				
r tom alo r togi ot						
	•	mw x Qstd + bw = IC	x [(Pa/760) x (298/	Ta)] ^{1/2}		
Therefore, Set F	Point; IC = (mw x C) (12. (12. (12. (12. (12. (12. (12. (12.	98)] ^{1/2} =		43.44	
		14			-	
Remarks:						
Normania.				1004-20		
					and the second se	

AECOM Asia Company Limited <u>TSP High Volume Sampler</u> <u>Field Calibration Report</u>

234 - 238 Chatham Road North; SCL -		- DMS - 11 Operator:	Choi Wing Ho	
20-May-19		Next Due Date:	20-Jul-19	
	_ Serial No.	8259		
		- Ambient Condition		
ıre, Ta (K)	303	Pressure, Pa (mmHg)	754.8	
	20-May-19 	20-May-19 	20-May-19 Next Due Date: Serial No. 	20-May-19 Next Due Date: 20-Jul-19 Serial No. 8259 Ambient Condition

Orifice Transfer Standard Information									
Serial No:	988	Slope, mc	2.01748	Intercept, bc	-0.02651				
Last Calibration Date:	Last Calibration Date: 22-May-18								
Next Calibration Date:	22-May-19	$mc x Qstd + bc = [H x (Pa/760) x (298/Ta)]^{1/2}$							

		Calibration of	of TSP Sampler		
		Orfice	HV	S Flow Recorder	
Resistance Plate No.	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	7.0	2.61	1.31	45.0	44.47
13	5.5	2.32	1.16	36.0	35.58
10	4.6	2.12	1.06	30.0	29.65
7	4.0	1.98	0.99	25.0	24.71
5	3.0	1.71	0.86	17.0	16.80
*If Correlation Co	pefficient < 0.990, o	check and recalibrate.	_		
		Set Point	Calculation		
From the TSP Fi	eld Calibration Cur	ve, take Qstd = 1.30m ³ /min	ouloulution		
		"Y" value according to			
Therefore, Set P	oint; IC = (mw x C	mw x Qstd + bw = IC Qstd + bw) x [(760 / Pa) x (Ta / 2		Ta)] ^{1/2}	44.55

Remarks:	. •		
QC Reviewer: _	WS CHAN	Signature:	Date: 20/05/19



綜合試驗有限公司 SOILS & MATERIALS ENGINEERING CO., LTD. 香港黃竹坑道37號利達中心12樓

12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. E-mail: smec@cigismec.com Website: www.cigismec.com Tel: (852) 2873 6860 Fax: (852) 2555 7533



CERTIFICATE OF CALIBRATION

Certificate No.:	18CA0914 03			Page	1	of	2
Item tested				•			
Description:	Sound Level Mete	er (Type 1)	. Mi	crophone			
Manufacturer:	B & K			& K			
Type/Model No.:	2238		41	88			
Serial/Equipment No .:	2800927		27	91211			
Adaptors used:	-		-				
Item submitted by							
Customer Name:	AECOM ASIA CO	LTD.					
Address of Customer:	-	1 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1					
Request No.:	-						
Date of receipt:	14-Sep-2018						
Date of test:	17-Sep-2018						
Reference equipment	used in the calib	ration					
Description:	Model:	Serial No.	Ex	piry Date:		Traceab	le to:
Multi function sound calibrator	B&K 4226	2288444		Aug-2019		CIGISME	
Signal generator	DS 360	33873	24-	Apr-2019		CEPREI	
Signal generator	DS 360	61227	23-	Apr-2019		CEPREI	
Ambient conditions							
Temperature:	21 ± 1 °C						
Relative humidity:	55 ± 10 %						
Air pressure:	1005 ± 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 responsess of the Sound Level Meter.

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory:

Feng Juna

18-Sep-2018 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.

Date:

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Form No CARP152-1/Issue 1/Rev C/01/02/2007



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12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. E-mail: smec@cigismec.com Website: www.cigismec.com Tel: (852) 2873 6860 Fax: (852) 2555 7533



2

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.:

18CA0914 03

Page 2

2 of

1, Electrical Tests

The electrical tests were perfomed 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 Uncertanity (dB)	Coverage Factor
Test.	Sublest.	Status:	Uncertainty (UB)	Factor
Self-generated noise	A	Pass	0.3	
	С	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	A	Pass	0.3	
	С	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
tau na Balanta di Tanna da California di 💳 dan na Bandari 💳 da bana	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.

T . 1	0.14.1	01.1	Expanded	Coverage
Test:	Subtest	Status	Uncertanity (dB)	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.



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.

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Form No.CARP152-2/Issue 1/Rev.C/01/02/2007



23-Apr-2019

23-Apr-2019

24-Apr-2019

CEPREI

CEPREI

CEPREI



CERTIFICATE OF CALIBRATION

Certificate No.:	19CA0327 01-02		Page:	1 of	2
Item tested					
Description:	Acoustical Calibra	ator (Class 1)			
Manufacturer:	B & K				
Type/Model No.:	4231				
Serial/Equipment No.:	3006428 / N004.0)3			
Adaptors used:	-				
Item submitted by					
Curstomer:	AECOM ASIA CC	LIMITED			
Address of Customer:	-				
Request No .:	-				
Date of receipt:	27-Mar-2019		(*//		
		(N.004.03	.)		
Date of test:	27-Mar-2019				
Reference equipment	used in the calib	oration			
Description:	Model:	Serial No.	Expiry Date:	Tracea	able to:
Lab standard microphone	B&K 4180	2341427	20-Apr-2019	SCL	
Preamplifier	B&K 2673	2743150	27-Apr-2019	CEPRE	El
Measuring amplifier	B&K 2610	2346941	08-May-2019	CEPRE	EL
Signal generator	DS 360	33873	24-Apr-2019	CEPRE	ΞI
Digital multi-meter	34401A	US36087050	23-Apr-2019	CEPRE	=1

Ambient conditions

Audio analyzer

Universal counter

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

8903B

53132A

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

US36087050

GB41300350

MY40003662

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3. The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes

Test results

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

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



29-Mar-2019 **Company Chop:**



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

Date:

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Approved Signatory:

Form No.CARP156-1/Issue 1/Rev.D/01/03/2007



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香 港 黃 竹 坑 道 3 7 號 利 達 中 心 1 2 樓 12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. E-mail: smec@cigismec.com Website: www.cigismec.com Tel: (852) 2873 6860 Fax: (852) 2555 7533



2

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.:

19CA0327 01-02

Page: 2 of

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	Output Sound Pressure	Measured Output	Estimated Expanded
Shown	Level Setting	Sound Pressure Level	Uncertainty
Hz	dB	dB	dB
1000	94.00	94.23	0.10

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 = 0.014 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 = 0.3 %
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.

	1 ,	- End -
Calibrated by:	$1 \sim $	Checked by:
	Fung Chi Yip	Fong Chun Wai
Date:	27-Mar-2019	Date: 29-Mar-2019

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.

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Form No.CARP156-2/Issue 1/Rev.C/01/05/2005



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CERTIFICATE OF CALIBRATION

Certificate No.:	18CA1008 02		Page:	1 of	F 2
Item tested					
Description:	Acoustical Calibra	ator (Class 1)			
Manufacturer:	Rion Co., Ltd.				
Type/Model No.:	NC-74				
Serial/Equipment No.:	34246490 / N.004	+.10			
Adaptors used:	-				
Item submitted by					
Curstomer:	AECOM ASIA CC	LIMITED			
Address of Customer:	-				
Request No.:	-				
Date of receipt:	08-Oct-2018				
Date of test:	10-Oct-2018				
Reference equipment	used in the calib	oration			
				T	eable to:
Description:	Model:	Serial No.	Expiry Date:	Trac	eable to:
Lab standard microphone	B&K 4180	Serial No. 2341427	Expiry Date: 20-Apr-2019	SCL	
Lab standard microphone Preamplifier	B&K 4180 B&K 2673				
Lab standard microphone Preamplifier Measuring amplifier	B&K 4180 B&K 2673 B&K 2610	2341427	20-Apr-2019	SCL	REI
Lab standard microphone Preamplifier Measuring amplifier Signal generator	B&K 4180 B&K 2673 B&K 2610 DS 360	2341427 2743150 2346941 61227	20-Apr-2019 27-Apr-2019 08-May-2019 24-Apr-2019	SCL CEP	REI REI
Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter	B&K 4180 B&K 2673 B&K 2610 DS 360 34401A	2341427 2743150 2346941 61227 US36087050	20-Apr-2019 27-Apr-2019 08-May-2019 24-Apr-2019 23-Apr-2019	SCL CEP CEP	REI REI REI
Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter Audio analyzer	B&K 4180 B&K 2673 B&K 2610 DS 360 34401A 8903B	2341427 2743150 2346941 61227	20-Apr-2019 27-Apr-2019 08-May-2019 24-Apr-2019	SCL CEP CEP CEP	REI REI REI REI
Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter	B&K 4180 B&K 2673 B&K 2610 DS 360 34401A	2341427 2743150 2346941 61227 US36087050	20-Apr-2019 27-Apr-2019 08-May-2019 24-Apr-2019 23-Apr-2019	SCL CEP CEP CEP CEP	REI REI REI REI REI
Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter Audio analyzer	B&K 4180 B&K 2673 B&K 2610 DS 360 34401A 8903B	2341427 2743150 2346941 61227 US36087050 GB41300350	20-Apr-2019 27-Apr-2019 08-May-2019 24-Apr-2019 23-Apr-2019 23-Apr-2019	SCL CEP CEP CEP CEP CEP	REI REI REI REI REI
Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter Audio analyzer Universal counter Ambient conditions Temperature:	B&K 4180 B&K 2673 B&K 2610 DS 360 34401A 8903B	2341427 2743150 2346941 61227 US36087050 GB41300350	20-Apr-2019 27-Apr-2019 08-May-2019 24-Apr-2019 23-Apr-2019 23-Apr-2019	SCL CEP CEP CEP CEP CEP	REI REI REI REI REI
Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter Audio analyzer Universal counter Ambient conditions	B&K 4180 B&K 2673 B&K 2610 DS 360 34401A 8903B 53132A	2341427 2743150 2346941 61227 US36087050 GB41300350	20-Apr-2019 27-Apr-2019 08-May-2019 24-Apr-2019 23-Apr-2019 23-Apr-2019	SCL CEP CEP CEP CEP CEP	REI REI REI REI REI

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.
- 2. The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

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

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

Approved Signatory:



Date: 10-Oct-2018

Company Chop:



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

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Form No CARP156-1/Issue 1/Rev D/01/03/2007



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12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. E-mail: smec@cigismec.com Website: www.cigismec.com

Tel: (852) 2873 6860 Fax: (852) 2555 7533



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.:

18CA1008 02

Page: 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	Output Sound Pressure	Measured Output	Estimated Expanded
Shown	Level Setting	Sound Pressure Level	Uncertainty
Hz	dB	dB	dB
1000	94.00	93.89	0.10

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 = 0.030 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 = 1002.0 Hz	
Estimated expanded uncertainty	0.1 Hz	Coverage factor k = 2.2

Total Noise and Distortion 4,

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 = 2.3 %
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.



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.

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Form No.CARP156-2/Issue 1/Rev C/01/05/2005

APPENDIX F

EM&A Monitoring Schedules

Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels Impact Monitoring Schedule for May 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-May	2-May	3-May	4-May
				Noise (NM1, NM2)		
5-May	6-May	7-May	8-May	9-May	10-May	11-May
	24-hour TSP (AM1)	Noise (NM1, NM2)				24-hour TSP (AM1)
12-May	13-May	14-May	15-May	16-May	17-May	18-May
		Noise (NM1, NM2)			24-hour TSP (AM1)	
19-May	20-May	21-May	22-May	23-May	24-May	25-May
				24-hour TSP (AM1)	Noise (NM1, NM2)	
26-May	27-May	28-May	29-May	30-May	31-May	
			24-hour TSP (AM1)	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 June 2019

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

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 July 2019

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

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

APPENDIX G

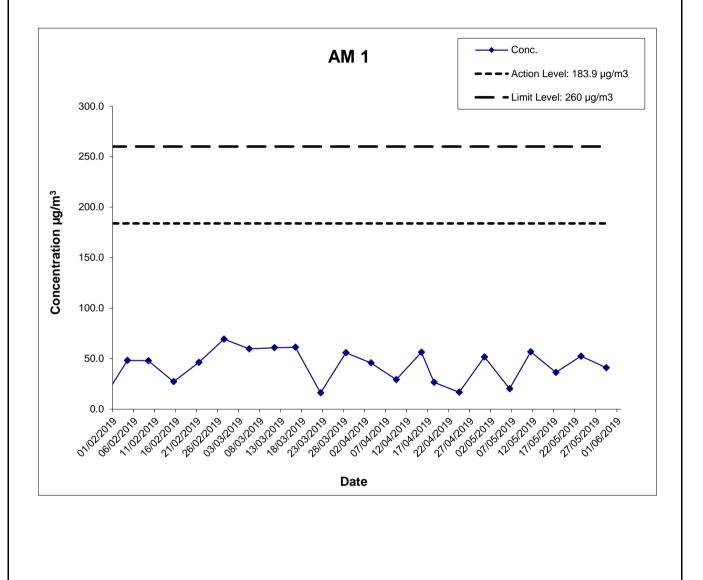
Air Quality Monitoring Results and their Graphical Presentations

Appendix G Air Quality Monitoring Results

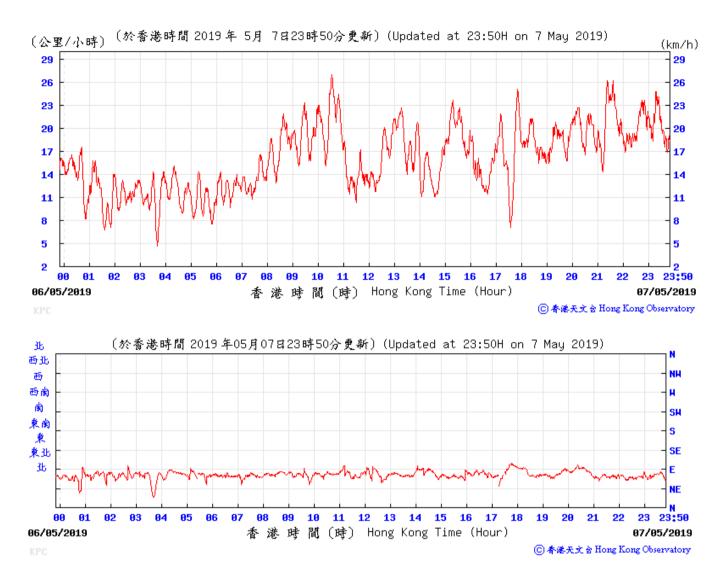
Star	t	End		Weather	Air	Atmospheric	Flow Rate	(m³/min.)	Av. flow	Total vol.	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Conc.
Date	Time	Date	Time	Condition	Temp. (°C)	Pressure (hPa)	Initial	Final	(m ³ /min)	(m ³)	Initial	Final	weight(g)	Initial	Final	Time(hrs.)	(µg/m³)
6-May-19	0:00	7-May-19	0:00	Cloudy	21.8	1008.7	1.34	1.34	1.34	1932.5	2.6820	2.7211	0.0391	16461.00	16485.00	24.00	20.2
11-May-19	0:00	12-May-19	0:00	Su nny	25.3	1011.5	1.34	1.34	1.34	1932.5	2.6783	2.7882	0.1099	16485.00	16509.00	24.00	56.9
17-May-19	0:00	18-May-19	0:00	Rainy	29.6	1005.5	1.34	1.34	1.34	1932.5	2.6778	2.7480	0.0702	16509.00	16533.00	24.00	36.3
23-May-19	0:00	24-May-19	0:00	Cloudy	25.9	1010.2	1.34	1.34	1.34	1932.5	2.6835	2.7850	0.1015	16533.00	16557.00	24.00	52.5
29-May-19	0:00	30-May-19	0:00	Cloudy	24.7	1009.9	1.34	1.34	1.34	1932.5	2.6828	2.7621	0.0793	16557.00	16581.00	24.00	41.0
																Average	41.4

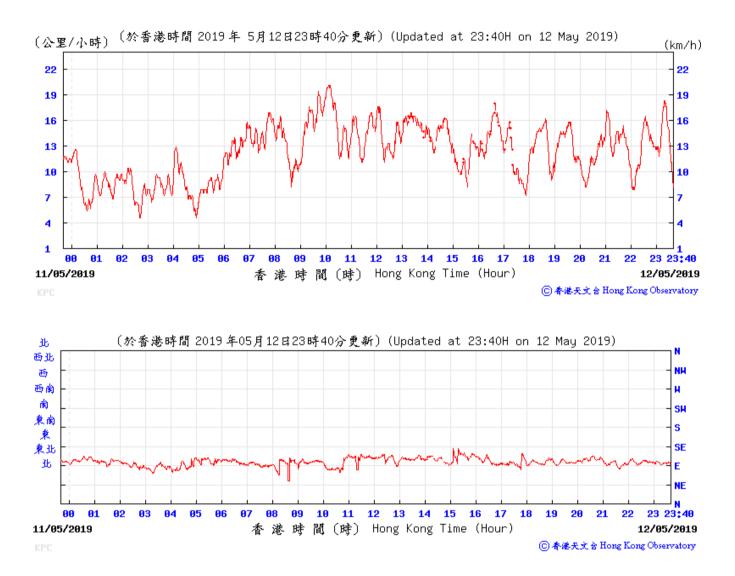
24-hour TSP Monitoring Results at Station AM1 (No. 234 – 238 Chatham Road North)

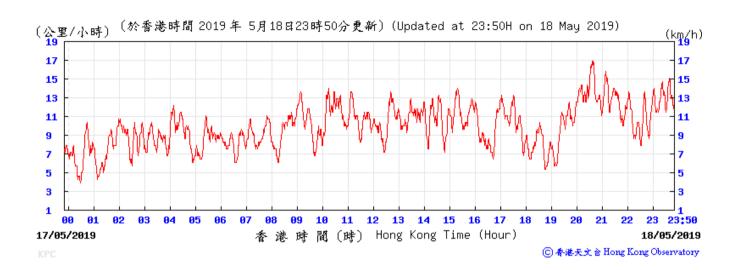
Minimum 20.2 Maximum 56.9

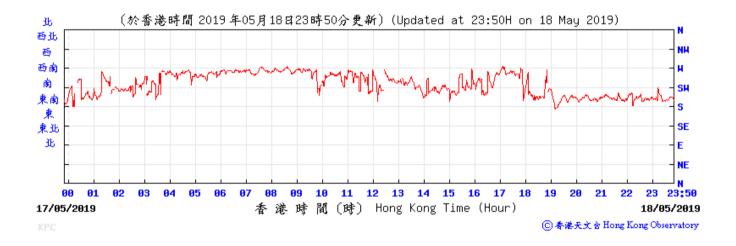


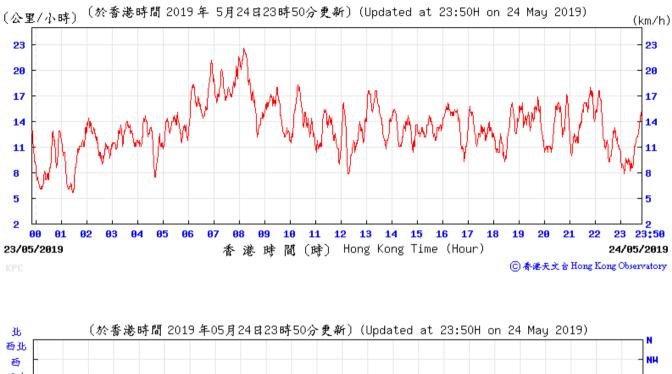
AECOM	Shatin to Central Link Works Contract 1111- Hung Hom North Approach Tunnels		N.1.0.	DATE DRAWN	Jun-1 RCC	-
/	Graphical Presentations of Impact 24-hour TSP Monitoring Results	JOB NO.	60284101	APPENDI (X No. ∋	Rev. -

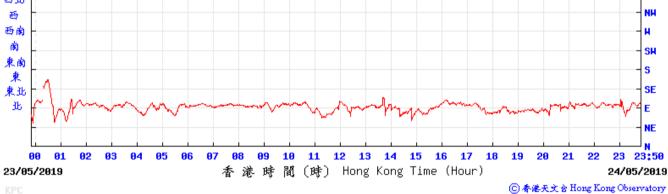


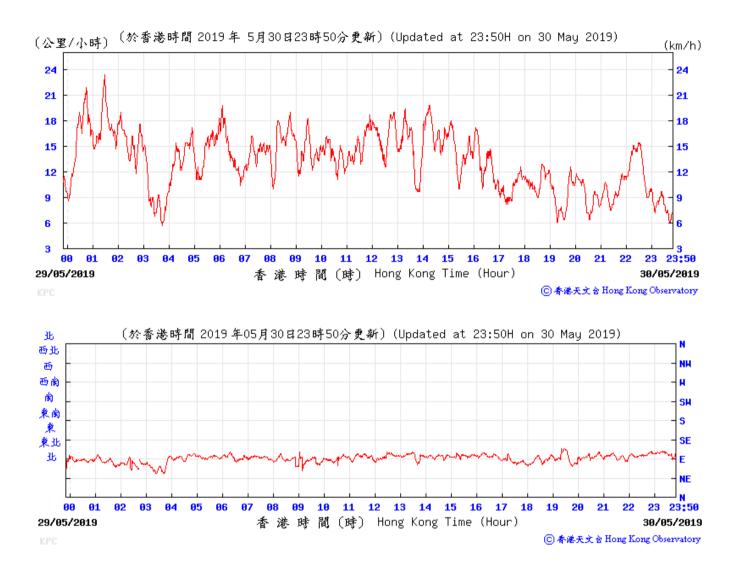












APPENDIX H

Noise Monitoring Results and their Graphical Presentations

Appendix H Regular Construction Noise Monitoring Results

Date	Weather	Nois	e Level fo	r 30-min, d	B(A) ⁺	Baseline Corrected	Baseline Noise	Limit Level,	Exceedance
Duit	Condition	Time	L90	L10	Leq	Level, dB(A)	Level, dB(A)	dB(A)	(Y/N)
2-May-19	Fine	10:45	68.1	67.8	66.3	<baseline< td=""><td>68.0</td><td>70</td><td>N</td></baseline<>	68.0	70	N
7-May-19	Cloudy	10:00	61.0	65.5	64.4	<baseline< td=""><td>68.0</td><td>70</td><td>N</td></baseline<>	68.0	70	N
14-May-19	Sunny	10:20	63.5	66.9	65.2	<baseline< td=""><td>68.0</td><td>70</td><td>N</td></baseline<>	68.0	70	N
24-May-19	Rainy	10:00	62.8	66.3	65.0	<baseline< td=""><td>68.0</td><td>70</td><td>N</td></baseline<>	68.0	70	N
30-May-19	Rainy	10:15	57.0	62.5	61.7	<baseline< td=""><td>68.0</td><td>70</td><td>N</td></baseline<>	68.0	70	N

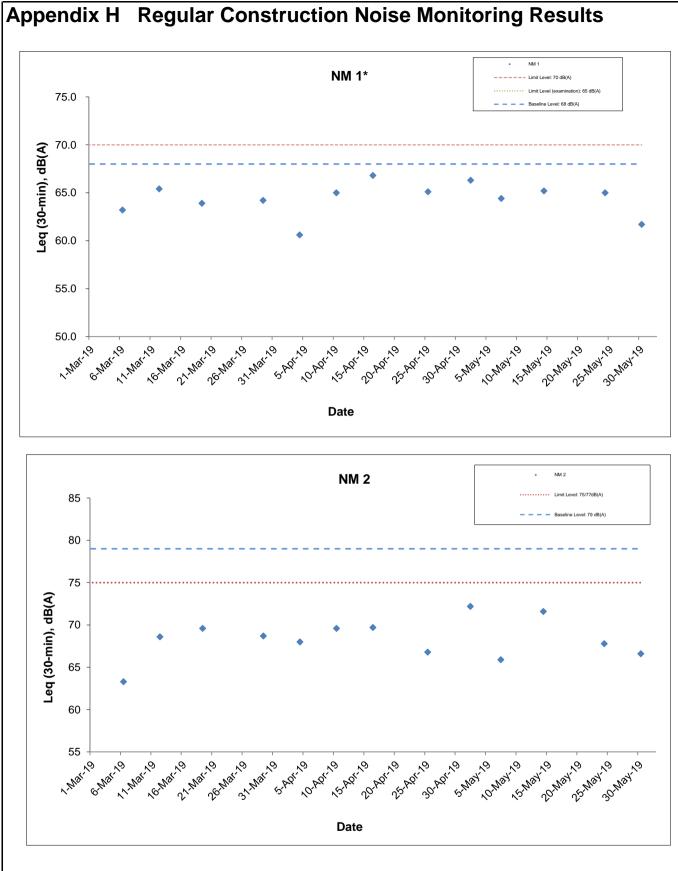
Daytime Noise Monitoring Results at Station NM 1 (Carmel Secondary School (South Block))

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

	Weather	Nois	e Level for	30-min, dl	B(A) ⁺⁺	Baseline	Baseline Noise	Limit Level,	Exceedance
Date	Condition	Time	L90	L10	Leq	Corrected Level, dB(A)	Level, dB(A)	dB(A)	(Y/N)
2-May-19	Fine	11:30	68.3	74.0	72.2	<baseline< td=""><td>79.0</td><td>75</td><td>N</td></baseline<>	79.0	75	N
7-May-19	Cloudy	10:50	63.0	67.0	65.9	<baseline< td=""><td>79.0</td><td>75</td><td>N</td></baseline<>	79.0	75	N
14-May-19	Sunny	11:15	69.3	73.2	71.6	<baseline< td=""><td>79.0</td><td>75</td><td>N</td></baseline<>	79.0	75	N
24-May-19	Rainy	10:45	65.3	69.2	67.8	<baseline< td=""><td>79.0</td><td>75</td><td>N</td></baseline<>	79.0	75	N
30-May-19	Rainy	9:30	61.5	67.5	66.6	<baseline< td=""><td>79.0</td><td>75</td><td>N</td></baseline<>	79.0	75	N

⁺ - Façade measurement

⁺⁺ - Free field measurement



* - 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 CHECK	N.T.S. TYUT	DATE DRAWN	Jun-1 OYLV	-
	Graphical Presentations of Noise Monitoring Results	JOB NO.	60284101	APPENDI>	́ Н	Rev -

APPENDIX I

Event Action Plan

Appendix I – Event and Action Plan

Event / Action Plan for Construction Dust

EVENT		ACT	TION	
EVENI	ET	IEC	ER	Contractor
ACTION LEVEL				
1. Exceedance	1. Inform the Contractor, IEC and	1. Check monitoring data	1. Confirm receipt of notification of	1. Identify source(s), investigate
for one	ER;	submitted by the ET;	exceedance in writing.	the causes of exceedance and
sample	2. Discuss with the Contractor and	2. Check Contractor's working		propose remedial measures;
	IEC on the remedial measures	method;		2. Implement remedial measures;
	required;	3. Review and advise the ET and		3. Amend working methods agreed
	3. Repeat measurement to confirm	ER on the effectiveness of the		with the ER as appropriate.
	findings;	proposed remedial measures.		
	4. Increase monitoring frequency			

		ACT	TION	
EVENT	ET	IEC	ER	Contractor
2. Exceedance	1. Inform the Contractor, IEC and	1. Check monitoring data	1. Confirm receipt of notification of	1. Identify source and investigate
for two or	ER;	submitted by the ET;	exceedance in writing;	the causes of exceedance;
more	2. Discuss with the ER, IEC and	2. Check Contractor's working	2. Review and agree on the	2. Submit proposals for remedial
consecutive	Contractor on the remedial	method;	remedial measures proposed by	measures to the ER with a copy
samples	measures required;	3. Review and advise the ET and	the Contractor;	to ET and IEC within three
	3. Repeat measurements to	ER on the effectiveness of the	3. Supervise Implementation of	working days of notification;
	confirm findings;	proposed remedial measures.	remedial measures.	3. Implement the agreed
	4. Increase monitoring frequency			proposals;
	to daily;			4. Amend proposal as appropriate.
	5. If exceedance continues,			
	arrange meeting with the IEC,			
	ER and Contractor;			
	6. If exceedance stops, cease			
	additional monitoring.			

EVENT		ACT	ΓΙΟΝ	
LVENT	ET	IEC	ER	Contractor
LIMIT LEVEL	•			
1. Exceedance	1. Inform the Contractor, IEC, EPD	1. Check monitoring data	1. Confirm receipt of notification of	1. Identify source(s) and investigate
for one	and ER;	submitted by the ET;	exceedance in writing;	the causes of exceedance;
sample	2. Repeat measurement to confirm	2. Check the Contractor's working	2. Review and agree on the	2. Take immediate action to avoid
	findings;	method;	remedial measures proposed by	further exceedance;
	3. Increase monitoring frequency	3. Discuss with the ET, ER and	the Contractor;	3. Submit proposals for remedial
	to daily;	Contractor on possible remedial	3. Supervise implementation of	measures to ER with a copy to
	4. Discuss with the ER, IEC and	measures;	remedial measures.	ET and IEC within three working
	contractor on the remedial	4. Review and advise the ER and		days of notification;
	measures and assess the	ET on the effectiveness of		4. Implement the agreed proposals;
	effectiveness.	Contractor's remedial measures.		5. Amend proposal if appropriate.

		AC	ΓΙΟΝ	1		
EVENT	ET	IEC		ER		Contractor
2. Exceedance	1. Notify Contractor, IEC, EPD and	1. Check monitoring data	1.	Confirm receipt of notification of	1.	Identify source(s) and
for two or more	ER ;	submitted by the ET;		exceedance in writing;		investigate the causes of
consecutive	2. Repeat measurement to confirm	2. Check the Contractor's working	2.	In consultation with the ET and		exceedance;
samples	findings;	method;		IEC, agree with the Contractor	2.	Take immediate action to avoid
	3. Increase monitoring frequency to	3. Discuss with ET, ER, and		on the remedial measures to be		further exceedance;
	daily;	Contractor on the potential		implemented;	3.	Submit proposals for remedial
	4. Carry out analysis of the	remedial measures;	3.	Supervise the implementation of		measures to the ER with a copy
	Contractor's working procedures	4. Review and advise the ER and		remedial measures;		to the IEC and ET within three
	with the ER to determine possible	ET on the effectiveness of	4.	If exceedance continues,		working days of notification;
	mitigation to be implemented;	Contractor's remedial measures.		consider what portion of the	4.	Implement the agreed
	5. Arrange meeting with the IEC and			work is responsible and instruct		proposals;
	ER to discuss the remedial			the Contractor to stop that	5.	Revise and resubmit proposals if
	measures to be taken;			portion of work until the		problem still not under control;
	6. Review the effectiveness of the			exceedance is abated.	6.	Stop the relevant portion of
	Contractor's remedial measures					works as determined by the ER
	and keep IEC, EPD and ER					until the exceedance is abated.
	informed of the results;					
	7. If exceedance stops, cease					
	additional monitoring.					

Event / Action Plan for Regular Construction Noise

EVENT	ACTION											
	ET	IEC	Contractor									
Exceedance of Action Level	 Notify the Contractor, IEC and ER; Discuss with the ER, IEC and Contractor on the remedial measures required; and Increase monitoring frequency to check mitigation effectiveness. 	 Review the investigation results submitted by the contractor; and Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	 Confirm receipt of notification of complaint in writing; Review and agree on the remedial measures proposed by the Contractor; and Supervise implementation of remedial measures. 	 Investigate the complaint and propose remedial measures; Report the results of investigation to the IEC, ET and ER; Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and Implement noise mitigation proposals. 								

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

Event / Action Plan for Continuous Construction Noise

		ACTI	ON	
EVENT	ET	IEC	ER	CONTRACTOR
Action/Limit Level	ET 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.	IEC 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.	 ER 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. 	CONTRACTOR1.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; and7.Stop the relevant portion of works as determined by the ER until the

EVENT	ET	IEC	ER	Contractor		
ACTION LEVEL Non-conformity on one occasion	 Inform the Contractor, the IEC and the ER Discuss remedial actions with the IEC, the ER and the Contractor Monitor remedial actions until rectification has been 	 Check inspection report Check the Contractor's working method Discuss with the ET, ER and the Contractor on possible remedial measures Advise the ER on 	 Confirm receipt of notification of non-conformity in writing Review and agree on the remedial measures proposed by the Contractor Supervise implementation of remedial measures 	measures 3.Amend working methods agreed with the ER as		
Repeated	completed 1. Identify source	 4. Advise the ER on effectiveness of proposed remedial measures. 1. Check inspection report 	1. Notify the Contractor	 appropriate 4. Rectify damage and undertake any necessary replacement 1. Identify Source and 		
Non-conformity	 Inform the Contractor, the IEC and the ER Increase inspection frequency Discuss remedial actions with the IEC, the ER and the Contractor Monitor remedial actions until 	 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 	 In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented Supervise implementation of remedial measures. 	 investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and 		
	6. If non-conformity stops, cease additional monitoring			undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.		

Event / Action Plan for Landscape and Visual during Construction Stage

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

		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	ł			Disp	osed				Reused				Recycled		Disp	osed	Disp [,]	osed
Month	Fill Material	Artificial Material Total			Disposed as Public Fills at	as Public	Total Quantity	Reused in the	FIUE		Delivered to HH Total Barging Quantity		Metals Paper/ cardboard	Plastics	Chemical	General Refuse	Disposed as MD at HH Barging Point				
	Soil and Rock	Broken Concrete	Asphalt	Building Debris	Generated	TKO137	TM38	Fills at CWPFBP	Disposal	Contract	Tolo	WIL 705	Point (Note 5)	Reused		packaging (Note 3)		Waste	(Note 2)	Type 1	Type 2
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)	('000m ³)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000m ³)	('000m ³)
Jan	0.527	0.000	0.000	0.000	0.527	0.000	0.527	0.000	0.527	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.970	0.000	0.000
Feb	0.030	0.000	0.000	0.000	0.030	0.000	0.030	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.330	0.000	0.000
Mar	0.066	0.000	0.000	0.000	0.066	0.000	0.066	0.000	0.066	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.050	0.000	0.000
Apr	0.099	0.000	0.000	0.000	0.099	0.072	0.026	0.000	0.099	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	33.950	0.000	0.000
May	0.011	0.000	0.000	0.000	0.011	0.011	0.000	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.080	0.000	0.000
Jun																					
SUB-TOTAL	0.733	0.000	0.000	0.000	0.733	0.083	0.650	0.000	0.733	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	108.380	0.000	0.000
Jul																					
Aug																					
Sep																					
Oct																					
Nov																					
Dec																					
2019 TOTAL	0.733	0.000	0.000	0.000	0.733	0.083	0.650	0.000	0.733	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	108.380	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.

 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). 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

76th Monthly 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. 76

[Period from 1 to 31 May 2019]

Works Contract 1103 – Hin Keng to Diamond Hill Tunnels

(June 2019)

Certified by: Jacky Chan

Position: Environmental Team Leader

Date: <u>11 June 2019</u>

MTR Corporation Limited SCL1103 Hin Keng to Diamond Hill Tunnels Construction Stage -Environmental Services

Monthly Environmental Monitoring and Audit Report – May 2019

228105-27

June 2019

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

Job number 228105-27

is undertaken to any third party.

Ove Arup & Partners Hong Kong Ltd Level 5 Festival Walk 80 Tat Chee Avenue Kowloon Tong Kowloon Hong Kong www.arup.com

ARUP

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

Executive Summary

This is the seventy sixth 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 May 2019 (1 to 31 May 2019).

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

- Site Clearance at Fung Tak;
- Civil & Structural (C&S) Works and Site Clearance 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 1 air quality and 1 noise monitoring station 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

Bi-weekly inspection for landscape and visual mitigation measures have been stopped since the completion of landscape works at HIK on 16 Nov 2018. No inspection were conducted during the reporting month.

Waste Disposal

Inert C&D materials with an actual amount of 8 m³ were generated and disposed of at public fill in TKO137FB/TM38FB. In addition, 4 m³ of general refuse was generated and disposed of at NENT/SENT/WENT landfill.

Hazard

No blasting activity was carried out during the reporting month.

Environmental Auditing

A total of 5 environmental site audits were conducted on a weekly basis in the reporting month. The first site inspection was on 2 May 2019 and the final was

undertaken on 30 May 2019. An IEC joint site audit was undertaken on 23 May 2019. No non-conformance to the environmental requirements was identified during the reporting period.

Complaint Log

No complaint was 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

Major works at Ma Chai Hang have been completed by 31 May 2019. The remaining works are reinstatement works and are minor in nature. Therefore, no future key environmental issues are anticipated.

Environmental Status 1

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 C	Construction Activities in the Reporting Month
Locations ^[1]	Major Works Undertaken
Fung Tak	Site Clearance
Ma Chai Hang	C&S Works and Site Clearance
Shiu Chuen O	Storage Area

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Project Organization 1.4

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

Organisation	Name	Telephone
Project Proponent: MTRC		
Engineer's Representative	Sammi Wong	3767 0268
SCL Project-wide Environmental Team Leader	Lisa Poon	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	Jacky Chan	2268 5292
1103	Jacky Chan	2208 5292

Table 1.2 Contacts of Key Environmental Staff

Project Area and Environmental Monitoring 1.5 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.

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	

Table 1 3 Summery of Air Quality and Noise Monitoring Stations

Notes:

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

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

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

Impact Monitoring Schedule 1.6

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.

Types of Permits / Licenses	Reference No.	Site	Valid from	Valid to
Environmental Permit	EP-438/2012/K	All	10 Sep 2014	Throughout the Contract
Discharge License under WPCO	WT00029963-2017	Hin Keng	1 March 2018	31 Dec 2022
	WT00029952-2017	Hin Keng	1 March 2018	31 Dec 2022
	WT00031561-2018	Fung Tak	18 Sep 2018	31 Mar 2023
	WT00031189-2018	Ma Chai Hang	29 Jun 2018	30 Apr 2023
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation	351345	All	22 Oct 2012	NA
Chemical Waste Producer Registration	5213-759-V2179- 01	Hin Keng	13 Dec 2012	Throughout the Contract
	5213-281-V2179- 03	Fung Tak	2 Feb 2015	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	6 Nov 2012	Throughout the Contract

 Table 1.4
 Summary of Environmental Licensing Status

Note:

[1] Surrendered on 4 Apr 2019

[2] Surrendered on 15 May 2019

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 seventy sixth monthly EM&A report summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the air quality, noise, ecology, waste management, landscape and visual monitoring and environmental site audit from 1 to 31 May 2019.

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**.

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (April	14 May 2019
	2019)	

 Table 2.1
 Status of Required Submissions under the EP

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**.

Parameters	Monitoring Frequency
24-hour TSP	Once every 6 days
1-hour TSP	3 times every 6 days (as required in case of complaints)

Table 3.1 Air quality monitoring parameters and frequency

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 (Note 5)	
DMS -2	Price Memorial Catholic Primary School	
DMS-3 ^(Note 2) / DMS-4 ^(Note 3)	(Note 2) / (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.
- Note 5: The cessation of monitoring works at DMS-1 was approved by EPD in Mid-July. The last monitoring date was 16 July 2018.

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 a	and Limit Level for Air Q	Quality Monitoring of 24-	-hour TSP level
Level		Air Monitoring Station	S
	DMS-1	DMS-2	DMS-3 / DMS-4
Action Level, µg/m ³	148.7	167.4	159.1
Limit Level, µg/m ³		260	

Table 3.3Action and Limit Level for Air Qua	ality Monitoring of 24-hour TSP level
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Table 3.4 Action and Limit Level for Air Quality Monitoring of 1-hour TSP level
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Level		Air Monitoring Station	s
	DMS-1	DMS-2	DMS-3 / DMS-4
Action Level, µg/m ³	283.9 276.2 278.4		
Limit Level, µg/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			oring
Equipment	Manufacturer	Measurement	Serial No.
	& Model No	Parameter	
High Volume Sampler	TE-5170		3761
Fibreglass Filter	G810	24-hour TSP	-
HVS Calibration Kit	TE-5025A		2421

Table 2 5 Ain Onalita Manitani

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:

 $0.6 - 1.7 \text{ m}^3/\text{min} (20 - 60 \text{SCFM});$

- 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 $406 \text{ cm}^2 (63 \text{ in}^2)$;
- 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

Under the showery weather and the influence of a fresh to strong easterly airstream, Hong Kong was relatively cool in the beginning of May. Hong Kong was hot with sunny periods in mid-May under the prevalence of the southwesterlies. Under the influence of a trough of low pressure lingering over the south China coast and coastal areas of Guangdong, the weather in Hong Kong remained showery with isolated thunderstorms by the end of May.

3.3.2 Air Quality Monitoring Results

Monitoring of 24-hour TSP was conducted on 6, 11, 17, 23 and 29 May 2019 at DMS-2. 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 station 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 (µg/m ³⁾		Action	Limit
Womtoring Station	Average	Range ^(Note 1)	Level	Level
DMS-2	42.6	16.9 - 70.4	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 clearance at Fung Tak, C&S works and site clearance at 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

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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	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	Leq(30 min)	Once per week

1 5

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
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ID	Premise	
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School (Note 5)	
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.

Note 5: The cessation of monitoring works at NMS-CA-1 was approved by EPD in Mid-July. The last monitoring date was 17 July 2018.

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**.

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. Leq, 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 East for impact Noise Monitoring			
Equipment	Manufacturer &	Serial No.	Precision Grade
	Model No.		
SLM	NA-28	00511639	IEC 61672 Class 1
Sound level calibrator	NC-74	34304660	IEC 60942 Class 1

 Table 4.4
 Noise Equipment List for Impact Noise Monitoring

4.2.2 Maintenance and Calibration

The SLM is in compliance with the standard International Electrotechnical Commission (IEC) 61672 Class 1 which is the most recent SLM standard and the one that modern measurement regulations require, while the Sound Level Calibrator is in compliance with the standard IEC 60942 Class 1. All equipment 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

Under the showery weather and the influence of a fresh to strong easterly airstream, Hong Kong was relatively cool in the beginning of May. Hong Kong was hot with sunny periods in mid-May under the prevalence of the southwesterlies. Under the influence of a trough of low pressure lingering over the south China coast and coastal areas of Guangdong, the weather in Hong Kong remained showery with isolated thunderstorms by the end of May.

4.3.2 Noise Monitoring Results

Impact Monitoring

Monitoring of the construction noise level was conducted on 2, 7, 14, 20 and 31 May 2019 at NMS-CA-2. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix H** and are summarised in **Table 4.5**. The graphical presentations of the monitoring results are provided in **Appendix H**.

Table 4.5 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)
2-May-19	10:00-10:30	62.5		< Baseline Level	
7-May-19	14:30-15:00	62.4		< Baseline Level	
14-May-19	10:30-11:00	62.1	66.0	< Baseline Level	70.0
20-May-19	10:00-10:30	61.1		< Baseline Level	
31-May-19	10:00-10:30	62.2		< Baseline Level	

able 4.5	Summary of Impact Noise Monitoring at Location NMS-CA-2	
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Notes:

Construction Noise Level = Measured Noise Level - Baseline Noise Level. 1.

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

The event and action plan is provided in Appendix I.

General Observations 4.3.4

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 for landscape and visual mitigation measures have been stopped since the completion of landscape works at HIK on 16 Nov 2018. No inspection were conducted during the reporting month.

Waste Disposal 6

The actual amounts of different types of waste generated by the activities of the Project during the reporting month are shown in Table 6.1. The monthly waste summary flow table is provided in Appendix J.

Table 6.1 Amount of Waste Generated				
Waste Type	Amount	Disposal Locations		
Inert C&D Materials	8 m ³	TKO137FB/TM38FB		
Inert C&D Materials	$0 \mathrm{m}^3$	Reused in the Contract		
Chemical Waste	0 kg	Disposed of by a licensed collector		
Paper / cardboard packaging	0 kg			
Plastic	0 kg	-		
Metal	0 kg			
General Refuse	4 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.

Environmental Performance 9

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 23 May 2019 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.

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environment al Outcome	Closed Date / Follow up Status		
Air						
9 May 2019	Ma Chai Hang	The contractor was reminded to cover the stockpile properly.	Agreed with ET's Advice	The contractor rectified the issue and ensured that the stockpile was covered properly. Closed 16 May 2019.		
	Water					
26 April 2019	Ma Chai Hang	The contractor was reminded to maintain the sedimentation tank properly and to avoid discharge of runoff prior to treatment.	Agreed with ET's Advice	The contractor rectified the issue and ensured that the sedimentation tank was properly maintained and discharge of runoff prior to treatment was avoided. Closed 2 May 2019.		

Table 9.1 Kev Findings of Weekly Environmental Site Audit

Summary of Environmental Complaint 9.2

No 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 9.1 Summary of Complaints							
Reporting Period	Complaint Statistics						
	Number	Cumulative					
01/05/19 - 31/05/19	0	26					

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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

Major works at Ma Chai Hang have been completed by 31 May 2019. The remaining works are reinstatement works and are minor in nature. Therefore, no future key environmental issues are anticipated.

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. Five environmental site audits were conducted in the reporting month.

No exceedence of the 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 complaint was 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.

Major works at Ma Chai Hang have been completed by 31 May 2019. The remaining works are reinstatement works and are minor in nature. Therefore, no future key environmental issues are anticipated.

11.2 Recommendations

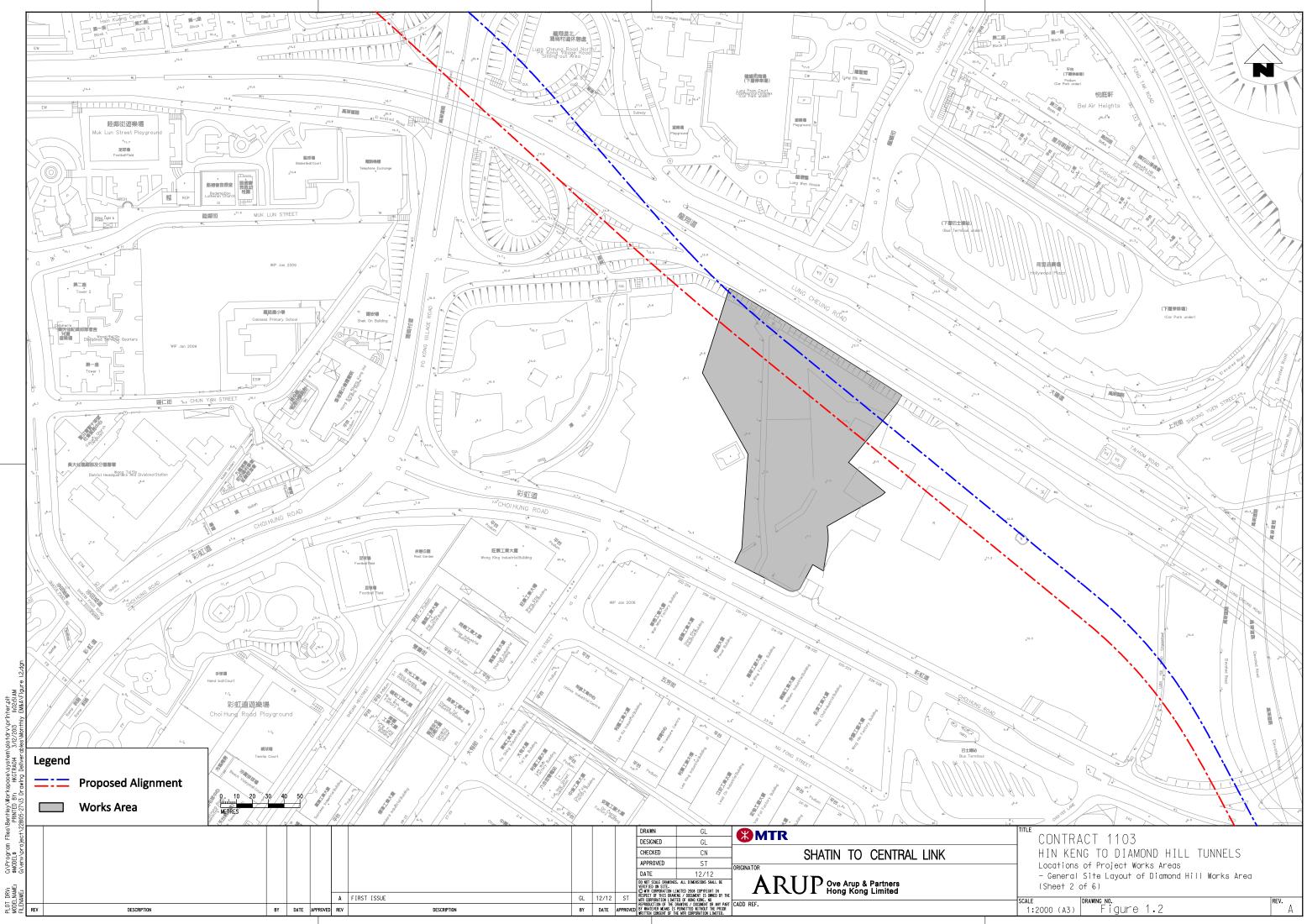
Impact monitoring will continue to be carried out in the following month and will follow the requirements stipulated in the EM&A manual. Attention will be paid to the environmental issues identified in the EIA report and weekly site audit. Mitigation measures recommended in EIA report and Implementation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

12 **Reference**

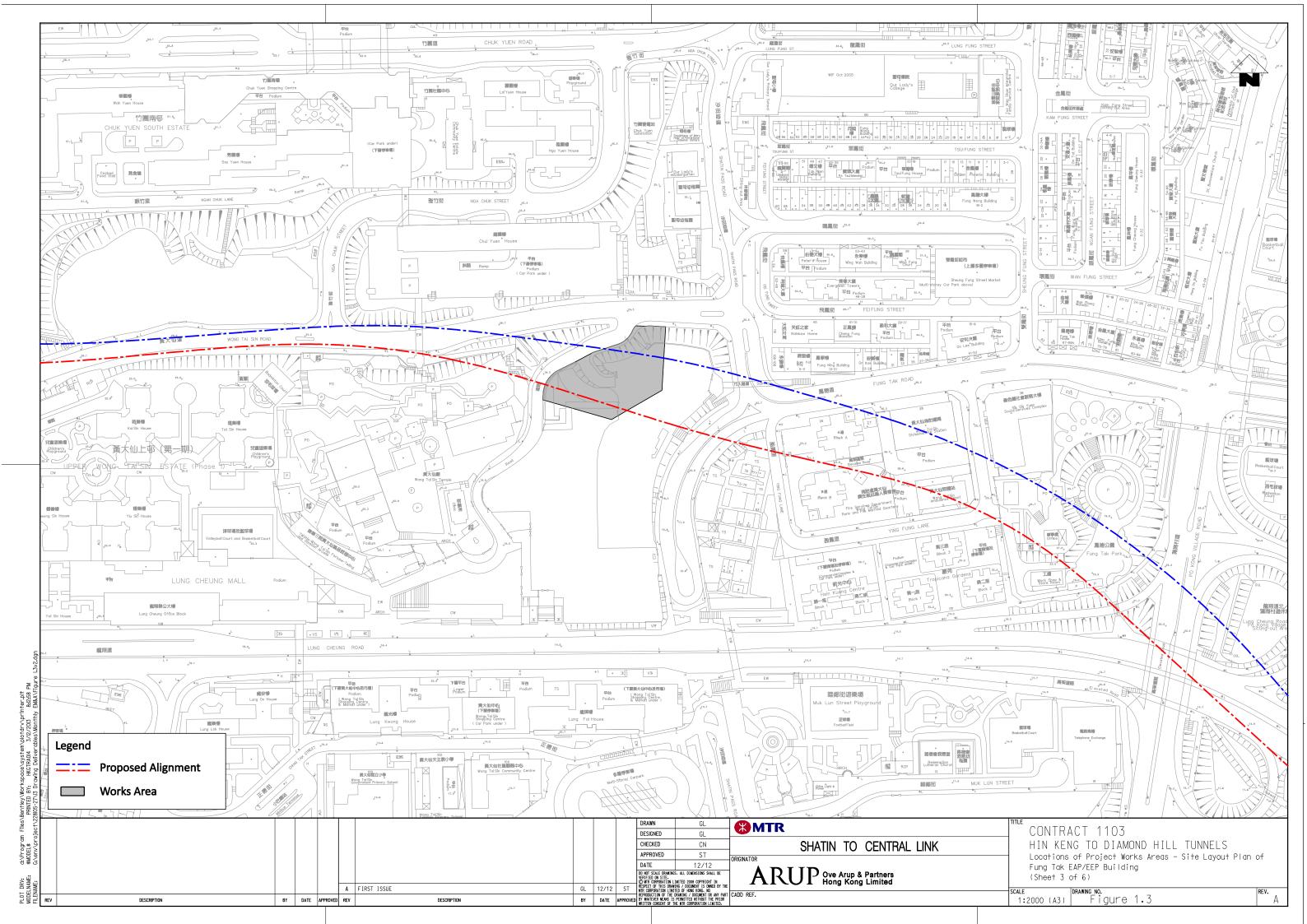
- MTR Corporation Limited. SCL NEX/2206 EIA Study for Tai Wai to Hung Hom Section. Final Environmental Impact Assessment Report. October 2011.
- (2) MTR Corporation Limited. SCL NEX/2206 EIA Study for Tai Wai to Hung Hom Section. Environmental Monitoring and Audit Manual. October 2011.
- (3) MTR Corporation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

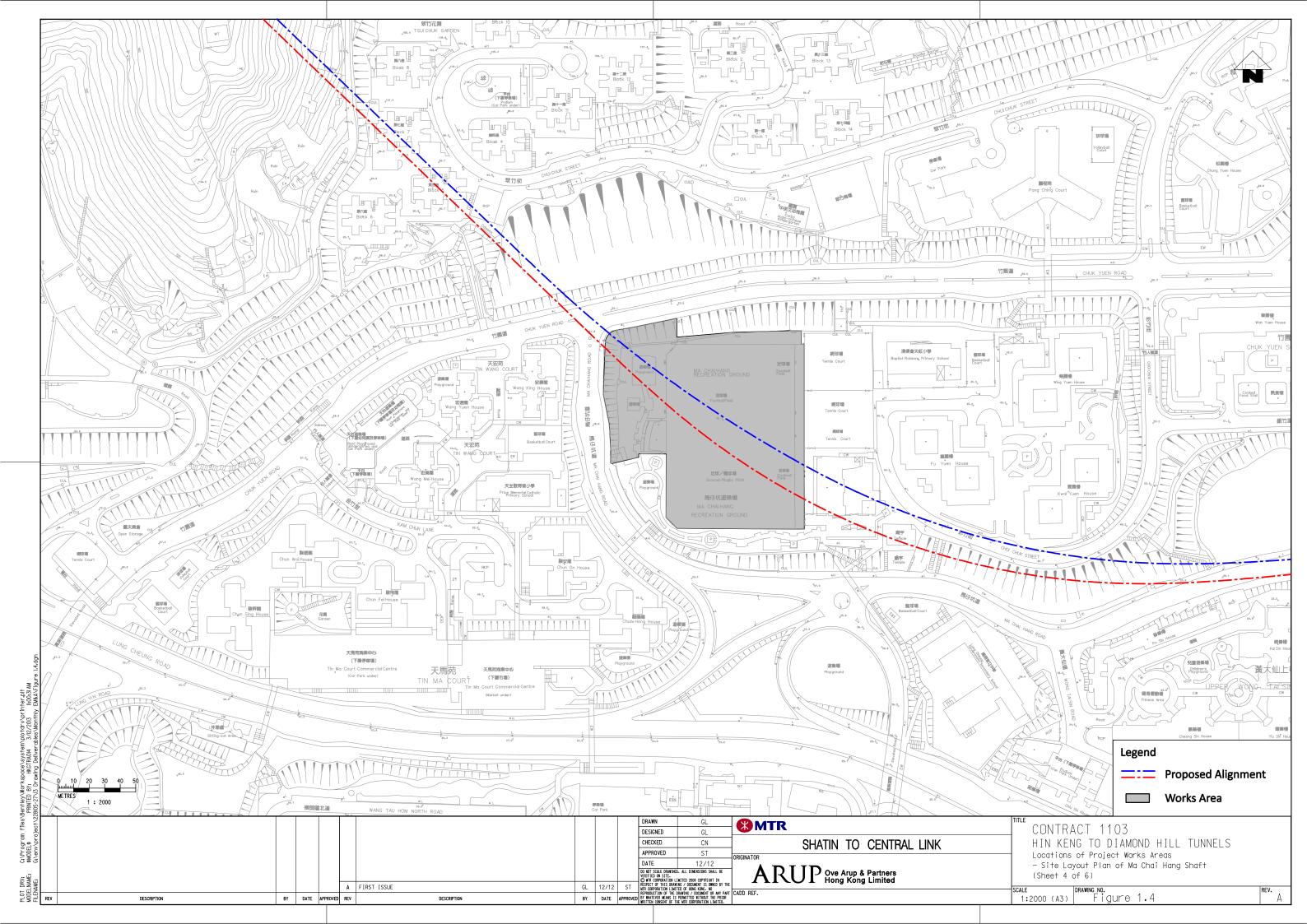
Figures

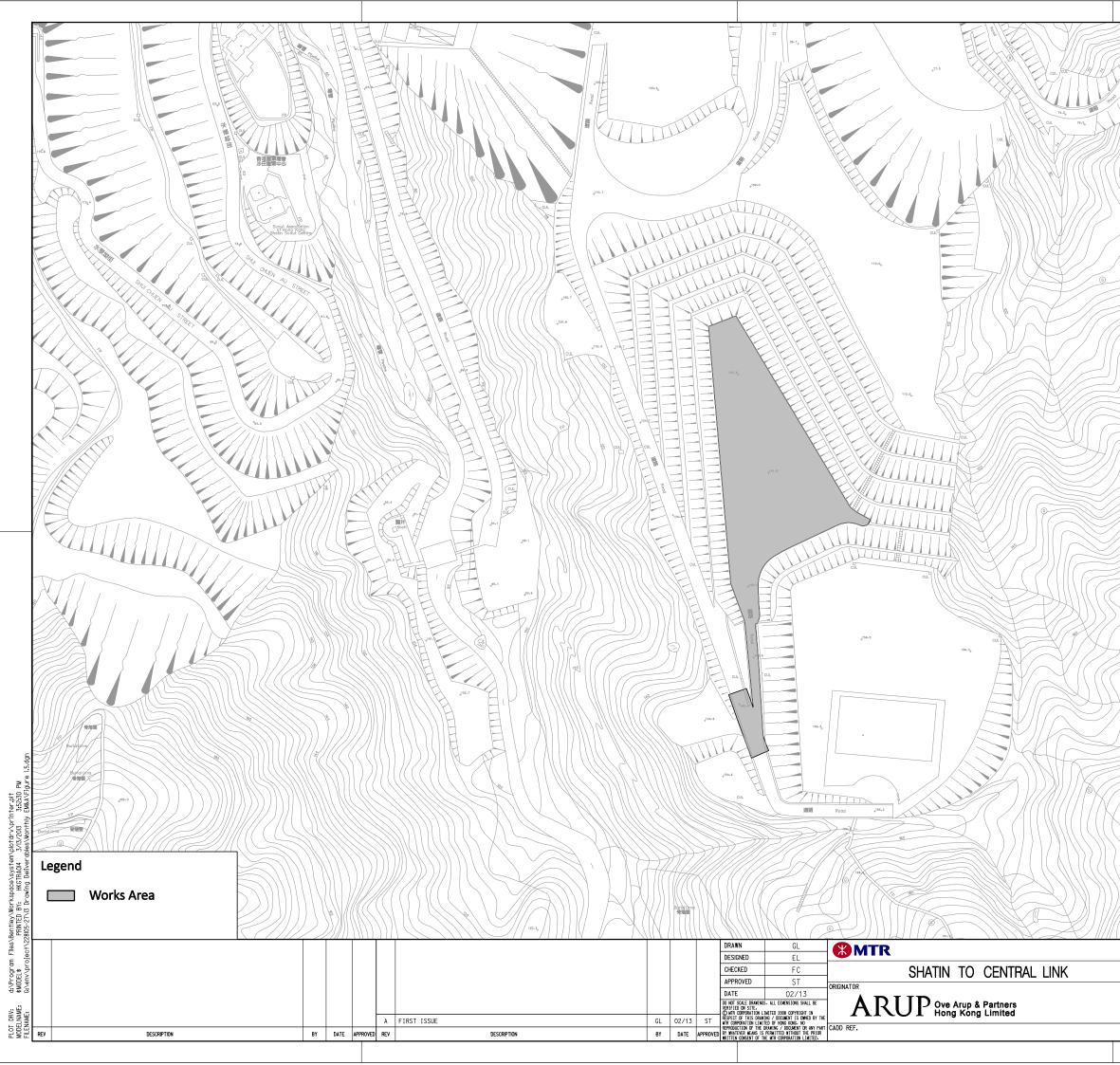




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TITLE	
CONTRACT 1103 HIK KENG TO DIAMOND HILL TUNNELS Locations of Project Works Area	
General Site Layout of Shui Chuen O Works Area (Sheet 5 of 6)	REV.
scale drawing no. 1 : 2000 (A3) Figure 1.5	А

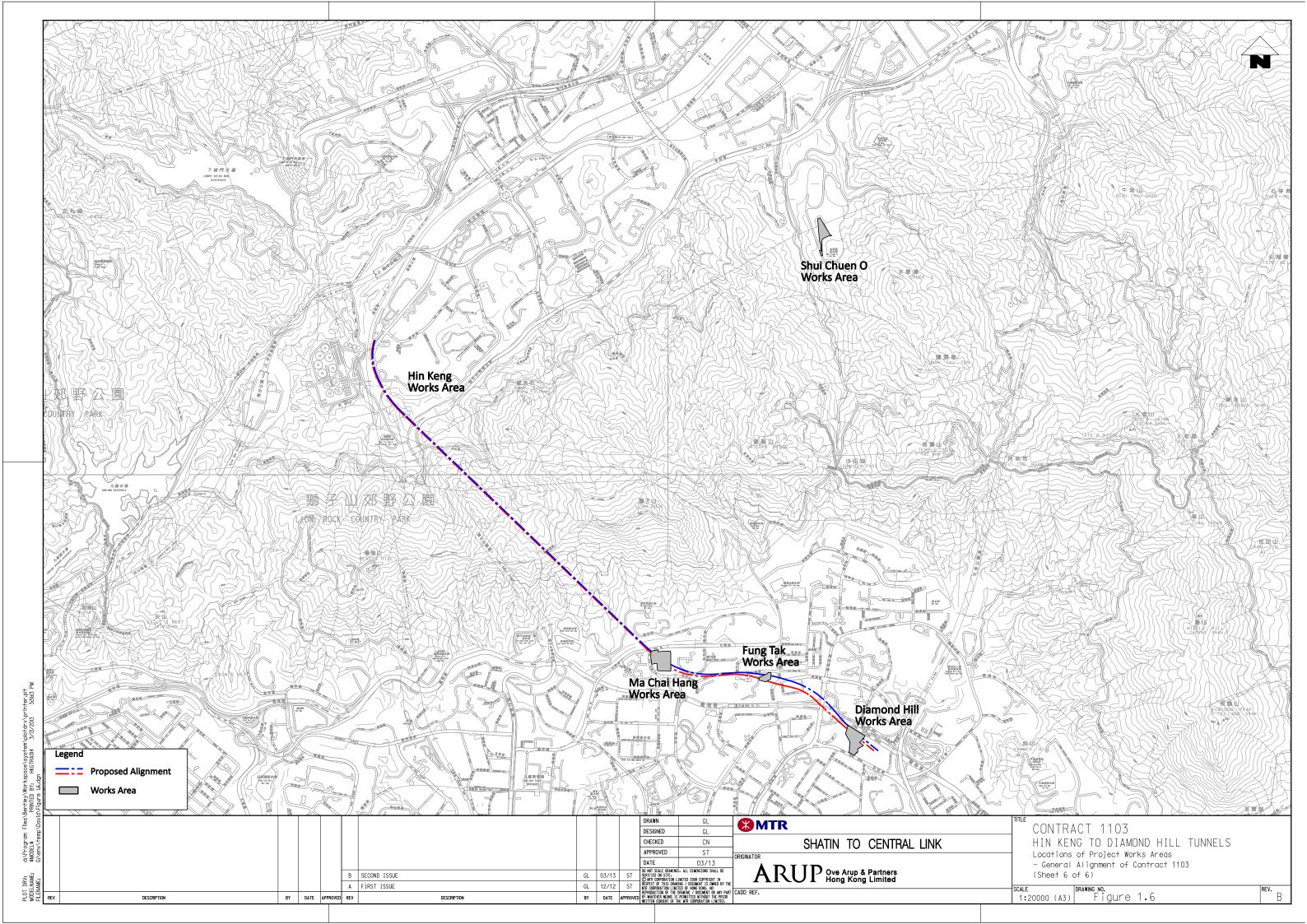
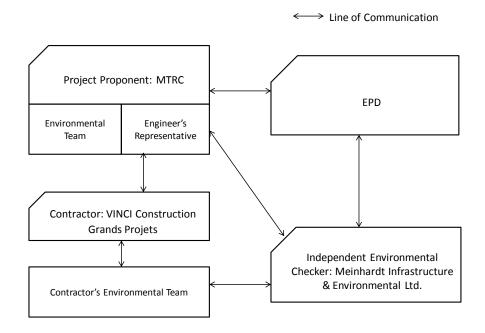
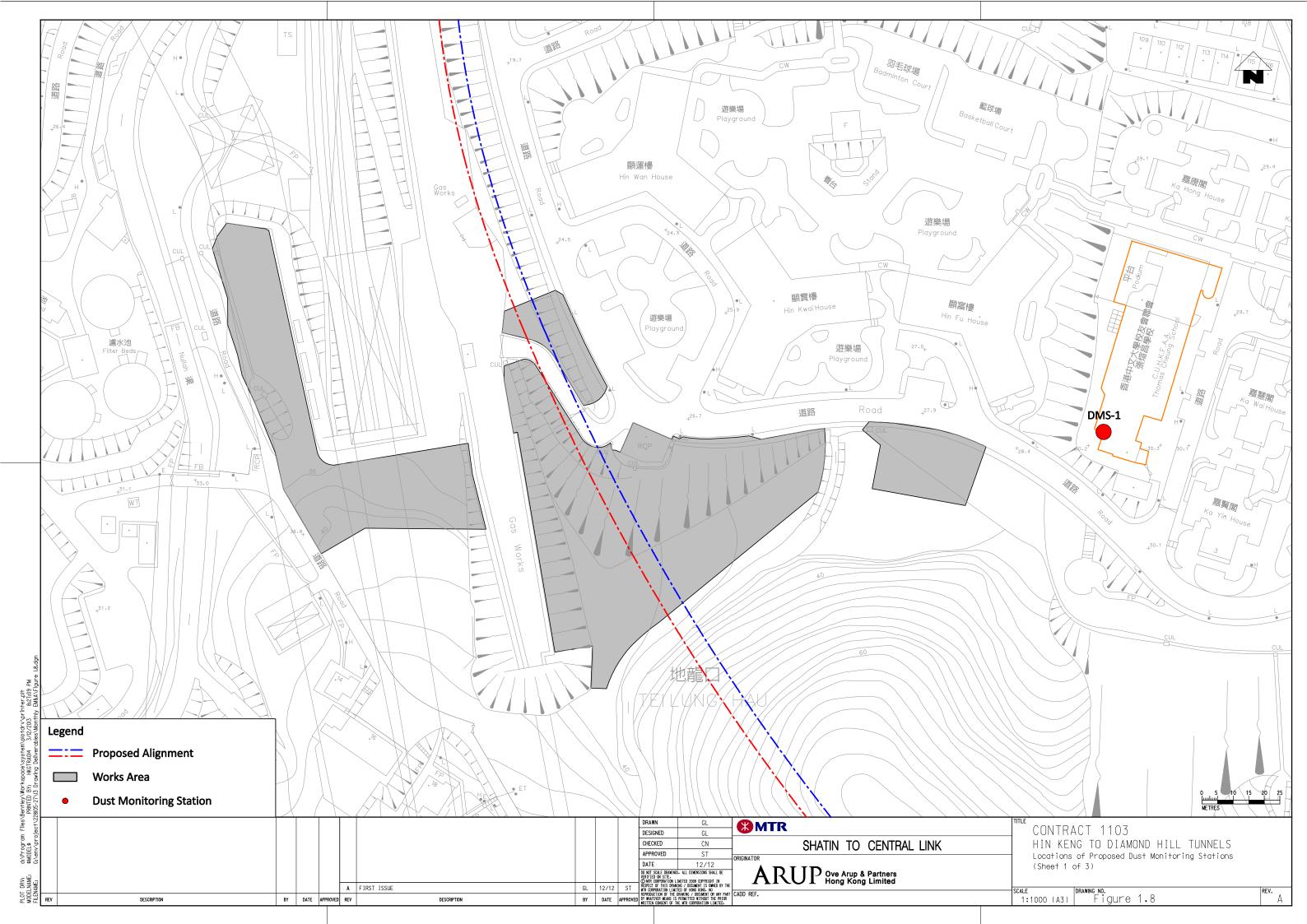
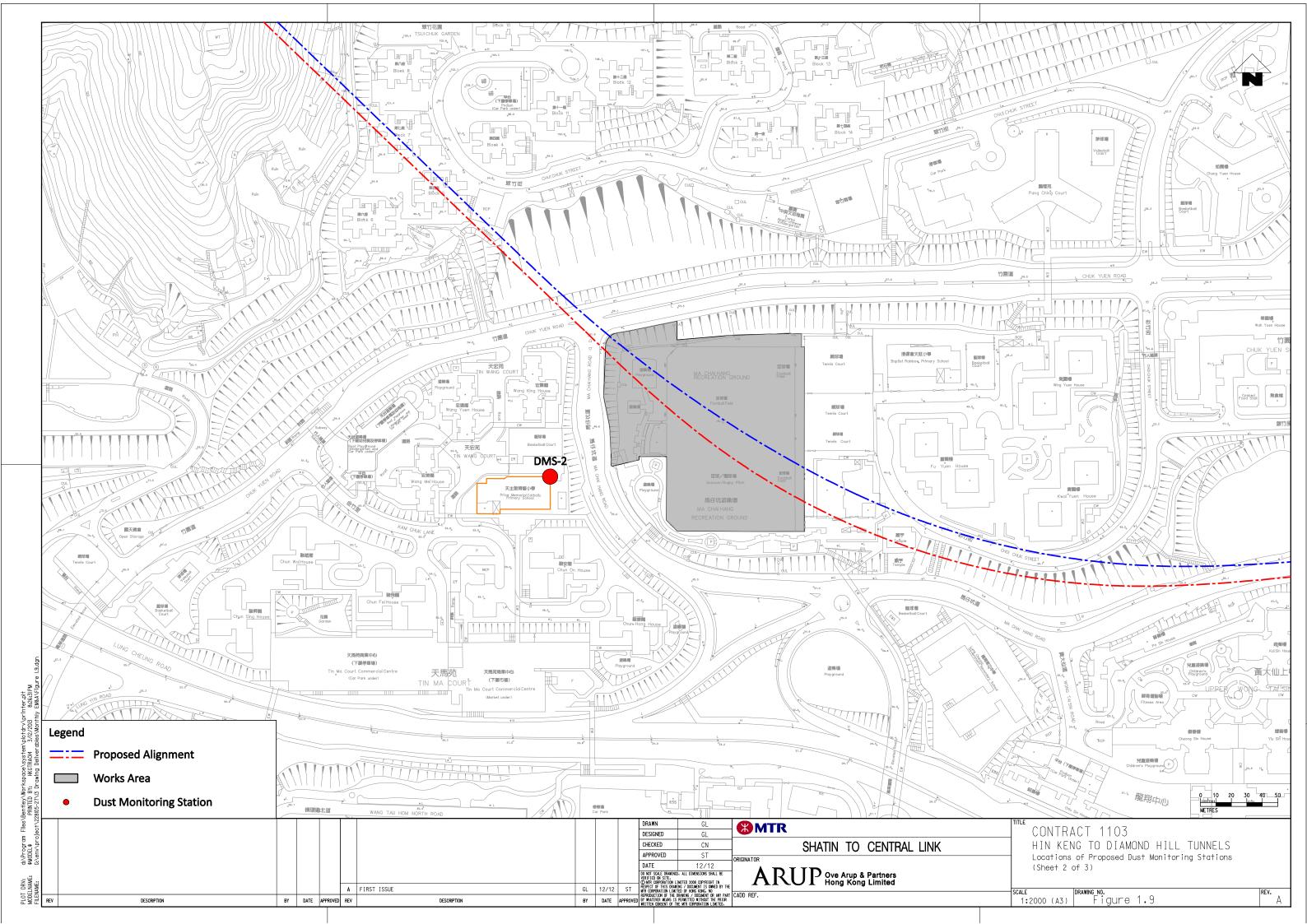
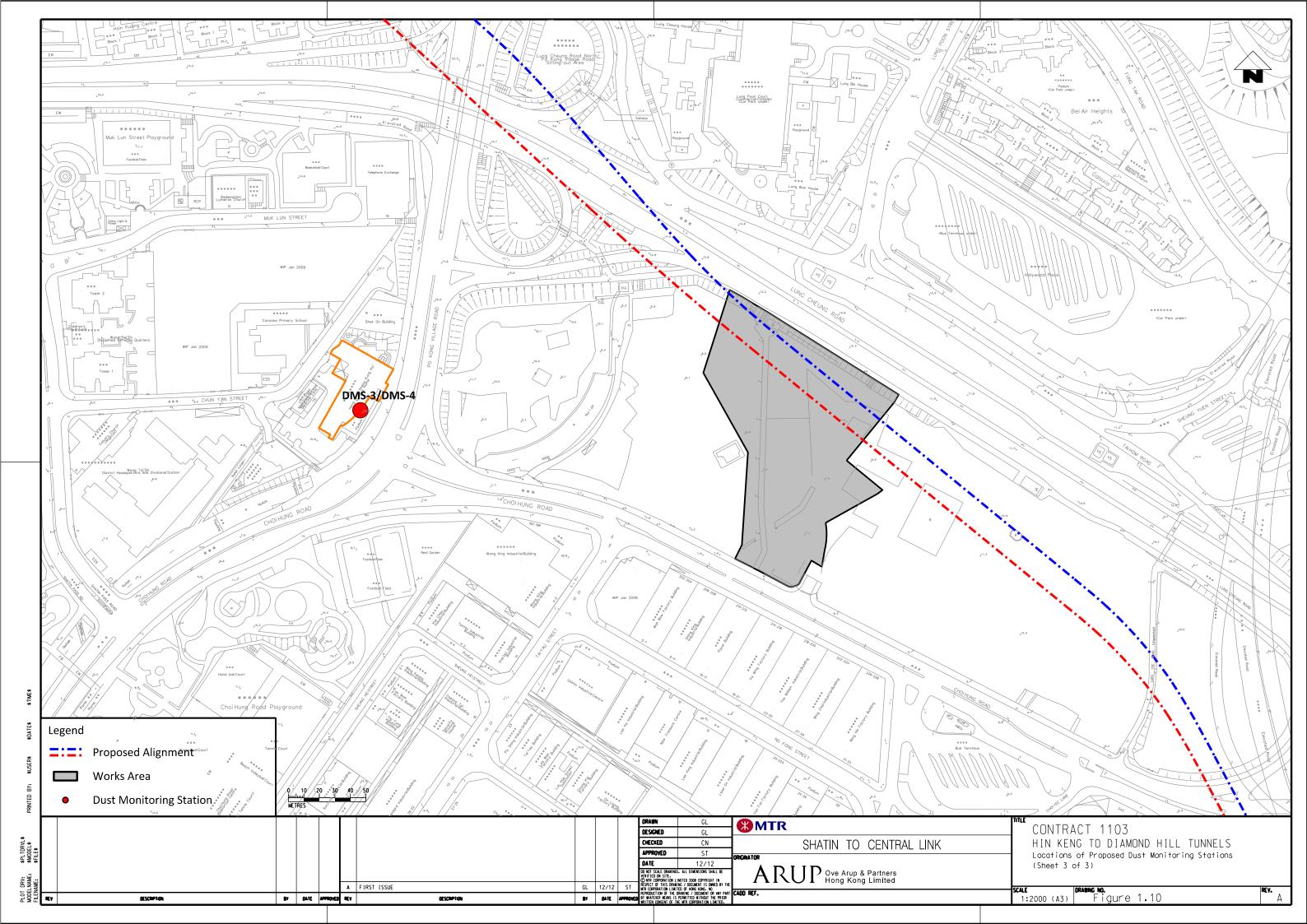


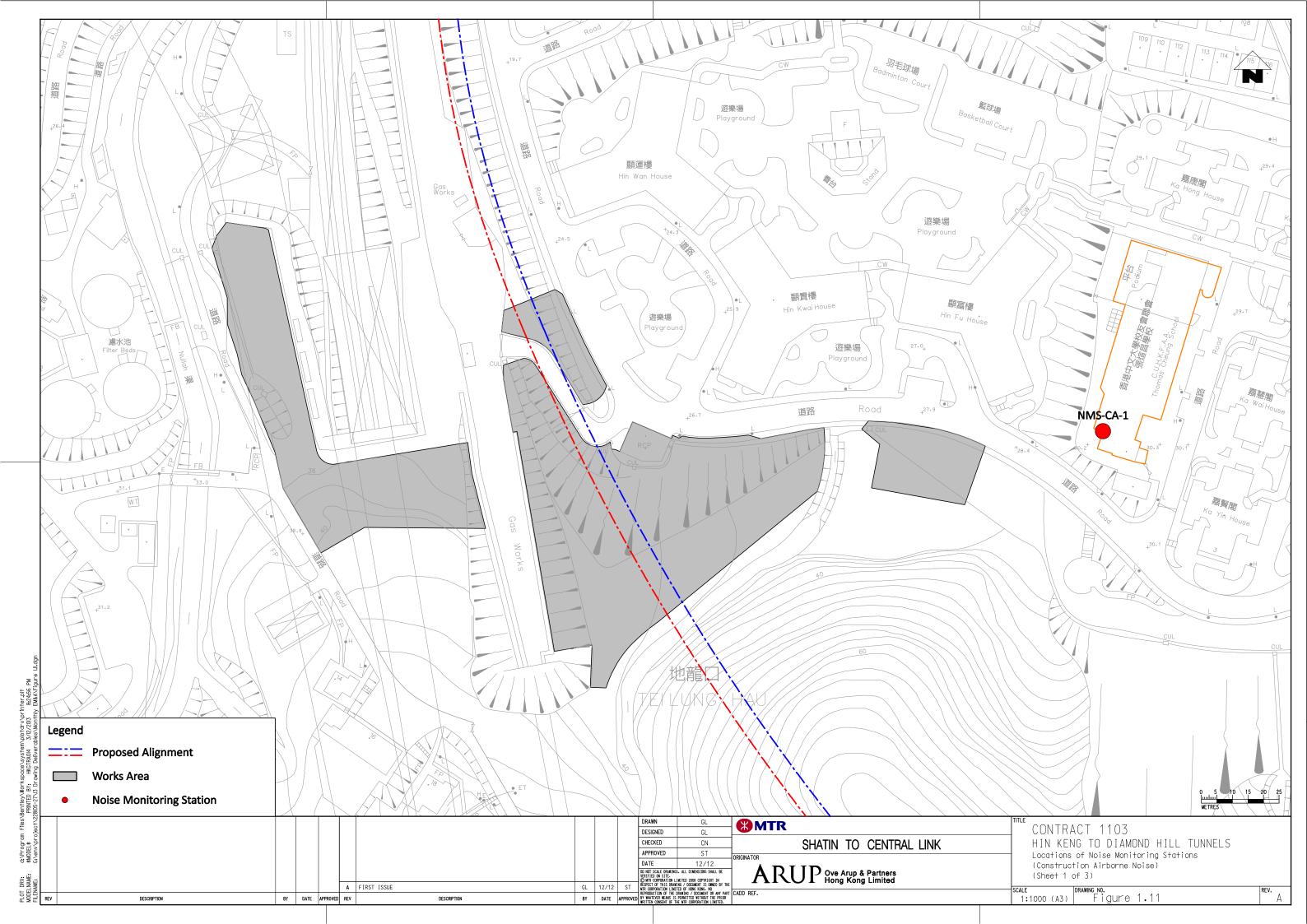
Figure 1.7 - Project Organisation for Environmental Works

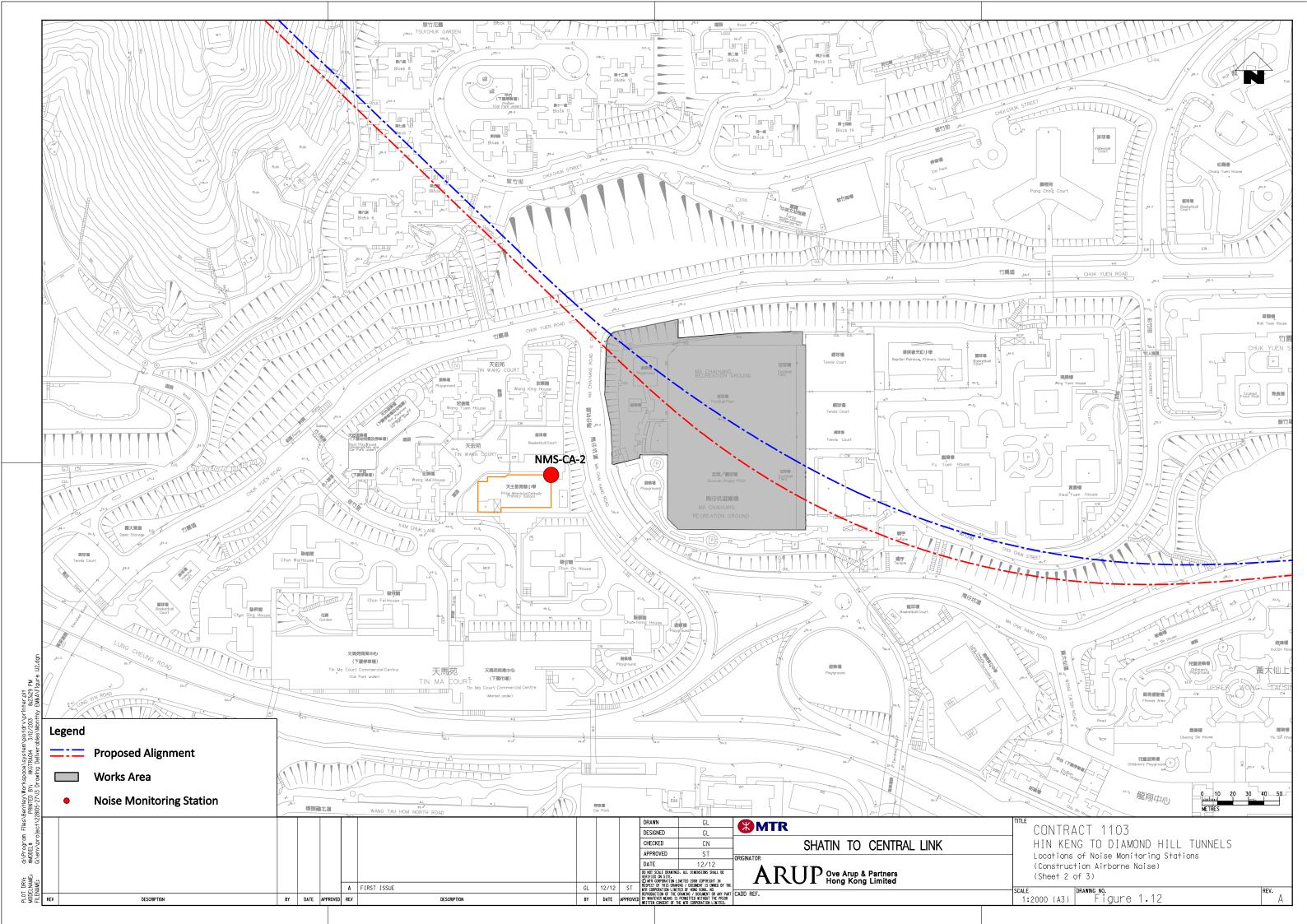


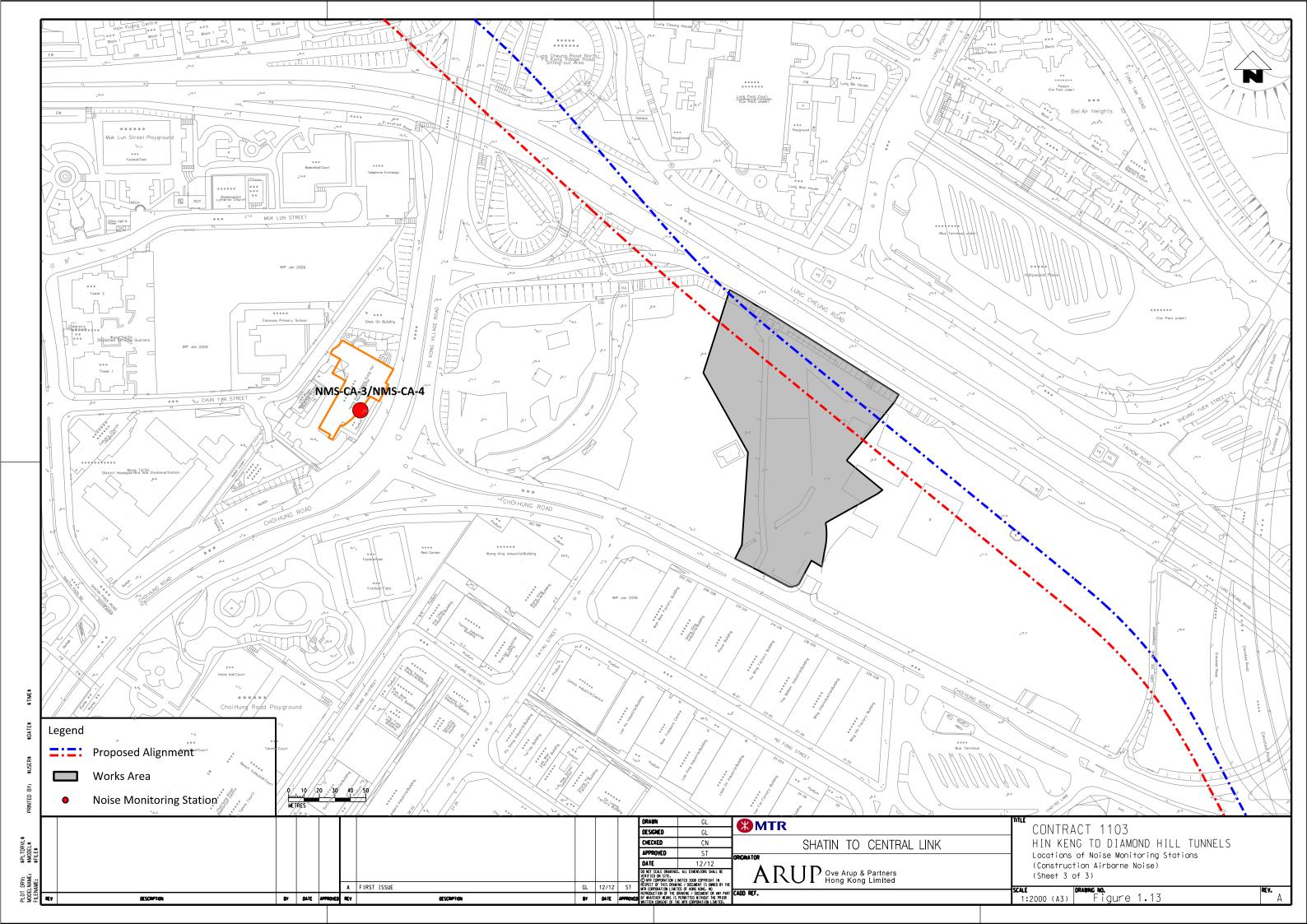












Appendix A

Construction Programme

	Page 1	of 1											
Activity ID Activity Name	Original Duration	Start	Finish	Physical % Complete	Total Float		May		June 16 23	30 7	Jul 14 21		Aug 11 18 25
CONTRACT 1103:- HIN KENG TO DIAMOND HILL TUNNELS													
PROJECT DATES													
Specific Limits (FOT A2)													
Schedule of Critical Dates (FOT A3)													
Schedule of Access Dates for Works Areas (PS A F3)													
COST CENTER F - MA CHAI HANG VENTILATION BUILDING (MCV)													
MCV - C&S Works													
MCV - Site clearance													
COST CENTER G - FUNG TAK EAP/EEP BUILDING (FTA)													
FTA - Site clearance							İİ		\square				
Actual MS Baseline (Last Month)				Dat		Revision		Check			Appr		
Critical Westone Remaining Level of Effort Actual Work Critical Bymaining Work Baseline Milestone	Three Month Rolling Pro	ogramme	As of 31	-May-	2019	NA		CMA	4		N	A	
Baseline (RMP) Baseline Milestone	20	-		-									
							 		+				

Appendix B

Environmental Monitoring Programme in Reporting Month

		t 1103 - Hin Keng to Schedule - May 2019	o Diamond Hill Tunnels 9	
•			-	
Date	9	Air Quality	Noise	Site Inspection
4.14		24-hours TSP	L _{Aeq} , 30 min	-
1-May-19	Wed			
2-May-19 3-May-19	Thu Fri			
4-May-19	Sat			
5-May-19	Sat			
6-May-19	Mon			
7-May-19	Tue			
8-May-19	Wed			
9-May-19	Thu			
10-May-19	Fri			
11-May-19	Sat			
12-May-19	Sun			
13-May-19	Mon			
14-May-19	Tue			
15-May-19	Wed			
16-May-19	Thu			
17-May-19	Fri			
18-May-19	Sat			
19-May-19	Sun			
20-May-19	Mon			
21-May-19	Tue			
22-May-19	Wed			
23-May-19	Thu			
24-May-19	Fri			
25-May-19	Sat			
26-May-19	Sun			
27-May-19	Mon			
28-May-19	Tue			
29-May-19	Wed			
30-May-19	Thu			
31-May-19	Fri			

Public Holiday Monitoring Day

Monitoring Details

Monitoring	Locations	Parameters
	DMS-2 - Price	
Air Quality	Memorial Catholic	24-hour TSP
	Primary School	
	NMS-CA-2 - Price	
Noise	Memorial Catholic	L _{Aeg(30 min)} , L ₁₀ , L ₉₀
	Primary School	

Note:

No bi-weekly site inspection for Landscape & Visual Impact will be conducted at HIK following the cessation of EM&A programme in the respective area.

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 (F	Pre-Cons	truction 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	 AFCD's requirements EIAO Country Parks Ordinance 	~
	E2	<u>Habitat Loss</u> 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. 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.	Minimize ecological impacts on important species	Hin Keng Portal areas	Prior to site clearance	•AFCD's requirements	~
S5.7	E3	<u>Tree felling and vegetation removal</u> 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.	Minimize ecological impacts to breeding bird species of conservation interest	Works sites for DIH	Prior to site clearance	•AFCD's requirements	N/A

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 (Ecology (Construction Phase)								
S5.7	E5	Good Site Practices	Minimize ecological impacts		Construction				

S5.7	E5	Good Site Practices	Minimize ecological impacts	All construction sites	Construction		
		Impact to any habitats or local fauna should be avoided by			stage		
		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.					
		The following good site practices should also be implemented:					
		• 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;				\checkmark	
		 Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; 				\checkmark	
		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				v	
		stabilisation works;					
		No on-site burning of waste;				\checkmark	
		Waste and refuse in appropriate receptacles.				\checkmark	

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	 Water Quality and Hydrology 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. 	 Avoid indirect water impact to any wetland habitats or wetland fauna Minimize the drawdown of water table 	Works area in Hin Keng	Construction stage	• TCW No. 5/2005	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Landscape	e and Vis	ual (Construction Phase)					
S6.9.3	LV1	 The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> 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. <u>No-intrusion Zone</u> 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. Protection of Retained Trees All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification, which 	Minimize visual & landscape impact	Within Project Site	Construction stage	TM-EIAO	✓ ✓ ✓
		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					✓

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	 <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	Within Project Site	Detailed design and construction stage	EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006	✓

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	(Constru	uction Phase)					
-	A1	 Emission from Vehicles and Plants All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD) 	Reduce air pollution emission from construction vehicles and plants	All construction sites	Construction stage	• APCO	~
		Open burning shall be prohibited	Reduce air pollution emission from work site	All construction sites	Construction stage	• APCO	\checkmark
Constructi	ion Dust l	Impact					
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	APCO To control the dust impact to meet HKAQO and TM- EIA criteria	✓
S7.6.5	D2	 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	Rdr

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		maintain an equivalent intensity of no less than 1.8 L/m2 to achieve the dust removal efficiency					
S7.6.5	D3	 Proper watering of exposed spoil should be undertaken throughout the construction phase: Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; 	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	APCO To control the dust impact to meet HKAQO and TM- EIA criteria	✓ Rdr
		 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; 					\checkmark
		• 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					~

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
		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;					N/A
		• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, 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; 					\checkmark
		• 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;					✓

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
		• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;					~
		• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and					~
		• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					N/A
S7.6.5	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	~

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		
Constructi	onstruction Noise (Airborne)								
S8.3.6	N1	 Implement the following good site practices: only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; 	Control construction airborne noise	All construction sites	Construction stage	• Annex 5, TM-EIA	✓ ✓ ✓		
		 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.	All construction sites	Construction stage	• Annex 5, TM-EIA	~		
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and	Screen the noisy plant items to be used at all construction sites	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	*		

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		saw.					
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	×
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	~
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Selected representative noise monitoring station	Construction stage	• TM-EIA	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Water Qua	lity (Con	struction Phase)					
S10.7.1	W1	 In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoff and Site Drainage</u> At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and 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 minimize water quality impact from construction site runoff and general construction activities	All construction sites where practicable	Construction stage	Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water	✓
		 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 					√

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
		commencement of construction.					
		 All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. 					✓
		• The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.					✓
		 All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. 					\checkmark
		• 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 50m ³ 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 Compliance: N/A Not Applicable: N/O Not Observed					Page -13

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
		adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.					✓
		• Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.					~
		 All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the 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					\checkmark

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
		and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.					
		• All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.					✓ ✓
		Adopt best management practices					
S10.7.1	W2	 <u>Tunnelling Works</u> 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 	To minimize construction water quality impact from tunneling works	All tunneling portion	Construction stage	Water Pollution Control Ordinance ProPECC PN 1/94 TM-water TM-EIAO	✓
		• 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.					V
		 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	Sewage Effluent	To minimize water quality	All construction sites	Construction	Water Pollution	

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
		• Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	from sewage effluent	where practicable	stage	Control Ordinance • TM-water	~
S10.7.1	W4	 Groundwater from Contaminated Area: 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 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 	To minimize groundwater quality impact from contaminated area	Excavation areas where contamination is found.	Construction stage	Water Pollution Control Ordinance TM-water TM-EIAO	N/A
		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.					N/A
		 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 					N/A

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
		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.					
S10.7.1	W7	 In order to prevent accidental spillage of chemicals, the following is recommended: 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	Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water	✓ ✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Waste Mar S11.4.1.1	WM1	 (Construction Phase) <u>On-site sorting of C&D material</u> 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	• DEVB TC(W) No. 6/2010	~
S11.5.1	WM2	 <u>Construction and Demolition Material</u> 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	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance	✓ ✓

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
		 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 				• ETWB TCW No. 19/2005	✓ ✓
		 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. 					\checkmark
		 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 					\checkmark
S11.5.1	WM3	 <u>C&D Waste</u> 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	All construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No. 19/2005	✓
		 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 					✓ Page -19

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.					
S11.5.1	WM4	 General Refuse 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 	Minimize production of the general refuse and avoid odour, pest and litter impacts	All construction sites	Construction stage	Waste Disposal Ordinance	Rdr ✓ ✓
S11.5.1	WM5	Contractor. <u>Excavated Contaminated Soils</u> Details of the mitigation measures on handling of the contaminated soil shall be referred to Section on Land Contamination below.	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.	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S11.5.1	WM7	 <u>Chemical Waste</u> 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 	Control the chemical waste and ensure proper storage, handling and disposal.	All construction sites	Construction stage	 Waste Disposal (Chemical Waste) General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste 	√ Rdr
		 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. 					~

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	EIAO Guidance Note No.4/2010 TM-EIAO	~
S14.2 – 14.4	EM2	 An Environmental Team needs to be employed as per the EM&A Manual. 	Perform environmental monitoring & auditing	All construction sites	Construction stage	EIAO Guidance Note No.4/2010 TM-EIAO	~
		2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.					~
		3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.					~

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

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.					~
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		\checkmark
Chapter 13.13	A13A.1 0.2.1	The Contractor should as far as practicable use the preferred transport route.	To ensure that the risk from the proposed explosives transport would not be unacceptable	Along explosives transport route.	Construction phase		~
Chapter 13.13	A13A.1 0.2.1	The Contractor should coordinate explosives deliveries with the delivery of chlorine to Shatin Water Treatment Works in order to avoid overlapping.	To ensure that the risk from the proposed explosives transport would not be unacceptable	Along explosives transport route.	Construction phase		✓
Chapter 13.13	A13A.1 0.2.4	Use only experienced driver(s) with good safety record for explosive vehicle(s). Training should be provided to ensure it covers all major safety subjects.	To ensure safe transport of explosives	At suitable location	Construction phase		~
Chapter 13.13	A13A.1 0.2.4	Develop procedure to ensure that parking space on the site is available for the explosive truck. Confirmation of parking space should be communicated to truck drivers before delivery.	To ensure that the risks from the proposed explosives storage and transport would not be unacceptable	Explosive magazine	Construction phase		~
Chapter 13.13	A13A.1 0.2.3	Delivery vehicles shall not be permitted to remain unattended within the magazine site (or appropriately wheel-locked).	To reduce the risk of fire within the magazine	Explosive Magazine	Construction phase		✓

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

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

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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		adjacent contracts.					
Chapter 13.13	A13B.7 .2	Shotfirer to be provided with a lightning detector, and appropriate control measures should be in place.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		\checkmark
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		\checkmark
Chapter 13.13	A13B.7 .2	Hot work should be suspended during passage of the diesel vehicle truck and bulk emulsion truck in the tunnel.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7 .2	For any construction works related to use of explosives near gas facilities and gas pipes, the requirements of the Code of Practice on Avoiding Danger from Gas Pipes must be respected, in particular, to ensure liaison/coordination with HKCG with sufficient notice of planned works and to follow prescribed emergency procedures in case of leaks.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		~
Chapter 13.13	A13B.7 .2	A detailed liaison between the contractor and HKCG should be established. HKCG should be notified about the blasting schedule in written format within a reasonable period of time prior to blasting in order to ensure the gas safety during the construction period. Also, liaison should be made with HKCG to develop an emergency plan.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13C.8	Installation of on-site gas monitors in all relevant SCL construction/operation areas;	To reduce the risks to the SCL staff, construction workers and passengers	-	Construction and operation phases		N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Chapter 13.13	A13C.8	Establishment of emergency response and evacuation plans (co- operation of various parties/departments required. For the operational phase the emergency plan should also include adequate procedures for controlling the tunnel ventilation system and stopping of the SCL train traffic in order to prevent the trains moving into the affected areas.)	To reduce the risks to the SCL staff, construction workers and passengers	-	Construction and operation phases		~
Chapter 13.13	A13C.8	Safety/emergency response/evacuation training and drills for all personnel	To reduce the risks to the SCL staff, construction workers and passengers	-	Construction and operation phases		~

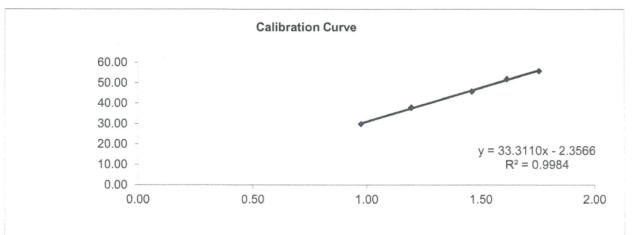
Appendix D

Calibration Certificates for Air Monitoring Equipment

Ove Arup Partners (Hong Kong) Limited <u>High Volume Air Sampler Calibration Worksheet</u>

Calibration date	22-Mar-19	emorial Catholic Primary Schoo	Barometric pressure	759.00 mm Hg
Next Calibration date	21-May-19		Tempature (°C)	25.8 °C
Sampler location	DMS2 - Price Me		Tempature (K)	298.8 K
Sampler model	TE-5170		P _{std}	760 mm Hg
Sampler serial number	3761		T _{std}	298 K
Calibrator model Calibrator serial number Slope of the standard curv Intercept of the standard c	, ,	TE-5025A 2421 2.05931 -0.01645		

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	0.98	29.94
7	6.00	38.00	1.20	37.92
10	9.00	46.00	1.46	45.91
13	11.00	52.00	1.62	51.90
18	13.00	56.00	1.76	55.89



Linear Regression

Sampler slope (m) :	33.3110
Sampler intercept (b) :	-2.3566
Correlation coefficient (R ²) :	0.9984

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

Performed by: taxtin M Checked by:

Date:

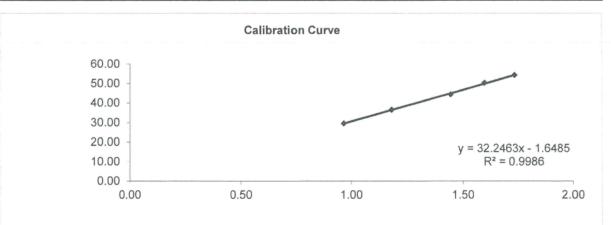
Date:

22/3/19 22 Mar 2019

Ove Arup Partners (Hong Kong) Limited <u>High Volume Air Sampler Calibration Worksheet</u>

Calibration date	20-May-19	emorial Catholic Primary School	Barometric pressure	756.00 mm Hg
Next Calibration date	19-Jul-19		Tempature (°C)	31 °C
Sampler location	DMS2 - Price Me		Tempature (K)	304 K
Sampler model	TE-5170		P _{std}	760 mm Hg
Sampler serial number	3761		T _{std}	298 K
Calibrator model Calibrator serial number Slope of the standard curv Intercept of the standard c	, ,	TE-5025A 2421 2.05931 -0.01645		

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	0.97	29.62
7	6.00	37.00	1.18	36.54
10	9.00	45.00	1.45	44.44
13	11.00	51.00	1.60	50.36
18	13.00	55.00	1.74	54.31



Linear Regression

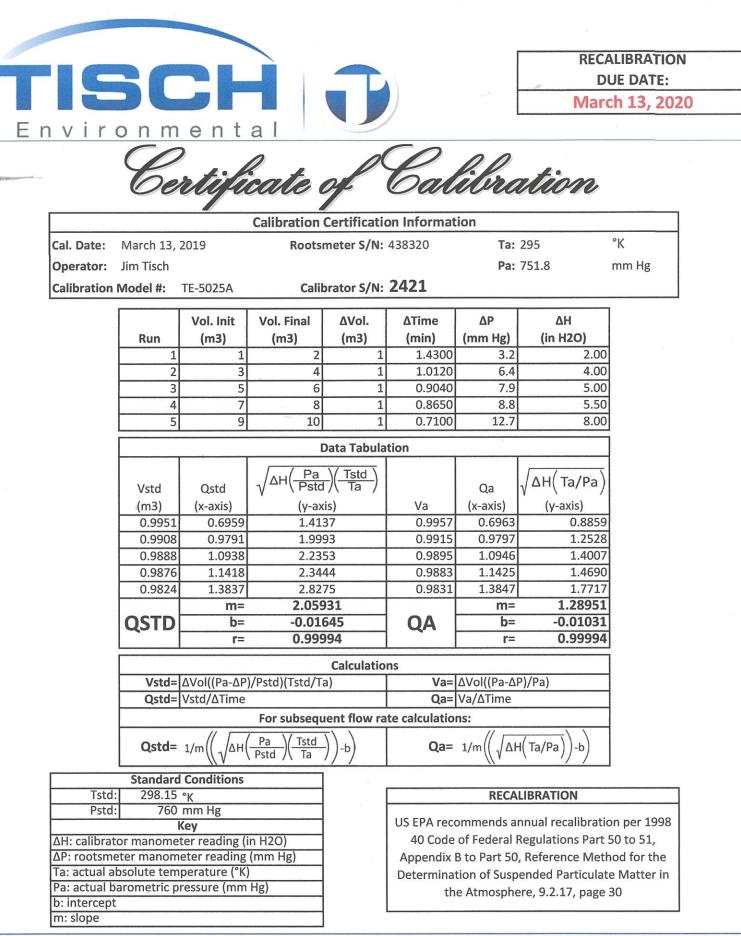
Sampler slope (m) :	32.2463
Sampler intercept (b) :	-1.6485
Correlation coefficient (R ²) :	0.9986

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

Performed by: Checked by:

20 May 2019 20 May 2019 Date: Date:

G:\env\project\23437\env_data\dust\DMS2 - Price Memorial Catholic Primary School_3761.xls\0522-Worksheet



Tisch Environmental, Inc. 145 South Miami Avenue Village of Cleves, OH 45002 <u>www.tisch-env.com</u> TOLL FREE: (877)263-7610 FAX: (513)467-9009

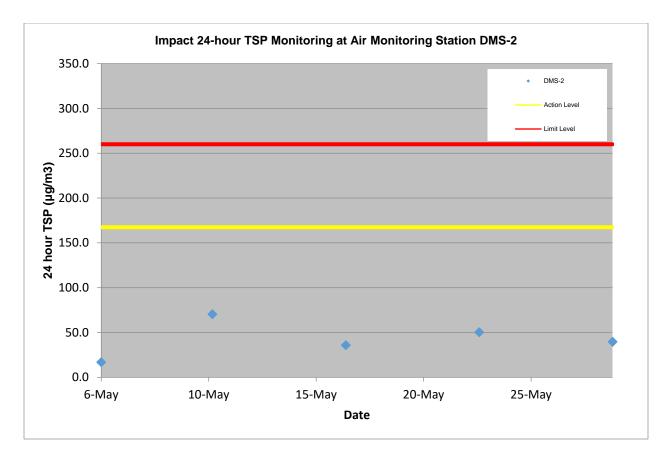
Appendix E

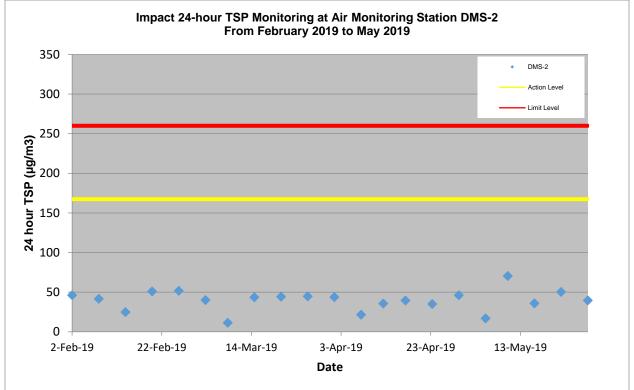
Dust Results

Location: DMS-2 Price Memorial Catholic Primary School

Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Time p	periods	Receptor No.	Weather condition	Site condition	Pressure	(mmHg)	Tempera	ature (°C)	Flow Recor (C	rder Reading FM)	Filter W	eight (g)	TSP weight (g)	Flow Rate	(m³/min)	Average Flow Rate (m ³ /min)	Elapse Time	e Time	Sampling Time (mins.)	Total vol. (m³)	24-hour TSP Level (μg/m³)	Action Level (μg/m ³)	Limit Level (µg/m ³)
			Start	Finish	1			Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish	()				(P9)
207205	May-19	6-May-19	0:00	0:00	DMS2	Rainy	Normal Operation	756.5	757.7	21.8	20.5	40.0	40.0	2.6822	2.7149	0.0327	1.3393	1.3428	1.3411	8738.80	8762.80	1440.00	1931.1	16.9	167.4	260.0
207206	May-19	11-May-19	0:00	0:00	DMS2	Fine	Normal Operation	758.6	758.4	28.9	25.3	42.0	42.0	2.6632	2.8041	0.1409	1.3864	1.3938	1.3901	8762.81	8786.81	1440.00	2001.7	70.4	167.4	260.0
207207	May-19	17-May-19	0:00	0:00	DMS2	Fine	Normal Operation	754.1	753.9	31.6	29.6	44.0	44.0	2.6637	2.7381	0.0744	1.4365	1.4406	1.4386	8786.82	8810.82	1440.00	2071.51	35.9	167.4	260.0
207208	May-19	23-May-19	0:00	0:00	DMS2	Rainy	Normal Operation	757.7	758.3	26.8	25.9	38.0	38.0	2.6560	2.7480	0.0920	1.2701	1.2722	1.2712	8810.83	8834.83	1440.00	1830.46	50.3	167.4	260.0
207209	May-19	29-May-19	0:00	0:00	DMS2	Rainy	Normal Operation	757.4	757.6	24.7	24.4	40.0	40.0	2.6572	2.7333	0.0761	1.3341	1.3348	1.3345	8834.84	8858.84	1440.00	1921.61	39.6	167.4	260.0
																								Average (µg/m3)		42.6
																								Max (µg/m3)		70.4
																								Min (µg/m3)		16.9



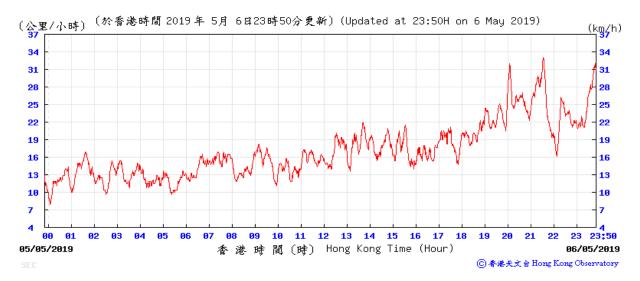


Appendix F

Wind data

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

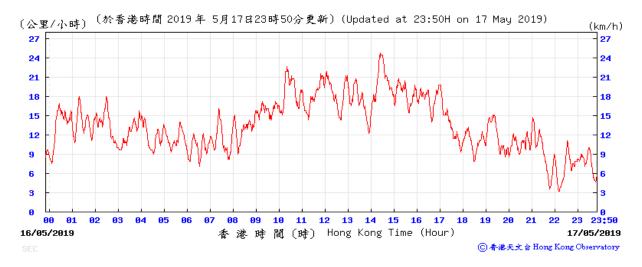
6 May 2019



11 May 2019



17 May 2019



23 May 2019



<u>29 May 2019</u>



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

6 May 2019



<u>11 May 2019</u>





<u>17 May 2019</u>

23 May 2019



29 May 2019



Appendix G

Calibration Certificates of Noise Monitoring Equipment



輝創工程有限公司

Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C191251 證書編號

ITEM TESTED / 従綸:	項目 (Job No. / 序引編號: IC19-0372) Date of Receipt / 收件日期: 26 F	ebruary 20
	· · · · · · · · · · · · · · · · · · ·	
Description / 儀器名稱		
Manufacturer / 製造商	: Rion	
Model No. / 型號	: NA-28	
Serial No. / 編號	: 00511639	
Supplied By / 委託者	: Ove Arup & Partners Hong Kong Co., Ltd.	
	Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong, Kowloon	
	· Vindu D. & Ar Zut	
TEST CONDITIONS /		(50 - 05)
Temperature / 溫度 :	(23 ± 2)°C Relative Humidity / 相對濕度 :	(50 ± 25)
Line Voltage / 電壓 :		
TEST SPECIFICATIO	DNS / 測試規範	
Calibration check		
DATE OF TEST / 測詞	式日期 : 10 March 2019	
TEST RESULTS / 測高 The results apply to the par	式結果 rticular unit-under-test only.	
TEST RESULTS / 測高 The results apply to the par The results do not exceed r	式結果 rticular unit-under-test only. manufacturer's specification.	
TEST RESULTS / 測高 The results apply to the par The results do not exceed r	式結果 rticular unit-under-test only. manufacturer's specification.	
The results do not exceed r The results are detailed in r The test equipment used for	式結果 rticular unit-under-test only. manufacturer's specification. the subsequent page(s). or calibration are traceable to National Standards via :	
TEST RESULTS / 測高 The results apply to the par The results do not exceed r The results are detailed in t The test equipment used fo - The Government of The	式結果 rticular unit-under-test only. manufacturer's specification. the subsequent page(s). or calibration are traceable to National Standards via : Hong Kong Special Administrative Region Standard & Calibration Laboratory	
TEST RESULTS / 測高 The results apply to the par The results do not exceed r The results are detailed in t The test equipment used fo - The Government of The - The Bruel & Kjaer Calib	式結果 rticular unit-under-test only. manufacturer's specification. the subsequent page(s). or calibration are traceable to National Standards via : Hong Kong Special Administrative Region Standard & Calibration Laboratory oration Laboratory, Denmark	
TEST RESULTS / 測高 The results apply to the par The results do not exceed r The results are detailed in t The test equipment used fo - The Government of The - The Bruel & Kjaer Calib - Agilent Technologies / K - Rohde & Schwarz Labor	式結果 rticular unit-under-test only. manufacturer's specification. the subsequent page(s). or calibration are traceable to National Standards via : Hong Kong Special Administrative Region Standard & Calibration Laboratory oration Laboratory, Denmark Keysight Technologies ratory, Germany	
TEST RESULTS / 測高 The results apply to the par The results do not exceed r The results are detailed in t The test equipment used fo - The Government of The - The Bruel & Kjaer Calib - Agilent Technologies / K - Rohde & Schwarz Labor	式結果 rticular unit-under-test only. manufacturer's specification. the subsequent page(s). or calibration are traceable to National Standards via : Hong Kong Special Administrative Region Standard & Calibration Laboratory oration Laboratory, Denmark Keysight Technologies ratory, Germany	
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TEST RESULTS / 測詞 The results apply to the par The results do not exceed r The results are detailed in t The test equipment used fo - The Government of The - The Bruel & Kjaer Calib - Agilent Technologies / K - Rohde & Schwarz Labor - Fluke Everett Service Ce	式結果 rticular unit-under-test only. manufacturer's specification. the subsequent page(s). or calibration are traceable to National Standards via : Hong Kong Special Administrative Region Standard & Calibration Laboratory oration Laboratory, Denmark Keysight Technologies ratory, Germany enter, USA H T Wong	
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TEST RESULTS / 測詞 The results apply to the par The results do not exceed r The results are detailed in r The test equipment used fo - The Government of The - The Bruel & Kjaer Calib - Agilent Technologies / K - Rohde & Schwarz Labor - Fluke Everett Service Ce Tested By	ticular unit-under-test only. manufacturer's specification. the subsequent page(s). or calibration are traceable to National Standards via : Hong Kong Special Administrative Region Standard & Calibration Laboratory oration Laboratory, Denmark Keysight Technologies ratory, Germany enter, USA H T Wong Technical Officer Date of Issue : 11 March	2019
TEST RESULTS / 測詞 The results apply to the par The results do not exceed r The results are detailed in t The test equipment used fo - The Government of The - The Bruel & Kjaer Calib - Agilent Technologies / K - Rohde & Schwarz Labor - Fluke Everett Service Ce Tested By 測試	式結果 rticular unit-under-test only. manufacturer's specification. the subsequent page(s). or calibration are traceable to National Standards via : Hong Kong Special Administrative Region Standard & Calibration Laboratory oration Laboratory, Denmark Keysight Technologies ratory, Germany enter, USA H T Wong Technical Officer Date of Issue : 11 March	2019

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



Certificate of Calibration 校正證書

Certificate No. : C191251 證書編號

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

Equipment ID CL280 CL281 Description 40 MHz Arbitrary Waveform Generator Multifunction Acoustic Calibrator Certificate No. C190176 CDK1806821

- 5. Test procedure : MA101N.
- 6. Results :
- 6.1 Sound Pressure Level
- 6.1.1 Reference Sound Pressure Level

UUT Setting		Applie	d Value	UUT Reading	IEC 61672 Class 1 Spec.	
Range(dB)	Main	Level (dB)	Freq. (kHz)	(dB)	(dB)	
20 - 120	LAF	94.00	1	93.9	± 1.1	

6.1.2 Linearity

UUT Setting		Applie	Applied Value		
Range (dB)	Main	Level (dB)	Freq. (kHz)	(dB)	
20 - 120	LAF	94.00	1	93.9 (Ref.)	
		104.00		103.9	
		114.00		113.9	

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

6.2 Time Weighting

UUT Set	UUT Setting		d Value	UUT Reading	IEC 61672 Class 1 Spec.
Range (dB)	Main	Level (dB)	Freq. (kHz)	(dB)	(dB)
20 - 120	LAF	94.00	1	93.9	Ref.
	LAS			93.9	± 0.3

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

Certificate of Calibration 校正證書

Certificate No. : C191251 證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

••	it worghting					
	UUT Se	etting	Applie	ed Value	UUT Reading	IEC 61672 Class 1 Spec.
	Range (dB)	Main	Level (dB)	Freq.	(dB)	(dB)
	20 - 120	LAF	94.00	63 Hz	67.6	-26.2 ± 1.5
				125 Hz	77.7	-16.1 ± 1.5
				250 Hz	85.2	-8.6 ± 1.4
				500 Hz	90.6	-3.2 ± 1.4
				l kHz	93.9	Ref.
				2 kHz	95.1	$+1.2 \pm 1.6$
				4 kHz	94.9	$+1.0 \pm 1.6$
				8 kHz	92.8	-1.1(+2.1;-3.1)
				12.5 kHz	89.6	-4.3(+3.0;-6.0)

6.3.2 C-Weighting

~	o noighting					
	UUT Se	tting	Applie	d Value	UUT Reading	IEC 61672 Class 1 Spec.
	Range (dB)	Main	Level (dB)	Freq.	(dB)	(dB)
ļ	20 - 120	LCF	94.00	63 Hz	93.1	-0.8 ± 1.5
				125 Hz	93.7	-0.2 ± 1.5
				250 Hz	93.9	0.0 ± 1.4
				500 Hz	93.9	0.0 ± 1.4
			l i	1 kHz	93.9	Ref.
				2 kHz	93.7	-0.2 ± 1.6
				4 kHz	93.1	-0.8 ± 1.6
				8 kHz	90.9	-3.0 (+2.1 ; -3.1)
				12.5 kHz	87.6	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 02917

- Mfr's Spec. : IEC 61672 Class 1

104 dB :	250 Hz - 500 Hz : 1 kHz : 2 kHz - 4 kHz : 8 kHz : 12.5 kHz : 1 kHz :	
----------	---	--

- 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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輝創工程有限公司

Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C191250 證書編號

ITEM TESTED / 送檢項目 Description / 儀器名稱 : Manufacturer / 製造商 : Model No. / 型號 : Serial No. / 編號 : Supplied By / 委託者 :	(Job No. / 序引編號: IC19-0372) Sound Calibrator Rion NC-74 34304660 Ove Arup & Partners Hong Kong Co., Level 5, Festival Walk, 80 Tat Chee A Kowloon	
 TEST CONDITIONS / 測詞	式條件	<u></u>
Temperature / 溫度 : (2: Line Voltage / 電壓 :	3 ± 2)°C	Relative Humidity / 相對濕度 : (50 ± 25)%
TEST SPECIFICATIONS		
DATE OF TEST / 測試日其	月 : 10 March 2019	
TEST RESULTS / 測試結影	艮	
The results apply to the particul The results do not exceed manu The results are detailed in the su	facturer's specification.	
	ght Technologies , Germany	
Tested By : 測試	H T Wong Technical Officer	

Certified By 核證	: KCLee Engineer	Date of Issue : 簽發日期	11 March 2019
--------------------	------------------------	-------------------------	---------------

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

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



Certificate of Calibration 校正證書

Certificate No. : C191250 證書編號

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

Equipment ID CL130 CL281 TST150A Description Universal Counter Multifunction Acoustic Calibrator Measuring Amplifier <u>Certificate No.</u> C183775 CDK1806821 C181288

- 4. Test procedure : MA100N.
- 5. Results :
- 5.1 Sound Level Accuracy

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

5.2 Frequency Accuracy

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

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。

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.

Appendix H

Noise Results

Location: NMS-CA-2 - Price Memorial Catholic Primary School Daytime Noise Monitoring Results

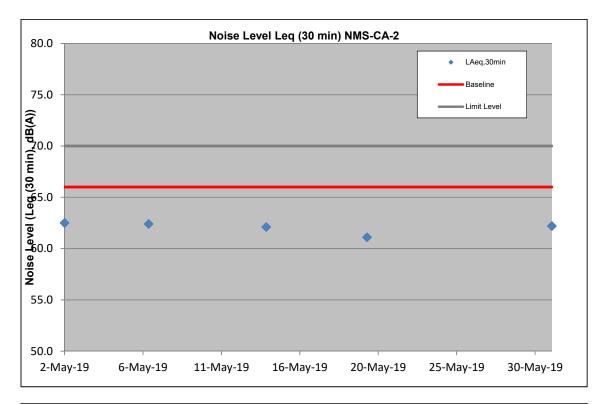
Date	Time	Me	easured Nois	se Level, dB(A)	Baseline Noise Level, dB(A)	Baseline Corrected Level
Date	Time	L _{Aeq} ,30min	Limit	L ₁₀ ,30min	L ₉₀ ,30min	L _{Aeq} ,30min	L _{Aeq} ,30min
2-May-19	10:00-10:30	62.5	70.0	64.7	59.8	66.0	< Baseline Level
7-May-19	14:30-15:00	62.4	70.0	64.0	60.1	66.0	< Baseline Level
14-May-19	10:30-11:00	62.1	70.0	64.0	59.9	66.0	< Baseline Level
20-May-19	10:00-10:30	61.1	70.0	62.8	59.2	66.0	< Baseline Level
31-May-19	10:00-10:30	62.2	70.0	64.1	59.7	66.0	< Baseline Level

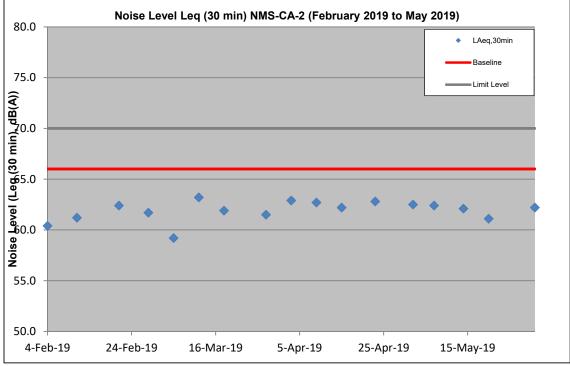
 Max
 L_{Aeq},30min
 62.5

 Min
 L_{Aeq},30min
 61.1

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

_		1	Action	
Event	ET	IEC	ER	Contractor
Action Level				
1. Exceedance for one sample	 Inform the IEC, Contractor and ER; Discuss with the Contractor, IEC and ER on the remedial measures required; Repeat measurement to confirm findings; Increase monitoring frequency 	 Check monitoring data submitted by the ET; Check Contractor's working method; Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	 Confirm receipt of notification of exceedance in writing; 	 Identify source(s), investigate the causes of exceedance and propose remedial measures; Implement remedial measures; Amend working methods agreed with the ER as appropriate.
2. Exceedance for two or more consecutive samples	 Inform the IEC, Contractor and ER; Discuss with the ER, IEC and Contractor on the remedial measures required; Repeat measurements to confirm findings; Increase monitoring frequency to daily; If exceedance continues, arrange meeting with the IEC, ER and Contractor; If exceedance stops, cease additional monitoring. 	 Check monitoring data submitted by the ET; Check Contractor's working method; Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	 Confirm receipt of notification of exceedance in writing; Notify the Contractor, IEC and ET; Review and agree on the remedial measures proposed by the Contractor; Supervise Implementation of remedial measures. 	 Identify source and investigate the causes of exceedance; Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; Implement the agreed proposals; Amend proposal as appropriate.

	Limit Level								
1.	Exceedance for one sample	1. 2. 3. 4.	Inform the IEC, Contractor and ER; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. 2. 3. 4.	Check monitoring data submitted by the ET; Check the Contractor's working method; Discuss with the ET, ER and Contractor on possible remedial measures; Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. 2. 3. 4.	Confirm receipt of notification of exceedance in writing; Notify the Contractor, IEC and ET; Review and agree on the remedial measures proposed by the Contractor; Supervise implementation of remedial measures.	1. 2. 3. 4. 5.	Identify source(s) and investigate the causes of exceedance; Take immediate action to avoid further exceedance; Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
2.	Exceedance for two or more consecutive samples	1. 2. 3. 4. 5. 6. 7.	Notify IEC, Contractor and EPD; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; If exceedance stops, cease additional monitoring.	1. 2. 3. 4.	Check monitoring data submitted by the ET; Check the Contractor's working method; Discuss with ET, ER, and Contractor on the potential remedial measures; Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. 2. 3. 4. 5.	Confirm receipt of notification of exceedance in writing; Notify the Contractor, IEC and ET; In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; Supervise the implementation of remedial measures; 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. 2. 3. 4. 5. 6.	Identify source(s) and investigate the causes of exceedance; Take immediate action to avoid further exceedance; Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; Implement the agreed proposals; Revise and resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Airborne Noise

Event		A	ction	
Event	ET	IEC	ER	Contractor
Action Level	 Notify the IEC, Contractor and ER Discuss with the ER, IEC and Contractor on the remedial measures required Increase monitoring frequency to check mitigation effectiveness 	 Review the investigation results submitted by the contractor; Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	 Confirm receipt of notification of complaint in writing Notify the Contractor, IEC and ET Review and agree on the remedial measures proposed by the Contractor; Supervise implementation of remedial measures 	 Investigate the complaint and propose remedial measures Report the results of investigation to the IEC, ET and ER Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. Implement noise mitigation proposals
Limit Level	 Notify the IEC, Contractor and EPD Repeat measurement to confirm findings Increase monitoring frequency Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; Inform IEC, ER and EPD the causes and actions taken for the exceedances Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results 	 Check monitoring data submitted by the ET; Check the Contractor's working method; Discuss with the ER, ET and Contractor on the potential remedial measures Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	 Confirm receipt of notification of exceedance in writing Notify the Contractor, IEC and ET In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented Supervise the implementation of remedial measures 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 	 Identify source and investigate the causes of exceedance Take immediate action to avoid further exceedance Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. Implement the agreed proposals Revise and resubmit proposals if problem still not under control 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	 Inform the Contractor, the IEC and the ER Discuss remedial actions with the IEC, the ER and the Contractor Monitor remedial actions until rectification has been completed 	 Check inspection report Check the Contractor's working method Discuss with the ET, ER and the Contractor on possible remedial measures Advise the ER on effectiveness of proposed remedial measures. 	 Confirm receipt of notification of non- conformity in writing Review and agree on the remedial measures proposed by the Contractor Supervise implementation of remedial measures 	 Identify Source and investigate the non-conformity Implement remedial measures Amend working methods agreed with the ER as appropriate Rectify damage and undertake any necessary replacement
Repeated Non- conformity	 Identify Source Inform the Contractor, the IEC and the ER Increase inspection frequency Discuss remedial actions with the IEC, the ER and the Contractor Monitor remedial actions until rectification has been completed If non-conformity stops, cease additional monitoring 	 Check inspection report Check the Contractor's working method Discuss with the ET and the Contractor on possible remedial measures Advise the ER on effectiveness of proposed remedial measures 	 Notify the Contractor In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented Supervise implementation of remedial measures. 	 Identify Source and investigate the non-conformity Implement remedial measures Amend working methods agreed with the ER as appropriate Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non- conformity is abated.

Note:

ET – Environmental Team IEC – Independent Environmental Checker ER – Engineer's Representative

Appendix J

Waste Flow Table

MONTHLY SUMMARY WASTE FLOW TABLE

Name of Department: ENV

Contract No.:MTR-SCL1103

	Actu	al Quantities	of Inert C&I) Materials G	enerated Mo	onthly	Actual	Quantities of	C&D Wastes	s Generated	Monthly
Month	Total Quantity Generated	Quantity and Large in the Other as Public Imported Metals		Metals	Paper / Cardboard Packaging		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	0.112	0.000	0.000	0.000	0.112	0.000	0.000	0.000	0.000	0.000	0.012
Feb	0.026	0.000	0.000	0.000	0.026	0.000	0.000	0.000	0.000	0.000	0.001
Mar	0.003	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.002
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Мау	0.008	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.004
Jun											
Sub-total	0.149	0.000	0.000	0.000	0.149	0.000	0.000	0.000	0.000	0.000	0.021
July											
August											
September											
October											
November											
December											
Total	0.149	0.000	0.000	0.000	0.149	0.000	0.000	0.000	0.000	0.000	0.021

Monthly Summary Waste Flow Table for 2019

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 May is 31 May 2019 for TKO137FB/TM38FB, NENT/SENT/WENT landfill.

3) The amount of waste on May of 2019 is 4.46 tons for NENT/SENT/WENT Landfill, 15.83 tons for TKO137FB/TM38FB.

4) The amount of C&D material reused in the Contract on May of 2019 is 0 tons, for cut-off date is 31 May 2019.

5) The amount of chemical waste on May of 2019 is 0L for cut-off date is 31 May 2019.

6) The value of waste amount would be rounded up in three decimal places.

Appendix K

Environmental Monitoring Programme for Coming Month

		t 1103 - Hin Keng to onitoring Schedule	o Diamond Hill Tunnels - June 2019	
Date		Air Quality	Noise	Site Inspection
4 1. 1. 10	0-1	24-hours TSP	L _{Aeq} , 30 min	•
1-Jun-19	Sat Sun			
2-Jun-19 3-Jun-19	Mon			
4-Jun-19	Tue			
5-Jun-19	Wed			
6-Jun-19	Thu			
7-Jun-19	Fri			
8-Jun-19	Sat			
9-Jun-19	Sun			
10-Jun-19	Mon			
11-Jun-19	Tue			
12-Jun-19	Wed			
13-Jun-19	Thu			
14-Jun-19	Fri			
15-Jun-19	Sat			
16-Jun-19	Sun			
17-Jun-19	Mon			
18-Jun-19	Tue			
19-Jun-19	Wed			
20-Jun-19	Thu			
21-Jun-19	Fri			
22-Jun-19	Sat			
23-Jun-19	Sun			
24-Jun-19	Mon			
25-Jun-19	Tue			
26-Jun-19	Wed			
27-Jun-19	Thu			
28-Jun-19	Fri			
29-Jun-19	Sat			
30-Jun-19	Sun			

Public Holiday Monitoring Day

Monitoring Details

Monitoring	Locations	Parameters
	DMS-2 - Price	
Air Quality	Memorial Catholic	24-hour TSP
	Primary School	
	NMS-CA-2 - Price	
Noise	Memorial Catholic	L _{Aea(30 min)} , L ₁₀ , L ₉₀
	Primary School	

Note:

No bi-weekly site inspection for Landscape & Visual Impact will be conducted at HIK following the cessation of EM&A programme in the respective area.

Appendix L

Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

SCL 1103 Hin Keng to Diamond Hill Tunnels Construction Stage Environmental Complaint Log (May 2019)

ET's Complaint Log Ref. no.	Incoming Complaint Ref no.	Name of Complainant	Date Complaint Received from EPD	Complaint Date/ Period	Complaint Location	Area of Concern	Details of Complaint	Date Complaint Received by ET	ET's Investigation Date	Investigation/Mitigation Measures	Status
-	-	-	-	-	-	-	-	-	-	-	-

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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
June 2016		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
January 2018	0	0	0
February 2018	0	0	0
March 2018	0	0	0
April 2018	0	0	0
May 2018	0	0	0
June 2018	0	0	0
July 2018	0	0	0
August 2018	1	0	0
September 2018	0	0	0
October 2018	0	0	0
November 2018	0	0	0
December 2018	0	0	0
January 2019	0	0	0
February 2019	1	0	0
March 2019	0	0	0
April 2019	1	0	0
May 2019	0	0	0
Total	26	0	0

Appendix D

75th Monthly EM&A Report for Works Contract 1106 – Diamond Hill Station

Leader Joint Venture

Shatin to Central Link – Contract 1106 Diamond Hill Station

Monthly Environmental Monitoring and Audit Report For May 2019

(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.

CINOTECH CONSULTANTS LTD Room 1710, Technology Park, 18 On Lai Street, Shatin, NT, Hong Kong Tel: (852) 2151 2083 Fax: (852) 3107 1388 Email: info@cinotech.com.hk

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EXECUTIVE SUMMARY

Introduction

 This is the 75th 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 May 2019.

Summary of Construction Works undertaken during the Reporting Month

- 2. The major site activities undertaken in the reporting month include:
 - Defect rectification for SCL DIH station: Remaining minor ABWF works;
 - TTMS implementation: TTA for site access and temporary footpath diversion at Choi Hung Road; and
 - General site clearance 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 <u>Noise Monitoring Station ID</u>
 - NMS-CA-3⁽¹⁾/NMS-CA-4⁽²⁾ (H.K. Sheng Kung Hui Nursing Home) 5 times
 - NMS-CA-4⁽¹⁾/NMS-CA-3⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade)) 5 times
 - NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) 5 times
- Construction Dust (24-hour TSP) Monitoring <u>Dust Monitoring Station ID</u>
 - 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. Proposal for relocation of two historic buildings was approved by EPD on 20 April 2018. The Old Pillbox relocation was completed on 18 Jul 2018 and the Former Royal Air Force Hanger relocation was completed on 25 Aug 2018. Regular maintenance and inspection works of the two historic buildings were carried out in accordance with the approved Conservation Plan and relocation Plan and relocation proposal.

Waste Management

6. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. 11 m³ inert C&D materials were generated from the Project and were sent to Tseung Kwan O Area 137 Fill Bank during the reporting month. 91 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 2, 16 and 27 May 2019. 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 2, 10, 16, 23 and 27 May 2019. The representative of the IEC joined the site inspection on 23 May 2019. 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:
 - Defect rectification for SCL DIH station: Remaining minor ABWF works;



- TTMS implementation: TTA for site access and temporary footpath diversion at Choi Hung Road; and
- General site clearance 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 75th 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 May 2019.

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. Part of the site area was handed over to Housing Department on 17 April 2018. 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**.
 - Defect rectification for SCL DIH station: Remaining minor ABWF works;
 - TTMS implementation: TTA for site access and temporary footpath diversion at Choi Hung Road; and
 - General site clearance 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.

Doumit / Licongo No	Valid	Valid Period		
Permit / License No.	From	То	- Status	
Environmental Permit (EP)				
EP-438/2012/K	04/10/2016	N/A	Valid	
Notification pursuant to Air Po	ollution Control (Cons	truction Dust) Regula	ition	
No.: 378656	28/08/2014	N/A	Valid	
Billing Account for Construction	on Waste Disposal	•	•	
Account No.: 7016601	27/12/2012	N/A	Valid	
Registration of Chemical Wast	e Producer			
5213-281-L2974 -01	07/02/2018	N/A	Valid	
Effluent Discharge License und	ler Water Pollution Co	ontrol Ordinance		
WT00030249-2018	28/02/2018	31/01/2023	Valid	
Construction Noise Permit (CN	NP)	·	·	
GW-RE0181-19	26/03/2019	21/09/2019	Valid	

Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits

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.

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

Table 3.1 Regular Construction Noise Monitoring Location

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 Table3.2, compile with the IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in Appendix C.

Monitoring Equipment	Model (Serial no.)			
	SVAN 957 (Serial no: 21459)			
Sound Level Meter	SVAN 957 (Serial no: 21460)			
Sound & Vibration	SVAN 977 (Serial no: 45467)			
Analyser –	SVAN 977 (Serial no: 45482)			
	BSWA 801 (Serial no: 35927)			
	SV30A (Serial no.: 24803)			
Calibrator	SV30A (Serial no.: 24780)			
	B&K 4231 (Serial no.: 2412367)			

Table 3.2Noise Monitoring Equipment

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 L	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.

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 \pm 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 $\pm 3^{\circ}$ 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, relocation works and inspection works of the two historic buildings shall be carried out in accordance with the approved Conservation Plan and relocation proposal.

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**.

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (April 2019)	14 th May 2019

Table 4.1 Status of Required Submissions under EP

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 15 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 May 2019 exceeded the daytime construction noise criterion except 14 May 2019. However, the results were not considered as exceedance since the measured results were below the baseline noise levels or below the limit level after deducting the baseline noise level.
- 5.3 The noise monitoring results recorded at (Block 1, Rhythm Garden (north-eastern façade)) in May 2019 exceeded the daytime construction noise criterion except 2, 7, 14 & 20 May 2019. However, the result was not considered as exceedance since the measured result was below the limit level after deducting the baseline noise level.
- 5.4 The noise monitoring results recorded at NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) in May 2019 exceeded the daytime construction noise criterion except 20 May 2019. However, the results were not considered as exceedance since the measured results were below the baseline noise levels or below the limit level after deducting the baseline noise level.
- 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 May 2019 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**.
- 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** and a summary of the dust monitoring results in this reporting month is given in **Table 5.1**.

Parameter	Minimum	Maximum	Average	Action Level,	Limit Level,
	µg/m³	µg/m ³	μg/m ³	μg/m ³	µg/m ³
24-hr TSP (DMS-3 ⁽¹⁾ / DMS-4 ⁽²⁾)	20.9	80.8	60.0	159.1	260

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

24-hr TSP (DMS-4 ⁽¹⁾ / DMS-3 ⁽²⁾) 10.7	44.4	32.5	160.4	260
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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 May 2019 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. Proposal for relocation of two historic buildings was approved by EPD on 20 April 2018. The Old Pillbox relocation was completed on 18 Jul 2018 and the Former Royal Air Force Hanger relocation was completed on 25 Aug 2018. Regular maintenance and inspection works of the two historic buildings were carried out in accordance with the approved Conservation Plan and relocation Plan and relocation proposal.

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**. 11 m³ C&D materials was generated during the reporting period and were disposed as public fill. 91 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**.

			Quantity	7			
Month Mat		C&D Mater			ials (non-inert) ^(b)		
	C&D		efuse Chemical Waste	Recycled materials			
	Materials (inert) ^(a) General R	General Refuse		Paper/ cardboard	Plastics	Metals	
May 2019	11 m ³	91 m ³	0 kg	0 kg	0 kg	0 kg	

Table 5.2 Quantities of Waste Generated from the Project

Notes:

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil, which 11 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 2, 16 and 27 May 2019. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audits

- 6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix H**.
- 6.2 Site audits were conducted on 2, 10, 16, 23 and 27 May 2019. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 23 May 2019. 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.**

Parameters	Date	Observations and Recommendations	Follow-up
	24 April 2019	<u>Reminder:</u> The silty water was observed in pre- treatment tank of Aquased. The Contractor was reminded to ensure proper sedimentation process was completed before discharge.	Follow-up action was needed to be further review in next inspection.
Water Quality	2 May 2019	No discharging water was observed. The maintenance of the wastewater treatment facility should be enhanced.	As observed on 10 May 2019, the maintenance of the wastewater treatment facility was enhanced.
	27 May 2019	The stockpile of dusty material should be covered by impervious material near Luen Yee Road.	Follow up action will be reported in the next reporting month.
	27 May 2019	The bund should be enhanced to prevent the muddy water runoff from the site boundary near Luen Yee Road.	Follow up action will be reported in the next reporting month.
Noise			
Landscape and Visual			
Cultural Heritage			
	24 April 2019	<u>Reminder:</u> The unpaved area should be sprayed with water to prevent the dust suppression.	As observed on 2 May 2019, the concerned area were observed wet.
Air Quality	10 & 16 May 2019	The stockpile of dusty material should be covered by impervious material to avoid the dust suppression near Luen Yee Road.	As observed on 23 May 2019, the stockpile of dusty material was observed in wet.
	16 May 2019	The unpaved area should be sprayed with water to prevent the dust suppression near Luen Yee Road.	As observed on 23 May 2019, the unpaved area was sprayed with water.

Table 6.1Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Waste/ Chemical Management			
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 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:
 - Defect rectification for SCL DIH station: Remaining minor ABWF works;
 - TTMS implementation: TTA for site access and temporary footpath diversion at Choi Hung Road; and
 - General site clearance works.

Key Issues in the Next Reporting Month

- 8.2 Key issues to be considered in the coming month include:
 - Implementation of mitigation measures for air quality nuisance from construction works;
 - 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 May 2019 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 24hour TSP monitoring was recorded at the designated monitoring stations during the reporting month.
- 9.3 5 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 3 times of bi-weekly inspections 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:

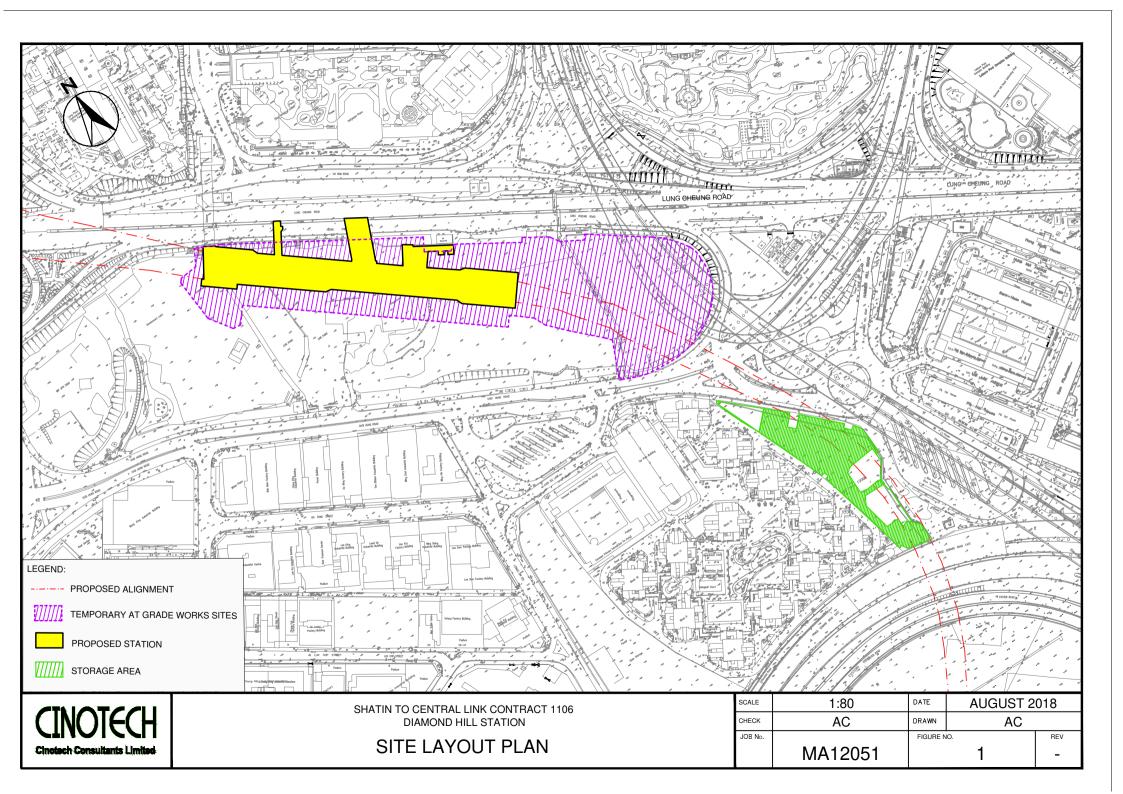
Air Quality

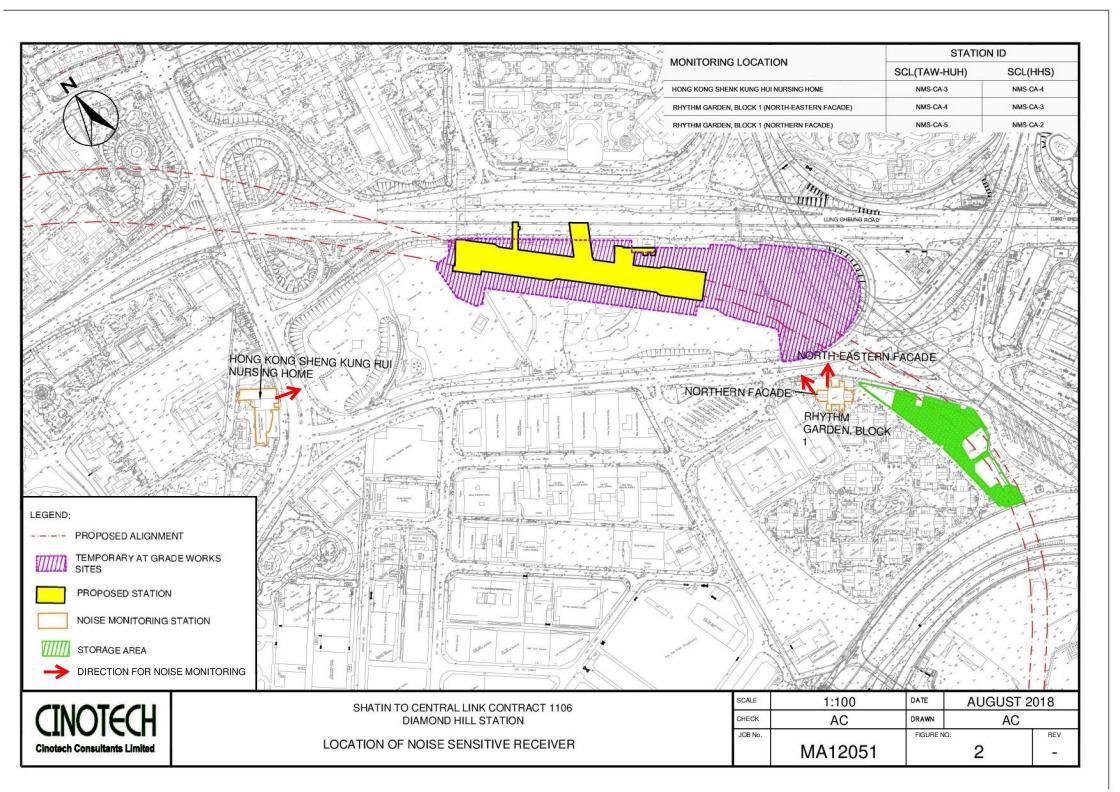
• Unpaved area and dusty stockpile should sprayed with water for dust suppression or covered up by tarpaulin sheet.

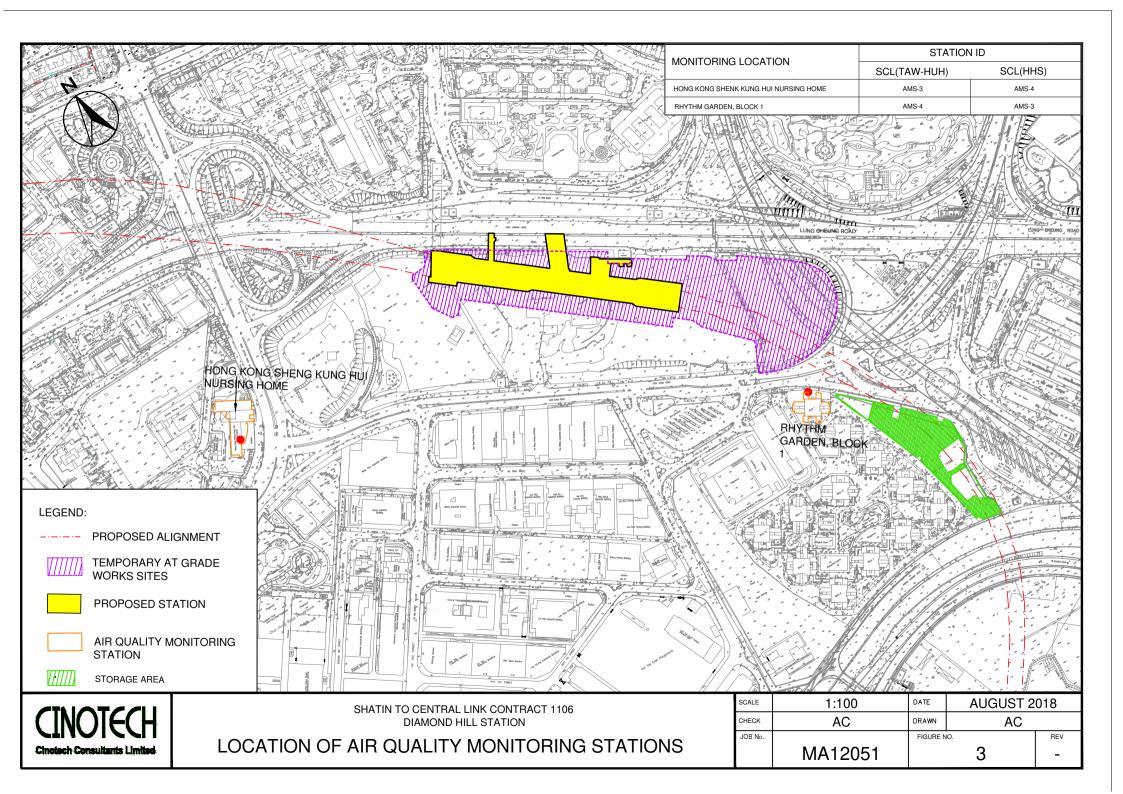
Water Quality

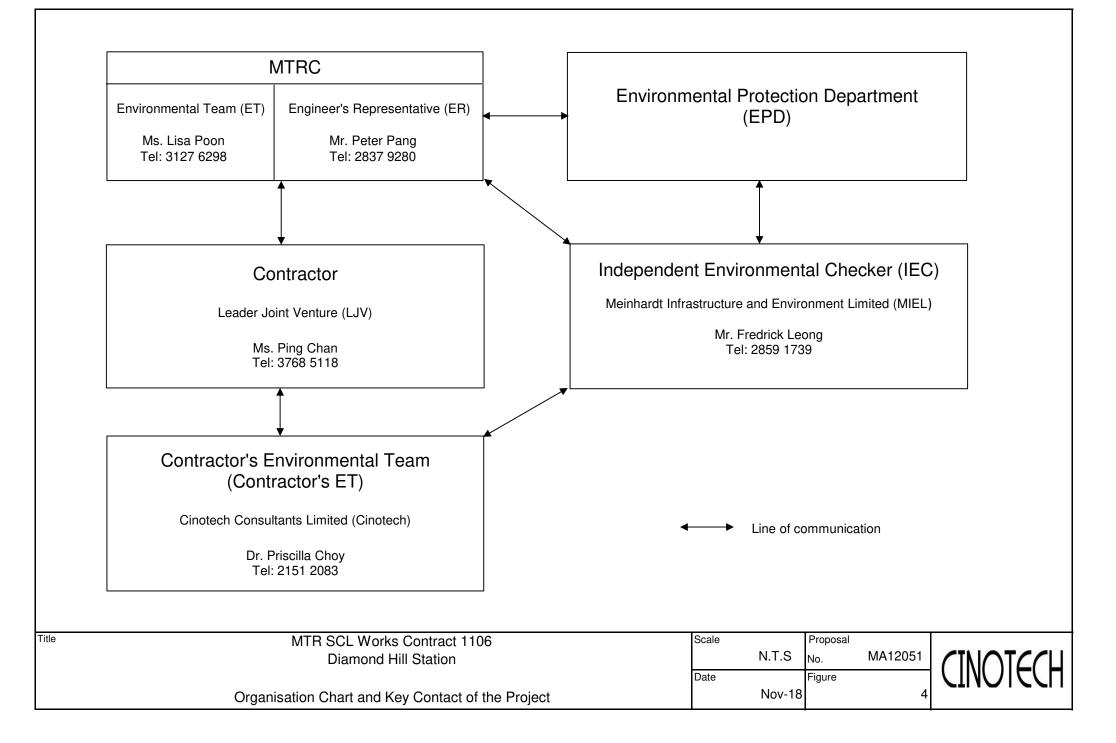
- Site run-off should be properly treated and intercepted and fulfilled the requirement of WPCO wastewater discharge license before discharged out;
- The treatment facilities should be well maintained; and
- The coverage for soil stockpile should be properly provided to prevent generation of muddy runoff.

FIGURES









APPENDIX A TENTATIVE CONSTRUCTION PROGRAMME

		MTR	Cor			Contract 1106 - Diamond Hill Station													
Activity	ID	Activity Name		Forecast	Forecast	%	29	06	May 13	20	27	03		ine	24	01	08	July	_
			Dui	Start	Finish	Complete	333	334	335	336	337	338	10 339	340	341	342	343	344	-
T	TMS Implementa	ation							•	-			-	•	•		•	•	
	Choi Hung Road																		
	TTA Implementation																		
	C1106.TMS0374	TTA for Site Accesses at Choi Hung Road for Storage Area near Rhythm Garden(SLG/028/DIH/002/001A)	212	2 01-Aug-18 A	28-May-19 A	100%	_				TTA	for Site Accesses	at Choi Hung F	load for Storag	e Area near Rhyl	hm Garden(SL	G/028/DIH/002	/001A)	
	C1106.TMS0376	TTA for Site Access at Choi Hung Road for Works Area 1106(SLG/001/DIH/010/001C)	137	08-Mar-19 A	22-Jul-19	62%													TT
K	TL-DIH Station 8	& SCL-DIH Station Works		,															
	KTL-DIH Station &	SCL-DIH Station Works																	
	Defects Rectification	1																	
	C1106.BEA2105	Remaning ABWF Works	12	20-Mar-19 A	15-Jul-19	77%												Remani	ng ABWF
Si	tatutory Inspecti	ion																	
	All Areas																		
	General																		
	C1106.TCZ2115	Site Acceptance Tests (SAT) / Test on Completion (TOC)	190) 18-Jan-19 A	09-Sep-19	56%													

Critical Remaining Work
Actual Work

1 of 1

MTR Contract 1106 - Diamond Hill Station Three Month Rolling Programme As of 31 May 2019

3 Month Rolling Programme									
Date	Revision	Checked	Approved						
31-May-19	C-1106-3MRP/ 77								

N LEADER Leader Joint Venture											
			August	10							
22 345	29 346	05	12 348	19	26						
345	346	347	348	349	350						
TTA for Site	Access at C	hoi Hung Road fo	r Works Area 1	106(SLG/001/D	IH/010/001C)						
WF Works											

APPENDIX B ACTION AND LIMIT LEVELS

APPENDIX B – Action and Limit Levels

24-Hour TSP

Regular Dust Monitoring Location	Description	Action Level, μg/m ³	Limit Level, µg/m ³
DMS-3 ⁽¹⁾⁽³⁾ / DMS-4 ⁽²⁾⁽³⁾ /	Hong Kong Sheng Kung Hui Nursing Home	159.1	2(0
DMS-4 ⁽¹⁾ / DMS-3 ⁽²⁾	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) 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		W/I	70 dB(A)
NMS-CA-4 ⁽¹⁾ / NMS-CA-3 ⁽²⁾	Block 1, Rhythm Garden (north- eastern façade)	0700-1900 hrs on normal weekdays	When one documented complaint is	75 dB(A)
NMS-CA-5 ⁽¹⁾⁽⁴⁾ / NMS-CA-2 ⁽²⁾⁽⁴⁾	Block 1, Rhythm Garden (northern façade)		received	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

A M BURN BURN DISTRICT M A BRAN BARNAN A AN	W		LAB	3 匯力	
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consulting , testing , research

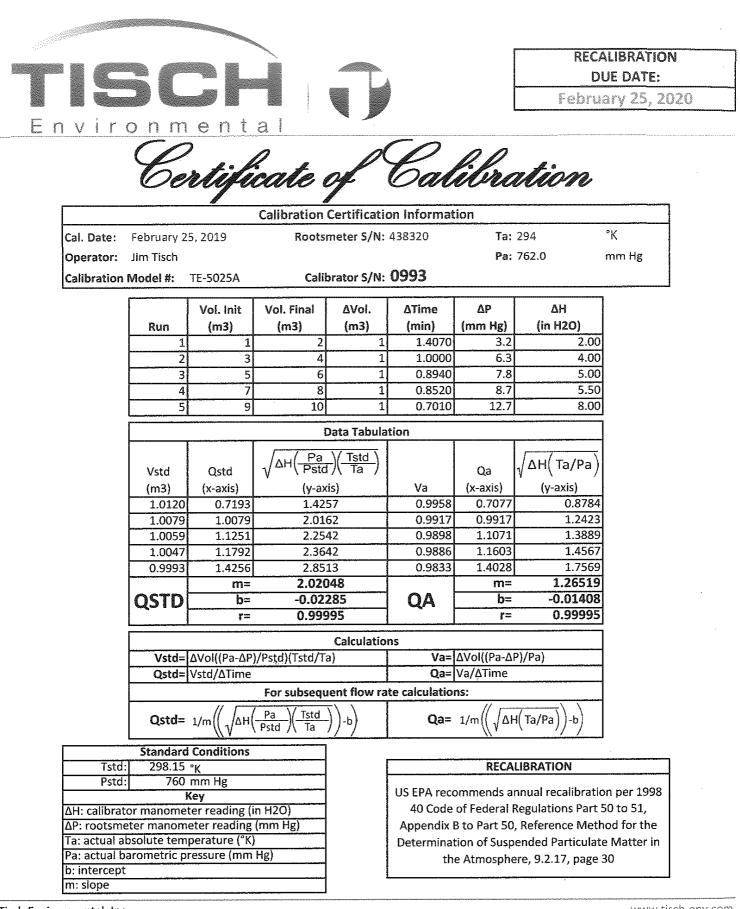
High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

						File No.	MA12051/64/0017
Station	DMS-3 - Hong Ko	ong Sheng Kung H	lui Nursing Home	Operator:	МН		
Date:	10-Apr-19		_	Next Due Date:		19	
Equipment No.:	A-0	1-64	-	Serial No.	3223		
		e de la constante de la constante de la constante de la constante de la constante de la constante de la constan	Ambient	Condition		ens de la Color	· · · · · · · · · · · · · · · · · · ·
Temperatu	ire, Ta (K)	300,1	Pressure, P			762.3	
					• · · · · · ·		
	Na Alexandre da Alexandre da Alexandre da Alexandre da Alexandre da Alexandre da Alexandre da Alexandre da Alex	O 1	rifice Transfer St	andard Inform	ation		
Seria	l No.	0993	Slope, mc	0.0572	Intercep		-0.02285
Last Calibr	ation Date:	25-Feb-19			$bc = [\Delta H x (Pa/76)]$		
Next Calibr	ation Date:	25-Feb-20		$Qstd = \{ [\Delta H] \}$	x (Pa/760) x (298	/Ta)] ^{1/2} -bc} /	me
		•					
	ada na ang karang ka T		Calibration of	f TSP Sampler			
Calibration			fice			HVS	
Point	Δ H (orifice), in. of water	[ΔH x (Pa/76	0) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/7	60) x (298/Ta)] ^{1/2} Y- axis
1	16.8		4.09	71.91	10.0		3.16
2	14.7		3.83	67.29	8.7		2.94
3	10.5		3.23	56.93	6.8		2.60
4	7.6		2.75	48.49	4.8		2.19
5	4.4	1	2.09	36.99	3.1		1.76
Slope , mw = Correlation c	•	0.9	985	Intercept, bw = _	0.274	2	
			Set Point ("algulation			
From the TSP Fi	ield Calibration C	urve take Octd					
	ssion Equation, th						
	-	mw x ($Qstd + bw = [\Delta W]^2 x (760 / Pa) x (760 / Pa)$		98/Ta)] ^{1/2} 4.00		
Remarks:							
Conducted by:	LEE LANN HER	Signature:	/	4		Date:	10/4/2019
Checked by:	Wik Jang	Signature:	Kv	1A		Date:	101412019

WELLAB 匯力 consulting . testing . research

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

o:				•		File No.	MA12051/57/0038
Station	DMS-4 - Rhythm Garden, Block 1			Operator:			_
Date:	•	10-Apr-19		Next Due Date:			_
Equipment No.:	A-0	1-57		Serial No.	2352	•	-
			Ambient	Condition	in el aj la esplacita. Tra	· · · · ·	
Temperatu	re, Ta (K)	302	Pressure, P	a (mmHg)		760.8	
1							
	ter de la compañía de la compañía de la compañía de la compañía de la compañía de la compañía de la compañía d	Or	ifice Transfer St	andard Inform	ation		
Serial	No.	0993	Slope, mc	0.0572	Intercep		-0.02285
Last Calibra	ation Date:	25-Feb-19			ос = [ΔH x (Pa/76		
Next Calibra	ation Date:	25-Feb-20		Qstd = $\{[\Delta H]$	x (Pa/760) x (298	/Ta)] ^{1/2} -bc}	/ mc
			A 113 - 11	errop a la		na kuna da Maria	
	· ·	0		f TSP Sampler	[111.70	
Calibration Point	ΔH (orifice), in. of water	Оті [ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$\frac{HVS}{[\Delta W \times (Pa/$	760) x (298/Ta)] ^{1/2} Y- axis
1	11.0	2	.30	58.02	7.2		2.67
2	9.7	1	.10	54.51	6.4		2.51
3	7.4	1	.70	47.66	5.1		2.24
4	5.3	1	.29	40.40	3.7		1.91
5	3.6		.89	33.36	2.3		1.51
By Linear Regr Slope , mw =	ession of Y on X 0.0462	-		Intercept, bw :	0.005	0	
Correlation co	oefficient* =	0.9	972				
*If Correlation C	coefficient < 0.99	0, check and reca	librate.				
			Set Point (Calculation			
From the TSP Fie	eld Calibration C	urve, take Qstd =					
		e "Y" value accor					
5	1 , , ,						
		mw x Q	$bstd + bw = [\Delta W]$	x (Pa/760) x (2	98/Ta)] ^{1/2}		
Therefore, Se	et Point; W = (m	w x Qstd + bw $)^2$	x (760 / Pa) x ('	Ta / 298) =	4.02		
Remarks:							
Conducted by:	LEE MANN HEZ	Signature:	he	in'		Date:	10/4/2019
	WK. Jang		K.	100		Date:	10/4/2019
	· ····································	U	¥[u				



Tisch Environmental, Inc.

145 South Miami Avenue

Village of Cleves, OH 45002

<u>www.tisch-env.com</u> TOLL FREE: (877)263-7610 FAX: (513)467-9009



WELLAB LIMITED Rms 1214, 1502, 1516, 1701 & 1716, Technology Park, 18 On Lai Street, Shatin, N.T., Hong Kong. Tel: 2898 7388 Fax: 2898 7076 Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	29499
Date of Issue:	2018-08-13
Date Received:	2018-08-11
Date Tested:	2018-08-11
Date Completed:	2018-08-13
Next Due Date:	2019-08-12
Page:	1 of 1

ATTN:

Mr. W.K. Tang

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre Relative Humidity

: 17-22 degree Celsius : 40-70%

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



WELLAB LIMITED Rms 1214, 1502, 1516, 1701 & 1716, Technology Park, 18 On Lai Street, Shatin, N.T., Hong Kong. Tel: 2898 7388 Fax: 2898 7076 Website: www.wellab.com.hk

TEST REPORT

APPLICANT:Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong KongTest Report I
Date of Issue
Date Receive
Date Tested:

Test Report No .:	29500
Date of Issue:	2018-08-13
Date Received:	2018-08-11
Date Tested:	2018-08-11
Date Completed:	2018-08-13
Next Due Date:	2019-08-12
Page:	1 of 1

ATTN:

Mr. W.K. Tang

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Lev	vel Met	er
Manufacturer	: SVANTEK		
Model No.	: SVAN 957		
Serial No.	: 21460		
Microphone No.	: 43679		
Equipment No.	: N-08-09		·· -
		-	

Test conditions:

Room Temperatre Relative Humidity : 17-22 degree Celsius : 40-70%

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



WELLAB LIMITED Rms 1214, 1502, 1516, 1701 & 1716, Technology Park, 18 On Lai Street, Shatin, N.T., Hong Kong. Tel: 2898 7388 Fax: 2898 7076 Website: www.wellab.com.hk

TEST REPORT

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

29814
2018-09-15
2018-09-14
2018-09-14
2018-09-15
2019-09-14
1 of 1

ATTN:

Mr. W.K. Tang

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 977
Serial No.	: 45467
Microphone No.	: 62838
Equipment No.	: N-08-13

Test conditions:

Room Temperatre Relative Humidity : 17-22 degree Celsius : 40-70%

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.:	29815
Date of Issue:	2018-09-15
Date Received:	2018-09-14
Date Tested:	2018-09-14
Date Completed:	2018-09-15
Next Due Date:	2019-09-14
Page:	1 of 1

ATTN:

Mr. W.K. Tang

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 977
Serial No.	: 45482
Microphone No.	: 63626
Equipment No.	: N-08-14

Test conditions:

Room Temperatre Relative Humidity : 17-22 degree Celsius : 40-70%

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.:	30524C
Date of Issue:	2018-12-17
Date Received:	2018-12-15
Date Tested:	2018-12-15
Date Completed:	2018-12-17
Next Due Date:	2019-12-16
Page:	1 of 1

ATTN:

Mr. W.K. Tang

Certificate of Calibration

Item for calibration:

Description Manufacturer Model No. Serial No. Equipment No. : Sound & Vibration Analyser : BSWA : BSWA 801 : 35927 : N-13-03

Test conditions:

Room Temperatre Relative Humidity : 17-22 degree Celsius : 40-70%

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 Test Report No.: 29816 **APPLICANT: Cinotech Consultants Limited** Date of Issue: Room 1710, Technology Park, 2018-09-29 Date Received: 18 On Lai Street, 2018-09-28 Shatin, NT, Hong Kong Date Tested: 2018-09-28 Date Completed: 2018-09-29 Next Due Date: 2019-09-28 ATTN: Page: 1 of 1 Mr. W.K. Tang Item for calibration: Description : Acoustical Calibrator Manufacturer : SVANTEK Model No. : SV30A Serial No. :24803 Equipment No. : N-09-03 **Test conditions:** : 17-22 degree Celsius Room Temperatre Relative Humidity : 40-70% **Methodology:** The Sound Level Calibrator has been calibrated in accordance with the

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 Test Report No.: 29817 **APPLICANT: Cinotech Consultants Limited** Date of Issue: 2018-09-29 Room 1710, Technology Park, Date Received: 2018-09-28 18 On Lai Street, Shatin, NT, Hong Kong Date Tested: 2018-09-28 Date Completed: 2018-09-29 Next Due Date: 2019-09-28 1 of 1 ATTN: Page: Mr. W.K. Tang Item for calibration: : Acoustical Calibrator Description Manufacturer : SVANTEK Model No. : SV30A Serial No. :24780 Equipment No. : N-09-05 **Test conditions:** : 17-22 degree Celsius Room Temperatre **Relative Humidity** : 40-70% **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



1 of 1

TEST REPORT

		and the second se	
APPLICANT:	Cinotech Consultants Limited	Test Report No.:	29683
	Room 1710, Technology Park,	Date of Issue:	2018-08-20
	18 On Lai Street,	Date Received:	2018-08-17
	Shatin, NT, Hong Kong	Date Tested:	2018-08-17
		Date Completed:	2018-08-20
		Next Due Date:	2019-08-19

ATTN: Mr. W.K. Tang

Item for calibration:

Description Manufacturer Model No. Serial No. Equipment No. : Acoustical Calibrator : Brüel & Kjær : 4231 : 2412367 : N-02-03

Page:

Test conditions:

Room Temperatre Relative Humidity : 17-22 degree Celsius : 40-70 %

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.

P'ATRICK 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 May 2019

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

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)

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

Sunday	Monday Tuesday		Wednesday	Thursday	Friday	Saturday
						1-Jun
2-Jun	3-Jun	4-Jun	5-Jun	6-Jun	7-Jun	8-Jun
		24 hr TSP	Noise			
		24 11 151	INDISC			
9-Jun	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun	15-Jun
	24 hr TSP	Noise			24 hr TSP	
	24 11 101	TOBE			24 11 101	
16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun	22-Jun
		Noise		24 hr TSP		
		TOBE		24 11 151		
23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun
			24 hr TSP	Noise		
			21111151	TOBC		
30-Jun						

Shatin to Central Link – Contract 1106 Diamond Hill Station Tentative Impact Air Quality and Noise Monitoring Schedule for June 2019

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

Compling Data Sta	Start Time	Weather	Air	Air Atmospheric		Filter Weight (g)		e Elapse Time		Sampling	Sampling Flow Rate (m ³ /min.)		Av. flow	Total vol.	Conc.
Sampling Date	Start Time	Condition	Temp. (K)	Pressure, Pa (mmHg)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
6-May-19	9:00	Cloudy	293.9	759.4	3.4533	3.4903	0.0370	3970.0	3994.0	24.0	1.23	1.23	1.23	1771.6	20.9
11-May-19	9:00	Cloudy	297.6	762.0	3.4730	3.6154	0.1424	3994.0	4018.0	24.0	1.22	1.22	1.22	1762.3	80.8
17-May-19	9:00	Sunny	302.8	757.4	3.4679	3.5697	0.1018	4018.0	4042.0	24.0	1.21	1.21	1.21	1738.6	58.6
23-May-19	9:00	Cloudy	298.6	760.5	3.4587	3.5991	0.1404	4042.0	4066.0	24.0	1.22	1.22	1.22	1756.9	79.9
29-May-19	9:00	Cloudy	297.5	760.4	3.4816	3.5873	0.1057	4066.0	4090.0	24.0	1.22	1.22	1.22	1760.5	60.0
														Min	20.9
														Max	80.8

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

Sompling Data	Start Time	Weather	Air	Atmospheric	Filter W	eight (g)	Particulate	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Av. flow	Total vol.	Conc.
Sampling Date	Start Time	Condition	Temp. (K)	Pressure, Pa (mmHg)	Initial	Final	weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
6-May-19	9:00	Cloudy	293.9	759.4	3.4593	3.4783	0.0190	10393.9	10417.9	24.0	1.23	1.23	1.23	1771.3	10.7
11-May-19	9:00	Cloudy	297.6	762.0	3.4761	3.5477	0.0716	10417.9	10441.9	24.0	1.22	1.22	1.22	1763.3	40.6
17-May-19	9:00	Sunny	302.8	757.4	3.4919	3.5599	0.0680	10441.9	10465.9	24.0	1.21	1.21	1.21	1742.7	39.0
23-May-19	9:00	Cloudy	298.6	760.5	3.4877	3.5658	0.0781	10465.9	10489.9	24.0	1.22	1.22	1.22	1758.6	44.4
29-May-19	9:00	Cloudy	297.5	760.4	3.5155	3.5643	0.0488	10489.9	10513.9	24.0	1.22	1.22	1.22	1761.7	27.7
														Min	10.7
														Max	44.4

Remarks:

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

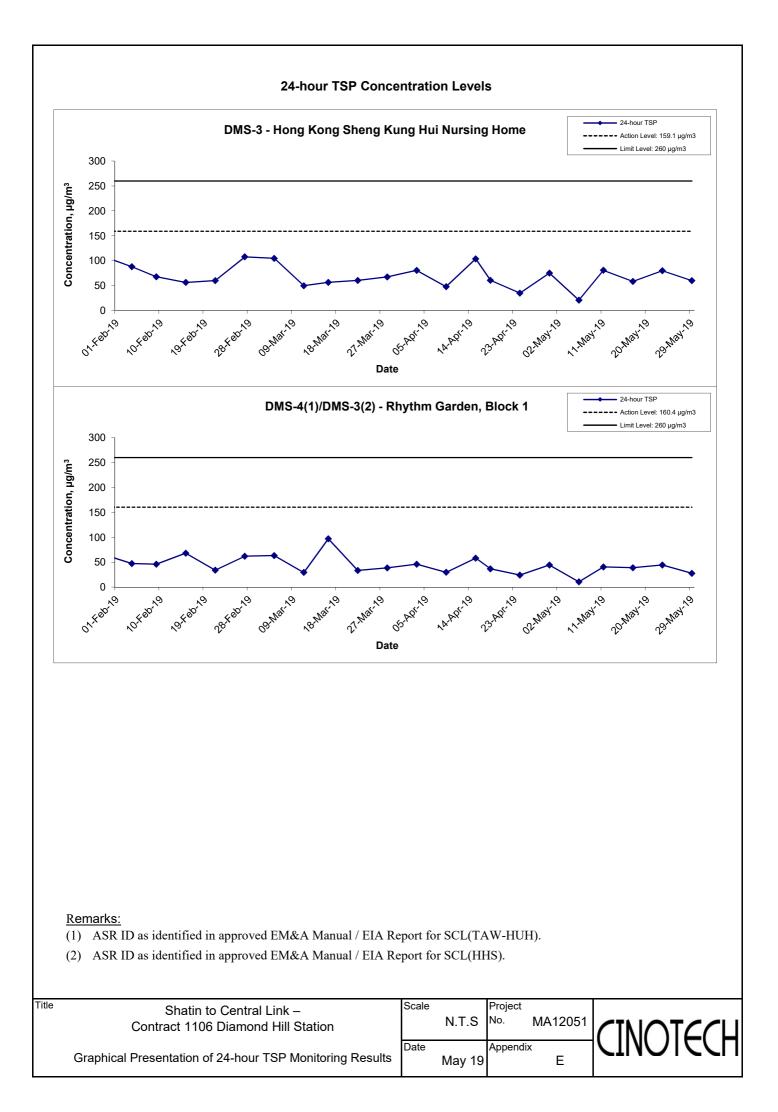
(2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

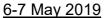
Average

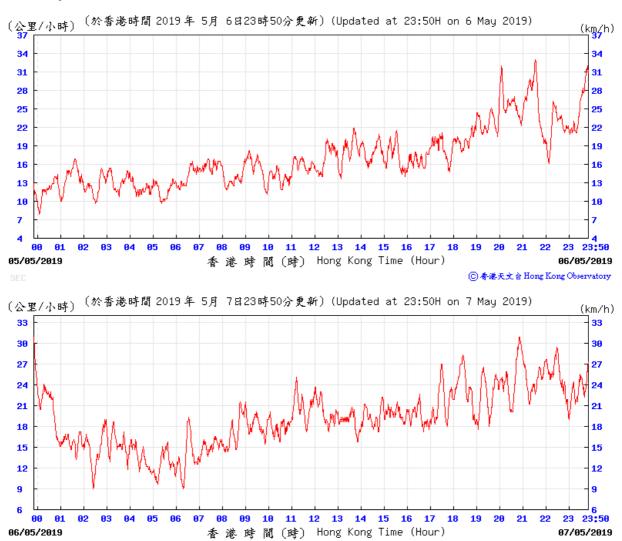
Average

60.0

32.5

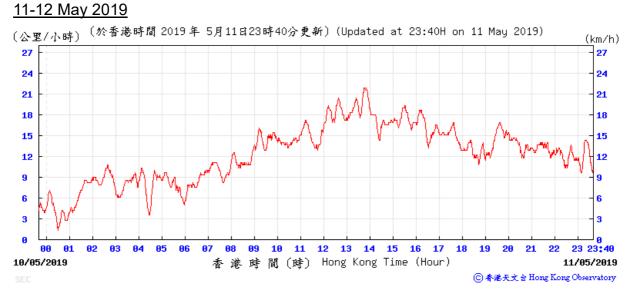


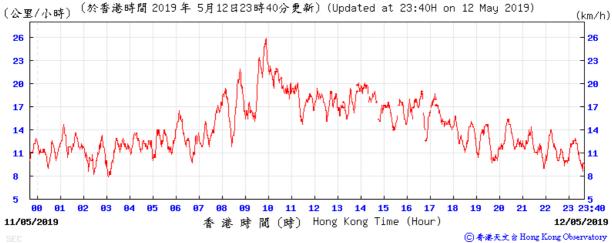


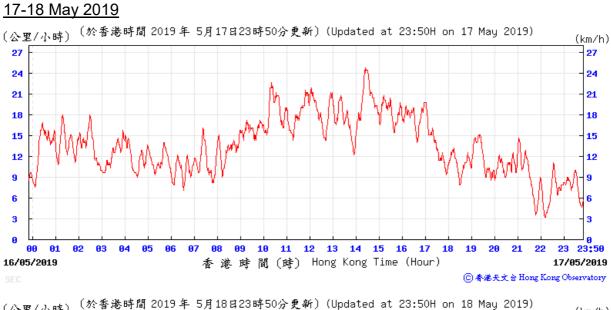


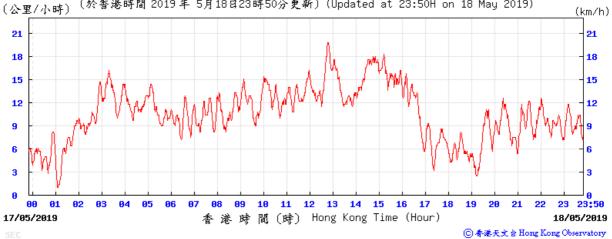
ⓒ 香港天文 含 Hong Kong Observatory

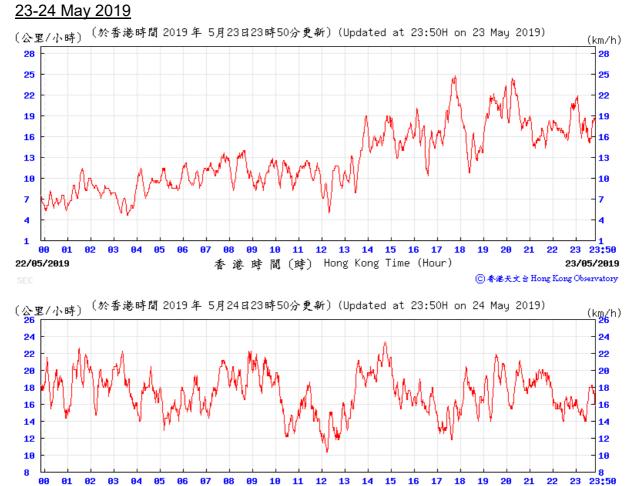
SEC









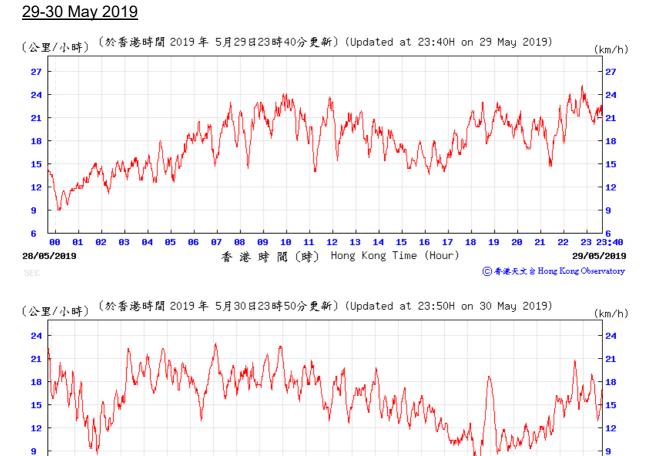


• 95 96 97 98 99 19 11 12 13 14 15 16 17 香港時間(時) Hong Kong Time (Hour)

24/05/2019

ⓒ 春港天文 含 Hong Kong Observatory

23/05/2019



10 11 12 13 14 15 16 17 18 19

香港時間(時) Hong Kong Time (Hour)

6 3

00 01 02 03 04 05 06 07 08 09

29/05/2019

6

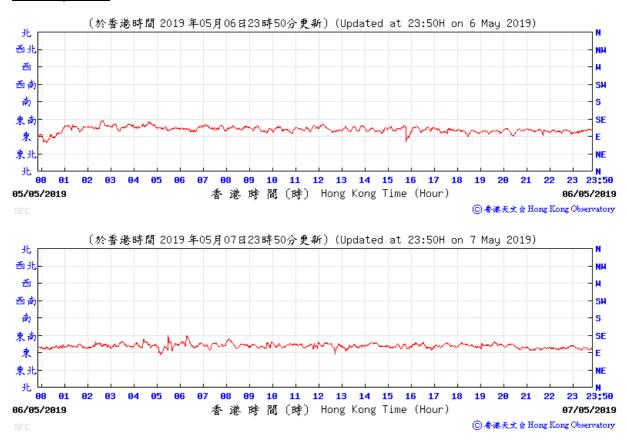
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30/05/2019

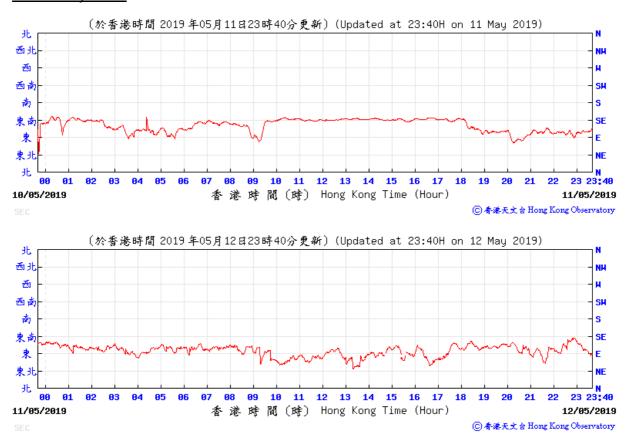
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21 22

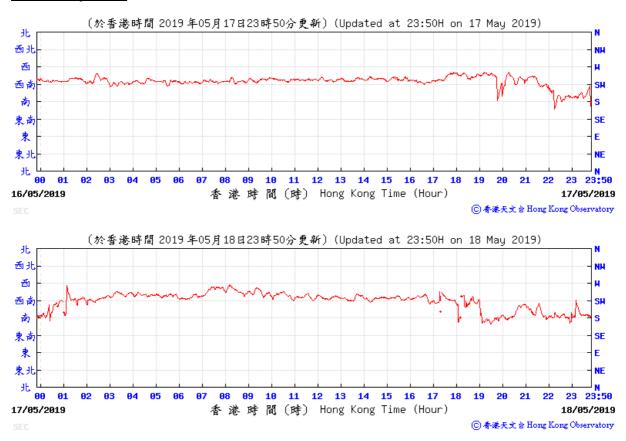
ⓒ 香港天文 含 Hong Kong Observatory



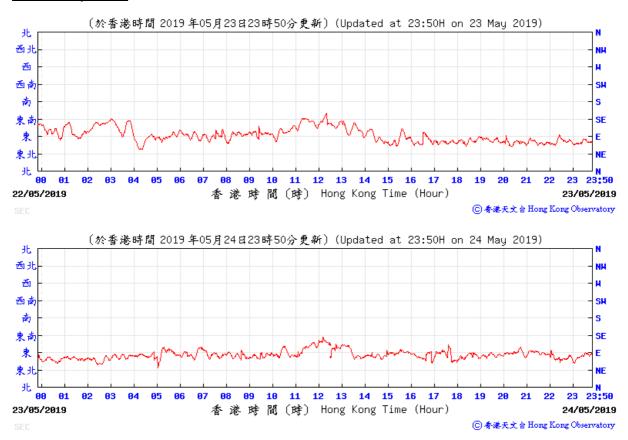
<u>6-7 May 2019</u>



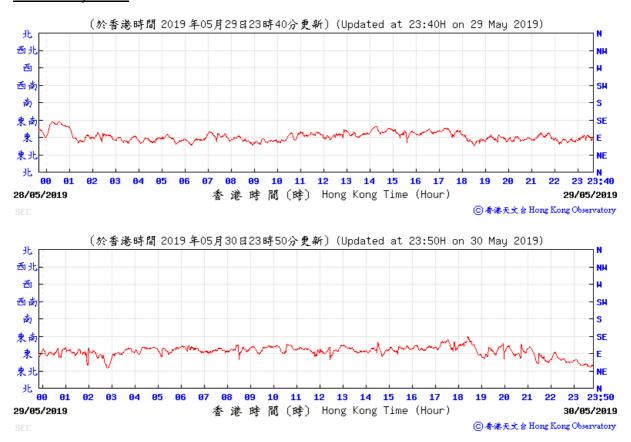
<u>11-12 May 2019</u>



<u>17-18 May 2019</u>



<u>23-24 May 2019</u>



<u>29-30 May 2019</u>

APPENDIX F NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix F - Noise Monitoring Results

Location NMS				-		A	Deceliar		
Date	Weather	Time		it: dB (A) (5-r		Average	Baseline Level	Construction Noise Level	
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}	
		14:30	70.8	73.4	66.5				
2-May-19		14:35	71.4	73.7	67.0				
	Cloudy	14:40	71.2	72.7	66.2	71.3		71.3 Measured \leq Baseline Level	
2 may 10	cloudy	14:45	70.9	72.1	66.1	11.0			
		14:50	72.0	73.8	67.1				
		14:55	71.4	73.8	67.3		_		
		10:00	72.5	72.9	72.1				
		10:05	71.6	72.7	70.3				
7-May-19	Cloudy	10:10	70.8	72.4	69.2	71.6		71.6 Measured \leq Baseline Level	
r-way-10	Cloudy	10:15	71.6	72.8	70.1	71.0			
		10:20	71.7	73.4	70.0				
		10:25	71.1	71.9	70.1				
		15:15	69.9	70.9	65.9	69.8		1	
		15:20	69.1	71.0	66.0				
14-May-19	Sunny	15:25	69.5	70.8	67.0		73	69.8 Measured \leq Baseline Level	
14-May-19	Sunny	15:30	69.6	71.1	66.8			09.0 Measureu ≥ Daseinie Levei	
		15:35	70.2	71.4	67.3				
		15:40	70.6	71.8	66.9				
		16:00	72.4	74.3	70.1				
		16:05	73.3	75.6	70.2			I Contraction of the second second second second second second second second second second second second second	
00 May 10	Claudu	16:10	74.0	76.4	70.4	70.0		61.5	
20-May-19	Cloudy	16:15	73.5	74.7	69.5	73.3		01.5	
		16:20	73.4	74.5	70.6				
		16:25	72.9	74.1	70.2				
		9:20	74.3	76.7	71.0				
		9:25	73.8	76.2	70.3				
		9:30	73.9	75.9	70.5	74.0		07.4	
30-May-19	Cloudy	9:35	74.4	76.8	71.1	74.0		67.1	
		9:40	73.9	76.1	70.4				
		9:45	73.4	75.4	70.3				

Remarks:

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

Appendix F - Noise Monitoring Results

Location NMS-	-CA-4(1)/NMS	-CA-3(2) - B	lock 1, Rhyt	hm Garden ((north-easter	rn façade)			
Data		T ime a	Un	it: dB (A) (5-r	nin)	Average	Baseline Level	Construction Noise Level	
Date	Weather	Time	L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}	
		13:00	71.0	71.9	69.9				
		13:05	70.6	72.6	70.5				
2-May-19	Cloudy	13:10	71.1	73.1	70.4	71.2		57.7	
2-11/ay-19	Cioudy	13:15	71.8	73.5	70.5	11.2		57.1	
		13:20	70.9	72.9	70.2				
		13:25	71.4	73.1	70.3				
		11:30	71.1	72.1	69.5				
		11:35	70.7	72.0	69.4				
7-May-19	Cloudy	11:40	70.4	71.8	68.7	70.6		70.6 Maggurad < Regaling Lavel	
		11:45	70.2	71.8	69.0	70.0		70.6 Measured \leq Baseline Level	
		11:50	70.6	71.9	69.1				
		11:55	70.3	71.5	68.5				
		11:30	71.6	72.9	70.2	71.8			
		11:35	71.6	72.7	70.4		71		
14-May-19	Sunny	11:40	71.8	73.3	70.0			64.1	
14-May-19	Sunny	11:45	71.6	72.8	70.3			04.1	
		11:50	72.0	73.4	70.3				
		11:55	72.2	73.3	71.0				
		15:30	70.1	73.4	68.3				
		15:35	71.2	74.5	68.1				
20-May-19	Cloudy	15:40	70.3	73.4	66.7	71.2		57.7	
20-1viay-19	Cloudy	15:45	72.4	75.5	68.2	11.2		57.7	
		15:50	71.6	74.9	69.1				
		15:55	70.9	73.2	68.2				
		8:35	75.9	77.0	74.6				
		8:40	76.0	77.0	74.6				
20 May 10	Claudy	8:45	75.8	76.9	74.5	76.0		74.0	
30-May-19	Cloudy	8:50	76.0	76.9	75.1	76.0		74.3	
		8:55	76.4	77.6	75.2				
		9:00	75.6	76.8	74.2				

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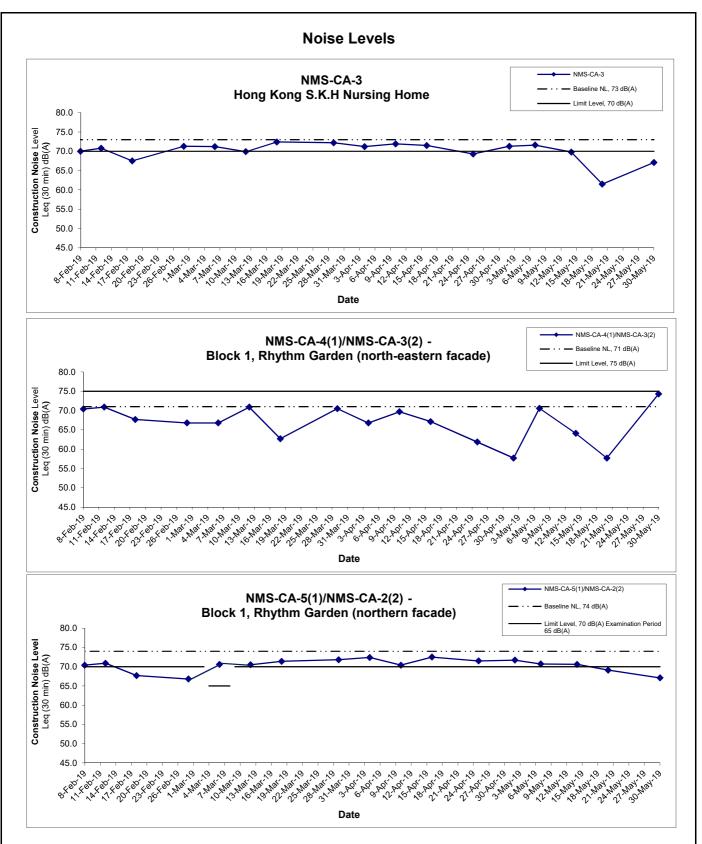
Remarks:

(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) - B				;ade)			
Date	Weather	Time	Un	it: dB (A) (5-r	nin)	Average	Baseline Level	Construction Noise Level	
Dale	weather	Time	L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}	
		13:35	71.6	73.0	70.1				
		13:40	72.0	73.1	70.2				
2-May-19	Cloudy	13:45	72.2	73.2	70.2	71.7		71.7 Measured \leq Baseline Level	
2-May-10	Cloudy	13:50	71.7	73.1	70.0	7 1.7			
		13:55	71.5	72.8	70.1				
		14:00	71.3	72.7	70.2				
		10:55	70.8	71.8	69.6				
		11:00	70.6	71.9	69.2				
7-May-19	Cloudy	11:05	70.8	71.9	69.5	70.7		70.7 Measured \leq Baseline Level	
7-May-13	Cloudy	11:10	70.6	71.9	69.6	10.1			
		11:15	70.8	71.8	69.4				
		11:20	70.6	71.8	69.2				
		10:55	70.6	71.6	69.3	70.6			
		11:00	69.9	70.9	68.8		74		
14-May-19	Sunny	11:05	70.7	71.8	69.6			70.6 Measured \leq Baseline Level	
14-101ay-19	Sunny	11:10	70.5	71.5	69.5			70.0 Weasureu≥ Daseinie Lever	
		11:15	70.9	71.8	69.8				
		11:20	70.7	71.7	69.5				
		16:10	68.7	71.4	65.9				
		16:15	69.1	72.5	66.4				
20-May-19	Cloudy	16:20	68.4	72.4	65.3	69.1		69.1 Measured \leq Baseline Leve	
20-11/1ay-19	Cloudy	16:25	68.7	73.5	66.8	09.1			
		16:30	69.1	72.1	66.3				
		16:35	70.3	74.5	67.7				
		8:00	75.0	75.9	73.7				
		8:05	75.0	76.3	73.3				
20 May 10	Cloudy	8:10	75.0	76.2	73.3	74.0		67.1	
30-May-19	Cloudy	8:15	74.6	75.8	73.3	74.8		67.1	
		8:20	74.5	75.7	73.1				
		8:25	74.8	75.8	73.3				



Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) In case of Measured Level \leq Baseline Level, only Measured Level is presented on the graphical presentation.

Title	Shatin to Central Link - Contract 1106 - Diamond Hill Station	Scale		Project ^{No.} MA12051	
	Graphical Presentation of Construction Noise Monitoring Results	Date	May 19	Appendix F	

APPENDIX G SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: May 2019

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	190502	
Date	2 May 2019 (Thursday)	
Time	15:00-17:00	

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

Ref. No.	Remarks/Observations	Related Iten
	Part B – Water Quality	No.
190502-001	• No discharging water was observed. The maintenance of the wastewater treatment facility should be enhanced.	B 6iii
	Part C – Ecology	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Landscape & Visual	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Cultural Heritage	
	• No environmental deficiency was identified during the site inspection.	
	Part G – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part H – Waste/Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	Part I – Permits/Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part J – Others	
	Follow-up on previous audit session (Ref. No.: 190424), item 190424-R01 was	
	remarked as 190502-O01. Follow-up action is needed to be reviewed	

	Name	Signature	Date
Recorded by	Janet Wai	to	2 May 2019
Checked by	Dr. Priscilla Choy	WF	3 May 2019

Shatin to Central Link -

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Contract 1106 Diamond Hill Station

Record Summary of Environmental Site Inspection

Inspection Information		
Checklist Reference Number	190510	
Date	10 May 2019 (Friday)	
Time	15:00-17:00	

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality	110.
	• No environmental deficiency was identified during the site inspection.	
	Part C – Ecology	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Landscape & Visual	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Air Quality	
190510-001	• The stockpile of dusty material should be covered by impervious material to avoid the dust suppression near Luen Yee Road.	E6
	Part F – Cultural Heritage	
	• No environmental deficiency was identified during the site inspection.	
	Part G – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part H – Waste/Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	Part I – Permits/Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part J – Others	
	Follow-up on previous audit session (Ref. No.: 190502), all environmental	
	deficiency was rectified or improved by the Contractor.	

	Name	Signature	Date
Recorded by	Janet Wai	J.D.	10 May 2019
Checked by	Dr. Priscilla Choy	WI	15 May 2019

Contract 1106 Diamond Hill Station

Record Summary of Environmental Site Inspection

Inspection Information	
Checklist Reference Number	190516
Date	16 May 2019 (Thursday)
Time	15:00-17:00

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality	1.0.
	• No environmental deficiency was identified during the site inspection.	
	Part C – Ecology	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Landscape & Visual	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Air Quality	
190516-001	• The stockpile of dusty material should be covered by impervious material to prevent the dust suppression near Luen Yee Road.	E6
190516-002	• The unpaved area should be sprayed with water to prevent the dust suppression near Luen Yee Road.	E5
	Part F – Cultural Heritage	
	• No environmental deficiency was identified during the site inspection.	
	Part G – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part H – Waste/Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	Part I – Permits/Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part J – Others	
	Follow-up on previous audit session (Ref. No.: 190510), item 190510-001 was	
	remarked as 190516-001. Follow-up action is needed to be reviewed.	

	Name	Signature	Date
Recorded by	Janet Wai	the	16 May 2019
Checked by	Dr. Priscilla Choy	WI	20 May 2019
······			

Shatin to Central Link -

Contract 1106 Diamond Hill Station

Record Summary of Environmental Site Inspection

Inspection Information	
Checklist Reference Number	190523
Date	23 May 2019 (Thursday)
Time	15:00-17:00

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part C – Ecology	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Landscape & Visual	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Cultural Heritage	
	• No environmental deficiency was identified during the site inspection.	
	Part G – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part H – Waste/Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	Part I – Permits/Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part J – Others	
	Follow-up on previous audit session (Ref. No.: 190516), all environmental	
	deficiency was rectified or improved by the Contractor.	

	Name	Signature	Date
Recorded by	Janet Wai	AN-	23 May 2019
Checked by	Dr. Priscilla Choy	N.L	27 May 2019

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Shatin to Central Link -

Contract 1106 Diamond Hill Station

Record Summary of Environmental Site Inspection Inspection Information Inspection Checklist Reference Number 190527 Date 27 May 2019 (Monday) Time 10:30-12:00

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

Ref. No.	Remarks/Observations	Related Iten No.
	Part B – Water Quality	
190527-001	• The stockpile of dusty material should be covered by impervious material near Luen Yee Road.	B10
190527-002	• The bund should be enhanced to prevent the muddy water runoff from the site boundary near Luen Yee Road.	B20
	Part C – Ecology	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Landscape & Visual	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Cultural Heritage	
	• No environmental deficiency was identified during the site inspection.	
	Part G – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part H – Waste/Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	Part I – Permits/Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part J – Others	
	Follow-up on previous audit session (Ref. No.: 190516), all environmental	
	deficiency was rectified or improved by the Contractor.	

	Name	Signature	Date
Recorded by	Janet Wai	ette	27 May 2019
Checked by	Dr. Priscilla Choy	NE	28 May 2019

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	·		·	<u></u>
1. Exceedance for one sample	 Inform the IEC, Contractor and ER; Discuss with the Contractor, IEC and ER on the remedial measures required; Repeat measurement to confirm findings; Increase monitoring frequency 	 Check monitoring data submitted by the ET; Check Contractor's working method; Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	 Confirm receipt of notification of exceedance in writing; 	 Identify source(s), investigate the causes of exceedance and propose remedial measures; Implement remedial measures; Amend working methods agreed with the ER as appropriate.
2.Exceedance for two or more consecutive samples	 Inform the IEC, Contractor and ER; Discuss with the ER, IEC and Contractor on the remedial measures required; Repeat measurements to confirm findings; Increase monitoring frequency to daily; If exceedance continues, arrange meeting with the IEC, ER and Contractor; If exceedance stops, cease addtional monitoring 	 Check monitoring data submitted by the ET; Check Contractor's working method; Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	 Confirm receipt of notification of exceedance in writing; Notify the Contractor, IEC and ET; Review and agree on the remedial measures proposed by the Contractor; Supervise Implementation of remedial measures. 	 Identify source and investigate the causes of exceedance; Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; Implement the agreed proposals; Amend proposal as appropriate.

LIMIT LEVEL								
1.Exceedance for one	1.	Inform the IEC, Contractor and ER;	1.	Check monitoring data submitted	1.	Confirm receipt of notification of	1.	Identify source(s) and investigate the causes
sample	2.	Repeat measurement to confirm		by the ET;		exceedance in writing;		of exceedance;
		findings;	2.	Check the Contractor's working	2.	Notify the Contractor, IEC and ET;	2.	Take immediate action to avoid further
	3.	Increase monitoring frequency to daily;		method;	3.	Review and agree on the remedial		exceedance;
	4.	Discuss with the ER, IEC and contractor	3.	Discuss with the ET, ER and		measures proposed by the Contractor;	3.	Submit proposals for remedial measures to
		on the remedial measures and assess		Contractor on possible remedial	4.	Supervise implementation of remedial		ER with a copy to ET and IEC within three
		the effectiveness.		measures;		measures.		working days of notification;
			4.	Review and advise the ER and ET			4.	Implement the agreed proposals;
				on the effectiveness of			5.	Amend proposal if appropriate.
				Contractor's remedial measures.				
2.Exceedance for two or more	1.	Notify IEC, Contractor and EPD;	1.	Check monitoring data submitted	1.	Confirm receipt of notification of	1.	Identify source(s) and investigate the causes
consecutive samples	2.	Repeat measurement to confirm		by the ET;		exceedance in writing;		of exceedance;
		findings;	2.	Check the Contractor's working	2.	Notify the Contractor, IEC and ET;	2.	Take immediate action to avoid further
	3.	Increase monitoring frequency to daily;		method;	3.	In consultation with the ET and IEC,		exceedance;
	4.	Carry out analysis of the Contractor's	3.	Discuss with ET, ER, and		agree with the Contractor on the	3.	Submit proposals for remedial measures to
		working procedures with the ER to		Contractor on the potential		remedial measures to be implemented;		the ER with a copy to the IEC and ET within
		determine possible mitigation to be		remedial measures;	4.	Supervise the implementation of		three working days of notification;
		implemented;	4.	Review and advise the ER and ET		remedial measures;	4.	Implement the agreed proposals;
	5.	Arrange meeting with the IEC,		on the effectiveness of	5.	If exceedance continues, consider	5.	Revise and resubmit proposals if problem
		Contractor and ER to discuss the		Contractor's remedial measures.		what portion of the work is responsible		still not under control;
		remedial measures to be taken;				and instruct the Contractor to stop that	6.	Stop the relevant portion of works as
	6.	Review the effectiveness of the				portion of work until the exceedance is		determined by the ER until the exceedance
		Contractor's remedial measures and				abated.		is abated.
		keep IEC, EPD and ER informed of the						
		results;						
	7.	If exceedance stops, cease additional						
		monitoring.						

Event and Action Plan for Noise Monitoring during Construction Phase

EVENT			ACTION	
	Works Contract 1106 ET	IEC	ER	CONTRACTOR
Action Level	 Notify the IEC, Contractor and ER Discuss with the ER, IEC and Contractor on the remedial measures required Increase monitoring frequency to check mitigation effectiveness 	 Review the investigation results submitted by the contractor; Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	 Confirm receipt of notification of complaint in writing Notify the Contractor, IEC and ET Review and agree on the remedial measures proposed by the Contractor; Supervise implementation of remedial measures 	 Investigate the complaint and propose remedial measures Report the results of investigation to the IEC, ET and ER Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. Implement noise mitigation proposals
Limit Level	 Notify the IEC, Contractor and EPD Repeat measurement to confirm findings Increase monitoring frequency Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; Inform IEC, ER and EPD the causes and actions taken for the exceedances Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results 	 Check monitoring data submitted by the ET; Check the Contractor's working method; Discuss with the ER, ET and Contractor on the potential remedial measures Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	 Confirm receipt of notification of exceedance in writing Notify the Contractor, IEC and ET In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented Supervise the implementation of remedial measures 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 	 Identify source and investigate the causes of exceedance Take immediate action to avoid further exceedance Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. Implement the agreed proposals Revise and resubmit proposals if problem still not under control Stop the relevant portion of works as determined by the ER until the exceedance is abated

Action Level	Works Contract 1106 ET	IEC	ER	Contractor
Non-conformity on	1. Inform the Contractor, the IEC and	1. Check inspection report	1. Confirm receipt of	1. Identify Source and
one occasion	the ER	2. Check the Contractor's working	notification of non-	investigate the non-conformity
	2. Discuss remedial actions with the	method	conformity in writing	2. Implement remedial
	IEC, the ER and the Contractor	3. Discuss with the ET, ER and	2. Review and agree on the	measures
	3. Monitor remedial actions until	the Contractor on possible remedial	remedial measures proposed by	3. Amend working methods
	rectification has been completed	measures	the Contractor	agreed with the ER as
		4. Advise the ER on effectiveness	3. Supervise implementation	appropriate
		of proposed remedial measures.	of remedial measures	4. Rectify damage and
				undertake any necessary
				replacement
Repeated Non-	1. Identify Source	1. Check inspection report	1. Notify the Contractor	1. Identify Source and
conformity	2. Inform the Contractor, the IEC and	2. Check the Contractor's working	2. In consultation with the ET	investigate the non-conformity
	the ER	method	and IEC, agree with the	2. Implement remedial
	3. Increase inspection frequency	3. Discuss with the ET and the	Contractor on the remedial	measures
	4. Discuss remedial actions with the	Contractor on possible remedial	measures to be implemented	3. Amend working methods
	IEC, the ER and the Contractor	measures	3. Supervise implementation	agreed with the ER as
	5. Monitor remedial actions until	4. Advise the ER on effectiveness	of remedial measures.	appropriate
	rectification has been completed	of proposed remedial measures		4. Rectify damage and
	6. If non-conformity stops, cease			undertake any necessary
	additional monitoring			replacement. Stop relevant
				portion of works as determined
				by the ER until the
l				non-conformity is abated.

Event and Action Plan for Landscape and Visual during Construction Phase

APPENDIX J UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
Cultural	l Heritag	e Impact (Construction Phase)						
S4.8.1	CH1	Submit an Archaeological Action Plan.	Salvage cultural remains at	Contractor	Former Tai Hom	Prior to the	• AMO's	۸
		Survey-cum-excavation shall be conducted prior to the construction	the Former Tai Hom Village		Village Site	Construction	requirements	۸
		works at the former Tai Hom Village site.	Site			Phase of DIH		
						site		
S4.8.2	CH2	Submit a Conservation Plan for the Former Royal Air Force Hangar and	Proposal for conservation	Contractor	Former Tai Hom	Prior to the	• AMO's	٨
		the Old Pillbox to AMO for agreement.	of		Village Site	Construction	requirements	
			2 historical buildings			Phase of DIH	Principles for the	
						site	Conservation of	
							Heritage Sites in	
							China	
							Burra Charter, the	
							Australia's ICOMOS	
							Charter for Places of	
							Cultural Significance	
Ecolog	y (Con	struction Phase)			·			
S5.7	E1	Good Site Practices	Minimise ecological	Contractor	All construction	During	ProPECC PN 1/94	
		Impact to any habitats or local fauna should be avoided by implementing	impacts		sites	Construction		^
		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						

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		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:						
		No on-site burning of waste;						^
		Waste and refuse in appropriate receptacles.						^
Landso	ape &	Visual (Construction Phase)						
S6.12	LV1	The following good site practices and measures for minimisation and	Minimize visual &	Contractor	Within Project	Construction	•TM-EIAO	
		avoidance of potential impacts are recommended:	landscape impact		Site	stage		
		Re-use of Existing Soil						
		• 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.						
		No-intrusion Zone						
		• 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						

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		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.						
		Protection of Retained Trees						
		All retained trees should be recorded photographically at the						^
		commencement of the Contract, and carefully protected during						
		the construction period. Detailed tree protection specification shall						
		be allowed and included in the Contract Specification, which						
		specifying the tree protection requirement, submission and						
		approval system, and the tree monitoring system.						
		• The Contractor shall be required to submit, for approval, a detailed						^
		working method statement for the protection of trees prior to						
		undertaking any works adjacent to all retained trees, including						
		trees in contractor's works sites.						
Table 6.9	LV2	Decorative Hoarding	Minimize the visual and	Contractor	Within Project	Detailed design	• EIAO – TM	
		Erection of decorative screen during construction stage to screen	landscape impact of the		Site	and	•ETWB TCW 2/2004	^
		off undesirable views of the construction site for visual and	Project during construction			construction	• ETWB TCW	
		landscape sensitive areas. Hoarding should be designed to be	phase			stage	3/2006	
		compatible with the existing urban context.						
		Management of facilities on work sites						
		• To provide proper management of the facilities on the sites, give						^

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		control on the height and disposition/ arrangement of all facilities						
		on the works site to minimize visual impact to adjacent VSRs.						
		Tree Transplanting						
		Trees of medium to high survival rate that would be affected by						۸
		the works shall be transplanted where possible and practicable.						
		Tree transplanting proposal including final location for						
		transplanted trees shall be submitted separately to seek relevant						
		government department's approval, in accordance with ETWB						
		TCW No 3/2006.						
Air Qua	ality (Co	onstruction Phase)						
/	A1	Emission from Vehicles and Plants	Reduce air pollution	Contractor	All construction	Construction	• APCO	
		All vehicles shall be shut down in intermittent use.	emission from construction		sites	stage		٨
		Only well-maintained plant should be operated on-site and plant	vehicles and plants					٨
		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)						
/	A2	Open burning shall be prohibited	Reduce air pollution	Contractor	All construction	Construction	APCO	٨
			emission from work site		sites	stage		
Constr	uction	Dust Impact			1	1		
S7.6.6	D1	The contractor shall follow the procedures and requirements given in the	Minimize dust impact at the	Contractor	All Construction	Construction	• APCO	*
		Air Pollution Control (Construction Dust) Regulation	nearby sensitive receivers		Sites	stage	To control the dust	

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
							impact to meet	
							HKAQO and TM-	
							EIA criteria	
S7.6.6	D2	Mitigation measures in form of regular watering under a good site	Minimize dust impact at the	Contractor	All Construction	Construction	• APCO	*
		practice should be adopted. Watering once per hour on exposed	nearby sensitive receivers		Sites	stage	To control the dust	
		worksites and haul road in the Kowloon area should be conducted to					impact to meet	
		achieve dust removal efficiencies of 91.7%. While the above watering					HKAQO and TM-	
		frequencies are to be followed, the extent of watering may vary					EIA criteria	
		depending on actual site conditions but should be sufficient to maintain						
		an equivalent intensity of no less than 1.8 $\mbox{L/m}^2$ to achieve the dust						
		removal efficiency						
S7.6.6	D3	Any excavated or stockpile of dusty material should be covered	Minimize dust impact at the	Contractor	All Construction	Construction	• APCO	*
		entirely by impervious sheeting or sprayed with water to maintain	nearby sensitive receivers		Sites	stage	To control the dust	
		the entire surface wet and then removed or backfilled or reinstated					impact to meet	
		where practicable within 24 hours of the excavation or unloading;					HKAQO and TM-	
		Any dusty materials remaining after a stockpile is removed should					EIA criteria	٨
		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						

EIA Ref.	EM&A		Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log			recommended Measures	implement	measures	Implement the	or standards for	
	Ref			& Main Concerns to	the		measures?	the measures to	
				address	measures?			achieve?	
			the dusty materials do not leak from the vehicle;						
		•	Where practicable, vehicle washing facilities with high pressure						^
			water jet should be provided at every discernible or designated						
			vehicle exit point. The area where vehicle washing takes place						
			and the road section between the washing facilities and the exit						
			point should be paved with concrete, bituminous materials or						
			hardcores;						
		•	When there are open excavation and reinstatement works,						^
			hoarding of not less than 2.4m high should be provided and						
			properly maintained as far as practicable along the site boundary						
			with provision for public crossing; Good site practice shall also be						
			adopted by the Contractor to ensure the conditions of the						
			hoardings are properly maintained throughout the construction						
			period;						
		•	The portion of any road leading only to construction site that is						٨
			within 30m of a vehicle entrance or exit should be kept clear of						
			dusty materials;						
		•	Surfaces where any pneumatic or power-driven drilling, cutting,						^
			polishing or other mechanical breaking operation takes place						
			should be sprayed with water or a dust suppression chemical						
			continuously;						

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		Any area that involves demolition activities should be sprayed with						٨
		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						N/A
		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						٨
		impervious sheeting;						
		• Every stock of more than 20 bags of cement or dry pulverised fuel						٨
		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						N/A
		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						N/A
		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						

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		• Exposed earth should be properly treated by compaction, turfing,						N/A
		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.						
S7.6.6	D4	Implement regular dust monitoring under EM&A programme during the	Monitoring of dust impact	Contractor	Selected	Construction	• TM-EIA	٨
		construction stage.			representative	stage		
					dust monitoring			
					station			
Constr	uction	Airborne Noise						
S8.5.6	AN1	Implement the following good site practices:	Control construction	Contractor	All Construction	Construction	• Annex 5, TM-EIA	
		only well-maintained plant should be operated on-site and plant	airborne noise		Sites where	stage		٨
		should be serviced regularly during the construction programme;			practicable			
		machines and plant (such as trucks, cranes) that may be in						٨
		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,						٨
		be orientated so that the noise is directed away from nearby NSRs;						
		silencers or mufflers on construction equipment should be properly						٨
		fitted and maintained during the construction works;						
		mobile plant should be sited as far away from NSRs as possible						٨

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		and practicable;						
		material stockpiles, mobile container site office and other						۸
		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	Reduce the construction	Contractor	All Construction	Construction	• Annex 5, TM-EIA	٨
		construction activities and NSRs. The conditions of the hoardings shall	noise levels at low-level		Sites	stage		
		be properly maintained throughout the construction period.	zone of NSRs through					
			partial					
			screening.					
S8.5.6	AN3	Install movable noise barriers (typical design is wooden framed barrier	Screen the noisy plant	Contractor	All Construction	Construction	• Annex 5, TM-EIA	٨
		with a small-cantilevered on a skid footing with 25mm thick internal	items		Sites	stage		
		sound absorptive lining), acoustic mat or full enclosure, screen the noisy	to be used at all					
		plants including air compressor, generators and saw.	construction					
			sites					
S8.5.6	AN4	Use "Quiet" plant	Reduce the noise levels of	Contractor	All Construction	Construction	• Annex 5, TM-EIA	٨
			plant items		Sites where	stage		
					practicable			
S8.5.6	AN5	Sequencing operation of construction plants where practicable.	Operate sequentially within	Contractor	All Construction	Construction	• Annex 5, TM-EIA	٨
			the same work site to		Sites where	stage		
			reduce		practicable			
			the construction airborne					

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
			noise					
S8.5.6	AN6	Implement a noise monitoring under EM&A programme.	Monitor the construction	Contractor	Selected	Construction	•TM-EIA	٨
			noise levels at the selected		representative	stage		
			representative locations		noise monitoring			
					station			
Water 0	Quality	(Construction Phase)						
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on	To minimize water quality	Contractor	All construction	Construction	Water Pollution	
		Construction Site Drainage, Environmental Protection Department, 1994	impact from construction		sites	stage	Control Ordinance	
		(ProPECC PN1/94), construction phase mitigation measures shall	site		where practicable		ProPECC PN1/94	
		include the following:	runoff and general				• TM-EIAO	
		Construction Runoff and Site Drainage	construction activities				TM-Water	
		• 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 site runoff						
		and 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						^

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		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 m ³ /s a ph basin of 30m ³ would be						
		required and for a flow rate of 0.5 m ³ /s the basin would be 150 m ³ .						
		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						

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		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						٨
		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 50m ³ 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,						

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		construction materials or debris being washed into the drainage						
		system and storm runoff being directed into foul sewers						
		• Precautions be taken at any time of year when rainstorms are						^
		likely, actions to be taken when a rainstorm is imminent or						
		forecasted, and actions to be taken during or after rainstorms are						
		summarised in Appendix A2 of ProPECC PN 1/94. Particular						
		attention should be paid to the control of silty surface runoff during						
		storm events, especially for areas located near steep slopes						
		All vehicles and plant should be cleaned before leaving a						^
		construction site to ensure no earth, mud, debris and the like is						
		deposited by them on roads. An adequately designed and sited						
		wheel washing facilities should be provided at every construction site						
		exit where practicable. Wash-water should have sand and silt						
		settled out and removed at least on a weekly basis to ensure the						
		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						N/A
		downstream of any oil/fuel pollution sources. The oil interceptors						

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		should be emptied and cleaned regularly to prevent the release of oil						
		and grease into the storm water drainage system after accidental						
		spillage. A bypass should be provided for the oil interceptors to						
		prevent flushing during heavy rain.						
		Construction solid waste, debris and rubbish on site should be						^
		collected, handled and disposed of properly to avoid water quality						
		impacts.						
		All fuel tanks and storage areas should be provided with locks and						^
		sited on sealed areas, within bunds of a capacity equal to 110% of						
		the storage capacity of the largest tank to prevent spilled fuel oils						
		from reaching water sensitive receivers nearby						
		All the earth works involving should be conducted sequentially to						^
		limit the amount of construction runoff generated from exposed areas						
		during the wet season (April to September) as far as practicable.						
		Adopt best management practices.						^
S10.7.1	W3	Sewage Effluent	To minimize water quality	Contractor	All construction	Construction	Water Pollution	
		Portable chemical toilets and sewage holding tanks are	from sewage effluent		sites where	stage	Control Ordinance	^
		recommended for handling the construction sewage generated by			practicable		TM-water	
		the workforce. A licensed contractor should be employed to provide						
		appropriate and adequate portable toilets and be responsible for						
		appropriate disposal and maintenance.						

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
S10.7.1	W5	Accidental Spillage	To minimize water quality	Contractor	All construction	Construction	Water Pollution	
		In order to prevent accidental spillage of chemicals, the following is	impact from accidental		sites where	stage	Control Ordinance	
		recommended:	spillage		practicable		ProPECC PN1/94	
		 Proper storage and handling facilities should be provided; 					• TM-EIAO	^
		• All the tanks, containers, storage area should be bunded and the					• TM-Water	^
		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.						
Waste	Manage	ement (Construction Waste)						
S11.4.1.1	WM1	On-site sorting of C&D material	Separation of unsuitable	Contractor	All construction	Construction	• DEVB TC(W) No.	
		Geological assessment should be carried out by competent	rock from ending up at		sites	stage	6/2010	N/A
		persons on site during excavation to identify materials which are not	concrete batching plants					
		suitable to use as aggregate in structural concrete (e.g. volcanic	and be turned into concrete					
		rock, Aplite dyke rock, etc.). Volcanic rock and Aplite dyke rock	for structural use					
		should be separated at the source sites as far as practicable and						

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		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.						
S11.5.1	WM2	Construction and Demolition Material	Good site practice to	Contractor	All construction	Construction	• Land	
		Maintain temporary stockpiles and reuse excavated fill material for	minimize the waste		sites	stage	(Miscellaneous	^
		backfilling and reinstatement;	generation and recycle the				Provisions)	
		Carry out on-site sorting;	C&D materials as far as				Ordinance	٨
		Make provisions in the Contract documents to allow and promote	practicable so as to reduce				Waste Disposal	٨
		the use of recycled aggregates where appropriate;	the amount for final				Ordinance	
		Adopt 'Selective Demolition' technique to demolish the existing	disposal				• ETWB TCW No.	N/A

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		structures and facilities with a view to recovering broken concrete					19/2005	
		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						
S11.5.1	WM3	C&D Waste	Good site practice to	Contractor	All construction	Construction	• Land	
		Standard formwork or pre-fabrication should be used as far as	minimize the waste		sites	stage	(Miscellaneous	^
		practicable in order to minimise the arising of C&D materials. The	generation and recycle the				Provisions)	
		use of more durable formwork or plastic facing for the construction	C&D materials as far as				Ordinance	
		works should be considered. Use of wooden hoardings should not	practicable so as to reduce				• Waste Disposal	
		be used, as in other projects. Metal hoarding should be used to	the amount for final				Ordinance	
		enhance the possibility of recycling. The purchasing of construction	disposal				• ETWB TCW	
		materials will be carefully planned in order to avoid over ordering and					No.19/2005	

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		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.						
S11.5.1	WM4	General Refuse	Minimize production of the	Contractor	All construction	Construction	Waste Disposal	
		General refuse generated on-site should be stored in enclosed	general refuse and avoid		sites	stage	Ordinance	^
		bins or compaction units separately from construction and chemical	odour, pest and litter					
		wastes.	impacts					
		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						٨
		individual collectors if they are segregated and made easily						
		accessible. Separate labelled bins for their deposit should be						
		provided if feasible.						

EIA Ref.	EM&A	Recommended Mitigation Measures	Objectives of the	Who to	Location of the	When to	What requirements	Status
	Log		recommended Measures	implement	measures	Implement the	or standards for	
	Ref		& Main Concerns to	the		measures?	the measures to	
			address	measures?			achieve?	
		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	Chemical Waste	Control the chemical waste	Contractor	All Construction	Construction	• Waste Disposal	
		Chemical waste that is produced, as defined by Schedule 1 of the	and ensure proper storage,		Sites	Stage	(Chemical Waste)	^
		Waste Disposal (Chemical Waste) (General) Regulation should be	handling and disposal.				(General)	
		handled in accordance with the Code of Practice on the Packaging,					Regulation	
		Labelling and Storage of Chemical Wastes.					Code of Practice	
		Containers used for the storage of chemical wastes should be					on the Packaging,	^
		suitable for the substance they are holding, resistant to corrosion,					Labelling and	
		maintained in a good condition, and securely closed; have a capacity					Storage of	
		of less than 450L unless the specification has been approved by the					Chemical Waste	
		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						

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

Non-compliance of mitigation measure

• Non-compliance but rectified by the contractor

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

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N/A Not Applicable

APPENDIX K WASTE GENERATION IN THE REPORTING MONTH

Contract No: MTR SCL 1106 - Diamond Hill Station Date of Report: May, 2019

Monthly Summary Waste Flow Table for 2019

	A	ctual Quantit	ies of C&D M	aterials Gen	erated Month	ly	Actual Quar	itities of Non-	inert C&D W	astes Genera	ated Monthly	
Monthly	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	Remarks
	(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	0.046	0.000	0.000	0.000	0.046	0.000	0.000	0.325	0.000	0.000	0.036	
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.312	0.000	0.000	0.010	
Mar	0.099	0.000	0.000	0.000	0.099	0.000	0.000	0.000	0.000	0.000	0.016	
Apr	0.105	0.000	0.000	0.000	0.105	0.000	0.000	0.399 ^{*(4)}	0.000	0.000	0.018	
May	0.011	0.000	0.000	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.091	
Jun												
Sub-total	0.261	0.000	0.000	0.000	0.261	0.000	0.000	1.036	0.000	0.000	0.171	
Jul												
Aug												
Sept												
Oct												
Nov												
Dec												
Total	0.261	0.000	0.000	0.000	0.261	0.000	0.000	1.036	0.000	0.000	0.171	

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

3) Figures are rounded up to 3 decimal places

4) * Data was updated.

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
March 2016		0	0

MA12051\Report\App L - Complaint log



April 2016		0	0
May 2016	0	0	0
June 2016		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
January 2018	0	0	0
February 2018	0	0	0
March 2018	1	0	0
April 2018	1	0	0
May 2018	0	0	0
June 2018	1	0	0
July 2018	0	0	0
August 2018		0	0
September 2018		0	0
October 2018		0	0
November 2018		0	0
December 2018		0	0
January 2019		0	0
February 2019		0	0
March 2019		0	0
April 2019		0	0
		0	0
May 2019		0	
Total	17	U	0



Environmental Complaint Log (May 2019)

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 (May 2019)

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

Log for Successful Prosecutions (May 2019)

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

Appendix E

72nd 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 May 2019]

(June 2019)

Vision Chan Certified by: <u>Vivian Chan</u>

Position: <u>Environmental Team Leader</u>

Date: <u>11 June 2019</u>



D246 72nd Monthly EM&A Report for May 2019

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

Prepared for Leighton Contractors (Asia) Limited 11 June 2019

in the second

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SMEC Company Details

Approved by:	Antony WONG		
Address:	27/F Ford Glory Plaza, 37-39 Wing Hong St, Cheung Sha Wan, Kowloon, Hong Kong		
Signature:			
Tel:	+852 3995 8100	Fax:	+852 3995 8101
Email:	antony.wong@smec.com	Website:	www.smec.com

The information within this document is and shall remain the property of:

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EXECUTIVE SUMMARY

Introduction

The construction works of MTRC Shatin to Central Link Works Contract 1112- Hung Hom Station and Stabling Sidings (the Project) comprise permanent works and the necessary temporary works for Hung Hom Station (HUH), Hung Hom Stabling Sidings (HHS), the South Approach Tunnels (SAT) and the North Approach Tunnels (NAT) to the new station, HHS and any reprovisioning remedial and improvement works (RRIW).

Construction works of the Project commenced on 3 June 2013. This is the 72nd Monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 May 2019 in accordance with the EM&A manual.

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

- Minor services connection at G.L J of HUH
- Platform ABWF and E&M works at HUH
- Modification works at Concourse level, mid-level walkway
- Landscape preparation works (pending MTR response to CSF/MSF)
- Gate 3 excavation works
- Asphalt works to HHS

Landscape and Visual Monitoring

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 10 and 24 May 2019. All necessary mitigation measures have been implemented by the Contractor.

Air Quality Monitoring

Air quality (24-hour TSP) monitoring was carried out on 6, 11, 17, 23 and 29 May 2019. 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, 60,980 kg of general refuse was generated from the Project and disposed of at NENT landfill. No inert construction and demolition (C&D) materials were generated from the Project. No chemical waste was disposed. No Type 1 and Type 2 marine sediments were generated from SCL1112. No metals, paper/cardboard packaging, plastics or asphalt were recycled from the Project.

Environmental Auditing

A total of 4 weekly environmental site audits were conducted on 8, 15, 22 and 29 May 2019. The IEC joint site audit was undertaken on 15 May 2019.

Complaint, Notification of Summons and Successful Prosecution

No environmental complaint 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:

- Platform ABWF and E&M works at HUH
- Modification works at Concourse level, mid-level walkway
- Landscape preparation works (pending MTR response to CSF/MSF)
- Gate 3 excavation works
- Asphalt works to HHS

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. An application for variation of the EP for SCL (MKK-HUH) was approved and a varied EP (EP No. EP-437/2012/A) was issued on 28 November 2017.
- 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 72nd EM&A report which summarizes the monitoring results and audit findings during the reporting period from 1 to 31 May 2019.

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:
 - Minor services connection at G.L J of HUH
 - Platform ABWF and E&M works at HUH
 - Modification works at Concourse level, mid-level walkway
 - Landscape preparation works
 - Gate 3 excavation works
 - Asphalt works to HHS

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*.

COMPANY	POSITION	NAME	TELEPHONE	FAX
	Construction Manager	Mr Michael FU	3127 6201	3127 6422
MTR	SCL Project Environmental Team Leader	Ms Lisa POON	3127 6295	2993 7577
Meinhardt	Independent Environmental Checker	Mr Fredrick LEONG	2859 1739	2540 1580
Leighton	Environmental Manager	Mr Kevin HARMAN	3973 0270	2356 9355
SMEC	ET Leader	Ms Vivian CHAN	3995 8140	3995 8101

Table 2-1 Contact Information of Key Personnel

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	VALID PERIOD		STATUS	REMARK	
/ REFERENCE NO.	From	То	514105		
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 Pe	rmit				
GW-RE0032-19	28 Jan 2019	27 Jul 2019	Valid	EWL Stitch Joint Reconstruction Work (Including Shunt Neck Track) Extend Evening Time without Noise Mitigation	
GW-RE0130-19	28 Feb 2019	27 Aug 2019	Valid until cancellation on	Works for SAT, NAT and Under Podium	

PERMIT / LICENCE VALID PERIOD			STATUS	REMARK
NO / NOTIFICATION			13 May 2019	
GW-RE0217-19	9 Apr 2019	8 Oct 2019	Valid	Works in Concourse
GW-RE0221-19	2 Apr 2019	29 Jun 2019	Valid	External work for Concourse involving TTM + Mid-level Walkway+ Installation of Instrument near NAT Track + Painting outside Concourse for North East Corner+ Protective Barrier Removal adjoining NAT
GW-RE0374-19	14 May 2019	9 Nov 2019	Valid	Works for SAT, NAT and Under Podium
Wastewater Discharge	License			
EPD Receipt Ref. No. 434982	-	-	Under EPD Process	Renewal application submitted on 25 Jun 2018
Chemical Waste Produ	cer Registration			
5213-213-L2603-03	28 Jun 2013	-	Valid	-
Billing Account for Cor	struction Waste	Disposal		
7017179	27 Mar 2013	-	Active Account	-
Notification Under Air	Pollution Control	(Construction D	ust) Regulation	
357078	18 Mar 2013	-	Notified	-
Notification of Asbesto	s Abatement Wor	ks		
AX141187	11 Oct 2014 (earliest commenceme nt date)	-	Notified	Demolition of International Mail Centre, 80 Salisbury Road, Hung Hom
AX141235	27 Oct 2014 (earliest commenceme nt 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:

- 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 Ouality	Monitoring	Equipment
Tuble 5 5	An Quanty	wonneoring	Lyuphich

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%.</p>
- 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 May 2019 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	EP-437/2012/A	14 May 2019	Submitted
Environmental Monitoring & Audit (EM&A) Report	EP-438/2012/K	14 May 2019	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 10 and 24 May 2019. 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 (µG/M³)	RANGE (µG/M³)	ACTION LEVEL (μG/M³)	LIMIT LEVEL (µG/M³)
AM2	48.0	42.7 – 54.9	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 5-1*.

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, 60,980 kg of general refuse was generated from the Project and disposed of at NENT landfill. No inert construction and demolition (C&D) materials were generated from the Project. No chemical waste was disposed. No Type 1 and Type 2 marine sediments were generated from SCL1112. No metals, paper/cardboard packaging, 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 8, 15, 22 and 30 May 2019 during the reporting month. Representative of the IEC joined the site inspection on 15 May 2019. A summary of the implementation schedule of environmental mitigation measures is provided in Appendix H.
- 6.1.2 No EPD inspections were conducted during the reporting month.
- 6.1.3 During the weekly site inspections, no non-conformance was identified. Details of observations recorded during site inspection are summarized in *Table 6-1*.

PARAMETERS	DESCRIPTION	WORKS AREA	OBSERVATION DATE	STATUS
Water Quality	Water quality was observed unsatisfactory. The Contractor should ensure site effluent is properly treated prior to discharge.	Gate 3	15 May 2019	The item was rectified by the Contractor on 22 May 2019.
Waste/ Chemicals Management	Chemical containers were observed without secondary containment. The Contractor should provide secondary	NFA	30 April 2019	The item was rectified by the Contractor on 8 May 2019.
	containment to all chemical containers to prevent land contamination.		22 May 2019	The item was rectified by the Contractor on 30 May 2019.

Table 6-1 **Observations and Recommendations of Site Audits**

Note:

- 1. HUH: Hung Hom Station
- HHS: Hung Hom Stabling Sidings 2.
- NAT: North Approach Tunnels 3.
- 4. SAT: South Approach Tunnels
- 5. HKC: Hong Kong Coliseum
- NSL: North South Line 6.
- BoH: Back of House 7. FWI · Fast West Line
- 8. NFA: North Fan Area 9.
- 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 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 reporting month is provided in *Appendix B* and the key issues to be considered in the upcoming months include:
 - Platform ABWF and E&M works at HUH
 - Modification works at Concourse level, mid-level walkway
 - Landscape preparation works (pending MTR response to CSF/MSF)
 - Gate 3 excavation works
 - Asphalt works to HHS

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 June 2019 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 72nd Monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 May 2019.
- 9.1.2 5 nos. of 24-hour TSP monitoring were carried out in the reporting month.
- 9.1.3 No exceedance of the Action and Limit Levels of air quality monitoring was recorded at the designated monitoring stations during reporting period.
- 9.1.4 Two landscape and visual monitoring and four environmental site audits were conducted in the reporting month. Recommendations on remedial actions were provided to the Contractor for deficiencies identified during the site audits.
- 9.1.5 The ET will keep track on the EM&A programme to ensure the compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

9.2 Recommendations

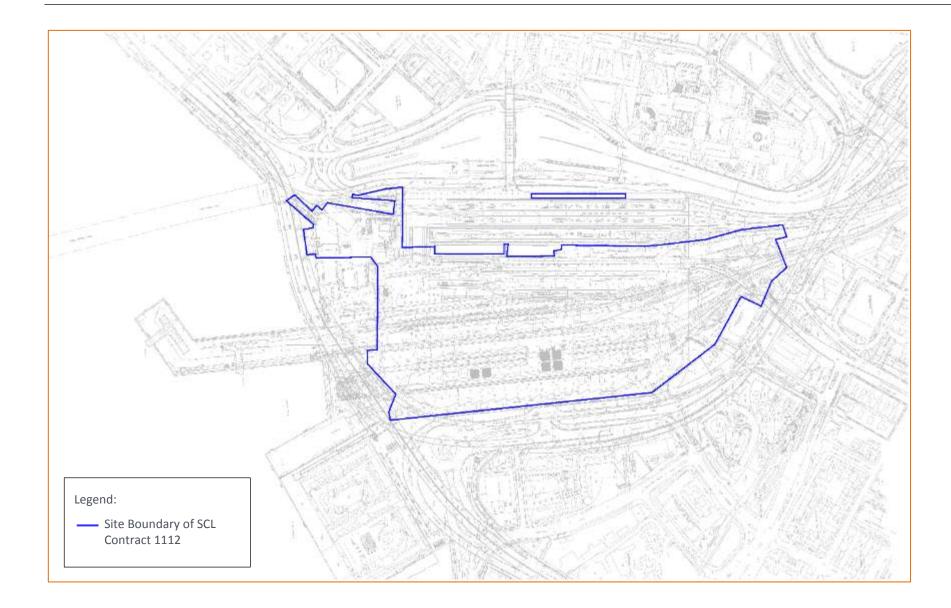
Water Quality Impact

• Ensure site effluent is properly treated prior to discharge.

Waste / Chemicals Management

• Provide secondary containment to all chemical containers to prevent land contamination.

Appendix A PROJECT WORKS BOUNDARY

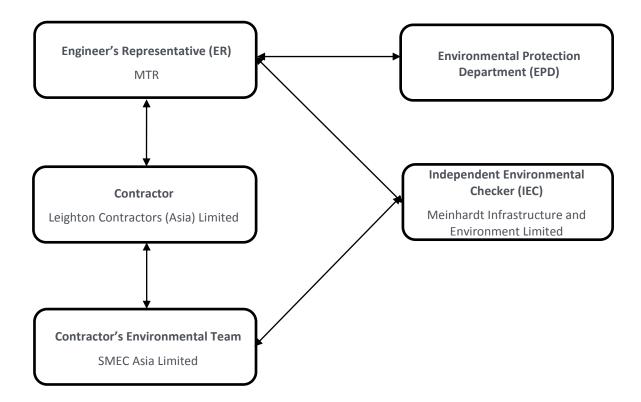


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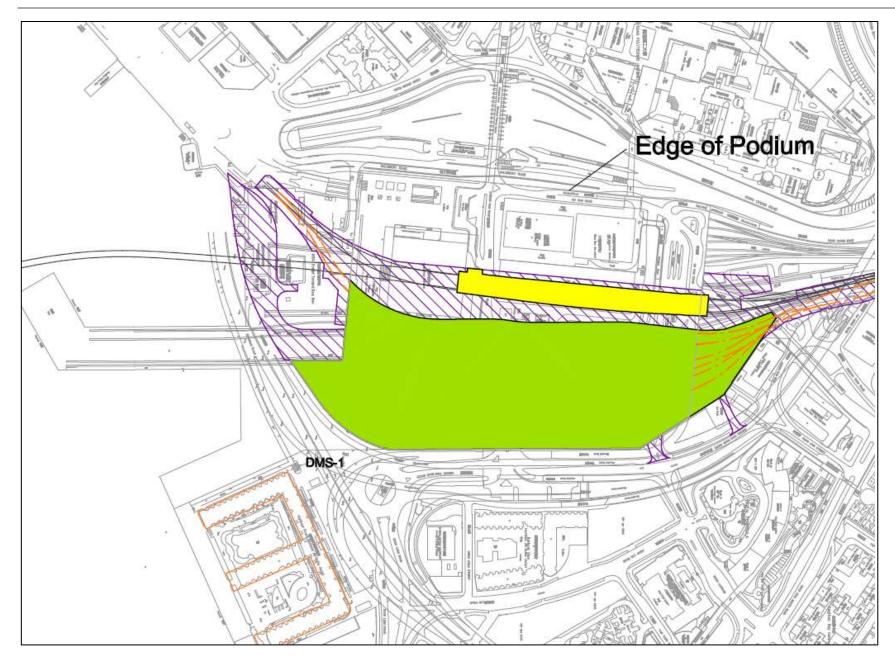
Appendix B CONSTRUCTION PROGRAM

MTR Shatin to Central Link - Contract 1112			
Hung Hom Station and Stabling Sidings			
Simplified Works Programme	Duration of		
	Jun-19	Jul-19	Aug-19
HUH - Platform ABWF and E&M Remaining Work			
HUH - Drainage Works / Building Service Works at G.L. J			
HHS - HHS Remaining Work including Drainage Work at Gate 3			
Concourse Modification			
Landscape Work			

Appendix C PROJECT ORGANISATION FOR ENVIRONMENTAL WORKS



Appendix D LOCATION OF AIR QUALITY MONITORING STATION



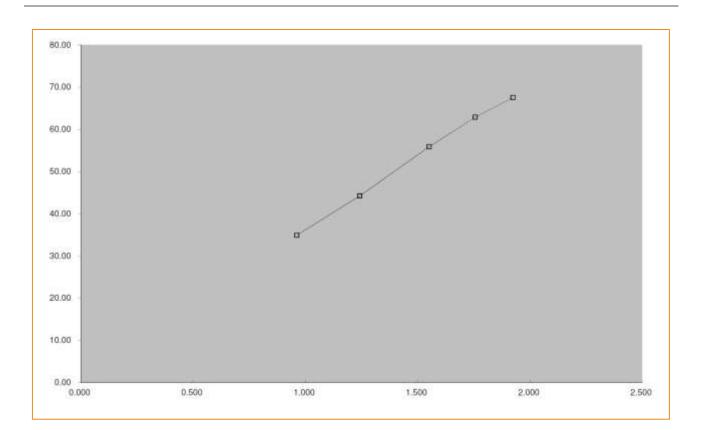
D246 72ND MONTHLY EM&A REPORT FOR MAY 2019 Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings Prepared for Leighton Contractors (Asia) Limited

SMEC Internal Ref. 7076187 11 June 2019

Appendix E CALIBRATION CERTIFICATES FOR MONITORING EQUIPMENT

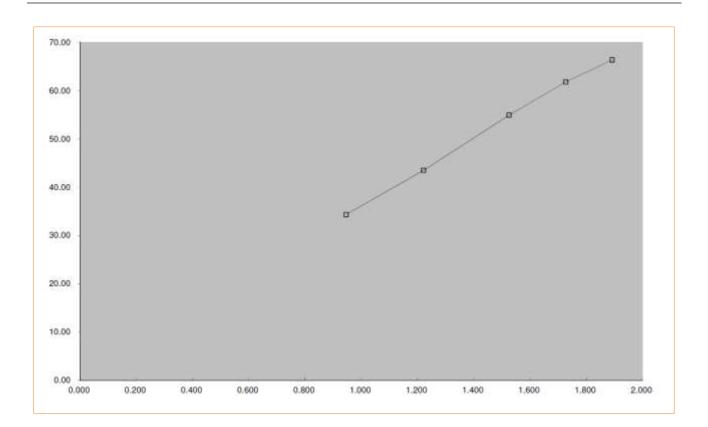
TSP Sampler Calibration

Ave	Serial No ic Pressur Temperatur rage Press	Hunghom MTR 694-0665 e (in Hg): e (deg F): . (in Hg): . (deg F):	40.07 40.07 40.07	Next Calibration	Date: March 14, 2019 Date: May 14, 2019 Tech: Sam Wong ected Pressure (mm Hg):	1018
Ave	Temperatur rage Press	<pre>e (deg F): . (in Hg): . (deg F):</pre>	70	2.2.200 C.C.C.C.C.C.C.C.C.C.C.C.C.C.C.C.C.C.C	ected Pressure (mm Hg):	101
Ave	Temperatur rage Press	<pre>e (deg F): . (in Hg): . (deg F):</pre>	70	Corr	ected Pressure (mm Hg):	1014
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				CALIBRATIONS		
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1 2 3 4 5	12.00 10.00 7.80 5.00 3.00	1.925 1.757 1.552 1.243 0.963	58.0 54.0 48.0 38.0 30.0	67.56 62.90 55.91 44.26 34.95	Slope = Intercept = Corr. coeff.= # of Observations:	34.528 1.747 0.999
Calcul Qstd = 1/m[: IC = I[Sqrt	Sqrt (H2O(P	a/Pstd) (Tstd Tstd/Ta}]	/Ta))-b]			
Pa = actual Tatd = 298 (Pstd = 760 1 For subseque	ted chart chart resp ator Qstd ator Qstd temperatu pressure deg K m Hg ent calcul	response onse slope	ration (mu	n Hg)		
m = sample b = sample I = chart Tav = daily Pav = daily	er interce response average to	emperature		6	_	



TSP Sampler Calibration

				SITE		_		
	Location: Sampler: Serial No	Hunghom MTR	TSP	Next Calibration Da	ate: May 14, 20 ate: July 14, 2 ech: Sam Wong			
				CONDITIONS				
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				CALIBRATIONS				
Plate or Test #	H20 (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINE REGRES	STT. S. P. I.		
1 2 3 4 5	12,00 10,00 7,80 5,00 3,00	1.892 1.727 1.525 1.221 0.946	58.0 54.0 48.0 38.0 30.0	66.40 61.82 54.95 43.50 34.34	Inte	Slope = ercept = coeff.=	5	34,528 1,717 0,999
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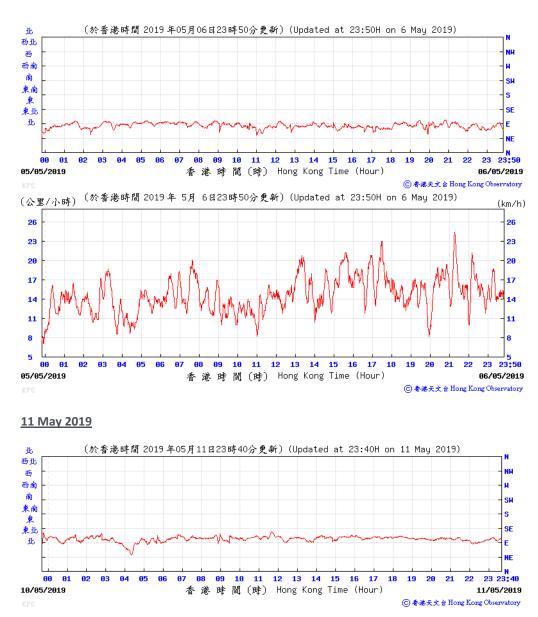


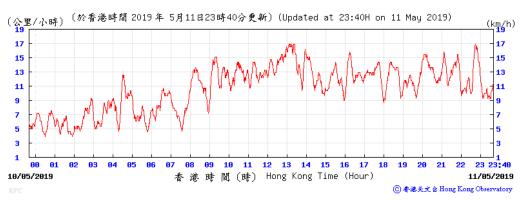
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	1	1	2	1	1.4830	3.2	2.00	
	2	3	4	1	1.0430	6.4	4.00	
	3	5	6	1	0.9300	7.9	5.00	
	4	7	8	1	0.8870	8.7	5.50	
	5	9	10	1	0.7320	12.7	8.00	
				Data Tabula	tion			
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$)(Tstd Ta)		Qa 1	ΔH(Ta/Pa)	
	(m3)	(x-axis)	(y-ax	IS)	Va	(x-axis)	(y-axis)	
	1.0036	0.6767	1.419		0.9958	0.6714	0.8821	
	0.9993	0.9581	2.00		0.9915	0.9506	1.2475	
	0.9962	1.1231	2.354		0.9884	1.1144	1.4628	
	0.9908	1.3536	2.839	3.Y. (2.1)	0.9831	1.3431	1.7642	
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Appendix F WIND DATA

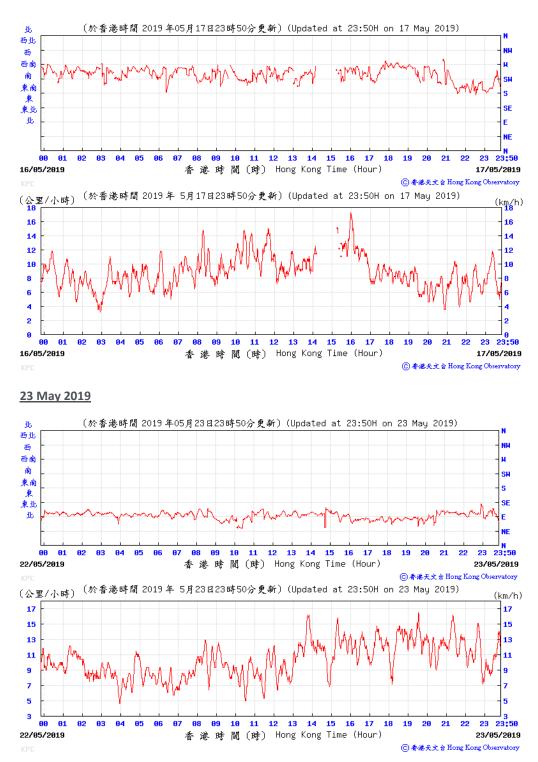
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17 May 2019



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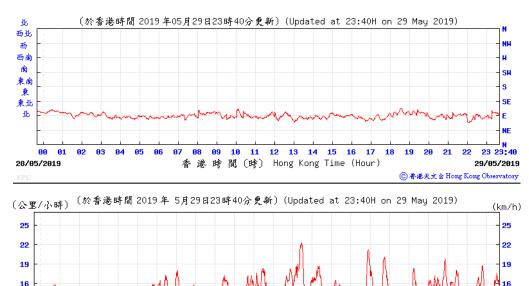
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Appendix G ENVIRONMENTAL MONITORING PROGRAMME

	Sunday Monday Tuosday Wednesday Thursday Eriday								
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday			
			1	2	3	4			
5	6	7	8	9	10	11			
	24 hr TSP					24 hr TSP			
12	13	14	15	16	17	18			
					24 hr TSP				
19	20	21	22	23	24	25			
				24 hr TSP					
26	27	28	29	30	31				
20	27	20	29	50	51				
			24 hr TSP						

Environmental Monitoring Schedule for SCL1112 in May 2019

Environmental Monitoring Schedule for SCL1112 in June 2019

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

Appendix H IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES

EIA REF.	RECOMMENDED MITIGATION MEASURES FOR WORKS CONTRACT 1112	OBJECTIVES OF THE RECOMMENDED MEASURES & MAIN CONCERNS TO ADDRESS	WHO TO IMPLEMENT THE MEASURES?	LOCATION OF THE MEASURES	WHEN TO IMPLEMENT THE MEASURES?	WHAT REQUIREMENTS OR STANDARDS FOR MEASURES TO ACHIEVE?	STATUS
Landscape & Vis	ual (Construction Phase)						
S6.9.3 and S6.12 of Ref.1; Table 4.9 of Ref. 2; S6.12 of Ref. 3	 The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of existing soil</u> 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. No-intrusion zone 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. 	Minimise visual and landscape impact	Contractor	Within project site	Construction Stage	EIAO-TM	٨
	 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. 						^
S6.12 of Ref.1; Table 4.9 of Ref. 2; Table 6.9 of Ref. 3	 <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 will 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 site, give control on the height and disposition/ arrangement of all facilities on the works site to minimise visual impact to adjacent VSRs. <u>Tree transplanting</u> Trees of medium to high survival rate that would be affected by 	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	٨
Shatin to Central Li	HLY EM&A REPORT FOR MAY 2019 nk – Works Contract 1112 Hung Hom Station and Stabling Sidings ton Contractors (Asia) Limited	SMEC Internal Ref. 7076187 11 June 2019					

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
	the works will be transplanted where possible and 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.						۸
Air Quality (Co	nstruction Phase)						
N.A.	 Emission from Vehicles and Plants: All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD). 	Reduce air pollution emission from construction vehicles and plants	Contractor	All constructions sites	Construction stage	Air Pollution Control Ordinance (APCO)	^
Construction D	ust 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: Unloading of spoils to barge – the unloading process should be undertaken within a 3-sided screen with top tipping hall. Water spraying and flexible dust curtains should be provided at the discharge point for dust suppression. Transportation of the spoil from the construction sites to the Barging Point – watering once along all paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m² once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7L/m² to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual. 	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
	 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	 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, cutting, polishing or other mechanical breaking operation takes place will be sprayed with water or a dust suppression chemical continuously. 	Minimise dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	APCO Air Pollution Control (Construction Dust) Regulation To control the dust impact to meet HKAQO and EIAO-TM criteria	^ ^ ^ ^ ^

EIA REF.	RECOMMENDED MITIGATION MEASURES FOR WORKS CONTRACT 1112	OBJECTIVES OF THE RECOMMENDED MEASURES & MAIN CONCERNS TO ADDRESS	WHO TO IMPLEMENT THE MEASURES?	LOCATION OF THE MEASURES	WHEN TO IMPLEMENT THE MEASURES?	WHAT REQUIREMENTS OR STANDARDS FOR MEASURES TO ACHIEVE?	STATUS
	 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 immediate the staffolding 						^ N/A
	 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, 						٨
	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.						۸
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	۸

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Construction Air	borne Noise						
S8.3.6 of Ref. 1; S6.61 of Ref. 2; S8.5.6 of Ref. 3	 Implement the following good site practices: 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	۸
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	۸
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: Asphalt Paver (SWL=101dB(A)) Backhoe (SWL=106dB(A)) Concrete lorry mixer (SWL=96dB(A)) Concrete nixer 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))	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	۸
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	 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)) Roller (SWL=101dB(A) Roller (SWL=103dB(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	۸
S8.3.6 of Ref. 1; S8.5.6 of Ref. 3	Implement noise monitoring under EM&A programme.	Monitoring of construction noise impact	Contractor	Wing Fung Building	Construction stage as required by IEC	TM-EIA	^

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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	 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: <u>Construction runoff and site drainage</u> 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 	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)	٨
	 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 0.1m ³ /s a sedimentation basin of 30m ³ would be required and for a flow rate of 0.5m ³ /s the basin would be 150m ³ . Detailed design of the sand/silt traps will be undertaken by the contractor prior to the commencement of works.						۸
	 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 						۸
	 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, vegetated areas. Measures will be taken to minimise the ingress of site drainage 						*
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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
 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 	CONCERNS TO ADDRESS	MEASORES?				^ ^ * ^
 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 the oil interceptors to prevent flushing during heavy rain. Construction solid waste, debris and rubbish on site will be collected, handled and disposed of properly to avoid water quality impacts. All fuel tanks and storage areas will be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% 						^
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	 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. 						л л
S10.7.1 of Ref. 1; S10.7.1 of Ref. 3	 <u>Tunnelling works</u> 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	A A A

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S8.68 of Ref. 2; S10.7.1 of Ref. 1	 Operation of Barging Facilities The following good practice shall apply for the barging facilities operations: 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
S8.51 – 8.52 of Ref. 2	 Bentonite Slurries: 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	 Wastewater from Building Construction: 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 consumption and reduce the effluent discharge volume. If 	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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	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	 Excavation Activities: 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	 Diaphragm Wall 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	۸
S8.60 – 8.61 of Ref. 2; S10.7.1 of Ref. 3	Sewage effluent 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.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	WPCO TM-Water	۸
S8.64 of Ref. 2; S10.7.1 of Ref. 3	<u>Groundwater seepage</u> As some proposed works areas at Hung Hom are near Victoria Harbour, high ground water level regime due to both tidal effects and rainwater infiltration is anticipated. Appropriate measures will be deployed to minimise the intrusion of groundwater into excavation works areas. In case seepage of groundwater occurs, groundwater will be pumped out from the works areas and discharged into the storm system via silt removal facilities. Groundwater from dewatering process will also be discharged into the storm system via silt traps.	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	WPCO TM-Water EIAO-TM	۸
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S10.7.1 of Ref. 1; S8.57 – 8.59 of Ref. 2; S10.7.1 of Ref. 3	 Accidental spillage To prevent accidental spillage of chemicals, the following is recommended: Proper storage and handling facilities will be provided. All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	WPCO ProPECC PN1/94 EIAO-TM TM-Water	*
\$8.72 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	۸

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Waste Manage	ment (Construction Phase)						
S11.4.1.1 of Ref. 1; S9.80 – 9.83 of Ref. 2; S11.4.1.1 of Ref.3	Onsite sorting of C&D material Geological assessment will be carried out by competent persons onsite during excavation to identify materials which are not suitable to use as aggregate in structural concrete (eg, volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock will be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator will also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities will be submitted by the Contractors for the Engineer to review and agree. In addition, site records will also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) ref: 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc will also be explored.	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	DEVB TC(W) ref. 6/2010	٨
S11.5.1 of Ref.1; S9.72 – 9.74 of Ref. 2; S11.5.1 of Ref.3	 Construction and demolition material 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 Proponent and EPD and get their approval before 	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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S11.5.1 of Ref.1; S9.73 of Ref. 2; S11.5.1 of Ref.3	 implementation. <u>C&D waste</u> 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 	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	 segregation and storage. <u>General refuse</u> 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	 Land-based sediment 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 	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
	 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 						N/A
	 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 						N/A
	 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. 						N/A
	 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 according to the Water 						N/A
	 Pollution Control Ordinance (WPCO). In order to minimize the potential odour / dust emissions during excavation and transportation of the sediment, the excavated HLY EM&A REPORT FOR MAY 2019 	SMEC Internal Ref. 7076187					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
	 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. 						N/A N/A
S11.5.1 of Ref.1; S8.94 – 9.97 of Ref. 2; S11.5.1 of Ref. 3	 Chemical waste 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. 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. 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	Waste Disposal (Chemical Waste) General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	^
S9.98 – 9.99 of	Asbestos wastes	To ensure the asbestos	Contractor	All construction	Construction	Code of practice	

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
Ref 2	 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 	wastes are handled and disposed of in accordance with the statutory requirements		sites	stage	on the Handling, Transportation and Disposal of Asbestos Waste	^ N/A

EIA REF.	RECOMMENDED MITIGATION MEASURES FOR WORKS CONTRACT 1112	OBJECTIVES OF THE RECOMMENDED MEASURES & MAIN CONCERNS TO ADDRESS	WHO TO IMPLEMENT THE MEASURES?	LOCATION OF THE MEASURES	WHEN TO IMPLEMENT THE MEASURES?	WHAT REQUIREMENTS OR STANDARDS FOR MEASURES TO ACHIEVE?	STATUS
Land Contamin	ation						
S10.24 – 10.34 of Ref 2	 Precautionary measures 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 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	٨
\$10.35 of Ref 2	 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, 	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
	 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 						N/A
	 Supply of suitable clean backing material is needed after excavation; If proposed remediation methods employ chemical oxidation methods as the contaminant mass reduction technology, 						N/A
	chemicals will be securely and separately stored away from sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and Personal						N/A
	Protective Equipment						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
	 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
S10.36 of Ref 2	The Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations should be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures should be implemented as far as possible: Set up a list of safety measures for site workers. Provide written information and training on safety for site workers. Keep a log-book and plan showing the contaminated zones and clean zones. Maintain a hygienic working environment. Avoid dust generation. Provide face and respiratory protection gear to site workers. Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers. Provide first aid training and materials to site workers.	To minimise the potentially adverse effects on health and safety of construction workers during the course of site remediation.	Contractor	All construction sites	Site remediation and prior to construction phase	"Guidance Note for Contaminated Land Assessment and Remediation" "Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management "Occupation Safety and Health Ordinance (Chapter 509)"	N/A
EM&A Project S14.2 – 14.4 of Ref. 1; S13.2 – 13.4 of Ref. 3 1.	 An Environmental Team needs to be employed as per this EM&A Manual. Prepare a systematic EMP to ensure effective implementation of the mitigation measures. An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in this EM&A Manual are fully complied with. 	Perform environmental monitoring & auditing	Contractor	All construction sites	Construction stage	EIAO Guidance Note Ref4/2010 EIAO-TM	^

Remark for Status:

 Compliance of mitigation measure
 Non-compliance but rectified by the contractor N/A Not Applicable

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

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

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	 Inform the contractor, the IEC and the ER Discuss remedial actions with the IEC, the ER and the Contractor Monitor remedial actions until rectification has been completed 	 Check inspection report Check the contractor's working method Discuss with the ET, ER and the contractor on possible remedial measures Advise the ER on effectiveness of proposed remedial measures. 	 Confirm receipt of notification of non-conformity in writing Review and agree on the remedial measures proposed by the contractor Supervise implementation of remedial measures 	 Identify source and investigate the non-conformity Implement remedial measures Amend working methods agreed with the ER as appropriate Rectify damage and undertake any necessary replacement
Repeated Non- conformity	 Identify source Inform the contractor, the IEC and the ER Increase inspection frequency Discuss remedial actions with the IEC, the ER and the contractor Monitor remedial actions until rectification has been completed If non-conformity stops, cease additional monitoring 	 Check inspection report Check the contractor's working method Discuss with the ET and the Contractor on possible remedial measures Advise the ER on effectiveness of proposed remedial measures 	 Notify the contractor In consultation with the ET and IEC, agree with the contractor on the remedial measures to be implemented Supervise implementation of remedial measures. 	 Identify source and investigate the non-conformity Implement remedial measures Amend working methods agreed with the ER as appropriate 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	 Inform the IEC, Contractor and ER Discuss with the Contractor, IEC and ER on the remedial measures required Repeat measurement to confirm findings Increase monitoring frequency 	 Check monitoring data submitted by the ET Check Contractor's working method Review and advise the ET and ER on the effectiveness of the proposed remedial measures 	 Confirm receipt of notification of exceedance in writing 	 Identify source(s), investigate the causes of exceedance and propose remedial measures; Implement remedial measures; Amend working methods agreed with the ER as appropriate
2.Exceedance for two or more consecutive samples	 Inform the IEC, Contractor and ER Discuss with the ER, IEC and Contractor on the remedial measures required Repeat measurements to confirm findings Increase monitoring frequency to daily If exceedance continues, arrange meeting with the IEC, ER and Contractor If exceedance stops, cease additional monitoring 	 Check monitoring data submitted by the ET Check Contractor's working method Review and advise the ET and ER on the effectiveness of the proposed remedial measures 	 Confirm receipt of notification of exceedance in writing Review and agree on the remedial measures proposed by the Contractor Supervise Implementation of remedial measures 	 Identify source and investigate the causes of exceedance Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification Implement the agreed proposals Amend proposal as appropriate

EVENT	ET	IEC	ER	CONTRACTOR
Limit Level				
1.Exceedance for one sample	 Inform the IEC, EPD, Contractor and ER Repeat measurement to confirm findings Increase monitoring frequency to daily Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness. 	 Check monitoring data submitted by the ET Check the Contractor's working method Discuss with the ET, ER and Contractor on possible remedial measures Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. 	 Confirm receipt of notification of exceedance in writing Notify the Contractor, IEC and ET Review and agree on the remedial measures proposed by the Contractor Supervise implementation of remedial measures. 	 Identify source(s) and investigate the causes of exceedance Take immediate action to avoid further exceedance Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification Implement agreed proposals Amend proposal if appropriate.
2.Exceedance for two or more consecutive samples	 Notify IEC, Contractor & EPD Repeat measurement to confirm findings Increase monitoring frequency to daily Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results If exceedance stops, cease additional monitoring. 	 Check monitoring data submitted by the ET Check the Contractor's working method Discuss with ET, ER, and Contractor on the potential remedial measures Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. 	 Confirm receipt of notification of exceedance in writing Notify the Contractor, IEC and ET In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented Supervise the implementation of remedial measures 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. 	 Identify source(s) and investigate the causes of exceedance Take immediate action to avoid further exceedance Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification Implement the agreed proposals Revise and resubmit proposals if problem still not under control 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	 Notify the IEC, Contractor and ER Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness. Increase monitoring frequency to check mitigation effectiveness. 	 Review the investigation results submitted by Contractor. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. 	 Confirm receipt of notification of complaint in writing Notify the Contractor, IEC and ET Review and agree on the remedial measures proposed by the Contractor Supervise implementation of remedial measures. 	 Investigate the complaint and propose remedial measure. Report the results of investigation to the IEC, ET and ER. Submit noise mitigation proposals to ER with a copy to ET and IEC within three working days of notification Implement noise mitigation proposal.
Limit Level	 Notify IEC, Contractor & EPD Repeat measurement to confirm findings Increase monitoring frequency to daily Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken Inform IEC, ER and EPD the causes and actions taken for the exceedances. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results. 	 Check monitoring data submitted by the ET Check the Contractor's working method Discuss with ET, ER, and Contractor on the potential remedial measures Review and advise the ER and ET on the effectiveness of Contractor's remedial measures. 	 Confirm receipt of notification of exceedance in writing Notify the Contractor, IEC and ET In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented Supervise the implementation of remedial measures 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. 	 Identify source(s) and investigate the causes of exceedance Take immediate action to avoid further exceedance Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification Implement the agreed proposals Revise and resubmit proposals if problem still not under control Stop the relevant portion of works as determined by the ER until the exceedance is abated.

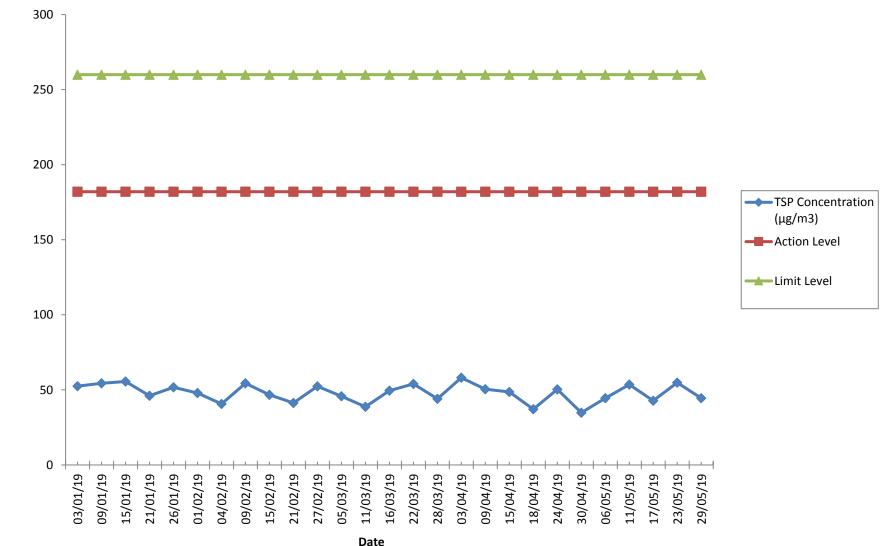
Note:

ET – Environmental Team, IEC – Independent Environmental Checker, ER – Engineer's Representative

Appendix J MONITORING RESULTS AND THEIR GRAPHICAL PRESENTATION

Air Quality Monitoring Results for AM2

		WT. OF PA	APER (G)			ELAPSE TIME		FLC	OW RAT	E (CFM)	TOTAL	TSP		
SAMPLING DATE	Paper No.	Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate	VOLUME (M³)	CONCENTRATION (MG/M3)	WEATHER	REMARK
06/05/19	C575	2.8207	2.8932	0.0725	18729.30	18753.30	24.00	40	40	40.0	1631.05	44.4499	Rainy	-
11/05/19	C576	2.8116	2.8990	0.0874	18753.30	18777.30	24.00	40	40	40.0	1631.05	53.5851	Sunny	-
17/05/19	C577	2.7926	2.8623	0.0697	18777.30	18801.30	24.00	40	40	40.0	1631.05	42.7332	Sunny	-
23/05/19	C578	2.7878	2.8773	0.0895	18801.30	18825.30	24.00	40	40	40.0	1631.05	54.8726	Rainy	-
29/05/19	C579	2.8123	2.8848	0.0725	18825.30	18849.30	24.00	40	40	40.0	1631.05	44.4499	Cloudy	-



Construction Dust Monitoring Results for AM2 (Harbourfront Horizon)

24-hr TSP level, µgm⁻³

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Appendix K WASTE FLOW TABLE

								WASTE FL	OW TABLE							
			A	Actual Quantitie	es of Inert C&D	Materials Generat	ed Monthly				Actual Quan	tities of non-ine	ert C&D Wast	es Generated	Monthly	
		G	enerated				Disposed				Recy	cled		Disposed		d
Month	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	Chemica	l Waste	General Refuse
Unit					(in '00	0m³)					(in '00)0Kg)		(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
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

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Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings Prepared for Leighton Contractors (Asia) Limited SMEC Internal Ref. 7076187 11 June 2019

								WASTE FL	OW TABLE							
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
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

								WASTE FI	OW TABLE							
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
Jan-18	-	-	0.83	0	0	0.83 ^[Note48]	0	0	0	0	0	0	0	0	0	571.95
Feb-18	-	-	0.35	0	0	0.35 ^[Note49]	0	0	0	0	0	0	0	0	0	395.37
Mar-18	-	-	0.66	0	0	0	0	0	0.66	0	0	0	0	0	0	760.13
Apr-18	-	-	0.55	0	0	0	0	0	0.55	0	0.04	0	0	0	0	461.49
May-18	-	-	0.40	0	0	0	0	0	0.40	14.37	0	0	0	0	0	245.30
Jun-18	-	-	0.48	0	0	0.00	0	0.00	0.48	0	0	0	0	0	0	164.33
Jul-18	-	-	0.33	0	0	0.00	0	0.07	0.27	45.84	0	0	0	0	0	148.53
Aug-18	-	-	0.14	0	0	0.00	0	0.00	0.14	53.62	0	0	0	0	0	133.46
Sep-18	-	-	0.16	0	0	0.00	0	0.00	0.16	0	0	0	0	0	0	112.56
Oct-18	-	-	0.35	0	0	0.00	0	0.00	0.35	5.21	0	0	0	0	0	129.09
Nov-18	-	-	0.23	0	0	0.00	0	0.00	0.23	0	0	0	0	0	0	96.35
Dec-18	-	-	0.17	0	0	0	0	0	0.17	0	0	0	0	0	0	71.21
Jan-19	-	-	0.24	0	0	0.00	0	0.00	0.24	0	0	0	0	0	0	67.72
Feb-19	-	-	0.08	0	0	0.00	0	0.00	0.08	0	0	0	0	0	0	42.90
Mar-19	-	-	0.042	0	0	0.00	0	0.00	0.042	0	0	0	0	0	0	51.08
Apr-19	-	-	0.075	0	0	0.00	0	0.00	0.075	0	0	0	0	0	0	44.30
May-19	-	-	0.00	0	0	0.00	0	0.00	0.00	0	0	0	0	0	0	60.98
TOTAL	40.35	0.09	456.82	0.00	0.42	239.63	4.86	3.43	209.14	9790.05	21.34	3790.76	3.18	6.74	8.11	20333.73

Note:

1. 137 m³ of the Inert C&D materials were reused in South Island Line (SIL) Project Contract 904.

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.
- 575.5m³ of the Inert C&D materials were reused in Wan Chai Development Phase II Central Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and 2907.6 m³ of the Inert C&D materials were reused in 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.

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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.
48. 830 m³ of the Inert C&D materials were reused in SCL1121.
49. 350 m³ of the Inert C&D materials were reused in SCL1121.

			MARINE SEE	DIMENT FLOW TABLE					
				of Marine Dumping Monthly					
Month		Type 1		Туре 2					
WOIIII	Generated from SCL1111 [Note1]	Generated from SCL1112 [Note3]	Disposed	Generated from SCL1111 [Note2]	Generated from SCL1112 [Note4]	Disposed			
Unit		(in '000m³)			(in '000m³)				
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	-			
Nov-16	-	0	-	-	0	-			
Dec-16	-	0	-	-	0	-			
Jan-17	-	0	-	-	0	-			

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			MARINE SEDI	MENT FLOW TABLE		
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	-
Jan-18	-	0	-	-	0	-
Feb-18	-	0	-	-	0	-
Mar-18	-	0	-	-	0	-
Apr-18	-	0	-	-	0	-
May-18	-	0	-	-	0	-
Jun-18	-	0	-	-	0	-
Jul-18	-	0	-	-	0	-
Aug-18	-	0	-	-	0	-
Sep-18	-	0	-	-	0	-
Oct-18	-	0	-	-	0	-
Nov-18	-	0	-	-	0	-
Dec-18	-	0	-	_	0	-
Jan-19	-	0	-	-	0	-
Feb-19	-	0	-	-	0	-
Mar-19	-	0	_	_	0	-
Apr-19	_	0	_	_	0	_
May-19	-	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

	DATE RECEIVED	REFERENCE NO.	SUBJECT	LOCATION OF CONCERN	STATUS
Environmental Complaints	7 January 2019	Public comment received by EPD, EPD's Ref. No. K01/RE/00000599 -19	General construction noise except renovation (within Restricted Hours)	Hung Hom MTR Station	 Environmental performance at the site and implementation status of proposed noise mitigation measures were immediately reviewed by the Contractor on 8 January 2019. No external works outside Hung Hom Concourse were carried out during the time of the complaint. On 8 January 2019, signage erection involving one scissor lift, hand-drill and hand-held breaker was carried out inside the Concourse. All works were carried out with the concourse entrance closed and was covered by a valid CNP. The noise from such equipment and machinery does not appear to match the noise in the sound recording provided by the complainant. No source of the noise in the sound recording could be identified from construction works carried out at Hung Hom Station. Investigation report submitted to EPD on 17 January 2019.
Environmental Complaints	19 January 2018	Public comment received by EPD, EPD's Ref. No. K01/RE/00002030 -18 & K01/RE/00002056 -18	General construction noise except renovation (within Restricted Hours)	Hung Hom MTR Station	 Environmental performance at the site and implementation status of proposed noise mitigation measures were immediately reviewed by the Contractor on 19 January 2018. Ceiling panel works involving elevated working platforms (scissor lifts or cherry pickers) inside the concourse was carried out on 19 and 20 January 2018. All works were carried out behind the door leaves with the concourse entrance closed. On 19 January 2018, there was also works carried out outside the concourse which required the use of a scissor lift for hoarding removal at North Concourse and paint removal at East Concourse. The scissor lift platform mobilization sound, i.e. "beeping" sound, has already been muted to minimise sound since the working area was already fenced off with a lookout

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	DATE RECEIVED	REFERENCE NO.	SUBJECT	LOCATION OF CONCERN	STATUS
					 man provided. However, the level sensor of the scissor lift would be activated as a safety warning signal whenever the platform is at a high position with balance at risk. All works carried out by SCL Contract 1112 on 19 and 20 January 2018 were covered by valid CNPs. Investigation report submitted to EPD on 26 January 2018.
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	 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	 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

	DATE RECEIVED	REFERENCE NO.	SUBJECT	LOCATION OF CONCERN	STATUS
					 smoke barrier was conducted under podium which required the use of a cherry picker. During cherry picker platform mobilization, safety warning signal, i.e. "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. 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.
Environmental Complaints	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	 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.

	DATE RECEIVED	REFERENCE NO.	SUBJECT	LOCATION OF CONCERN	STATUS
					 Given the fact that only housekeeping works were 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. Investigation report submitted to EPD on 21 March 2017.
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	 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. No air from the construction area under the podium will be drawn into the air conditioning system for distribution within the station. 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.
Environmental Complaints	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	 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	 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 movement of the forklift would also generate safety warning signal. 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.
Environmental Complaints	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	 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	 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

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