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. 23

[Period from 1 to 31 July 2014]

(August 2014)

Verified by: Fredrick Leong

Position: Independent Environmental Checker

Date: 13 August 2014

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. 23

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(August 2014)

Certified by: Richard Kwan

Position: Environmental Team Leader

Date: 

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. 23

[Period from 1 to 31 July 2014]

	Name	Signature
Prepared & Checked:	Joanne Tsoi	
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1 INTRODUCTION

1.1 Background

1.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai to Hung Hom via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH) and Stabling Sidings at Hung Hom Freight Yard (HHS); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).

1.1.2 Shatin to Central Link – Tai Wai to Hung Hom Section [SCL (TAW-HUH)] and Shatin to Central Link – Mong Kok East to Hung Hom Section [SCL (MKK-HUH) (hereafter referred to as "the Project") are parts of the SCL. Shatin to Central Link – Stabling Sidings at Hung Hom Freight Yard [SCL (HHS)] is a proposed stabling sidings option for SCL (TAW – HUH) at the former freight yard in Hung Hom.

1.1.3 The Environmental Impact Assessment (EIA) Reports for SCL (TAW-HUH) (Register No.: AEIAR-167/2012), SCL (MKK-HUH) (Register No.: AEIAR-165/2012) and SCL (HHS) (Register No.: AEIAR-164/2012) were approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Reports, two Environmental Permits (EPs) were granted on 22 March 2012, one covers SCL (TAW-HUH) and SCL (HHS)(EP No: EP-438/2012) and the other covers SCL (MKK-HUH) and SCL (HHS) (EP No.: EP-437/2012), for their construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-438/2012 and the latest Environmental Permit (EP No: EP-438/2012/F) was issued by Director of Environmental Protection (DEP) on 15 July 2014.

1.2 Project Programme

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

Table 1.1 Summary of Awarded Works Contracts

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

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

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

1.3 Purpose of the Report

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

2 ENVIRONMENTAL MONITORING AND AUDIT

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

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

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

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

Table 2.1 Summary of Major Construction Activities in the Reporting Period

Works Contract	Site	Construction Activities
1101[(1)]	Tai Wai Mei Tin Road	• N/A
1102	Hin Keng Station and Approach Structures	• Slope improvement works; • Bored piling; • Pre-bored H-pile; • King post piling; • Sheet piling; • ELS construction; and • Modification of retaining wall.
1103	Diamond Hill Area	• Excavation and ELS for launching shaft and machinery assembly
	Hin Keng Area	• Pipe Piling, Mucking Out, Tunnel Excavation and Drill and Blast for Lion Rock Tunnel at Hin Keng
	Fung Tak Area	• Platform erection, diaphragm wall and shaft excavation
	Ma Chai Hang Area	• Diaphragm wall and shaft excavation
1106	Diamond Hill Station Area	• D-wall construction; • Interchange Adit – construct barrette; • Capping beam construction works and sheet piling; • Gas main diversion works; • Construction of planter for tree transplantation; • Bored piling works; and • Excavation and ELS works. •
1107	Tunnel section next to Kai Tak Station	• Site investigation works; • Investigation and removal of old foundation works; • Shaft excavation; • Site preparation works; and • Grouting works.
1108	Kai Tak Station	• Excavation; • Base slab construction; • Wall and top slab construction; • Disposal of marine deposit; • Station structure: concourse slab concreting, base slab concreting, base slab rebar fixing; • Nullah diversion: plastering for shotcrete surface • Mined tunnel: strut installation jet grouting; sheet piling for water cut off wall by silent piler
1108A	Kai Tak Barging Point Facilities	• Daily operation and maintenance of the Barging Point Facilities; • Loading and disposal of Type 1 excavated sediments; • Marine transportation and disposal of received spoil including marine sediments to receptor sites or designated dumping facilities; and • Realignment of part of the existing haul road (120m approx) which is in conflict with other CEDD's Works Area.

Works Contract	Site	Construction Activities
1109	Ma Tau Wai (MTW) Works Area	• TKW – Operation of bentonite plant and Pier 15 underpinning works; • Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, and trial pits for location of utilities; and • Tam Kung Road – Pipe piling.
	To Kwa Wan (TKW) Works Area	• Olympic Garden – Pre-bored H pilling and underpinning of KNEC Piers; • TKW Station – Archaeological survey cum excavation, construction of grout curtain, shaft excavation, box culvert diversion, pre-bored H piling, sheet piling and TBM and STP setup; and • Nam Kok Road – Installation of pipe pile and construction of grout curtain.
1111	Mong Kok Freight Terminal	• Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.
	Hung Hom Area	• Excavation work, site clearance, site formation, slope work, cable detection, road diversion; • Construction of drainage, reinforced concrete structure, emergency vehicular access, temporary pedestrian walkway, decking; • Trial pit, pre-drilling, pilling works, grouting, post-grouting, backfilling, abutment works; • Erection of hoarding, temporary bridge, scaffolding platform; • Trimming of retaining wall; • Tie back installation; • Overhead line demolition; and • Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works.
1112	Hong Hom (HUH and HHS) Works Area	• Piling for HUH, NAT and SAT; • Diaphragm wall construction at HUH; • Initial excavation at HUH and HHS; • Barging point operation at Hung Hom Freight Pier; • Operation of Material Receiving Hopper at Hung Hom Freight Pier; and • Marine transportation and disposal of spoil to designated dumping ground(s).

Note:
(1) Construction works were completed.
N/A Not applicable

2.1.4 Impact monitoring for air quality and construction noise were conducted in accordance with the EM&A Manual in the reporting period. No Continuous noise monitoring was required according to the Continuous Noise Monitoring Plan (CNMP) in the reporting period. The air quality, construction noise monitoring results 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 **J**.

2.1.5 The monitoring results indicated that no exceedance of the Action/Limit Levels of 24-hr TSP, construction noise.

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

2.1.7 No environmental complaints, notification of summons and successful prosecutions were received in the reporting period. Cumulative log for environmental complaints, notification of summons and successful prosecutions is provided in **Table 2.4**.

2.1.8 Regular site inspections were conducted by the respective Contractor's ETs on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-conformance was identified in the reporting period.

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

Monitoring Station ID	Location	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Exceedance due to the Project Construction (Yes/No)
Works Contract 1101[5]					
Works Contract 1102 and 1103					
DMS-1	C.U.H.K.A.A. Thomas Cheung School	13.6 – 39.7	148.7	260	No
Works Contract 1103					
DMS-2	Price Memorial Catholic Primary School	18.3 – 36.9	167.4	260	No
Works Contracts 1103 and 1106					
DMS-3	Hong Kong S.K.H Nursing Home[1]	20.7 – 40.0	159.1	260	No
Works Contract 1106 and 1107					
DMS-4	Block 1, Rhythm Garden	19.2 – 58.2	160.4	260	No
Works Contract 1108[5]					
Works Contract 1108A[5]					
Works Contract 1109					
DMS-6	Katherine Building[2]	64 – 80	156.8	260	No
DMS-7	Parc 22[3]	71 – 83	166.7	260	No
DMS-8	SKH Good Shepherd Primary School	70 – 90	152.2	260	No
DMS-9	No. 12 Pau Chung Street [4][9]	72 – 95	160.9	260	No
DMS-10	Chat Ma Mansion	64 – 102	170.4	260	No
Works Contract 1111					
AM1[6]	No. 234 – 238 Chatham Road North[7]	24.8 – 54.3	183.9	260	No
Works Contract 1112					
AM2	Site Boundary of Finger Pier adjacent to Harbourfront Horizon[8]	17.7 – 54.1	182	260	No

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

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

Monitoring Station ID	Location	Noise Level ($L_{Aeq,30mins}$, dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected[7]		
Works Contract 1101[6]						
Works Contract 1102 and 1103						
NMS-CA-1	C.U.H.K.A.A. Thomas Cheung School	57.8 – 59.6	57.0	50.1 – 56.1	70 (65 during examination period)	No
Works Contract 1103						
NMS-CA-2	Price Memorial Catholic Primary School	68.6 – 69.8	66.0	65.1 – 67.5	70 (65 during examination period)	No
Works Contracts 1103 and 1106						
NMS-CA-3	Hong Kong S.K.H Nursing Home[1]	67.5 – 68.8	73.0	< baseline	70	No
Works Contract 1106 and 1107						
NMS-CA-4	Block 1, Rhythm Garden (north-eastern façade)	72.5 – 74.5	71.0	67.2 – 71.9	75	No
NMS-CA-5	Block 1, Rhythm Garden (northern façade)[2]	71.1 – 74.5	74.0	< baseline – 64.9	70 (65 during examination period)	No
Works Contract 1108[6]						
Works Contract 1108A[6]						
Works Contract 1109						
NMS-CA-6	No. 16-23 Nam Kok Road [3]	63.1 – 63.8	76.1	< baseline	75	No
NMS-CA-7	Skytower Tower 2	66.9 – 67.2	70.0	< baseline	75	No
NMS-CA-8	SKH Good Shepherd Primary School	75.3 – 75.8	75.4	< baseline – 65.2	70 (65 during examination period) (79 during the period of conducting the continuous noise monitoring) [8]	No
NMS-CA-9	Kong Yiu Mansion[4]	74.4 – 75.7	69.2	72.8 – 74.6	75	No
NMS-CA-10	Chat Ma Mansion	76.4 - 76.8	76.6	< baseline – 63.3	75	No
Works Contract 1111						

Monitoring Station ID	Location	Noise Level ($L_{Aeq,30mins}$, dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected[7]		
NM1	Carmel Secondary School (South Block)	67.6 - 69.9	68.0	< baseline – 65.4	70 (65 during examination period) (68 during the period of conducting the continuous noise monitoring) [9]	No
NM2	No. 234 – 238 Chatham Road North[5]	70.6 – 74.7	79.0	< baseline	75	No
Works Contract 1112[6]						

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

Table 2.4 Cumulative Log for Environmental Complaints, Notification of Summons and Successful Prosecutions

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

3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 The respective Contractors have implemented all mitigation measures and requirements as stated in the EIA Reports, EM&A Manuals and EP (EP-438/2012/F and EP-437/2012). The status of required submissions under the EPs as of the reporting period are summarised in **Table 3.1** and **3.2**.

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

EP Condition (EP-438/2012/F)	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 (1st submission) 31 Aug 2012 (2nd submission) 30 Nov 2012 (3rd submission)
Condition 2.7	Management Organisation of Main Construction Companies	27 Jul 2012 (1st submission) 21 Aug 2012 (2nd submission) 19 Dec 2012 (3rd submission) 22 Jan 2013 (4th submission) 30 Apr 2013 (5th submission) 21 May 2013 (6th 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 (1st submission) 28 Sep 2012 (2nd submission) 30 Nov 2012 (3rd submission) 11 Jan 2013 (4th submission) 8 Feb 2013 (Approved for Contracts 1109, 1111 and 1103) 8 Feb 2013 (5th submission) 26 Apr 2013 (6th submission) 11 Jun 2013 (7th submission) 12 July 2013 (Approved) 26 July 2013 (8th submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9th submission) 13 Sept 2013 (Approved) 20 Jan 2014 (10th submission) 26 Feb 2014 (Approved)
Condition 2.10	Continuous Noise Monitoring Plan (CNMP)	1 Aug 2012 (1st submission) 28 Sep 2012 (2nd submission) 30 Nov 2012 (3rd submission) 11 Jan 2013 (4th submission) 8 Feb 2013 (Approved for Contracts 1109, 1111 and 1103) 8 Feb 2013 (5th submission) 26 Apr 2013 (6th submission) 11 Jun 2013 (7th submission) 12 July 2013 (Approved) 26 July 2013 (8th submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9th submission) 13 Sept 2013 (Approved) 20 Jan 2014 (10th submission) 26 Feb 2014 (Approved)
Condition 2.11	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1st submission) 12 Sep 2012 (2nd submission) 10 Oct 2012 (Approved)
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1st submission) 12 Sep 2012 (2nd submission) 5 Oct 2012 (3rd submission) 10 Oct 2012 (Approved) 4 Mar 2013 (4th submission)

EP Condition (EP-438/2012/F)	Submission	Submission date
		9 May 2013 (5th submission) 24 July 2013 (6th submission) 26 July 2013 (Approved)
Condition 2.13	Visual, Landscape, Tree Planting & Tree Protection Plan	6 Jul 2012 (1st submission) 30 Aug 2012 (2nd submission) 3 Oct 2012 (3rd submission) 13 Nov 2013 (Approved for Contracts 1101, 1106 and 1109) 14 Nov 2012 (4th submission) 8 Feb 2013 (5th submission) 18 Mar 2013 (6th submission) 18 June 2013 (7th submission) 12 July 2013 (Approved)
Condition 2.14	Transplantation Proposal for Plant Species of Conservation Importance	22 Aug 2012 (1st submission) 5 Oct 2012 (2nd submission) 26 Nov 2012 (3rd submission) 4 Dec 2012 (Approved)
Condition 2.15	Conservation Plan	31 Jan 2013 (1st submission) 18 Mar 2013 (2nd submission) 24 Apr 2013 (Approved)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1109	10 Aug 2012 (1st submission) 3 Sep 2012 (2nd submission) 21 Sep 2012 (Approved) 11 Oct 2013 (3rd submission) 1 Nov 2013 (Approved)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1106	29 Jan 2013 (1st submission) 19 Mar 2013 (2nd submission) 8 Apr 2013 (Approved)
Condition 2.23	Supplementary Contamination Assessment Report for New Territories South Animal Centre	28 Sep 2012 25 Oct 2012 (Approved)
Condition 3.3	Baseline Monitoring Report (Works Contract 1109 - Stations and Tunnels of Kowloon City Section)	27 Jul 2012
Condition 3.3	Baseline Monitoring Report (Works Contract 1108A – Kai Tak Barging Point Facilities)	31 Jul 2012
Condition 3.3	Baseline Monitoring Report (Works Contracts 1103, 1106 and 1111 – Hin Keng to Diamond Hill Tunnels, Diamond Hill Station, and Hung Hom North Approach Tunnels)	19 Oct 2012
Condition 3.4	Monthly EM&A Reports No. 1 - 21 Monthly EM&A Report No. 22	Reported in previous Monthly EM&A Reports 14 July 2014

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

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

EP Condition (EP-437/2012)	Submission	Submission date
Condition 2.7	Construction Noise Mitigation Measures Plan (CNMMP)	30 Nov 2012 (1st submission) 8 Feb 2013 (Approved for Contract 1111) 26 Apr 2013 (2nd submission) 11 Jun 2013 (3rd submission) 27 Aug 2013 (Approved) 20 Jan 2014 (4th submission)
Condition 2.8	Continuous Noise Monitoring Plan (CNMP)	30 Nov 2012 (1st submission) 11 Jan 2013 (2nd submission) 8 Feb 2013 (Approved for Contract 1111) 20 Jan 2014 (3rd submission)
Condition 2.9	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1st submission) 12 Sep 2012 (2nd submission) 15 Oct 2012 (Approved)
Condition 2.10	Sediment Management Plan	6 Jul 2012 (1st submission) 12 Sep 2012 (2nd submission) 5 Oct 2012 (3rd submission) 15 Oct 2012 (Approved)
Condition 2.11	Visual, Landscape, Tree Planting & Tree Protection Plan	14 Nov 2012 (1st submission) 8 Feb 2013 (2nd submission)
Condition 3.3	Baseline Monitoring Report (Works Contracts 1103, 1106 and 1111 – Hin Keng to Diamond Hill Tunnels, Diamond Hill Station, and Hung Hom North Approach Tunnels)	19 Oct 2012
Condition 3.4	Monthly EM&A Reports No. 5 - 21 Monthly EM&A Report No. 22	Reported in previous Monthly EM&A Reports 14 July 2014

Appendix A

23rd EM&A Report for Works Contract 1108A –
Kai Tak Barging Point Facilities

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No.23

[Period from 1 to 31 July 2014]

Works Contract 1108A – Kai Tak Barging Point Facilities

(August 2014)

Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 12th August 2014

Concentric – Hong Kong River Joint Venture

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

Monthly Environmental Monitoring and Audit Report for July 2014

(Version 3.0)

Certified By _____

(Contractor's Environmental Team Leader)

REMARKS:

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

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

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EXECUTIVE SUMMARY

Introduction

1. This is the 23rd monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for MTR Contract no. 1108A "Shatin to Central Link - Kai Tak Barging Point Facilities". This report documents the findings of EM&A Works conducted in July 2014.

Summary of Site Activities undertaken during Reporting Month

2. The major site activities undertaken in the reporting month included:

- Daily operation and maintenance of the Barging Point Facilities;
- Loading and disposal of Type 1 excavated sediments;
- Marine transportation and disposal of received spoil including marine sediments to receptor sites or designated dumping facilities; and
- Realignment of part of the existing haul road (120m approx) which is in conflict with other CEDD's Works Area.

Environmental Monitoring and Audit Progress

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

- Water Quality Monitoring at each monitoring station…….....Nil
- Environmental Site Inspection…….……...…5 times

Water Quality

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

Waste Management

5. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. No inert C&D materials were generated, and 5m^3 of non-inert C&D materials were generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials

Environmental Site Inspection

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

Ecology/Landscape and Visual

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

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

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

Table I Summary Table for Events Recorded in the Reporting Month

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

Table II Summary Table for Key Information in the Reporting Month

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

Future Key Issues

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

- Daily operation and maintenance of the Barging Point Facilities;
- Loading and disposal of excavated marine sediments to designated dumping facilities
- Marine transportation of received spoil to receptor sites

1 INTRODUCTION

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

Purpose of the report

1.2 This is the 23rd EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 July to 31 July 2014.

Structure of the report

1.3 The structure of the report is as follows:

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

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

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

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

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

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

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

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

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

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

2.2 The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts. In addition to the temporary work site in the vicinity of the tunnel and station structures, there are some off-site temporary works sites/areas to facilitate the construction process. This Works Contract 1108A is one of the off-site temporary works sites covers the construction and operation of barging facilities.

General Site Description

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

Construction Programme and Activities

2.4 A summary of the major site activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix H**.

- Daily operation and maintenance of the Barging Point Facilities;
- Loading and disposal of Type 1 excavated sediments;
- Marine transportation and disposal of received spoil including marine sediments to receptor sites or designated dumping facilities; and
- Realignment of part of the existing haul road (120m approx) which is in conflict with other CEDD's Works Area.

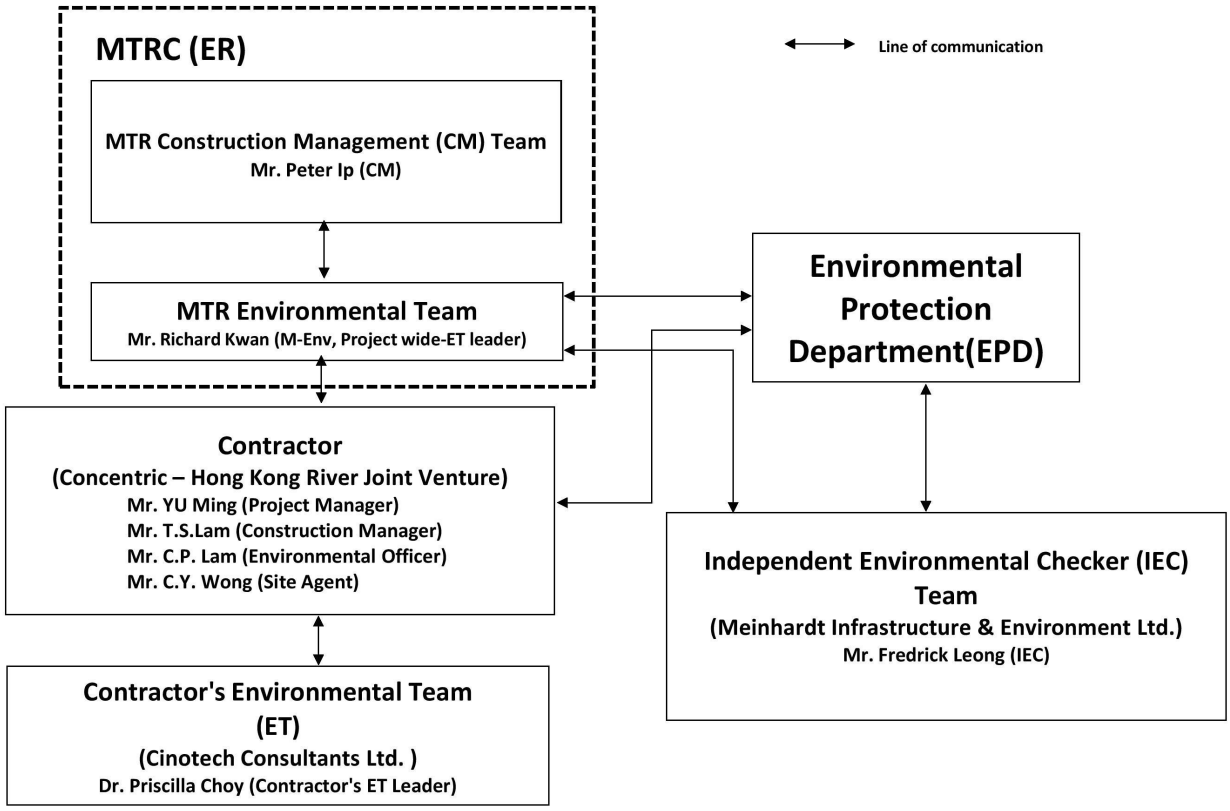
Project Organisation

2.5 Different parties with different levels of involvement in the project organization include:

- Engineer or Engineer's Representative (ER) – MTR Corporation (MTRC)
- Contractor's Environmental Team (ET) – Cinotech Consultants Ltd. (Cinotech)
- Independent Environmental Checker (IEC) – Meinhardt Infrastructure & Environment Ltd. (Meinhardt)
- Contractor – Concentric – Hong Kong River Joint Venture (CCL-HKR JV)

2.6 The responsibilities of respective parties are detailed in Section 3 of the SCL (TAW-HUH) EM&A Manual.

2.7 The project organisation chart is shown as follows:



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

Table 2.1 Key Contacts of the Project

Party	Role	Name	Position	Phone No.	Fax No.
MTRC	ER	Mr. Peter IP	Construction Manager	3507 6889	2334 0323
	Environmental Team	Mr. Richard KWAN	SCL Project Environmental Team Leader	2688 1283	2993 7577
Cinotech	Contractor's Environmental Team	Dr. Priscilla CHOY	Contractor's ET Leader	2151 2089	3107 1388
		Ms. Ivy TAM	Project Coordinator and Audit Team Leader	2151 2090	
Meinhardt	Independent Environmental Checker	Mr. Fredrick LEONG	Independent Environmental Checker	2858 0738	2540 1580
CCL-HKR JV	Contractor	Mr. T.S. LAM	Construction Manager	9655 5486	2398 8301
		Mr. C.P. LAM	Environmental Officer	9212 9417	
		Mr. C.Y. WONG	Site Agent	9199 3188	

Status of Environmental Licences, Notification and Permits

2.9 The Environmental Permit (EP-438/2012) of SCL (Tai Wai to Hung Hom Section) was first issued on 22 March 2012 and it was updated throughout the Project. The latest Environmental Permit (EP No. EP-438/2012/F) was granted on 15th July 2014.

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

Table 2.2 Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-438/2012	22/3/2012	11/07/2012	Superseded by EP-438/2012/A
EP-438/2012/A	12/07/2012	25/10/2012	Superseded by EP-438/2012/B
EP-438/2012/B	26/10/2012	29/04/2013	Superseded by EP-438/2012/C
EP-438/2012/C	30/04/2013	12/09/2013	Superseded by EP-438/2012/D
EP-438/2012/D	13/09/2013	03/04/2014	Superseded by EP-438/2012/E
EP-438/2012/E	04/04/2014	14/07/2014	Superseded by EP-438/2012/F
EP-438/2012/F	15/07/2014	N/A	Valid
Construction Noise Permit (CNP)			
GW-RE0754-12	24/09/2012	23/03/2013	Expired
GW-RE0272-13	26/03/2013	23/09/2013	Expired
GW-RE0969-13	24/09/2013	23/03/2014	Expired
GW-RE0321-14	29/03/2014	28/09/2014	Valid
Marine Dumping Permits			
EP/MD/13-074	26/10/2012	25/11/2012	Expired
EP/MD/13-075	10/10/2012	09/11/2012	Expired
EP/MD/14-077	27/11/2013	26/05/2014	Expired
EP/MD/14-083	16/12/2013	15/01/2014	Expired
EP/MD/14-117	24/02/2014	23/03/2014	Expired
EP/MD/14-158	25/03/2014	24/04/2014	Expired
EP/MD/14-168	10/04/2014	30/04/2014	Expired
EP/MD/15-003	25/04/2014	24/05/2014	Expired
EP/MD/15-021	27/05/2014	26/11/2014	Valid
EP/MD/15-073	14/08/2014	13/09/2014	To be valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
EPD reference no. 348913	22/08/2012	N/A	Receipt acknowledged by EPD

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

Summary of EM&A Requirements

2.11 The EM&A programme under 1108A require construction phase water quality monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the project EIA study final report; and
- Environmental requirements in contract documents.

2.12 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.

2.13 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely water quality as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Water Quality Monitoring

Monitoring Location

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

Table 3.1 Water Quality Monitoring Stations

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

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

Monitoring Parameters, Frequency and Programme

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

Table 3.2 Water Quality Impact Monitoring Programme

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

Monitoring Equipment and Methodology

Dissolved Oxygen and Temperature Measuring Equipment

3.3 The instrument should be portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment should be capable of measuring:

- DO level in the range of 0 - 20 mg/ L and 0 - 200% saturation; and
- Temperature of 0 - 45 degree Celsius.

3.4 The equipment should have a membrane electrode with automatic temperature compensation complete with a cable.

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

Turbidity Measurement Instrument

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

Water Sampler

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

Water Depth Detector

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

Salinity Measuring Equipment

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

pH Measuring Equipment

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

Sample Containers and Storage

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

Position Equipment

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

Calibration of In-Situ Instruments

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

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

Back-up Equipment and Vessels

3.14 Sufficient stocks of spare parts shall be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring can proceed uninterrupted even when some equipment is under maintenance, calibration, malfunction, etc.

3.15 The water quality monitoring will involve three monitoring stations and measurements should be conducted within the prescribed tidal conditions in order to ensure the measurement/samples are representative. A multi-probe monitoring equipment set integrated with water sampler(s) is highly recommended to improve the monitoring efficiency. Depending on the actually operation, more than one field survey vessels might be required simultaneously to ensure the monitoring are conducted within the acceptable monitoring period. The ET shall also consider the use of unattended automatic sampling/monitoring devices at fixed stations where monitoring are required throughout the construction period. The use of such unattended automatic devices, however, shall be subject to the approval of the ER, IEC and EPD.

Laboratory Measurement / Analysis

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

Table 3.3 Laboratory analysis for SS

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

Action and Limit Levels

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

Event and Action Plan

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

Cultural Heritage

3.19 According to the location of the Project and EIA report, there are no terrestrial archaeological resources and built heritage resources in vicinity of the Project. Archaeological monitoring works and the implementation of mitigation measures during the construction and operation phases of the Project is, therefore, not required.

3.20 However, the Contractor shall allow a 25m separation distance between the proposed dredging area and the Kowloon Rock as specified in the approved SCL(TAW-HUH) EIA Report.

Landscape and Visual

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

Ecology

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

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submissions under EP

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Status of submissions under EP	1	Monthly EM&A Report (June 2014)	Submitted to EPD on 14th July 2014 (EP Condition 3.4)	N/A	---

5 MONITORING RESULTS

Water Quality

5.1 No water quality monitoring was carried out at the monitoring stations during this reporting period as the dredging activity was completed on 11 November 2012.

5.2 Action and Limit Levels for water quality monitoring were established in the baseline water quality monitoring conducted by MTR between 16 June 2012 and 14 July 2012 under consultancy agreement no. NEX/2213. Action and Limit Levels for water quality is summarised in **Appendix A**.

Waste Management

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

5.4 Detail of waste management data is presented in **Appendix F**.

Table 5.1 Quantities of Waste Generated from the Project

Reporting Month	Quantity						
	C&D Materials (inert) [(a)]	C&D Materials (non-inert)[(b)]	Dredging Quantity (in bulk volume)	Chemical Waste	Recycled materials		
					Paper/ cardboard	Plastics	Metals
July 2014	0 m^3	5 m^3	0 m^3	0 *kg*	0 *kg*	0 *kg*	0 *kg*

Notes:
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.

Landscape and Visual

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

Ecology

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

6 ENVIRONMENTAL SITE INSPECTION

Site Audits

6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix C**.

6.2 Site audits were conducted on 2, 8, 17, 23 and 29 July 2014 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 17 July 2014. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

6.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the EMIS is provided in **Appendix E**.

6.4 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	24 June 2014 2 July 2014	Reminder: The Contractor was reminded to provide water pumps at both catch pits near the ramp of floating jetty no.4, in order to prevent overflow of site runoff to the seawall from the channel. Reminder: Water pump was observed provided at U-channel near the ramp of floating jetty no.4. The Contractor was reminded to make sure the water pump is well-connected to the channel.	The observation was observed to be improved/rectified by the Contractor during the audit session on 8 July 2014.
	8 July 2014	Reminder: The catch pit near conveyor belt no.1 was observed accumulated with mud. Contractor was reminded to clear it to prevent blockage.	The observation was observed to be improved/rectified by the Contractor during the audit session on 17 July 2014.
	23 July 2014	Reminder: To properly clear the mud accumulated on the barging platform of floating jetty no.4.	The observation was observed to be improved/rectified by the Contractor during the audit session on 29 July 2014.
	23 July 2014	Reminder: Stand water was observed to accumulate after rainstorm (in the drip trays of chemical waste storage area and near conveyor belt no.1, between the gaps found near temporary stockpile area). The Contractor was reminded to properly clear the stand water as chemical waste and apply	The observation was observed to be improved/rectified by the Contractor during the audit session on 29 July 2014.

Parameters	Date	Observations and Recommendations	Follow-up
		larvicide for mosquito control if necessary	
Noise	N/A	N/A	N/A
Ecology/ Landscape and Visual	N/A	N/A	N/A
	29 April 2014 8 May 2014 16 May 2014 20 May 2014	Observation: The dust curtain at tipping hall of floating jetty no.3 was damaged. The Contractor was reminded to repair it, as it is required under the EP.	
	27 May 2014 5 June 2014	Reminder: The dust curtain of tipping hall of floating jetty no.3 was damaged, while no unloading process was conducting during the inspection. The Contractor was reminded to repair it as soon as possible.	
	13 June 2014 17 June 2014	Reminder: Dust curtains in the floating jetty no.3 were observed with gaps between curtains. The Contractor was reminded to further improve the dust curtains (eg. Provide sufficient overlapping between curtains to avoid any gaps) to enhance the efficiency of dust suppression during unloading process.	The observation was observed to be improved/rectified by the Contractor during the audit session on 2 July 2014.
	24 June 2014	Observation: Dust curtain and tipping hall of floating jetty no.3 were damaged. The Contractor was reminded to repair it a.s.a.p.	
	24 June 2014	Observation: Dust curtain and water spray system of floating jetty no.4 were damaged. The	Water spray system was observed to be rectified by the Contractor during the audit

Parameters	Date	Observations and Recommendations	Follow-up
		Contractor was reminded to repair it a.s.a.p.	session on 8 July 2014. Follow-up action for the dust curtain will be reported in the next reporting period.
	2 July 2014	Observation: To provide water spray for tipping hall of floating jetty no.4 to prevent dust generation.	The observation was observed to be improved/rectified by the Contractor during the audit session on 8 July 2014.
	2 July 2014	Observation: Dust curtain of tipping hall for floating jetty no.4 was observed damaged. The Contractor was reminded to repair it	
	8 July 2014	Reminder: The dust curtains of floating jetty no.4 and no.3 were observed damaged while the jetties were not in operation. Contractor was reminded to repair them.	
	17 July 2014	Observation: Dust curtain of floating jetty no.4 was observed damaged. Contractor was reminded to repair it properly.	Follow up action will be reported in next reporting period.
	23 July 2014	Observation: Dust curtain of floating jetty no.4 was observed damaged, while unloading of excavated material was in process. The Contractor was reminded to repair it.	
	29 July 2014	Reminder: The dust curtain of floating jetty no.4 was observed damaged while it was not in operation. Contractor was reminded to repair it.	
	2 July 2014	Observation: To properly enclose the conveyor belt no.2 by tarpaulin sheet.	The observation was observed to be improved/rectified by the Contractor during the audit session on 8 July 2014.

Parameters	Date	Observations and Recommendations	Follow-up
	17 July 2014 23 July 2014 29 July 2014	Reminder: Tipping hall of floating jetty no.3 was observed damaged. Contractor was reminded to repair the cracks and holes of tipping hall near the dust curtain. Reminder: There were holes and cracks observed on tipping halls no.4 and no.3 while the holes and cracks on tipping hall no.3 were covered with tarpaulin sheet. Contractor was reminded to repair them properly.	Follow up action will be reported in next reporting period.
	17 July 2014 23 July 2014 29 July 2014	Reminder: Conveyor belt no.1 should be enclosed properly with tarpaulin sheet. Reminder: Conveyor belt no.1 and 2 were observed not enclosed properly while not operating. The Contractor was reminded to properly enclose both conveyor belts and clear the mud found below conveyor belt no.2. Reminder: The loading ramp of Conveyor belt no.2 should be enclosed tightly with tarpaulin sheet.	Follow up action will be reported in next reporting period.
Waste / Chemical Management	N/A	N/A	N/A
Permits / Licenses	N/A	N/A	N/A

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

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

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

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

Summary of Environmental Summon and Successful Prosecution

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

8 FUTURE KEY ISSUES

Key Issues in the Coming Month

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

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

Site Activities for the Next Month

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

- Daily operation and maintenance of the Barging Point Facilities;
- Loading and disposal of excavated marine sediments to designated dumping facilities
- Marine transportation of received spoil to receptor sites

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 July 2014 to 31 July 2014 in accordance with EM&A Manual and the requirement under EP-438/2012/F.

9.2 No impact monitoring was conducted in the reporting month.

9.3 There was no environmental complaint, prosecution or notification of summons received.

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

Recommendations

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

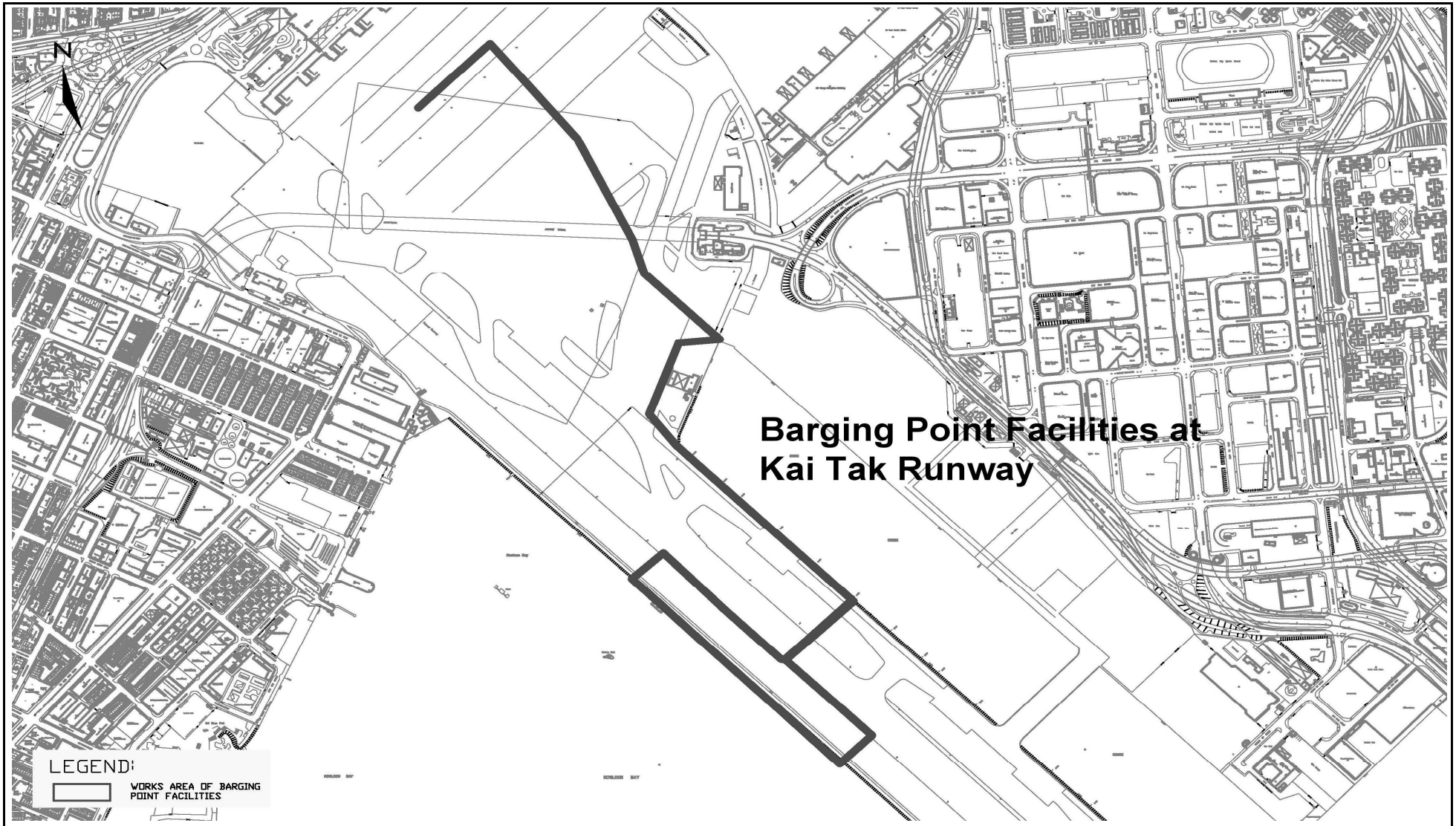
Water Quality

- Provide adequate measures to remove the silt and mud in the catch pit and keep the drainage system well-maintained.
- Excess muddy materials on the barging platforms should be cleared to prevent them from entering to seawater.
- Stand water should be cleared after rainstorm, and applied with larvicide if necessary.

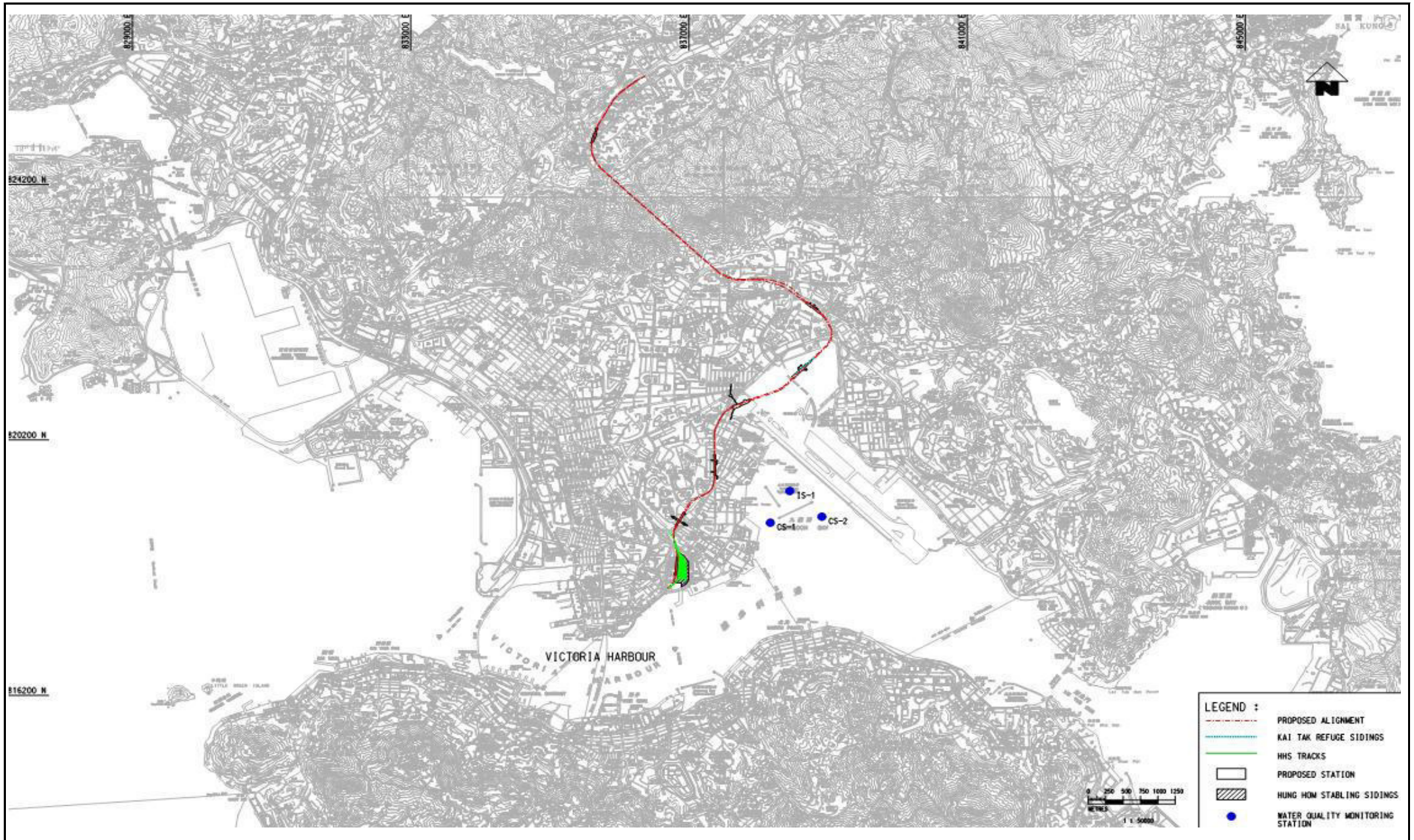
Air Quality

- The dust curtain, tipping hall and the water spray facility of floating jetty should be properly maintained.
- Conveyor belts should be properly enclosed with tarpaulin sheet for dust suppression.

FIGURES



Title: SCL Contract 1108A The Shatin to Central Link - Kai Tak Barging Point Facilities Site Layout Plan	Scale: N.T.S	Project No.: MA12028	CINOTECH
	Date: Apr-14	Figure: 1	



Title	SCL Contract 1108A The Shatin to Central Link - Kai Tak Barging Point Facilities Location of Water Monitoring Station and Control Stations	Scale: N.T.S Date: Oct-12	Proposa No.: MA12028 Figure: 2

CINOTECH

APPENDIX A
ACTION AND LIMIT LEVELS

APPENDIX A – Action and Limit Levels

Action and Limit Levels for Water Quality

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

APPENDIX B
SUMMARY OF EXCEEDANCE

APPENIDX B – SUMMARY OF EXCEEDANCE

Reporting Month: July 2014

a) Exceedance Report for Water Quality Monitoring (NIL)

APPENDIX C
SITE AUDIT SUMMARY

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140702
Date	2 July 2014 (Wednesday)
Time	10:30 - 11:45

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
140702-R04	• Water pump was observed provided at U-channel near the ramp of floating jetty no.4. The Contractor was reminded to make sure the water pump is well-connected to the channel.	B 15i
	Part C - Ecology/Others	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Air Quality	
140702-O01	• To properly enclose the conveyor belt no.2 by tarpaulin sheet.	D 12
140702-O02	• To provide water spray for tipping hall of floating jetty no.4 to prevent dust generation during operation.	D 5
140702-O03	• Dust curtain of tipping hall for floating jetty no.4 was observed damaged. The Contractor was reminded to repair it.	D 18
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Waste/Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on previous audit section (Ref. No.:140624). Follow-up actions are required for items 140624-O02 and 140624-R03, which are remarked as 140702-O02, O03 and 140702-R04 respectively.	

	Name	Signature	Date
Recorded by	Kevin Lam		2 July 2014
Checked by	Dr. Priscilla Choy		2 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140708
Date	8 July 2014 (Tuesday)
Time	15:30 – 16:40

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

Ref. No.	Remarks/Observations	Related Item No.
140708-R02	***Part B - Water Quality*** • The catch pit near conveyor belt no.1 was observed accumulated with mud, Contractor was reminded to clear it to prevent blockage.	B 6iii
	Part C - Ecology/Others • No environmental deficiency was identified during the site inspection.	
140708-R01	***Part D – Air Quality*** • The dust curtains of floating jetties no. 4 and no.3 were observed damaged while the jetties were not in operation. Contractor was reminded to repair them.	D 18
	Part E – Construction Noise Impact • No environmental deficiency was identified during the site inspection.	
	Part F – Waste/Chemical Management • No environmental deficiency was identified during the site inspection.	
	Part G - Permit / Licenses • No environmental deficiency was identified during the site inspection.	
	Others • Follow-up on previous audit section (Ref. No.:140702). Follow-up action is required for items 140702-O03 which are remarked as 140708-R01.	

	Name	Signature	Date
Recorded by	Harris Wong		8 July 2014
Checked by	Dr. Priscilla Choy		8 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140717
Date	17 July 2014 (Thursday)
Time	14:30 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	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/Others*** • No environmental deficiency was identified during the site inspection. ***Part D – Air Quality***	
140717-O01	• Dust curtain of floating jetty no.4 was observed damaged. Contractor was reminded to repair it properly.	D 18
140717-R02	• Tipping hall of floating jetty no.3 was observed damaged. Contractor was reminded to repair the cracks and holes of tipping hall near the dust curtain.	D 18
140717-R03	• Conveyor Belt no.1 should be enclosed properly with tarpaulin sheet.	D 12
	Part E – Construction Noise Impact • No environmental deficiency was identified during the site inspection. ***Part F – Waste/Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part G - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on previous audit section (Ref. No.:140708). Follow-up action is required for items 140708-R01 which is remarked as 14017-O01.	

	Name	Signature	Date
Recorded by	Harris Wong		17 July 2014
Checked by	Dr. Priscilla Choy		17 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140723
Date	23 July 2014 (Wednesday)
Time	10:30 – 11:45

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
140723-R04	• To properly clear the mud accumulated on the barging platform of floating jetty no.4.	B 25
140723-R05	• Stand water was observed to accumulate after rainstorm (in the drip trays of chemical waste storage area and near conveyor belt no.1, between the gaps found near temporary stockpile area). The Contractor was reminded to properly clear the stand water as chemical waste and apply larvicide for mosquito control if necessary.	B 12
	Part C - Ecology/Others	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Air Quality	
140723-O01	• Dust curtain of floating jetty no.4 was observed damaged, while unloading of excavated material was in process. The Contractor was reminded to repair it.	D 18
140723-R02	• Tipping hall of floating jetty no.3 was observed damaged while not operating. The Contractor was reminded to repair it.	D 18
140723-R03	• Conveyor belt no.1 and no.2 were observed not enclosed properly while not operating. The Contractor was reminded to properly enclose both conveyor belts and clear the mud found below conveyor belt no.2.	D 12
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Waste/Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on previous audit section (Ref. No.:140717). Follow-up action is required for items 140717-O01, R02 and R03, which are remarked as 140723-O01, R02 and R03.	

	Name	Signature	Date
Recorded by	Kevin Lam		23 July 2014
Checked by	Dr. Priscilla Choy		23 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140729
Date	29 July 2014 (Tuesday)
Time	15:30 – 16:45

Ref. No.	Non-Compliance	Related Item No.
-	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/Others*** • No environmental deficiency was identified during the site inspection. ***Part D – Air Quality***	
140729-R01	• The loading ramp of Conveyor belt no.2 should be enclosed tightly with tarpaulin sheet.	D 12
140729-R02	• The dust curtain of floating jetty no.4 was observed damaged while it was not in operation. Contractor was reminded to repair it.	D 18
140729-R03	• There were holes and cracks observed on tipping halls no.4 and no.3 while the holes and cracks on tipping hall no.3 were covered with tarpaulin sheet. Contractor was reminded to repair them properly.	D 18
	Part E – Construction Noise Impact • No environmental deficiency was identified during the site inspection. ***Part F – Waste/Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part G - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on previous audit section (Ref. No.:140723). Follow-up action is required for items 140723-O01, R02 and R03, which are remarked as 140729-R02, R03 and R01 respectively.	

	Name	Signature	Date
Recorded by	Harris Wong		29 July 2014
Checked by	Dr. Priscilla Choy		29 July 2014

APPENDIX D
EVENT AND ACTION PLANS

Event and Action Plan for Water Quality

Event	ET	IEC	ER	Contractor
Action level being exceeded by one sampling day	1. Inform IEC, contractor and ER; 2. Check monitoring data, all plant, equipment and Contractor's working methods; and 3. Discuss remedial measures with IEC and Contractor and ER	1. Discuss with ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the implemented mitigation measures; and 2. Make agreement on the remedial measures to be implemented. 3. Supervise the implementation of agreed remedial measures	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment; 5. Consider changes of working methods; 6. Discuss with ER, ET and IEC and propose remedial measures to IEC and ER; and 7. Implement the agreed mitigation measures.
Action level being exceeded by more than one consecutive sampling days	1. Repeat in-situ measurement on next day of exceedance to confirm findings; 2. Inform IEC, contractor and ER; 3. Check monitoring data, all plant, equipment and Contractor's working methods; 4. Discuss remedial measures with IEC, contractor and ER 5. Ensure remedial measures are implemented	1. Discuss with ET Contractor and ER on the implemented mitigation measures; 2. Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.	1. Discuss with ET, IEC and Contractor on the proposed mitigation measures; 2. Make agreement on the remedial measures to be implemented; and 3. Discuss with ET IEC and Contractor on the effectiveness of the implemented remedial measures.	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment and consider changes of working methods; 5. Discuss with ET, IEC and ER and submit proposal of remedial measures to ER and IEC within 3 working days of notification; and 6. Implement the agreed mitigation measures.
Limit level being	1. Repeat measurement on next day	1. Discuss with ET , Contractor and	1. Discuss with IEC, ET and	1. Identify source(s) of impact;

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

Event and Action Plan for Landscape and Visual during Construction Stage

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

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer/Engineer's Representative

APPENDIX E
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecology (Pre-Construction Phase)								
S5.7	E3	<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	Contractor	Works sites Kai Tak Barging Point	Prior to site clearance	• AFCD's requirements	^
Ecology (Construction Phase)								
S5.7	E5	<u>Good Site Practices</u> Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, 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;	Minimise ecological impacts	Contractor	All construction sites	During Construction	• ProPECC PN 1/94	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value. • No on-site burning of waste; • Waste and refuse in appropriate receptacles.						^ ^ ^ ^
S5.7	E6	<u>Sediment Removal</u> • Use closed grab in dredging works. • Install silt curtain during the dredging.	• Reduce indirect impacts of suspended solids on sessile benthic and intertidal fauna • Minimize marine water quality impacts	Contractor	Dredging Area	During Dredging	•TM-Water	N/A(2) N/A(2)
Landscape & Visual (Construction Phase)								
S6.9.3	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> • For soil conservation, existing topsoil shall be re-used where	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	N/A(2)

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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites.						^
S6.12	LV2	<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.	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and construction stage	• EIAO – TM •ETWB TCW 2/2004 • ETWB TCW 3/2006	^ N/A(1)
Air Quality (Construction Phase)								
/	A1	<u>Emission from Vehicles and Plants</u> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD).	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO • To control the air quality to meet HKAQO and TM-EIA criteria	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
/	A2	Open burning shall be prohibited.	Reduce air pollution emission from work site.	Contractor	All construction sites	Construction stage	• APCO • To control the air quality to meet HKAQO and TM-EIA criteria	^
Construction Dust Impact								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m^2 to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S7.6.5	D3	• Proper watering of exposed spoil should be undertaken throughout the construction phase; • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones; • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^ ^ ^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting						^ ^ ^ N/A(2) N/A(2)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked 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(2) N/A(2) N/A(2) N/A(2) N/A(2)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S7.6.5	D4	The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point: • All road surface within the barging facilities will be paved; • Dust enclosures will be provided for the loading ramp; • Vehicles will be required to pass through designated wheels wash facilities; and • Continuous water spray at the loading points	Control construction dust	Contractor	Kai Tak Barging Point	Construction stage	• Air Pollution Control (Construction Dust) Regulation	^ * ^ *
S7.6.5	D5	• For the unloading of spoil from trucks at barging point, installation of 3-sided screen with top tipping hall and operating water spraying and flexible dust curtains at the discharge point for dust suppression	Minimize dust impact at the nearby sensitive receivers	Contractor	Barging Points	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria •EP Condition 2.18 (c)	*
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	N/A(1)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Construction 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; • Mobile plant should be sited as far away from NSRs as possible and practicable; • Material stockpiles, mobile container site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.	Control construction airborne noise	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^ ^ ^ N/A(2) ^ N/A(2)
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^

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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Water Quality (Construction Phase)								
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 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 the commencement of construction. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	• 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	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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 sedimentation 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 advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement						^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 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, construction materials or debris being washed into the drainage						* ^ N/A(1) ^

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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		should be 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.						^ ^ N/A(2) *
S10.7.1	W3	<u>Sewage Effluent</u> • Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • TM-water	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S10.7.1	W4	<u>Groundwater from Contaminated Area:</u> • No direct discharge of groundwater from contaminated areas should be adopted. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in this EIA report for compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water) and the existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination If the review results indicated that the groundwater to be generated from the excavation works would be contaminated, the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground. • If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	• Water Pollution Control Ordinance • TM-water • TM-EIAO	N/A(1) N/A(1)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers • If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.						N/A(1)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S10.7.1	W5	<u>Dredging Works</u> The following good practice shall apply for the dredging works: • Install efficient silt curtains at the point of seawall dredging to control the dispersion of SS; • Implement water quality monitoring to ensure effective control of water pollution and recommend additional mitigation measures required; • The decent speed of grabs should be controlled to minimize the seabed impact and to reduce the volume of over-dredging; and • All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.	To minimize sediment suspension during dredging	Contractor	Kai Tak Barging Point during dredging works	Dredging period	• Water Pollution Control Ordinance • TM-EIAO	N/A(2) N/A(2) N/A(2) N/A(2)
S10.7.1	W6	<u>Operation of Barging Facilities</u> 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	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	• Water Pollution Control Ordinance • TM-EIA	^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		transportation; • All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water; and • Mitigation measures as outlined in W1 should be applied to minimise water quality impacts from site runoff and open stockpile spoils at the proposed barging facilities where appropriate.						^ ^ *
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	Contractor	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	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S10.7.1	W8	Implement a marine water quality monitoring programme	Monitor marine water quality prior to and during dredging period	Contractor	At identified monitoring location	Prior to and during dredging period	• Water Pollution Control Ordinance • TM-water • EIA-TM	^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<u>On-site sorting of C&D material</u> • Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	• DEVB TC(W) No. 6/2010	N/A(2)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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	<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 promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction.	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	N/A(2) N/A(2) N/A(2) N/A(2) ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation						^
S11.5.1	WM3	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimize the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No.19/2005	^ N/A(2)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S11.5.1	WM4	<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 chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^ ^ ^ ^
S11.5.1	WM6	<u>Land-based and Marine-based Sediment</u> • All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited	To control pollution due to marine sediment	Contractor	Within Project Site Area	Construction Stage	• ETWB TCW No. 34/2002	N/A(1)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		in the locations other than designated location; • All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations; • Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action. • The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers; • The Contractors shall comply with the conditions in the dumping licence. • All bottom dumping vessels (Hopper barges) shall be fitted with						N/A(1) N/A(1) N/A(1) N/A(1) N/A(1) N/A(1)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		tight fittings seals to their bottom openings to prevent leakage of material; • The material shall be placed into the disposal pit by bottom dumping; • Contaminated marine mud shall be transported by spit barge of not less than 750m^3 capacity and capable of rapid opening and discharge at the disposal site; • Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site. • For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping into designated mud pit would be a possible arrangement. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping at the disposal site, thereby fulfilling the requirements for fully confined mud disposal.						N/A(1) N/A(1) N/A(1) N/A(1)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
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 and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labeled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All Construction Sites	Construction Stage	• Waste Disposal (Chemical Waste) (General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	^ ^ ^

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

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

• Non-compliance but rectified by the contractor

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

N/A(1) Not Applicable N/A(2) Not Applicable at this stage

APPENDIX F
WASTE GENERATION IN THE REPORTING MONTH

Concentric – Hong Kong River Joint Venture

MTR SCL Contract 1108A
Kai Tak Barging Point Facilities

Monthly Summary Waste Flow Table for 2014 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
January	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.010**
Feb	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Mar	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.005**
Apr	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
May	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.005**
June	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
Sub-total	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.020**
July	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.005**
Aug	-	-	-	-	-	-	-	-	-	-	-
Sept	-	-	-	-	-	-	-	-	-	-	-
Oct	-	-	-	-	-	-	-	-	-	-	-
Nov	-	-	-	-	-	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-	-
G.Total	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.025**

APPENDIX G
COMPLAINT LOG

Appendix G - Complaint Log

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
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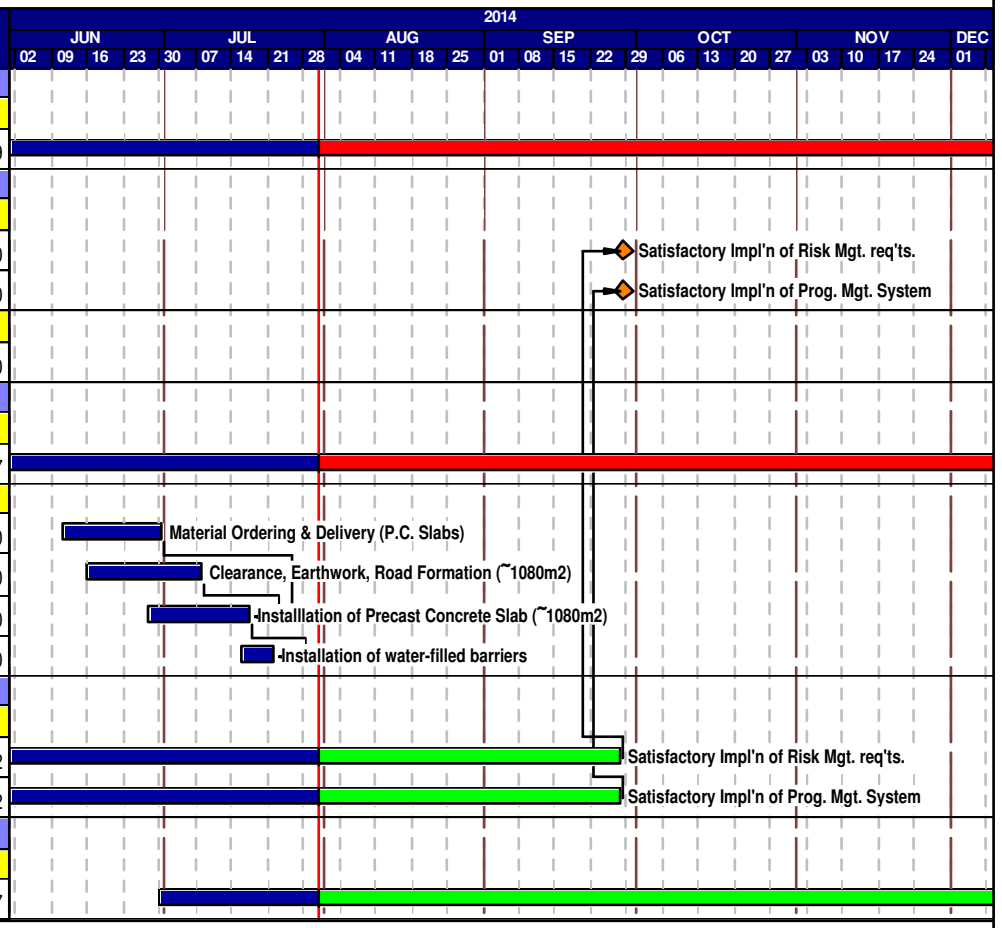
APPENDIX H
TENTATIVE CONSTRUCTION PROGRAMME

MTR SCL 1108A
KAI TAK BARGING POINT FACILITIES

3 Month Rolling Programme
(incl. Addition of Floating Jetty)

Act ID	Description	Orig Dur	Early Start	Early Finish	%
COMMENCEMENT & COMPLETION					
Time for Completion					
1108ADC04C	Completion of The Whole of the Works	1477	13AUG12 A	28AUG16	49
MILESTONES SCHEDULE					
Milestones for Cost Centre A					
1108AMSA61	Satisfactory Impl'n of Risk Mgt. req'ts.	0		27SEP14	0
1108AMSA62	Satisfactory Impl'n of Prog. Mgt. System	0		27SEP14	0
Milestones for Cost Centre B					
1108AMSB60	Mgt., Maint., & Operation of BPF	0		28DEC14	0
Engineer's Instruction					
Addition of Floating Landing Barge in WA3					
1108AVE391	Operation of Additional Floating Jetty	359	06JAN14 A	31DEC14	57
Realignment of Existing RoW					
1108AVE402	Material Ordering & Delivery (P.C. Slabs)	20	11JUN14 A	30JUN14 A	100
1108AVE403	Clearance, Earthwork, Road Formation (~1080m2)	21	16JUN14 A	08JUL14 A	100
1108AVE404	Installlation of Precast Concrete Slab (~1080m2)	20	28JUN14 A	17JUL14 A	100
1108AVE405	Installation of water-filled barriers	5	16JUL14 A	22JUL14 A	100
Cost Centre A					
Preliminaries					
1108AA6010	Satisfactory Impl'n of Risk Mgt. req'ts.	780	13AUG12 A	27SEP14	92
1108AA6020	Satisfactory Impl'n of Prog. Mgt. System	780	13AUG12 A	27SEP14	92
Cost Centre B					
Kai Tak BPF - Mgt., Maintenance & Operation					
1108AB6010	Manage, Maintain & Operate the BPF	182	30JUN14 A	28DEC14	17



Start date	10AUG12
Finish date	28AUG16
Data date	31JUL14
Run date	27JUL14
Page number	1A

MTR SCL 1108A

KAI TAK BARGING POINT FACILITIES

Concentric - Hong Kong River Joint Venture

Early bar
Progress bar
Critical bar
Summary bar
Start milestone point
Finish milestone point

Appendix B

23rd 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. 23

[Period from 1 to 31 July 2014]

Works Contract 1109 - Stations and Tunnels of Kowloon City Section

(12 August 2014)

Certified by: Winnie Ko

Position: Environmental Team Leader

Date: 12 August 2014

Samsung-Hsin Chong JV

Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section: Works Contract 1109 – Stations and Tunnels of Kowloon City Section

Monthly EM&A Report No.23

July 2014

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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.23

July 2014

Reference 0171181

For and on behalf of
ERM-Hong Kong, Limited

Approved by: Frank Wan

Signed: 

Position: Partner

Date: 12 August 2014

CONTENTS

LIST OF ANNEXES

EXECUTIVE SUMMARY

The construction works of **MTR Shatin to Central Link Works Contract 1109 – Stations and Tunnels of Kowloon City Section** commenced on 1 September 2012. This is the twenty-third monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 July 2014 to 31 July 2014 in accordance with the EM&A Manual.

Summary of the Construction Works undertaken during the Reporting Month

The major construction works undertaken during the reporting month include:

Construction Activities undertaken
Works in Ma Tau Wai (MTW)
• TKW – Operation of bentonite plant and Pier 15 underpinning works; • Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, and trial pits for location of utilities; and • Tam Kung Road – Pipe piling.
Works in To Kwa Wan (TKW)
• Olympic Garden – Pre-bored H pilling and underpinning of KNEC Piers; • TKW Station – Archaeological survey cum excavation, construction of grout curtain, shaft excavation, box culvert diversion, pre-bored H piling, sheet piling and TBM and STP setup; and • Nam Kok Road – Installation of pipe pile and construction of grout curtain.

Regular Construction Noise and Construction Dust Monitoring

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

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

Continuous Noise Monitoring

No continuous noise monitoring was conducted in this reporting month according to the programme in the latest version of CNMP. The next continuous noise monitoring session should commence in August 2014.

Cultural Heritage

A License to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been obtained from Antiquities and Monuments Office (AMO) on 29 October 2012. The archaeological survey-cum-excavation and additional investigation at the Sacred Hill (North) commenced on 1 November 2012 and was conducted in accordance with the License and the approved Archaeological Action Plan (AAP). An updated AAP was submitted to AMO for renewal of the 1 year archaeological license. The license was renewed and granted by AMO on 24 October 2013. The updated AAP was submitted to EPD for approval on 11 October 2013 and it was approved on 1 November 2013. The fieldworks of the archaeological survey-cum-excavation and additional investigation were completed on 27 December 2013. The Interim Archaeological Report was provided to AMO in April 2014.

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

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 2,103 m^3 of inert C&D materials were generated from the Project, which were sent to 1108A Kai Tai Barging Facilities during the reporting month. 544 kg of plastics was generated and sent to recyclers for recycling during the reporting period. About 131 m^3 of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. No metal waste was generated during this reporting month. 99 kg of paper/cardboard packaging was generated and sent to recyclers for recycling during the reporting period. 200 kg of chemical waste was generated during this reporting month.

Landscape and Visual

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 7 and 21 July 2014. No audit findings were observed during the reporting month. The implementation status is presented in *Section 5*.

Environmental Site Inspection

Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 7, 14, 21 and 28 July 2014. The representative of the IEC joined the site inspection on 14 July 2014. Details of the audit findings and implementation status are presented in *Section 6*.

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

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

No environmental complaint, summon or prosecution was received in this reporting period.

Future Key Issues

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

Construction Activities to be undertaken
Work in Ma Tau Wai (MTW)
● TKW – Operation of bentonite plant and pier 15 underpinning works; ● Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, and trial pits for location of utilities; and ● Tam Kung Road – Pipe piling.
Work in To Kwa Wan (TKW)
● Olympic Garden – Pre-bored H pilling; ● TKW Station – Archaeological survey cum excavation, construction of grout curtain, TBM & STP site setup, pre-bored H piling, shaft excavation, and sheet piling; and ● Nam Kok Road – Installation of pipe pile and construction of grout curtain.

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

1.2 STRUCTURE OF THE REPORT

Section 1 : **Introduction**
It details the purpose and structure of the report.

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

Section 3 : **Environmental Monitoring Requirement**
It summarises the monitoring parameters, programmes, methodologies, frequency, locations, Action and Limit Levels, Event /Action Plans.

Section 4 : **Implementation Status of the Environmental Protection Requirements**
It summarises the implementation of environmental protection measures during the reporting period.

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

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

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

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

Section 9 : **Conclusions**

2 PROJECT INFORMATION

2.1 BACKGROUND

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

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

2.2 GENERAL SITE DESCRIPTION

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

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

2.3 CONSTRUCTION PROGRAMME AND ACTIVITIES

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

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

Construction Activities undertaken
Works in Ma Tau Wai (MTW)
● TKW – Operation of bentonite plant and Pier 15 underpinning works; ● Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, and trial pits for location of utilities; and ● Tam Kung Road – Pipe piling.
Works in To Kwa Wan (TKW)
● Olympic Garden – Pre-bored H pilling and underpinning of KNEC Piers; ● TKW Station – Archaeological survey cum excavation, construction of grout curtain, shaft excavation, box culvert diversion, pre-bored H piling, sheet piling and TBM and STP setup; and ● Nam Kok Road – Installation of pipe pile and construction of grout curtain.

2.4 PROJECT ORGANISATION

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

2.5 STATUS OF ENVIRONMENTAL LICENCES, NOTIFICATION AND PERMITS

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

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

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-438 /2012/E	Throughout the contract	Superseded by EP-438/2012/F on 15 July 2014.
	EP-438/2012/F	Throughout the Contract	Permit granted on 15 July 2014
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)	348516	13 August 2012 – 30 April 2017	-
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation (Form NB)	351125	16 October 2012 – 30 April 2017	-
Wastewater Discharge Licence			
Site at TKW	*WT00014390-2012*	*30-September-2017*	-
Site at MTW	*WT00016348-2013*	*30-September-2017*	-
Chemical Waste Producer Registration			
Site at TKW	*5213-286-S3682-01*	*Throughout the Contract*	-
Site at MTW	*5213-242-S3682-02*	*Throughout the Contract*	-
Construction Noise Permit			
- *Grout Pump and Generator in TKW Garden*	*GW-RE0096-14*	*21 February 2014 – 19 August 2014*	-.
- *PME in SUW Olympic Playground*	*GW-RE0281-14*	*24 March 2014 – 18 September 2014*	-
- *PME in Pier 15 works area*	*GW-RE0225-14*	*5 March 2014 – 31 August 2014*	*Replaced by GW-RE0726-14 on 2 July 2014..*
- *PME at Kai Tak New Land*	*GW-RE0395-14*	*14 April 2014 – 9 October 2014*	-
- *PME on MTW Road north bound & Areas E3-E6*	*GW-RE0588-14*	*1 June 2014 – 26 November 2014*	-
- *PME on MTW Road and Chi Kiang Street Junction*	*GW-RE0685-14*	*22 June 2014 to 6 July 2014*	*Expired*
- *PME on Tam Kung*	*GW-RE0679-14*	*17 June 2014 to 4*	-

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Road		*December 2014*	
- *PME on SWT Road and MTC Road junction*	*GW-RE0566-14*	*13 June 2014 to 26 July 2014*	*Cancelled on 25 June 2014*
- *PME in SUW works area*	*GW-RE0652-14*	*11 June 2014 to 27 November 2014*	-
- *PME on MTW Road between Lok Shan Road and Kiang His Street, Chi Kiang Street between Ko Shan Road and To Kwa Wan Road and the construction site of To Kwa Wan Road/ Chi Kiang Street/ Ma Tau Wai Road*	*GW-RE0711-14*	*29 June 2014 to 20 July 2014*	*Expired*
- *PME on SUW Road between Ma Tau Chung Road and Pak Tai Street*	*GW-RE0696-14*	*27 June 2014 to 9 August 2014*	-
- *PME in Pier 15 works area and EEP*	*GW-RE0726-14*	*2 July 2014 to 31 December 2014*	-
- *PME in Pier 15 works area (Bridge Jacking)*	*GW-RE0773-14*	*20 July 2014 to 31 August 2014*	-
- *PME at Kai Tak New Land 2*	*GW-RE0827-14*	*25 July 2014 to 23 January 2015*	-
- *PME on TKW Lok Shan Road TTMS*	*GW-RE0828-14*	*17 August 2014 – 14 September 2014*	--
Licence to Excavate and Search for Antiquities	363	Till 21 October 2014	-
Billing Account for Disposal of Construction Waste	7015758	Throughout the Contract	-

3 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.

3.1.3 Monitoring Equipment and Methodology

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

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

Table 3.2 Noise Monitoring Equipment

Monitoring Stations	Monitoring Equipment (Sound Level Meter and Calibrator)
NMS–CA-6, NMS–CA-7, NMS–CA-8, NMS–CA-9 and NMS–CA-10	Calibrator: NC 73 (Serial No. 10997142) Sound Level Meter: NL 18 (Serial No. 00360030); and NL 52 (Serial No. 00331805)

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

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

3.1.4 Action and Limit Levels

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

Table 3.3 Action and Limit Levels for Noise Monitoring

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

Notes:
(a) If works are to be carried out during restricted hours (ie, outside 0700 – 1900 from Monday to Saturday), the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.
(b) The Limit Level of 79 dB(A) was updated on 22 August 2013 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP), which were approved by EPD.

3.2 CONTINUOUS NOISE MONITORING

3.2.1 Monitoring Location

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

Table 3.4 Proposed Continuous Noise Monitoring Locations

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

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

Continuous Noise Monitoring Location[a]	Description
Plan (CNMP).	

3.2.2 Monitoring Parameter and Frequency

Continuous monitoring of $L_{Aeq(30min)}$ noise levels are required to be carried out at the eight proposed continuous noise monitoring locations identified in ***Table 3.4*** during the normal construction working hours (0700 – 1900 Monday to Saturday) in the period that presented in the CNMP. The recommended measurement period for the continuous noise monitoring programme in the CNMP are presented in ***Table 3.5***. 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 3.5.***

Table 3.5 Action/Limit Levels for Continuous Noise Monitoring [a]

Proposed Continuous Noise Monitoring Stations	Description	Action / Limit Level [a]	Measurement Period [a]
TKW-3-2(A)	No. 420 Prince Edward Road West	80	September 2014 – December 2014
MTW-12-3	Lucky Mansion	80	August 2014 – January 2015, March 2015 – June 2015
MTW-12-4	352-354 Ma Tau Wai Rd (East Façade)	80	August 2014 – June 2015
MTW-12-4-1(A)	59 Maidstone Road	82	October 2014, December 2014 – June 2015

Proposed Continuous Noise Monitoring Stations	Description	Action / Limit Level [(a)]	Measurement Period [(a)]
MTW-12-10	Lucky Building (South Façade)	84	March 2015 – April 2015, September 2015 – January 2016
MTW-12-10-1	Lucky Building (East Façade)	80	December 2014 – May 2015, September 2015 – January 2016
MTW-12-11	Jing Ming Building	81	September 2014 – June 2015
MTW-16-1	SKH Good Shepherd Primary School	78	December 2012 – January 2013; April 2013 – 21 August 2013,
		79 [(b)]	22 August 2013 – December 2013, August 2014 – March 2016

Notes:

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

(b) The 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 3.6*** and shown in ***Annex D***. The proposed locations have been agreed with the ER, EPD and IEC.

Table 3.6 Construction Dust Monitoring Location

Proposed Construction Dust Monitoring Location	Description
DMS-6 [(a)]	Katherine Building
DMS-7	Parc 22
DMS-8	SKH Good Shepherd Primary School
DMS-9 [(b)]	No. 12 Pau Chung Street
DMS-10	Chat Ma Mansion

Proposed Construction Dust Monitoring Location	Description

Notes:

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

(b) As the Incorporated Owners Association of the originally proposed monitoring location at Lucky Building did not reply to our request for access to their premise, an alternative location, No. 26 Kowloon City Road, was proposed and had been approved by the ER and agreed by the IEC and EPD. However, 24-hour averaged dust monitoring has been suspended at DMS-9 No. 26 Kowloon City Road since March 2014 due to denied access by the occupant of the premise. No. 12 Pau Chung Street, as an alternative monitoring location, was formally approved by EPD on 19 May 2014. Impact dust monitoring at No. 12 Pau Chung Street commenced on 12 June 2014.

3.3.2 Monitoring Parameter and Frequency

The construction dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. The 24-hour TSP levels were monitored at the frequency and duration stated in ***Table 3.7***. The TSP monitoring was conducted as per the schedule presented in ***Annex E***.

Table 3.7 Construction Dust Monitoring Parameters and Frequency

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

3.3.3 Monitoring Equipment

24-hour averaged TSP monitoring was performed at designated monitoring stations using High Volume Samplers (HVS) with the appropriate sampling inlets installed. The performance specification of HVS complied with the standard method "*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*" as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. ***Table 3.8*** summarises the equipment that was deployed for the 24-hour averaged monitoring.

Table 3.8 Construction Dust Monitoring Equipment

Monitoring Location	Monitoring Equipment (HVS and Calibrator)
DMS-6	TE-5170 (Serial No. 0107), CM-AIR-43 (Orifice ID 2421)
DMS-7	TE-5170 (Serial No. 3574), CM-AIR-43 (Orifice ID 2421)
DMS-8	TE-5170 (Serial No. 3572), CM-AIR-43 (Orifice ID 2421)
DMS-9 (a)	TE-5170 (Serial No. 0814), CM-AIR-43 (Orifice ID 2454)
DMS-10	TE-5170 (Serial No. 3573), CM-AIR-43 (Orifice ID 2421)

Note:

Monitoring Location	Monitoring Equipment (HVS and Calibrator)
(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 run-temperature conditions;

- a new flow rate record sheet was inserted into the flow recorder;

- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 m^3min^{-1} , which was within the range specified in the EM&A Manual (i.e. 0.6 – 1.7 m^3min^{-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 3.9***.

Table 3.9 Action and Limit Levels for Dust Monitoring

Parameters	Dust Monitoring Station	Action Level (µg m^{-3}) [(a)]	Limit Level (µg m^{-3}) [(a)]
24-hour TSP	DMS-6	156.8	260
	DMS-7	166.7	260
	DMS-8	152.2	260
	DMS-9 [(c)]	160.9	260
	DMS-10	170.4	260
1-hour TSP [(b)]	DMS-6	288.8	500
	DMS-7	289.7	500
	DMS-8	300.0	500
	DMS-9 [(c)]	303.0	500
	DMS-10	294.7	500

Notes:

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

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

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

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

3.4 CULTURAL HERITAGE

A License to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance was obtained from the Antiquities and Monuments Office (AMO) on 29 October 2012. The archaeological survey-cum-excavation and additional investigation at the Sacred Hill (North) commenced on 1 November 2012 and was conducted in accordance with the Licence and the approved Archaeological Action Plan (AAP). An updated AAP was submitted to AMO for renewal of the 1 year archaeological license. The license was renewed and granted by AMO on 24 October 2013. The updated AAP was submitted to EPD for approval on 11 October 2013 and it was approved on 1 November 2013. The fieldworks of the archaeological survey-cum-excavation and additional investigation were completed on 27 December 2013. The Interim Archaeological Report was provided to AMO in April 2014.

In accordance with the EM&A Manual, appropriate vibration monitoring on the identified built heritage will be agreed with the Building Department (BD)/Geotechnical Engineering Office (GEO) under the requirement of Buildings Ordinance and/or Blasting Permit as appropriate. Vibration levels will be controlled to appropriate levels. Vibration monitoring will be carried

out by the Contractor. The structures requiring vibration monitoring during the relevant tunneling work for this Works Contract include S.K.H. Holy Trinity Church and Old Fast East Flying Training School.

3.5 LANDSCAPE AND VISUAL MITIGATION MEASURES

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

4 IMPLEMENTATION STATUS OF THE ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submission under Works Contract 1109

EP Condition	Submission	Submission Date
Condition 3.4	Twenty-second Monthly EM&A Report	14 July 2014

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. After baseline-level corrected, no exceedance of the limit level was recorded at all five monitoring locations during the whole reporting period .

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

5.2 CONTINUOUS NOISE MONITORING

No continuous noise monitoring was conducted in this reporting month according to the programme in the latest version of CNMP. The next continuous noise monitoring session shall commence again in August 2014.

5.3 CONSTRUCTION DUST MONITORING

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

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

Monitoring Station	24-hour TSP Monitoring Results measured, μgm^{-3} (a)		Action Level, μgm^{-3}	Limit Level, μgm^{-3}
	Average	Range		
DMS-6	72	64 – 80	156.8	260
DMS-7	77	71 - 83	166.7	260
DMS-8	79	70 – 90	152.2	260
DMS-9 (a)	81	72 – 95	160.9	260
DMS-10	75	64 - 102	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.

5.4 CULTURAL HERITAGE

A License to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance was obtained from Antiquities and Monuments Office (AMO) on 29 October 2012. The archaeological survey-cum-excavation and additional investigation at the Sacred Hill (North) commenced on 1 November 2012 and was conducted in accordance with the License and the approved Archaeological Action Plan (AAP). An updated AAP was submitted to AMO for renewal of the 1 year archaeological license. The license was renewed and granted by AMO on 24 October 2013. The updated AAP was submitted to EPD for approval on 11 October 2013 and it was approved on 1 November 2013. The fieldworks of the archaeological survey-cum-excavation and additional investigation were completed on 27 December 2013. The Interim Archaeological Report was provided to AMO in April 2014.

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

5.5 WASTE MANAGEMENT

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

Table 5.2 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	Inert C&D Materials [(a)] [(b)]	Chemical Waste	Non-inert C&D Materials			
			General Refuse/Vegetative Waste	Recycled materials		
				Paper/cardboard	Plastics	Metals
July 2014	2,103 m^3	200 kg	131 m^3	99 kg	544 kg	0 kg

Notes:

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

(b) About 2,103 m^3 of inert C&D materials were generated from the Project, and sent to 1108A Kai Tai Barging Facilities during the reporting month.

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

5.6 LANDSCAPE AND VISUAL MITIGATION MEASURES

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 7 and 21 July 2014. Most of the mitigation measures given in ***Annex H*** have been implemented. Required Actions that were found are listed below:

7 July 2014

- No observation was reported during the site inspection.

21 July 2014

- No observation was reported during the site inspection.

Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 7, 14, 21 and 28 July 2014. The representative of the IEC joined the site inspection on 14 July 2014. No non-compliance was recorded during the site inspections.

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

7 July 2014

- Noise mitigation measures were not provided for one out of seven power packs of trench cutters in works areas along Ma Tau Wai Road (NB) during its operation in W6 works area. As observed in subsequent site inspection on 14 July 2014, the Contractor had provided sufficient noise mitigation measures for the power pack of the trench-cutter in W6 works area for noise suppression.

14 July 2014

- There was no major observation during the site inspection.

21 July 2014

- There was no major observation during the site inspection.

28 July 2014

- The Contractor was reminded to provide sufficient drip trays for chemical containers stored in Olympic Garden of TKW works area.

All follow-up actions requested by Contractor's ET and IEC during the site inspections were undertaken as reported by the Contractor. The abovementioned environmental issues had been addressed and mitigated during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 SUMMARY OF MONITORING EXCEEDANCE

No exceedance of the Action and Limit Levels of the regular construction noise and 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 reported during the reporting month. The cumulative environmental complaint log is shown in ***Annex M***.

7.4 SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION

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

8 FUTURE KEY ISSUES

8.1 KEY ISSUES FOR THE COMING MONTH

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

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

Construction Activities to be undertaken
Work in Ma Tau Wai (MTW)
● TKW – Operation of bentonite plant and pier 15 underpinning works; ● Along Ma Tau Wai Road – Predrilling for D wall, D wall panel construction, and trial pits for location of utilities; and ● Tam Kung Road – Pipe piling.
Work in To Kwa Wan (TKW)
● Olympic Garden – Pre-bored H pilling; ● TKW Station – Archaeological survey cum excavation, construction of grout curtain, TBM & STP site setup, pre-bored H piling, shaft excavation, and sheet piling; and ● Nam Kok Road – Installation of pipe pile and construction of grout curtain.

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

8.2 MONITORING SCHEDULE FOR THE NEXT MONTH

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

8.3 CONSTRUCTION PROGRAMME FOR THE NEXT MONTH

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

9 CONCLUSIONS

This 23rd monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 July 2014 to 31 July 2014 in accordance with the EM&A Manual and the requirement under EP-438/2012/F.

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

No continuous noise monitoring was conducted during the reporting period according to the programme in the latest version of CNMP.

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

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

Annex A

The Alignment and Works Area for Works Contract

TKW

MTW

N

Meters

0 100 200

Key

Proposed Alignment

Works Area

Proposed Station

Annex A

Alignment, Stations and Works Area of SCL Works Contract 1109

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

Environmental Resources Management

ERM

Annex B

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

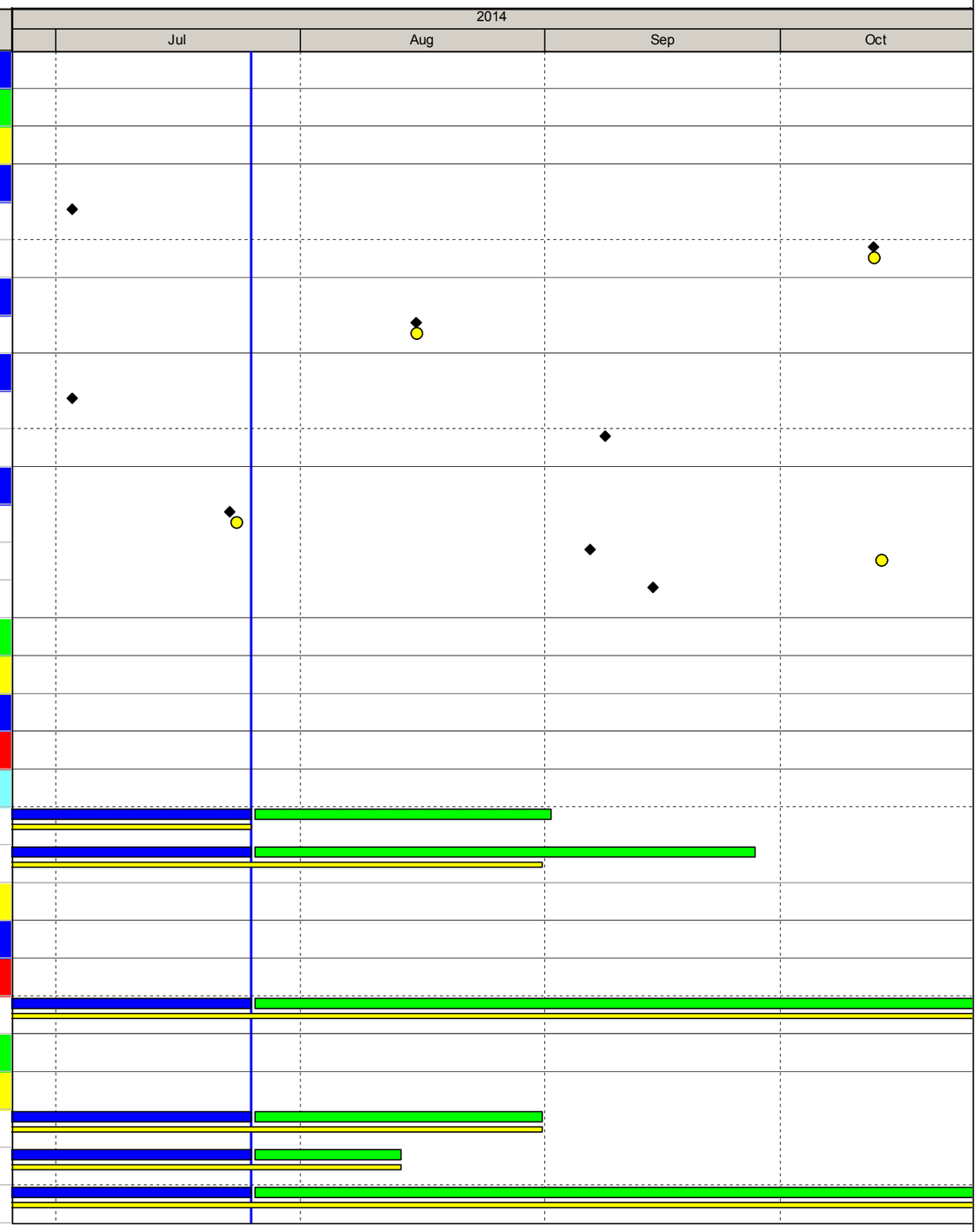
(1) Sung Wong Toi and To Kwa Wan Stations in the programme mean To Kwa Wan and Ma Tau Wai Stations in the Monthly EM&A Report respectively.

Data Date: 25-Jul-14

SAMSUNG - HSIN CHONG JOINT VENTURE

THREE MONTH ROLLING PROGRAMME - JULY 2014

Activity ID	Activity Name	Physical % Complete	Start	Finish
1109 - SUW & TKW Stations and Tunnels JUL14 (MP2-D1)			30-Aug-13 A	28-Dec-15
PROJECT DATES			03-Jul-14 A	12-Oct-14
Specified Milestone Dates			03-Jul-14 A	12-Oct-14
CC-A Milestones			03-Jul-14 A	12-Oct-14
01109.MSA26i	A6(i) - Complete 60% by plan length of permanent diaphragm wall for TKW complete.	100%		03-Jul-14 A
01109.MSA9	A9 - Engr's confirmation of satisfactory implementation of Programming Management System (1).(Wk41/14;12Oct14)	0%		12-Oct-14*
CC-B Milestones			15-Aug-14	15-Aug-14
01109.MSB06i	B7 - All pre-bored H piles complete #. (16 Aug 14)	0%		15-Aug-14
CC-C Milestones			03-Jul-14 A	08-Sep-14
01109.MSC05i	C5(i)-60% by plan length of permanent diaphragm wall complete.	100%		03-Jul-14 A
01109.MSC07i	C7(i)-80% by plan length of permanent diaphragm wall complete.(Wk24/14;15Jun14)	0%		08-Sep-14
CC-D Milestones			23-Jul-14 A	14-Sep-14
01109.MSD06ii	D6(ii)-Fabrication & factory tests of the second TBM complete & delivery to site (Wk37/14;14Sep14).	100%		23-Jul-14 A
01109.MSD06iii	D5-Underpinning at EKW Pier 15 complete & ready for removal of existing piles (Wk37/14;14Sep14)	0%		06-Sep-14
01109.MSD05i	D5-Manufacturing of pre-cast tunnel lining segments 20% by number complete	0%		14-Sep-14*
CC-A - PRELIMINARIES AND GENERAL REQUIREMENTS			04-Dec-13 A	12-Nov-15
Design and Approvals			04-Dec-13 A	27-Sep-14
Temporary Traffic Arrangements			04-Dec-13 A	27-Sep-14
SUW Station, Entrances and Adits			04-Dec-13 A	27-Sep-14
TTMS Design & Approval			04-Dec-13 A	27-Sep-14
01109.PDA1340	SUW - Sung Wong Toi & Pak Tai St - TTM Stage 1 - Design & Approval by SLG	35%	04-Dec-13 A	01-Sep-14
01109.PDA1320	SUW - TTM for Kln City Interchange - Design & Approval by SLG	41%	26-Apr-14 A	27-Sep-14
Procurement			25-Jan-14 A	12-Nov-15
Concrete Construction Materials			25-Jan-14 A	12-Nov-15
Precast supplies			25-Jan-14 A	12-Nov-15
01109.PDA4020	Precast concrete segment manufacture (2nd and subsequent batches)	30%	25-Jan-14 A	12-Nov-15
CC-B - SUW STATION, ENTRANCES AND ADITS			14-Oct-13 A	28-Dec-15
Engineers Instructions (EI)			03-Dec-13 A	01-Jan-15
01109.PDB EI 67	EI 67 - AWB Within Launching Shaft (Additional Work)	85%	03-Dec-13 A	31-Aug-14
01109.PDB EI 31	EI 31 - Revision to SUW Prebored H Piling Work	90%	16-Jan-14 A	13-Aug-14
01109.PDB EI 71	EI 71 - AWB Within in Open Cut Area of SUW (Additional Work)	35%	25-Apr-14 A	01-Jan-15



SAMSUNG-HSIN CHONG JOINT VENTURE

MTR Corporation Limited

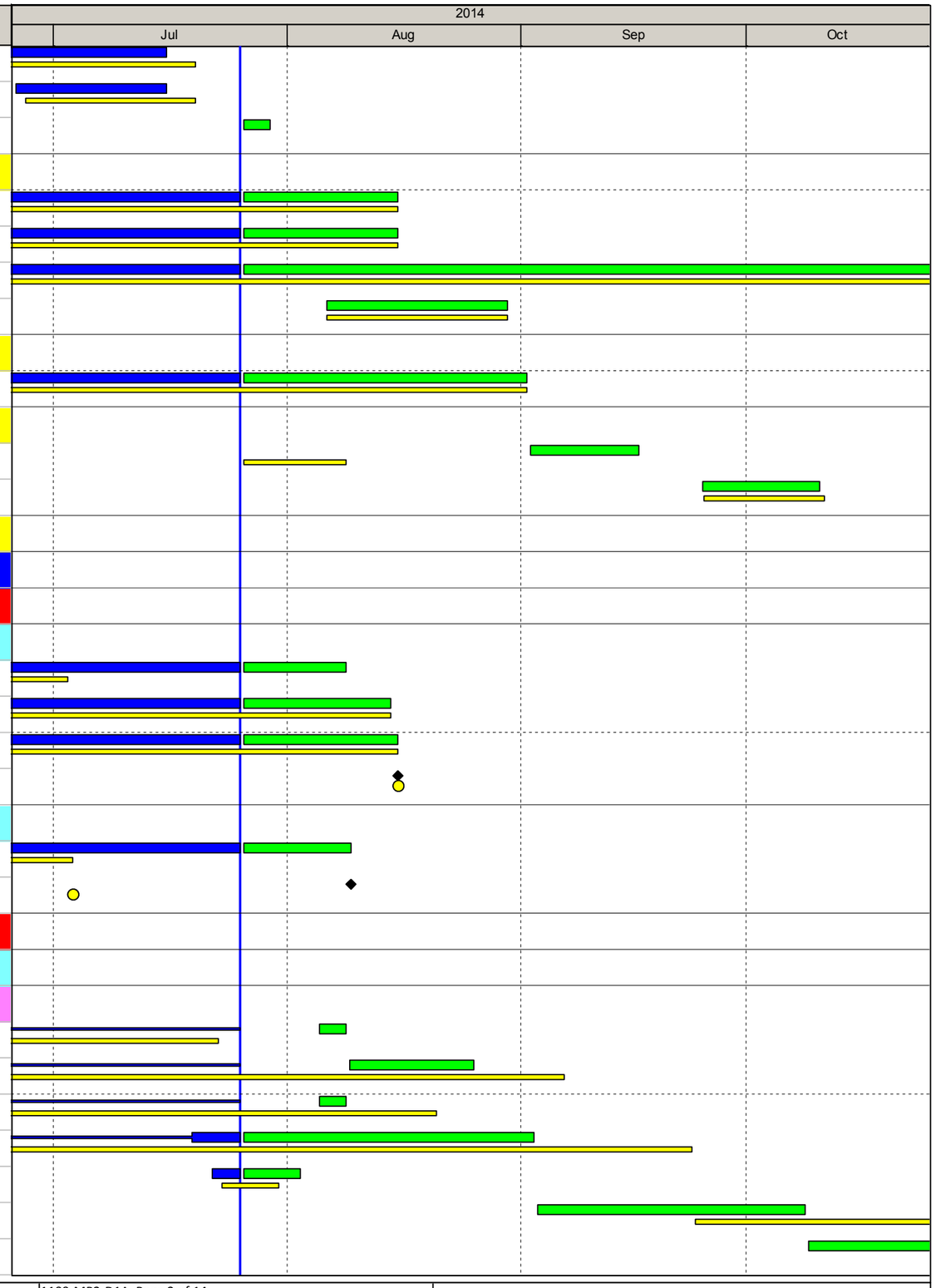
Shatin to Central Link Contract 1109

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

Printed:07-Aug-14

Actual Work
Remaining Work
Master Programme Rev.2 Draft
Milestone
MP Rev.2 Draft Mil...

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDB EI 68-1	EI 68 - Deisgn Approval for revised ELS work including Strut & Waler S2a	100%	25-Apr-14 A	16-Jul-14 A
01109.PDB EI 68	EI 68 - Design and Modification of ELS System - Sheet Pile Installation for T1 - Part 1	100%	26-Jun-14 A	16-Jul-14 A
01109.PDB EI 35	EI 35 - Revised backfilling sequence for SUW station	0%	26-Jul-14	29-Jul-14
Claims			16-Jan-14 A	28-Dec-15
01109.PDB Claim 33	Claim 33 - Delay in progress due to late supply of founding level by MTR	90%	16-Jan-14 A	15-Aug-14
01109.PDB Claim 45	Claim 45 - Delay to stud tunnel due to late prebored H piles and Archaeological Survey	90%	16-Jan-14 A	15-Aug-14
01109.PDB Claim N2	Claim New Item 2 - Tree incline 45 degree o/s Katherine Building	10%	02-Jun-14 A	28-Dec-15
01109.PDB Claim 27-2	Claim 27 - Pier 46 - Additional Trial Pit Excavation for Unchartered Ground Condition	0%	06-Aug-14	30-Aug-14
RFEI			01-May-14 A	01-Sep-14
01109.PDB RFEI 78	RFEI 78 - TTMS for watermains installation in 08WSD08 Contract	70%	01-May-14 A	01-Sep-14
Implementation of TTA at SUW			02-Sep-14	10-Oct-14
01109.PDB1601	SUW - Sung Wong Toi & Pak Tai St - Implement TTM Stage 1	0%	02-Sep-14	16-Sep-14
01109.PDB1591	SUW - Olympic Avenue - Implement TTM Stage 2	0%	25-Sep-14	10-Oct-14
SUW Station Construction Works			14-Oct-13 A	10-Nov-14
Station - Excavation and Foundation			14-Oct-13 A	10-Nov-14
Pre-bored H- Piling for Permanent Works			14-Oct-13 A	15-Aug-14
Part 3 (GL 12 - 18)			14-Oct-13 A	15-Aug-14
01109.PDB2180	Rig 6 - H- Piling - 110Nr - (BD approved drawings 07 Mar 13)	95%	14-Oct-13 A	08-Aug-14
01109.PDB2210	Rig 1 - H- Piling - 35Nr - (BD approved drawings 07 Mar 13)	80%	02-Jan-14 A	14-Aug-14
01109.PDB2271A	Rig A - H-Piling - 43 Nr - Piles with founding level >75m)	80%	16-Apr-14 A	15-Aug-14
01109.PDB2130A10	H- Piling; (GL12 - 18) - Complete	0%		15-Aug-14
Part 4 (GL 18 - 23)			17-Jan-14 A	09-Aug-14
01109.PDB2360	Rig 2 - H- Piling - 30Nr - (BD approved drawings 07 Mar 13)	90%	17-Jan-14 A	09-Aug-14
01109.PDB2130A20	H- Piling; (GL18 - 23) - Complete	0%		09-Aug-14
TBM Launch Shaft Works			03-Jan-14 A	10-Nov-14
Excavation TBM Shaft Area			03-Jan-14 A	10-Nov-14
Excavation and lateral Support - TBM Shaft			03-Jan-14 A	10-Nov-14
01109.PDB3100	TBM Launch shaft - Install Temporary Shoring (S1) - EGL to +5.0mPD	91%	03-Jan-14 A	08-Aug-14
01109.PDB19260	TBM Launch shaft - Install Temporary Shoring (S2) +5mPD to 1.5mPD	31%	03-Feb-14 A	25-Aug-14
01109.PDB3090	TBM Launch shaft - Excavate +5mPD to 1.5mPD	61%	03-Feb-14 A	08-Aug-14
01109.PDB3110	TBM Launch shaft - Excavate -1.5mPD to -4mPD	3%	18-Apr-14 A	02-Sep-14
01109.PDB3210	TBM Launch shaft - Install Temporary Shoring (S2a)	40%	22-Jul-14 A	02-Aug-14
01109.PDB3120	TBM Launch shaft - Install Temporary Shoring (S3) -1.5mPD to -4mPD	0%	03-Sep-14	08-Oct-14
01109.PDB3130	TBM Launch shaft - Excavate -4mPD to -8mPD	0%	09-Oct-14	27-Oct-14



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SAMSUNG-HSIN CHONG JOINT VENTURE

MTR Corporation Limited

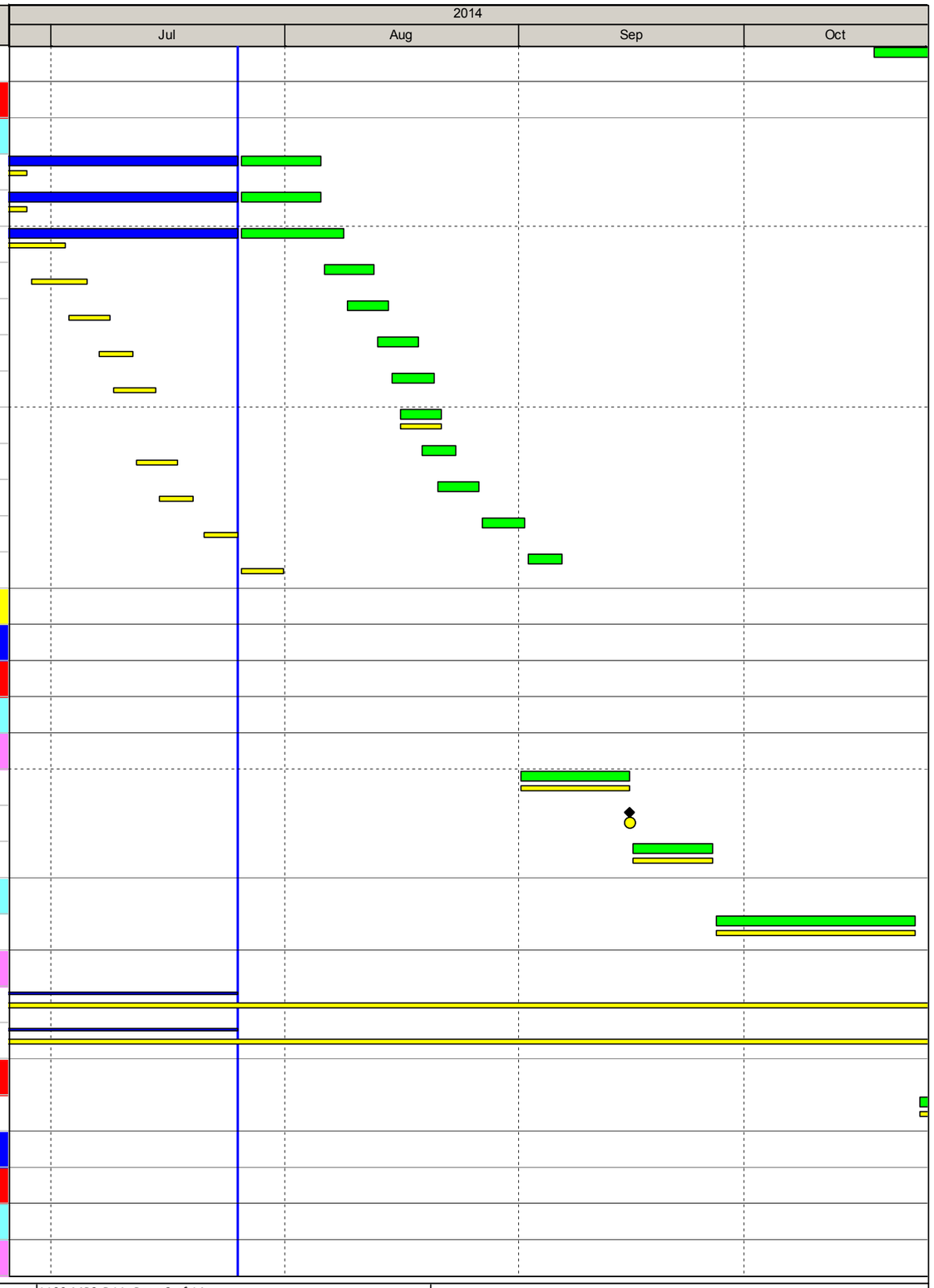
Shatin to Central Link Contract 1109

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

Printed:07-Aug-14

Actual Work
Remaining Work
Master Programme Rev.2 Draft
Milestone
MP Rev.2 Draft Mil...

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDB3140	TBM Launch shaft - Install Temporary Shoring (S4) -4mPD to -8mPD	0%	18-Oct-14	10-Nov-14
Earthworks			11-May-14 A	06-Sep-14
Install Observation Wells			11-May-14 A	06-Sep-14
01109.PDB3630	Observation Wells; Part 4- GL 20 to 21	50%	11-May-14 A	05-Aug-14
01109.PDB3610	Observation Wells; Part 4- GL 19 to 20	50%	11-May-14 A	05-Aug-14
01109.PDB3650	Observation Wells; Part 3- GL 12 to 13	33%	19-May-14 A	08-Aug-14
01109.PDB3660	Observation Wells; Part 4- GL 21 to 22	0%	06-Aug-14	12-Aug-14
01109.PDB3680	Observation Wells; Part 3- GL 13 to 14	0%	09-Aug-14	14-Aug-14
01109.PDB3690	Observation Wells; Part 4- GL 22 to 23	0%	13-Aug-14	18-Aug-14
01109.PDB3710	Observation Wells; Part 3- GL 14 to 15	0%	15-Aug-14	20-Aug-14
01109.PDB3750	Observation Wells; Part 4- areas beyond GL 24	0%	16-Aug-14	21-Aug-14
01109.PDB3720	Observation Wells; Part 4- GL 23 to 24	0%	19-Aug-14	23-Aug-14
01109.PDB3740	Observation Wells; Part 3- GL 15 to 16	0%	21-Aug-14	26-Aug-14
01109.PDB3770	Observation Wells; Part 3- GL 16 to 17	0%	27-Aug-14	01-Sep-14
01109.PDB3780	Observation Wells; Part 3- GL 17 to 18	0%	02-Sep-14	06-Sep-14
Entrance C and Associated Adits			21-Mar-14 A	26-Jan-15
Entrance C - Part 1- GL 7 to GL 14			21-Mar-14 A	26-Jan-15
Entrance C- Part 1- ELS Works			21-Mar-14 A	26-Jan-15
Entrance C - Part 1- Piling & Toe Grouting Works			01-Sep-14	26-Sep-14
GL12 to GL 14			01-Sep-14	26-Sep-14
01109.PDB14410A	Pre Bored H pile testing	0%	01-Sep-14	15-Sep-14
01109.PDB10410A	All Piling Works for Ent C & Adits complete	0%		15-Sep-14
01109.PDB14420A	Pump Test	0%	16-Sep-14	26-Sep-14
Entrance C - Part 1-Excavation Works			21-Mar-14 A	26-Jan-15
01109.PDB10430	Excavation & Lateral Support Works; GL C14 to C12	0%	27-Sep-14	23-Oct-14
GL 7 to GL 12			21-Mar-14 A	26-Jan-15
01109.PDB10440	Excavation & Lateral Support Works; GL C7 to C9	65%	21-Mar-14 A	26-Jan-15
01109.PDB10450	Excavation & Lateral Support Works; GL C9 to C12	58%	02-Apr-14 A	26-Jan-15
Entrance C - Part 1- Concrete Structure Works			24-Oct-14	31-Oct-14
01109.PDB10470	Prepare area for concrete Works	0%	24-Oct-14	31-Oct-14
Entrance C - Part 2- GL 3 to GL 7			01-Sep-14	10-Nov-14
Entrance C - Part 2- GL 3 to GL 7; Segment 1			01-Sep-14	10-Nov-14
Entrance C- Part 2- Seg 1; ELS Works			01-Sep-14	10-Nov-14
Entrance C - Part 2- Seg 1; Sheet Piling & Toe Grouting Works			01-Sep-14	10-Nov-14



SAMSUNG-HSIN CHONG JOINT VENTURE

MTR Corporation Limited

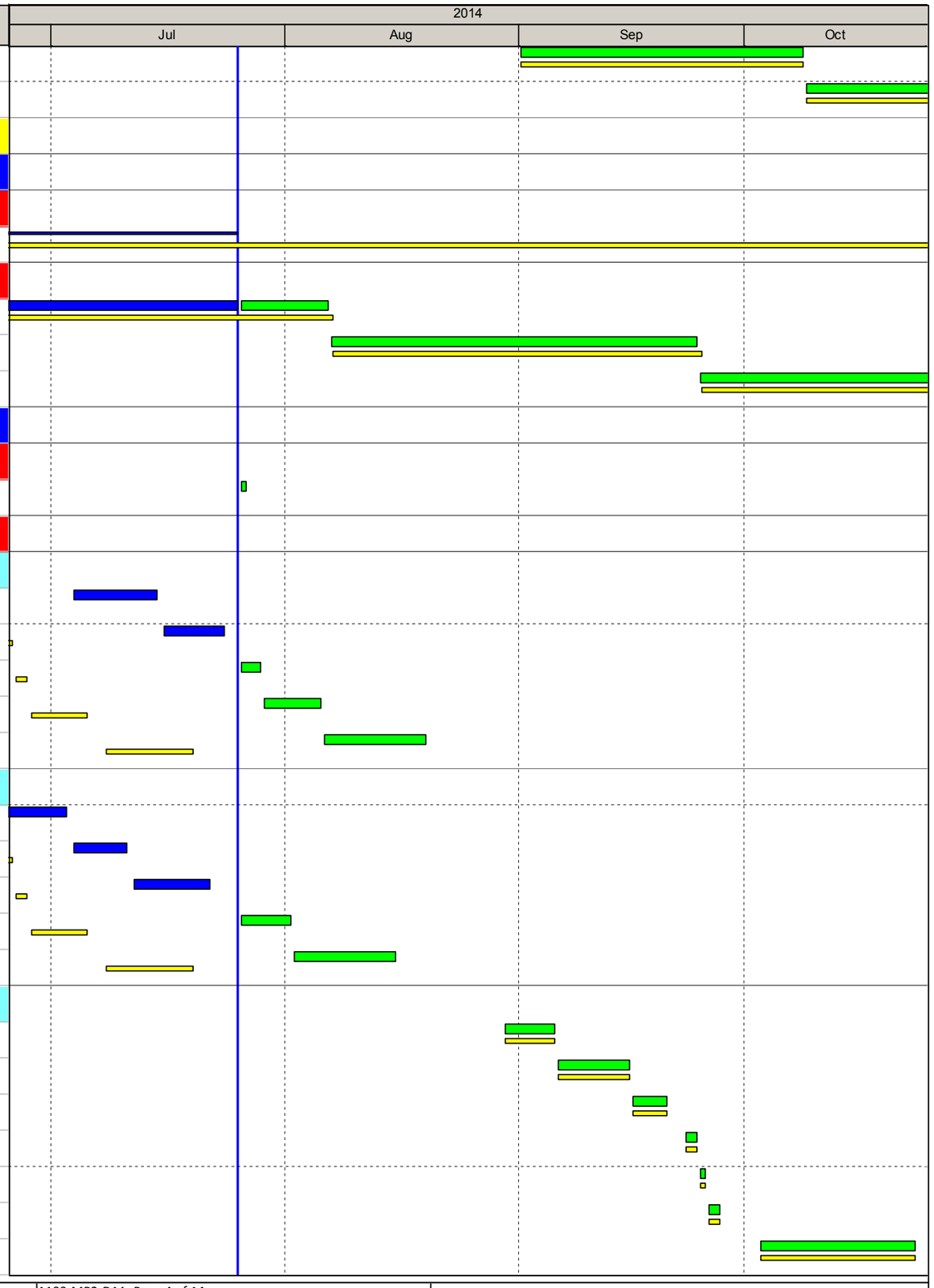
Shatin to Central Link Contract 1109

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

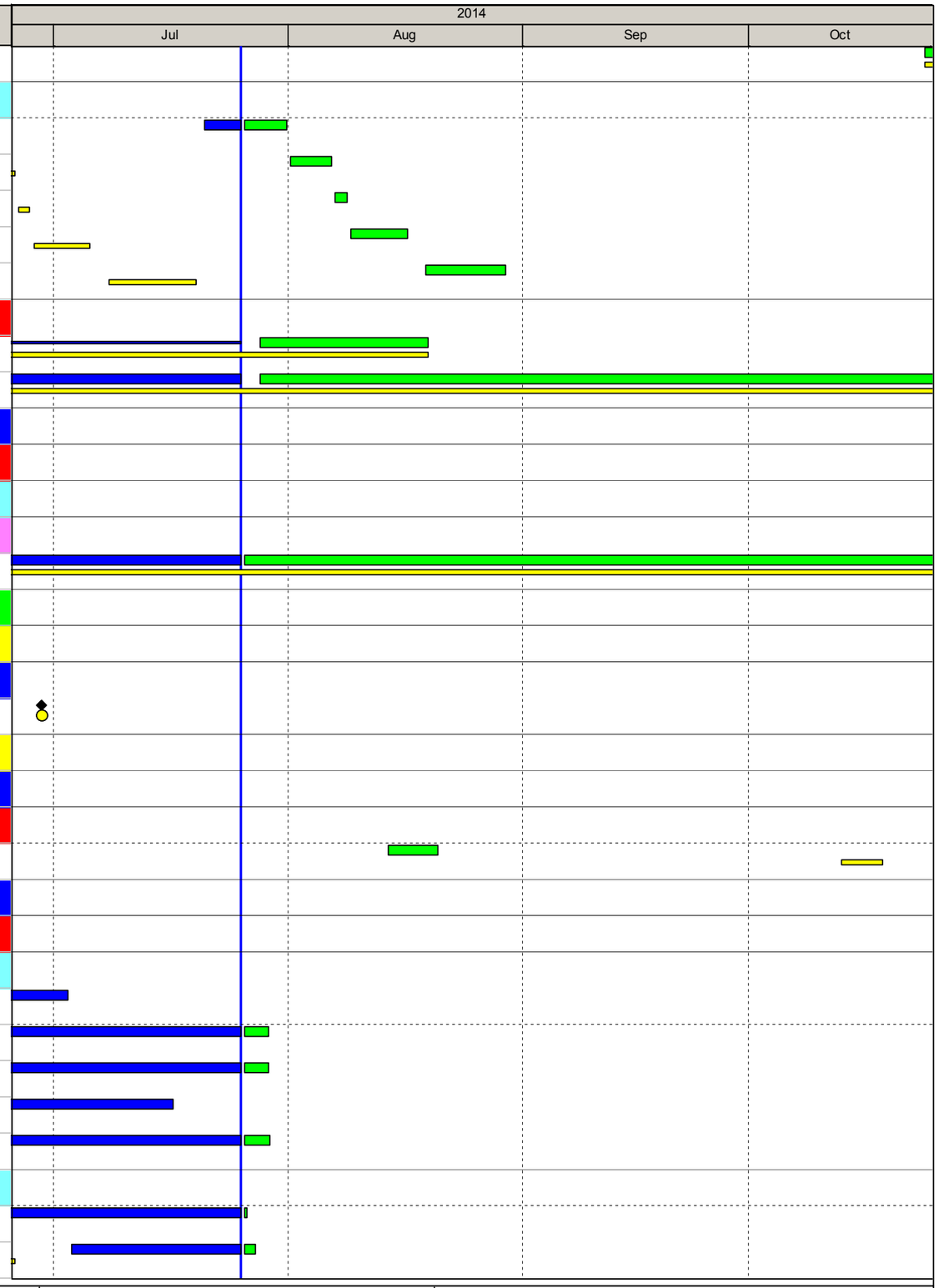
Printed:07-Aug-14

Actual Work
Remaining Work
Master Programme Rev.2 Draft
Milestone
MP Rev.2 Draft Mil...

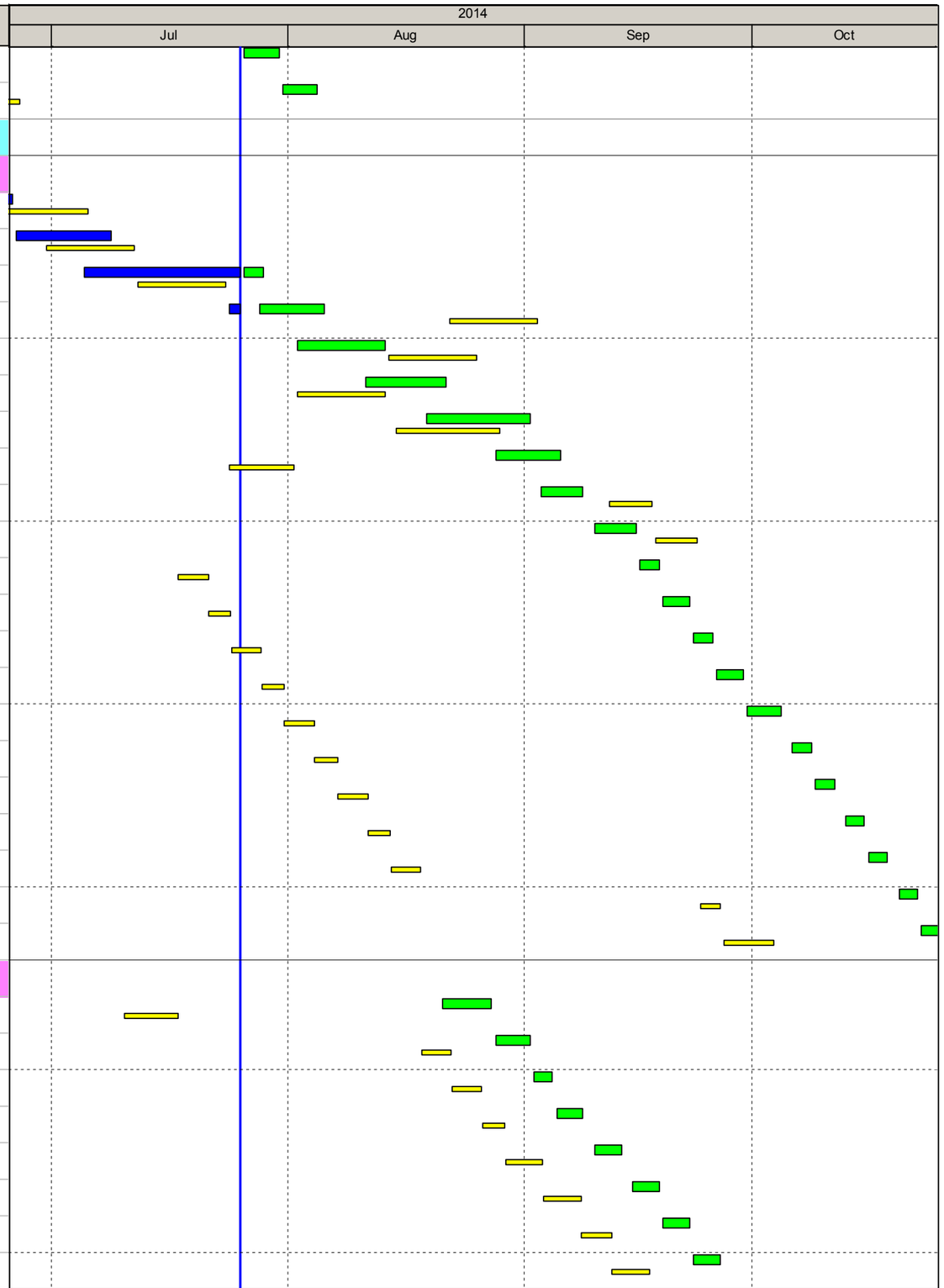
Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDB10730	Sheet Piling & Toe grouting Works; GL C5 to C7; Segment 1; East Side	0%	01-Sep-14	08-Oct-14
01109.PDB10740	Sheet Piling & Toe grouting Works; GL C5 to C7; Segment 1; West Side	0%	09-Oct-14	10-Nov-14
Entrance B and Associated Adits			22-Feb-14 A	24-Jan-15
Entrance B - Olympic Avenue and SUW playground Works			22-Feb-14 A	24-Jan-15
Stage 1			22-Feb-14 A	24-Jan-15
01109.PDB11800	Sheet piling & Toe grouting Works;GL B1 to B5 (2x24m sheetpiles)	60%	22-Feb-14 A	24-Jan-15
Stage 2			10-May-14 A	01-Nov-14
01109.PDB11980	Excavate and Install struts & waling	80%	10-May-14 A	06-Aug-14
01109.PDB11990	Construct the Adit structure	0%	07-Aug-14	24-Sep-14
01109.PDB12000	Waterproof and Backfill to ground level - Stage 1 of 4	0%	25-Sep-14	01-Nov-14
Entrance B - Kowloon City Interchange			16-Apr-14 A	24-Nov-14
Entrance B - Preparation Works			26-Jul-14	26-Jul-14
01109.PDB12550	Implement the TTM Scheme at Kowloon City Interchange on drawing number 1109/T/SUW/SHJ/C21/018	0%	26-Jul-14*	26-Jul-14
Entrance B - Underpinning of KNEC Piers			23-Jun-14 A	06-Nov-14
Pier P75			04-Jul-14 A	19-Aug-14
01109.PDB13060	Breakout concrete from existing pile cap	100%	04-Jul-14 A	15-Jul-14 A
01109.PDB13070	Set up threaded end rebars to connect underpinning beam to pile cap	100%	16-Jul-14 A	24-Jul-14 A
01109.PDB13080	Stitch up and grout underpining beam and existing cap	0%	26-Jul-14	28-Jul-14
01109.PDB13090	Dismantle temporary steel frame	0%	29-Jul-14	05-Aug-14
01109.PDB13100	Backfill & remove codfferdam wall	0%	06-Aug-14	19-Aug-14
Pier P76			23-Jun-14 A	15-Aug-14
01109.PDB13220	Breakout concrete from existing pile cap	100%	23-Jun-14 A	03-Jul-14 A
01109.PDB13230	Set up threaded end rebars to connect underpinning beam to pile cap	100%	04-Jul-14 A	11-Jul-14 A
01109.PDB13240	Stitch up and grout underpining beam and existing cap	100%	12-Jul-14 A	22-Jul-14 A
01109.PDB13250	Dismantle temporary steel frame	0%	26-Jul-14	01-Aug-14
01109.PDB13260	Backfill & remove codfferdam wall	0%	02-Aug-14	15-Aug-14
Pier P46			30-Aug-14	06-Nov-14
01109.PDB12660C	P46 - Pre-bored socket H- Piles 609 Dia P1	0%	30-Aug-14*	05-Sep-14
01109.PDB19420C	P46 - Pre-bored socket H- Piles 609 Dia P2	0%	06-Sep-14	15-Sep-14
01109.PDB12670	Install sheet pile cofferdam wall	0%	16-Sep-14	20-Sep-14
01109.PDB12680	Excavation to waling beam level	0%	23-Sep-14	24-Sep-14
01109.PDB12690	Install waling beam	0%	25-Sep-14	25-Sep-14
01109.PDB12700	Excavation to final formation level	0%	26-Sep-14	27-Sep-14
01109.PDB12710	Construct pile cap	0%	03-Oct-14	23-Oct-14



Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDB12720	Install temporary steel support frame and jacks	0%	24-Oct-14	06-Nov-14
Pier P74			21-Jul-14 A	29-Aug-14
01109.PDB12900	Breakout concrete from existing pile cap	0%	21-Jul-14 A	31-Jul-14
01109.PDB12910	Set up threaded end rebars to connect underpinning beam to pile cap	0%	01-Aug-14	06-Aug-14
01109.PDB12920	Stitch up and grout underpining beam and existing cap	0%	07-Aug-14	08-Aug-14
01109.PDB12930	Dismantle temporary steel frame	0%	09-Aug-14	16-Aug-14
01109.PDB12940	Backfill & remove codfferdam wall	0%	19-Aug-14	29-Aug-14
Entrance B - Pipe Piling & Toe Grouting Works			16-Apr-14 A	24-Nov-14
01109.PDB12580	Pipe piling & Grout Curtain Works; GL B17 to B20 (67 Nos - Zone 1)	67%	16-Apr-14 A	19-Aug-14
01109.PDB12590	Pipe piling & Grout Curtain Works; GL B20 to B22 (76 Nos) some under bypass	25%	17-Jun-14 A	24-Nov-14
Enrtance B - Nam Kok Road Works - (Detailed Programme)			20-May-14 A	23-Dec-14
Entrance B - Nam Kok Road Works (Portion 3)			20-May-14 A	23-Dec-14
Nam Kok Road - TTMS - Stage 1 and 2			20-May-14 A	23-Dec-14
TTMS - Stage 1 (Phase 2)			20-May-14 A	23-Dec-14
01109.PDB15130A	Install 410mm dia pipe pile wall. 105nr (assume 3 piles/2 days). 1PR	30%	20-May-14 A	23-Dec-14
CC-C - TKW STATION, ENTRANCES AND ADITS			27-Jan-14 A	12-Nov-14
Implementation of TTA at TKW			29-Jun-14 A	29-Jun-14 A
Revised TTMS Schemes			29-Jun-14 A	29-Jun-14 A
01109.PDDEI52055	TKW - Implement TTM Stage 2 - Phase 4 (EI 52) - Implement TTM Stg 2 Ph 4 for Full EEP Work Area	100%	29-Jun-14 A	
TKW Station			27-Jan-14 A	12-Nov-14
Existing Utility Diversion Works			14-Aug-14	20-Aug-14
Power Supply			14-Aug-14	20-Aug-14
01109.PDC26950	TKW-CLP503 - P61 - 11kV Supply - Support insitu	0%	14-Aug-14	20-Aug-14
Diaphragm Wall EAST & WEST side Stage 2 Phase 1 TTMS (W1-W3 + Ent D)			27-Jan-14 A	03-Nov-14
Area W1			27-Jan-14 A	27-Oct-14
Area W1 - Advance Works			27-Jan-14 A	29-Jul-14
01109.PDC10180	W1 - Trial Pits (P13-P21) / Trench	100%	27-Jan-14 A	02-Jul-14 A
01109.PDC10980	W1 - Remove decommissioned Water Pipes SW+FW502 (P22-P26)	80%	15-Mar-14 A	29-Jul-14
01109.PDC29216A	W1 - Excavation and construction of Guide walls (P22-P26)	80%	07-Apr-14 A	29-Jul-14
01109.PDC10200	W1 - Remove decommissioned Water Pipes SW+FW502 (P13-P21)	100%	23-Apr-14 A	16-Jul-14 A
01109.PDC10190	W1 - Excavation and construction of Guide walls (P13-P21)	78%	24-Apr-14 A	29-Jul-14
Area W1 - Founding Level Predrill			13-Mar-14 A	04-Aug-14
01109.PDC10290	W1 - P: 14,21,15,20,17,16,19,18 - GI Report & Confirmation of Founding Levels	93%	13-Mar-14 A	26-Jul-14
01109.1000A	W1 (MTW Rd) - Trial Pits & Predrill to P13 & Confirmation of Founding Level	75%	03-Jul-14 A	27-Jul-14



Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC11020	W1 - Founding Level Predrill for X/Wall & Mini Piling (3nr) 1PR (P22-P26)	0%	26-Jul-14	30-Jul-14
01109.PDC10220	W1 - Founding Level Predril for X/Wall & Mini Pile (3nr) 3PR	0%	31-Jul-14	04-Aug-14
Area W1 - DWall Construction			17-Jun-14 A	27-Oct-14
BC Cutter No.2			17-Jun-14 A	27-Oct-14
01109.PDC25620	W1 - Dwall works P23 (Part 1 - excav)	100%	17-Jun-14 A	25-Jun-14 A
01109.PDC25110	W1 - Dwall works P20	100%	26-Jun-14 A	08-Jul-14 A
01109.PDC25130	W1 - Dwall works P16	80%	05-Jul-14 A	28-Jul-14
01109.PDC25600	W1 - Dwall works P22	20%	24-Jul-14 A	05-Aug-14
01109.PDC25100	W1 - Dwall works P15	0%	02-Aug-14	13-Aug-14
01109.PDC25080	W1 - Dwall works P14	0%	11-Aug-14	21-Aug-14
01109.PDC25610	W1 - Dwall works P26	0%	19-Aug-14	01-Sep-14
01109.PDC23390	W1 - Dwall works P13 (P13B)	0%	28-Aug-14	05-Sep-14
01109.PDC26050A	W1 - Crosswall E1-2 (E1-3)	0%	03-Sep-14	08-Sep-14
01109.PDC26060A	W1 - Crosswall E1-1 (E1-4)	0%	10-Sep-14	15-Sep-14
01109.PDC25240	W1 - Crosswall C1-3	0%	16-Sep-14	18-Sep-14
01109.PDC25260	W1 - Crosswall C3-3	0%	19-Sep-14	22-Sep-14
01109.PDC25690	W1 - Crosswall D1-3	0%	23-Sep-14	25-Sep-14
01109.PDC25720	W1 - Crosswall D3-3	0%	26-Sep-14	29-Sep-14
01109.PDC25250	W1 - Crosswall C2-3	0%	30-Sep-14	04-Oct-14
01109.PDC25270	W1 - Crosswall C4-3	0%	06-Oct-14	08-Oct-14
01109.PDC25710	W1 - Crosswall D2-3	0%	09-Oct-14	11-Oct-14
01109.PDC25700	W1 - Crosswall D4-3	0%	13-Oct-14	15-Oct-14
01109.PDC25210	W1 - Crosswall C1-4	0%	16-Oct-14	18-Oct-14
01109.PDC25220	W1 - Crosswall C3-4	0%	20-Oct-14	22-Oct-14
01109.PDC25180	W1 - Crosswall C3-5	0%	23-Oct-14	27-Oct-14
BC Cutter No. 5			21-Aug-14	08-Oct-14
01109.PDC24916A	BC Cutter No.5 maintenance & modification	0%	21-Aug-14	27-Aug-14
01109.PDC25170	W1 - Crosswall C1-5	0%	28-Aug-14	01-Sep-14
01109.PDC25200	W1 - Crosswall C4-4	0%	02-Sep-14	04-Sep-14
01109.PDC25160	W1 - Crosswall C4-5	0%	05-Sep-14	08-Sep-14
01109.PDC25670	W1 - Crosswall D2-4	0%	10-Sep-14	13-Sep-14
01109.PDC25660	W1 - Crosswall D4-4	0%	15-Sep-14	18-Sep-14
01109.PDC25230	W1 - Crosswall C2-4	0%	19-Sep-14	22-Sep-14
01109.PDC25190	W1 - Crosswall C2-5	0%	23-Sep-14	26-Sep-14



SAMSUNG-HSIN CHONG JOINT VENTURE

MTR Corporation Limited

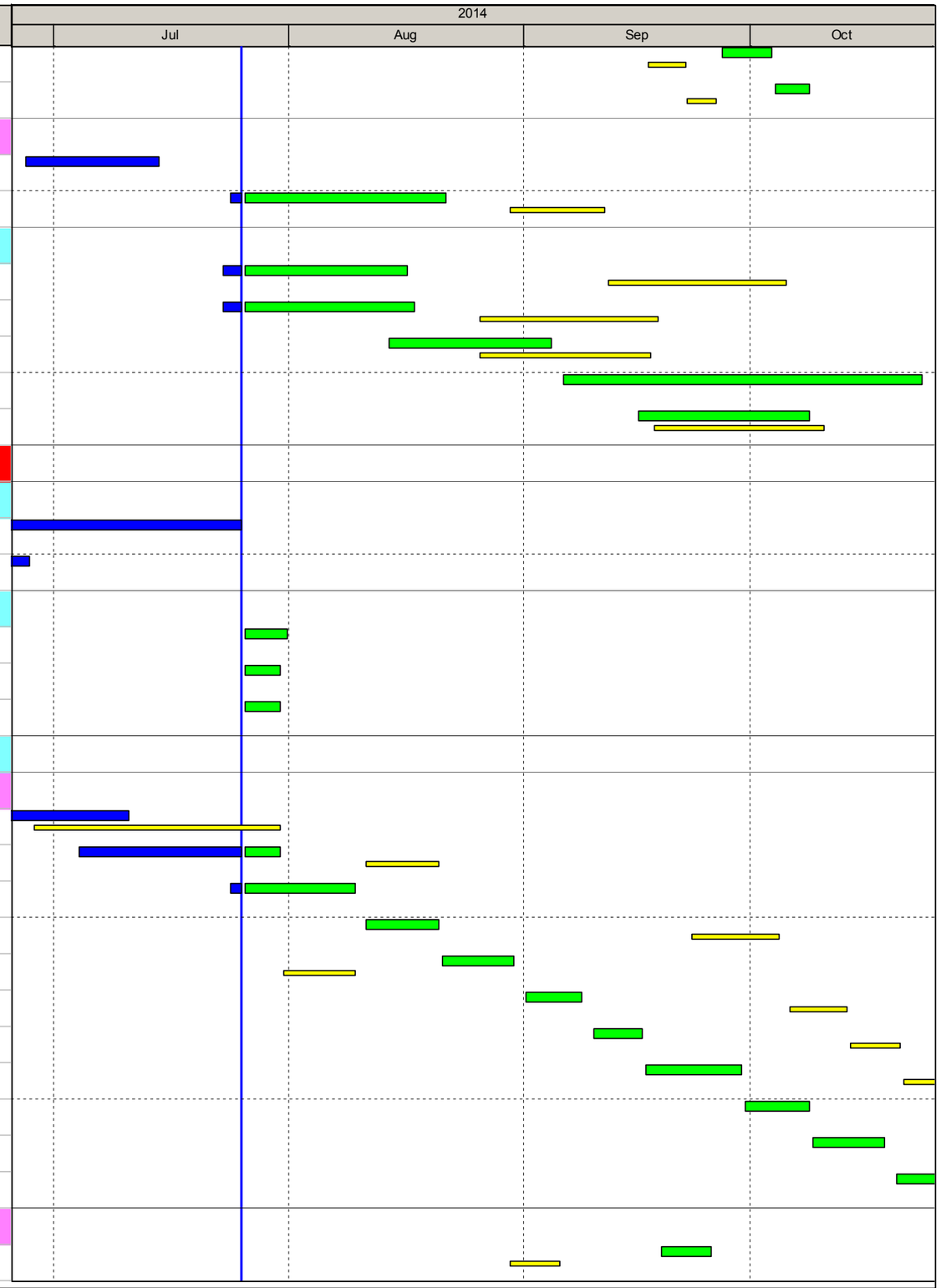
Shatin to Central Link Contract 1109

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

Printed:07-Aug-14

Actual Work
Remaining Work
Master Programme Rev.2 Draft
Milestone
MP Rev.2 Draft Mil...

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC25650	W1 - Crosswall D1-4	0%	27-Sep-14	03-Oct-14
01109.PDC25680	W1 - Crosswall D3-4	0%	04-Oct-14	08-Oct-14
BC Cutter No.6			27-Jun-14 A	21-Aug-14
01109.PDC25620A	W1 - Dwall works P23 (Part 2- excav, rebar, conc)	100%	27-Jun-14 A	14-Jul-14 A
01109.PDC25630	W1 - Dwall works P25	8%	24-Jul-14 A	21-Aug-14
Area W1 - Post Concrete Works			23-Jul-14 A	23-Oct-14
01109.PDC11510	W1 - Dwall testing (P22-P26)	10%	23-Jul-14 A	16-Aug-14
01109.PDC10860	W1 - Dwall testing (P13-P21)	6%	23-Jul-14 A	17-Aug-14
01109.PDC11040	W1 - Toe Grouting (P13-P21)	0%	14-Aug-14	04-Sep-14
01109.PDC27010A	W1 - Grouting to TBM/D/Wall interface zone	0%	06-Sep-14	23-Oct-14
01109.PDC23160	W1 - Toe Grouting (P22-P26)	0%	16-Sep-14	08-Oct-14
Area W2			13-Mar-14 A	03-Nov-14
Area W2 - Advance Works			13-Mar-14 A	25-Jul-14 A
01109.PDC12290	W2 - Excavation and construction of Guide walls (P31-P35)	100%	13-Mar-14 A	25-Jul-14 A
01109.PDC13000	W2 - Excavation and construction of Guide walls (P36-P40)	100%	24-Mar-14 A	27-Jun-14 A
Area W2 - Founding Level Predrill			26-Jul-14	31-Jul-14
01109.PDC13070	W2 - Founding Level Predrill for X/Wall & Mini Piling (P36-P40)	0%	26-Jul-14	31-Jul-14
01109.PDC11670	W2 - Founding Level Predrill for X/Wall & Mini Piling (2nr) (P27-P30)	0%	26-Jul-14	30-Jul-14
01109.PDC12320	W2 - Founding Level Predrill for X/Wall & Mini Piling (3nr) (P31-P35)	0%	26-Jul-14	30-Jul-14
Area W2 - DWall Construction			17-Jun-14 A	03-Nov-14
BC Cutter No.3			21-Jun-14 A	03-Nov-14
01109.PDC25310	W2 - Dwall works P33	100%	21-Jun-14 A	10-Jul-14 A
01109.PDC25760	W2 - Dwall works P37	60%	04-Jul-14 A	30-Jul-14
01109.PDC26142A	W2 - Dwall works P29 (W3) (Part 2 - excav, rebar, conc)	15%	24-Jul-14 A	09-Aug-14
01109.PDC25770	W2 - Dwall works P38	0%	11-Aug-14	20-Aug-14
01109.PDC26220	W2 - Dwall works P41	0%	21-Aug-14	30-Aug-14
01109.PDC26240	W2 - Dwall works P42	0%	01-Sep-14	08-Sep-14
01109.PDC24912A	BC Cutter No.3 maintenance & modification	0%	10-Sep-14	16-Sep-14
01109.PDC25350	W2 - Crosswall F5-5	0%	17-Sep-14	29-Sep-14
01109.PDC26190	W2 - Crosswall F3-4	0%	30-Sep-14	08-Oct-14
01109.PDC25370	W2 - Crosswall F6-5	0%	09-Oct-14	18-Oct-14
01109.PDC25330	W2 - Crosswall F4-5	0%	20-Oct-14	03-Nov-14
BC Cutter No.4			19-Sep-14	30-Oct-14
01109.PDC24914A	BC Cutter No.4 maintenance & modification	0%	19-Sep-14	25-Sep-14



SAMSUNG-HSIN CHONG JOINT VENTURE

MTR Corporation Limited

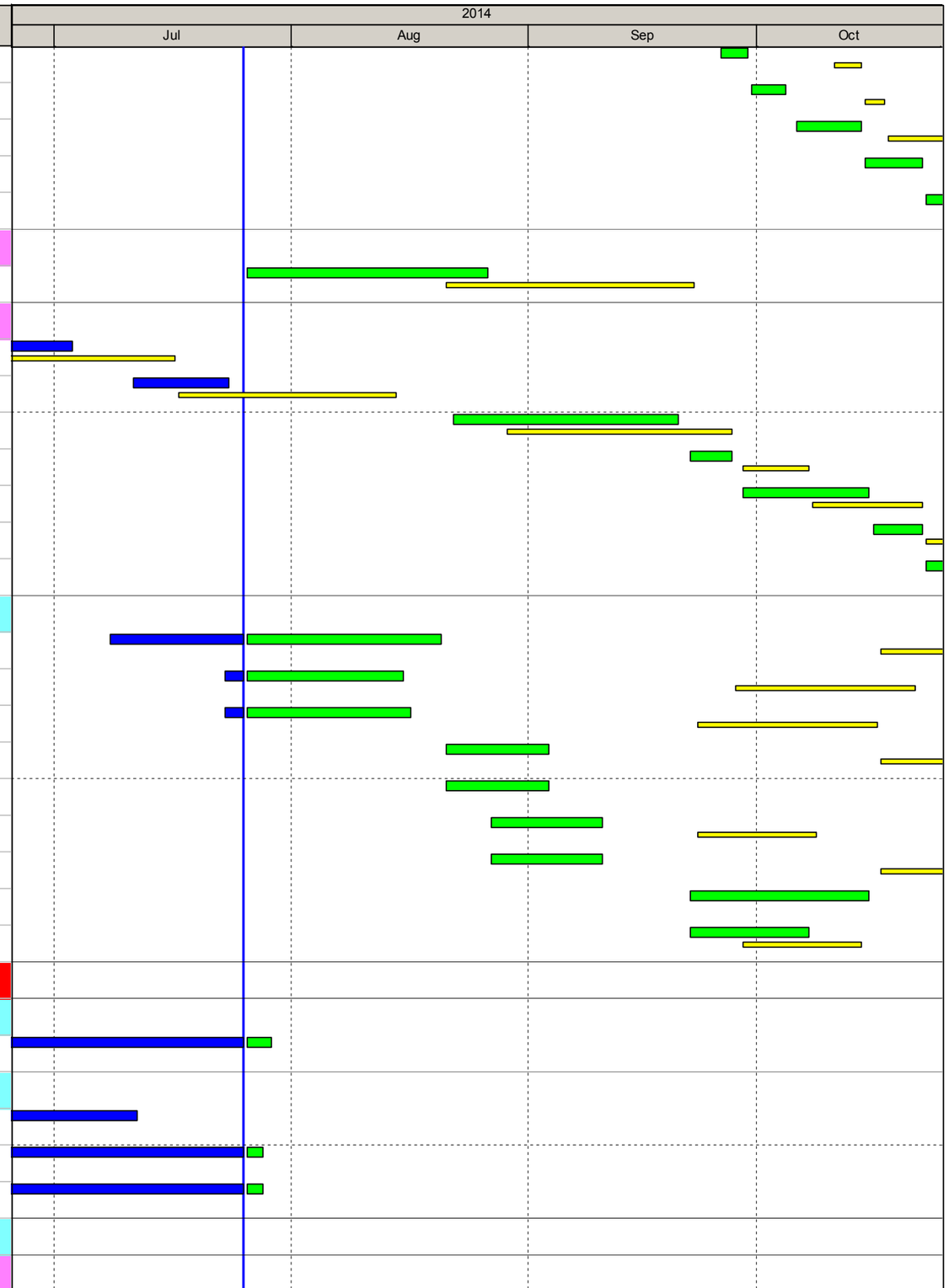
Shatin to Central Link Contract 1109

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

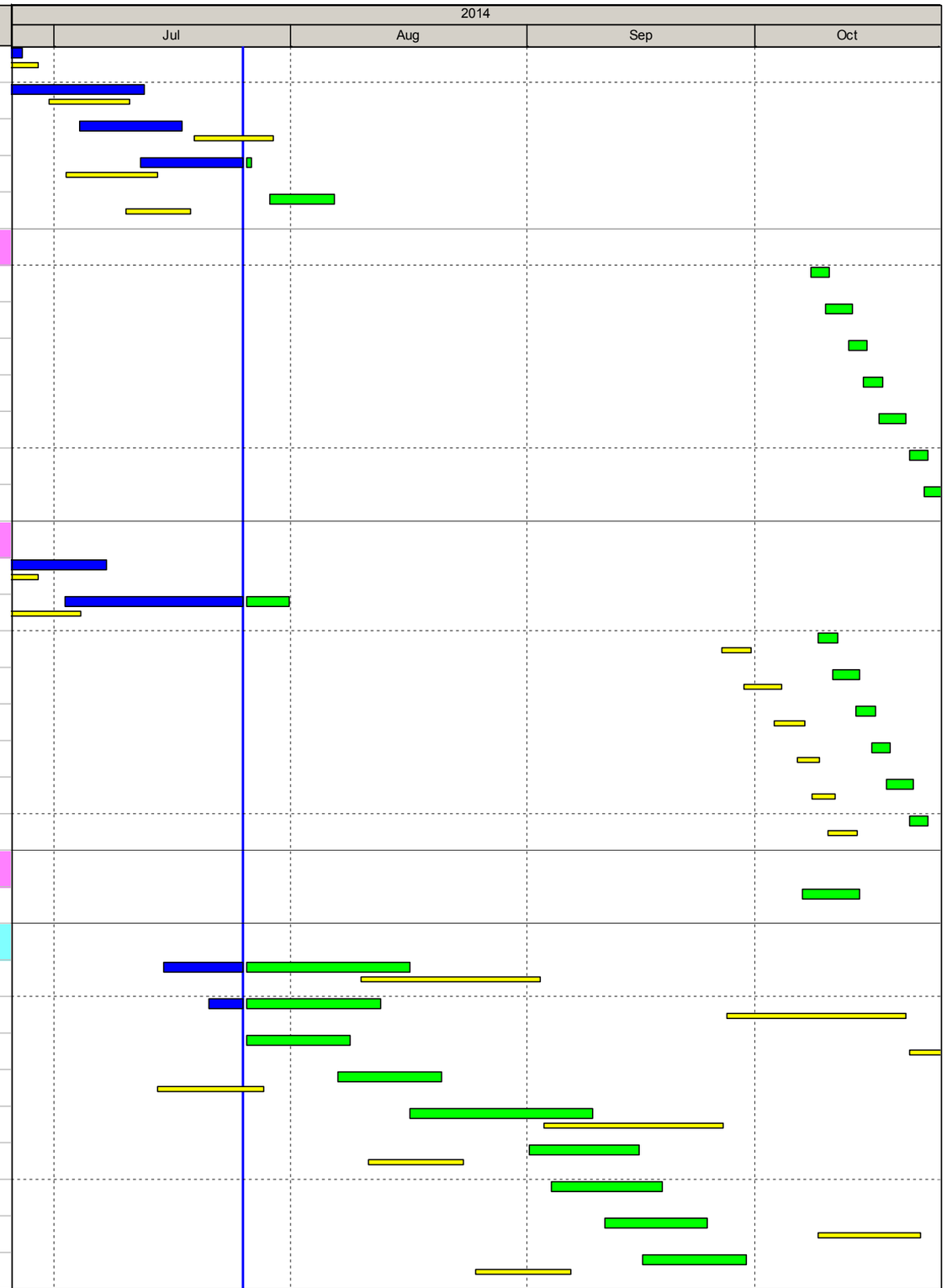
Printed:07-Aug-14

Actual Work
Remaining Work
Master Programme Rev.2 Draft
Milestone
MP Rev.2 Draft Mil...

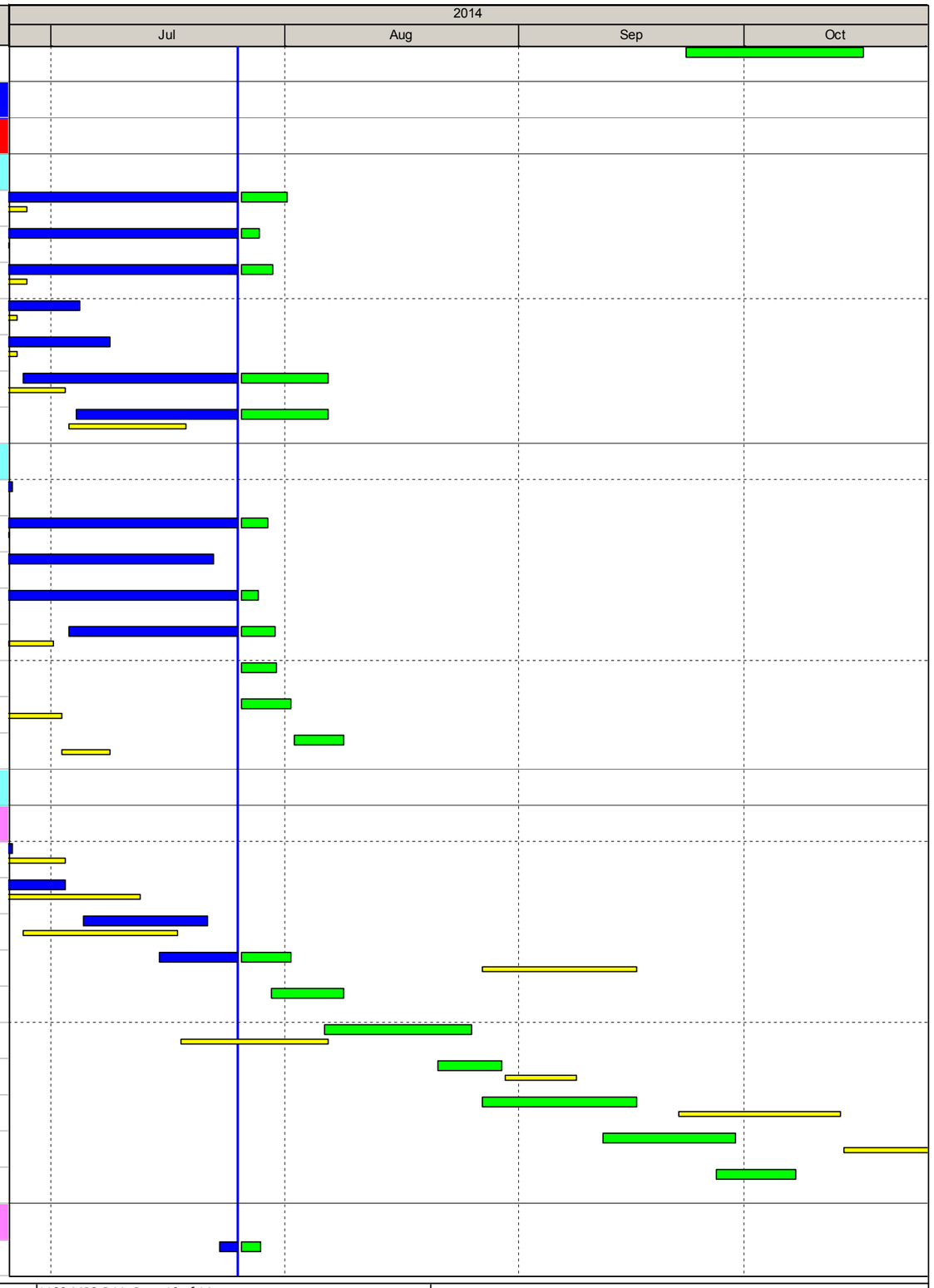
Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC25340	W2 - Crosswall F8-3	0%	26-Sep-14	29-Sep-14
01109.PDC25850	W2 - Crosswall F10-3	0%	30-Sep-14	04-Oct-14
01109.PDC25390	W2 - Crosswall F8-4	0%	06-Oct-14	14-Oct-14
01109.PDC25800	W2 - Crosswall F10-4	0%	15-Oct-14	22-Oct-14
01109.PDC25810	W2 - Crosswall F12-4	0%	23-Oct-14	30-Oct-14
BC Cutter No.5			26-Jul-14	26-Aug-14
01109.PDC25300	W2 - Dwall works P32	0%	26-Jul-14	26-Aug-14
BC Cutter No.6			17-Jun-14 A	29-Oct-14
01109.PDC26110	W2 - Dwall works P27	100%	17-Jun-14 A	03-Jul-14 A
01109.PDC26140	W2 - Dwall works P29 (W3) (Part1 - excav)	100%	11-Jul-14 A	23-Jul-14 A
01109.PDC26130	W2 - Dwall works P28	0%	22-Aug-14	20-Sep-14
01109.PDC29015	W2 - Crosswall E2-3	0%	22-Sep-14	27-Sep-14
01109.PDC29005	W2 - Crosswall E2-4	0%	29-Sep-14	15-Oct-14
01109.PDC24913A	BC Cutter No.6 maintance & modification	0%	16-Oct-14	22-Oct-14
01109.PDC26200	W2 - Crosswall F2-4	0%	23-Oct-14	29-Oct-14
Area W2 - Post Concrete Works			08-Jul-14 A	15-Oct-14
01109.PDC13580	W2 - Dwall testing (P36-P40)	10%	08-Jul-14 A	20-Aug-14
01109.PDC12050	W2 - Dwall testing (P27-P30)	13%	23-Jul-14 A	15-Aug-14
01109.PDC12870	W2 - Dwall testing (P31-P35)	10%	23-Jul-14 A	16-Aug-14
01109.PDC23170	W2 - DWall Shear Pin Installation (P36-P40)	0%	21-Aug-14	03-Sep-14
01109.PDC23180	W2 - Toe Grouting (P36-P40)	0%	21-Aug-14	03-Sep-14
01109.PDC13030	W2 - DWall Shear Pin Installation (P31-P35)	0%	27-Aug-14	10-Sep-14
01109.PDC13040	W2 - Toe Grouting (P31-P35)	0%	27-Aug-14	10-Sep-14
01109.PDC12340	W2 - Toe Grouting (P27-P30)	0%	22-Sep-14	15-Oct-14
01109.PDC12350	W2 - DWall Shear Pin Installation (P27-P30)	0%	22-Sep-14	07-Oct-14
Area W3			13-Mar-14 A	27-Oct-14
Area W3 - Advance Works			29-Mar-14 A	29-Jul-14
01109.PDC14450	W3 - Excavation and construction of Guide walls (P46-P49)	75%	29-Mar-14 A	29-Jul-14
Area W3 - Founding Level Predrill			13-Mar-14 A	28-Jul-14
01109.PDC14510	W3 - P: 46,47,48,49 - GI Report & Confirmation of Founding Levels	100%	13-Mar-14 A	11-Jul-14 A
01109.PDC15710	W3 - P: 55,56,57 - GI Report & Confirmation of Founding Levels	66%	22-Mar-14 A	28-Jul-14
01109.PDC13780	W3 - P: ,42,43,44, - GI Report & Confirmation of Founding Levels	66%	01-Apr-14 A	28-Jul-14
Area W3 - DWall Construction			16-Jun-14 A	27-Oct-14
BC Cutter No.4			16-Jun-14 A	06-Aug-14



Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC26380	W3 - Dwall works P55	100%	16-Jun-14 A	26-Jun-14 A
01109.PDC25900	W3 - Dwall works P51	100%	24-Jun-14 A	12-Jul-14 A
01109.PDC26390	W3 - Dwall works P56	100%	04-Jul-14 A	17-Jul-14 A
01109.PDC25460	W3 - Dwall works P48	90%	12-Jul-14 A	26-Jul-14
01109.PDC25450	W3 - Dwall works P47	0%	29-Jul-14	06-Aug-14
BC Cutter No.1			08-Oct-14	27-Oct-14
01109.PDC25510	W3 - Crosswall F19-4	0%	08-Oct-14	10-Oct-14
01109.PDC26340	W3 - Crosswall F17-3	0%	10-Oct-14	13-Oct-14
01109.PDC25540	W3 - Crosswall G2-4	0%	13-Oct-14	15-Oct-14
01109.PDC26350	W3 - Crosswall F18-3	0%	15-Oct-14	17-Oct-14
01109.PDC26330	W3 - Crosswall F16-3	0%	17-Oct-14	20-Oct-14
01109.PDC25530	W3 - Crosswall G1-4	0%	21-Oct-14	23-Oct-14
01109.PDC25480	W3 - Crosswall G3-5	0%	23-Oct-14	27-Oct-14
BC Cutter No.5			16-Jun-14 A	23-Oct-14
01109.PDC25430	W3 - Dwall works P46	100%	16-Jun-14 A	07-Jul-14 A
01109.PDC26250	W3 - Dwall works P43	60%	02-Jul-14 A	31-Jul-14
01109.PDC26470	W3 - Crosswall G9-4	0%	09-Oct-14	11-Oct-14
01109.PDC25990	W3 - Crosswall G7-4	0%	11-Oct-14	14-Oct-14
01109.PDC25970	W3 - Crosswall G5-4	0%	14-Oct-14	16-Oct-14
01109.PDC26450	W3 - Crosswall G8-4	0%	16-Oct-14	18-Oct-14
01109.PDC25980	W3 - Crosswall G6-4	0%	18-Oct-14	21-Oct-14
01109.PDC25960	W3 - Crosswall G4-4	0%	21-Oct-14	23-Oct-14
BC Cutter No.7			07-Oct-14	14-Oct-14
01109.PDC26300	W3 - Crosswall F16-4	0%	07-Oct-14	14-Oct-14
Area W3 - Post Concrete Works			15-Jul-14 A	16-Oct-14
01109.PDC14290	W3 - Dwall testing (P41-P45)	10%	15-Jul-14 A	16-Aug-14
01109.PDC15510	W3 - Dwall testing (P50-P53)	25%	21-Jul-14 A	12-Aug-14
01109.PDC23240	W3 - Toe Grouting (P50-P53)	0%	26-Jul-14	08-Aug-14
01109.PDC23200	W3 - Toe Grouting (P46-P49)	0%	07-Aug-14	20-Aug-14
01109.PDC14430	W3 - DWall testing (P46-P49)	0%	16-Aug-14	09-Sep-14
01109.PDC23220	W3 - Toe Grouting (P41-P45)	0%	01-Sep-14	15-Sep-14
01109.PDC23230	W3 - DWall Shear Pin Installation (P50-P53)	0%	04-Sep-14	18-Sep-14
01109.PDC23190	W3 - DWall Shear Pin Installation (P46-P49)	0%	11-Sep-14	24-Sep-14
01109.PDC23210	W3 - DWall Shear Pin Installation (P41-P45)	0%	16-Sep-14	29-Sep-14



Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC16170	W3 - Dwall testing (P54-P57)	0%	23-Sep-14	16-Oct-14
Diaphragm Wall WEST side STAGE 2 Phase 2 (West Side + Ent D) TTMS			19-May-14 A	07-Oct-14
Area W6			19-May-14 A	07-Oct-14
Area W6 - Advance Works			19-May-14 A	06-Aug-14
01109.PDC17390	W6 - Remove decommissioned Water Pipes SW+FW502 (P68-P74)	44%	19-May-14 A	01-Aug-14
01109.PDC16370	W6 - Trial Pits (P58-P62)	83%	05-Jun-14 A	28-Jul-14
01109.PDC17380	W6 - Excavation and construction of Guide walls (P68-P74)	63%	07-Jun-14 A	30-Jul-14
01109.PDC16790	W6 - Excavation and construction of Guide walls (P63-P67)	100%	17-Jun-14 A	04-Jul-14 A
01109.PDC16800	W6 - Remove decommissioned Water Pipes SW+FW502 (P63-P67)	100%	17-Jun-14 A	08-Jul-14 A
01109.PDC16390	W6 - Remove decommissioned Water Pipes SW+FW502 (P59-P62)	25%	27-Jun-14 A	06-Aug-14
01109.PDC16380	W6 - Excavation and construction of Guide Walls (P57-P62)	25%	04-Jul-14 A	06-Aug-14
Area W6 - Founding Level Predrill			06-Jun-14 A	08-Aug-14
01109.PDC16810	W6 - Founding Level Predrill P64,65,66,67 (8nr) 2PR	100%	06-Jun-14 A	25-Jun-14 A
01109.PDC16400	W6 - Founding Level Predrill P58,59,60,61,62 2PR	50%	14-Jun-14 A	29-Jul-14
01109.PDC17480	W6 - GI Report & Confirmation of Founding Levels (P68-P74)	100%	17-Jun-14 A	22-Jul-14 A
01109.PDC16860	W6 - P: 63,64,65,66,67 - GI Report & Confirmation of Founding Levels	60%	18-Jun-14 A	28-Jul-14
01109.PDC16450	W6 - P: 58,59,60,61,62 - GI Report & Confirmation of Founding Levels	20%	03-Jul-14 A	30-Jul-14
01109.PDC17410	W6 - Founding Level Predrill for X/Wall & Mini Piles (2nr) 2PR (P68-P74)	0%	26-Jul-14	30-Jul-14
01109.PDC16820	W6 - Founding Level Predrill for X/Wall & Mini PIles (4nr) 2PR (P63-P67)	0%	26-Jul-14	01-Aug-14
01109.PDC16820A	W6 - Founding Level Predrill for X/Wall & Mini PIles (3nr) 2PR (P58-P62)	0%	02-Aug-14	08-Aug-14
Area W6 - DWall Construction			12-Jun-14 A	07-Oct-14
BC Cutter No. 1			12-Jun-14 A	07-Oct-14
01109.PDC26510	W6 - Dwall works P70	100%	12-Jun-14 A	25-Jun-14 A
01109.PDC26040	W6 - Dwall works P66	100%	23-Jun-14 A	02-Jul-14 A
01109.PDC25550	W6 - Dwall works P62	100%	05-Jul-14 A	21-Jul-14 A
01109.PDC26020	W6 - Dwall works P67	60%	15-Jul-14 A	01-Aug-14
01109.PDC26000A	W6 - Dwall works P63A	0%	30-Jul-14	08-Aug-14
01109.PDC26030	W6 - Dwall works P65	0%	06-Aug-14	25-Aug-14
01109.PDC26530	W6 - Dwall works P68A	0%	21-Aug-14	29-Aug-14
01109.PDC26560	W6 - Dwall works P68	0%	27-Aug-14	16-Sep-14
01109.PDC26500	W6 - Dwall works P74	0%	12-Sep-14	29-Sep-14
01109.PDC26420	W6 - Crosswall G11-5	0%	27-Sep-14	07-Oct-14
BC Cutter No. 4			23-Jul-14 A	22-Sep-14
01109.PDC26440	W6 - Crosswall G10-5	50%	23-Jul-14 A	28-Jul-14



SAMSUNG
SAMSUNG-HSIN CHONG JOINT VENTURE

MTR Corporation Limited

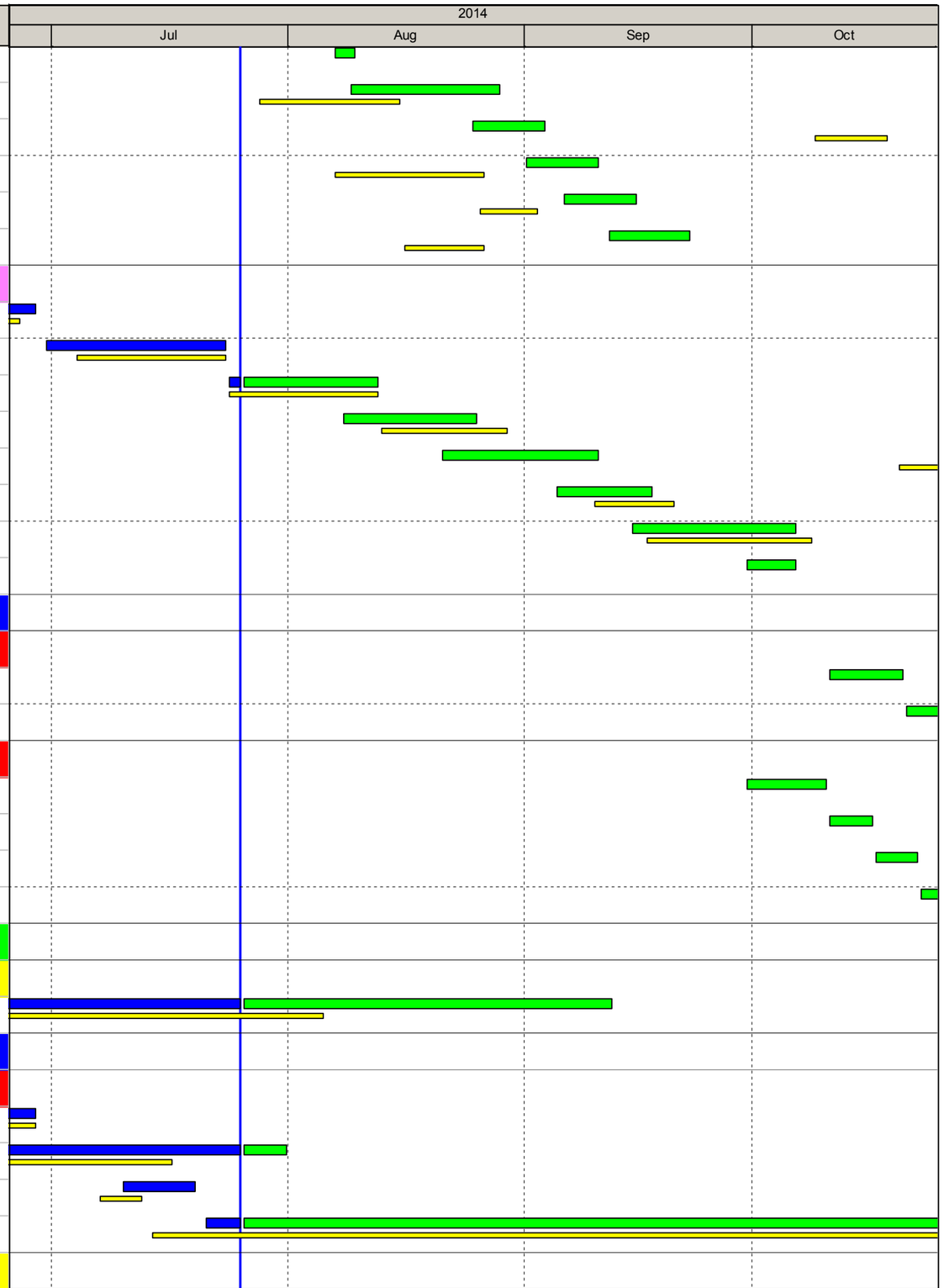
Shatin to Central Link Contract 1109

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

Printed:07-Aug-14

Actual Work
Remaining Work
Master Programme Rev.2 Draft
Milestone
MP Rev.2 Draft Mil...

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDC26480	W6 - Crosswall G10-4	0%	07-Aug-14	09-Aug-14
01109.PDC25580	W6 - Dwall works P60	0%	09-Aug-14	28-Aug-14
01109.PDC26400	W6 - Dwall works P58	0%	25-Aug-14	03-Sep-14
01109.PDC26000	W6 - Dwall works P63	0%	01-Sep-14	10-Sep-14
01109.PDC25560	W6 - Dwall works P59	0%	06-Sep-14	15-Sep-14
01109.PDC26370	W6 - Dwall works P57	0%	12-Sep-14	22-Sep-14
BC Cutter No. 7			14-Jun-14 A	06-Oct-14
01109.PDC24915A	BC Cutter No.7 assembly and setting up	100%	14-Jun-14 A	28-Jun-14 A
01109.PDC26540	W6 - Dwall works P71	100%	30-Jun-14 A	23-Jul-14 A
01109.PDC26490	W6 - Dwall works P69	11%	24-Jul-14 A	12-Aug-14
01109.PDC26550	W6 - Dwall works P72	0%	08-Aug-14	25-Aug-14
01109.PDC25570	W6 - Dwall works P61	0%	21-Aug-14	10-Sep-14
01109.PDC26520	W6 - Dwall works P73	0%	05-Sep-14	17-Sep-14
01109.PDC26010	W6 - Dwall works P64	0%	15-Sep-14	06-Oct-14
01109.PDC26460	W6 - Crosswall G11-4	0%	30-Sep-14	06-Oct-14
Top Slab, Utility, & Backfill WEST side during STAGE 2 TTMS			30-Sep-14	12-Nov-14
Area W10 - Span 11 - GL 21 to GL 23			11-Oct-14	28-Oct-14
01109.PDC29135	W10 - Steelwork; Installation of sheet piles 30lm (centre only) 1PR	0%	11-Oct-14	20-Oct-14
01109.PDC16680	W10 - Earthwork; Excavation for roof slab concrete	0%	21-Oct-14	28-Oct-14
Area W12 - Span 13 - GL 25 to GL 28			30-Sep-14	12-Nov-14
01109.PDC29155	W12 - Steelwork; Installation of sheet piles 30lm (centre only) 1PR	0%	30-Sep-14	10-Oct-14
01109.PDC17950	W12 - Earthwork; Excavation for roof slab concrete	0%	11-Oct-14	16-Oct-14
01109.PDC29035	W12 - Steelwork; Installation of struts and walers (ELS works)	0%	17-Oct-14	22-Oct-14
01109.PDC17960	W12 - Structure; Roof slab	0%	23-Oct-14	12-Nov-14
CC-D - BORED TUNNELS FROM SUW STATION TO HOM STATION			30-Aug-13 A	10-Feb-15
Engineers Instructions (EI)			28-Nov-13 A	10-Feb-15
01109.PDA EI 53	EI 53 - Submission and Approval for revised detailed design to tunnel lining	80%	28-Nov-13 A	12-Sep-14
EI 52 - Additional Energency Egress Point (EEP) bet TKW & HOM stations			05-Mar-14 A	10-Feb-15
EI 52 - Preparation Works			05-Mar-14 A	10-Feb-15
01109.PDDEI52065	EI 52 - TTM Stg 2 Ph 4 Design and road preparation works for Full EEP work area	100%	05-Mar-14 A	28-Jun-14 A
01109.PDDEI52001	EI 52 - Trial Trench and UU Diversion (inclusive of RFEI 66)	85%	12-Apr-14 A	31-Jul-14
01109.PDDEI52002	EI 52 - Site Preparation Works	100%	10-Jul-14 A	19-Jul-14 A
01109.PDDEI52003	EI 52 - Pipe Piling Works (2 rigs when possible, 1 at other times)	1%	21-Jul-14 A	10-Feb-15
Requests for Engineer's Instructions			30-Jun-14 A	11-Jul-14 A



Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDD2300A30	RFEI 66 - Unchartered SW pipe in Chatham road north	100%	30-Jun-14 A	11-Jul-14 A
Procurement of Specialised Construction Machinery			30-Aug-13 A	23-Jul-14 A
Procurement of Specialised Construction Machinery			30-Aug-13 A	23-Jul-14 A
Off-site			30-Aug-13 A	23-Jul-14 A
01109.PDD1050	TBM Up track SUW to HOM - TBM Manufacture	100%	30-Aug-13 A	21-Jul-14 A
01109.PDD1080	TBM Up track SUW to HOM - TBM Deliver	100%	22-Jul-14 A	23-Jul-14 A
Specialised Construction Machinery Site Assembly and Related Establishment			21-Mar-14 A	18-Sep-14
Specialised Construction Machinery Site Assembly and Related Establishment			21-Mar-14 A	18-Sep-14
01109.PDD1140	SUW - Grout behind Bored Pile Wall	50%	21-Mar-14 A	18-Sep-14
01109.PDD1100A	STP - Testing On-site	100%	14-Apr-14 A	22-Jul-14 A
Underpining of EKW Pier 15 and Foundation Removal			11-Jun-14 A	05-Nov-14
TTA Stage 1: Phase 3			11-Jun-14 A	05-Nov-14
Underpinning works			26-Jun-14 A	28-Oct-14
Bridge Jacking			26-Jun-14 A	20-Jul-14 A
01109.PDD4130A	Site Establishment King Hang	100%	26-Jun-14 A	26-Jun-14 A
01109.PDD4140A	Falsework Erection	100%	27-Jun-14 A	18-Jul-14 A
01109.PDD4190	Site Establishment Freyssinet	100%	17-Jul-14 A	19-Jul-14 A
01109.PDD4200	Jack Set up	100%	17-Jul-14 A	19-Jul-14 A
01109.PDD4210	Bridge Jack up and transfer loading	100%	20-Jul-14 A	20-Jul-14 A
Stitching Existing Pile Cap			21-Jul-14 A	10-Sep-14
01109.PDD4390A	Site Clearance and Setting Up	67%	21-Jul-14 A	29-Jul-14
01109.PDD4150	Breaking Stitching Joint A	0%	30-Jul-14	21-Aug-14
01109.PDD4230	Breaking Stitching Joint B	0%	30-Jul-14	21-Aug-14
01109.PDD4240	Breaking Stitching Joint C	0%	30-Jul-14	21-Aug-14
01109.PDD4250	Breaking Stitching Joint D	0%	30-Jul-14	21-Aug-14
01109.PDD4220	Non-shrink Grouting	0%	04-Aug-14	19-Aug-14
01109.PDD4391A	Remove excavated materials on site	0%	22-Aug-14	02-Sep-14
01109.PDD4270	Rebar, Wire Mesh, Formwork and Concreting	0%	03-Sep-14	10-Sep-14
Saw Cut Existing Cap and Removal			15-Aug-14	03-Oct-14
01109.PDD4160	Mobilization and Set up	0%	15-Aug-14	21-Aug-14
01109.PDD4280	Saw Cut Existing Pile Cap	0%	22-Aug-14	06-Sep-14
01109.PDD4260	L Shape Drill in Bar Installation	0%	08-Sep-14	24-Sep-14
01109.PDD4290	Saw Cut Existing Bored Piles No.20	0%	08-Sep-14	12-Sep-14
01109.PDD4300	Saw Cut Existing Bored Piles No.21	0%	13-Sep-14	17-Sep-14

SAMSUNG

SAMSUNG-HSIN CHONG JOINT VENTURE

MTR Corporation Limited

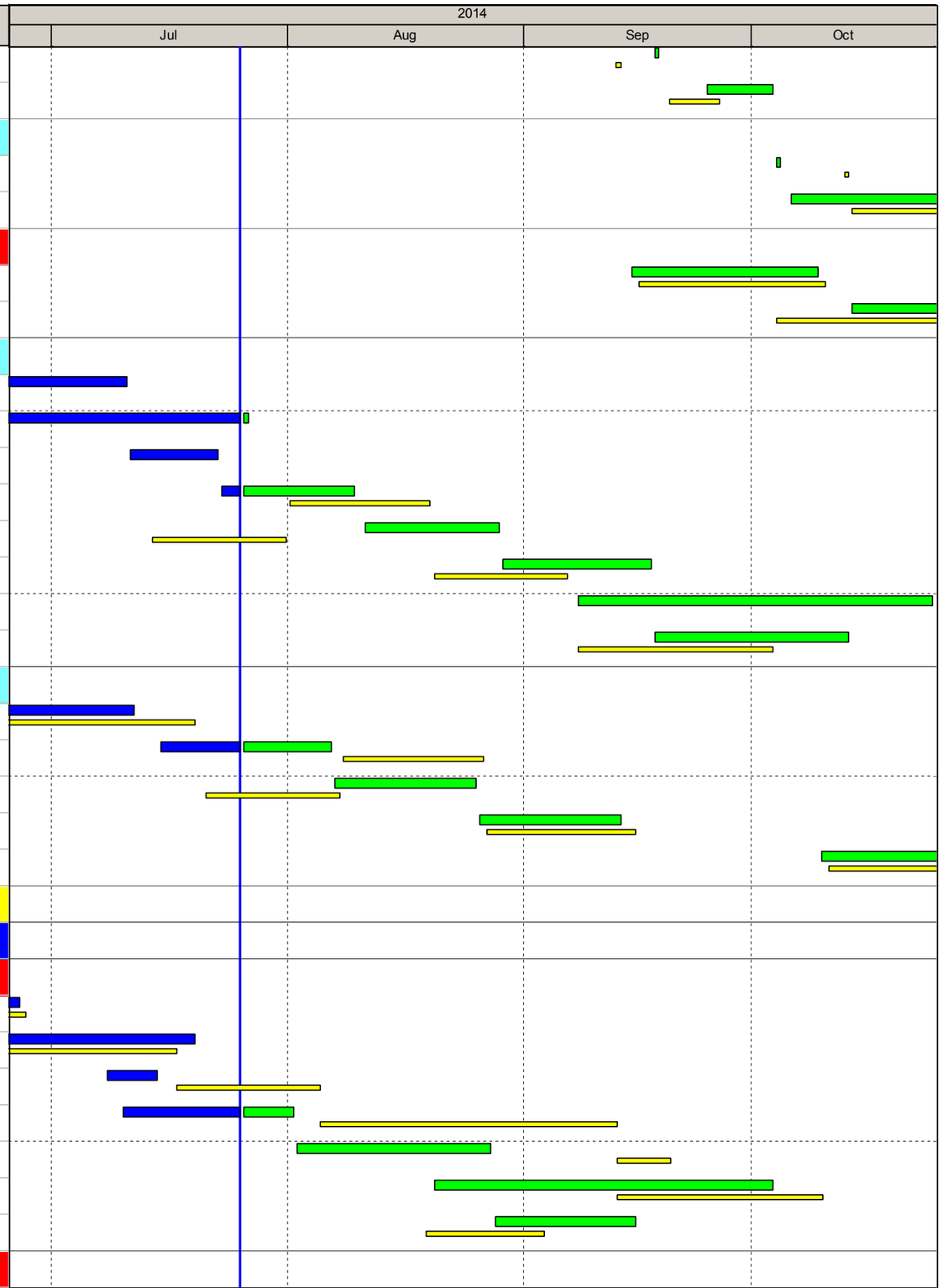
Shatin to Central Link Contract 1109

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

Printed:07-Aug-14

Actual Work
Remaining Work
Master Programme Rev.2 Draft
Milestone
MP Rev.2 Draft Mil...

Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDD4310	Demobilization	0%	18-Sep-14	18-Sep-14
01109.PDD4350	Rebar, Wire Mesh, Formwork and Concreting	0%	25-Sep-14	03-Oct-14
Load Transfer back to Existing Pier			04-Oct-14	28-Oct-14
01109.PDD2570	Release temporary jack force	0%	04-Oct-14	04-Oct-14
01109.PDD2560	Demobilization the temporary steel frame	0%	06-Oct-14	28-Oct-14
Bored Pile Removal			11-Jun-14 A	05-Nov-14
01109.PDD2587A	Claim tba - Pier 15 - Jet Grouting for Pile Removal (Stage 2)	0%	15-Sep-14	09-Oct-14
01109.PDD2586A	Claim tba - Pier 15 - Jet Grouting for Pile Removal (Stage 2)	0%	14-Oct-14	05-Nov-14
Group 1 (Machine 1)			23-Jun-14 A	24-Oct-14
01109.PDD2680A	Change crawler crane and site set up	100%	23-Jun-14 A	10-Jul-14 A
01109.PDD2682A	Pre-splitting Stage 1 (32 nos.)	97%	23-Jun-14 A	26-Jul-14
01109.PDD2681A	Existing Bored Pile B03 - 1.0m dia - Remove bored pile in way of tunnel (Part 2)	100%	11-Jul-14 A	22-Jul-14 A
01109.PDD2700	Existing Bored Pile B04 - 1.0m dia - Remove bored pile in way of tunnel	15%	23-Jul-14 A	09-Aug-14
01109.PDD2640	Existing Bored Pile B01 - 1.0m dia - Remove bored pile in way of tunnel	0%	11-Aug-14	28-Aug-14
01109.PDD2720	Existing Bored Pile B05 - 1.0m dia - Remove bored pile in way of tunnel	0%	29-Aug-14	17-Sep-14
01109.PDD2683A	Pre-splitting Stage 2 (75 nos.)	0%	08-Sep-14	24-Oct-14
01109.PDD2740	Existing Bored Pile B06 - 1.0m dia - Remove bored pile in way of tunnel	0%	18-Sep-14	13-Oct-14
Group 2 (Machine 2)			11-Jun-14 A	01-Nov-14
01109.PDD2610	Existing Bored Pile B15 - 1.0m dia - Remove bored pile in way of tunnel	100%	11-Jun-14 A	11-Jul-14 A
01109.PDD2630	Existing Bored Pile B14 - 1.0m dia - Remove bored pile in way of tunnel	55%	15-Jul-14 A	06-Aug-14
01109.PDD2580	Existing Bored Pile B17 - 1.0m dia - Remove bored pile in way of tunnel	0%	07-Aug-14	25-Aug-14
01109.PDD2650	Existing Bored Pile B13 - 1.0m dia - Remove bored pile in way of tunnel	0%	26-Aug-14	13-Sep-14
01109.PDD2770	Existing Bored Pile B19 - 1.5m dia - Remove bored pile in way of tunnel	0%	10-Oct-14	01-Nov-14
To Kwa Wan Ancillary Building			26-May-14 A	27-Oct-14
Excavation and Foundation			26-May-14 A	27-Oct-14
Stage 1			26-May-14 A	03-Oct-14
01109.PDD3030A	Pipe Piling 22 nos.	100%	26-May-14 A	26-Jun-14 A
01109.PDD3040A	Installation of H-Beam	100%	10-Jun-14 A	19-Jul-14 A
01109.PDD4361A	Trial pits for drilling works and grouting plant set up	100%	08-Jul-14 A	14-Jul-14 A
01109.PDD3000	Drill grout pipe behind bored pile wall	63%	10-Jul-14 A	01-Aug-14
01109.PDD4360A	Grout curtain behind pipe pile wall	0%	02-Aug-14	27-Aug-14
01109.PDD3080	PW/ OW/ RW drill and install and pump test	0%	20-Aug-14	03-Oct-14
01109.PDD3090	Pile cap (capping beam) construction	0%	28-Aug-14	15-Sep-14
Stage 2			04-Oct-14	27-Oct-14



SAMSUNG

SAMSUNG-HSIN CHONG JOINT VENTURE

MTR Corporation Limited

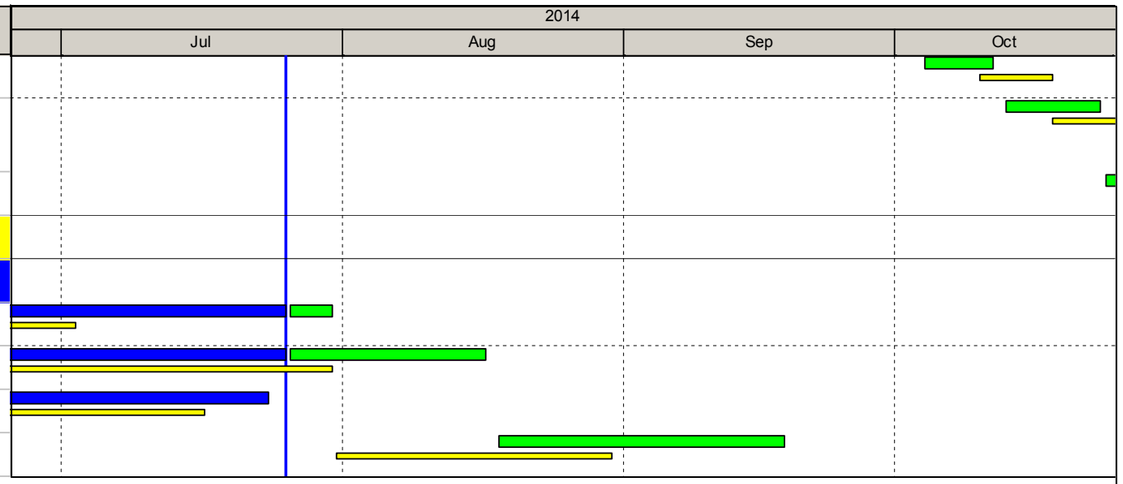
Shatin to Central Link Contract 1109

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

Printed:07-Aug-14

Actual Work
Remaining Work
Master Programme Rev.2 Draft
Milestone
MP Rev.2 Draft Mil...

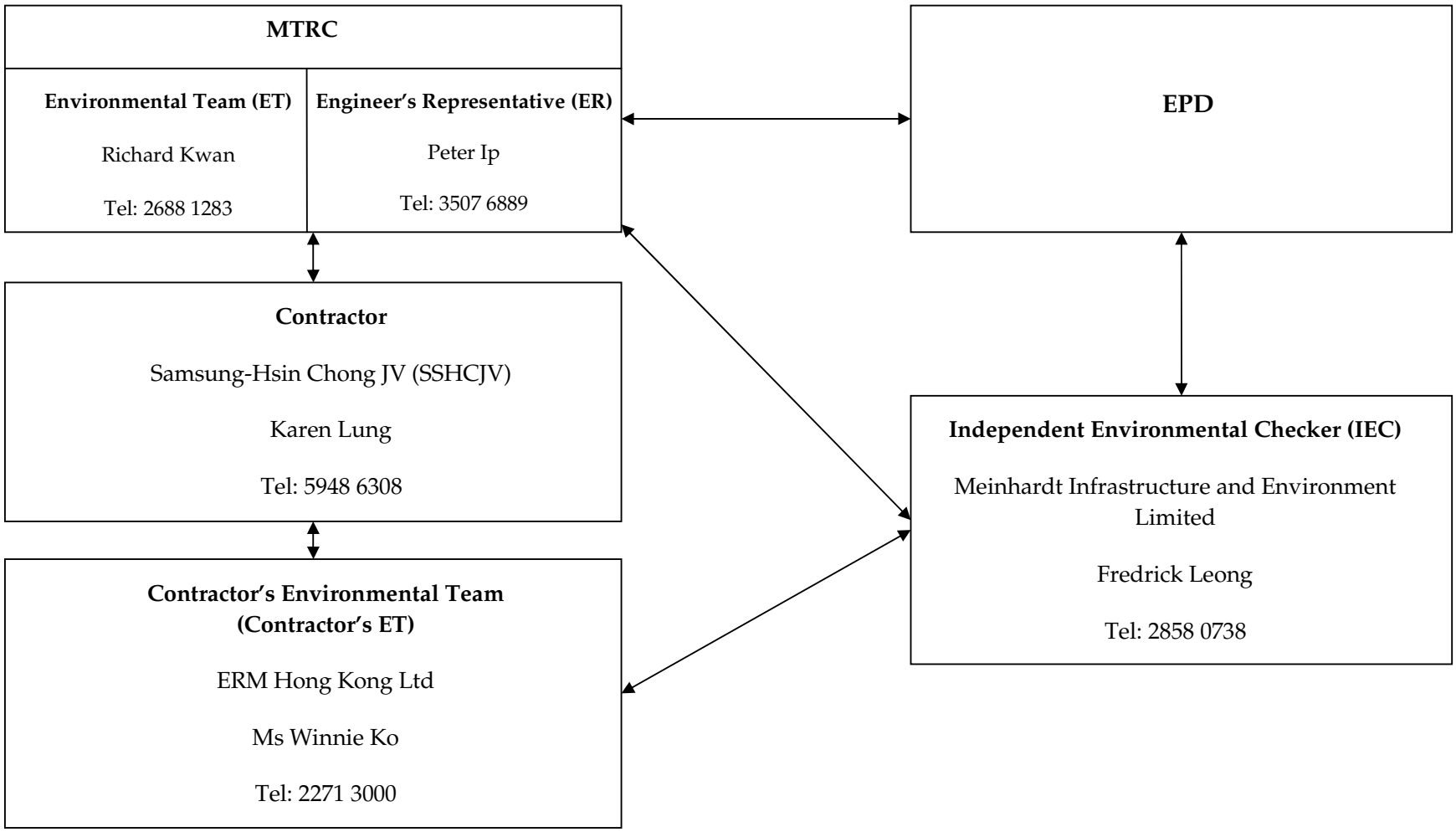
Activity ID	Activity Name	Physical % Complete	Start	Finish
01109.PDD4365A	Mobilization and Setting up	0%	04-Oct-14	11-Oct-14
01109.PDD3100	Excavate to +3.75mPD	0%	13-Oct-14	23-Oct-14
01109.PDD3110	Install 1st layer Ring Beam at +4.5mPD	0%	24-Oct-14	27-Oct-14
Chatham Road North			24-Mar-14 A	18-Sep-14
Ground Treatment between TKW and Shansi Street			24-Mar-14 A	18-Sep-14
01109.PDD2852A	Ground Treatment Work in Zone A (182 holes)	92%	24-Mar-14 A	30-Jul-14
01109.PDD2853A	Ground Treatment Work in Zone B (196 holes)	57%	24-Apr-14 A	16-Aug-14
01109.PDD2856A	Ground Treatment Work in Zone C (56 holes)	100%	07-Jun-14 A	23-Jul-14 A
01109.PDD2857A	Lay the watermain, pressure test and reinstatement of carriageway	0%	18-Aug-14	18-Sep-14



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

NMS-CA-6

TKW

NMS-CA-7

NMS-CA-8

MTW

NMS-CA-9

NMS-CA-10

N

Meters

0 100 200

Key

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

Annex D1

Location of Regular Construction Noise Monitoring Stations

File: T:\GIS\CONTRACT\0171181\Mxd\0171181_Airborne_Noise_Monitoring_Stations_Annex.mxd
Date: 12/08/2014

Environmental Resources Management

ERM

DMS-6

TKW

DMS-7

DMS-8

DMS-9

MTW

DMS-10

N

Meters

0 100 200

Key

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

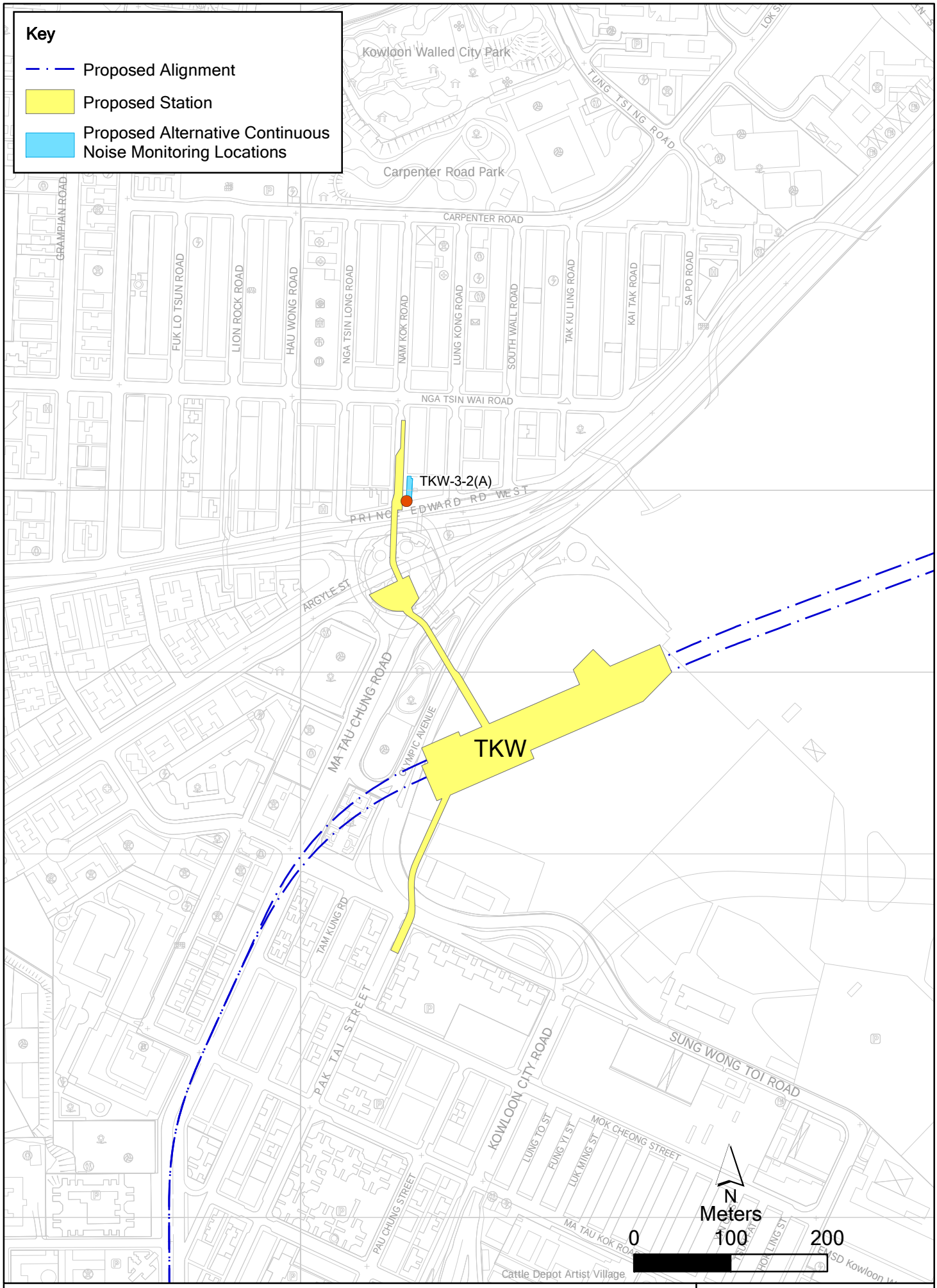
Annex D2

Location of Dust Monitoring Stations

File: T:\GIS\CONTRACT\0171181\Mxd\0171181_Dust_Monitoring_Station_Annex.mxd
Date: 12/08/2014

Environmental Resources Management

ERM



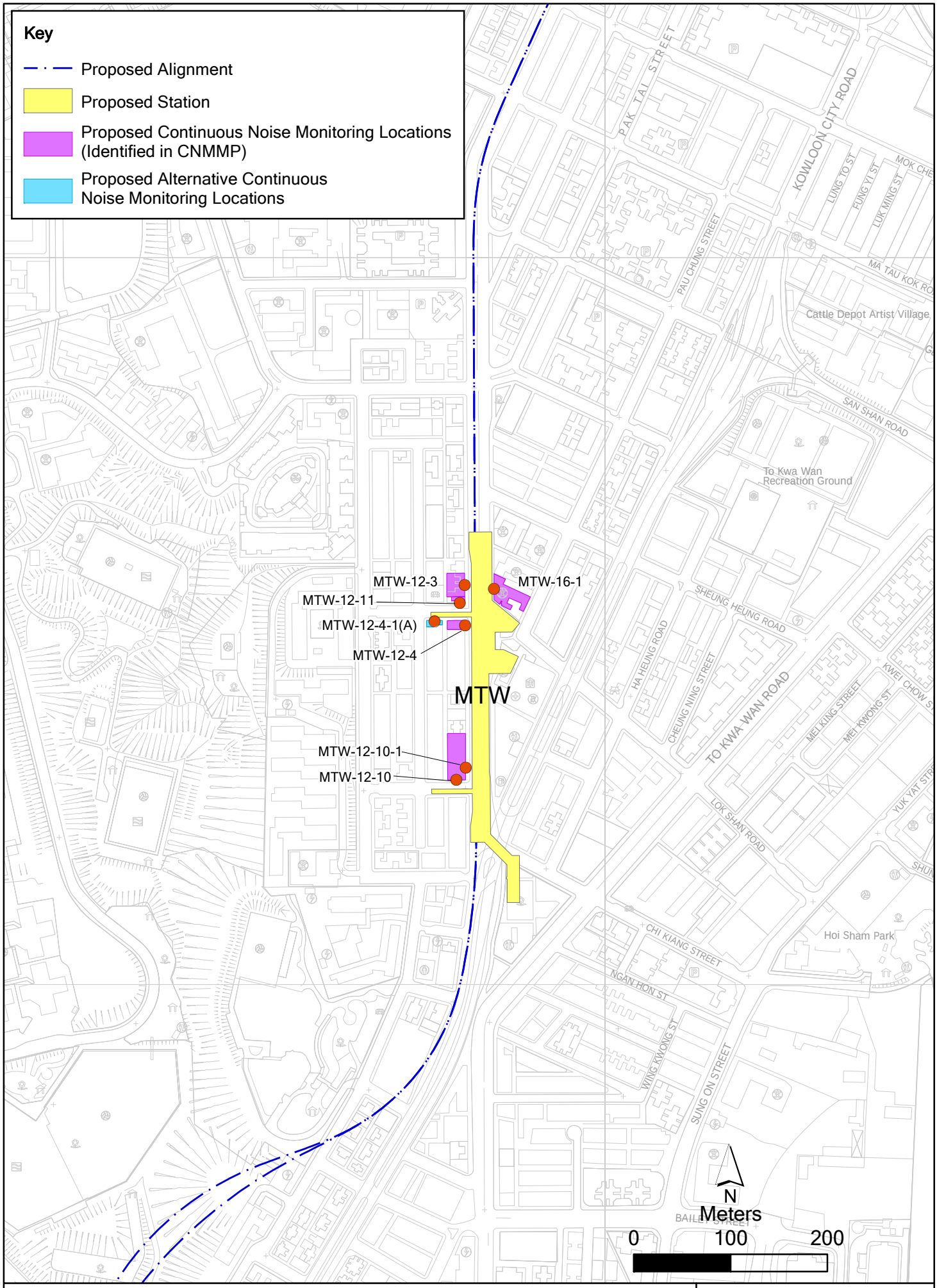
Annex D3

Proposed Continuous Noise Monitoring Locations

Name: 171181_Annex_Continuous_Noise_Monitoring_Locations_TKW.mxd
Date: 10-Oct-12

Environmental Resources Management

ERM



Annex D4

Proposed Continuous Noise Monitoring Locations

File: T:\GIS\CONTRACT\0171181\Mxd\0171181_Continuous_Noise_Monitoring_Locations_MTW_v2.mxd
Date: 31/1/2013

Environmental Resources Management

ERM

Annex E

Monitoring Schedule of the Reporting Period and the Next Month

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

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		01-Jul	02-Jul	03-Jul	04-Jul	05-Jul
		Public Holiday				
06-Jul	07-Jul	08-Jul	09-Jul	10-Jul	11-Jul	12-Jul
					Noise Monitoring	
13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul	19-Jul
				Noise Monitoring		
20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul
			Noise Monitoring			
27-Jul	28-Jul	29-Jul	30-Jul	31-Jul		
		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 : August 2014

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

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

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

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

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

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

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

Annex F

Calibration Reports

Annex F Calibration Reports

Dust Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
24-hr TSP		**HVS**	**Calibrator**		
DMS-6	Katherine Building	TE-5170 (S/N 0107)	CM-AIR-43 (Orifice I.D. 2421)	6 March 2014	6 September 2014
DMS-7	Parc 22	TE-5170 (S/N 3574)	CM-AIR-43 (Orifice I.D. 2421)	6 March 2014	6 September 2014
DMS-8	SHK Good Shepherd Primary School	TE-5170 (S/N 3572)	CM-AIR-43 (Orifice I.D. 2421)	6 March 2014	6 September 2014
DMS-9	No. 12 Pau Chung Street	TE-5170 (S/N 0814)	CM-AIR-43 (Orifice I.D. 2454)	11 June 2014	11 December 2014
DMS-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. 2421)	6 March 2014	6 September 2014

Noise Monitoring Equipment

Monitoring Station ID	Monitoring Equipment	Model & Serial No.	Last Calibration Date	Next Calibration Date
NMS-CA-6, NMS-CA-7, NMS-CA-8, NMS-CA-9 and NMS-CA-10	Calibrator	Rion NC-73 (S/N 10997142)	28 June 2014	28 June 2015
	Sound Level Meter	Rion NL-18 (S/N 00360030)	12 July 2013	12 July 2014
			19 July 2014	19 July 2015
		Rion NL-52 (S/N 00331805)	5 July 2014	5 July 2015

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

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

Sampler

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

Calibration Orfice and Standard Calibration Relationship

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

Standard Condition

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

Calibration Condition

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

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

Sampler Calibration Relationship (Linear Regression)

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

Checked by: Magnum Fan Date: 10/03/2014

High-Volume TSP Sampler
5-Point Calibration Record

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

Sampler

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

Calibration Orfice and Standard Calibration Relationship

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

Standard Condition

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

Calibration Condition

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

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

Sampler Calibration Relationship (Linear Regression)

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

Checked by: Magnum Fan Date: 10/03/2014

High-Volume TSP Sampler
5-Point Calibration Record

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

Sampler

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

Calibration Orfice and Standard Calibration Relationship

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

Standard Condition

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

Calibration Condition

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

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

Sampler Calibration Relationship (Linear Regression)

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

Checked by: Magnum Fan Date: 10/03/2014

High-Volume TSP Sampler
5-Point Calibration Record

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

Sampler

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

Calibration Orfice and Standard Calibration Relationship

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

Standard Condition

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

Calibration Condition

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

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

Sampler Calibration Relationship (Linear Regression)

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

Checked by: Magnum Fan Date: 20/06/2014

High-Volume TSP Sampler
5-Point Calibration Record

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

Sampler

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

Calibration Orfice and Standard Calibration Relationship

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

Standard Condition

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

Calibration Condition

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

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

Sampler Calibration Relationship (Linear Regression)

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

Checked by: Magnum Fan Date: 10/03/14

TISCH Environmental

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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

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

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

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0052	0.7000	1.4209		0.9957	0.6934	0.8814
1.0010	0.9891	2.0095		0.9915	0.9798	1.2464
0.9989	1.0989	2.2467		0.9894	1.0885	1.3936
0.9977	1.1535	2.3564		0.9883	1.1426	1.4616
0.9925	1.3901	2.8419		0.9831	1.3769	1.7627
Qstd slope (m) =		2.06238		Qa slope (m) =		1.29142
intercept (b) =		-0.02415		intercept (b) =		-0.01498
coefficient (r) =		0.99994		coefficient (r) =		0.99994
x axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE
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45002
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ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

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

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4740	3.2	2.00
2	NA	NA	1.00	1.0340	6.4	4.00
3	NA	NA	1.00	0.9240	7.9	5.00
4	NA	NA	1.00	0.8820	8.8	5.50
5	NA	NA	1.00	0.7270	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)
1.0103	0.6854	1.4245
1.0061	0.9730	2.0146
1.0040	1.0866	2.2524
1.0028	1.1370	2.3623
0.9976	1.3722	2.8491

Qstd slope (m) = 2.07593
intercept (b) = -0.00102
coefficient (r) = 0.99996

y axis = SQRT[H2O(Pa/760)(298/Ta)]

Va	(x axis) Qa	(y axis)
0.9958	0.6755	0.8791
0.9916	0.9590	1.2433
0.9895	1.0709	1.3900
0.9884	1.1206	1.4579
0.9832	1.3524	1.7583

Qa slope (m) = 1.29991
intercept (b) = -0.00063
coefficient (r) = 0.99996

y axis = SQRT[H2O(Ta/Pa)]

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C143980
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-1497) Date of Receipt / 收件日期 : 23 June 2014

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

TEST CONDITIONS / 測試條件

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

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 28 June 2014

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee, Project Engineer

Certified By 核證 : K M Wu, Engineer

Date of Issue 簽發日期 : 2 July 2014

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C143980
證書編號

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	Description	Certificate No.
CL130	Universal Counter	C143868
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

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

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.987	1 kHz ± 2 %	± 1

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

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

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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C134309
證書編號

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

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

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 12 July 2013

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee

Certified By 核證 : K M Wu

Date of Issue 簽發日期 : 15 July 2013

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4 F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
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Certificate of Calibration
校正證書

Certificate No. : C134309
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the internal standard (After Adjustment) was performed before the test from 6.1.2 to 6.4.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

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

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

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

* Out of Mfr's Spec.

6.1.1.2 After Adjustment

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

6.1.2 Linearity

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

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

Certificate of Calibration
校正證書

Certificate No. : C134309
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

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

6.2.2 Tone Burst Signal (2 kHz)

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

6.3 Frequency Weighting

6.3.1 A-Weighting

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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c/o 香港新界屯門興安里一號青山灣機樓四樓
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Certificate of Calibration
校正證書

Certificate No. : C134309
證書編號

6.3.2 C-Weighting

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

6.4 Time Averaging

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

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

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

- Uncertainties of Applied Value :

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

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

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

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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C144281
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-1719) Date of Receipt / 收件日期 : 11 July 2014

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

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 19 July 2014

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee, Project Engineer

Certified By 核證 : K M Wu, Engineer

Date of Issue 簽發日期 : 23 July 2014

Certificate of Calibration
校正證書

Certificate No. : C144281
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

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

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

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

6.1.2 Linearity

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

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

6.2 Time Weighting

6.2.1 Continuous Signal

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

Certificate of Calibration
校正證書

Certificate No. : C144281
證書編號

6.2.2 Tone Burst Signal (2 kHz)

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

6.3 Frequency Weighting

6.3.1 A-Weighting

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

6.3.2 C-Weighting

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

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6.4 Time Averaging

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

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

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

- Uncertainties of Applied Value :

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

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

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C144069
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-1633) Date of Receipt / 收件日期 : 27 June 2014

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NL-52
Serial No. / 編號	:	00331805
Supplied By / 委託者	:	Envirotech Services Co. Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 5 July 2014

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee, Project Engineer

Certified By 核證 : K M Wu, Engineer

Date of Issue 簽發日期 : 7 July 2014

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Sun Creation Engineering Limited
Calibration and Testing 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	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.1	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.1

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

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.1	Ref.
			Slow			94.1	± 0.3

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6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.5
					250 Hz	85.4	-8.6 ± 1.4
					500 Hz	90.8	-3.2 ± 1.4
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.6
					4 kHz	95.1	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.5
					250 Hz	94.1	0.0 ± 1.4
					500 Hz	94.1	0.0 ± 1.4
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.6
					4 kHz	93.3	-0.8 ± 1.6
					8 kHz	91.2	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.7	-6.2 (+3.0 ; -6.0)

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

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

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

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

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

Annex G

Summary of Event/ Action Plans

Annex G1 Event and Action Plan for Regular Construction Noise Monitoring

EVENT	Action			
	Contractor's Environmental Team (Contractor's ET)	**Independent Environmental Checker (IEC)**	**Engineer Representative (ER)**	**The Contractor**
Exceeding Action Level	1. Notify the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Increase the monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing ; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise the implementation of remedial measures.	1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement noise mitigation proposals.
Exceeding Limit Level	1. Notify the IEC, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Increase the monitoring frequency; 4. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Inform the IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess the effectiveness of the Contractor's remedial measures and keep the IEC, ER and EPD informed of the results	1. Check the monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER, and Contractor on the potential remedial measures; 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify reason(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem is still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Annex G2 Event and Action Plan for Continuous Noise Monitoring

Event	Action			
	Works Contract 1109 ET	**IEC**	**ER**	**Contractor**
Exceeding Action/Limit Level	1. Identify source 2. Repeat measurement. If two consecutive measurements exceed Action/Limit Level, the exceedance is then confirmed 3. If exceedance is confirmed, notify IEC, ER and Contractor 4. Investigate the cause of exceedance and check Contractor's working procedures to determine possible mitigation to be implemented 5. Discuss jointly with the IEC, ER and Contractor and formulate remedial measures 6. Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results	1. Check monitoring data submitted by the Works Contract 1109 ET 2. Check the Contractor's working method 3. Discuss with the ER, Works Contract 1109 ET and Contractor on the potential remedial measures 4. Review and advise the Works Contract 1109 ET and ER on the effectiveness of the remedial measures proposed by the Contractor	1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor and IEC 3. In consultation with the Works Contract 1109 ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Ensure the proper implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Identify source with Works Contract 1109 ET 2. If exceedance is confirmed, investigate the cause of exceedance and take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET of notification 4. Implement the agreed proposals 5. Liaise with ER to optimize the effectiveness of the agreed mitigation 6. Revise and resubmit proposals if problem still not under control 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Annex G3 Event and Action Plan for Construction Dust Monitoring

Event	Action			
	Contractor's Environmental Team (Contractor's ET)	**Independent Environmental Checker (IEC)**	**Engineer Representative (ER)**	**The Contractor**
Action Level				
Exceedance for one sample	1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase the monitoring frequency	1. Check the monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notifications of exceedance in writing;	1. Identify reason(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods and agree them with the ER as appropriate.
Exceedance for two or more consecutive samples	1. Inform the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase the monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, the monitoring frequency will resume normal.	1. Check the monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise the Implementation of remedial measures.	1. Identify reasons and investigate the causes of exceedance; 2. Submit proposals of remedial measures to the ER with a copy to the ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend the proposal as appropriate.

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

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

Event	Action			
	Contractor's Environmental Team (Contractor's ET)	**Independent Environmental Checker (IEC)**	**Engineer Representative (ER)**	**The Contractor**
Non-conformity on one occasion	1. Inform the Contractor, the IEC and the ER. 2. Discuss remedial actions with the IEC, ER and Contractor. 3. Monitor remedial actions until rectification has been completed.	1. Check the inspection report. 2. Check the Contractor's working method. 3. Discuss with the ET, ER and Contractor on possible remedial measures. 4. Advise the ER on the effectiveness of proposed remedial measures.	1. Confirm receipt of notifications of nonconformity in writing. 2. Review and agree on the remedial measures proposed by the Contractor. 3. Supervise the implementation of remedial measures.	1. Identify reasons and investigate the non-conformity. 2. Implement remedial measures 3. Amend working methods and agree them with the ER as appropriate. 4. Rectify the damage and undertake any necessary replacement.
Repeated Nonconformity	1. Identify Reasons. 2. Inform the Contractor, IEC and ER. 3. Increase the inspection frequency. 4. Discuss remedial actions with the IEC, ER and Contractor. 5. Monitor remedial actions until rectification has been completed. 6. If non-conformity stops, the inspection frequency return to normal (ie,. Once every two weeks)	1. Check the inspection report. 2. Check the Contractor's working method. 3. Discuss with the ET and Contractor on possible remedial measures. 4. Advise the ER on the effectiveness of proposed remedial measures.	1. Notify the Contractor. 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented. 3. Supervise the implementation of remedial measures.	1. Identify Reasons and investigate the non-conformity. 2. Implement remedial measures. 3. Amend working methods and agree them with the ER as appropriate. 4. Rectify the damage and undertake any necessary replacement. 5. Stop relevant works as determined by the ER until the non-conformity is abated.

Annex H

Summary of Implementation Status of Environmental Mitigation

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

Note:

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

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
Cultural Heritage Impact							
S4.9	CH3	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	√
Ecology (Construction 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	√

EIA Ref.	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 earth-moving works to trap sediments and prevent them from entering watercourses; • Avoidance of soil storage against trees or close to water bodies; • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. tunnel on hill at top of slope stabilisation works; • No on-site burning of waste; • Store waste and refuse in appropriate receptacles.					
Landscape & Visual (Construction Phase)							
S6.9.3	LV1	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	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		ground may be set up on-site as necessary. 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 "no-intrusion 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
		trees in Contractor's works sites.					
S6.12	LV2	<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. <u>Management of facilities on work sites</u> • 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). <u>Tree Transplanting</u> • Trees of high to medium survival rates that would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including the final locations for the transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	√
Construction Dust							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul roads in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 l/m^2 to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	√
S7.6.5	D3	• 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 power-driven drilling, cutting, polishing or other mechanical breaking operations take place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		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 dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system;					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	√
EP Condition 2.18(a)	D7	Watering once every working hour for active works areas, exposed areas and paved haul roads shall be provided in Kowloon area to keep these active works areas, exposed areas and paved haul roads wet.	Minimize construction dust impact	Contractor	All construction sites	Construction stage	√
EP Condition 2.19	D8	All diesel fuelled construction plant, including marine vessels if possible, used by the contractors within the works areas of the Project shall be powered by ultra low sulphur diesel fuel.	Minimize aerial emissions of sulphur dioxide from construction plant	Contractor	All construction sites	Construction stage	√
Construction Noise (Airborne)							
S8.3.6	N1	Implement the following good site practices: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work	Control construction airborne noise	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		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	√
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	<>
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	√
S8.3.6	N5	Sequencing operation of construction plants	Operate sequentially within	Contractor	Contractor All	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		where practicable.	the same work site to reduce the construction airborne noise		construction sites where practicable		
S8.3.6	N6	Implement noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	√
Water Quality							
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoffs and Site Drainage</u> • At the start of the site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the Contractor prior to the commencement of construction. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to	To minimise water quality impact from construction site runoffs and general construction activities	Contractor	All construction sites where practicable	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		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 sedimentation 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, and definitely, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by					

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		coarse stone ballast. An additional advantage from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operations at all times and particularly following rainstorms. Deposited silts and grits should be removed regularly and disposed of by spreading them evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, trenches should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 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					

EIA Ref.	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					

EIA Ref.	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. • Adopt best management practices					
S10.7.1	W2	<u>Tunnelling Works</u> • Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge. • The wastewater with a high concentration	To minimize construction water quality impact from tunnelling works	Contractor	All tunnelling portion	Construction stage	N/A

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		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	<u>Sewage Effluent</u> Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for their appropriate disposal and maintenance.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	√
S10.7.1	W4	<u>Groundwater from Contaminated Area in case contamination is found:</u> • No direct discharge of groundwater from	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	N/A

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

EIA Ref.	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				
Waste Management (Construction Waste)							
S11.4.1.1	WM1	<u>On-site sorting of C&D (Construction and 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
		being ended up at concrete batching plants and turned into concrete for structural use. Details regarding control measures at source sites and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated. The traceability of delivery will be ensured via the implementation of Trip Ticket System and enforcement by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.					
S11.5.1	WM2	<u>Construction and Demolition (C&D) 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 promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;	Good site practice to minimize waste generation and recycle C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		• Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; • Implement an enhanced Waste management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and minimize waste generation during the course of construction. • Disposal of the C&D materials to any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get his approval before implementation					
S11.5.1	WM3	<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. Metal hoarding should be used to enhance the possibility of recycling. The purchase of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site.	Good site practice to minimize waste generation and recycle C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.					
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme	Minimize the production of general refuse and minimise odour, pest and litter impacts	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		should be considered by the Contractor.					
S11.5.1	WM7	<u>Chemical Waste</u> • Chemical waste as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, that is produced should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed. They should have a capacity of less than 450 litres unless the specification has been approved by the EPD. A label in English and Chinese should be displayed in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides. It should also have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest. It should have adequate ventilation and be covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		• Disposal of chemical waste should be via a licensed waste collector; to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre (which also offers a chemical waste collection service and can supply the necessary storage containers); or to a reuser of the waste, under the approval from the EPD.					

Annex I - 1

Regular Noise Monitoring Results

Annex I-1 Regular Noise Monitoring Results

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

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L_{Aeq}(30 min)	Baseline (dB(A)), L_{Aeq}(30 min)	Corrected LAeq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
11-Jul-14	11:30	12:00	Fine	63.4	76.1	-(b)	-	Traffic noise	30	0.5	NL-18 00360030	NC-73 10997142
17-Jul-14	11:29	11:59	Fine	63.8	76.1	-(b)	-	Traffic noise	30	0.5	NL-52 00331805	NC-73 10997142
23-Jul-14	11:27	11:57	Sunny	63.2	76.1	-(b)	-	Traffic noise	31	0.5	NL-18 00360030	NC-73 10997142
29-Jul-14	11:30	12:00	Fine	63.1	76.1	-(b)	-	Traffic noise	31	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-7 Skytower Tower 2

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L_{Aeq}(30 min)	Baseline (dB(A)), L_{Aeq}(30 min)	Corrected LAeq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
11-Jul-14	10:30	11:00	Fine	67.1	70.0	-(b)	-	Traffic noise	30	0.5	NL-18 00360030	NC-73 10997142
17-Jul-14	10:35	11:05	Fine	67.0	70.0	-(b)	-	Traffic noise	30	0.5	NL-52 00331805	NC-73 10997142
23-Jul-14	10:30	11:00	Sunny	66.9	70.0	-(b)	-	Traffic noise	31	0.5	NL-18 00360030	NC-73 10997142
29-Jul-14	10:38	11:08	Fine	67.2	70.0	-(b)	-	Traffic noise	31	0.5	NL-18 00360031	NC-73 10997143

Station NMS-CA-8 SKH Good Shepherd Primary School

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L_{Aeq}(30 min)	Baseline (dB(A)), L_{Aeq}(30 min)	Corrected LAeq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
11-Jul-14	8:40	9:10	Cloudy	75.7	75.4	63.9	Breaker	Traffic noise	30	0.5	NL-18 00360030	NC-73 10997142
17-Jul-14	8:40	9:10	Fine	75.7	75.4	63.9	Crane operation	Traffic noise	30	0.5	NL-52 00331805	NC-73 10997142
23-Jul-14	8:40	9:10	Sunny	75.8	75.4	65.2	Crane operation, Backhoe	Traffic noise	31	0.5	NL-18 00360030	NC-73 10997142
29-Jul-14	8:40	9:10	Fine	75.3	75.4	-(b)	Crane operation	Traffic noise	31	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-9 Kong Yiu Mansion

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L_{Aeq}(30 min)	Baseline (dB(A)), L_{Aeq}(30 min)	Corrected LAeq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
11-Jul-14	8:00	8:30	Fine	75.4	69.2	74.2	Crane operation	Traffic noise	30	0.5	NL-18 00360030	NC-73 10997142
17-Jul-14	8:00	8:30	Fine	75.7	69.2	74.6	Crane operation	Traffic noise	30	0.5	NL-52 00331805	NC-73 10997142
23-Jul-14	8:00	8:30	Sunny	74.4	69.2	72.8	Crane operation	Traffic noise	31	0.5	NL-18 00360030	NC-73 10997142
29-Jul-14	8:00	8:30	Sunny	74.7	69.2	73.3	Crane operation	Traffic noise	31	0.5	NL-18 00360030	NC-73 10997142

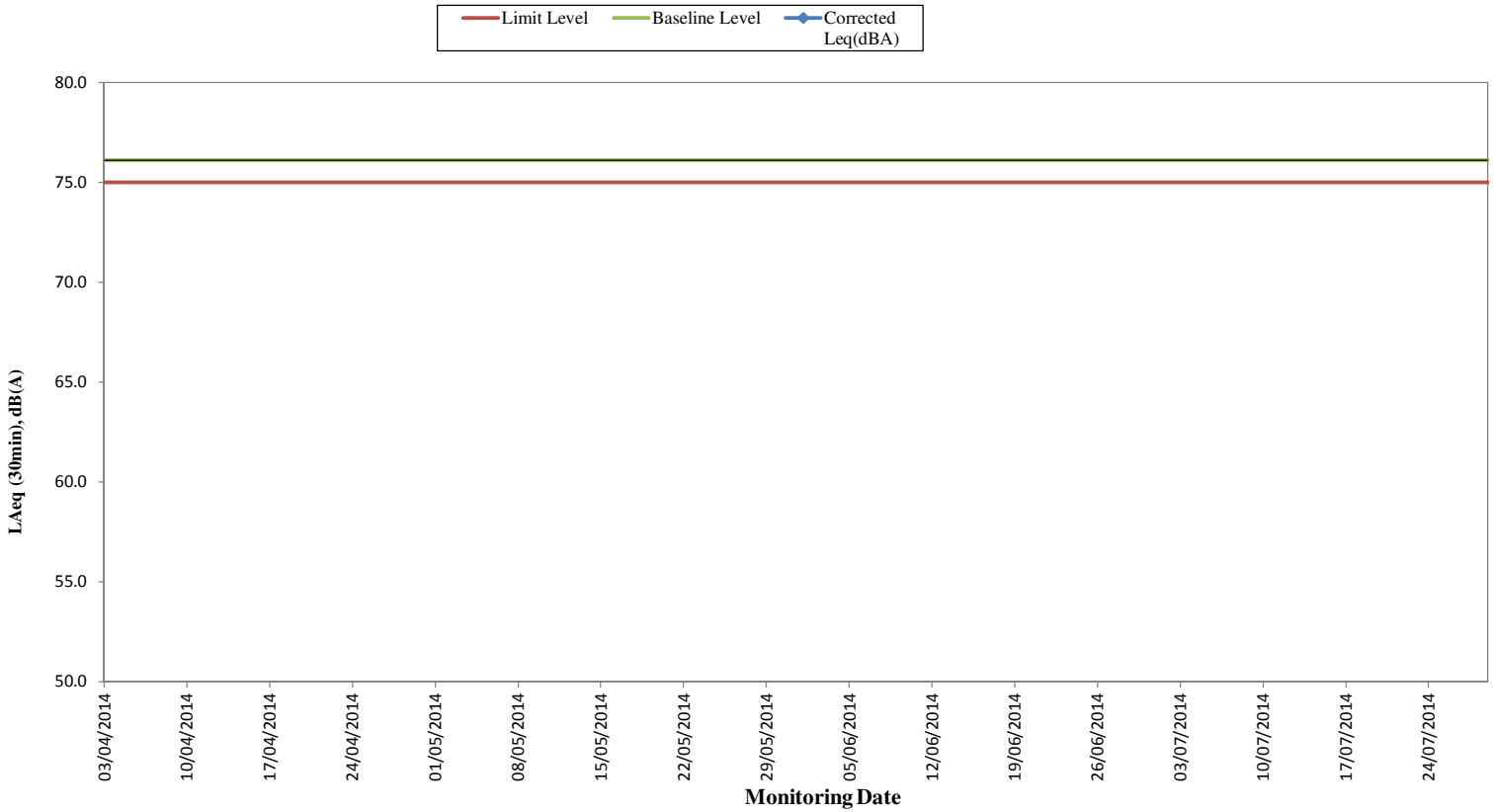
Station NMS-CA-10 Chat Ma Mansion

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L_{Aeq}(30 min)[(c)]	Baseline (dB(A)), L_{Aeq}(30 min)	Corrected LAeq(dBA) [(a)]	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
11-Jul-14	9:30	10:00	Fine	76.8	76.6	63.3	Backhoe	Traffic noise	30	0.5	NL-18 00360030	NC-73 10997142
17-Jul-14	9:35	10:05	Fine	76.6	76.6	-(b)	Backhoe	Traffic noise	30	0.5	NL-52 00331805	NC-73 10997142
23-Jul-14	9:32	10:02	Sunny	76.4	76.6	-(b)	Backhoe	Traffic noise	31	0.5	NL-18 00360030	NC-73 10997142
29-Jul-14	9:38	10:08	Fine	76.7	76.6	60.3	Backhoe	Traffic noise	31	0.5	NL-18 00360030	NC-73 10997142

Remarks:

(a) The Measured LAeq is corrected against the corresponding Baseline Level.
(b) No correction was made as the measured noise levels were equal to or below the baseline noise levels.
(c) The noise monitoring results of the measurements carried out at NMS-CA-8 and NMS-CA-10 on 11, 17, 23 and 29 July 2014 are higher than the daytime construction noise criterion. Furthermore, the noise monitoring result of the measurements carried out at NMS-CA-9 on 17 July 2014 is also higher than the daytime construction noise criterion. However, those results are not considered as exceedances as they are below the limit level after deducting the baseline noise level.

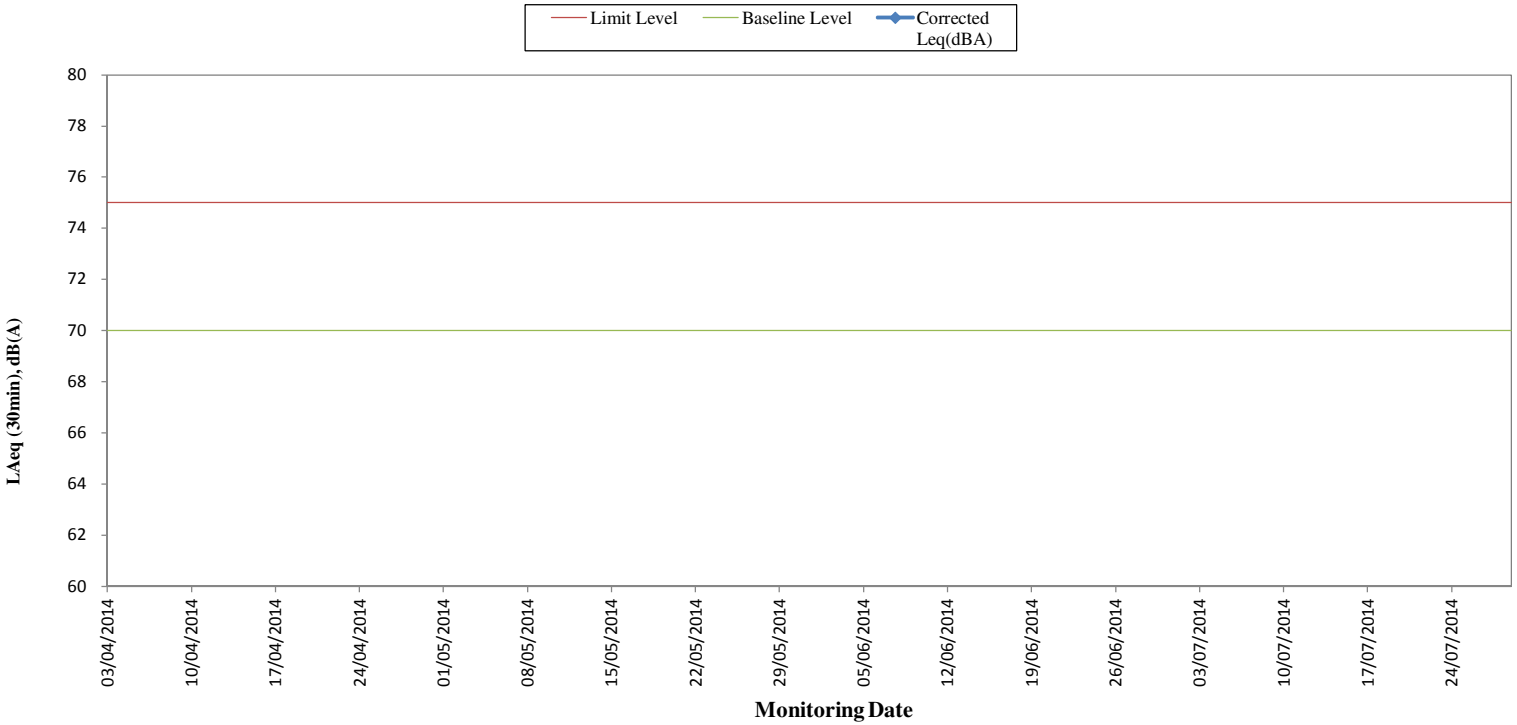
Regular Noise Monitoring Results at NMS-CA-6 (No. 16-23 Nam Kok Road) (LAeq, 30min) for the Past 4 Months



Remarks:

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

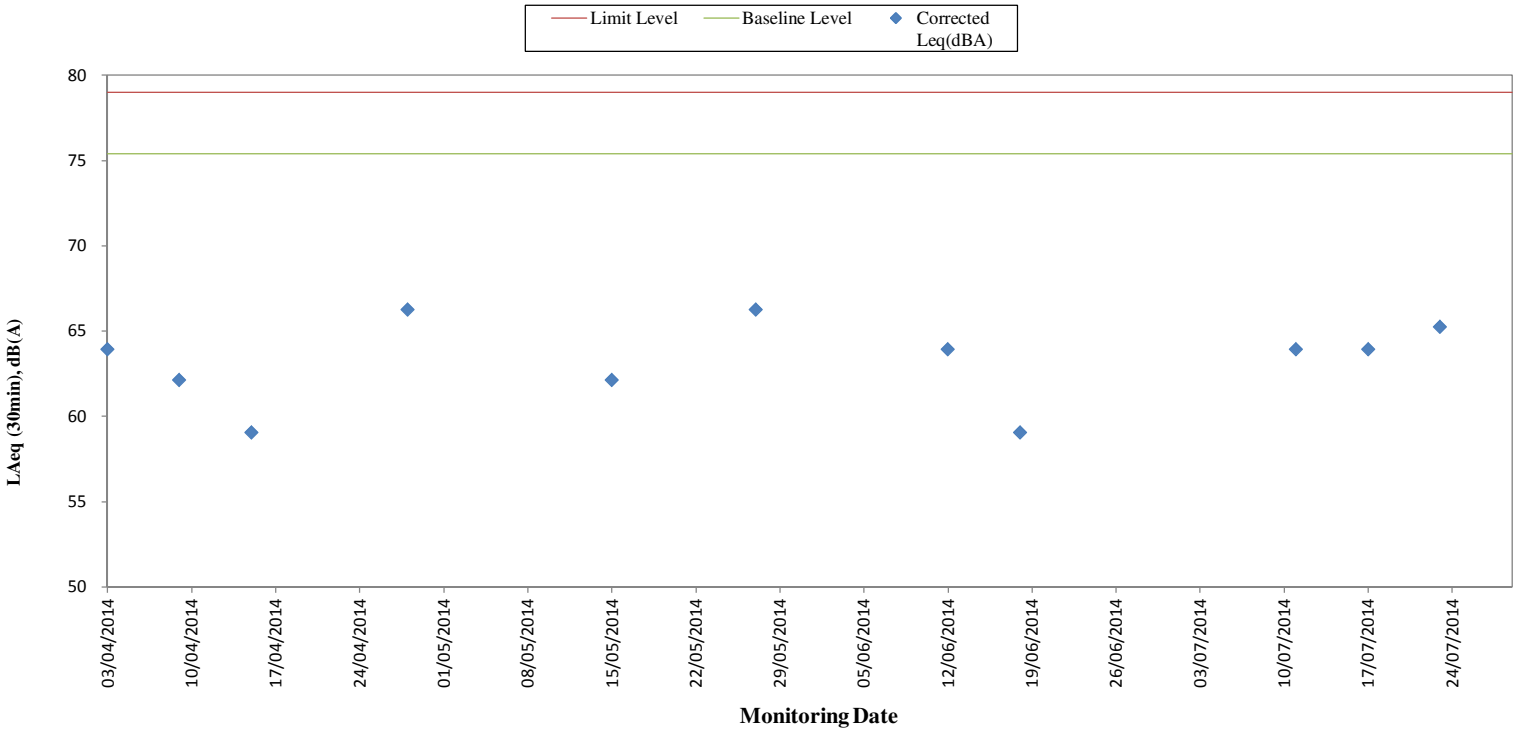
Regular Noise Monitoring Results at NMS-CA-7 (Skytower Tower 2) (LAeq, 30min) for the Past 4 Months



Remarks:

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

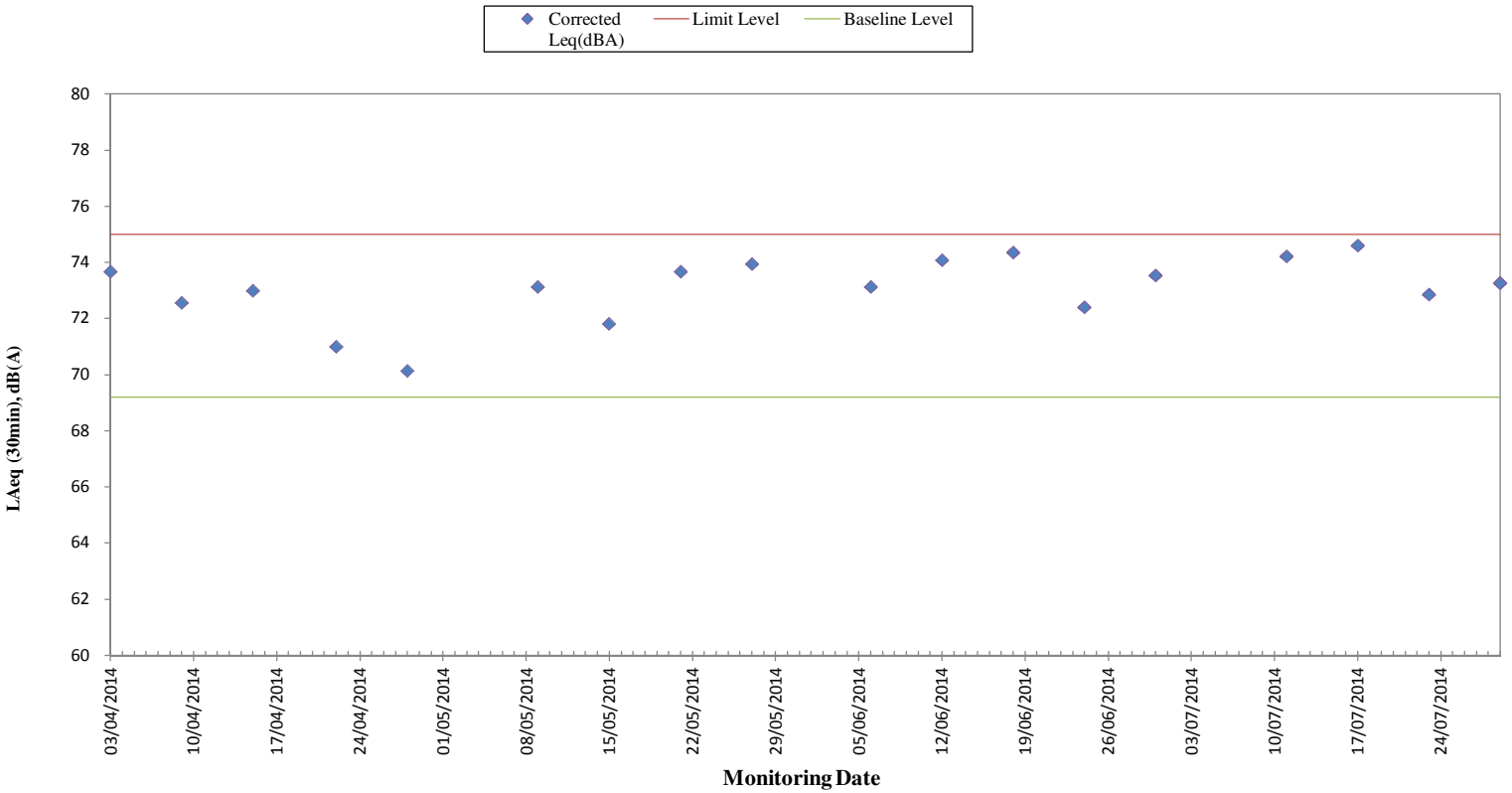
Regular Noise Monitoring Results at NMS-CA- 8 (SKH Good Shepherd Primary School) (LAeq, 30min) for the Past 4 Months



Remarks:

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

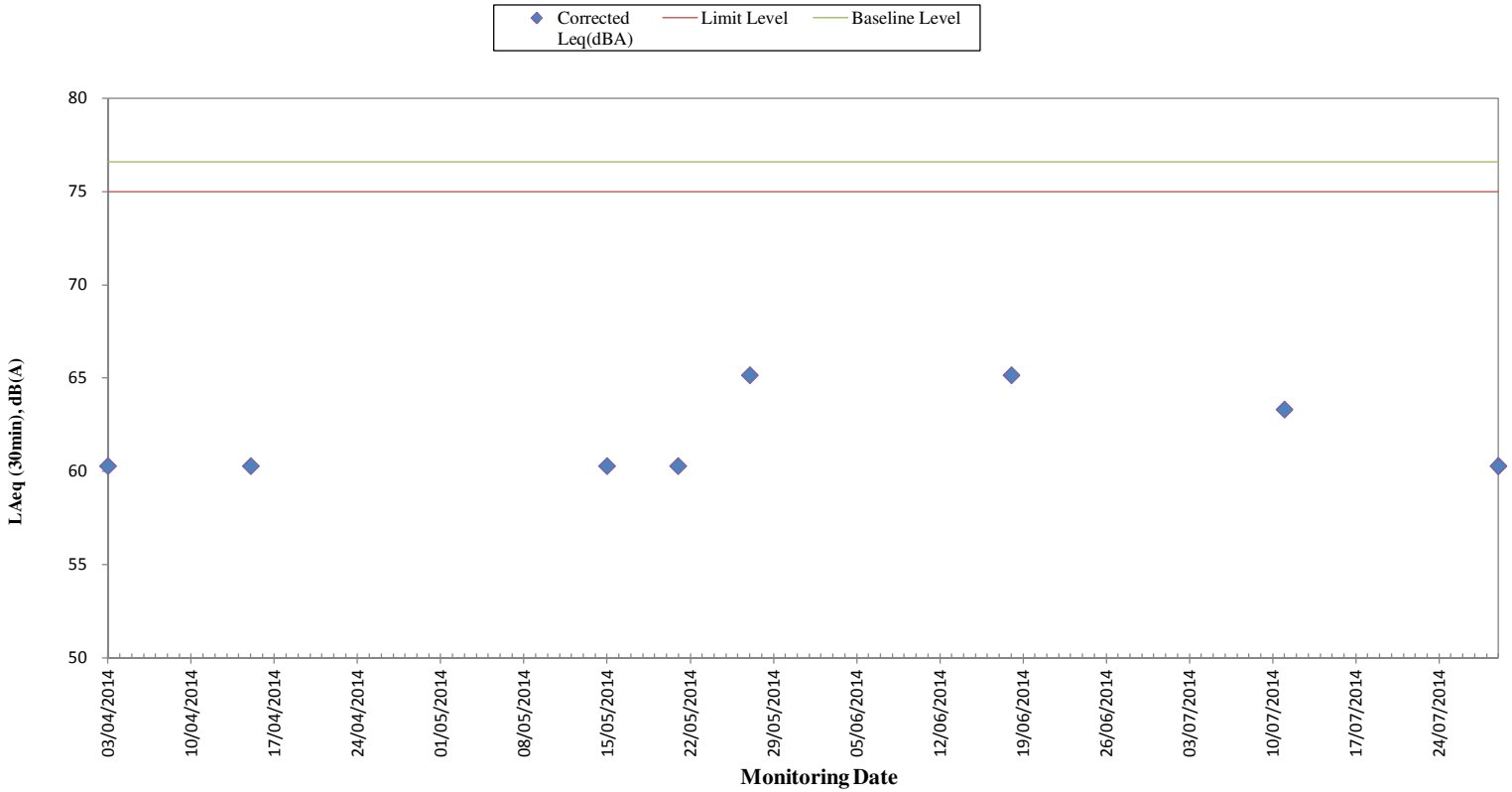
Regular Noise Monitoring Results at NMS-CA-9 (Kong Yiu Mansion) (LAeq, 30min)) for the Past 4 Months



Remarks:

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

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



Remarks:

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

Annex J

Construction Dust Monitoring Results and Wind Data Monitoring Results

Annex J Construction Dust Monitoring Results

Station DMS-6 Katherine Building

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / 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
05-Jul-14	9:05	06-Jul-14	9:05	Sunny	2.7417	2.8822	12896.30	12920.30	24.00	1.31	1.31	1.31	74	156.8	260	-	0107	3724
11-Jul-14	11:15	12-Jul-14	11:15	Fine	2.7339	2.8670	12920.30	12944.30	24.00	1.33	1.33	1.33	69	156.8	260	-	0107	3789
17-Jul-14	11:16	18-Jul-14	11:16	Fine	2.7369	2.8779	12944.30	12968.30	24.00	1.33	1.33	1.33	74	156.8	260	-	0107	3832
23-Jul-14	11:12	24-Jul-14	11:12	Sunny	2.7342	2.8571	12968.30	12992.30	24.00	1.33	1.33	1.33	64	156.8	260	-	0107	3805
29-Jul-14	11:20	30-Jul-14	11:20	Fine	2.7532	2.9069	12992.30	13016.30	24.00	1.33	1.33	1.33	80	156.8	260	-	0107	3824
												Minimum	64					
												Average	72					
												Maximum	80					

Station DMS-7 Parc 22

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / 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
05-Jul-14	8:40	06-Jul-14	8:40	Sunny	2.7528	2.8998	3083.17	3107.17	24.00	1.24	1.24	1.24	82	166.7	260	-	3574	3723
11-Jul-14	10:20	12-Jul-14	10:20	Fine	2.7498	2.8877	3107.17	3131.17	24.00	1.25	1.25	1.25	77	166.7	260	-	3574	3788
17-Jul-14	10:25	18-Jul-14	10:25	Fine	2.7598	2.8867	3131.17	3155.17	24.00	1.25	1.25	1.25	71	166.7	260	-	3574	3831
23-Jul-14	10:20	24-Jul-14	10:20	Sunny	2.7354	2.8669	3155.17	3179.17	24.00	1.25	1.25	1.25	73	166.7	260	-	3574	3804
29-Jul-14	10:28	30-Jul-14	10:28	Fine	2.7485	2.8977	3179.17	3203.17	24.00	1.25	1.25	1.25	83	166.7	260	-	3574	3823
												Minimum	71					
												Average	77					
												Maximum	83					

Station DMS-8 SKH Good Shepherd Primary School

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / 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
05-Jul-14	8:15	06-Jul-14	8:15	Sunny	2.7481	2.8744	3043.11	3067.11	24.00	1.25	1.25	1.25	70	152.2	260	-	3572	3721
11-Jul-14	8:45	12-Jul-14	8:45	Fine	2.7146	2.8579	3067.11	3091.11	24.00	1.24	1.24	1.24	80	152.2	260	-	3572	1786
17-Jul-14	8:45	18-Jul-14	8:45	Fine	2.7571	2.9044	3091.11	3115.11	24.00	1.24	1.24	1.24	82	152.2	260	-	3572	3829
23-Jul-14	8:45	24-Jul-14	8:45	Sunny	2.7453	2.8741	3115.11	3139.11	24.00	1.24	1.24	1.24	72	152.2	260	-	3572	3802
29-Jul-14	8:45	30-Jul-14	8:45	Fine	2.7386	2.9001	3139.11	3163.11	24.00	1.24	1.24	1.24	90	152.2	260	-	3572	3821
												Minimum	70					
												Average	79					
												Maximum	90					

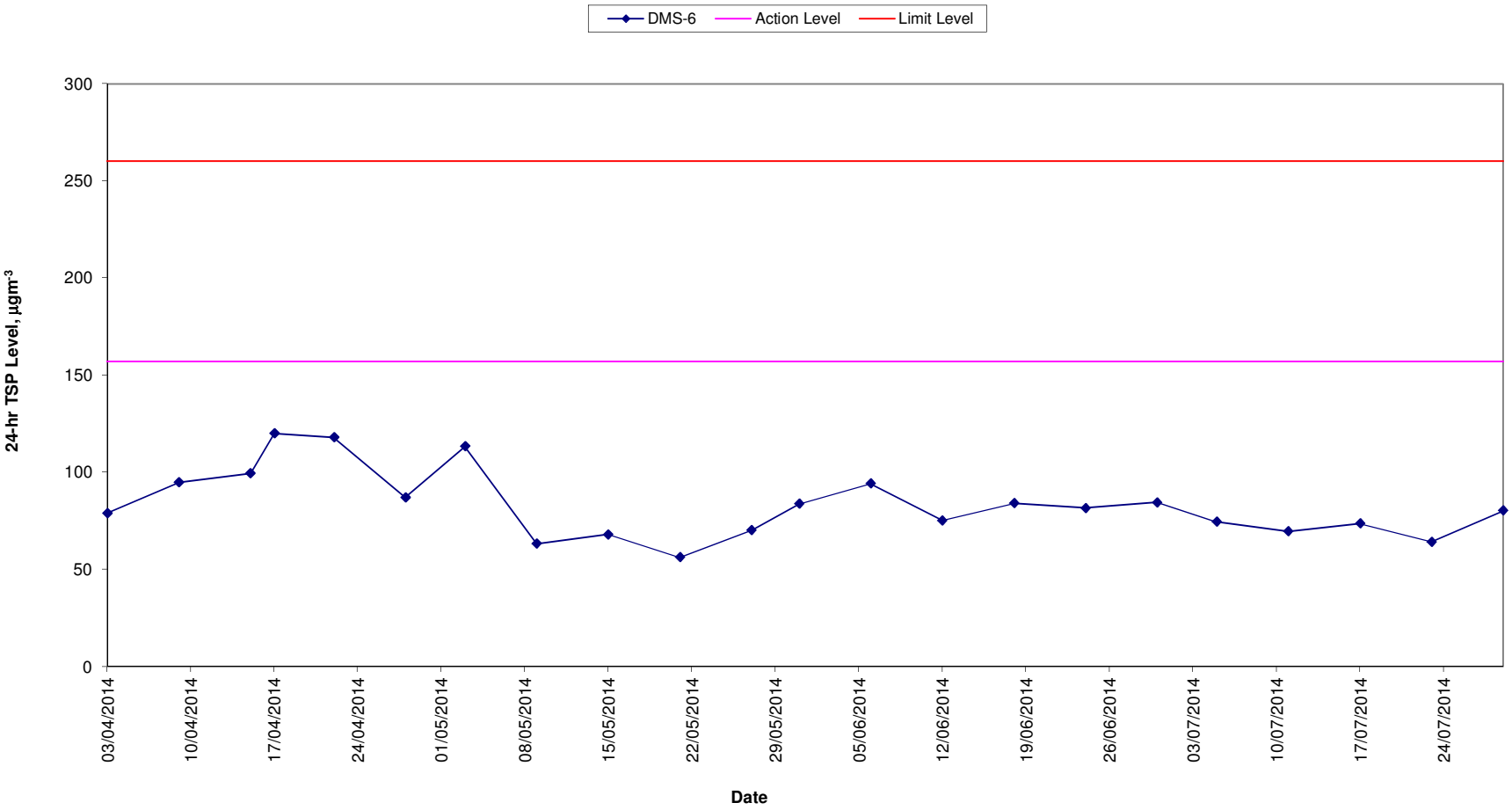
Station DMS-9 No. 12 Pau Chung Street

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / 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
05-Jul-14	8:25	06-Jul-14	8:25	Sunny	2.7578	2.8941	13329.40	13353.40	24.00	1.24	1.24	1.24	76	160.9	260	-	0814	3722
11-Jul-14	9:18	12-Jul-14	9:18	Fine	2.7332	2.8599	13353.40	13377.40	24.00	1.22	1.22	1.22	72	160.9	260	-	0814	3787
17-Jul-14	9:20	18-Jul-14	9:20	Fine	2.7555	2.8911	13377.40	13401.40	24.00	1.22	1.22	1.22	77	160.9	260	-	0814	3830
23-Jul-14	9:18	24-Jul-14	9:18	Sunny	2.6932	2.8394	13401.40	13425.40	24.00	1.22	1.22	1.22	83	160.9	260	-	0814	3803
29-Jul-14	9:18	30-Jul-14	9:18	Fine	2.7478	2.9141	13425.40	13449.40	24.00	1.22	1.22	1.22	95	160.9	260	-	0814	3822
												Minimum	72					
												Average	81					
												Maximum	95					

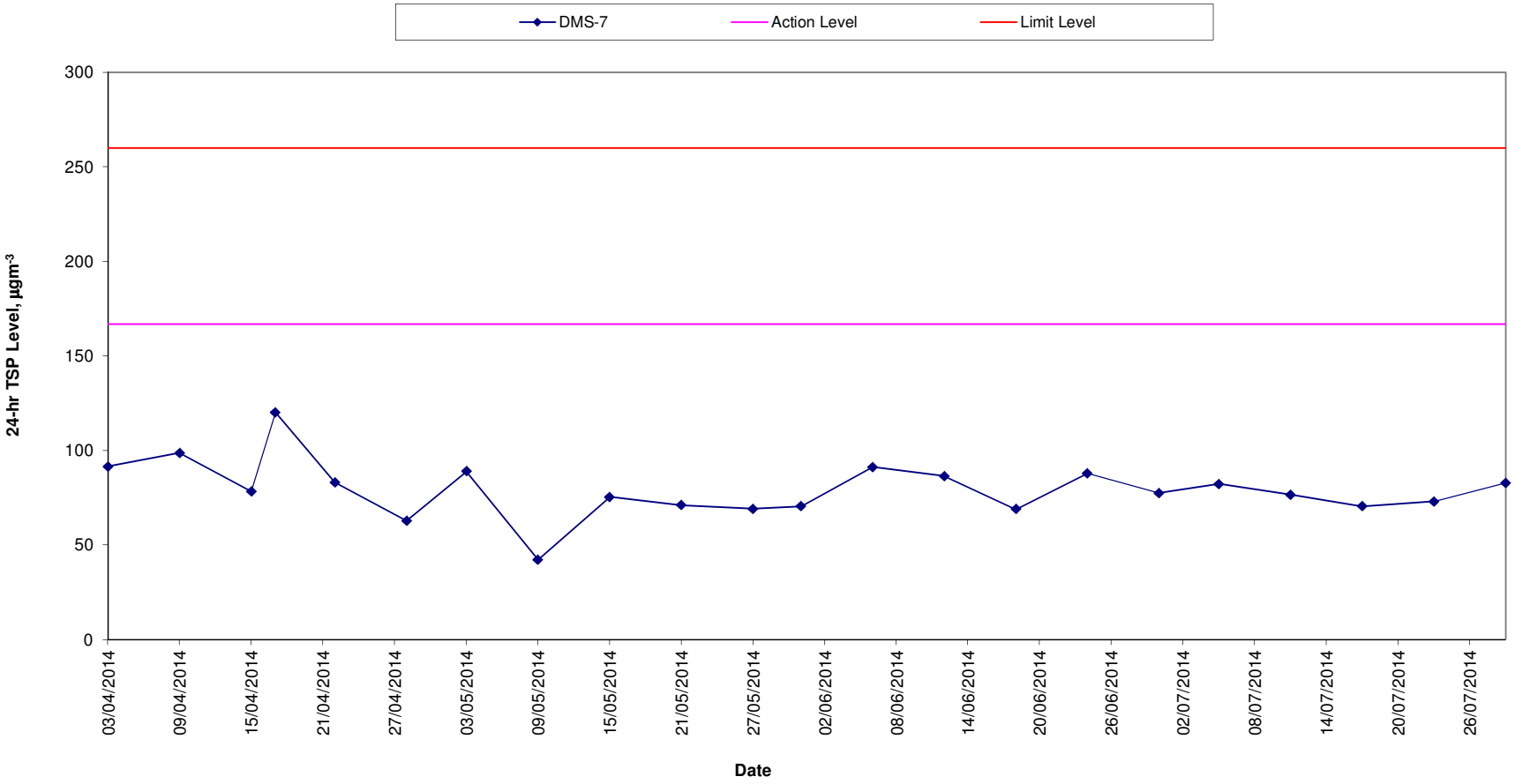
Station DMS-10 Chat Ma Mansion

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / 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
05-Jul-14	8:00	06-Jul-14	8:00	Sunny	2.7539	2.8791	3061.20	3085.20	24.00	1.20	1.20	1.20	72	170.4	260	-	3573	3720
11-Jul-14	9:33	12-Jul-14	9:33	Fine	2.7156	2.8400	3685.20	3709.20	24.00	1.23	1.23	1.23	70	170.4	260	-	3573	3785
17-Jul-14	9:40	18-Jul-14	9:40	Fine	2.7594	2.8724	3709.20	3733.20	24.00	1.23	1.23	1.23	64	170.4	260	-	3573	3828
23-Jul-14	9:37	24-Jul-14	9:37	Sunny	2.7352	2.8511	3733.20	3757.20	24.00	1.23	1.23	1.23	65	170.4	260	-	3573	3801
29-Jul-14	9:42	30-Jul-14	9:42	Fine	2.7713	2.9522	3757.20	3781.2	24.00	1.23	1.23	1.23	102	170.4	260	-	3573	3820
												Minimum	64					
												Average	75					
												Maximum	102					

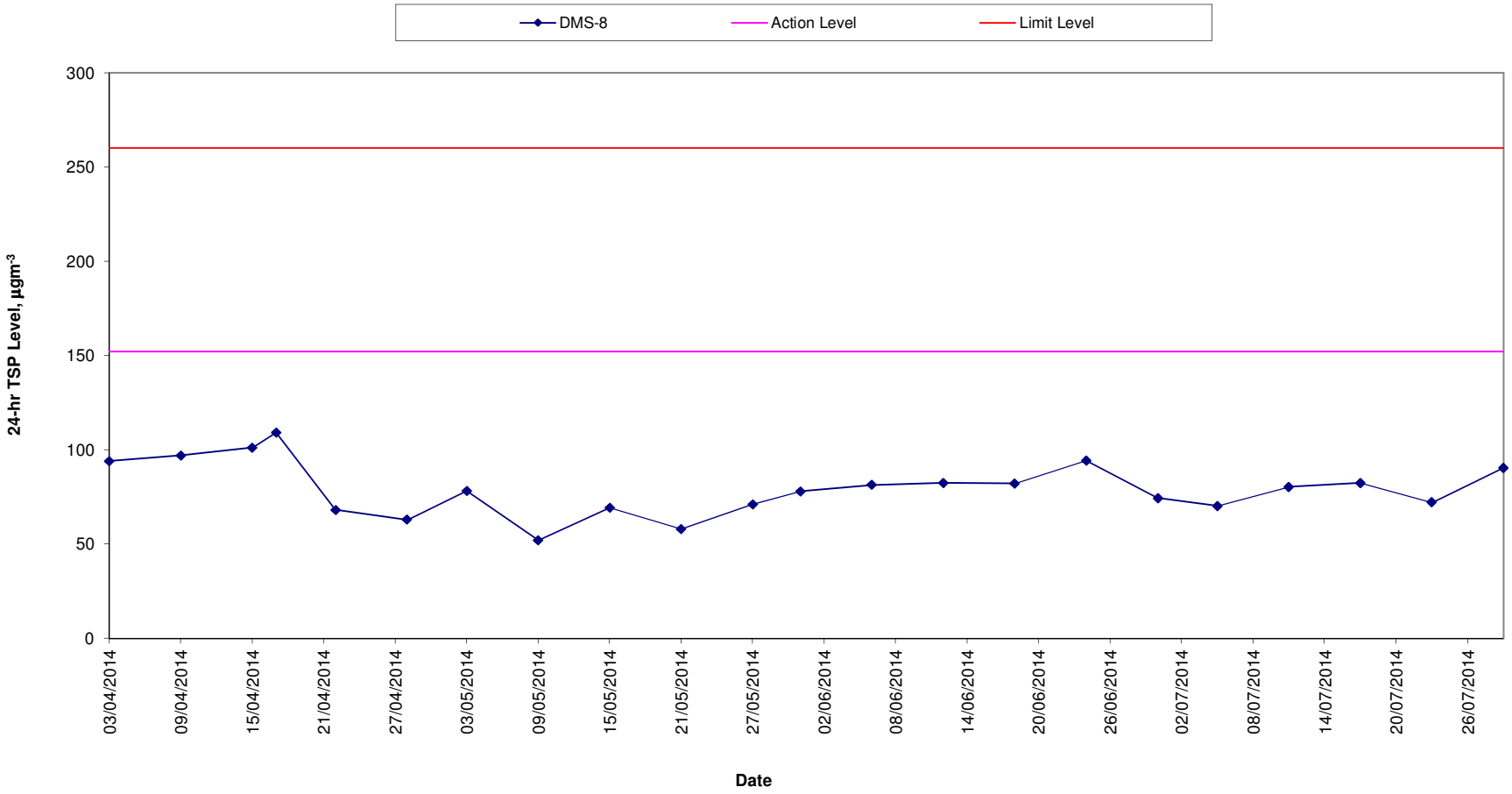
Construction Dust Monitoring Results for the Past 4 Months
DMS-6 (Katherine Building)



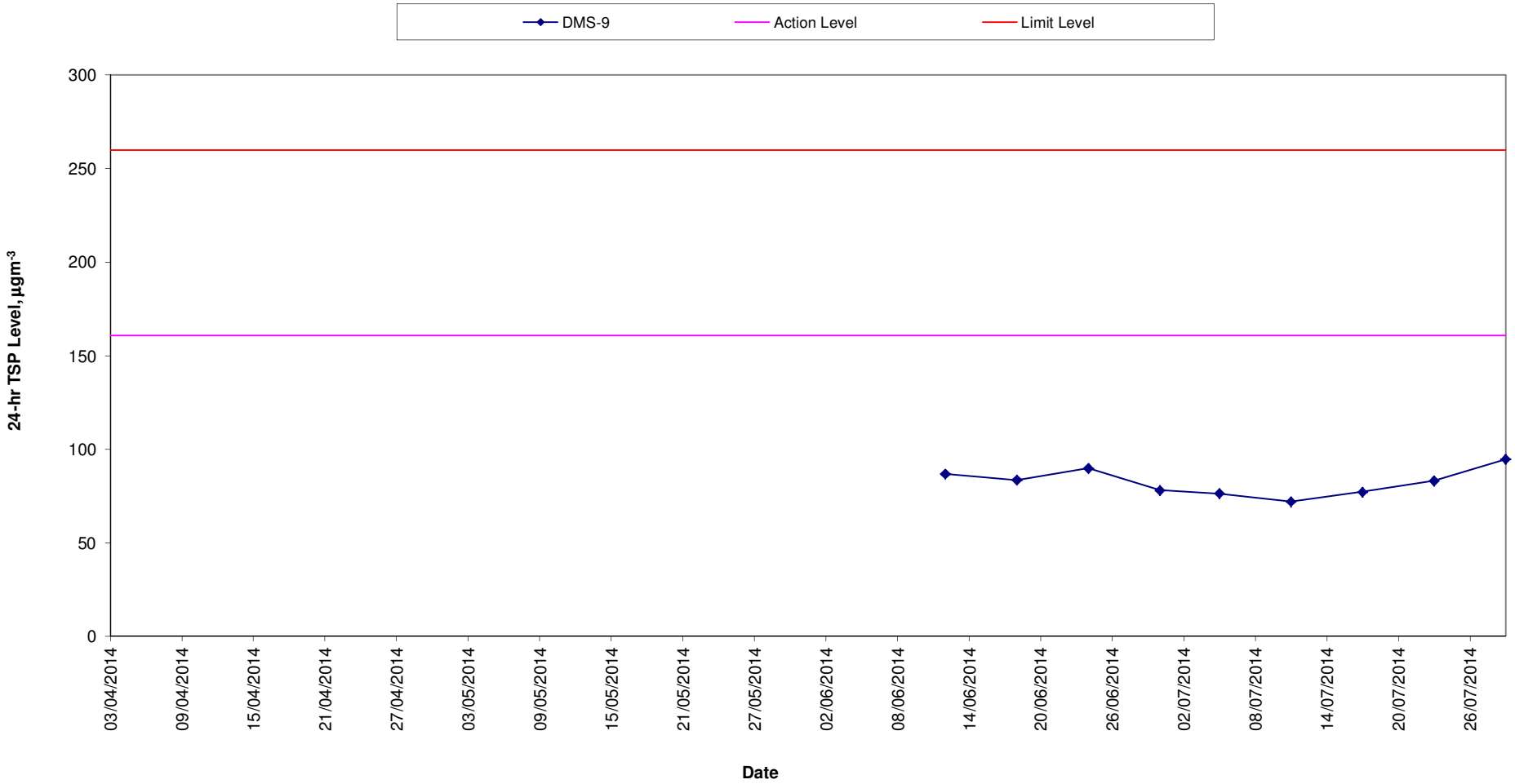
Construction Dust Monitoring Results for the Past 4 Months
DMS- 7 (Parc 22)



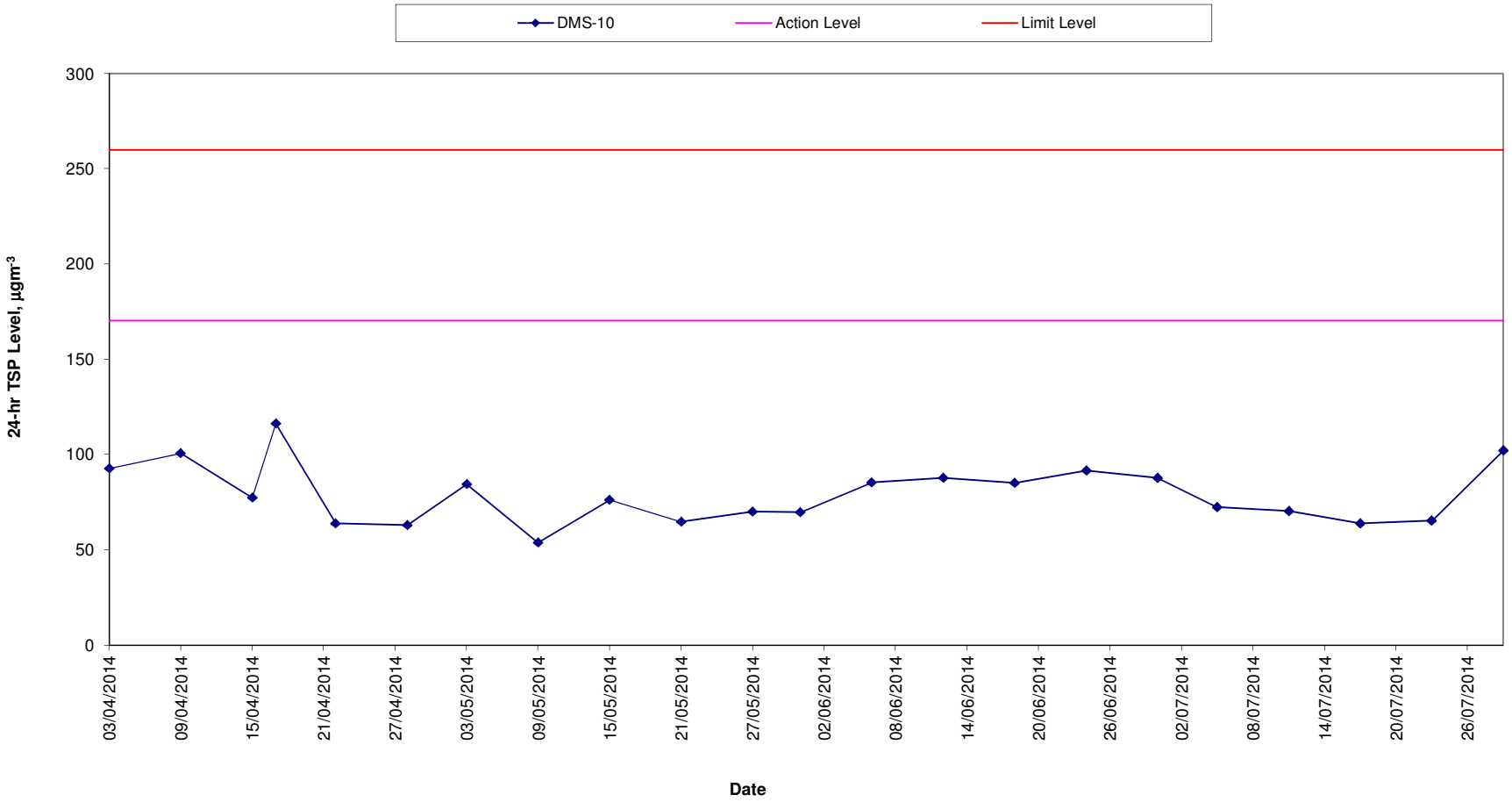
Construction Dust Monitoring Results for the Past 4 Months
DMS-8 (SKH Good Shepherd Primary School)



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

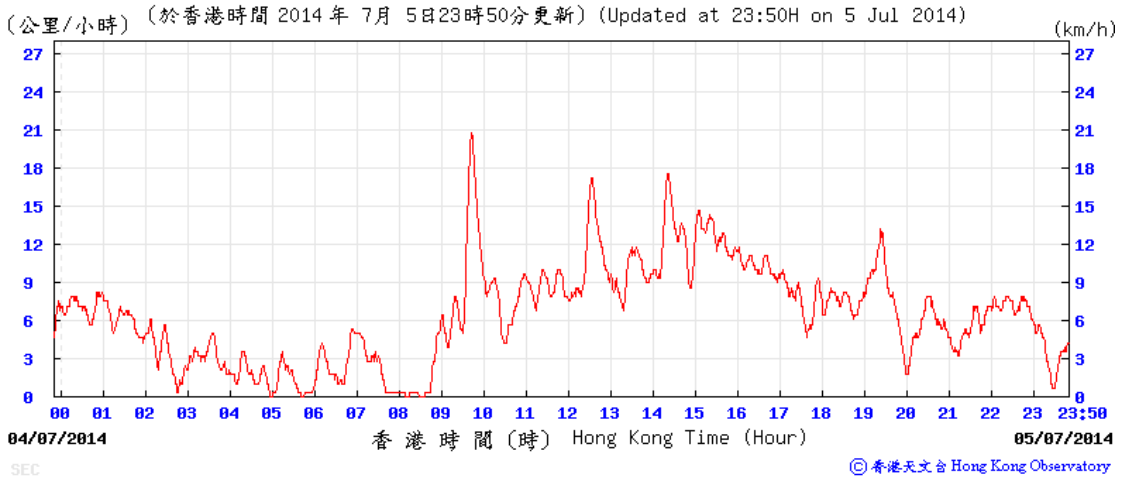


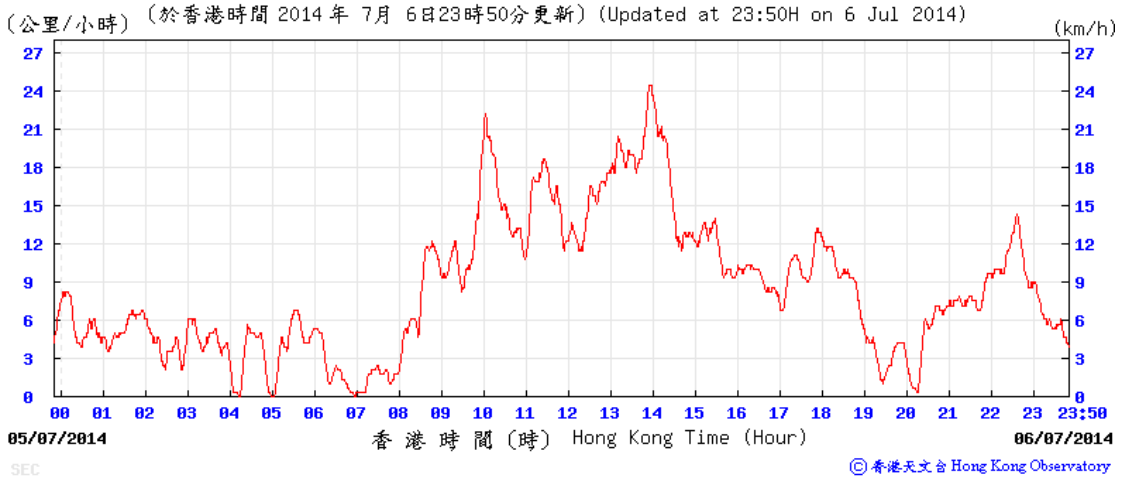
Construction Dust Monitoring Results for the Past 4 Months
DMS-10 (Chat Ma Mansion)



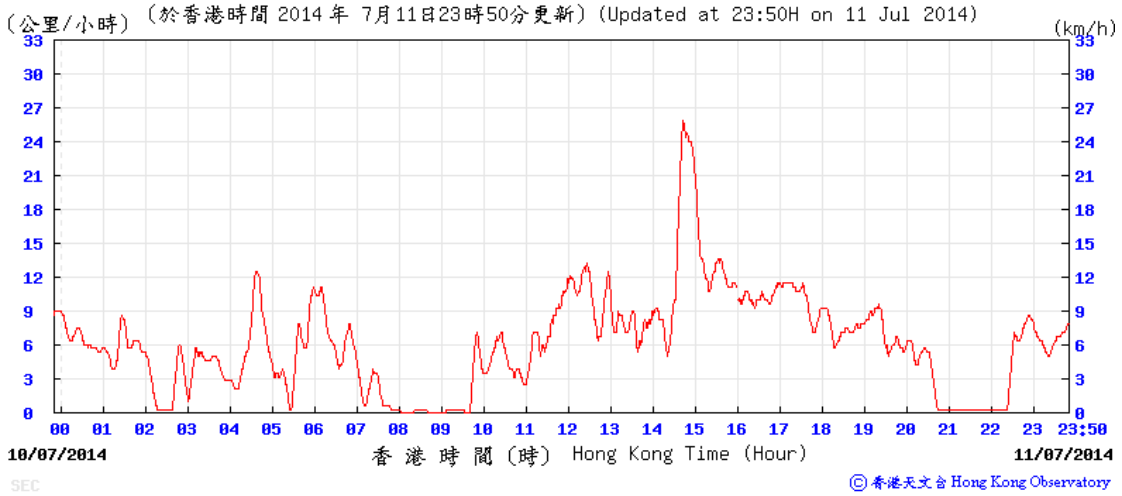
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

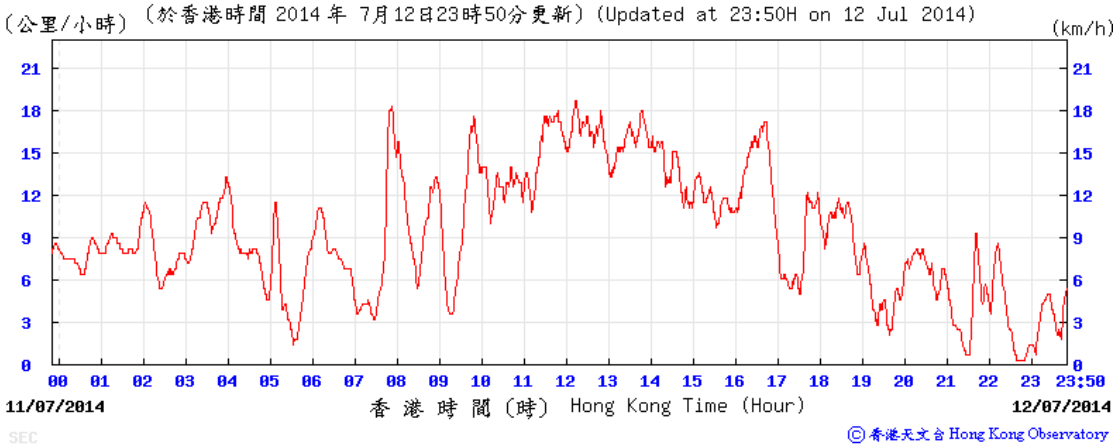
5-6 July 2014





11-12 July 2014





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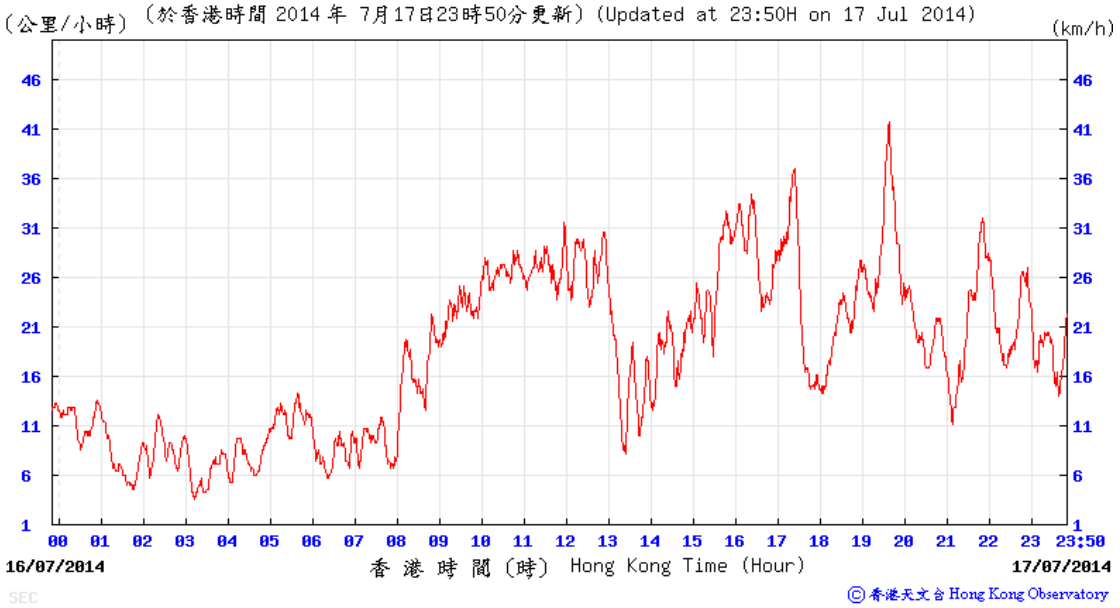
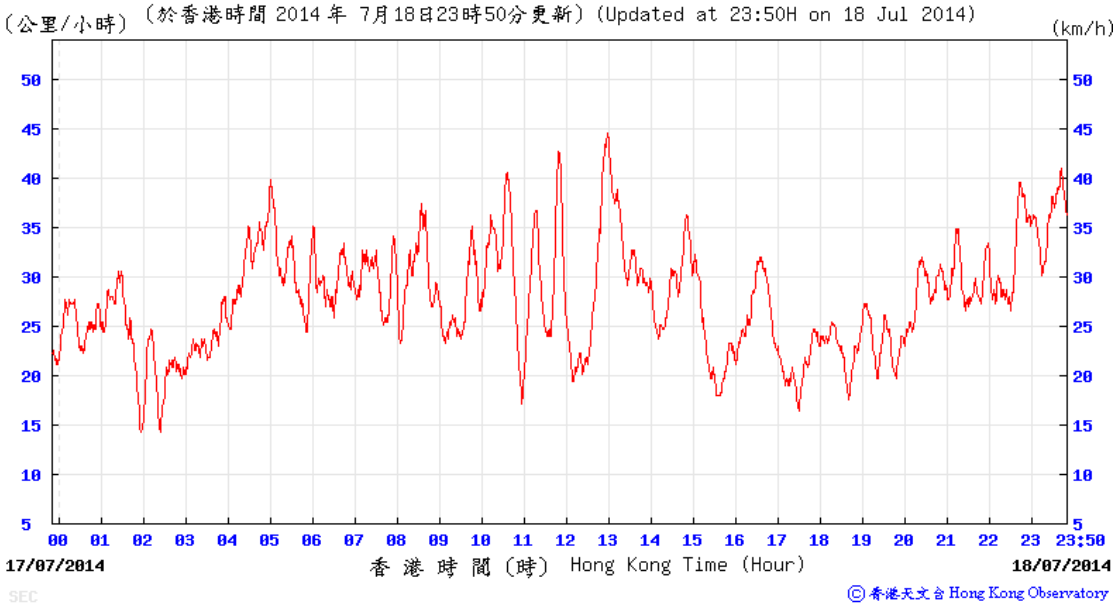
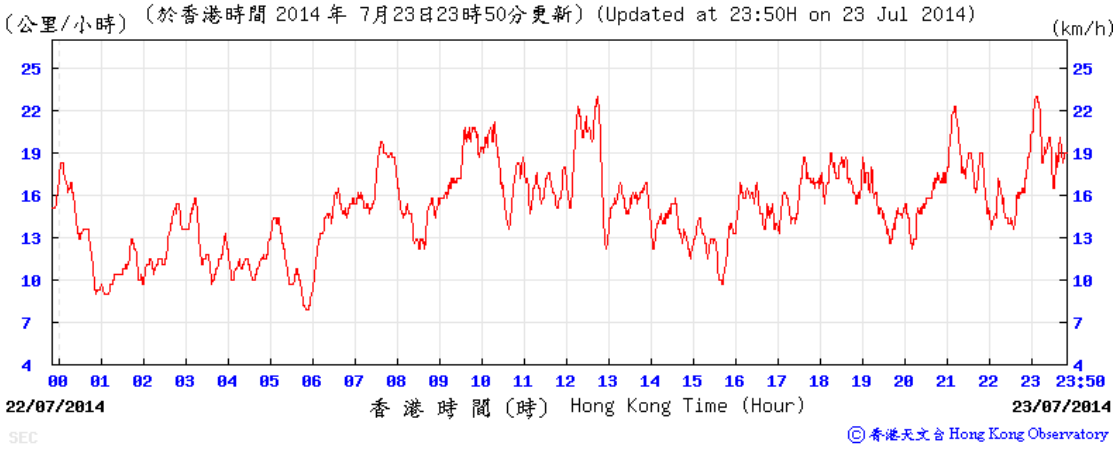
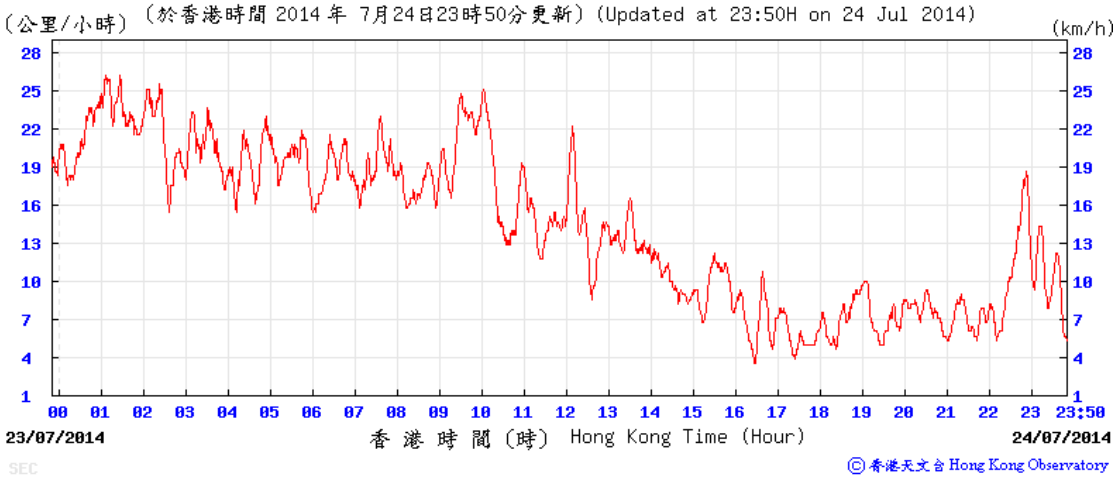




23-24 July 2014





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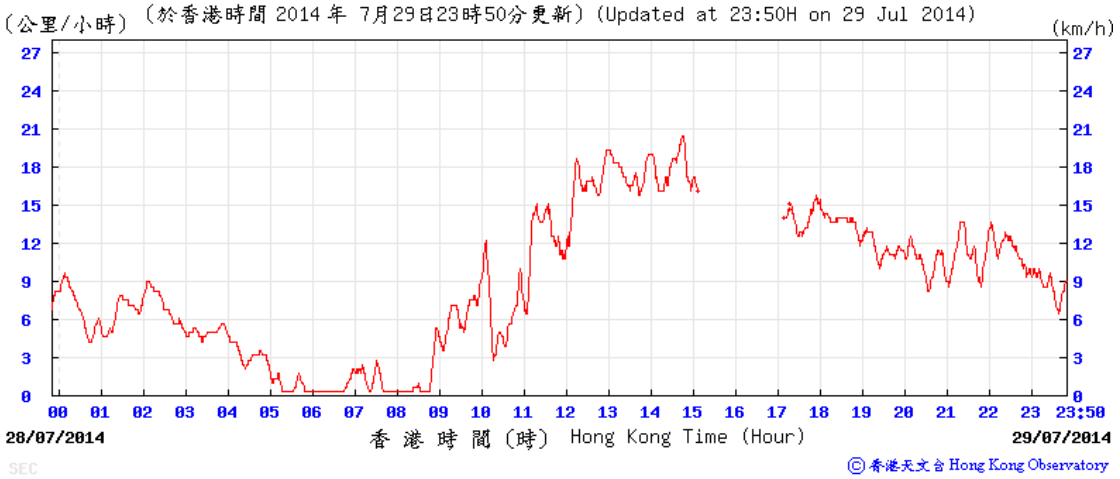
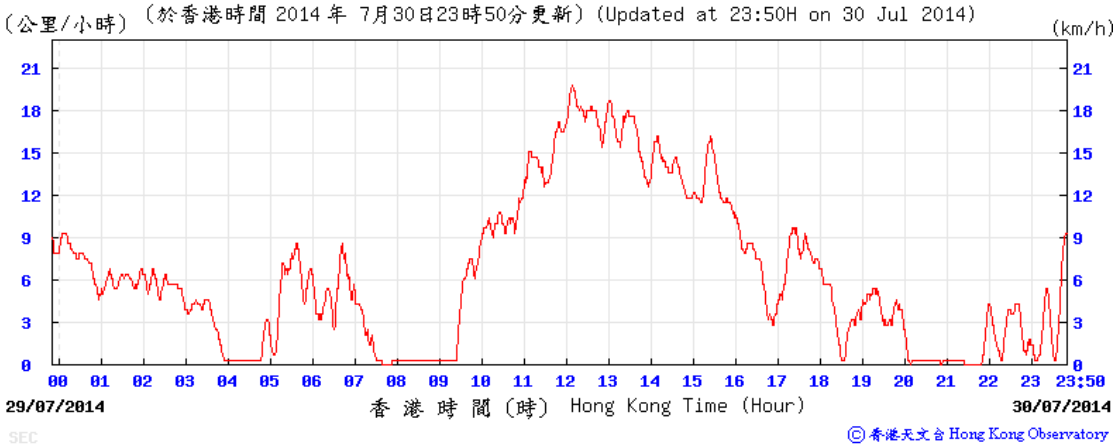
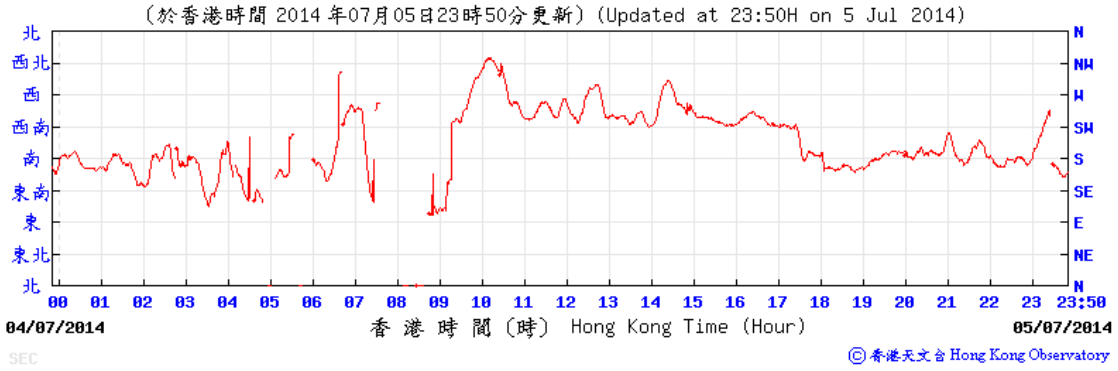
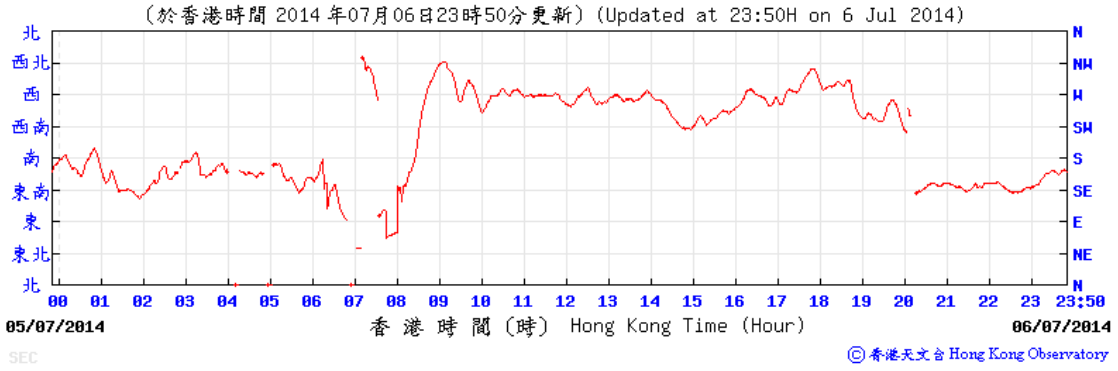




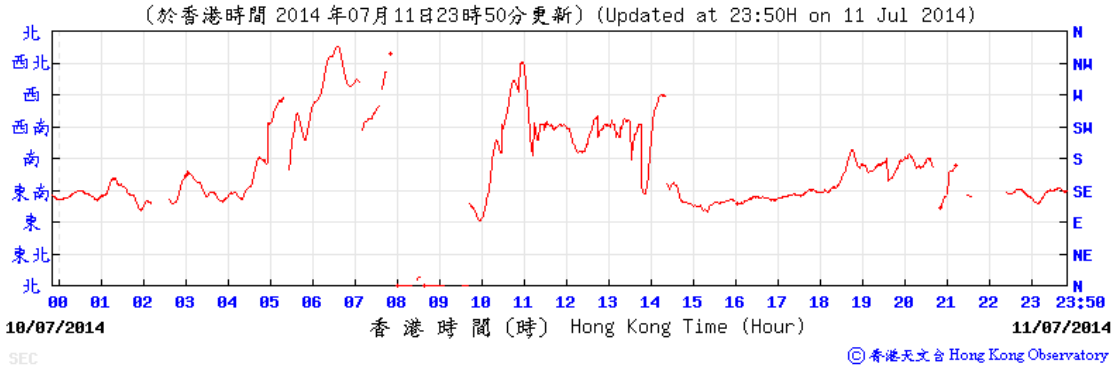
Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

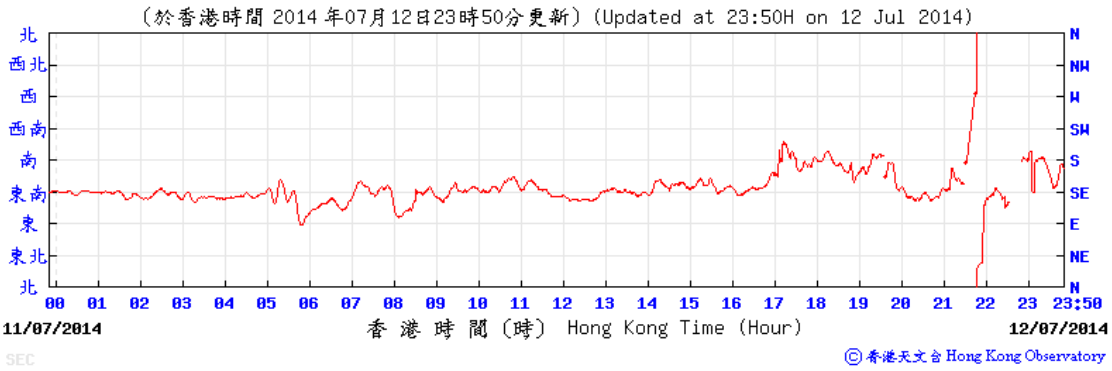
5-6 July 2014



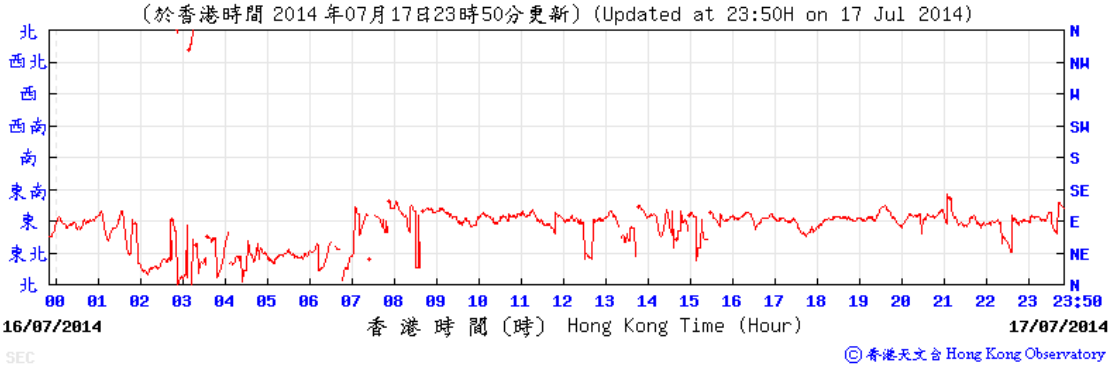


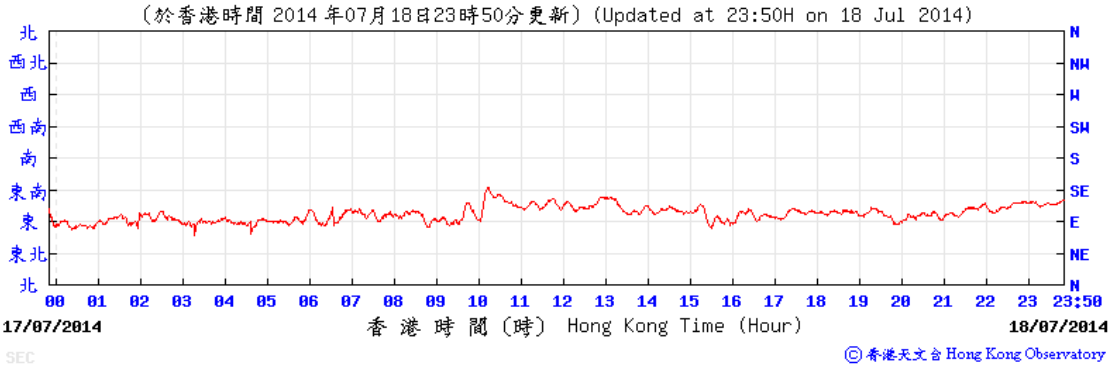
11-12 July 2014



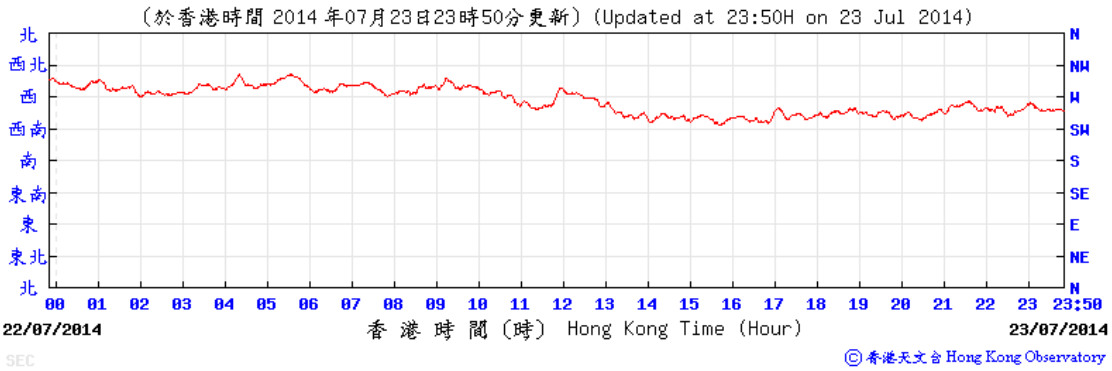


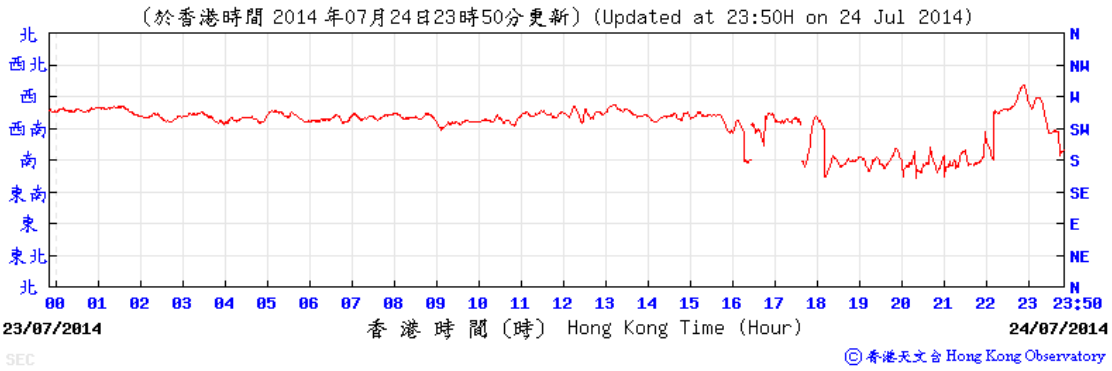
17-18 July 2014



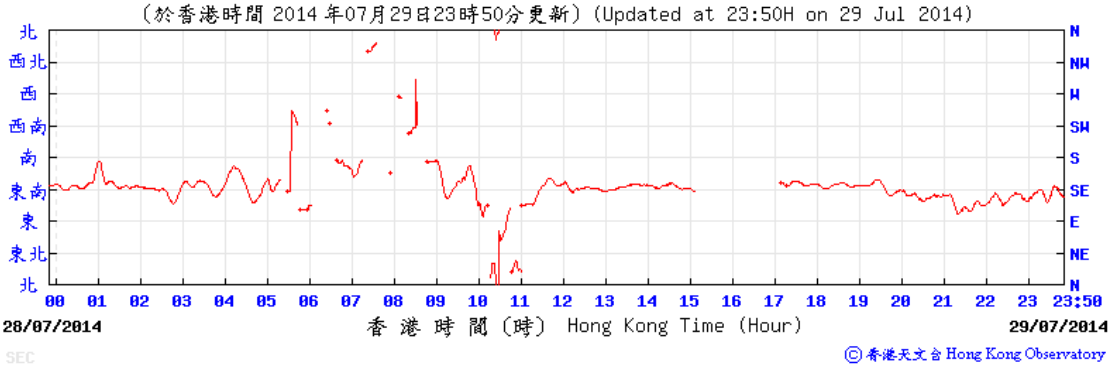


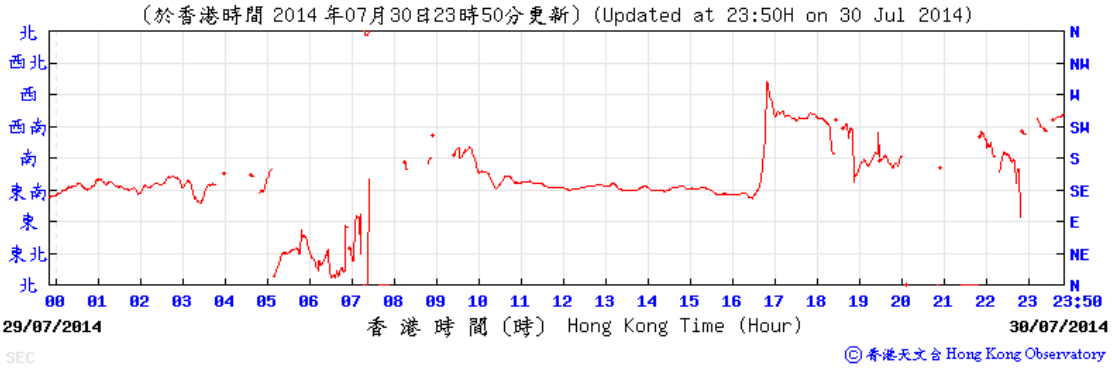
23-24 July 2014





29-30 July 2014





Annex K

Waste Flow Table

Annex K – Waste Flow Table

Monthly Summary Waste Flow Table for the year 2012-2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Imported Fill
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill (See Note 5)	Inert C&D Materials Delivered to 1108A Kai Tai Barging Facilities (See Note 6)	Metals	Paper/ cardboard packaging	Plastics (See Note 2)	Chemical Waste (See Note 10)	Others, e.g. general refuse (See Note 5)	
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000m^3)	(in '000m³)
Sep 2012	0.004	0.000	0.000	0.000	0.004	-	0.000	0.000	5.300	0.000	0.144	0.000
Oct 2012	0.000	0.000	0.000	0.000	0.000	-	12.800	0.242	0.013	0.000	0.514	0.000
Nov 2012	0.624	0.000	0.605	0.000	0.019	-	0.000	0.154	0.002	0.000	0.172	6.804
Dec 2012	16.844	0.000	0.000	0.000	0.005	16.839	0.000	0.000	0.000	0.000	0.057	0.000
Sub-total	17.472	0.000	0.605	0.000	0.028	16.839	12.800	0.396	5.315	0.000	0.887	6.804
Jan 2013	19.828	0.000	0.000	0.000	0.006	19.822	0.000	0.036 (See Note 7)	0.416	0.000	0.081 (See Note 8)	0.000
Feb 2013	8.372	0.000	0.000	0.000	0.005	8.366	0.000	0.036	0.443	0.000	0.021	0.000
Mar 2013	14.673	0.000	0.000	0.000	0.000	14.673	0.000	0.036	0.463	0.000	0.064 (See Note 9)	0.000
Apr 2013	13.557	0.000	0.000	0.000	0.025	13.533	0.000	0.036	0.148	0.000	0.086	0.000
May 2013	9.969	0.000	0.000	0.000	0.000	9.969	0.000	0.000	0.481	0.000	0.065	0.000
Jun 2013	5.538	0.000	0.000	0.000	0.000	5.538	0.000	0.045	0.784	0.32 (See Note 11)	0.065	0.000
Jul 2013	6.116	0.000	0.000	0.000	0.000	6.116	0.000	0.063	0.868	0.400	0.058	0.000
Aug 2013	11.537	0.000	0.000	0.000	0.000	11.537	0.000	0.068	0.464	0.000	0.071	0.000
Sep 2013	4.641	0.000	0.000	0.000	0.000	4.641	0.000	0.027	0.522	0.000	0.110	0.000
Oct 2013	9.708	0.000	0.000	0.000	0.000	9.708	0.000	0.036	0.348	0.000	0.086	0.000
Nov 2013	7.199	0.000	0.000	0.000	0.000	7.199	0.000	0.068	0.506	0.000	0.678	0.000
Dec 2013	6.973	0.000	0.000	0.000	0.000	6.973	0.000	0.090	0.383	0.000	1.344	0.000
Sub-total	118.111	0.000	0.000	0.000	0.036	118.075	0.000	0.541	5.826	0.720	2.729	0.000
Jan 2014	11.870	0.000	0.000	0.000	0.000	11.870	0.000	0.121	0.270	0.400	0.100	0.000
Feb 2014	15.316	0.000	0.000	0.000	0.000	15.316	0.000	0.067	0.396	0.000	0.095	0.000
Mar 2014	18.734	0.000	0.000	0.000	0.000	18.734	0.000	0.067	0.320	0.200	0.107	0.000
Apr 2014	23.539	0.000	0.000	0.000	0.000	23.539	0.000	0.000	0.344	0.415	0.064	0.000
May 2014	11.327	0.000	0.000	0.000	0.000	11.327	0.000	0.000	0.371	0.000	0.130	0.000
Jun 2014	10.440	0.000	0.000	0.000	0.000	10.440	0.000	0.090	0.332	0.000	0.164	0.000
Jul 2014	2.103	0.000	0.000	0.000	0.000	2.103	0.000	0.099	0.544	0.200	0.131	0.000
Sub-total	93.329	0.000	0.000	0.000	0.000	93.329	0.000	0.444	2.577	1.215	0.791	0.000
Total	228.913	0.000	0.605	0.000	0.064	228.243	12.800	1.381	13.718	1.935	4.407	6.804

Notes:

-1 The performance targets are given below:
- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
- All metallic waste to be recovered for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
- All chemical wastes to be collected and properly disposed of by specialist contractors; and
- All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.

-2 Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

-3 Broken concrete for recycling into aggregates.

-4 The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

-5 Density Assumption: 1.6(kg/l) for Public Fill and 0.9(kg/l) for General Refuse

-6 Inert C&D Material was delivered to contract 1108A from 10-Dec-2012.

-7 The quantity of paper/ cardboard packaging generated in January 2013 was updated by the Contractor in March 2013.

-8 The quantity of general refuse generated in January 2013 was updated by the Contractor in March 2013.

-9 The quantity of general refuse generated in March 2013 was updated by the Contractor in April 2013.

-10 Chemical waste includes waste oil. It is assumed density of waste oil to be 0.8 kg/L.

-11 The quantity of chemical waste generated in June 2013 was updated by the Contractor in August 2013.

Annex L

(Not Used)

Annex M

Environmental Complaint, Environmental Summon and Prosecution

Annex M Environmental Complaint, Environmental Summon and Prosecution Log

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

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

Appendix C

20th EM&A Report for Works Contract 1101 –
Ma On Shan Line Modification Works

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report

[Period from 1 to 31 July 2014]

Works Contract 1101

Ma On Shan Modification Works

(August 2014)

Certified by: James Choi

Position: Environmental Team Leader

Date: 14 August 2014

ANewR Consulting Limited

ANEWR

SCL Contract No. 1101

Ma On Shan Line Modification Works

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

for

Sun Fook Kong Joint Venture

Prepared By		Checked By	Approved for Issue
F So		A Lee	J Choi
Version	0	**Date**	3 August 2014

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EXECUTIVE SUMMARY

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

Construction Activities

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

Air Quality and Noise Monitoring

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

Environmental Auditing

Weekly site inspections were carried out by ET to ensure proper implementation of environmental mitigation measures and compliance with environmental legislation. During the reporting month, a total of 5 site inspections were conducted and the joint site inspection with IEC was conducted on 22 July 2014. All observations, which were recorded in inspection checklist and together with the ET's recommendations, were passed to the Contractor and ER for necessary corrective action.

Waste Disposal

19.50 m^3 of general refuse and 19.5 m^3 inert C&D materials were disposed of to NENT Landfill and Tseung Kwan O Area 137 Public Fill Bank respectively in the reporting month. No chemical waste was disposed in the reporting month.

Complaint Log

No environmental complaint was received during the reporting month.

Notification of Summon and Successful Prosecution

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

Future Key Issues

No construction activity is scheduled in the upcoming months.

Reporting Changes

No reporting change was observed during the reporting month.

1. INTRODUCTION

1.1 Background

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

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

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

1.2 Description of the Construction Works

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

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

1.3 Purpose of this Report

This is the 20th monthly EM&A report summarising audit findings of the EM&A program carried out according to EM&A Manual for SCL (TAW-HUH) by ET during the reporting month in July 2014.

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

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

2. PROJECT INFORMATION

2.1 Project Organization and Management Structure

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

2.2 Construction Activities

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

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

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

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

3. WASTE MANAGEMENT

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

Table 3.1 Waste Generated in the Reporting Month

Waste Type	Quantity this month	Cumulative-to-Date
Inert C&D materials disposed	19.50 m^3	52.00 m^3
Inert C&D materials recycled	0	0
Non-inert C&D materials disposed	0	0
Non-inert C&D materials recycled	0	3.00 m^3
General waste disposed of to NENT Landfill	19.50 m^3	250.50 m^3
Chemical waste disposed of to CWTC or collected by licenced collector	0	510.00 kg

4. SITE INSPECTION

Weekly site inspections were carried out at the sites on 3, 7, 14, 22 and 28 July 2014. The joint site inspection with IEC was carried out on 22 July 2014. All observations together with the appropriate recommended mitigation measures where necessary were recorded in the site inspection checklists that were passed to the Contractor. Major environmental deficiencies observed during the site inspection and recommendations made by the ET are given in ***Table 4.1***.

Table 4.1 Summary of Major Environmental Deficiencies in the Reporting Month

Date	Item	ET's Observations and Recommendations	Follow-up Action
4 July 2014	--	No site observation	NA
7 July 2014	--	No site observation	NA
14 July 2014	--	No site observation	NA
22 July 2014	--	No site observation	NA
28 July 2014	--	No site observation	NA

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

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

5. ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting month.

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

Table 5.1 Cumulative Statistic of Environmental Complaint

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

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

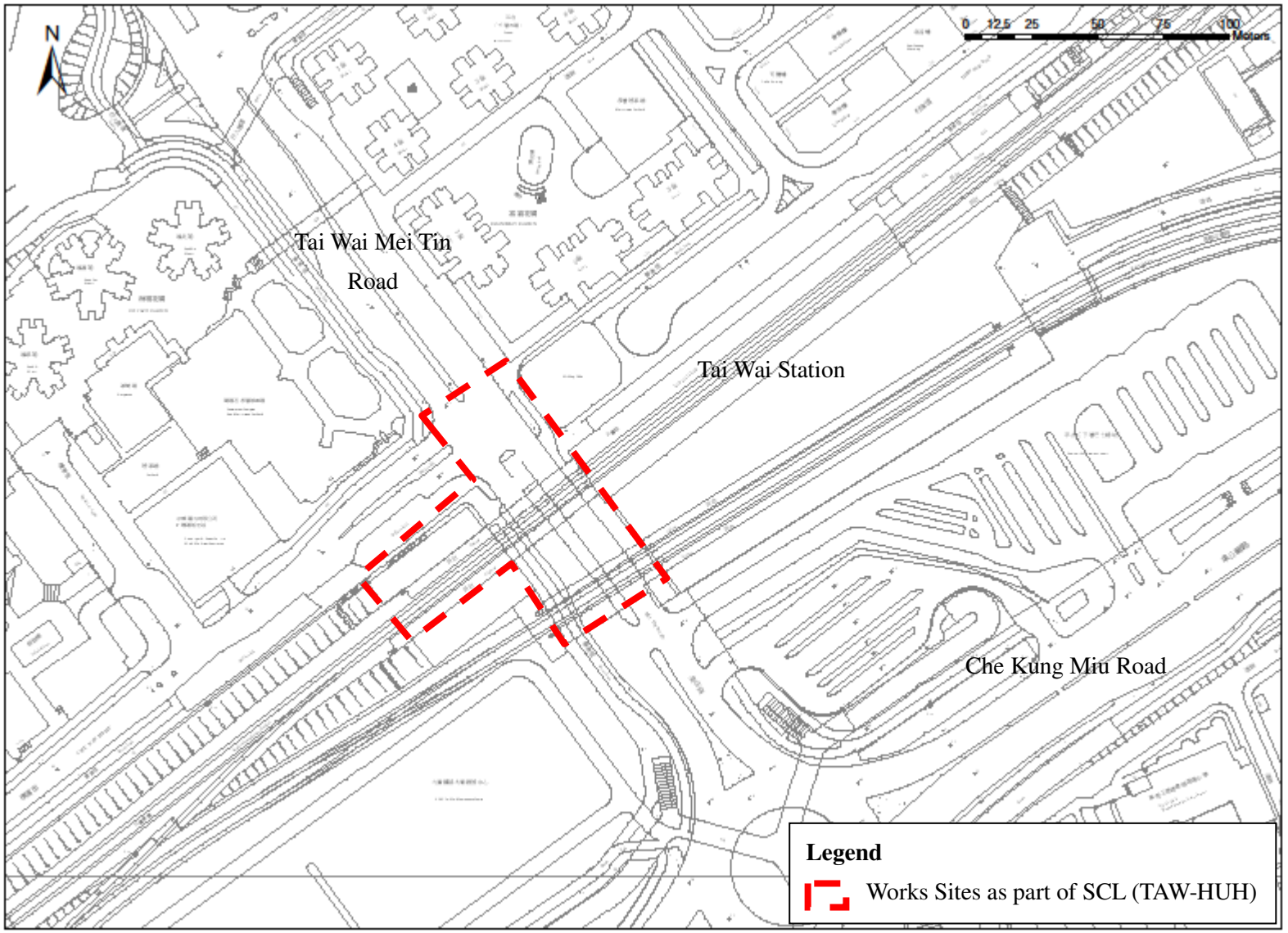
Neither Notification of Summon nor successful prosecution was received by the Contractor during the reporting month.

7. FUTURE KEY ISSUES

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

APPENDIX A

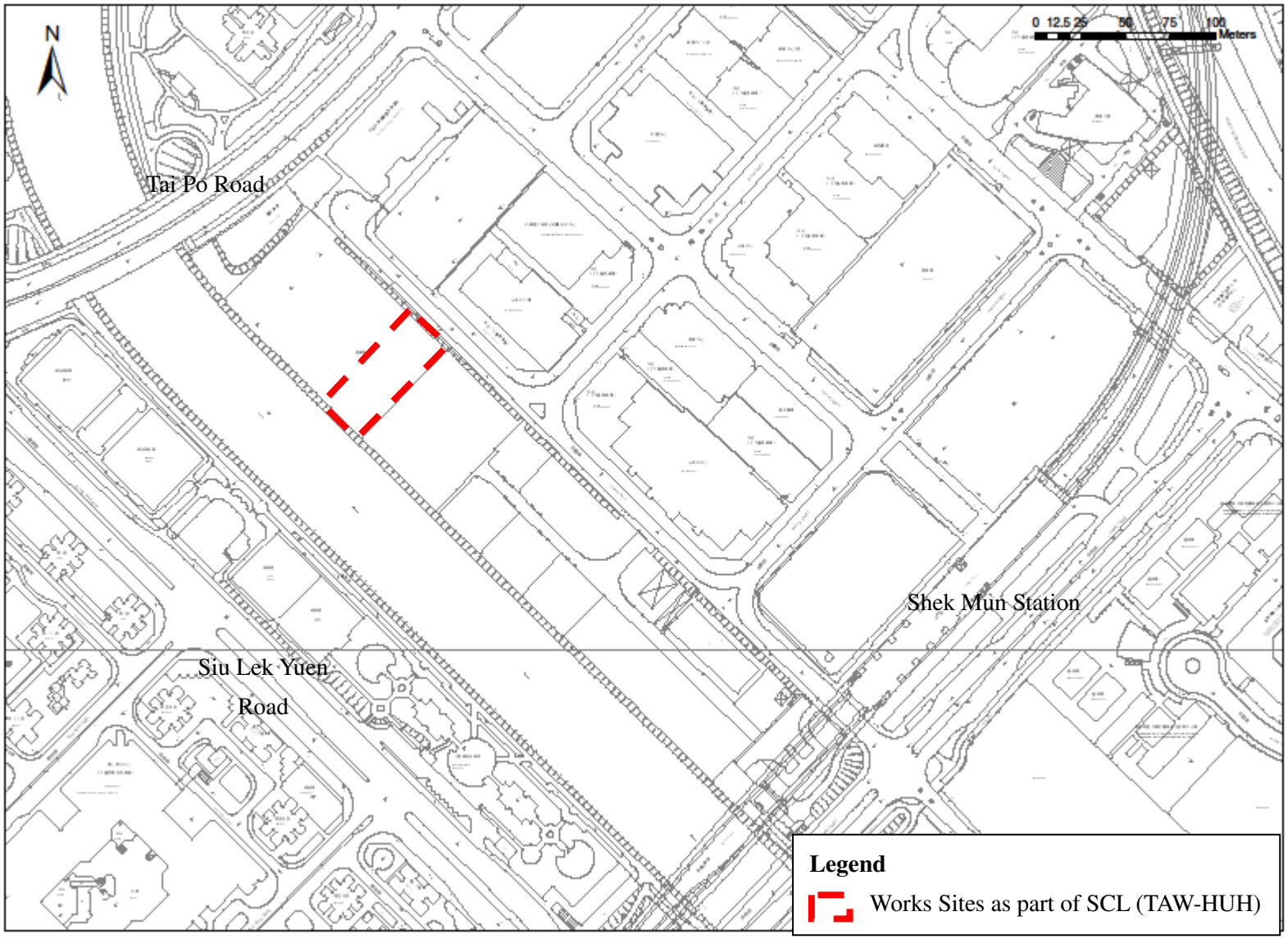
LOCATION PLAN OF WORKS AREA AND STORAGE YARD



ANEWR

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

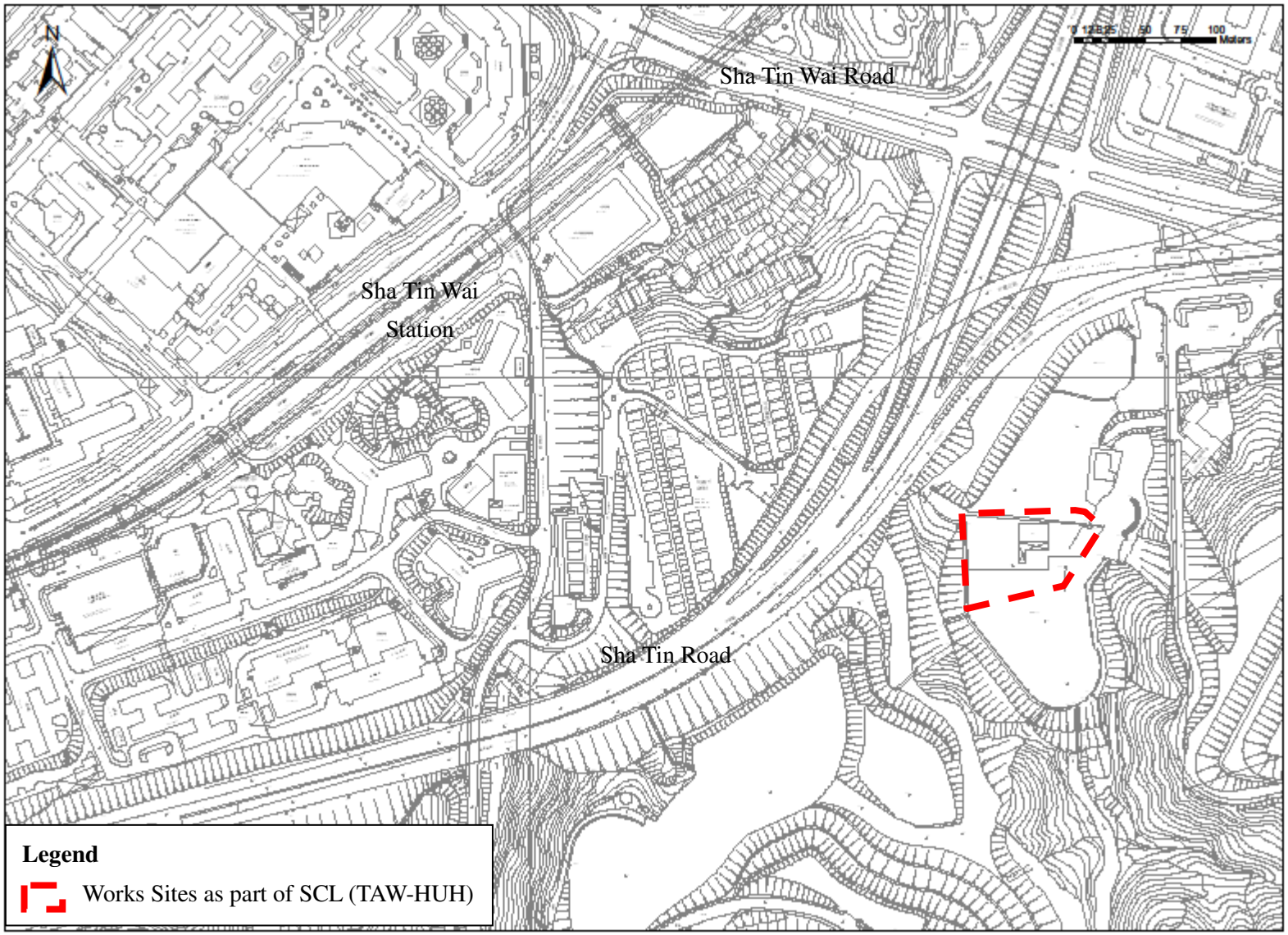
SCALE	N.T.S.	DATE	4 June 2013
CHECK	LYMA	DRAWN	YSWE
Ref. SCL Contract No.1101		FIGURE NO. App A (Sheet 1 of 3)	REV 1



ANEWR

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

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



ANEWR

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

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

APPENDIX B

UPDATED CONSTRUCTION PROGRAMME

Construction Programme (SCL)

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

Note:
1. Abbreviation:
I Engineering Possession (2:00 to 4:00)

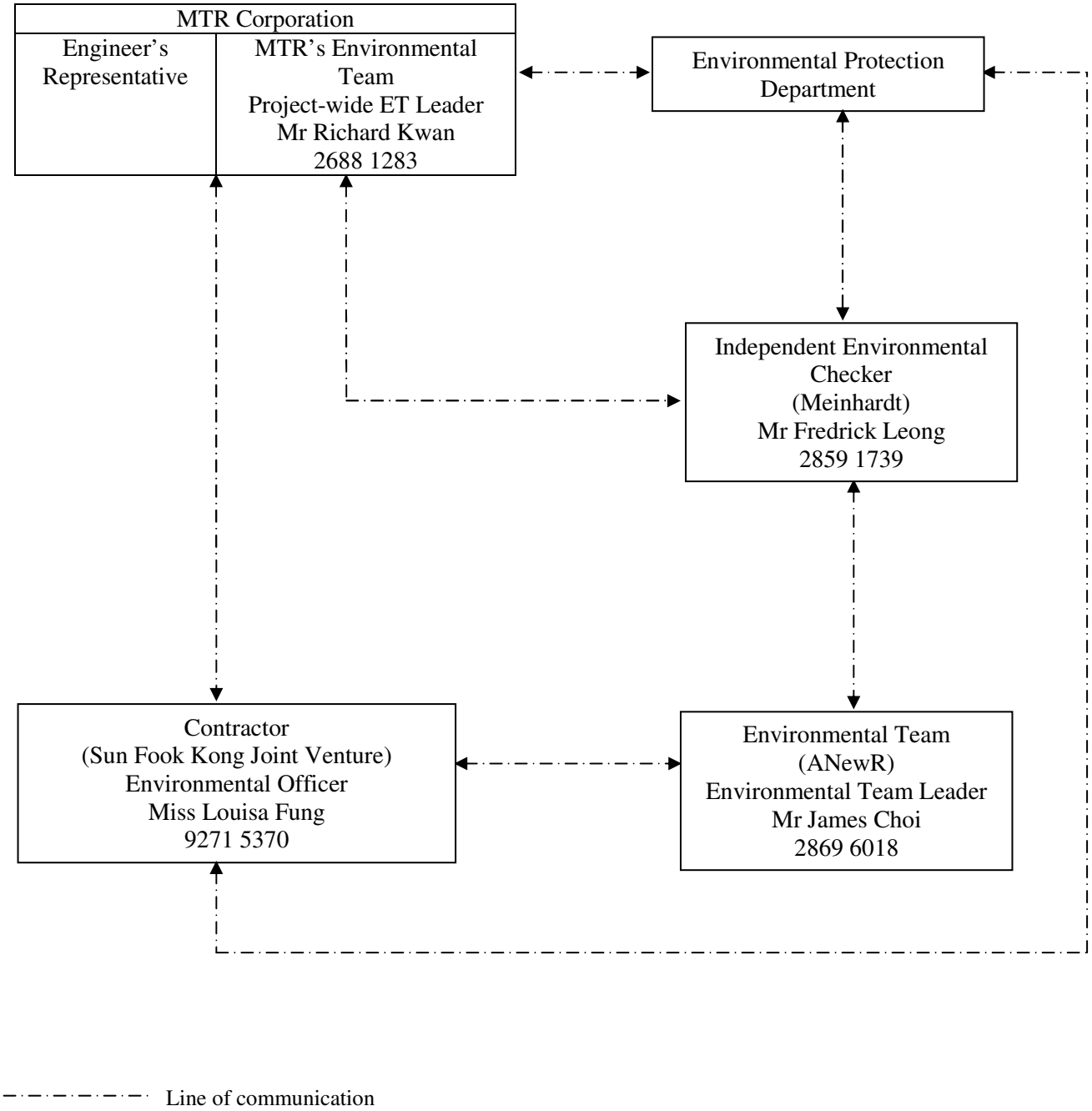
2 No construction activity had been carried out at To Shek Storage Yard and Shek Mun Storage Yard.

APPENDIX C

ORGANISATION CHART OF ENVIRONMENTAL MANAGEMENT

Appendix C Organisation Chart of Environmental Management

Project Organization Chart



APPENDIX D

STATUS OF LICENSE, PERMIT AND SUBMISSIONS UNDER ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 1 Environmental Management Related Licenses and Permits

Subject	Reference No.	Application Date	Issued Date	Effective Date	Expired Date
Environmental Permit					
Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section	EP-438/2012/E	19 March 2014	4 April 2014	4 April 2014	14 July 2014
Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section	EP-438/2012/F	20 June 2014	15 July 2014	15 July 2014	N/A
Construction Noise Permit					
Tai Wai Station (At Tai Wai Mei Tin Road)	GW-RN0804-13	16 December 2013	13 January 2014	18 February 2014	17 August 2014
Tai Wai Station (At Tai Wai Mei Tin Road)	GW-RN0379-14	10 June 2014	27 June 2014	18 August 2014	17 February 2015
Chemical Waste Producer					
Tai Wai Station (At Tai Wai Mei Tin Road)	5213-757-S3683-02	6 September 2012	8 October 2012	8 October 2012	N/A
To Shek Storage Yard	5213-759-S3683-08	10 January 2013	14 February 2013	14 February 2013	N/A
Wastewater Discharge Licence					
Tai Wai Station (At Tai Wai Mei Tin Road)	WT00014550-2012	5 November 2012	19 November 2012	19 November 2012	30 November 2017

Subject	Reference No.	Application Date	Issued Date	Effective Date	Expired Date
To Shek Storage Yard	WT00014628-2012	12 November 2012	12 December 2012	12 December 2012	31 December 2017

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

Table 2 Summary of Submission Status under EP-438/2012/E and EP-438/2012/F

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

APPENDIX E

WASTE FLOW TABLE

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

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

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

- 1 full loaded dumping truck is assumed equivalent to 6.5 m^3 by volume from Archsd D/OL03/09.002

- Inert waste is disposed of at Tseung Kwan O Area 137 Public Fill Bank while non-inert waste is disposed of at North East New Territories Landfill.

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

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

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

- **Waste generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard and To Shek Storage Yard only from May 2013 onwards**
- **Tai Shui Hang Storage Yard has been handed back to land owner on 15 April 2013**
- **1 full loaded dumping truck is assumed equivalent to 6.5 m^3 by volume from Archsd D/OL03/09.002**
- **Inert waste is disposed of at Tseung Kwan O Area 137 Public Fill Bank while non-inert waste is disposed of at North East New Territories Landfill.**

Waste Flow Table for _2014_ (year) (in cu. meter) for SCL

Month		Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste (in kg)
January	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00
February	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00
March	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	120.00
April	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	120.00
May	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	0.00
June	**0.00**	0.00	0.00	0.00	0.00	0.00	6.50	270.00
Sub-total	**32.50**	**0.00**	**0.00**	**0.00**	**32.50**	**3.00**	**231.00**	**510.00**
July	**19.50**	0.00	0.00	0.00	19.50	0.00	19.50	0.00
August								
September								
October								
November								
December								
Cumulative Total	**52.00**	**0.00**	**0.00**	**0.00**	**52.00**	**3.00**	**250.50**	**510.00**

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

- **Waste generated from site at Tai Wai Mei Tin Road, Shek Mun Storage Yard and To Shek Storage Yard only from May 2013 onwards**
- **Tai Shui Hang Storage Yard has been handed back to land owner on 15 April 2013**
- **1 full loaded dumping truck is assumed equivalent to 6.5 m^3 by volume from Archsd D/OL03/09.002**
- **Inert waste is disposed of at Tseung Kwan O Area 137 Public Fill Bank while non-inert waste is disposed of at North East New Territories Landfill.**

APPENDIX F

MITIGATION MEASURES IMPLEMENTATION SCHEDULE FOR CONSTRUCTION STAGE

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecology (Construction Phase)								
S5.7	E5	Good Site Practices Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal. 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; • Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. Tei Lung Hau Stream and the adjoining secondary woodland, tunnel on hill at top of slope stabilization works;	Minimise ecological impacts	Contractor	All construction sites	During construction	• ProPECC PN 1/94	^

Remarks:
^ Implement mitigation measure in the reporting month
N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		• No on-site burning of waste; • Waste and refuse in appropriate receptacles.						
Landscape & Visual (Construction Phase)								
S6.9.3	LV1	The following good site practices and measures for minimization 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. <u>Protection of Retained Trees</u>	Minimize visual & landscape impact	Contractor	Within Project Site	Contraction stage	TM-EIAO	^

Remarks:
^ Implement mitigation measure in the reporting month
N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		• All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. • The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites.						
S6.12	LV2	• <u>Decorative Hoarding</u> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context. • <u>Management of facilities on work sites</u> To provide proper management of the facilities on the sites, give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. • <u>Tree Transplanting</u> Trees of high to medium survival rate would be affected	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and construction stage	EIAO-TM ETWB TCW 2/2004 ETWB TCW 3/2006	^

Remarks:
^ Implement mitigation measure in the reporting month
N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.						
Construction Dust Impact								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• 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 maintain an equivalent intensity of no less than 1.8 L/m2 to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^

Remarks:
^ Implement mitigation measure in the reporting month
N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
S7.6.5	D3	• Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practices, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^

Remarks:
^ Implement mitigation measure in the reporting month
N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surface where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or by						

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		pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.						
Construction Noise (Airborne)								
S8.3.6	N1	Implement the following good site practices: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • Machines and plant (such as trucks, cranes) that may be	Control construction airborne noise	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^

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* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plant down to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • Mobile plant should be sited as far away from NSRs as possible and practicable; • Material stockpiles, mobile container site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.						
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoarding shall be properly maintained throughout the construction period.	Reduce the construction noise level at low-level zone of NSRs through partial screening	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N4	Use "Quiet plants"	Reduce the noise	Contractor	All	Construction	• Annex 5, TM-EIA	^

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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
			levels of plant items		construction sites where practicable	stage		
S8.3.6	N5	Sequencing operation of construction plants where practicable	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
Water Quality (Construction Phase)								
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoff and Site Drainage</u> • At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	^

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N/A Not Applicable in the reporting month
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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		construction. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilities the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediments/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of $0.1m^3/s$ a sedimentation basin of $30m^3$ would be required and for a flow rate of $0.5m^3/s$ the basin would be $150m^3$. The detailed design of the sand/silt traps shall be undertaken by the constructor prior to the commencement of construction. • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surface should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a						

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		minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than $50m^3$ 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.						

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N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
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		• Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm in imminent or forecasted, and actions to be taken during or after rainstorms are summarized in Appendix A2 or ProPECC PN 1/94. Particular attention should be paid to the control of silt surface runoff during storm events, especially for areas located near steep slopes. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.						

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N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		• Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. • Adopt best management practices.						
S10.7.1	W3	<u>Sewage Effluent</u> • Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • TM-water	^

Remarks:
^ Implement mitigation measure in the reporting month
N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		disposal and maintenance.						
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 location should be locked as far as possible from the sensitive watercourse and stormwater drains. • The Contractor should register as a chemical waste produce if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. • Disposal of chemical waste should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<u>On-site sorting of C&D material</u> • Geological assessment should be carried out by competent persons on site during excavation to identity materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke roke should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	• DEVB TC(W) No.6/2010	^

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N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Apilte Dyke rock, etc should also be explored.						
S11.5.1	WM2	<u>Construction and Demolition Material</u> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt "Selective Demolition" technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No.19/2005	^

Remarks:
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N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		to ensure that the disposal of C&D materials are properly documents and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction; • In addition, disposal of the C&D materials onto ant sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation.						
S11.5.1	WM3	<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. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No.19/2005	^

Remarks:
^ Implement mitigation measure in the reporting month
N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.						
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labeled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^

Remarks:
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N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
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 and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated; • Disposal of chemical waste should be via a licensed waste collector, be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	• Waste Disposal (Chemical Waste General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	^

Remarks:
^ Implement mitigation measure in the reporting month
N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.						
EM&A Project								
S14.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	MTR Corporation	All construction sites	Construction Stage	• EIAO Guidance Note No.4/2010 • TM-EIAO	^
S14.2-14.4	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	• EIAO Guidance Note No. 4/2010 • TM-EIAO	^

Remarks:
^ Implement mitigation measure in the reporting month
N/A Not Applicable in the reporting month
x Non-compliance of mitigation measure
* Not satisfactory but rectified by the contractor

APPENDIX G

ENVIRONMENTAL COMPLAINT LOG

Appendix G Environmental Complaint Log

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

Appendix D

19th EM&A Report for Works Contract 1111 –
Hung Hom North Approach Tunnel

AECOM

Gammon- Kaden SCL 1111 Joint Venture

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

Works Contract 1111 -
Hung Hom North Approach Tunnels

Monthly EM&A Report for
July 2014

August 2014

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

Version: 0	Date: 12 August 2014

Disclaimer

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EXECUTIVE SUMMARY

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

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

This report documents the findings of EM&A works conducted in the period between 1 and 31 July 2014. As informed by the Contractor, major activities in the reporting period were:

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

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

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

Breaches of Action and Limit Levels for Noise

Regular Noise Monitoring

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

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

Continuous Noise Monitoring

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

Complaint, Notification of Summons and Successful Prosecution

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

Future Key Issues

Key issues to be considered in the coming month included:

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

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

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

1 INTRODUCTION

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

1.1 Purpose of the Report

1.1.1 This is the nineteenth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 31 July 2014.

1.2 Report Structure

1.2.1 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 the latest Environmental Permit (EP No: EP-438/2012/F) was issued by Director of Environmental Protection (DEP) on 15 July 2014.

2.1.3 The construction of the SCL is divided into different civil construction works contracts and Works Contract 1111 – Hung Hom North Approach Tunnels (hereafter referred to as “the Project”) covers construction activities at Mong Kok Freight Terminal and part of the construction activities located at Hung Hom under the two EPs.

2.2 Site Description

2.2.1 The major construction activities under Works Contract 1111 include:

- SCL (MKK-HUH) – (i) Construction of an realigned and modified railway from Portal 1A near Oi Man Estate to Hung Hom Station; (ii) Construction of Noise Enclosure at Portal 1A; (iii) modification works on the existing Homantin Siding; and (iv) new EVA near Hung Hom Station.
- SCL (TAW–HUH) – Part of the railway tunnel from Ho Man Tin Station to Hung Hom.
- SCL (HHS) – Construction of tracks and noise barrier of Hung Hom Stabling Sidings.

2.2.2 **Figure 1.1** shows the works areas for the Works Contract 1111.

2.3 Construction Programme and Activities

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

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

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

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

2.4 Project Organisation

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

Table 1.1 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
MTR	Residential Engineer (ER)	Construction Manager	Mr. Michael Fu	3127 6201	3124 6422
		SCL Project Environmental Team Leader	Mr. Richard Kwan	2688 1283	2993 7577
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Mr. Fredrick Leong	2859 1739	2540 1580
GKSCKJV	Contractor	Project Manager	Mr. Alan Yan	9855 0361	3904 9630
		Environmental Manager	Mr. Brian Kam	9456 9541	
AECOM	Contractor's Environmental Team (ET)	ET Leader	Mr. Y T Tang	3922 9393	2317 7609

2.5 Status of Environmental Licences, Notification and Permits

2.5.1 Relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting month are summarized in **Table 2.1**.

Table 2.1 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Environmental Permit				
EP-437/2012	22 Mar 2012	-	Valid	-
EP-438/2012/E	4 Apr 2014	-	Valid	Valid until cancellation on 15 Jul 2014
EP-438/2012/F	15 Jul 2014	-	Valid	-
Construction Noise Permit				
GW-RE0090-14	30 Jan 2014	29 Jul 2014	Valid	For General and Reprovisioning Works at Hung Hom Station
GW-RE0116-14	01 Feb 2014	31 Jul 2014	Valid	For E&M Works at Mong Kok East Station Concourse
GW-RE0226-14	10 Mar 2014	09 Sep 2014	Valid	For Grouting Station Works at EWL8
GW-RE0403-14	12 Apr 2014	11 Oct 2014	Valid	Extension Hour for Works at NSL3-5
GW-RE0432-14	17 Apr 2014	16 Oct 2014	Valid	For Cross Track Duct Installation at Oi Sen Path near Worksfronts No. 5&6
GW-RE0492-14	07 May 2014	04 Jul 2014	Valid	For Cross Track Duct Installation at Homantin Siding
GW-RE0590-14	28 May 2014	27 Nov 2014	Valid	For E&M Works at PolyU Phase 8 in Homantin
GW-RE0655-14	13 Jun 2014	12 Jul 2014	Valid	For 6m Hoarding Erection at NSL 6
GW-RE0660-14	19 Jun 2014	17 Aug 2014	Valid until cancellation on 22 Jul 2014	For Scaffolding and Hoarding Erection at Homantin and Oi Sen Path
GW-RE0702-14	20 Jun 2014	20 Aug 2014	Valid	For Hoarding Erection at NSL 3-5
GW-RE0717-14	27 Jun 2014	22 Aug 2014	Valid until cancellation on 12 Jul 2014	For TB1 & TB2 Installation at Chatham Road North
GW-RE0699-14	24 Jun 2014	23 Aug 2014	Valid	For 6m Hoarding Erection at NSL 9
GW-RE0744-14	05 Jul 2014	06 Sep 2014	Valid	For Cross Track Duct Installation in Homantin Siding
GW-RE0753-14	12 Jul 2014	30 Aug 2014	Valid	For TB1 & TB2 Installation at Chatham Road North
GW-RE0758-14	13 Jul 2014	12 Aug 2014	Valid until cancellation on 31 Jul 2014	For 6m Hoarding Erection in NSL6
GW-RE0812-14	22 Jul 2014	30 Sep 2014	Valid	For Scaffolding and Hoarding Erection at Homantin and Oi Sen Path
GW-RE0768-14	30 Jul 2014	29 Jan 2015	Valid	For General and Reprovisioning Works at Hung Hom Station
GW-RE0829-14	31 Jul 2014	30 Aug 2014	Valid	For 6m Hoarding Erection in NSL6

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Wastewater Discharge License				
WT00015148-2013	20 Feb 2013	28 Feb 2018	Valid	For Winslow Street Works
WT00015644-2013	16 Apr 2013	30 Apr 2018	Valid	For Homantin Sidings Works
WT00015606-2013	25 Apr 2013	30 Apr 2018	Valid	For Mong Kok Freight Terminal Works
WT00016090-2013	14 Jun 2013	30 Jun 2018	Valid	For Hung Hom Station Works
WT00016108-2013	14 Jun 2013	30 Jun 2018	Valid	For Slip Road Works from Chatham Road North and underneath Princess Margaret Road Link (Discharge Point near Hong Chong Road)
WT00015859-2013	14 May 2013	31 May 2018	Valid	For Works in EWL8 and Oi Sen Path Garden
WT00016447-2013	24 Jul 2013	31 Jul 2018	Valid	For Winslow Street Slope Works Between Chatham Road North and Wai Fung Street
WT00016435-2013	23 Jul 2013	31 Jul 2018	Valid	For Slip Road Works from Chatham Road North and underneath Princess Margaret Road Link (Discharge Point near Oi Sen Path)
WT00018688-2014	14 Apr 2014	30 Apr 2019	Valid	For Hung Hom Freight Terminal Works
WT00019068-2014	25 Jun 2014	30 Jun 2019	Valid	For Oi Sen Path Works
Chemical Waste Producer Registration				
5213-213-G2618-01	22 Mar 2013	-	Valid	For Winslow Street Works
5213-213-G2618-03	08 Apr 2013	-	Valid	For Hung Hom Station Reprovisioning Works
5213-222-G2618-05	25 Apr 2013	-	Valid	For Mong Kok Freight Terminal Works
5213-213-G2618-06	16 Apr 2013	-	Valid	For Homantin Sidings Works
5213-236-G2618-10	14 Jun 2013	-	Valid	For Slip Road Works from Chatham Road North and underneath Princess Margaret Road Link
5213-236-G2618-11	27 May 2013	-	Valid	For Works near Chatham Road North
5213-213-G2618-12	14 Apr 2014	-	Valid	For Hung Hom Freight Terminal Works
5213-236-G2618-14	08 May 2014	-	Valid	For Oi Sen Path Works
Billing Account for Construction Waste Disposal				
7016658	24 Jan 2013	-	Account Active	-
Notification Under Air Pollution Control (Construction Dust) Regulation				
353991	02 Jan 2013	18 Apr 2018	Notified	-
Clinical Waste Producer Premises Code				
PC01/RE/00362644	30 Jan 2014	-	Valid	For Hung Hom Freight Yard Works

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Construction Dust Monitoring

Monitoring Requirements

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

Monitoring Equipment

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

Table 3.1 Air Quality Monitoring Equipment

Equipment	Brand and Model
High Volume Sampler (24-hour TSP)	Andersen Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. GS 2310 (S/N:8259))
Calibration Kit	TISCH Environmental Orifice (Model TE-5025A (Orifice I.D.: 0988 & 0843))

Monitoring Locations

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

Table 3.2 Locations of Construction Dust Monitoring Stations

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

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

Monitoring Methodology

3.1.4 24-hour TSP Monitoring

(a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS as far as practicable:-

(i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
(ii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
(iii) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
(iv) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
(v) No furnace or incinerator flues nearby.
(vi) Airflow around the sampler was unrestricted.
(vii) Permission was obtained to set up the samplers and access to the monitoring stations.
(viii) A secured supply of electricity was obtained to operate the samplers.
(ix) The sampler was located more than 20 meters from any dripline.
(x) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
(xi) Flow control accuracy was kept within ±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 m^3/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m^3/min).
(x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
(xi) The initial elapsed time was recorded.
(xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
(xiii) The final elapsed time was recorded.
(xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
(xv) It was then placed in a clean plastic envelope and sealed.
(xvi) All monitoring information was recorded on a standard data sheet.
(xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.

(d) Maintenance and Calibration

(i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
(ii) HVSs were calibrated using TE-5025A Calibration Kit upon installation and thereafter at bi-monthly intervals.
(iii) Calibration certificate of the TE-5025A Calibration Kit and the HVSs are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.1.5 The schedule for environmental monitoring in July 2014 is provided in **Appendix F**.

3.2 Regular Construction Noise Monitoring

Monitoring Requirements

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

Table 3.4 Noise Monitoring Parameters, Frequency and Duration

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

Monitoring Equipment

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

Table 3.5 Noise Monitoring Equipment for Regular Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	B&K (Model No. 2238 (S/N: 2285692)&(S/N: 2800927), Model No. 2250-L (S/N: 3003330)) Rion (Model No. NL-31 (S/N: 00320528))
Acoustic Calibrator	Rion (Model No. NC-73 (S/N: 10307223))

Monitoring Locations

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

Table 3.6 Locations of Regular Construction Noise Monitoring Stations

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

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

Monitoring Methodology

3.2.4 Monitoring Procedure

(a) The sound level meter was set on a tripod at a height of 1.2 m above the ground for free-field measurements at NM2. A correction of +3 dB(A) shall be made to the free field measurements.

(b) Façade measurements were made at NM1.

(c) The battery condition was checked to ensure the correct functioning of the meter.

(d) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

(i) frequency weighting: A
(ii) time weighting: Fast
(iii) time measurement: $L_{eq(30\text{-}minutes)}$ during non-restricted hours i.e. 0700 – 1900 on normal weekdays.

(e) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94 dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.

(f) During the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.

(g) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.

(h) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

3.2.5 Maintenance and Calibration

(a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.

(b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.

(c) Calibration certificates of the sound level meters and acoustic calibrators are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.2.6 The schedule for environmental monitoring in July 2014 is provided in **Appendix F**.

Continuous noise monitoring

Monitoring Requirements

3.2.7 According to EP conditions under EP-437/2012 (Condition 2.8) and EP-438/2012/F (Condition 2.10), continuous noise monitoring should be conducted at the NSRs as identified by the Construction Noise Mitigation Measures Plan (CNMMP) to have residual air-borne noise impacts. A CNMMP and Continuous Noise Monitoring Plan (CNMP) were submitted to EPD on 20 January 2014.

Monitoring Locations

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

Table 3.7 Summary of Proposed Continuous Noise Monitoring Location

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

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

Monitoring Equipment

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

Table 3.8 Noise Monitoring Equipment for Continuous Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	B&K (Model No. 2238)
Acoustic Calibrator	Rion (Model No. NC-73)

Monitoring Parameters, Frequency and Duration

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

Monitoring Methodology

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

Event and Action Plan

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

Table 3.9 Summary of Proposed Continuous Noise Monitoring Plan

Monitoring Location	NSR Description	Action/Limit Level, dB(A)	Measurement Period
NM1	Carmel Secondary School (South Block)	68(1)	Feb and Jun 2014, Jan and Feb 2015(3)(4)
NM2	No. 234-238 Chatham Road North(2)	77	Sep to Dec of 2014 Jan / Mar to May 2015

Note:
(1) Action/Limit level will only be applicable during the examination period.
(2) Permission of access could not be obtained from Wing Fung Building (originally proposed in the approved EM&A Manuals) and hence the monitoring location was relocated to No. 234-248 Chatham Road North. The alternative monitoring location is considered as an appropriate alternative noise monitoring station in the CNMP.
(3) Based on 2013-2014 Calendar of Carmel Secondary School, the examination periods are assumed to be January, February and June.
(4) The continuous noise monitoring periods will be reviewed and updated based on the latest calendar of Carmel Secondary School.

3.3 Landscape and Visual

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

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

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

Table 4.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.4 (EP-437/2012) & Condition 3.4 (EP-438/2012/F)	Monthly EM&A Report for June 2014	14 July 2014

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

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

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

ID	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM1	37.2	24.8 – 54.3	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 – 65.4	70 (65)(1)
NM 2(2)	<Baseline	75

Note:
(1) Daytime noise Limit Level of 70dB(A) applies to education institutions while 65dB(A) applies during school examination period.
(2) Baseline correction will be made to the measured L_{eq} when the measured noise level exceeded the corresponding baseline noise level and presented in the table. No correction was made to NM2 as all measured noise levels were below the baseline noise level.

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

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

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

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

5.3 Continuous Noise Monitoring

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

5.4 Waste Management

5.4.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.

5.4.2 As advised by the Contractor, 1,830m^3 of inert C&D material was generated. 575m^3 and 415 m^3 was disposed as public fills at TKO137 and TM38 respectively. 339m^3 of public fills was delivered to Hung Hom Barging Point and handled by other project. While 92,460kg of general refuse was disposed at NENT landfill in the reporting month. 368kg of paper/cardboard packaging material, 14kg of plastic were collected by recycling contractor in the reporting month. 40m^3 of inert C&D materials were reused on site. 40kg of chemical waste was collected by licensed contractor in the reporting period. The waste flow table is annexed in **Appendix K.**

5.4.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

5.4.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practise on the Packaging, Labelling and Storage of Chemical Wastes.

5.5 Landscape and Visual

5.5.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted on 3, 17 and 31 July 2014. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.

5.5.2 The event and action plan is annexed in **Appendix I**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

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

6.1.2 In the reporting month, 5 site inspections were carried out on 3, 10, 17, 24 and 31 July 2014. The one held on 17 July 2014 was a joint inspection with the IEC, ER, the Contractor and the ET. No site inspection was conducted by EPD during the reporting month. No non-compliance was recorded during the site inspections. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	03 Jul 2014	• No intercepting measures were provided to the gullies at Tai Pau Mei. The Contractor should provide adequate intercepting measures to gullies to prevent any grit and/or effluent from entering the public drainage system. Moreover, Mud trail was observed extending beyond to the pedestrian pathway from entrance of NSL8. The Contractor should clear the mud trail and provide effective measure to prevent any muddy material from being brought to the public pathway.	The item was rectified by the Contractor on 09 Jul 2014.
	24 Jul 2014	• Gullies were not properly covered at Tai Pau Mei. Moreover, inadequate effluent intercepting measures were observed at Winslow Street. The Contractor should provide adequate intercepting mechanism to prevent effluent from entering the public drainage.	The itemw as rectified by the Contractor on 30 Jul 2014.
	31 Jul 2014	• Seepage of muddy water was observed from the works area at EWL8 to the public drainage. The effluent treating system was ineffective at EWL8. The Contractor should provide effective pumping facility and adequate treatment to the effluent to prevent any non-complied waste water from entering the public drainage.	The item was rectified by the Contractor on 31 Jul 2014.
Air Quality	10 Jul 2014	• Dark smoke was observed emitting from a generator at NSL3-5. The Contractor should provide maintenance to the machinery onsite.	The item was rectified by the Contractor on 16 Jul 2014.

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	17 Jul 2014	• Dry site condition was observed at Homantin Siding. Moreover, inadequate dust suppression measure was provided to the stockpiles of construction material onsite. The Contractor should provide frequent spraying of water and/or sufficient dust suppression measure to the works area.	The item was rectified by the Contractor on 23 Jul 2014.
	24 Jul 2014	• Dark smoke was observed emitting from a generator at NSL3-5. The Contractor should provide maintenance to the machineries onsite.	The item was observed to be rectified on 31 Jul 2014.
Noise	N/A	N/A	N/A
Waste/ Chemical Management	03 Jul 2014	• Oil leakage was observed from an excavator at Tai Pau Mei. The Contractor should clear the oil stain on ground and provide proper maintenance to the machinery onsite to prevent leakage.	The items were rectified by the Contractor on 9 Jul 2014.
		• Oil drum was found placing on bare ground without the provision of drip tray at Tai Pau Mei. The Contractor should provide drip tray or equivalent measures to retain leakage, if any.	
		• Improper treatment to the retained waste water in drip tray was observed at NSL3-6. The Contractor should clear the waste water on ground and provide proper chemical waste treatment training to workers.	
		• The waste skip at EWL8 was full. Moreover, general waste was found discarding at EWL8. The Contractor should clear the waste skip regularly and maintain site tidiness effectively.	The item was observed to be rectified on 10 Jul 2014.
	10 Jul 2014	• Oil leakage was observed from a drip tray at EWL8. Moreover, chemical containers were found on bare ground without the provision of drip tray at EWL8, NSL8 and NSL3-5. The Contractor should provide drip tray and ensure the effectiveness of chemical retaining mechanism.	The item was rectified by the Contractor on 16 Jul 2014.
	24 Jul 2014	• Oil stain was observed on ground at Oi Sen path. The Contractor should clear the oil stain and dispose of as chemical waste.	The item was observed to be rectified on 31 Jul 2014.
Landscape & Visual	17 Jul 2014	• Construction materials were placed on the root system of an existing tree at NSL9. The Contractor should remove the construction materials and implement proper measure to protect the existing tree.	The item was rectified by the Contractor on 24 Jul 2014.

Parameters	Date	Observations and Recommendations	Follow-up
Permits/ Licenses	03 Jul 2014	• EP was found missing at entrance of EWL8. The Contractor should post the updated EP at every site entrance.	The item was observed to be rectified on 10 Jul 2014.
	31 Jul 2014	• Expired EPs were found posting at the entrance/exit of the works areas NSL8 and NSL3-6. The Contractor should post updated and relevant EP at the entrance/exit of each works area.	The item was observed to be rectified on 7 Aug 2014.

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

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

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

7.1.1 All 24-hour TSP results were below the Action and Limit level at all monitoring locations in the reporting month.

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

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

7.2 Summary of Environmental Non-Compliance

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

7.3 Summary of Environmental Complaints

7.3.1 No environmental related complaint was received in the reporting month. Cumulative statistics on environmental complaints is provided in **Appendix J**.

7.4 Summary of Environmental Summon and Successful Prosecutions

7.4.1 No environmental related prosecution or notification of summons was received in the reporting month. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix J**.

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Next Month

8.1.1 The major construction works in August and September 2014 will be:

Hung Hom Area

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

Mong Kok Freight Terminal

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

8.2 Key Issues for the Coming Month

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

8.3 Monitoring Schedule for the Next Month

8.3.1 The tentative schedule for environmental monitoring in August 2014 is provided in **Appendix F**.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

9.1.1 24-hour TSP and noise monitoring were carried out in the reporting month.

9.1.2 All 24-hour TSP monitoring results complied with the Action / Limit Level at in the reporting month.

9.1.3 No noise complaint was received in the reporting month. Hence, no Action Level exceedance was recorded.

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

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

9.1.6 5 nos. of environmental site inspections were carried out in July 2014. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

9.1.7 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

9.2 Recommendations

9.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:-

Air Quality Impact

- Implement effective measures to avoid dust impact.
- Provide proper maintenance to the machineries on site.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

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

Chemical and Waste Management

- Provide proper chemical and construction waste management.

Landscape and Visual Impact

- Implement proper measure to protect the existing tree.

Permits/Licenses

- Post update and relevant EP at the site entrance.

FIGURES

817500 N
818000 N
818500 N
819000 N
836500 E
837000 E
835700 E
835800 E
820400 N
820500 N

CHATHAM ROAD SOUTH
PRINCESS MARGARET ROAD
HUNG HOM STATION
SCL (HUH - ADM)
SCL (MKK - HUH)
UNDER CONTRACT 1112
UNDER CONTRACT 1111
SCL (TAW - HUH)
GILLIES AVENUE SOUTH
MONG KOK FREIGHT TERMINAL

0 25 50 METRES
1 : 2500

MONG KOK FREIGHT TERMINAL WORKS AREA

0 25 50 75 100 125 METRES
1 : 5000

LEGEND:

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

ABBREVIATIONS:

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

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CONTRACTOR: Gammon Kaden Gammon – Kaden SCL 1111 Joint Venture

ORIGINATOR: AECOM

CADD REF. 701.dgn

TITLE
CONTRACT 1111
HUNG HOM NORTH APPROACH TUNNELS
WORKS AREAS OF THE PROJECT

SCALE	FIGURE NO.	REV.
A3 AS SHOWN	FIGURE 1.1	–

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

818600 N

818800 N

819000 N

836600 E

836800 E

PRINCESS MARGARET ROAD

CHATHAM ROAD NORTH

HONG CHONG ROAD

CHEONG HANG ROAD

YUK CHOI ROAD

HAU MAN STREET

UNDER CONTRACT 1112

UNDER CONTRACT 1111

AM1

SCL (TAW - HUH)

0 10 20 30 40 50
METRES
1 : 2000

LEGEND:

- SCHEME BOUNDARY
- PROPOSED SCL (MKK - HUH) ALIGNMENT
- PROPOSED SCL (TAW - HUH) ALIGNMENT
- HHS TRACKS
- HUNG HOM STABLING SIDINGS (HHS)
- WORKS AREA
- AM1 DUST MONITORING STATION

ABBREVIATIONS:

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

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APPROVED	IMW
DATE	08/JAN/2013

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SHATIN TO CENTRAL LINK

CONTRACTOR: Gammon Kaden — Gammon – Kaden SCL 1111 Joint Venture

ORIGINATOR: AECOM

CADD REF. Figure 2.1.dgn

TITLE

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

SCALE	FIGURE NO.	REV.
1 : 2000 (A3)	FIGURE 2.1	-

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

818600 N

818800 N

819000 N

836600 E

836800 E

PRINCESS MARGARET ROAD

CHATHAM ROAD SOUTH

CHATHAM ROAD NORTH

HONG CHONG ROAD

CHEONG HANG ROAD

YUK CHOI ROAD

HAU MAN STREET

NM1

NM2

UNDER CONTRACT 1112

UNDER CONTRACT 1111

SCL (TAW - HUH)

0 10 20 30 40 50
METRES
1 : 2000

LEGEND:

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

ABBREVIATIONS:

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

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SHATIN TO CENTRAL LINK

CONTRACTOR: Gammon Kaden — Gammon – Kaden SCL 1111 Joint Venture

ORIGINATOR: AECOM

CADD REF. Figure 3.1.dgn

TITLE

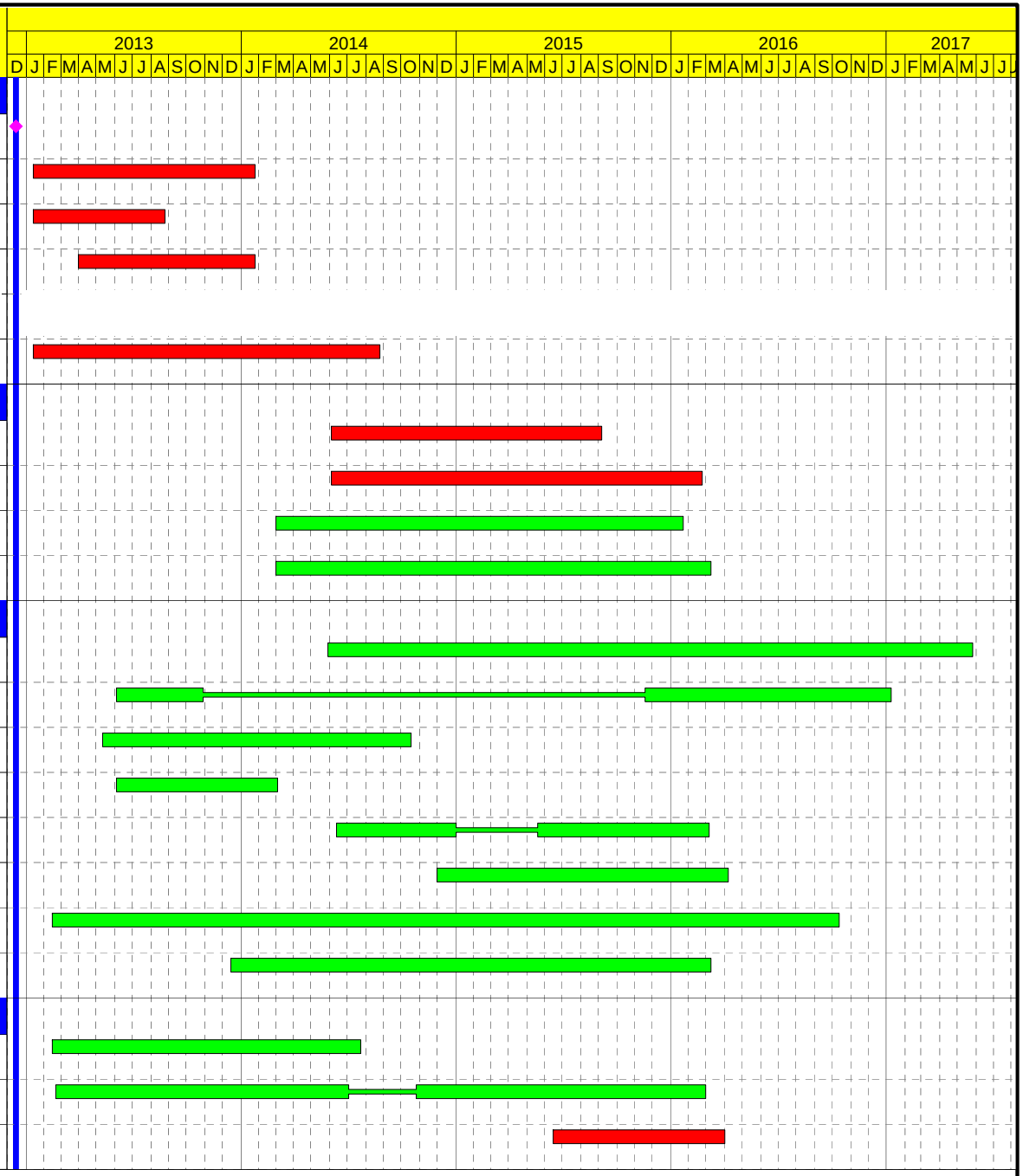
CONTRACT 1111
HUNG HOM NORTH APPROACH TUNNELS
LOCATION OF NOISE MONITORING STATION (CONSTRUCTION PHASE)

SCALE	FIGURE NO.	REV.
1 : 2000 (A3)	FIGURE 3.1	-

APPENDIX A

Construction Programme

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



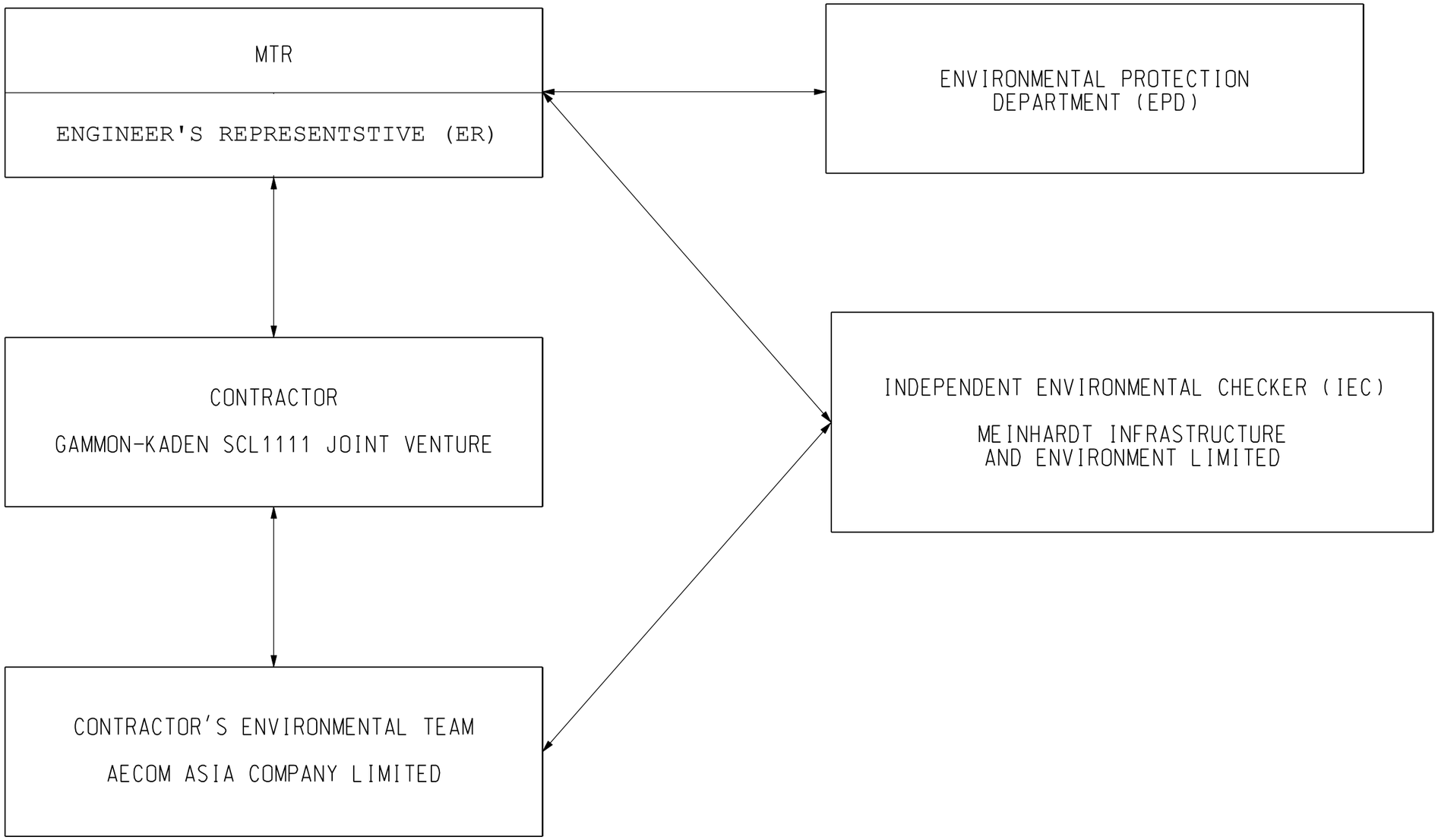
Early Bar
Progress Bar
Critical Activity

SCL 1111
SUMMARY PROGRAMME

Date	Revision	Checked	Approved
19/09/12			

APPENDIX B

Project Organization Structure



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SHATIN TO CENTRAL LINK

CONTRACTOR: Gammon Kaden — Gammon – Kaden SCL 1111 Joint Venture

ORIGINATOR: AECOM

CADD REF. Appendix B

TITLE
CONTRACT 1111
HUNG HOM NORTH APPROACH TUNNELS
PROJECT ORGANISATION

SCALE N.T.S.

FIGURE NO. Appendix B

REV. –

APPENDIX C

Implementation Schedule of Environmental Mitigation Measures

Appendix C - Implementation Schedule of Environmental Mitigation Measures

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

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

Construction Noise Impact				
8.3.6 (TAW-HUH) , S8.5.6 (HHS) & S6 (MKK-HUH)	To control construction airborne noise	Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme.	All construction sites	V
		Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum	All construction sites	V
		Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs	All construction sites	V
		Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works	All construction sites	V
		Mobile plant should be sited as far away from NSRs as possible and practicable;	All construction sites	V
		Material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities	All construction sites	V
		The following quiet PME should be used: • Asphalt Paver (SWL=101dB(A)) • Backhoe (SWL=106dB(A)) • Backhoe with Hydraulic Breaker (SWL=110dB(A)) • Concrete lorry mixer (SWL=96dB(A)) • Concrete mixer truck (SWL=96dB(A)) • Concrete Pump (SWL=106dB(A))	Works areas where required	N/A

		• Concrete Pump Truck (SWL=106dB(A)) • Crane, mobile (SWL=94dB(A)) • Crawler Crane (SWL=102dB(A)) • Drill, hand-held (SWL=98dB(A)) • Dump truck (SWL=104dB(A)) • Excavator (SWL=106dB(A)) • Flat Bed Lorry (SWL=102dB(A)) • Generator (SWL=95dB(A)) • Giken Piler and Power-pack (SWL=94dB(A)) • Hydraulic breaker (SWL=110dB(A)) • Hydraulic excavator (SWL=106dB(A)) • Lorry (SWL=102dB(A)) • Lorry with crane/ grab (SWL=94dB(A)) • Mini Piling Rig (SWL=112dB(A)) • Piling Rig (SWL=112dB(A)) • Poker, vibrator, hand-held (SWL=98dB(A)) • Road Roller (SWL=101dB(A)) • Rock Drill (SWL = 108dB(A) • Roller (SWL = 101dB(A) • Truck (SWL=103dB(A)) • Vibratory Hammer (SWL=118dB(A))		
		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
Construction Air Quality Impact				
S7.6.5 (TAW-HUH) , S7.6.6 (HHS), S5.50, 5.51 &5.57 (MKK-HUH)	Minimize dust impact at nearby sensitive receivers	Watering once per hour on exposed worksites and haul road should be conducted to achieve dust removal efficiencies of 91.7%.	All construction sites	@
		Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet.	All construction sites	@
		Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads	All construction sites	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	N/A
		Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously.	All construction sites	V
		Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet.	All construction sites	N/A
		Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building.	All construction sites	V
		Any skip hoist for material transport should be totally enclosed by impervious sheeting.	All construction sites	N/A
		Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.	All construction sites	N/A

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

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

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

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

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

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

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

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

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels

Table 1 Action and Limit Levels for 24-hour TSP

ID	Location	Action Level	Limit Level
AM1	No. 234 – 238 Chatham Road North	183.9 $\mu g/m^3$	260.0 $\mu g/m^3$

Table 2 Action and Limit Levels for Regular Construction Noise (0700 – 1900 hrs of normal weekdays)

ID	Location	Action Level	Limit Level
NM1	Carmel Secondary School (South Block)	When one documented complaint, related to 0700 – 1900 hours on normal weekdays, is received from any one of the sensitive receivers.	65 / 70 dB(A)(1)
NM2	No. 234 – 238 Chatham Road North		75 dB(A)

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

Table 3 Action and Limit Levels for Continuous Noise

ID	Location	Action/Limit Level
NM1	Carmel Secondary School (South Block)	68 dB(A)(1)
NM2	No. 234-238 Chatham Road North	77 dB(A)

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

APPENDIX E

Calibration Certificates of Equipments

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	234 - 238 Chatham Road North; SCL - DMS - 11	Operator:	Shum Kam Yuen
Cal. Date:	10-May-14	Next Due Date:	10-Jul-14
Equipment No.:	---	Serial No.	8259

Ambient Condition			
Temperature, Ta (K)	298	Pressure, Pa (mmHg)	754.9

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.94727	Intercept, bc	0.02332
Last Calibration Date:	20-May-13	**mc x Qstd + bc = [DH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	20-May-14	**Qstd = {[DH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	8.5	2.91	1.48	44.0	43.85
13	7.0	2.64	1.34	38.0	37.87
10	5.5	2.34	1.19	32.0	31.89
7	4.4	2.09	1.06	26.0	25.91
5	3.0	1.73	0.87	20.0	19.93

By Linear Regression of Y on X

Slope , mw = **39.9374** **Intercept, bw =** **-15.6076**

Correlation Coefficient* = **0.9964**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

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

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]$^{1/2}$= **36.43**

Remarks:

QC Reviewer: Yu Tsz Signature: Date: 12 May 14

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	234 - 238 Chatham Road North; SCL - DMS - 11	Operator:	Shum Kam Yuen
Cal. Date:	7-Jul-14	Next Due Date:	7-Sep-14
Equipment No.:	---	Serial No.	8259

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

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

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	8.1	2.80	1.41	46.0	45.33
13	6.7	2.55	1.28	39.0	38.43
10	5.4	2.29	1.15	33.0	32.52
7	4.2	2.02	1.02	27.0	26.60
5	3.0	1.71	0.86	20.0	19.71

By Linear Regression of Y on X

Slope , mw = **45.9896** **Intercept, bw =** **-20.1546**

Correlation Coefficient* = **0.9981**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

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

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

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

Remarks: _____

QC Reviewer: WS CHAN Signature: _____ Date: 8/7/14

D:\Users\chanwsr\Desktop\234-238C

TISCH Environmental

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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 28, 2014 Rootsmeter S/N 0438320 Ta (K) - 296
Operator Tisch Orifice I.D. - 0988 Pa (mm) - 751.84

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3790	3.2	2.00
2	NA	NA	1.00	0.9720	6.4	4.00
3	NA	NA	1.00	0.8690	7.9	5.00
4	NA	NA	1.00	0.8260	8.8	5.50
5	NA	NA	1.00	0.6830	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9917	0.7191	1.4113		0.9957	0.7221	0.8874
0.9875	1.0159	1.9959		0.9915	1.0201	1.2549
0.9854	1.1339	2.2315		0.9894	1.1385	1.4030
0.9843	1.1916	2.3405		0.9883	1.1965	1.4715
0.9790	1.4333	2.8227		0.9829	1.4392	1.7747
Qstd slope (m) =		1.97518		Qa slope (m) =		1.23683
intercept (b) =		-0.01001		intercept (b) =		-0.00630
coefficient (r) =		0.99998		coefficient (r) =		0.99998
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

TISCH Environmental

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE
VILLAGE OF CLEVES, OH
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513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

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

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4140	3.2	2.00
2	NA	NA	1.00	0.9940	6.4	4.00
3	NA	NA	1.00	0.8870	7.9	5.00
4	NA	NA	1.00	0.8450	8.8	5.50
5	NA	NA	1.00	0.6990	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0174	0.7195	1.4295		0.9957	0.7042	0.8761
1.0131	1.0192	2.0216		0.9915	0.9975	1.2390
1.0109	1.1397	2.2602		0.9894	1.1155	1.3852
1.0098	1.1950	2.3705		0.9883	1.1696	1.4528
1.0044	1.4369	2.8590		0.9830	1.4063	1.7522
Qstd slope (m) =		1.99102		Qa slope (m) =		1.24674
intercept (b) =		-0.00616		intercept (b) =		-0.00378
coefficient (r) =		0.99996		coefficient (r) =		0.99996
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓
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Tel : (852) 2873 6860
Fax : (852) 2555 7533
HOKLAS 028

CERTIFICATE OF CALIBRATION

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

Item tested

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

Item submitted by

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

Date of test: 07-Mar-2014

Reference equipment used in the calibration

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

Ambient conditions

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

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±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: Huang Jian Min/Feng Jun Qi **Date:** 12-Mar-2014 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
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CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0617 01-01 **Page** 1 **of** 2

Item tested

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

Item submitted by

Customer Name:	AECOM ASIA CO. LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	17-Jun-2013

Date of test: 18-Jun-2013

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	22-Jun-2013	CIGISMEC
Signal generator	DS 360	33873	15-Apr-2014	CEPREI
Signal generator	DS 360	61227	15-Apr-2014	CEPREI

Ambient conditions

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

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure 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: Huang Jian Min/Feng Jun Qi **Date:** 18-Jun-2013 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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Fax : (852) 2555 7533
HOKLAS 028

CERTIFICATE OF CALIBRATION

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2250-L	,	4950
Serial/Equipment No.:	3003330	,	2879980
Adaptors used:	-	,	-

Item submitted by

Customer Name:	AECOM ASIA CO. LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	18-Jul-2014

Date of test: 21-Jul-2014

Reference equipment used in the calibration

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

Ambient conditions

Temperature:	23 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1000 ± 10 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure 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: Huang Jian Min/~~Feng Jun Qi~~ **Date:** 21-Jul-2014 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
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Tel : (852) 2873 6860
Fax : (852) 2555 7533
HOKLAS 028

CERTIFICATE OF CALIBRATION

Certificate No.: 13CA1107 01-01

Item tested

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

Item submitted by

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

Date of test: 08-Nov-2013

Reference equipment used in the calibration

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

Ambient conditions

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

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure 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: Huang Jian Min/Feng Jun Qi **Date:** 11-Nov-2013 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
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HOKLAS 028

CERTIFICATE OF CALIBRATION

Certificate No.: 13CA1107 01-02 **Page:** 1 **of** 2

Item tested

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

Item submitted by

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

Date of test: 08-Nov-2013

Reference equipment used in the calibration

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

Ambient conditions

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

Test specifications

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

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

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

Test results

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

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

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 11-Nov-2013 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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.

APPENDIX F

EM&A Monitoring Schedules

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

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

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

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

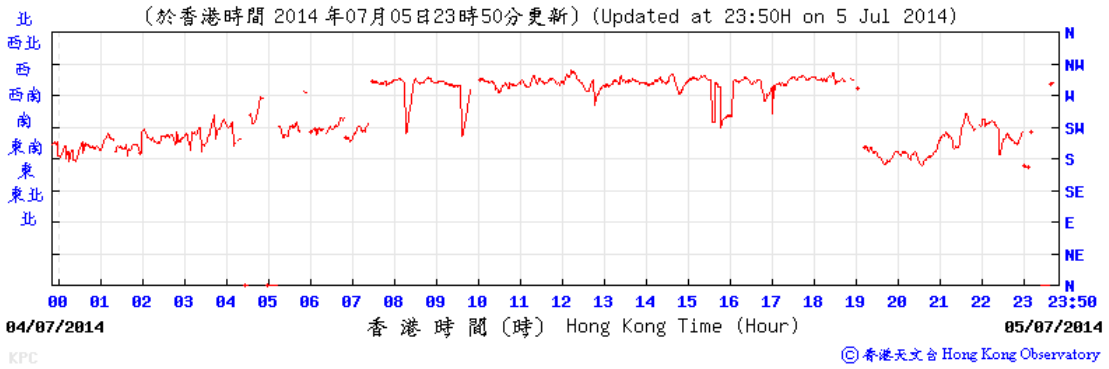
The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

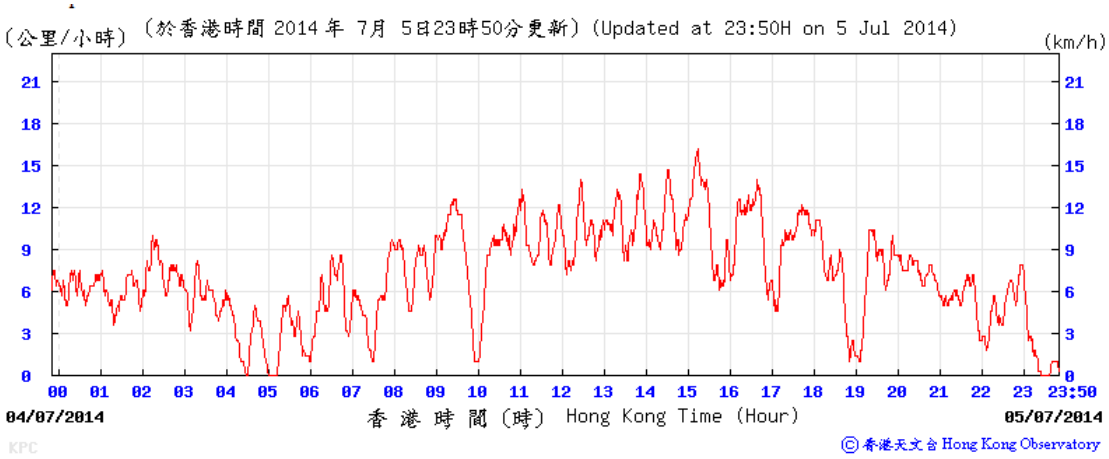
APPENDIX G

Air Quality Monitoring Results and their Graphical Presentations

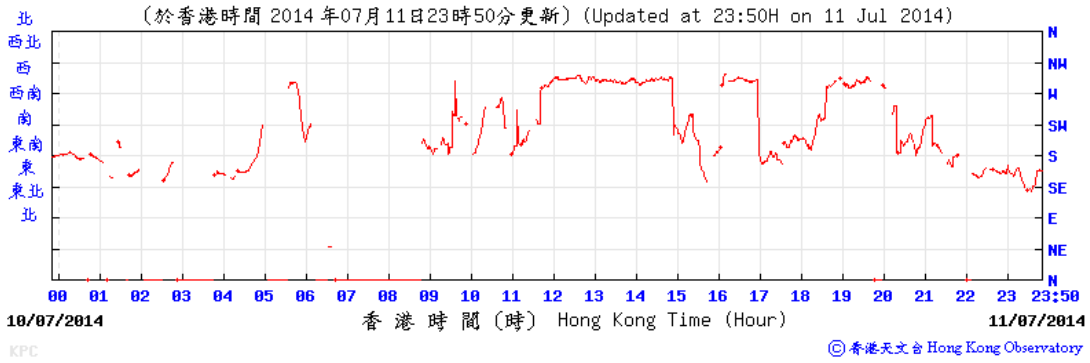
Appendix G – Extract of Meteorological Observations for King's Park* Automatic Weather Station, July 2014

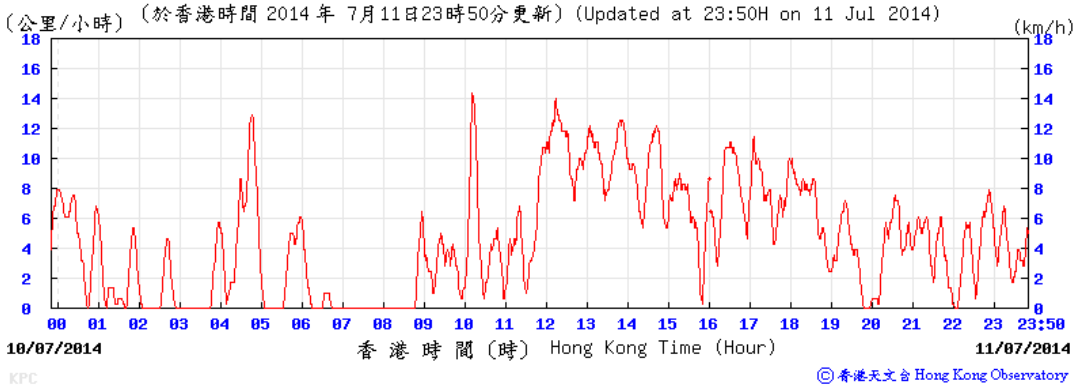
5 July 2014





11 July 2014





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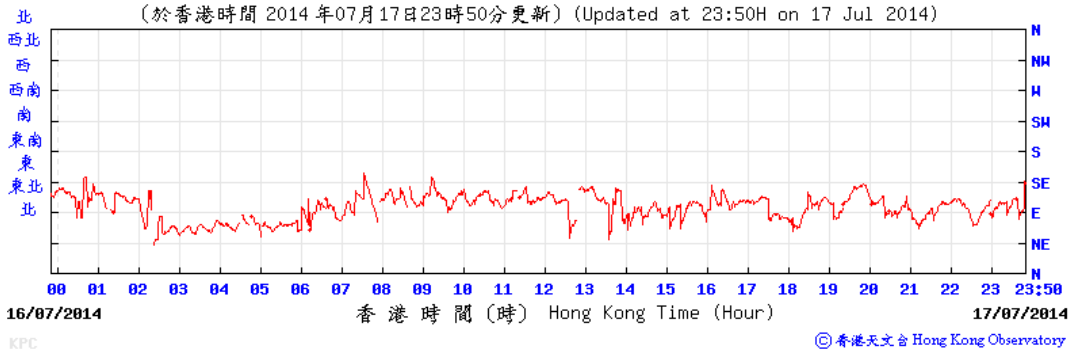

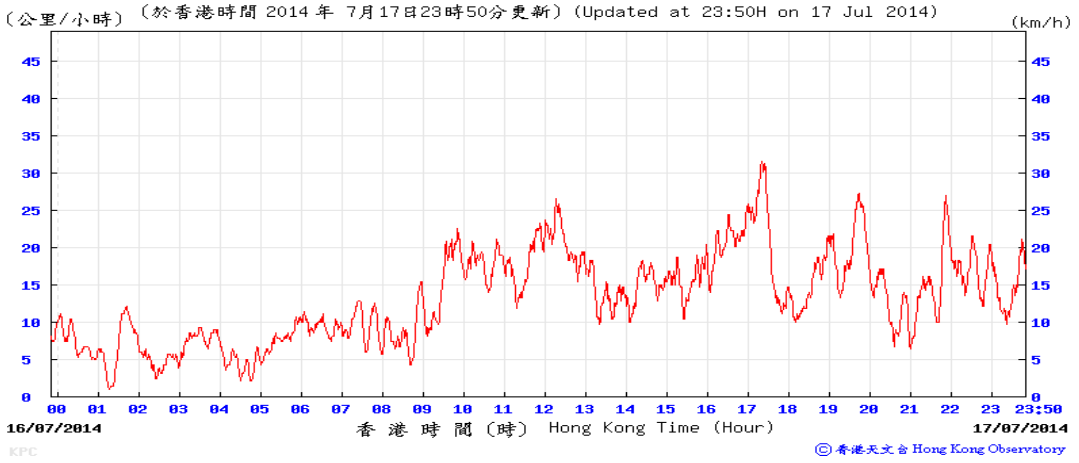

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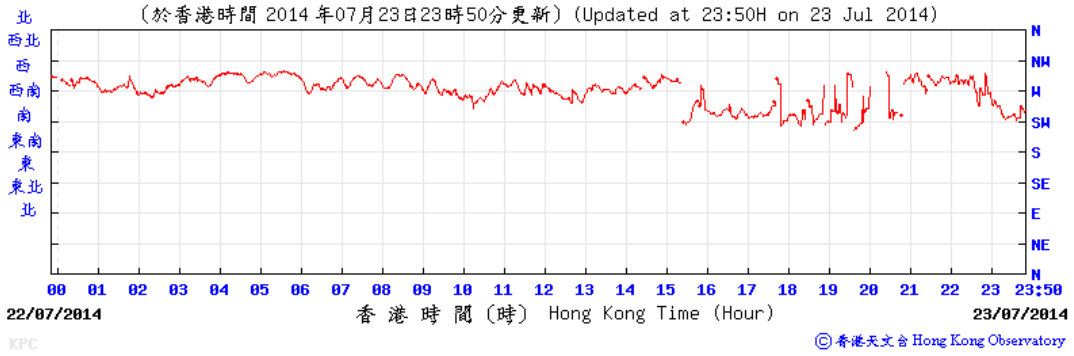
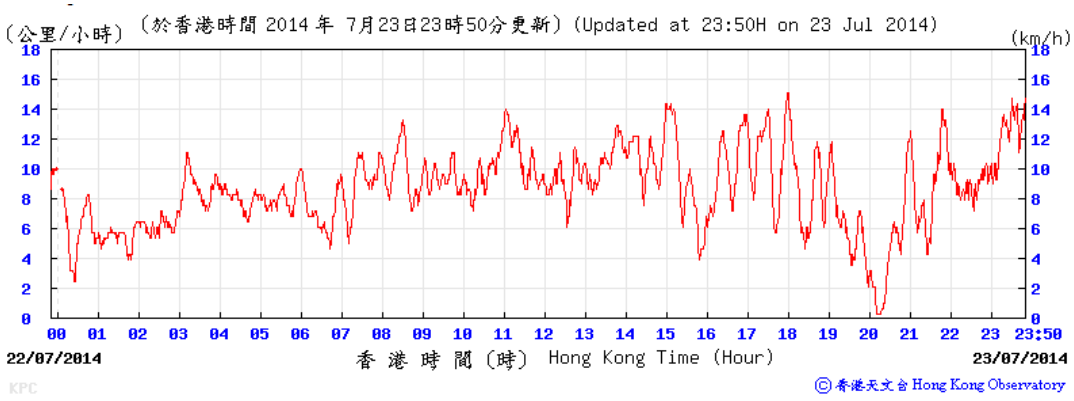
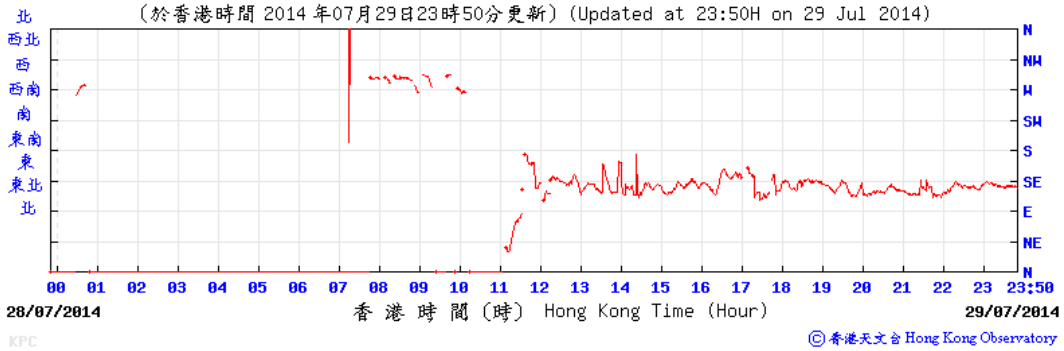
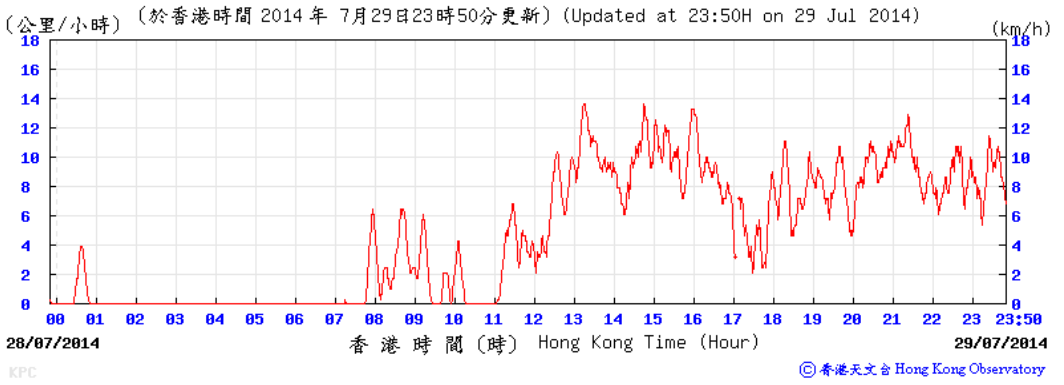




29 July 2014





APPENDIX H

Noise Monitoring Results and their Graphical Presentations

Appendix H Regular Construction Noise Monitoring Results

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

Date	Weather Condition	Noise Level for 30-min, dB(A)+				Baseline Corrected Level, dB(A)	Baseline Noise Level, dB(A)	Limit Level***, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
02-Jul-14	Sunny	10:00	67.5	72.9	69.9	65.4	68.0	70	N
08-Jul-14	Sunny	10:09	65.2	69.4	67.8	<Baseline	68.0	70	N
18-Jul-14	Cloudy	10:30	62.7	69.4	67.6	<Baseline	68.0	70	N
24-Jul-14	Sunny	10:09	66.2	70.3	68.9	61.6	68.0	70	N
30-Jul-14	Sunny	10:10	66.8	71.2	68.2	54.7	68.0	70	N

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

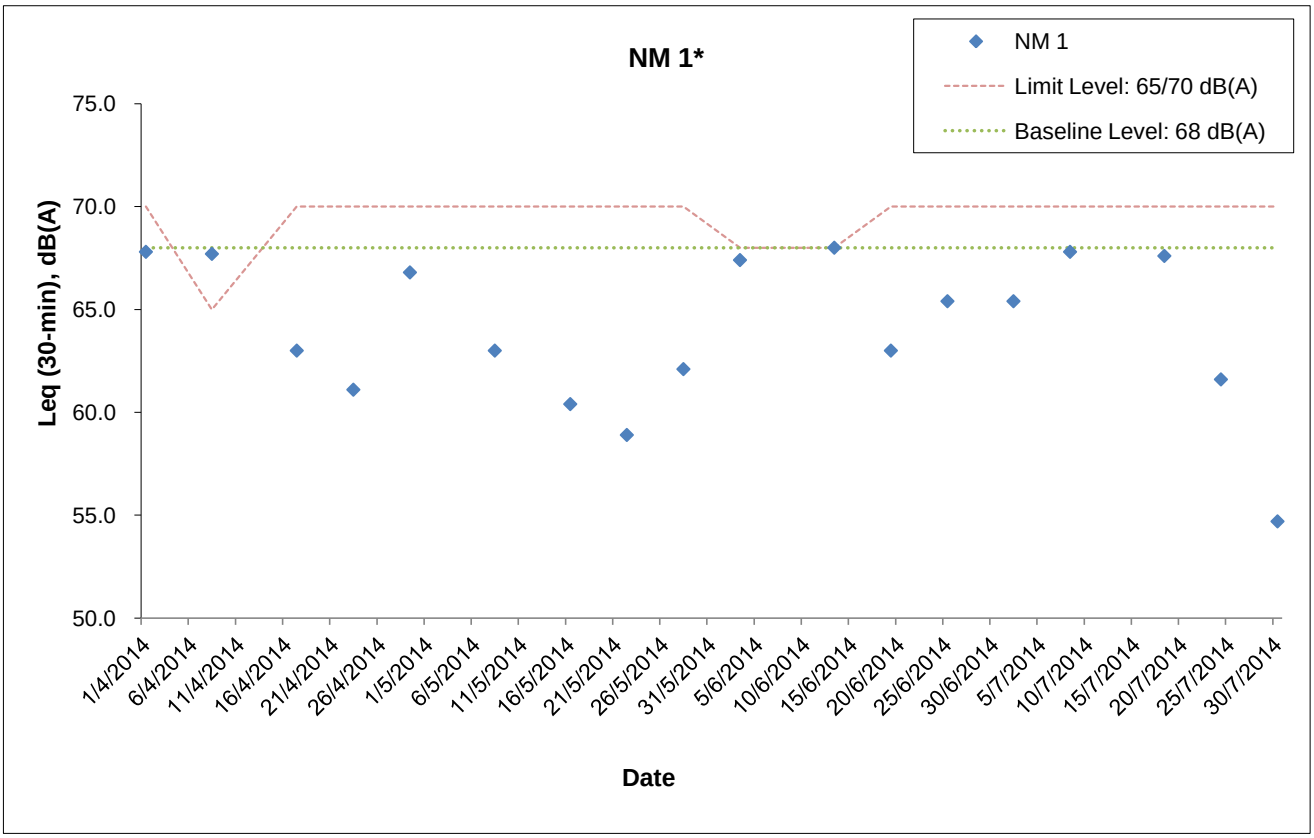
Date	Weather Condition	Noise Level for 30-min, dB(A)++				Baseline Corrected Level, dB(A)	Baseline Noise Level, dB(A)	Limit Level***, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
02-Jul-14	Sunny	10:45	69.0	74.0	71.7	<Baseline	79.0	75	N
08-Jul-14	Sunny	10:57	67.3	72.4	70.6	<Baseline	79.0	75	N
18-Jul-14	Rainy	17:02	67.9	70.5	73.8	<Baseline	79.0	75	N
24-Jul-14	Cloudy	15:35	72.1	76.2	74.7	<Baseline	79.0	75	N
30-Jul-14	Sunny	9:55	70.6	74.8	72.1	<Baseline	79.0	75	N

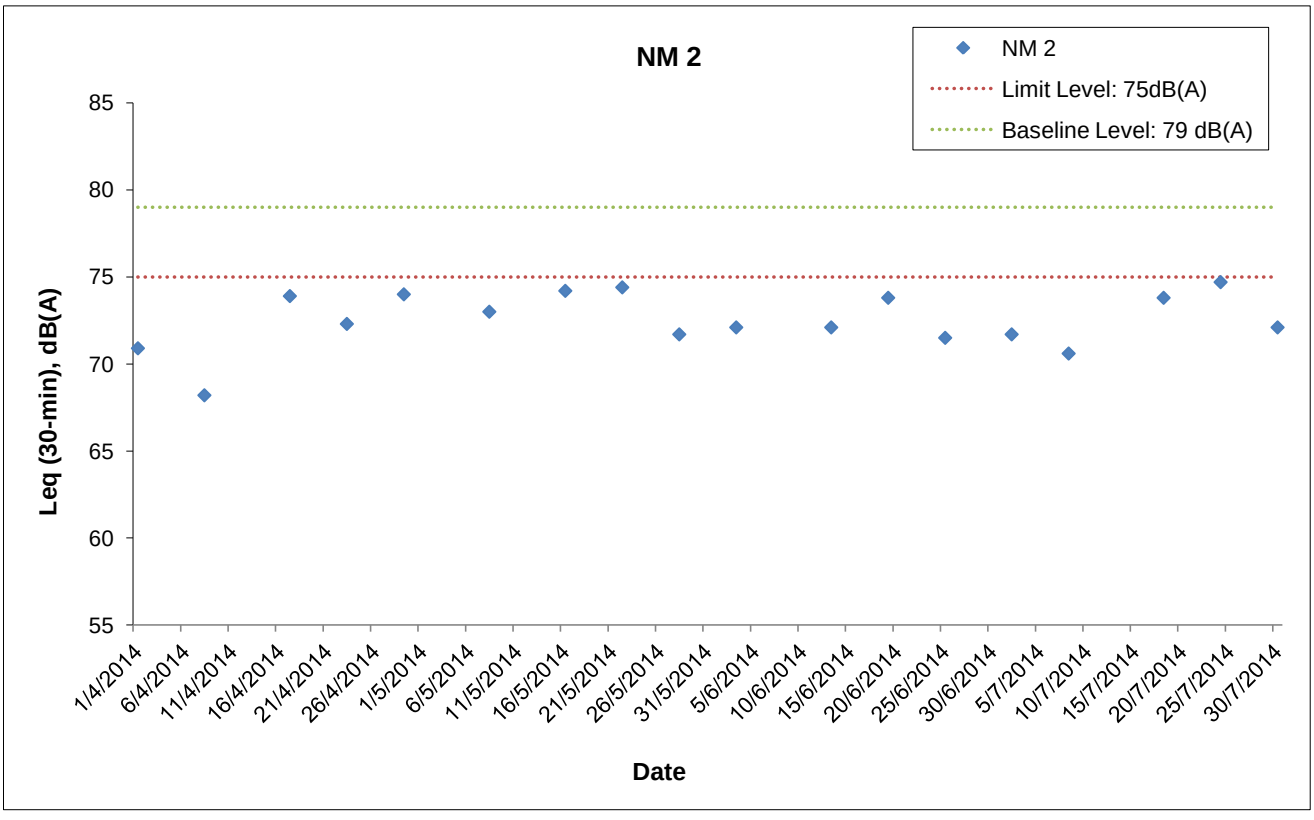
+ - Façade measurement

++ - Free field measurement

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

Appendix H Regular Construction Noise Monitoring Results





* - The noise monitoring results of the measurements are higher than the daytime construction noise criterion. However, the results are not considered as exceedance if they are either below the baseline level or below the limit level after deducting the baseline noise level.

AECOM	**Shatin to Central Link Works Contract 1111- Hung Hom North Approach Tunnels**	SCALE	N.T.S.	DATE	Aug-14
		CHECK	TYUT	DRAWN	IYYS
	Graphical Presentations of Noise Monitoring Results	JOB NO.	60284101	APPENDIX	H
				Rev	-

APPENDIX I

Event Action Plan

Appendix I – Event and Action Plan

Event / Action Plan for Construction Dust

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

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

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

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

Event / Action Plan for Regular Construction Noise

EVENT	ACTION			
	ET	**IEC**	**ER**	**Contractor**
Exceedance of Action Level	1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals.

EVENT	ACTION			
	ET	**IEC**	**ER**	**Contractor**
Exceedance of Limit Level	1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of failure in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event / Action Plan for Continuous Construction Noise

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

Event / Action Plan for Landscape and Visual during Construction Stage

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

APPENDIX J

Cumulative Statistics of Complaints, Notification of Summons and Successful Prosecutions

Appendix J
Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

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

APPENDIX K

Waste Flow Table

Appendix K Monthly Summary Waste Flow Table

Month	Actual Quantities of Inert C&D Materials Generated Monthly (Note 1)														Actual Quantities of Non-inert C&D Materials (i.e. C&D Wastes) Generated Monthly				
	Generated					Disposed				Reused					Recycled			Disposed	
	Fill Material	Artificial Material			Total Quantity Generated	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Disposed as Public Fills at CWPFBP	Total Quantity Disposal	Reused in the Contract	Reused in other Projects		Delivered to HH Barging Point (Note 5)	Total Quantity Reused	Metals	Paper/ cardboard packaging (Note 3)	Plastics	Chemical Waste	General Refuse (Note 2)
	Soil and Rock	Broken Concrete	Asphalt	Building Debris							Tolo	WIL 705							
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)
Jan	1.210	0.016	0.004	0.000	1.230	0.000	1.037	0.004	1.041	0.021	0.000	0.168	0.000	0.189	10.210	1.305	0.000	0.000	139.090
Feb	1.645	0.011	0.000	0.000	1.656	0.000	1.496	0.000	1.496	0.035	0.017	0.108	0.000	0.159	15.640	0.245	0.002	0.000	96.430
Mar	1.485	0.050	0.000	0.000	1.535	0.001	1.384	0.000	1.386	0.075	0.046	0.029	0.000	0.149	7.240	0.287	0.002	0.000	191.550
Apr	1.156	0.023	0.000	0.000	1.179	0.197	0.982	0.000	1.179	0.000	0.000	0.000	0.000	0.000	0.000	0.187	0.000	0.000	107.290
May	2.370	0.020	0.000	0.000	2.390	0.257	1.587	0.000	1.844	0.030	0.000	0.000	0.516	0.546	0.000	0.123	0.002	0.000	110.180
Jun	1.721	0.386	0.040	0.571	2.718	0.174	2.075	0.000	2.249	0.000	0.000	0.000	0.469	0.469	0.000	0.184	0.000	0.000	93.970
SUB-TOTAL	9.586	0.506	0.044	0.571	10.707	0.629	8.562	0.004	9.195	0.161	0.062	0.304	0.985	1.512	33.090	2.331	0.006	0.000	738.510
Jul	1.778	0.010	0.038	0.004	1.830	0.575	0.415	0.000	0.990	0.005	0.497	0.000	0.339	0.840	0.000	0.368	0.014	0.040	92.460
Aug																			
Sep																			
Oct																			
Nov																			
Dec																			
TOTAL	11.364	0.516	0.082	0.575	12.537	1.205	8.977	0.004	10.185	0.166	0.559	0.304	1.323	2.352	33.090	2.699	0.020	0.040	830.970

Note:

1. Assume the density of fill is 2 ton/m^3.
2. Refuses disposed of at North East New Territories (NENT) Landfill.
3. Assume the weight of recycled papers is 7 kg/bag.
4. Public fills disposed of at Tseung Kwan O Area 137 Fill Bank (TKO137), Tuen Mun Area 38 Fill Bank (TM38) and Chai Wan Public Fill Barging Point (CWPFBP).
5. Public fills was delivered to Hung Hom Barging Point and handled by the Contractor of SCL1112.

Appendix E

18th EM&A Report for Works Contract 1103 –
Hin Keng to Diamond Hill

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 18

[Period from 1 to 31 July 2014]

Works Contract 1103 – Hin Keng to Diamond Hill Tunnels

(August 2014)

Certified by: Coleman Ng

Position: Environmental Team Leader

Date: 11/08/2014

MTR Corporation Limited

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

Monthly Environmental Monitoring and Audit Report – July 2014

228105-27

July 2014

Job number 228105-27

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ARUP

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Appendices

Executive Summary

This is the eighteenth monthly Environmental Monitoring and Audit (EM&A) report prepared by Ove Arup & Partners Hong Kong Limited (Arup), the designated Environmental Team (ET), for the Project "SCL1103 Hin Keng to Diamond Hill Tunnels". Construction works of this works contract commenced on 14 February 2013 and this report presents the results of EM&A works conducted in the month of July 2014 (1 to 31 July 2014).

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

- Excavation and ELS for Launching Shaft and Machinery Assembly at Diamond Hill;
- Pipe Piling, Mucking Out, Tunnel Excavation and Drill and Blast for Mined Tunnel at Hin Keng;
- Platform Erection, Diaphragm Wall and Shaft Excavation at Fung Tak; and
- Diaphragm Wall and Shaft Excavation at Ma Chai Hang.

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

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

Environmental Monitoring Works – Breaches of Action and Limit Levels

Air Quality

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

Noise

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

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

Landscape and Visual Audit

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

Waste Disposal

Inert C&D Materials with an actual amount of 5,155m^3 were generated and disposed of at public fill in TKO137FB and Kai Tak Barging Point Facility (Contract 1108A). 65m^3 of general refuse was generated and disposed of at NENT

landfill. 390kg of metals, 175kg of paper/cardboard packaging and 400kg of chemical waste was generated.

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 July 2014 and the final, an IEC joint site audit, was undertaken on 30 July 2014. No non-conformance to the environmental requirements was identified during the reporting period.

Complaint Log

No complaint in relation to the environmental issues was made against the Project in the reporting period.

Notifications of Summons and Successful Prosecutions

No summons or prosecution related to the environmental issues were made against the Project in the reporting period.

Reporting Changes

There were no reporting changes during the reporting month.

Future Key Issues

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

Water Quality impact is also a key environmental issue. The drainage system should be well maintained. All wastewater generated within the site shall be collected and treated prior to discharge.

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

1 Environmental Status

1.1 Project Background

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

The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts and this Works Contract 1103 covers the construction of the tunnels between Diamond Hill (DIH) and Hin Keng (HIK).

1.2 Construction Programme

An up-to-date rolling construction programme is attached in **Appendix A**.

1.3 Work Undertaken During the Reporting Month

The major construction activities carried out by the Contractor in the reporting month are summarized in **Table 1.1**. Location of the works area is indicated in **Figures 1.1** to **1.6**. The structure of the project organisation in relation to the environmental management is shown in **Figure 1.7**. Contacts of key environmental staff of the Project are shown in **Table 1.2**.

Table 1.1 Construction Activities in the Reporting Month

Locations	Major Works Undertaken
Diamond Hill	Excavation and ELS for Launching Shaft and Machinery Assembly.
Hin Keng	Pipe Piling, Mucking Out and Tunnel Excavation and Drill and Blast for Mined Tunnel.
Fung Tak	Platform Erection, Diaphragm Wall and Shaft Excavation.
Ma Chai Hang	Diaphragm Wall and Shaft Excavation.

1.4 Project Organization

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

Table 1.2 Contacts of Key Environmental Staff

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

1.5 Project Area and Environmental Monitoring locations

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

Table 1.3 Summary of Air Quality and Noise Monitoring Stations

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

Note:

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

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

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

1.6 Impact Monitoring Schedule

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

1.7 Status of Environmental Licensing and Permitting

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

Table 1.4 Summary of Environmental Licensing Status

Types of Permits / Licenses	Reference No.	Site	Valid from	Valid to
Environmental Permit	EP-438/2012	All	22 Mar 2012	Superseded
	EP-438/2012A	All	12 July 2012	Superseded
	EP-438/2012/B	All	26 Oct 2012	Superseded
	EP-438/2012/C	All	30 Apr 2013	Superseded
	EP-438/2012/D	All	13 Sept 2013	Superseded
	EP-438/2012/E	All	4 April 2014	Superseded
	EP-438/2012/F	All	15 July 2014	Throughout the Contract
Discharge License under WPCO	WT00014697-2012	Diamond Hill	30 Nov 2012	30 Nov 2017
	WT00014650-2012	Hin Keng	10 Dec 2012	31 Dec 2017
	WT00014648-2012	Hin Keng	10 Dec 2012	31 Dec 2017
	WT00015145-2013	Shui Chuen O	21 Feb 2013	28 Feb 2018
	WT00015513-2013	Ma Chai Hang	2 Apr 2013	30 Apr 2018
	WT00015430-2013	Fung Tak	18 Mar 2013	31 Mar 2018
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation	351345	All	22 Oct 2012	15 Apr 2018
Construction Noise Permit (CNP)	GW-RE0482-14	Ma Chai Hang	12 May 2014	11 Nov 2014
	GW-RE0779-14	Fung Tak	23 July 2014	31 Aug 2014
	GW-RE0195-14	Fung Tak	28 Feb 2014	27 Aug 2014
	GW-RN0384-14	Hin Keng	11 July 2014	10 Nov 2014
	GW-RN0344-14	Hin Keng	12 June 2014	11 Nov 2014
	GW-RN0274-14	Hin Keng	10 May 2014	Superseded
	GW-RE0627-14	Diamond Hill	13 June 2014	5 Sept 2014
	GW-RE0774-14	Diamond Hill	1 Aug 2014	31 Aug 2014

Types of Permits / Licenses	Reference No.	Site	Valid from	Valid to
Chemical Waste Producer Registration	5213-759-V2179-01	Hin Keng	13 Dec 2012	Throughout the Contract
	5213-281-V2180-01	Diamond Hill	12 Dec 2012	Throughout the Contract
	5213-281-V2179-03	Fung Tak	5 Mar 2013	Throughout the Contract
	5213-282-V2180-02	Ma Chai Hang	18 Mar 2013	Throughout the Contract
Billing Account for Disposal of Construction Waste	7016250	All	2 Nov 2012	Throughout the Contract

1.8 Purpose of the Report

The purpose of this monthly EM&A report is to provide the information on monitoring methodology, monitoring results, environmental permit status, site audit findings, recommendations and conclusions during the construction of this works contract for the EM&A conducted during the construction period. This is the eighteenth monthly EM&A report summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the air quality, noise, ecology, waste management, landscape and visual monitoring and environmental site audit from 1 to 31 July 2014.

2 Implementation Status

2.1 Implementation Status of Mitigation Measures

During weekly site inspections, the environmental protection, and pollution control/mitigation measures in accordance with the requirements stipulated in the EIA were observed. The key observations and ET's corresponding recommendations while the Contractor's response and follow-up status are described in **Section 7.1**.

2.2 Updated Implementation Schedule

According to the Environmental Permit, the mitigation measures detailed in the permits are required to be implemented. The Implementation Schedule of Mitigation Measures was inspected during the weekly site inspections in reporting month. The details of the findings/observations are described in **Section 7.1**. An updated summary of the Implementation Schedule of Mitigation Measures is presented in **Appendix C**. The status of the required submissions under the Environmental Permit (EP) of the reporting period is presented in **Table 2.1**.

Table 2.1 Status of Required Submissions under the EP

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

3 Air Quality Monitoring

3.1 Air Quality Monitoring Requirements

Monitoring Parameters

Regular 24-hour TSP levels shall be monitored during the construction stage while 1-hour TSP levels shall be required to monitor in case of complaints received.

Monitoring Frequency

The monitoring frequency is summarised in **Table 3.1**.

Table 3.1 Air quality monitoring parameters and frequency

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

Monitoring Locations

In accordance with the EM&A Manual and the subsequent Baseline Monitoring Report, three air quality monitoring locations during construction stage are required. The locations of the three air quality monitoring stations are shown below in **Table 3.2**:

Table 3.2 Air Quality Monitoring Locations

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

Note:

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

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

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

Wind Monitoring

Wind monitoring data including wind speed and wind directions shall be collected from Hong Kong Observatory – Kai Tak and Sha Tin Meteorological Stations and shown in **Appendix F**.

Environmental /Quality Performance Limits

The monitoring results will be checked against the Action and Limit levels described in the Baseline Monitoring Report, of which they are excerpted and summarised in **Tables 3.3** and **3.4.**

Table 3.3 Action and Limit Level for Air Quality Monitoring of 24-hour TSP level

Level	Air Monitoring Stations		
	DMS-1	DMS-2	DMS-3 / DMS-4
Action Level, μg/m^3	148.7	167.4	159.1
Limit Level, μg/m^3	260		

Table 3.4 Action and Limit Level for Air Quality Monitoring of 1-hour TSP level

Level	Air Monitoring Stations		
	DMS-1	DMS-2	DMS-3 / DMS-4
Action Level, 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

Equipment	Manufacturer & Model No	Measurement Parameter	Serial No.
High Volume Sampler	TE-5170	24-hour TSP	3761, 3762, 3763
Fibreglass Filter	G810		-
HVS Calibration Kit	GMW-2535		2421

3.2.2 Maintenance and Calibration

High Volume Sampler

The HVSs and their accessories were frequently checked and maintained in accordance with the manufacturer's operation and maintenance manual. The maintenance included checking of supporting screen and gasket, as well as routine replacement of motor carbon brushes for the blower motor. The power cords and power supply were checked each time before sampling to ensure proper operation.

The HVSs were calibrated at 2-month intervals using GMW-2535 calibration kit which is re-calibrated by the manufacturer after one year of use. The calibration spreadsheets of the HVSs and calibration certificate of the calibration kit are provided in **Appendix D**.

3.2.3 Monitoring Procedures

High Volume Sampler

Specifications of the HVS are as follows:

- 0.6 – 1.7 m^3/min (20 – 60SCFM);

- Equipped with a timing/control device with +/- 5 minutes accuracy for 24 hour operation;
- Installed with elapsed time meter with +/- 2 minutes accuracy for 24 hour operation;
- Capable of providing a minimum exposed area of 406 cm^2 (63in^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

July 2014 was characterised by gloomy and rainy conditions associated with low pressure. Between the 16 and 18 July, Severe Typhoon Rammasun affected Hong Kong bringing Strong Winds to Hong Kong.

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

3.3.2 Quality Monitoring Results

Monitoring of 24-hour TSP was conducted on 3, 9, 15, 21, and 26 July 2014. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix E** and are summarised in **Table 3.6**. The graphical presentations of the monitoring results are provided in **Appendix E**. Wind data obtained from the Hong Kong Observatory – Kai Tak and Sha Tin stations during the reporting period are presented in **Appendix F**.

Table 3.6 Summary of Impact Air Quality Monitoring Results

Monitoring Station	24- hour TSP Monitoring Results (μg/m$^{3)}$		Action Level	Limit Level
	Average	Range		
DMS-1	25.1	26.1	148.7	260
DMS-2	23.6	18.6	167.4	260
DMS-3 / DMS-4	27.2	19.3	159.1	260

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

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

3.3.3 General Observations

Major construction works including excavation and ELS for launching shaft and machinery Assembly at Diamond Hill; pipe piling, mucking out and excavation and ELS at Hin Keng; and Platform Erection, Diaphragm Wall and Shaft Excavation at Fung Tak.

4 Noise Monitoring

4.1 Noise Monitoring Requirements

4.1.1 Impact Monitoring

Monitoring Parameters

Construction noise shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). L_{10} and L_{90} shall also be recorded as supplementary reference information for data auditing.

Monitoring Frequency

Noise measurements shall be conducted on a weekly basis. The monitoring time periods, monitoring parameters and frequency are summarised in **Table 4.1.**

Table 4.1 Construction Noise Monitoring Parameters and Frequency

Time Period (when construction activity is found)	Parameters	Monitoring Frequency
Between 0700-1900 hours on normal weekdays	$L_{eq(30\ min)}$	Once per week

Monitoring Location

In accordance with the EM&A Manual and the subsequent Baseline Monitoring Report, three noise monitoring locations during the construction stage are required, namely:

Table 4.2 Noise Monitoring Locations

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

Notes:

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

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

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

Environmental /Quality Performance Limits

The monitoring results will be checked against the Action and Limit levels described in the Baseline Monitoring Report, of which they are excerpted and summarised in **Tables 4.3**.

Table 4.3 Action and Limit Levels of construction noise

Location (Note 1)	Time Period (note 3)	Action Level	Limit Level dB(A)
NMS-CA-1 & NMS-CA-2	0700 - 1900 hours on normal weekdays	When one documented complaint is received	70/65 (Note 2)
NMS-CA-3 / NMS-CA-4			70

Notes:

1. The detail of monitoring locations was presented in Table 1.3.
2. For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods respectively.
3. If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

4.2 Noise Monitoring Methodology

4.2.1 Monitoring Equipment

Noise level was measured by a Sound Level Meter (SLM) in terms of A-weighted equivalent continuous sound pressure level. 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 List for Impact Noise Monitoring

Equipment	Manufacturer & Model No.	Serial No.	Precision Grade
Integrated SLM	Brüel & Kjær 2238	2562763	IEC 651 Type 1 IEC 804 Type 1
	Brüel & Kjær 2238	2654435	
Sound level calibrator	Brüel & Kjær 4231	2713427	IEC 942 Type 1
	Rion NC-74	34304660	

4.2.2 Maintenance and Calibration

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

SLM complying with the standards of IEC 651 (Fast, Slow, Impulse rms detector tests) and IEC 804 (L_{eq} functions) and acoustical calibrator complying with IEC 942 were adopted for the noise measurement. All equipments are calibrated externally. The calibration certificates for the noise equipment are given in **Appendix G**.

4.2.3 Monitoring Procedures

- The SLM and battery were checked to ensure that they are in proper condition. The SLM was set on a tripod at 1.2m above ground and at least 1m from the exterior of the building façade;
- Before conducting the measurement, the SLM was calibrated by an acoustical calibrator;

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

4.3 Monitoring Results and Observations

4.3.1 Weather Condition

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

4.3.2 Noise Monitoring Results

Impact Monitoring

Monitoring of the construction noise level was conducted on 4, 10, 16, 22 and 28 July 2014. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix H** and are summarised in **Tables 4.5 - 4.7**. The graphical presentations of the monitoring results are provided in **Appendix H**.

Table 4.5 Summary of Impact Noise Monitoring at Location NMS-CA-1

Date	Time	Measured Noise Level, dB(A)	Baseline Noise Level, dB(A)	Construction Noise Level(Note1), dB(A)	Limit Level (Note 2)
		Leq (30min)	Leq (30min)	Leq (30min)	dB(A)
4 July 14	10:10-10:40	58.6	57.0	53.5	70/65
10 July 14	13:05-13:35	59.1		54.9	
16 July 14	09:05-09:35	59.6		56.1	
22 July 14	09:00-09:30	58.8		54.1	
28 July 14	09:00-09:30	57.8		50.1	

Notes:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.
2. For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods respectively.

Table 4.6 Summary of Impact Noise Monitoring at Location NMS-CA-2

Date	Time	Measured Noise Level, dB(A)	Baseline Noise Level, dB(A)	Construction Noise Level(Note1), dB(A)	Limit Level (Note 2)
		Leq (30min)	Leq (30min)	Leq (30min)	dB(A)
4 July 14	12:50-13:20	69.2	66.0	66.4	70/65
10 July 14	08:30-09:00	68.6		65.1	
16 July 14	11:50-12:20	69.5		66.9	
22 July 14	12:55-13:25	69.8		67.5	
28 July 14	12:40-13:10	69.8		67.5	

Notes:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.
2. For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods respectively.

Table 4.7 Summary of Impact Noise Monitoring at Location NMS-CA-3/NMS-CA-4

Date	Time	Measured Noise Level, dB(A)	Baseline Noise Level, dB(A)	Construction Noise Level(Note1), dB(A)	Limit Level (Note 2)
		Leq (30min)	Leq (30min)	Leq (30min)	dB(A)
4 July 14	14:05-14:35	68.5	73.0	< Baseline Level	70/65
10 July 14	10:10-10:40	68.8		< Baseline Level	
16 July 14	13:20-13:50	68.2		< Baseline Level	
22 July 14	11:00-11:30	67.5		< Baseline Level	
28 July 14	14:00-14:30	68.4		< Baseline Level	

Notes:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.
2. For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods respectively.

4.3.3 Exceedance of Limit and Action Levels for Construction Noise

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

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

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

4.3.4 General Observations

The construction site has been under normal operation during the noise monitoring period and no unusual operation was observed.

5 Landscape and Visual Monitoring

5.1 Introduction

In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The event and action plan is provided in **Appendix I**.

5.2 Mitigation Measures

Bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting month on 2 and 16 and 30 July 2014. During the site inspections the following actions were found to be required:

30 July 2014

- The contractor is reminded to remove construction materials from the tree protection zone.

6 Waste Disposal

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

Table 6.1 Amount of Waste Generated

Waste Type	Amount	Disposal Locations
Inert C&D Materials	5,155m^3	TKO137FB and Kai Tak Barging Point Facility (1108A)
Chemical Waste	400kg	Disposed of by a licensed collector
Paper / cardboard packaging	175kg	-
Plastic	0	
Metal	390kg	
General Refuse	65m^3	NENT Landfill

7 Environmental Performance

7.1 Environmental Site Inspection

Environmental site inspections were carried out on a weekly basis, with the IEC joint site inspection being carried out on 30 July 2014, to monitor environmental issues on the construction sites to ensure that all mitigation measures were implemented timely and properly. A summary of the site inspections in the reporting month is presented in **Table 7.1**.

Table 7.1 Key Findings of Weekly Environmental Site Audit

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
Water				
2 July 2014	Diamond Hill	The contractor is reminded to ensure that sandbags at the site entrance are sufficient enough to avoid water seepage.	Agreed with ET's Advice.	The contractor rectified the issue and ensured sufficient sand bags were placed. Closed 9 June 2014.
23 July 2014	Hin Keng	Overflow of sedimentation tank was observed prior to entering the WWTP. The contractor shall rectify and ensure there is no leakage to public storm drain without proper treatment.	Agreed with ET's Advice.	The contractor rectified the issue and ensured there was no leakage. Closed 30 July 2014.
Air				
2 and 16 July 2014	Ma Chai Hang	The contractor is reminded to ensure that stockpiles are covered with a tarpaulin sheet.	Agreed with ET's Advice.	The contractor rectified the issue and ensured stockpiles were covered. Closed 9 July 2014.
Noise				
16 July 2014	Ma Chai Hang	The contractor is reminded to ensure that noise mitigation measures are effectively implemented.	Agreed with ET's advice.	The contractor rectified the issue and ensured noise mitigated measures were effectively implemented. Closed 23 July 2014.
23 July 2014	Fung Tak	The contractor is reminded to promptly re-install noise barriers after the typhoon	Agreed with ET's Advice.	The contractor rectified the issue and

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
		event has passed.		ensured noise barriers were re-installed. Closed 30 July 2014.
Waste				
25 June 2014	Ma Chai Hang and Fung Tak	The contractor is reminded to ensure that drip trays are sealed and that they are not sued for construction storage purposes.	Agreed with ET's Advice.	The contractor rectified the issue and ensured drip trays were used properly. Closed 16 July 2014.
9 July 2014	Hin Keng	The contractor is reminded to dispose of the general refuse regularly near the spoil disposal area.	Agreed with ET's Advice.	The contractor rectified the issue and regularly disposed of general refuse. Closed 16 July 2014.
23 July 2014	Diamond Hill	The contractor is reminded to ensure that all air compressors and chemical containers have the provision of a drip tray.	Agreed with ET's Advice.	The contractor rectified the issue and regularly disposed of general refuse. Closed 30 July 2014.
Landscape and Visual				
30 July 2014	Hin Keng	The contractor is reminded to remove construction materials from the tree protection zone.	Agreed with ET's Advice.	The contractor will follow up. The status will be reported by the ET in the next reporting month.

7.2 Summary of Environmental Complaint

No environmental complaints regarding environmental issue were recorded in the reporting month. The updated statistical summary of complaint is presented in **Table 7.2**. The updated complaint logs, if any, of the Project in the reporting month is shown in **Appendix L**.

Table 7.2 Summary of Complaints

Reporting Period	Complaint Statistics		Area of Concern	Validity to the Project	Status
	Number	Cumulative			
01/07/14–31/07/14	0	0	N/A	N/A	N/A

7.3 Summary of Environmental Non-Compliance

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

7.4 Summary of Environmental Summon and Successful Prosecution

No summons of prosecutions related to environmental issues were received or made against the project in the reporting month. Please refer to **Appendix L** for a Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions.

8 Future Key Issues

8.1 Key Issues for the Coming Month

Works to be undertaken in the coming reporting month are summarised in **Table 8.1** below.

Table 8.1 Tentative Programme of Construction Works for the Coming Month

Locations	Major Works Undertaken
Diamond Hill	Excavation and ELS for Launching Shaft and Machinery Assembly.
Hin Keng	Pipe Piling, Mucking Out and Tunnel Excavation for Mined Tunnel.
Fung Tak	Platform Erection, Diaphragm Wall and Shaft Excavation.
Ma Chai Hang	Diaphragm Wall and Shaft Excavation.

8.2 Environmental Monitoring Program for the Coming Month

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

8.3 Construction Program for the Coming Month

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

9 Conclusions and Recommendations

9.1 Conclusions

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

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

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

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

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

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

9.2 Recommendations

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

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

Water Quality impact is also a key environmental issue. The drainage system should be well maintained. All wastewater generated within the site shall be collected and treated prior to discharge.

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

10 Reference

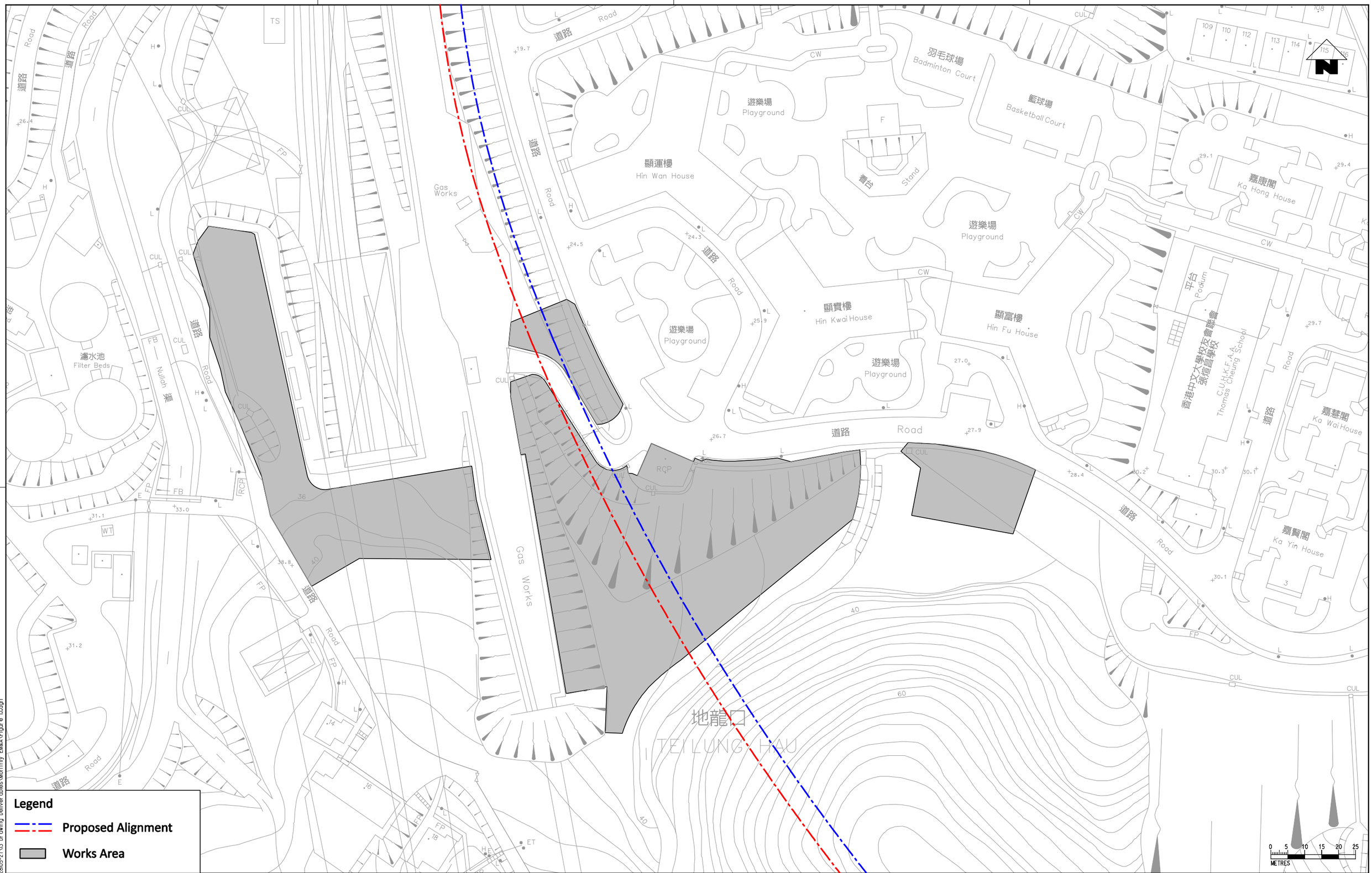
(1) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Tai Wai to Hung Hom Section. Final Environmental Impact Assessment Report. October 2011.

(2) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Tai Wai to Hung Hom Section. Environmental Monitoring and Audit Manual. October 2011.

(3) MTR Corporation Limited. SCL – NEX/2206 EIA Study for Stabling Sidings at Hung Hom Freight Yard. Final Environmental Impact Assessment Report. October 2011.

(4) MTR Corporation Limited. SCL - NEX/2206 EIA Study for Stabling Sidings at Hung Hom Freight Yard. Environmental Monitoring and Audit Manual. October 2011.

Figures



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A	FIRST ISSUE	GL	12/12	ST

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ORIGINATOR

ARUP Ove Arup & Partners Hong Kong Limited

CADD REF.

TITLE

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

SCALE	DRAWING NO.	REV.
1:1000 (A3)	Figure 1.1	A

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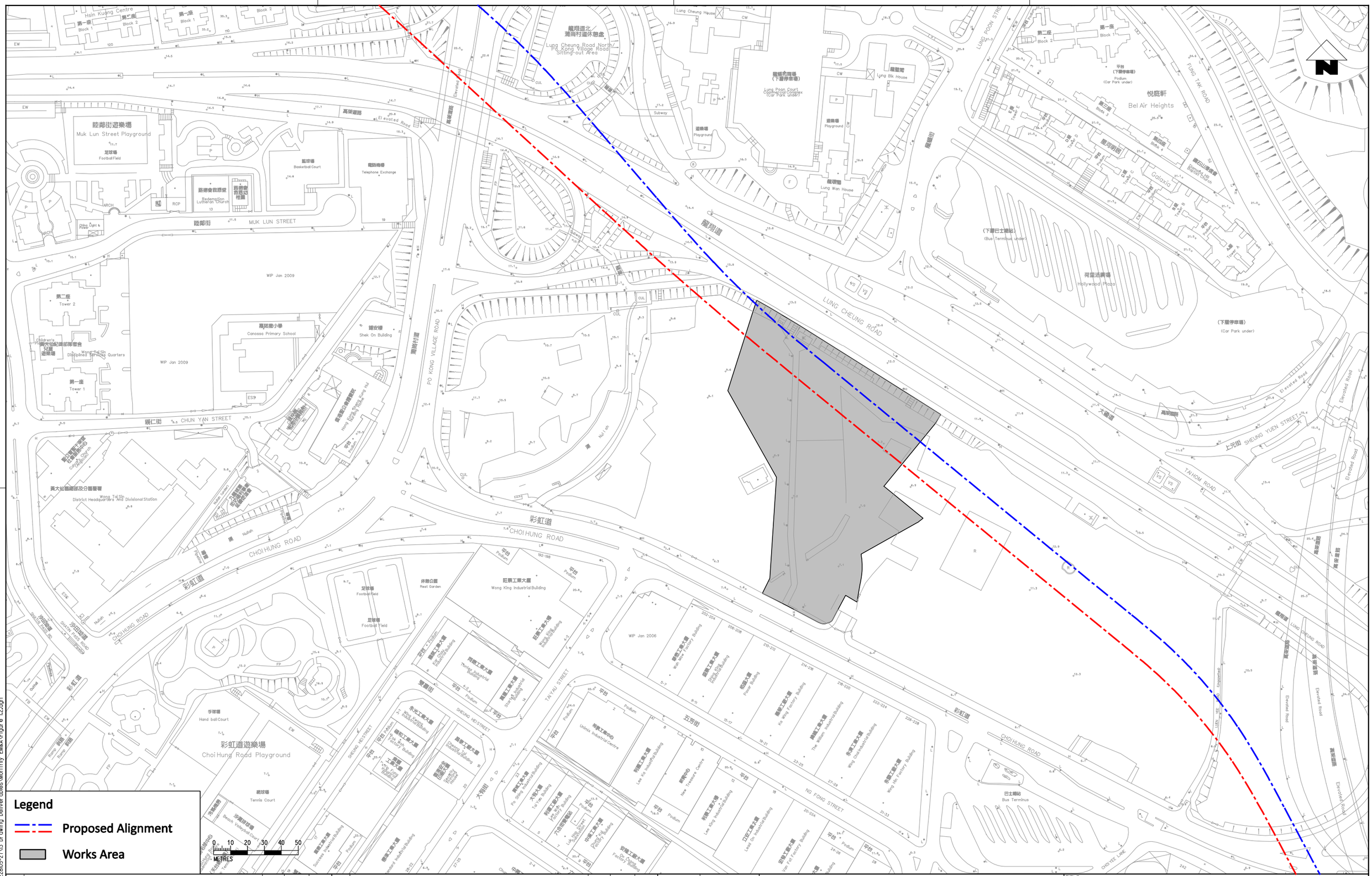

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TITLE

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

SCALE	DRAWING NO.	REV.
1:2000 (A3)	Figure 1.2	A

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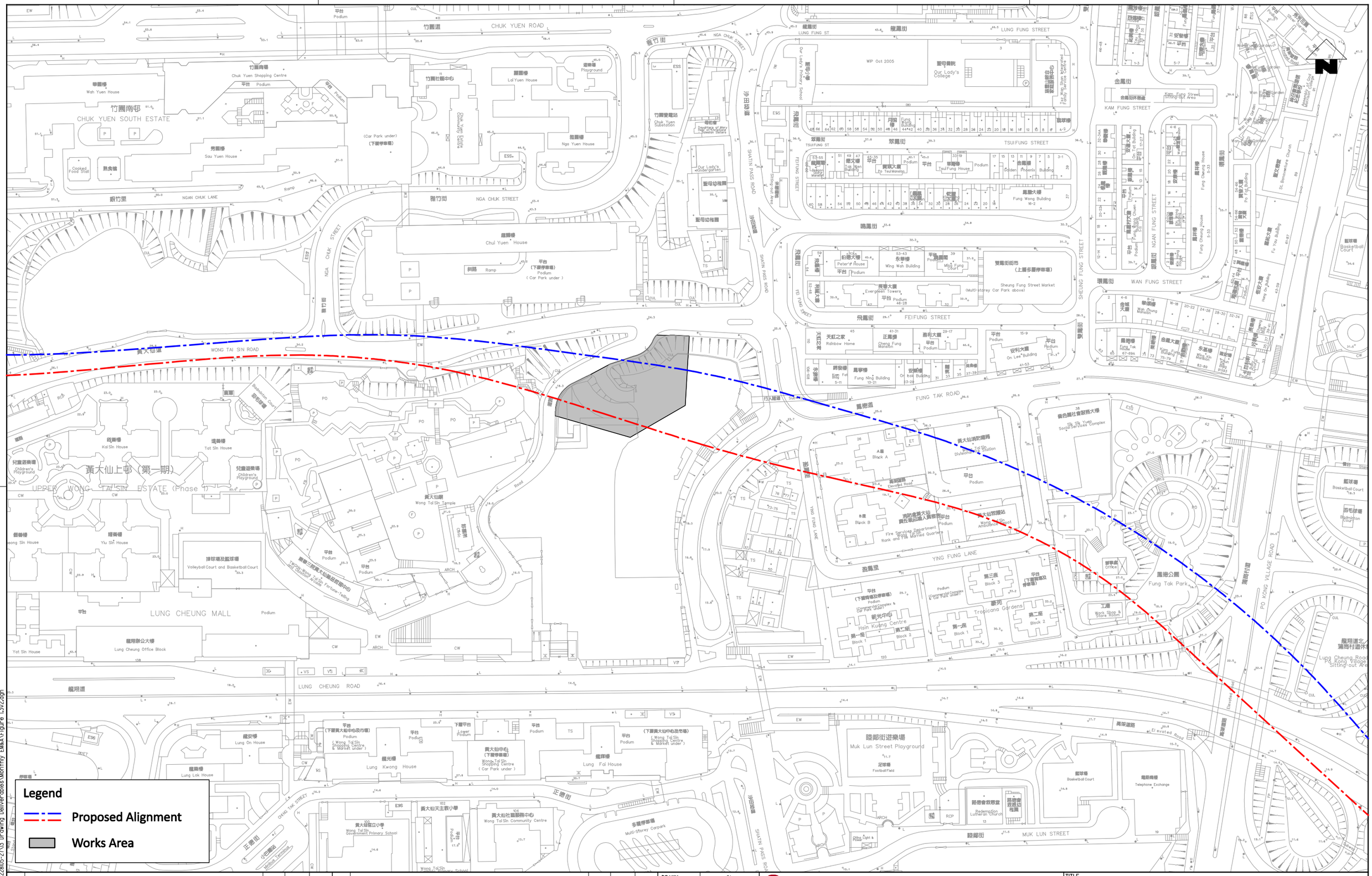

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TITLE

CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Project Works Areas - Site Layout Plan of Fung Tak EAP/EEP Building (Sheet 3 of 6)

SCALE	DRAWING NO.	REV.
1:2000 (A3)	Figure 1.3	A

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TITLE
CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Project Works Areas
- Site Layout Plan of Ma Chai Hang Shaft
(Sheet 4 of 6)

SCALE 1:2000 (A3) | DRAWING NO. Figure 1.4 | REV. A

REV	DESCRIPTION	BY	DATE	APPROVED
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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)

SCALE	DRAWING NO.	REV.
1 : 2000 (A3)	Figure 1.5	A

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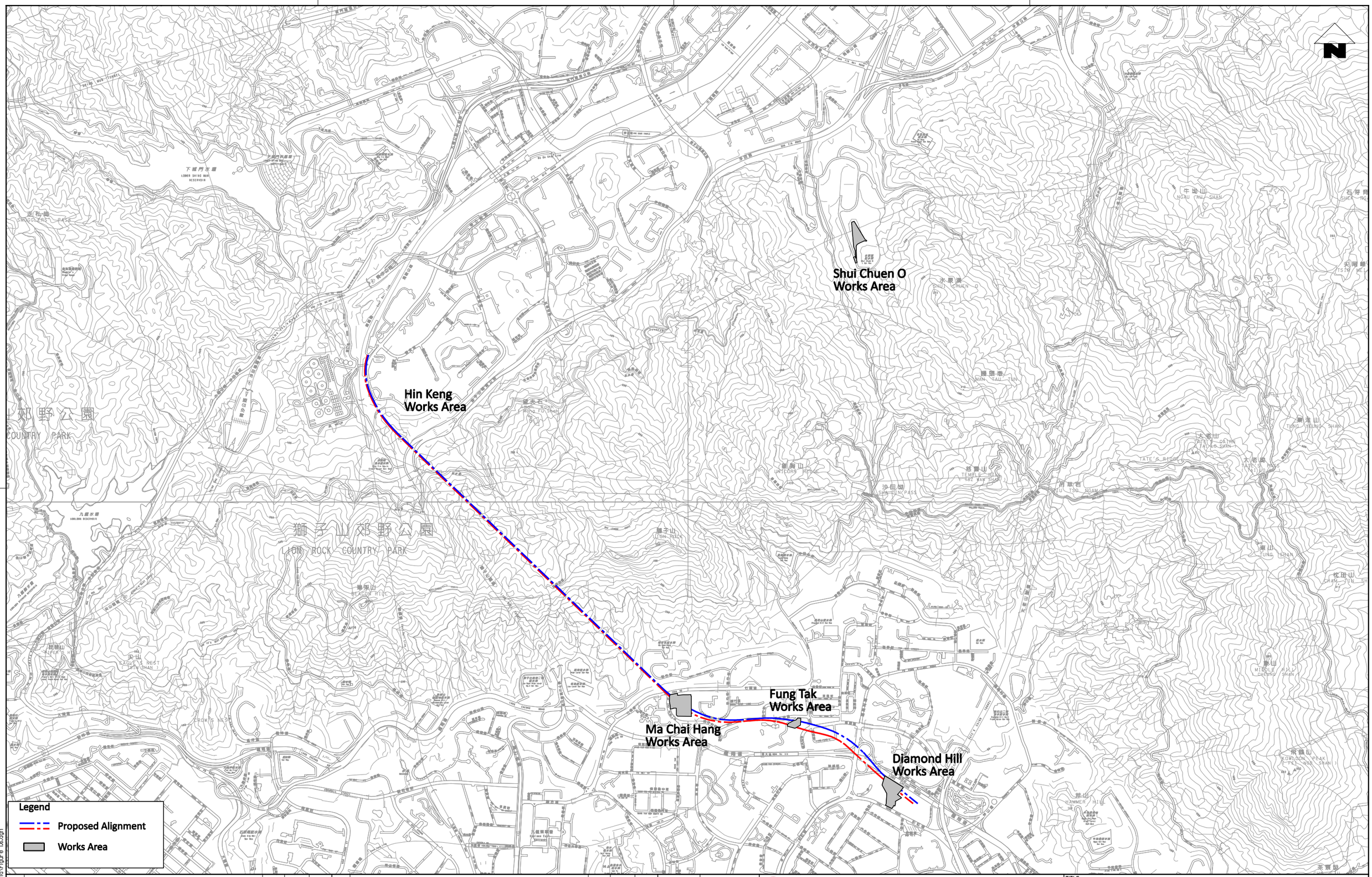

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DATE	03/13

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TITLE

CONTRACT 1103

HIN KENG TO DIAMOND HILL TUNNELS

Locations of Project Works Areas
- General Alignment of Contract 1103
(Sheet 6 of 6)

SCALE	DRAWING NO.	REV.
1:20000 (A3)	Figure 1.6	B

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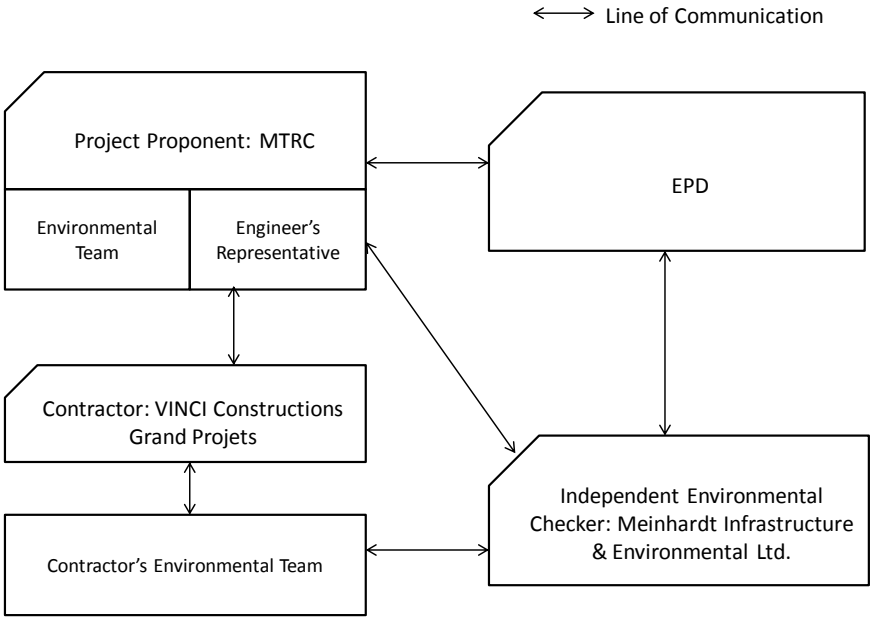
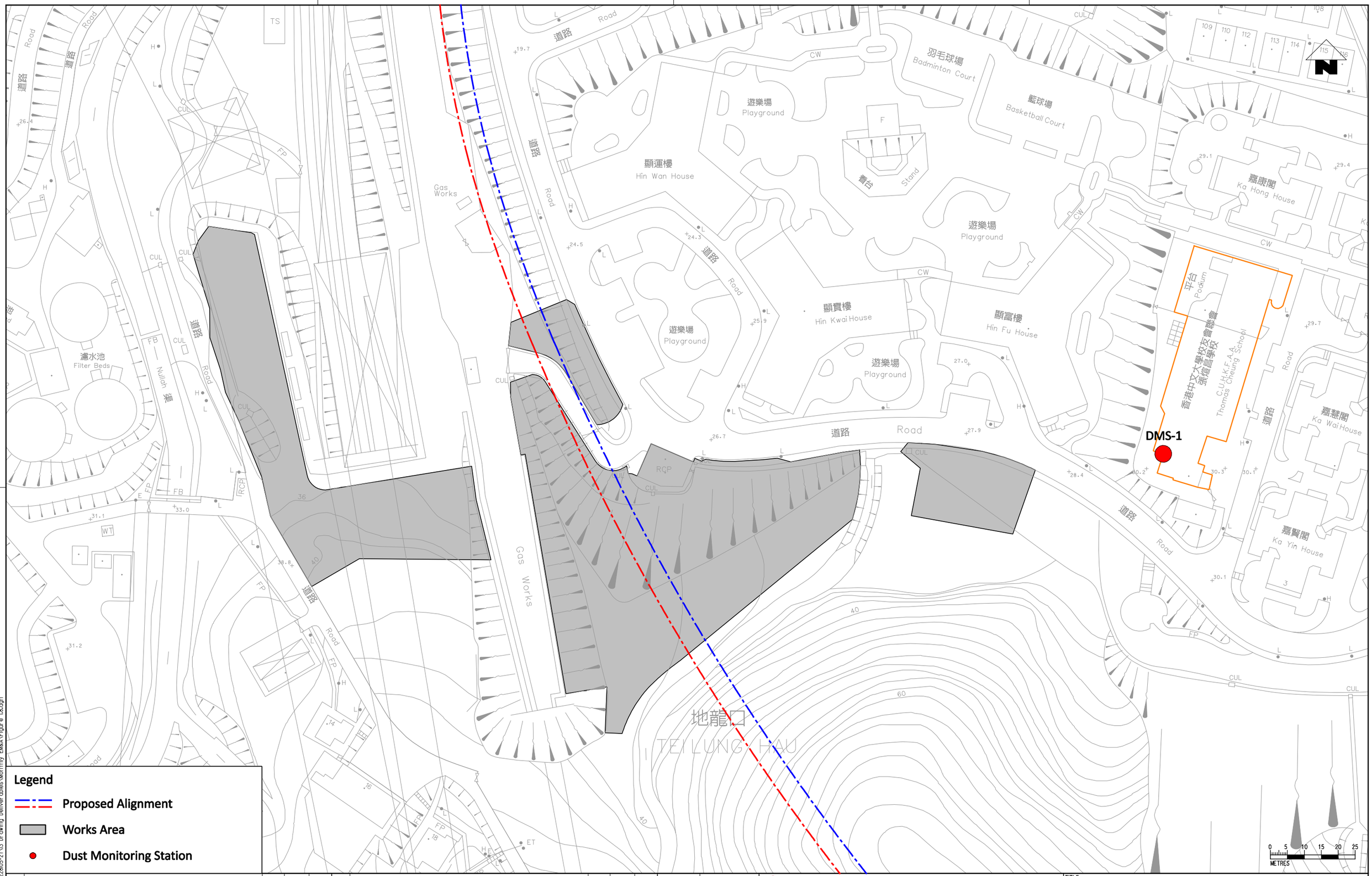
Figure 1.7 - Project Organisation for Environmental Works





Legend

- Proposed Alignment
- Works Area
- Dust Monitoring Station

REV	DESCRIPTION	BY	DATE	APPROVED
A	FIRST ISSUE	GL	12/12	ST

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TITLE

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

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

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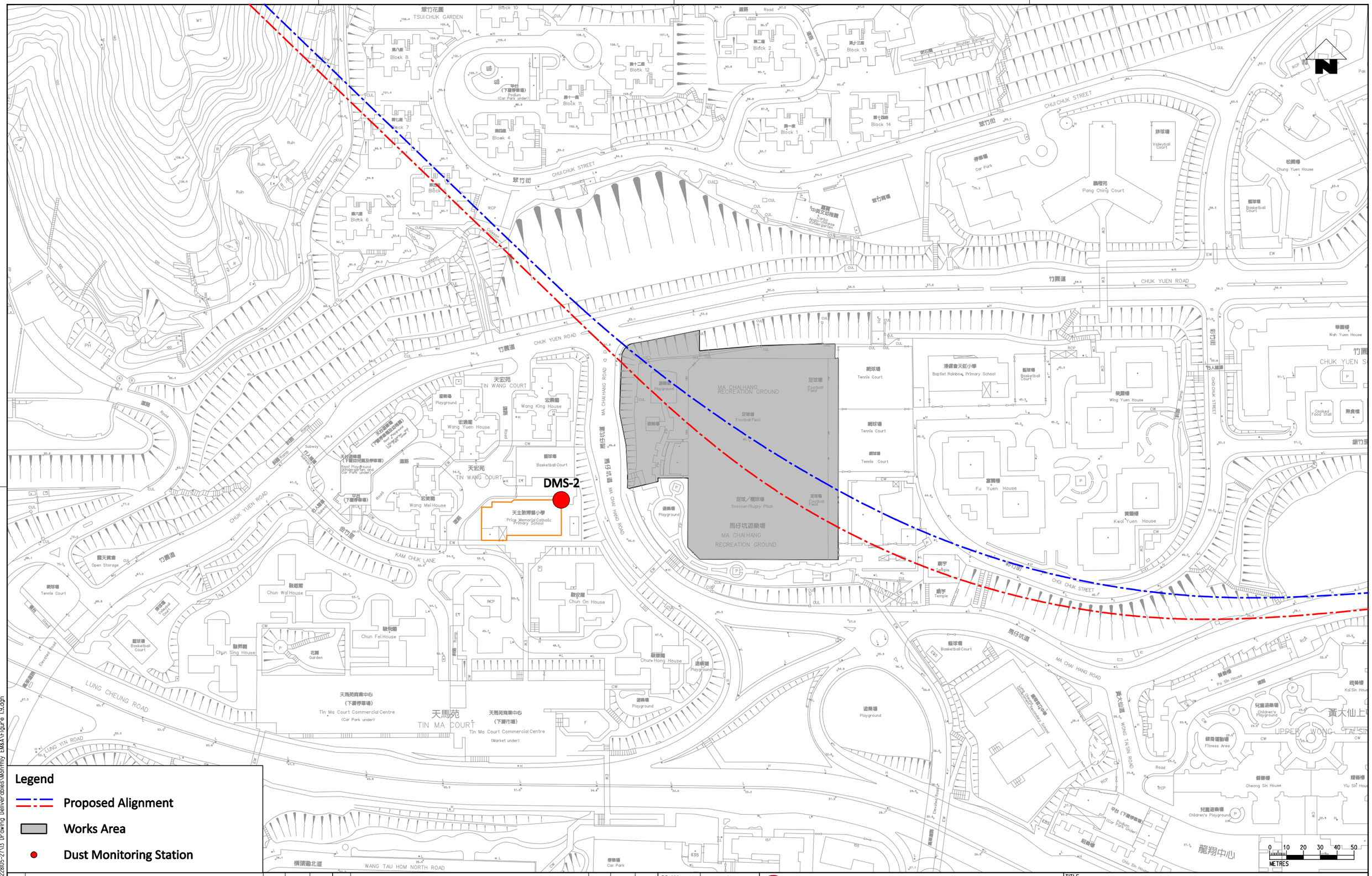

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CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Proposed Dust Monitoring Stations
(Sheet 2 of 3)

SCALE	DRAWING NO.	REV.
1:2000 (A3)	Figure 1.9	A

DMS-3/DMS-4

Legend

- Proposed Alignment
- Works Area
- Dust Monitoring Station

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

SCALE 1:2000 (A3)

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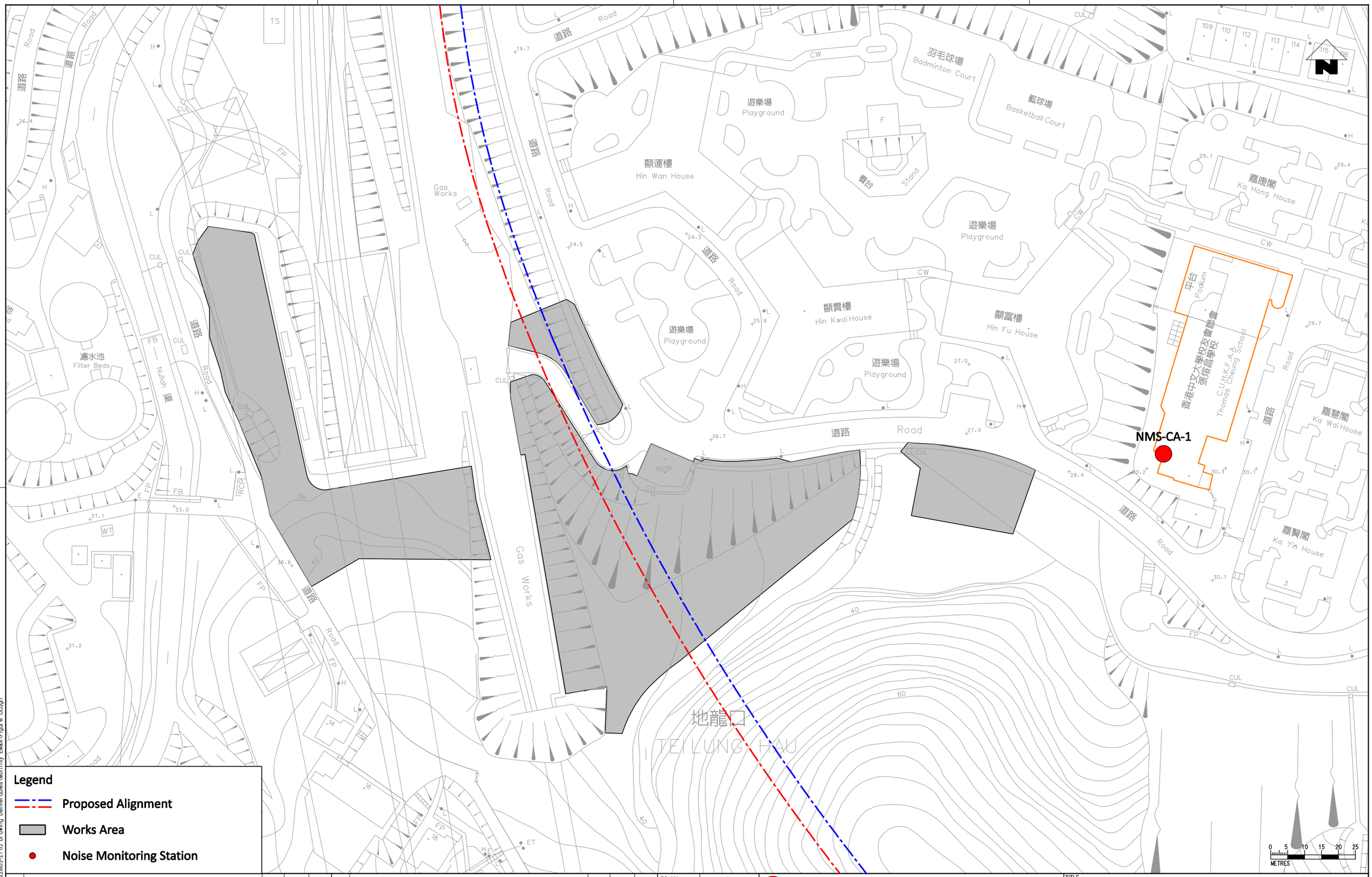
REV. A



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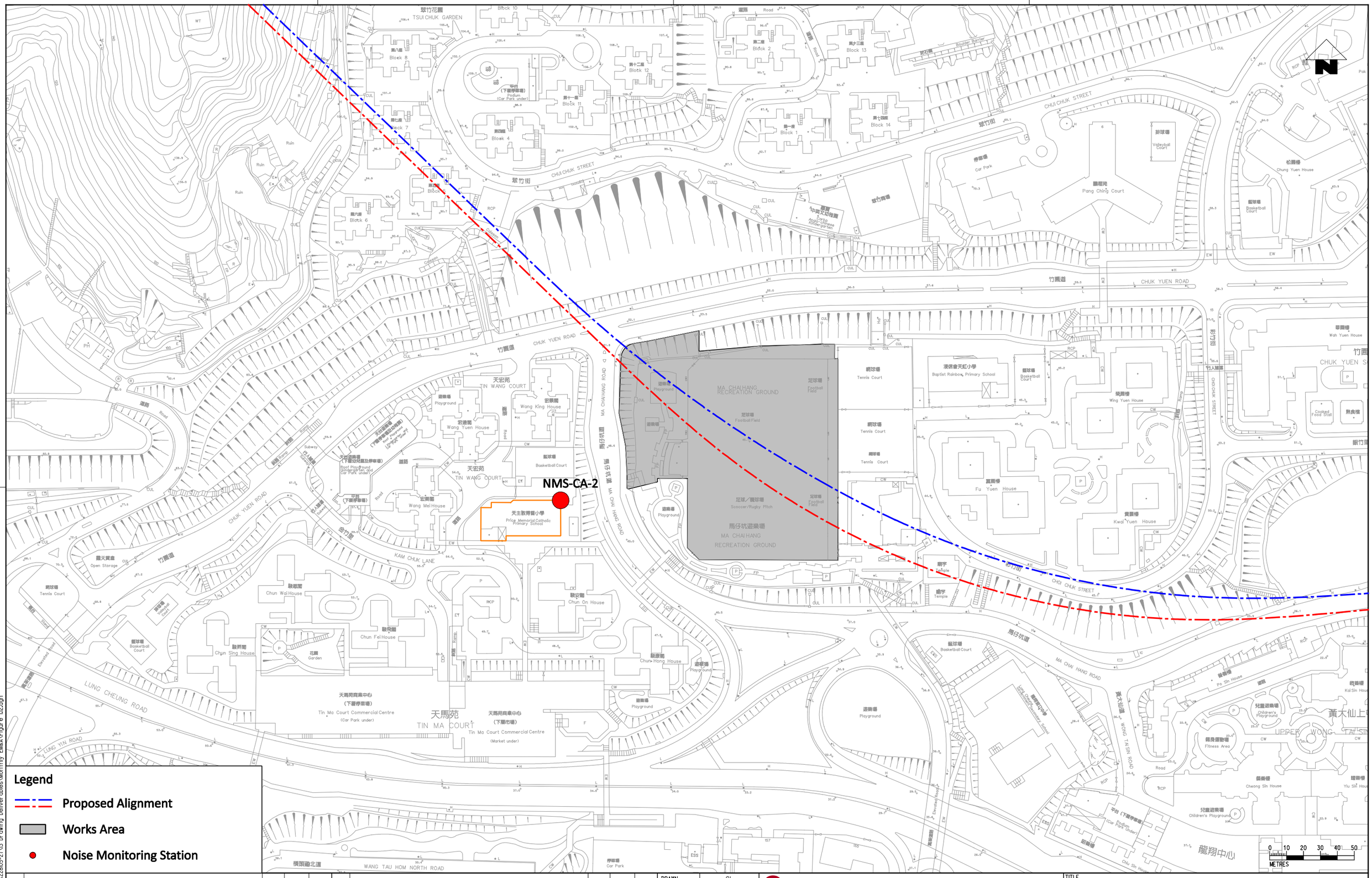
TITLE

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

SCALE	DRAWING NO.	REV.
1:1000 (A3)	Figure 1.11	A



Legend

- Proposed Alignment
- Works Area
- Noise Monitoring Station

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TITLE

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

SCALE	DRAWING NO.	REV.
1:2000 (A3)	Figure 1.12	A

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NMS-CA-3/NMS-CA-4

Legend

- Proposed Alignment
- Works Area
- Noise Monitoring Station

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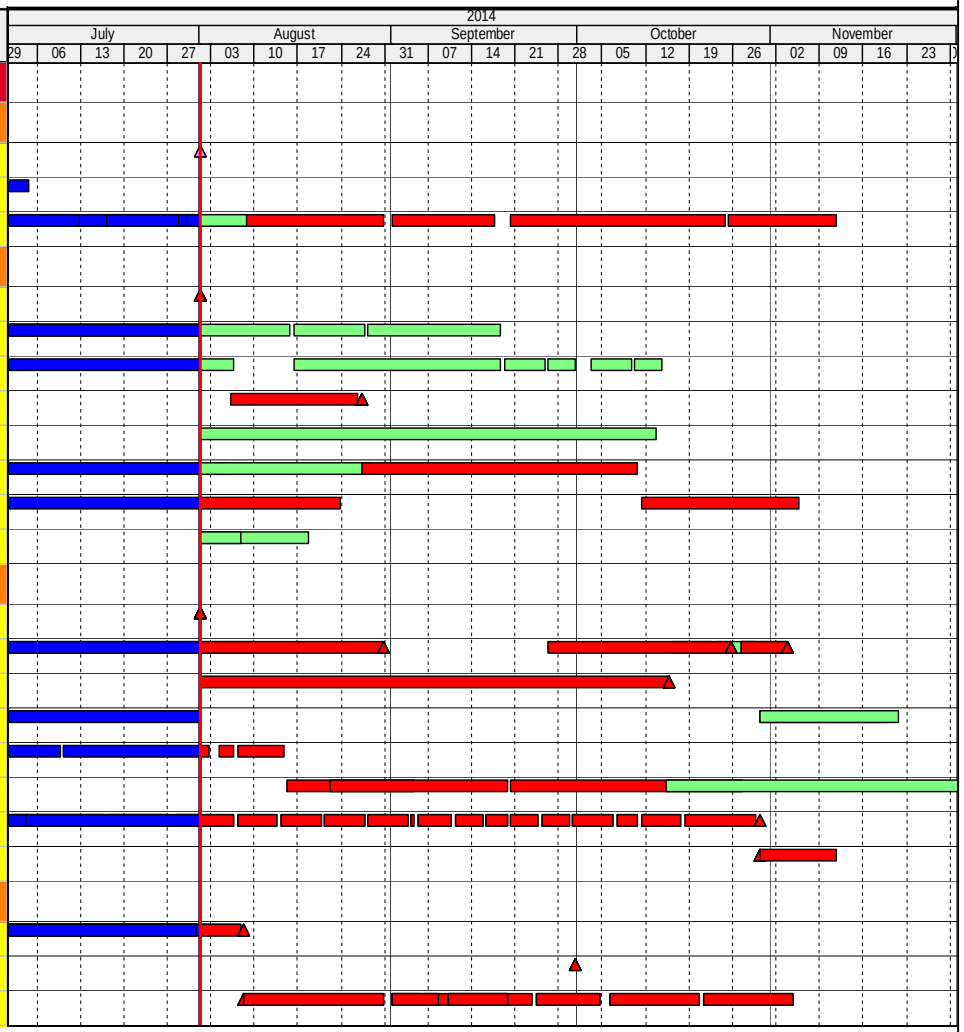
TITLE
CONTRACT 1103
HIN KENG TO DIAMOND HILL TUNNELS
Locations of Noise Monitoring Stations
(Construction Airborne Noise)
(Sheet 3 of 3)

SCALE 1:2000 (A3)
DRAWING NO. Figure 1.13
REV. A

Appendix A

Construction Programme

Activity ID	Activity Name	Original Duration	Start	Finish	Physical % Complete	Total Float
CONTRACT 1103:- HIN KENG TO DIAMOND HILL TUNNELS						
COST CENTER F - MA CHAI HANG VENTILATION BUILDING (MCV)						
	MCV - Site Preparation					
	MCV - Diaphragm Wall					
	MCV - Shaft Excavation and ELS					
COST CENTER G - FUNG TAK EAP/EEP BUILDING (FTA)						
	COST CENTER G - Milestone Schedule - FTA					
	FTA - Utilities					
	FTA - Shaft Excavation and ELS					
	PTT - Subway Pedestrians Diversion					
	PTT - Utilities and Services Diversion					
	PTT - Demolition and Site Clearance					
	PTT - Sheet Pile Retaining Wall					
	PTT - Excavation and ELS					
COST CENTER H - HIN KENG WORKING SHAFT						
	COST CENTER H - Milestone Schedule - HIK Shaft					
	HIK - Site Preparation					
	HIK - Gas Access Road and Gas Bridge					
	HIK - Pipe Pile and Grouting					
	HIK - Excavation and ELS					
	HIK - C&S for HIK Cut & Cover Tunnel					
	Undrained Tunnels without Ventilation Duct (Ch D93+176 to D93+300)					
	Excavation and Temporary Support from HIK (Ch D93+300 to D95+357) 2057m					
COST CENTER S - OPTION 12: DIH TBM Launch Shaft						
	Specialized Construction Machinery Site Assembly and Related Establishment					
	TBM Tunnel Segment Manufacturing					
	TBM Tunnel Up Track - DIH U97+064 to U95+376					



VINCI CONSTRUCTION GRANDS PROJETS

Three Month Rolling Programme
As of 1-Aug-2014

Date	Revision	Checked	Approved
05-08-14	Submission for MTR Information	QT	RC

Appendix B

Environmental Monitoring Programme in Reporting Month

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

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

	Public Holiday
	Monitoring Day

Monitoring Details

Monitoring	Locations	Parameters
Air Quality	DMS-1 - C.U.H.K.A.A Thomas Cheung School, DMS-2 - Price Memorial Catholic Primary School and DMS-3 / DMS-4 - Hong Kong Sheng Kung Hui Nursing Home	24-hour TSP
Noise	NMS-CA-1 - C.U.H.K.A.A Thomas Cheung School, NMS-CA-2 - Price Memorial Catholic Primary School and NMS-CA-3 /NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home	$L_{Aeq(30\ min)}$, L_{10}, L_{90}

Appendix C

Environmental Mitigation Implementation Schedule (EMIS)

Environmental Mitigation Implementation Schedule – Works Contract 1103

Note: Chapters 1 to 3 of the EIA report present the background information of the Project, identified concurrent projects, objectives and scope for various environmental aspects, and description on alternative options and construction description. Chapters 4 to 14 of the EIA report present the EIA findings and mitigation measures are described below with cross-reference to the EIA report for the reporting month. Chapters 15 & 16 describe the environmental monitoring requirements and conclusion.

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Ecology (Pre-Construction Phase)							
S5.4	E1	Engineering works should not encroach into country park boundary, Tei Lung Hau Stream and secondary woodland near the portal at Hin Keng	Minimize ecological impacts	Lion Rock Country Park, Tei Lung Hau Stream	Detailed design and construction stage	• 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 *Aquilaria sinensis* 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 (Construction Phase)							
S5.7	E5	<u>Good Site Practices</u> Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, 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; • Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. Tei Lung Hau Stream and the adjoining secondary woodland, tunnel on hill at top of slope stabilisation works; • No on-site burning of waste; • Waste and refuse in appropriate receptacles.	Minimize ecological impacts	All construction sites	Construction stage		✓ ✓ ✓ ✓ ✓

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
S5.7	E7	<u>Water Quality and Hydrology</u> • 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 and Visual (Construction Phase)							
S6.9.3	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> • 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. <u>Protection of Retained Trees</u> • All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. • The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees	Minimize visual & landscape impact	Within Project Site	Construction stage	TM-EIAO	✓ 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
		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 (Construction 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	✓
Construction Dust Impact							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	✓
S7.6.5	D2	• 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	✓

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		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; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	✓ Rdr ✓ ✓ ✓ ✓ ✓

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		period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;					✓ ✓ N/A ✓ ✓ ✓

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		• 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	✓

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Construction 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; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	Control construction airborne noise	All construction sites	Construction stage	• Annex 5, TM-EIA	✓ ✓ ✓ Rdr ✓ ✓
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	All construction sites	Construction stage	• Annex 5, TM-EIA	✓
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and	Screen the noisy plant items to be used at all construction sites	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	Rdr

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

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Water Quality (Construction Phase)							
S10.7.1	W1	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 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 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 m^3/s a sedimentation 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	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	✓ ✓ ✓

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		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. • 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					✓ ✓ Obs, Rdr ✓ ✓

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		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					

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		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 • The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. • Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.	To minimize construction water quality impact from tunneling works	All tunneling portion	Construction stage	• Water Pollution Control Ordinance • ProPECC PN 1/94 • TM-water • TM-EIAO	✓ ✓ ✓ ✓
S10.7.1	W3	<u>*Sewage Effluent*</u>	To minimize water quality	All construction sites	Construction	• Water Pollution	

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		• 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	<u>*Groundwater from Contaminated Area:*</u> • No direct discharge of groundwater from contaminated areas should be adopted. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in this EIA report for compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water) and the existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination If the review results indicated that the groundwater to be generated from the excavation works would be contaminated, the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground. • If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers. • If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality	To minimize groundwater quality impact from contaminated area	Excavation areas where contamination is found.	Construction stage	• Water Pollution Control Ordinance • TM-water • TM-EIAO	N/A N/A N/A

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		will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.					
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	Rdr ✓ ✓

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Waste Management (Construction Phase)							
S11.4.1.1	WM1	*On-site sorting of C&D material* • 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	*Construction and Demolition 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	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	✓ ✓

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		promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation				• ETWB TCW No. 19/2005	✓ ✓ ✓ ✓ ✓
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. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	✓ N/A

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		crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.					
S11.5.1	WM4	*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 Contractor.	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	Excavated Contaminated Soils 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.	

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S11.5.1	WM7	*Chemical Waste* • Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.	Control the chemical waste and ensure proper storage, handling and disposal.	All construction sites	Construction stage	• Waste Disposal (Chemical Waste) General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	✓ ✓ ✓ ✓

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S14.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	All construction sites	Construction stage	• EIAO Guidance Note No.4/2010 • TM-EIAO	✓
S14.2 – 14.4	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	All construction sites	Construction stage	• EIAO Guidance Note No.4/2010 • TM-EIAO	✓ ✓ ✓

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Chapter 13.13	A13A.10.2.1 and A13A.10.2.4	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.10.2.2	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.10.2.1 and A13A.10.2.5	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.10.2.1	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.10.2.1	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.10.2.1	The explosive truck fire involvement frequency should be minimized by implementing a better emergency response and training to make	To meet the ALARP requirement.	-	Construction phase		

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		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.10.2.1	The contractor should as far as practicable combine the explosive deliveries for a given work area.	To meet the ALARP requirement.	-	Construction phase		✓
Chapter 13.13	A13A.10.2.1	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.10.2.1	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.10.2.4	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.10.2.4	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.10.2.3	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		✓

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Chapter 13.13	A13A.10.2.3	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.10.2.4	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.10.2.2	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.10.2.2	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.10.2.2	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.10.2.4	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.10.2.4	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.10.2.4	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.10.2.5	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.10.2.3	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.10.2.3	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.10.2.2	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		✓

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.10.2.3	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.10.2.3	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		✓
Chapter 13.13	A13B.7.2	A speed limit for the diesel vehicle truck and bulk emulsion truck in the tunnel should be enforced. The truck may be escorted while underground to ensure route is clear from hazards and obstructions.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7.2	Hot work should be suspended during passage of the diesel vehicle truck and bulk emulsion truck in the tunnel.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7.2	For any construction works related to use of explosives near gas facilities and gas pipes, the requirements of the Code of Practice on Avoiding Danger from Gas Pipes must be respected, in particular, to ensure liaison/coordination with HKCG with sufficient notice of planned works and to follow prescribed emergency procedures in case of leaks.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13B.7.2	A detailed liaison between the contractor and HKCG should be established. HKCG should be notified about the blasting schedule in written format within a reasonable period of time prior to blasting in order to ensure the gas safety during the construction period. Also, liaison should be made with HKCG to develop an emergency plan.	To ensure safe use of explosives	Along tunnel alignment	Construction phase		✓
Chapter 13.13	A13C.8	Installation of on-site gas monitors in all relevant SCL construction/operation areas;	To reduce the risks to the SCL staff, construction workers and passengers	-	Construction and operation phases		N/A

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

Appendix D

Calibration Certificates for Air Monitoring Equipment

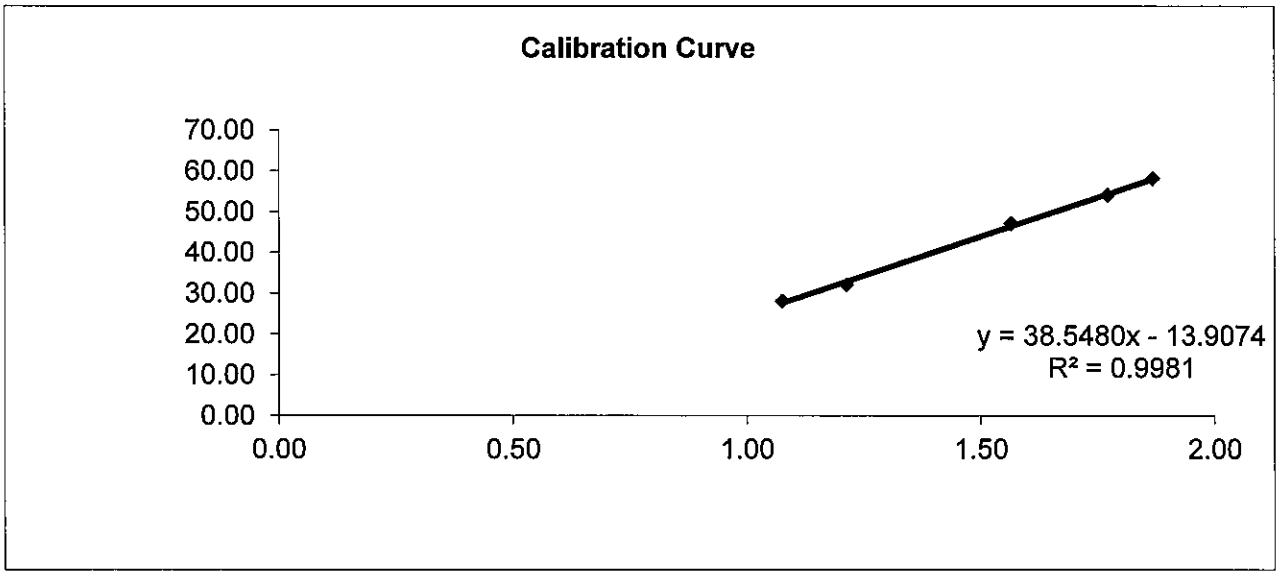
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	7-May-14	**Barometric pressure**	756 mm Hg
Next Calibration date	6-Jul-14	**Tempature (°C)**	23 °C
Sampler location	DMS1 - Thomas Cheung School	**Tempature (K)**	296 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	3763	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m_s	2.06238
Intercept of the standard curve, b_s	-0.2415

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.90	28.00	1.08	28.02
7	5.10	32.00	1.21	32.02
10	8.90	47.00	1.56	47.03
13	11.60	54.00	1.77	54.04
18	13.00	58.00	1.87	58.04



Linear Regression

Sampler slope (m) :	**38.5480**
Sampler intercept (b) :	**-13.9074**
Correlation coefficient (R^2) :	**0.9981**

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

Performed by: _____ Date: 7.5.14

Checked by: _____ Date: 7-5-14

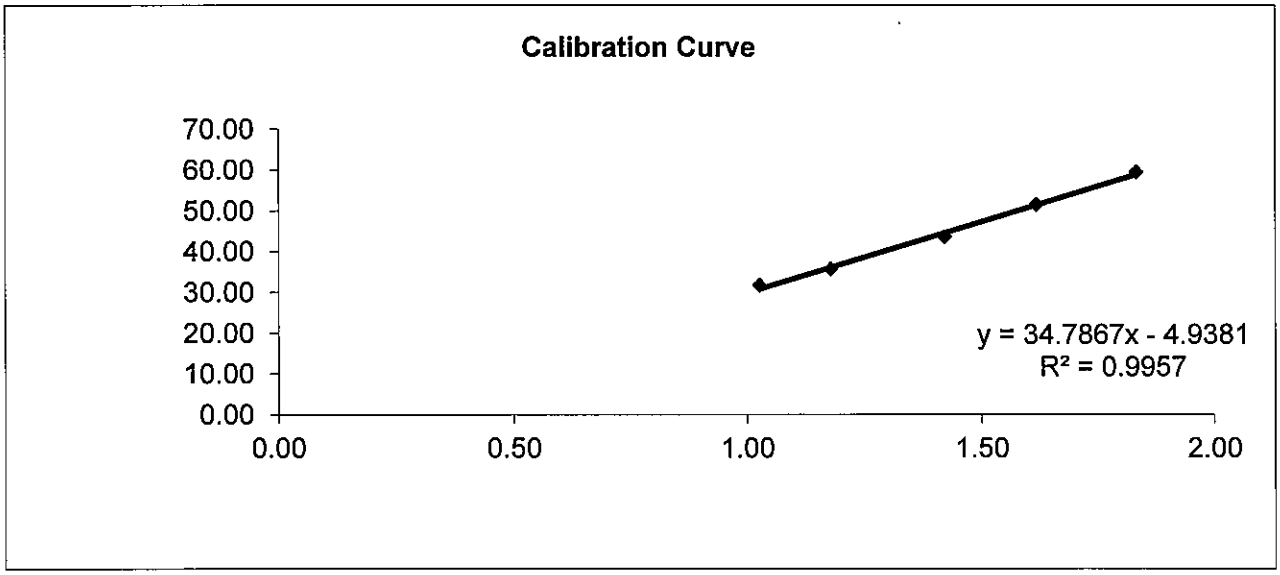
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	8-Jul-14	**Barometric pressure**	755 mm Hg
Next Calibration date	6-Sep-14	**Tempature (°C)**	30 °C
Sampler location	DMS1 - Thomas Cheung School	**Tempature (K)**	303 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	3763	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m_s	2.06238
Intercept of the standard curve, b_s	-0.2415

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.60	32.00	1.03	31.63
7	4.90	36.00	1.18	35.58
10	7.40	44.00	1.42	43.49
13	9.80	52.00	1.62	51.40
18	12.80	60.00	1.83	59.31



Linear Regression

Sampler slope (m) :	**34.7867**
Sampler intercept (b) :	**-4.9381**
Correlation coefficient (R^2) :	**0.9957**

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

Performed by: _____ Date: 8.7.14

Checked by: _____ Date: 8-7-14

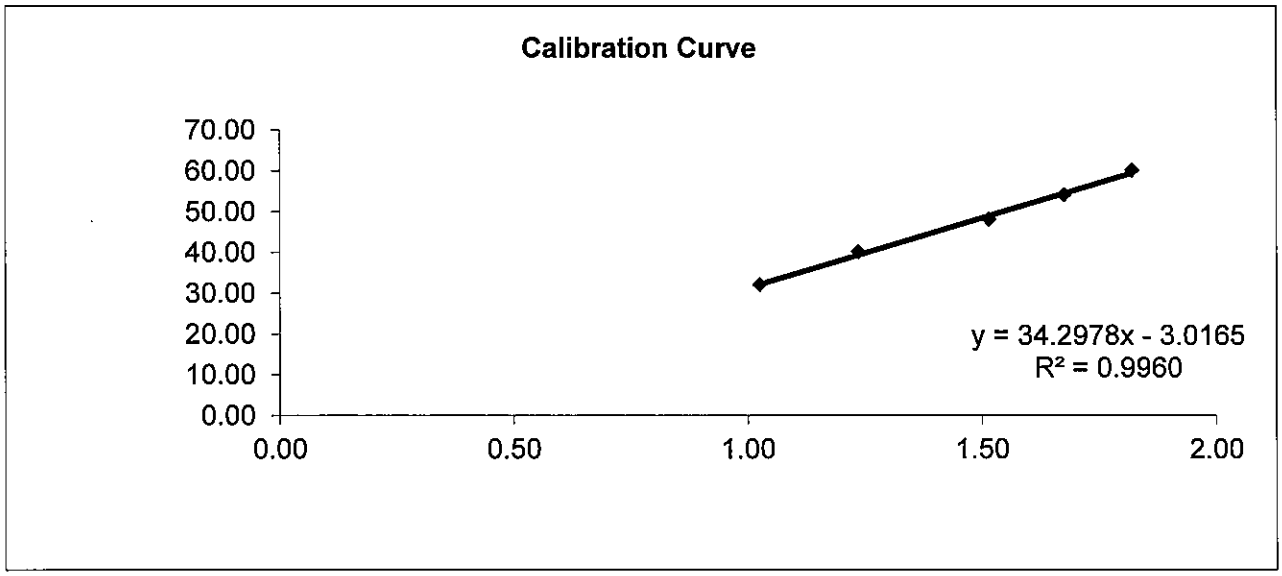
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	7-May-14	**Barometric pressure**	756 mm Hg
Next Calibration date	6-Jul-14	**Tempature (°C)**	23 °C
Sampler location	DMS2 - Price Memorial Catholic Pri	**Tempature (K)**	296 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	3761	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m_s	2.06238
Intercept of the standard curve, b_s	-0.2415

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.50	32.00	1.02	32.02
7	5.30	40.00	1.23	40.03
10	8.30	48.00	1.52	48.03
13	10.30	54.00	1.67	54.04
18	12.30	60.00	1.82	60.04



Linear Regression

Sampler slope (m) :	**34.2978**
Sampler intercept (b) :	**-3.0165**
Correlation coefficient (R^2) :	**0.9960**

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

Performed by: _____ Date: 7.5.14

Checked by: D Rollinson Date: 7-5-14

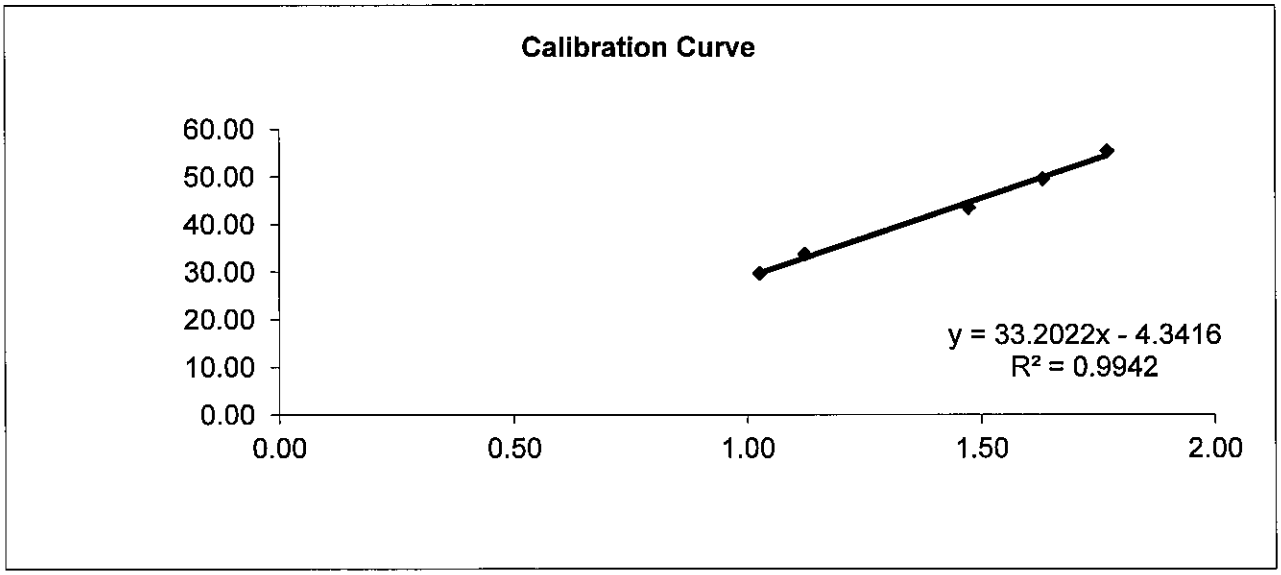
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

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

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m_s	2.06238
Intercept of the standard curve, b_s	-0.2415

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.60	30.00	1.03	29.65
7	4.40	34.00	1.12	33.61
10	8.00	44.00	1.47	43.49
13	10.00	50.00	1.63	49.42
18	11.90	56.00	1.77	55.35



Linear Regression

Sampler slope (m) :	**33.2022**
Sampler intercept (b) :	**-4.3416**
Correlation coefficient (R^2) :	**0.9942**

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

Performed by: _____ Date: 8.7.14

Checked by: _____ Date: 8-7-14

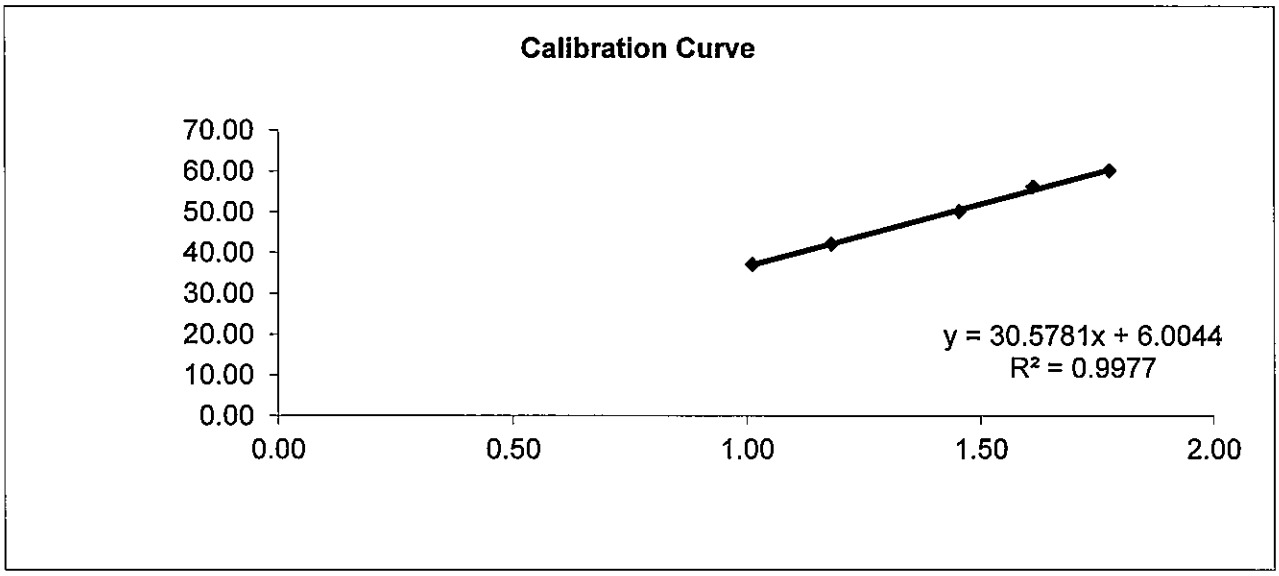
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	7-May-14	**Barometric pressure**	756 mm Hg
Next Calibration date	6-Jul-14	**Tempature (°C)**	23 °C
Sampler location	DMS3 - Sheng Kung Hui Nursing H	**Tempature (K)**	296 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	3762	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m_s	2.06238
Intercept of the standard curve, b_s	-0.2415

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.40	37.00	1.01	37.03
7	4.80	42.00	1.18	42.03
10	7.60	50.00	1.45	50.04
13	9.50	56.00	1.61	56.04
18	11.70	60.00	1.78	60.04



Linear Regression

Sampler slope (m) :	**30.5781**
Sampler intercept (b) :	**6.0044**
Correlation coefficient (R^2) :	**0.9977**

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

Performed by: _____ Date: 7.5.14

Checked by: D Pollinson Date: 7-5-14

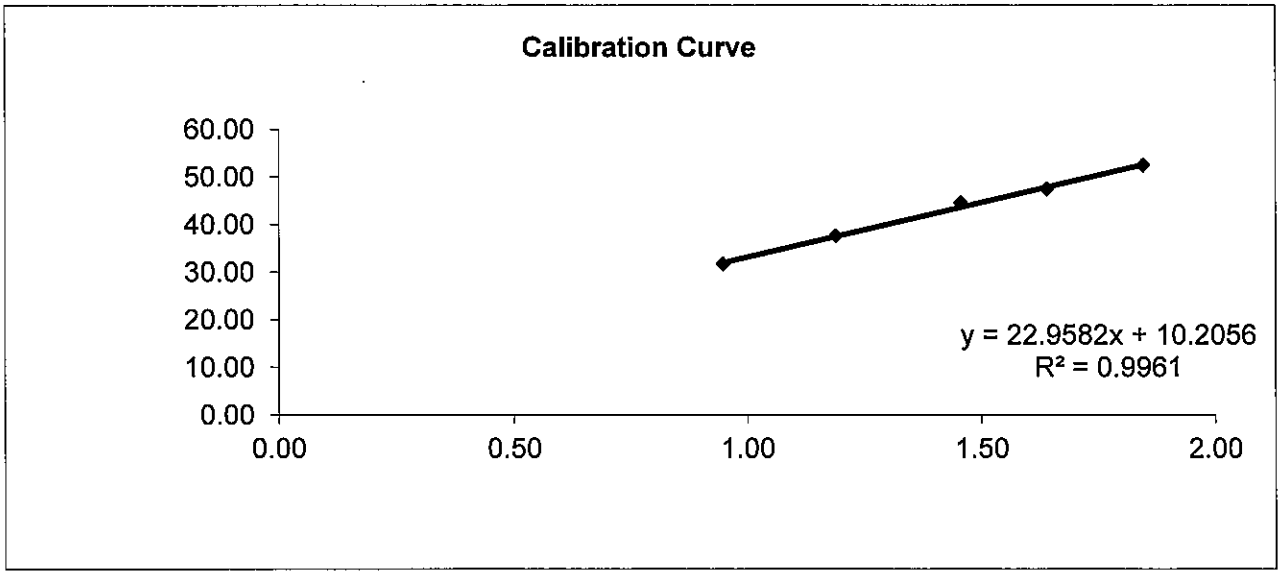
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	8-Jul-14	**Barometric pressure**	755 mm Hg
Next Calibration date	6-Sep-14	**Tempature (°C)**	30 °C
Sampler location	DMS3 - Sheng Kung Hui Nursing H	**Tempature (K)**	303 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	3762	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	2421
Slope of the standard curve, m_s	2.06238
Intercept of the standard curve, b_s	-0.2415

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.00	32.00	0.95	31.63
7	5.00	38.00	1.19	37.56
10	7.80	45.00	1.46	44.48
13	10.10	48.00	1.64	47.45
18	13.00	53.00	1.85	52.39



Linear Regression

Sampler slope (m) :	**22.9582**
Sampler intercept (b) :	**10.2056**
Correlation coefficient (R^2) :	**0.9961**

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

Performed by: _____ Date: 8.7.14

Checked by: _____ Date: 9-7-14

TISCH Environmental

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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

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

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

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0052	0.7000	1.4209		0.9957	0.6934	0.8814
1.0010	0.9891	2.0095		0.9915	0.9798	1.2464
0.9989	1.0989	2.2467		0.9894	1.0885	1.3936
0.9977	1.1535	2.3564		0.9883	1.1426	1.4616
0.9925	1.3901	2.8419		0.9831	1.3769	1.7627
Qstd slope (m) =		2.06238		Qa slope (m) =		1.29142
intercept (b) =		-0.02415		intercept (b) =		-0.01498
coefficient (r) =		0.99994		coefficient (r) =		0.99994
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

Appendix E

Dust Results

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

Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
103080	Jul-14	3-Jul-14	00:00	00:00	DMS1	Fine	Normal Operation	754.0	755.0	30.0	30.0	40.0	42.0	2.7387	2.7927	0.0540	1.3858	1.4377	1.4118	2280.29	2304.29	1440.00	2032.92	26.6	148.7	260.0
103083	Jul-14	9-Jul-14	00:00	00:00	DMS1	Fine	Normal Operation	752.0	752.0	30.0	30.0	41.0	41.0	2.7441	2.7842	0.0401	1.3046	1.3046	1.3046	2304.29	2328.29	1440.00	1878.62	21.3	148.7	260.0
103086	Jul-14	15-Jul-14	00:00	00:00	DMS1	Fine	Normal Operation	753.0	753.0	31.0	31.0	40.0	41.0	2.7624	2.8079	0.0455	1.2752	1.3035	1.2894	2328.29	2352.29	1440.00	1856.66	24.5	148.7	260.0
103092	Jul-14	21-Jul-14	00:00	00:00	DMS1	Fine	Normal Operation	754.0	754.0	30.0	31.0	41.0	41.0	2.7560	2.8307	0.0747	1.3062	1.3043	1.3053	2352.29	2376.29	1440.00	1879.56	39.7	148.7	260.0
103093	Jul-14	26-Jul-14	00:00	00:00	DMS1	Fine	Normal Operation	752.0	753.0	31.0	31.0	41.0	42.0	2.7476	2.7734	0.0258	1.3028	1.3318	1.3173	2376.29	2400.29	1440.00	1896.91	13.6	148.7	260.0

Average (µg/m3)	25.1
Max (µg/m3)	39.7
Min (µg/m3)	13.6

Location: DMS-2 Price Memorial Catholic Primary School

Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
103081	Jul-14	3-Jul-14	00:00	00:00	DMS2	Fine	Normal Operation	754.0	755.0	30.0	30.0	41.0	41.0	2.7489	2.7882	0.0393	1.2688	1.2695	1.2692	1776.4	1800.4	1440.00	1827.6	21.5	167.4	260.0
103084	Jul-14	9-Jul-14	00:00	00:00	DMS2	Fine	Normal Operation	752.0	752.0	30.0	30.0	43.0	43.0	2.7467	2.7847	0.0380	1.4084	1.4084	1.4084	1800.4	1824.4	1440.00	2028.1	18.7	167.4	260.0
103091	Jul-14	15-Jul-14	00:00	00:00	DMS2	Fine	Normal Operation	753.0	753.0	31.0	31.0	42.0	42.0	2.7840	2.8203	0.0363	1.3774	1.3774	1.3774	1824.39	1848.39	1440.00	1983.46	18.3	167.4	260.0
103089	Jul-14	21-Jul-14	00:00	00:00	DMS2	Fine	Normal Operation	754.0	754.0	30.0	31.0	42.0	41.0	2.7464	2.7909	0.0445	1.3803	1.3486	1.3645	1848.39	1872.39	1440.00	1964.81	22.6	167.4	260.0
103087	Jul-14	26-Jul-14	00:00	00:00	DMS2	Fine	Normal Operation	752.0	753.0	31.0	31.0	40.0	41.0	2.7424	2.8133	0.0709	1.3173	1.3478	1.3326	1872.39	1896.39	1440.00	1918.87	36.9	167.4	260.0

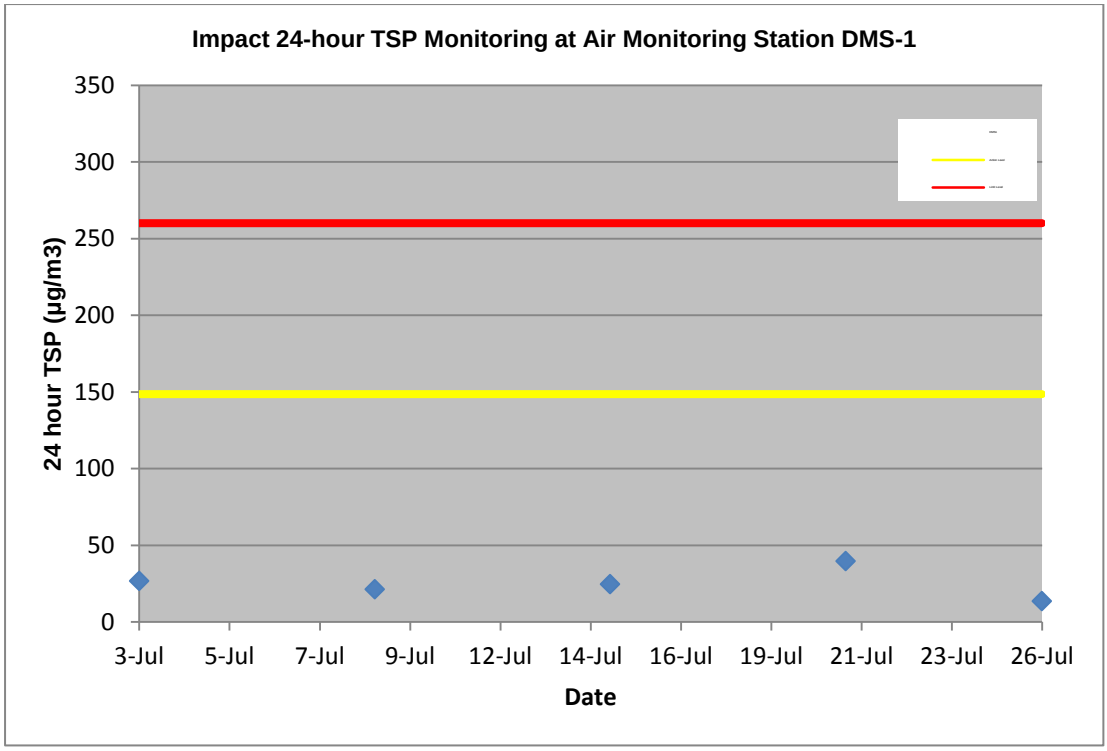
Average (µg/m3)	23.6
Max (µg/m3)	36.9
Min (µg/m3)	18.3

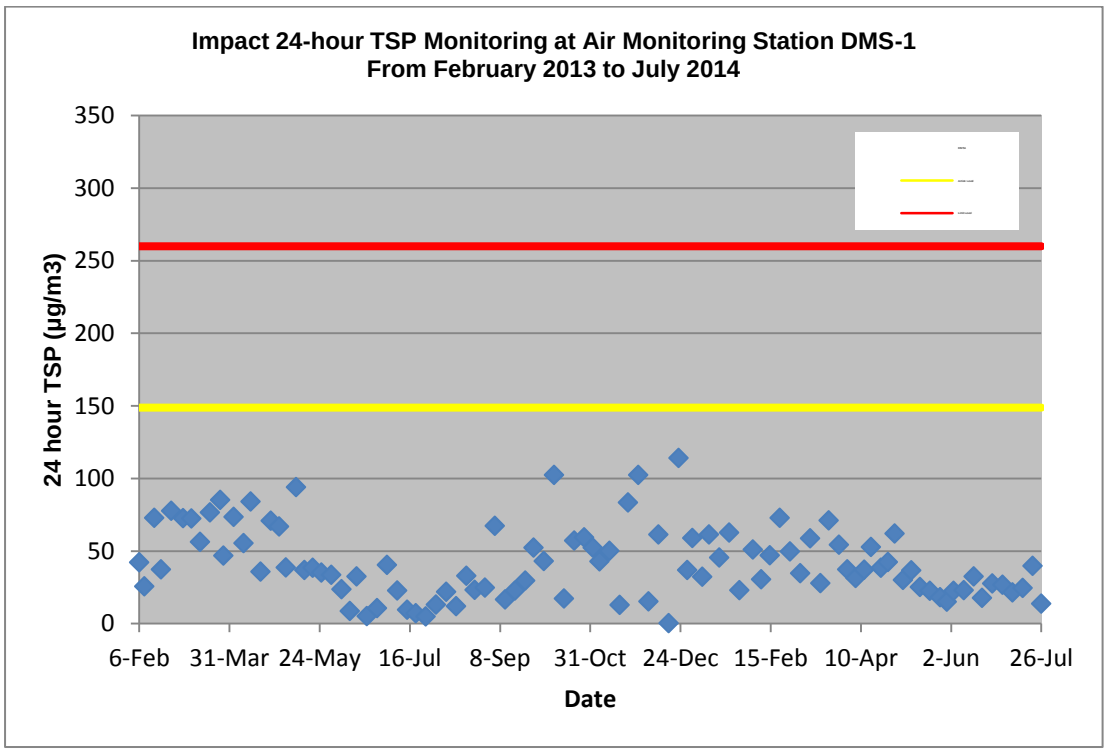
Location: DMS-3/DMS-4 - Hong Kong Sheng Kung Hui Nursing Home

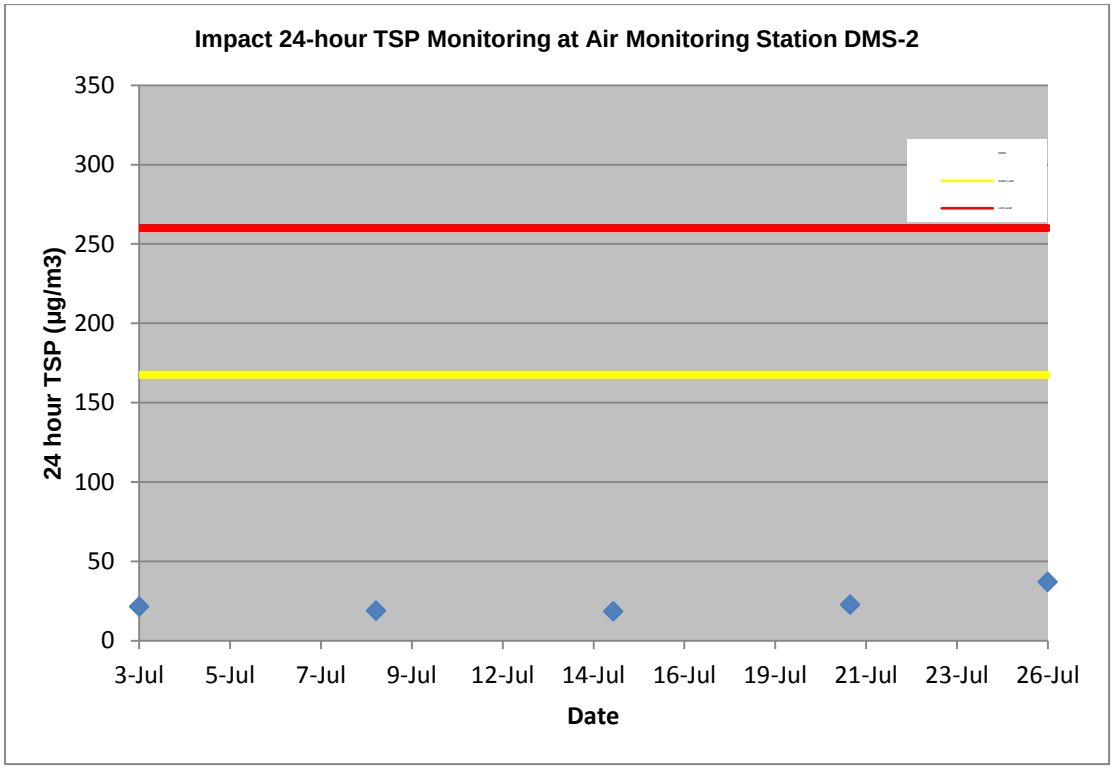
Details of 24-Hour TSP Monitoring

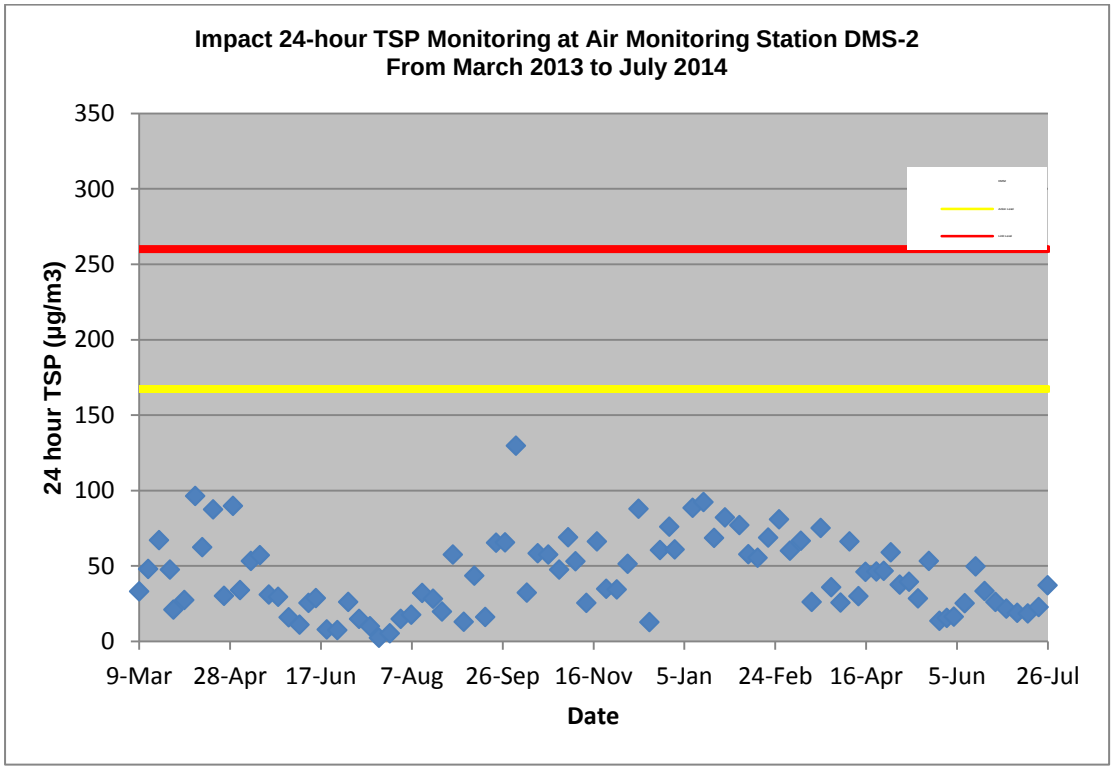
Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
103082	Jul-14	3-Jul-14	00:00	00:00	DMS3	Fine	Normal Operation	754.0	755.0	30.0	30.0	42.0	41.0	2.7602	2.8095	0.0493	1.1604	1.1290	1.1447	2328.40	2352.40	1440.00	1648.37	29.9	159.1	260.0
103085	Jul-14	9-Jul-14	00:00	00:00	DMS3	Fine	Normal Operation	752.0	752.0	30.0	30.0	42.0	42.0	2.7650	2.8064	0.0414	1.3602	1.3602	1.3602	2352.40	2376.40	1440.00	1958.69	21.1	159.1	260.0
106088	Jul-14	15-Jul-14	00:00	00:00	DMS3	Fine	Normal Operation	753.0	753.0	31.0	31.0	44.0	42.0	2.7481	2.7967	0.0486	1.4443	1.3584	1.4014	2376.40	2400.40	1440.00	2017.94	24.1	159.1	260.0
103090	Jul-14	21-Jul-14	00:00	00:00	DMS3	Fine	Normal Operation	754.0	754.0	30.0	31.0	41.0	44.0	2.7682	2.8095	0.0413	1.3195	1.4455	1.3825	2400.40	2424.40	1440.00	1990.80	20.7	159.1	260.0
103094	Jul-14	26-Jul-14	00:00	00:00	DMS3	Fine	Normal Operation	752.0	753.0	31.0	31.0	42.0	42.0	2.7703	2.8486	0.0783	1.3572	1.3584	1.3578	2424.40	2448.40	1440.00	1955.23	40.0	159.1	260.0

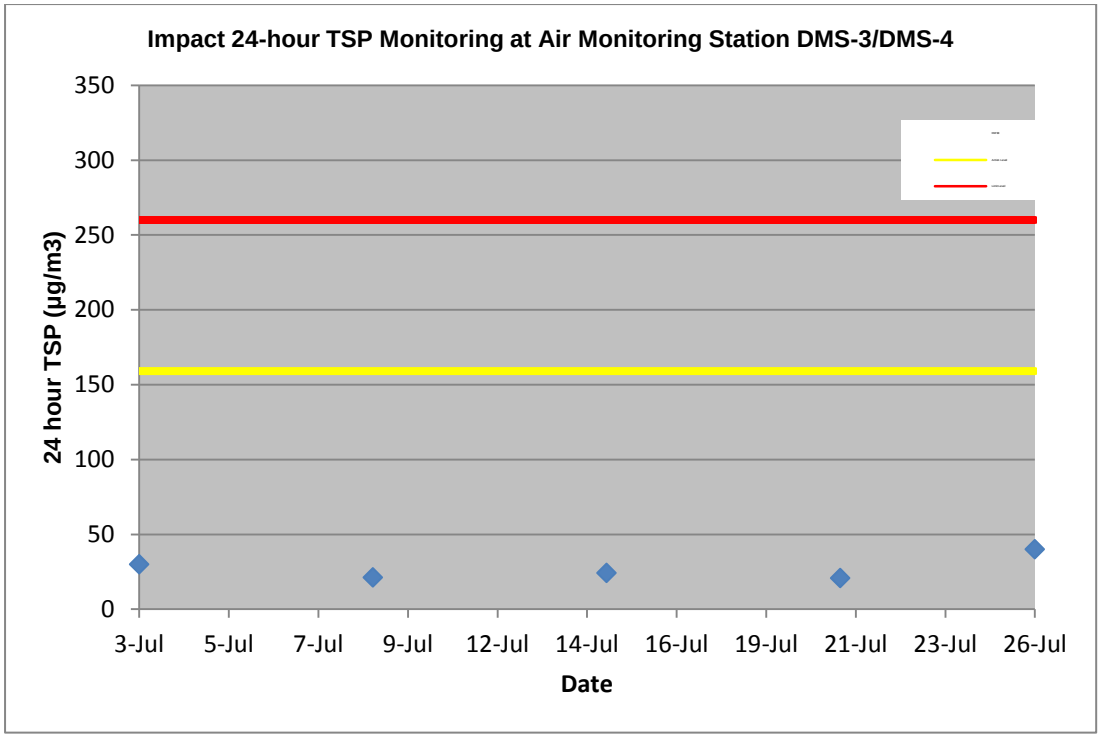
Average (µg/m3)	27.2
Max (µg/m3)	40.0
Min (µg/m3)	20.7

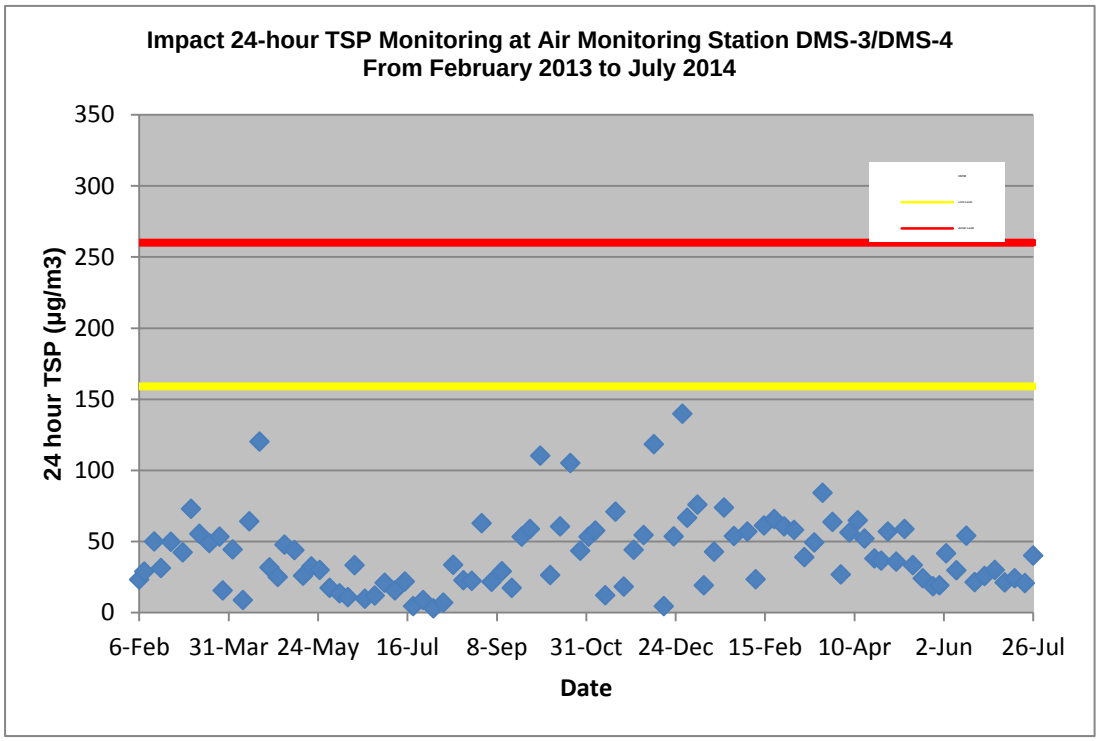

Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-1
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
3-Jul
5-Jul
7-Jul
9-Jul
12-Jul
14-Jul
16-Jul
19-Jul
21-Jul
23-Jul
26-Jul
Date


Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-1
From February 2013 to July 2014
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
6-Feb
31-Mar
24-May
16-Jul
8-Sep
31-Oct
24-Dec
15-Feb
10-Apr
2-Jun
26-Jul
Date


Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-2
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
3-Jul
5-Jul
7-Jul
9-Jul
12-Jul
14-Jul
16-Jul
19-Jul
21-Jul
23-Jul
26-Jul
Date


Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-2
From March 2013 to July 2014
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
9-Mar
28-Apr
17-Jun
7-Aug
26-Sep
16-Nov
5-Jan
24-Feb
16-Apr
5-Jun
26-Jul
Date


Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-3/DMS-4
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
3-Jul
5-Jul
7-Jul
9-Jul
12-Jul
14-Jul
16-Jul
19-Jul
21-Jul
23-Jul
26-Jul
Date

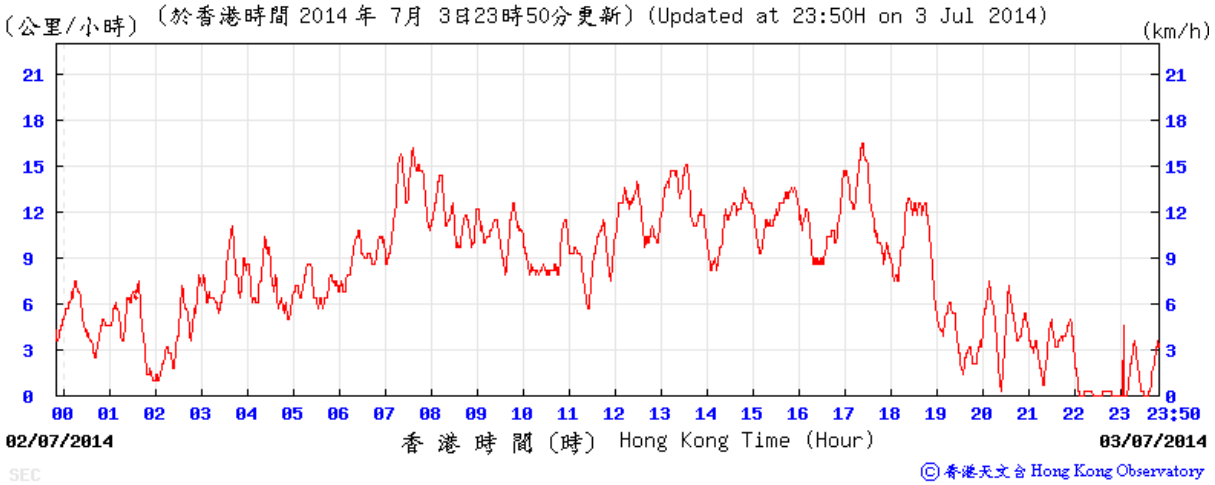

Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-3/DMS-4
From February 2013 to July 2014
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
6-Feb
31-Mar
24-May
16-Jul
8-Sep
31-Oct
24-Dec
15-Feb
10-Apr
2-Jun
26-Jul
Date

Appendix F

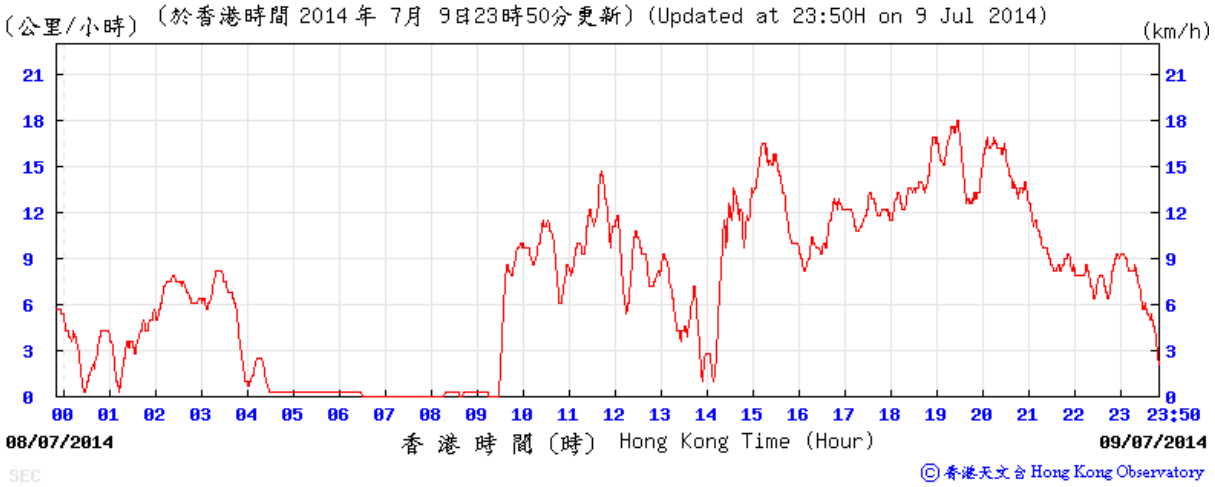
Wind data

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

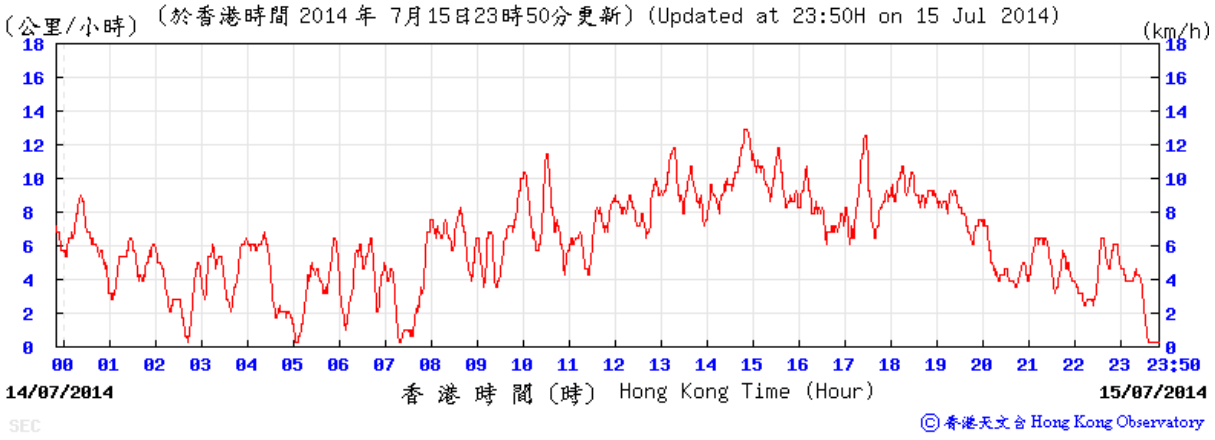
3 July 2014



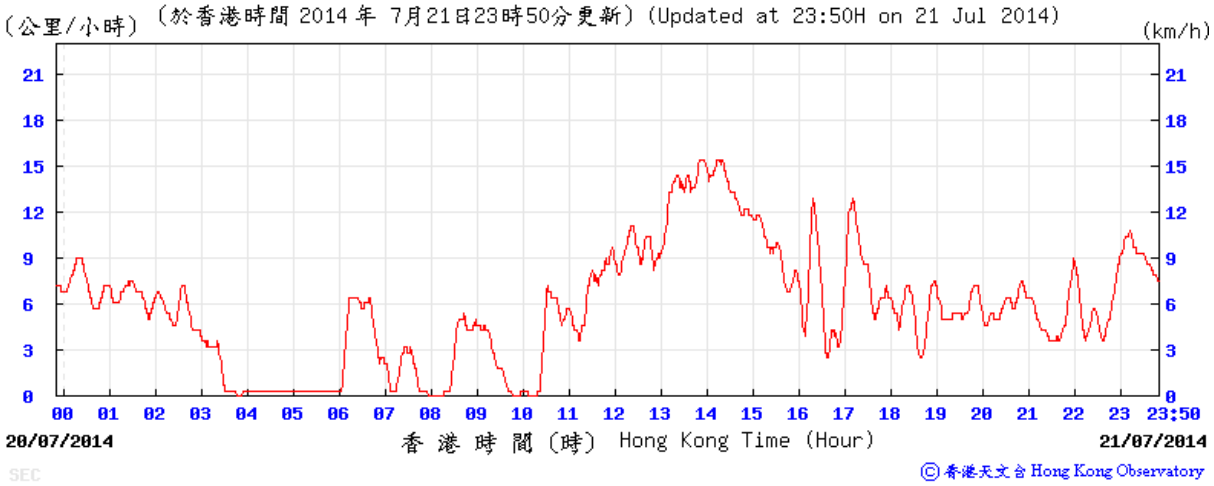
9 July 2014



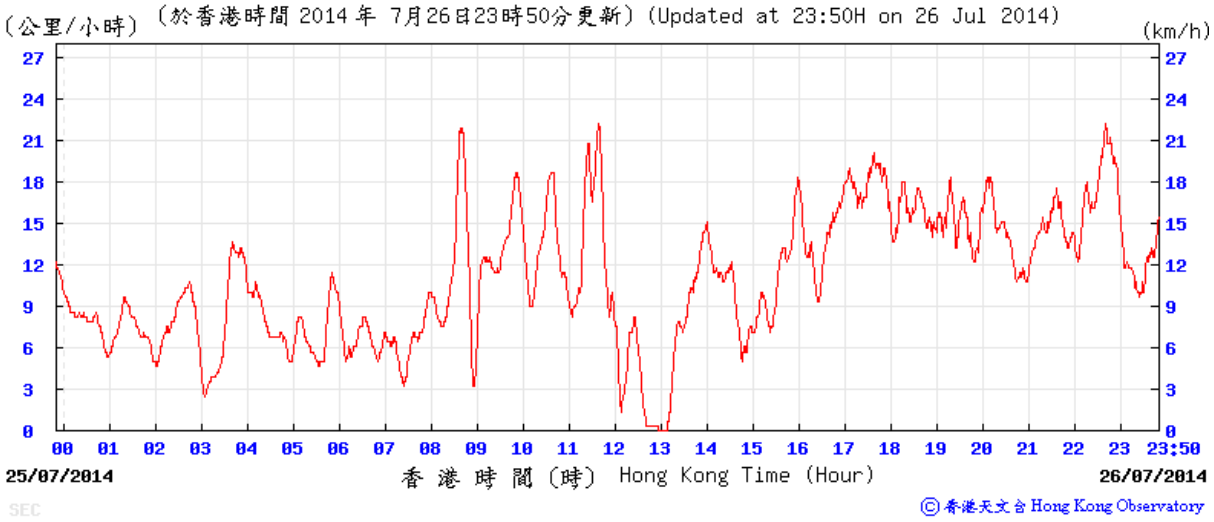
15 July 2014



21 July 2014

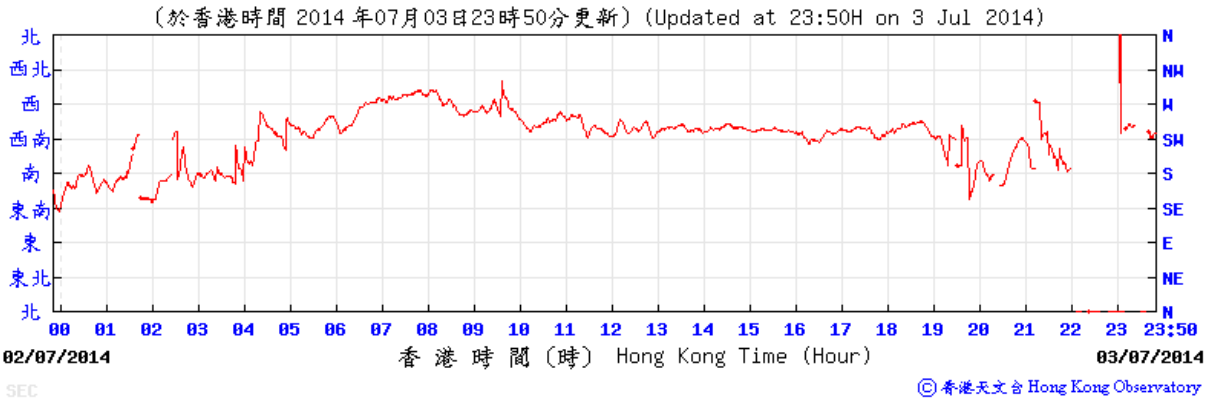


26 July 2014

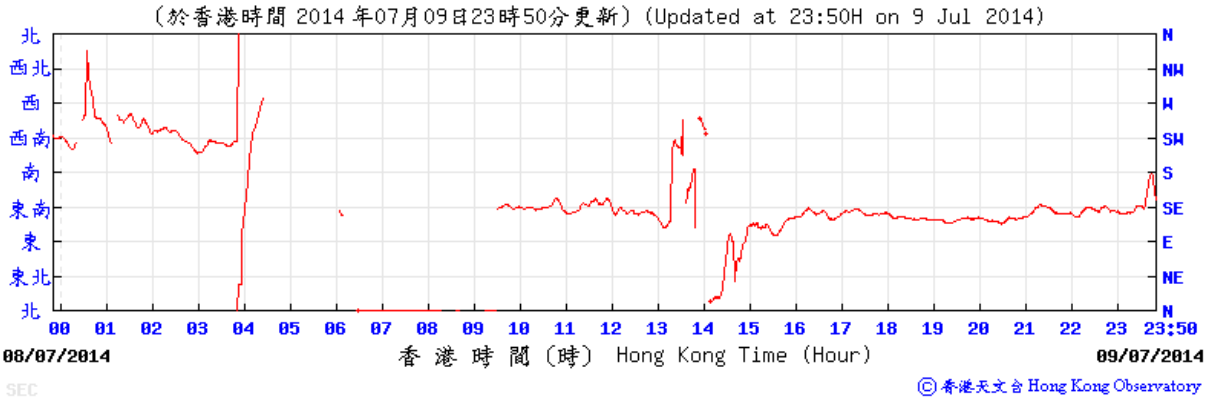


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

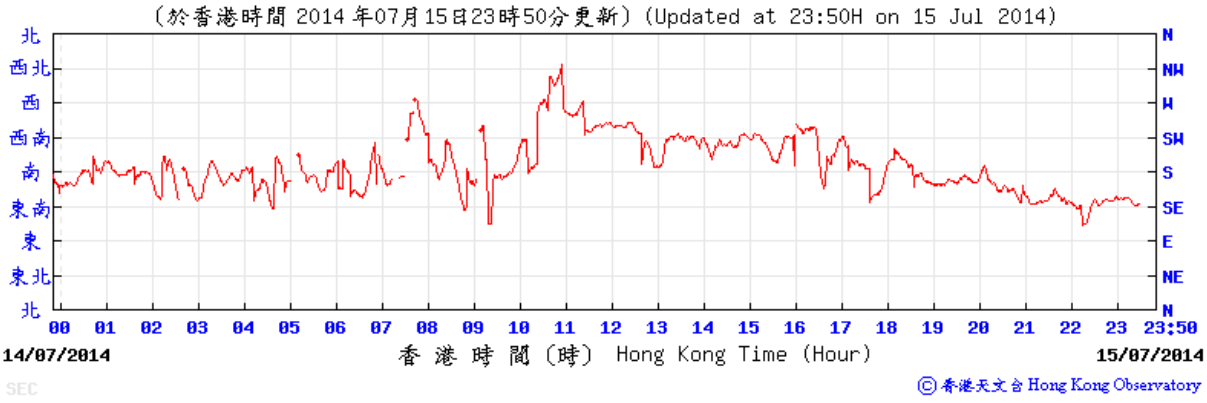
3 July 2014



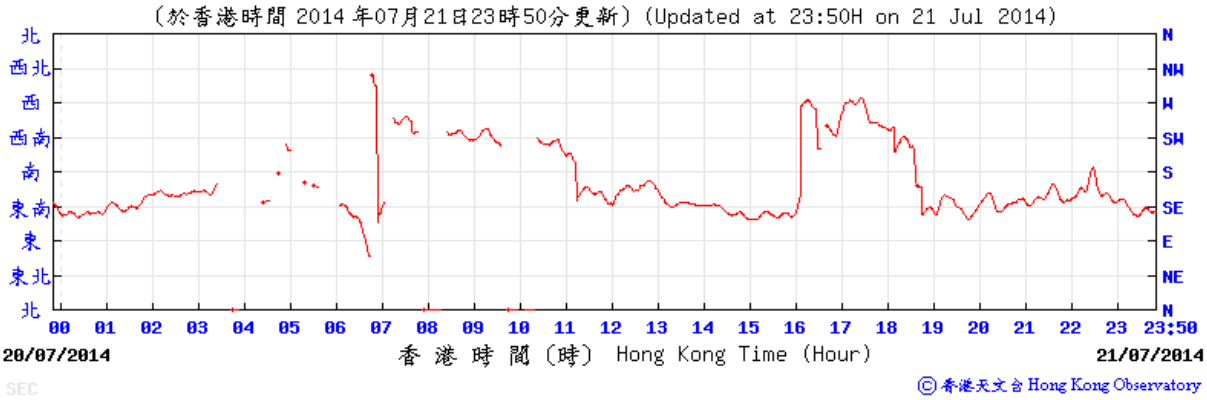
9 July 2014



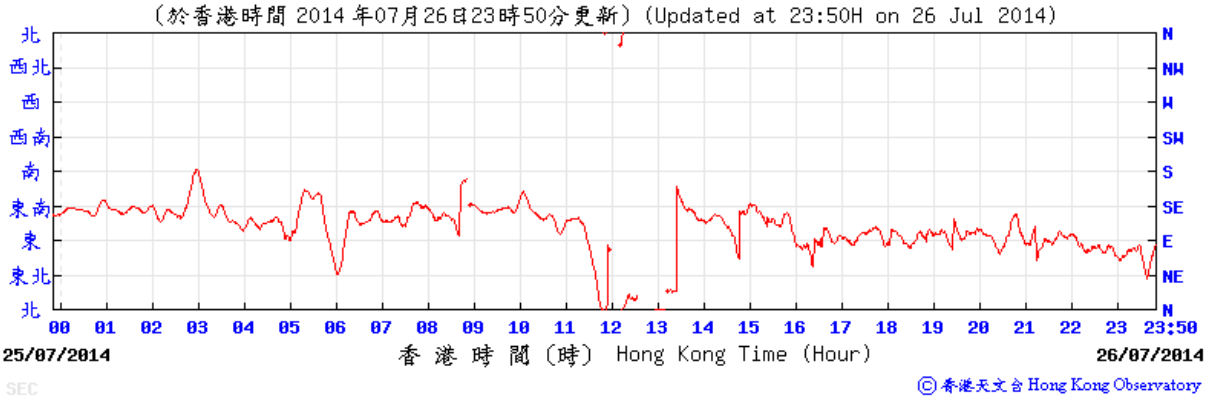
15 July 2014



21 July 2014

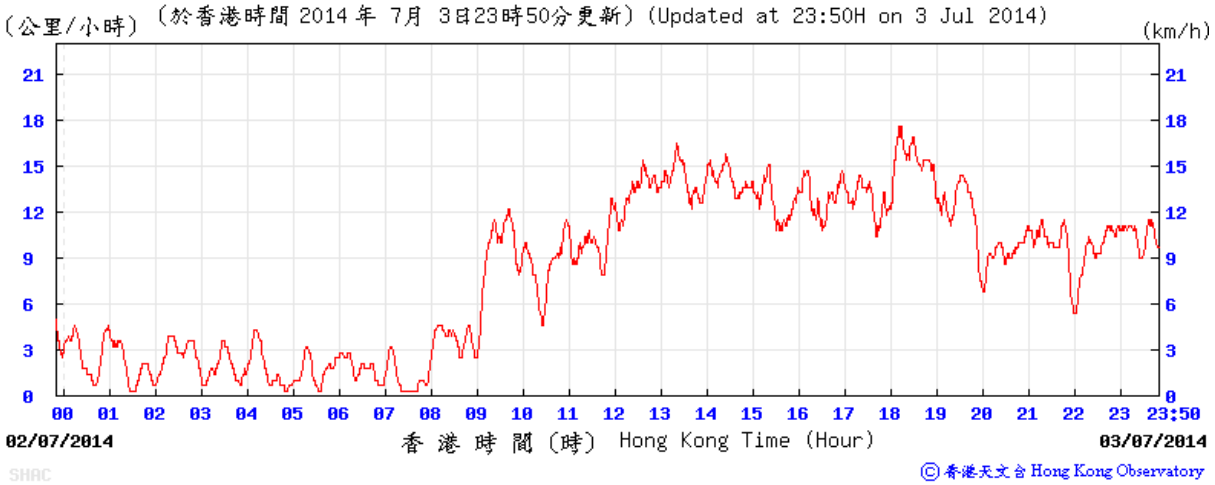


26 July 2014

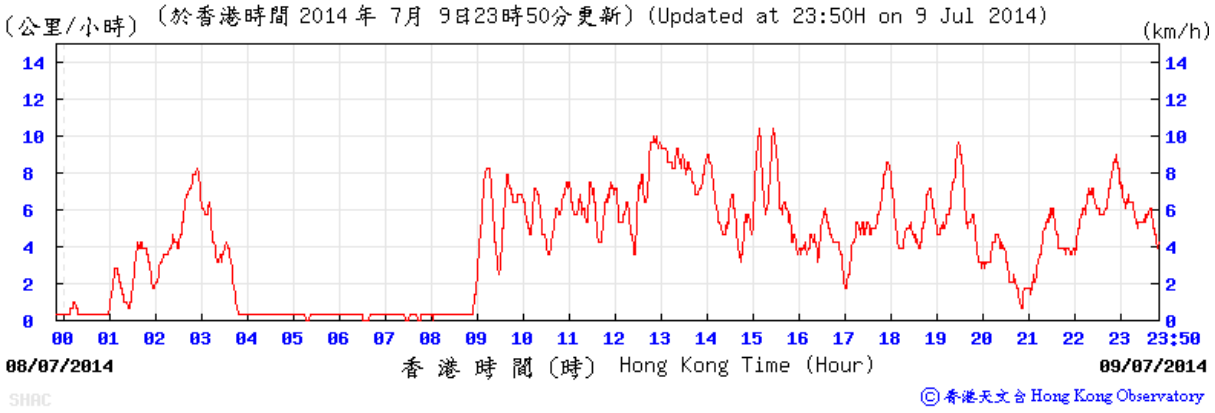


Average wind speed obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

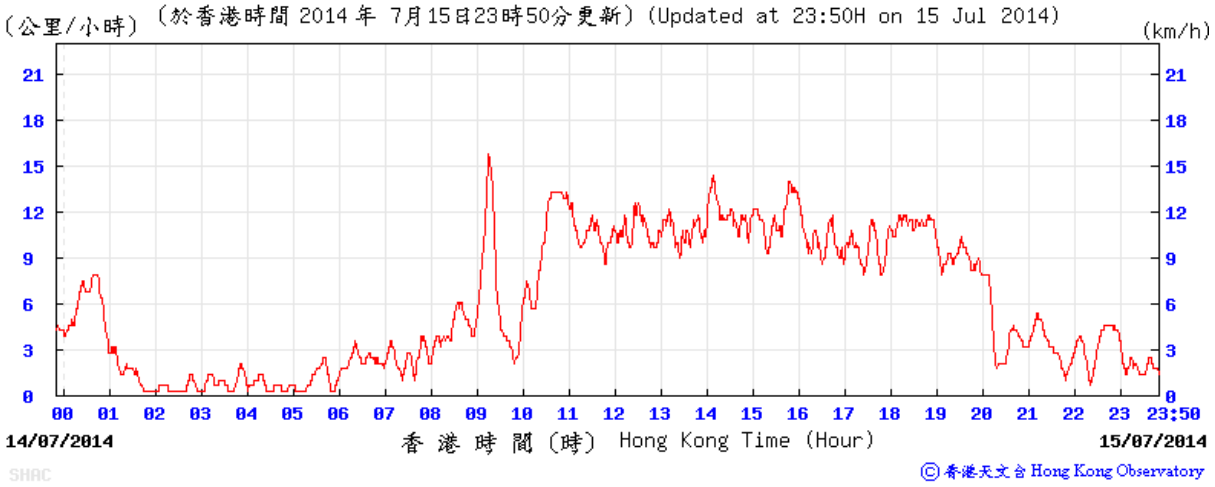
3 July 2014



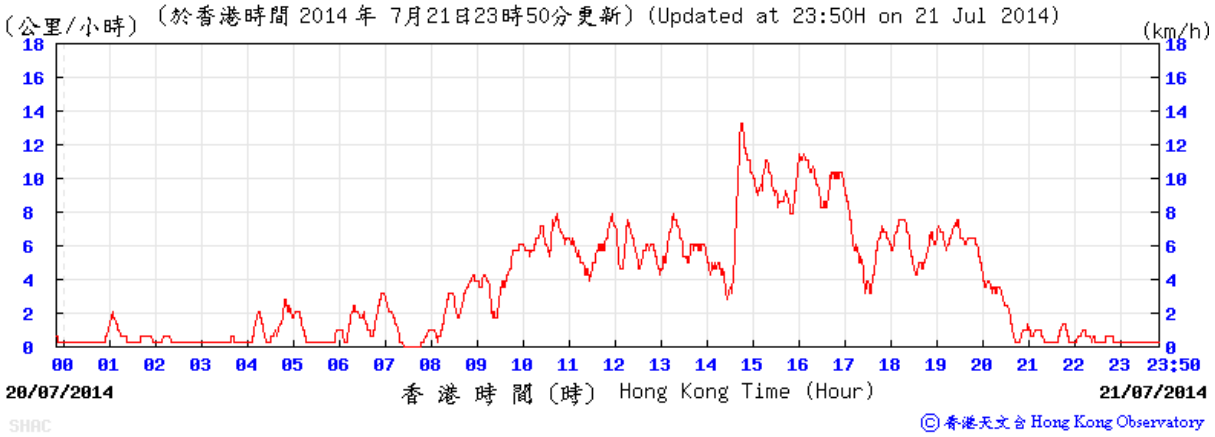
9 July 2014



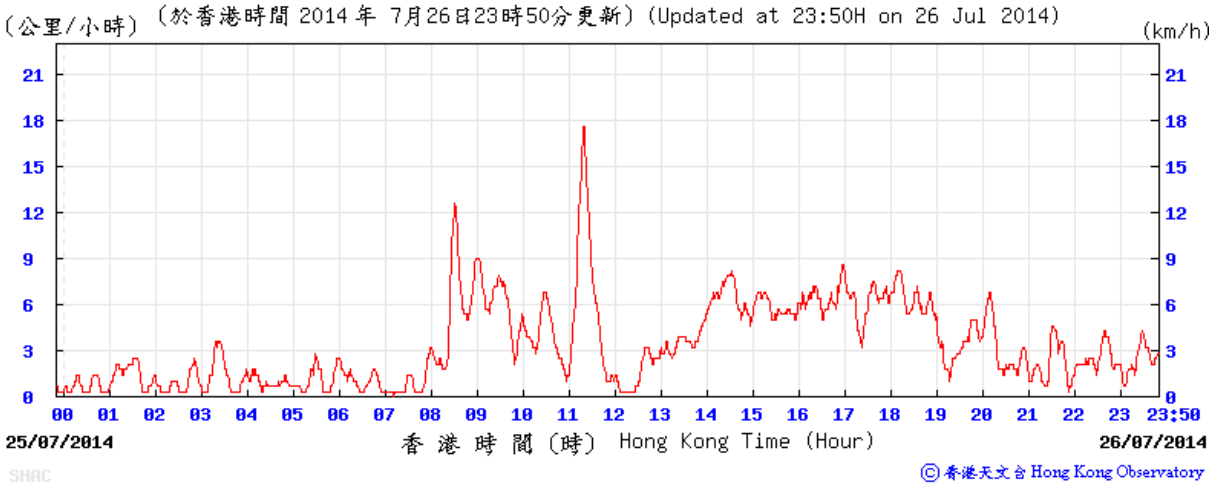
15 July 2014



21 July 2014

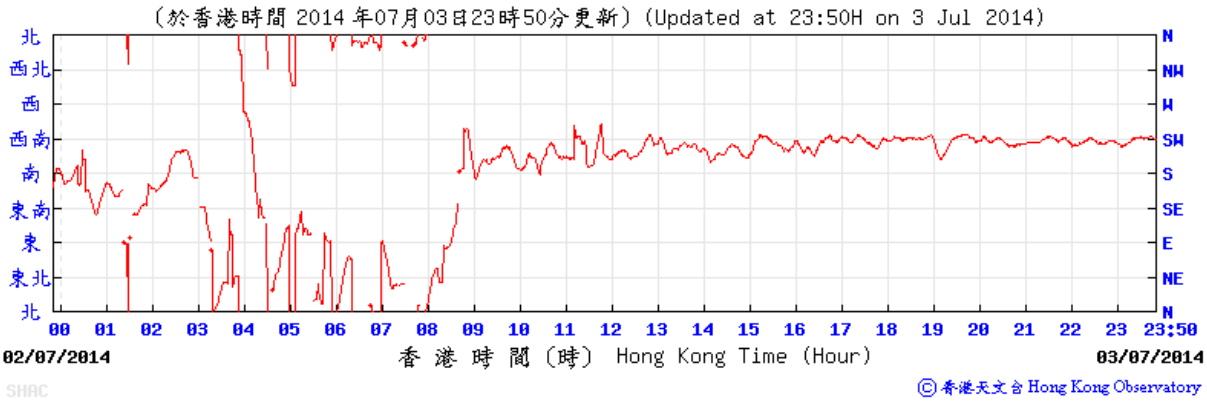


26 July 2014

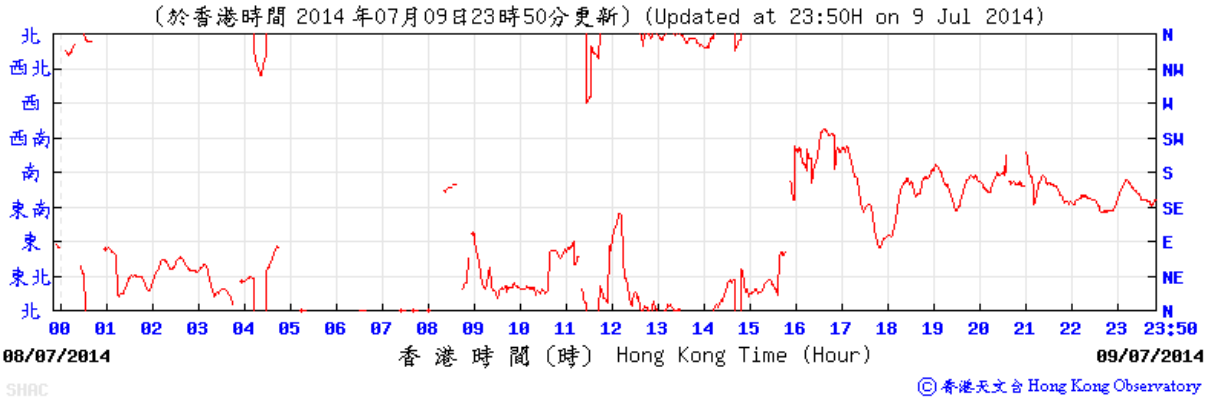


Average wind direction obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

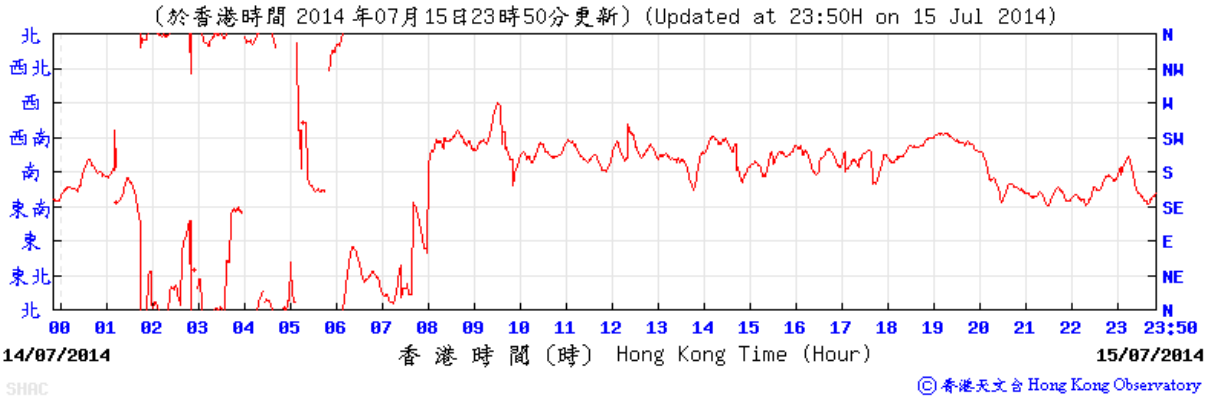
3 July 2014



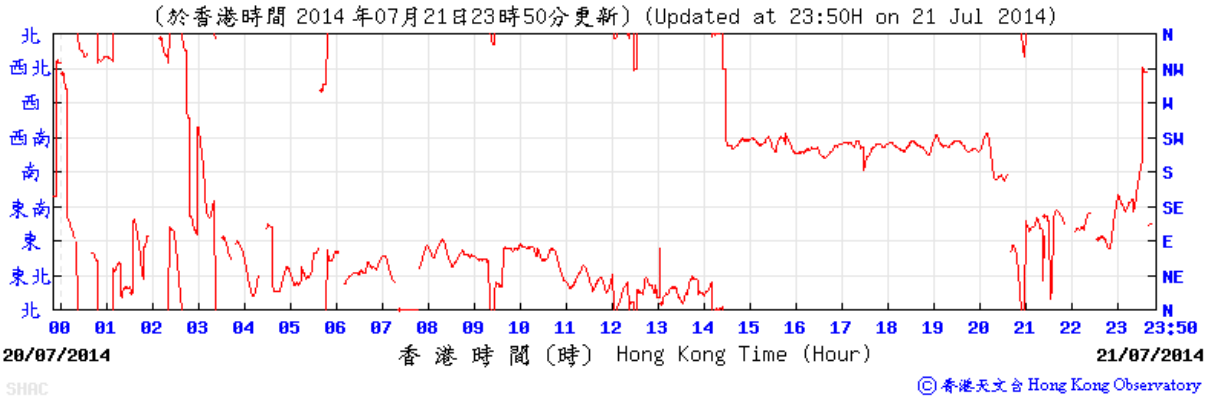
9 July 2014



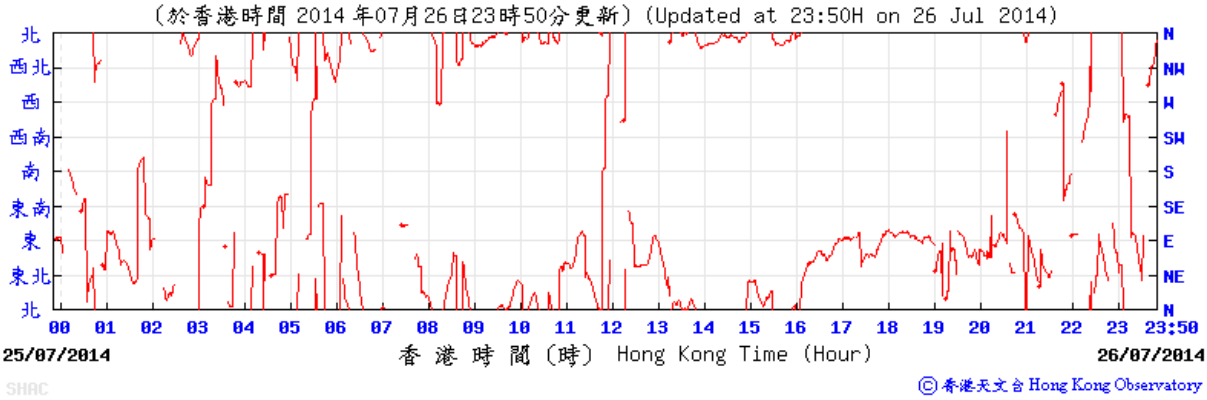
15 July 2014



21 July 2014



26 July 2014



Appendix G

Calibration Certificates of Noise Monitoring Equipment

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C134619
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-1856)

Description / 儀器名稱	:	Integrating Sound Level Meter
Manufacturer / 製造商	:	Brüel & Kjær
Model No. / 型號	:	2238
Serial No. / 編號	:	2562763
Supplied By / 委託者	:	Ove Arup & Partners Hong Kong Co., Ltd. Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong, Kowloon

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 23 July 2013

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee

Certified By 核證 : K M Wu

Date of Issue 簽發日期 : 24 July 2013

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C134619
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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 using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

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

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L_{AFP}	A	F	94.00	1	94.4

6.1.1.2 After Self-calibration

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

6.1.2 Linearity

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

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

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6.2 Time Weighting

6.2.1 Continuous Signal

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

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L_{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L_{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L_{ASP}		S		Continuous	106.0	Ref.
	L_{ASMax}				500 ms	102.0	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{AFP}	A	F	94.00	31.5 Hz	54.9	-39.4 ± 1.5
					63 Hz	68.0	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.0
					250 Hz	85.4	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

Certificate of Calibration
校正證書

Certificate No. : C134619
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{CFP}	C	F	94.00	31.5 Hz	91.2	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.9	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L_{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
						$1/10^2$		90	90.1	± 0.5
			60 sec.			$1/10^3$		80	79.8	± 1.0
			5 min.			$1/10^4$		70	69.8	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2658559

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

- Uncertainties of Applied Value :

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

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

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C134617
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-1856)

Description / 儀器名稱	:	Acoustical Calibrator
Manufacturer / 製造商	:	Brüel & Kjær
Model No. / 型號	:	4231
Serial No. / 編號	:	2713427
Supplied By / 委託者	:	Ove Arup & Partners Hong Kong Co., Ltd. Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong, Kowloon

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 23 July 2013

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee

Certified By 核證 : K M Wu

Date of Issue 簽發日期 : 24 July 2013

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
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c/o 香港新界屯門興安里一號青山灣機樓四樓
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Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C134617
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	Description	Certificate No.
CL130	Universal Counter	C133632
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C120886

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.2	± 0.2
114 dB, 1 kHz	114.1		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

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

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

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Certificate of Calibration
校正證書

Certificate No. : C135381
證書編號

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

Description / 儀器名稱	:	Integrating Sound Level Meter
Manufacturer / 製造商	:	Brüel & Kjær
Model No. / 型號	:	2238
Serial No. / 編號	:	2654435
Supplied By / 委託者	:	Ove Arup & Partners Hong Kong Co., Ltd. Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong, Kowloon

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 26 August 2013

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee

Certified By 核證 : K M Wu

Date of Issue 簽發日期 : 28 August 2013

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

Certificate No. : C135381
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

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

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
50 - 130	L_{AFP}	A	F	94.00	1	94.2

6.1.1.2 After Self-calibration

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

6.1.2 Linearity

UUT Setting				Applied Value		UUT
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
50 - 130	L_{AFP}	A	F	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.0

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

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6.2 Time Weighting

6.2.1 Continuous Signal

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

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L_{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L_{AFMax}				200 ms	105.1	-1.0 ± 1.0
	L_{ASP}		S		Continuous	106.0	Ref.
	L_{ASMax}				500 ms	102.0	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{AFP}	A	F	94.00	31.5 Hz	55.0	-39.4 ± 1.5
					63 Hz	68.1	-26.2 ± 1.5
					125 Hz	78.0	-16.1 ± 1.0
					250 Hz	85.5	-8.6 ± 1.0
					500 Hz	90.9	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	93.0	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

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Certificate No. : C135381
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{CFP}	C	F	94.00	31.5 Hz	91.2	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	88.0	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L_{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
						$1/10^2$		90	90.1	± 0.5
			60 sec.			$1/10^3$		80	79.8	± 1.0
			5 min.			$1/10^4$		70	69.7	± 1.0

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

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

- Uncertainties of Applied Value :

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

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

Note :
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Certificate of Calibration
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Certificate No. : C135355
證書編號

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

Description / 儀器名稱	:	Sound Calibrator
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NC-74
Serial No. / 編號	:	34304660
Supplied By / 委託者	:	Ove Arup & Partners Hong Kong Co., Ltd. Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong, Kowloon

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 25 August 2013

TEST RESULTS / 測試結果

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee

Certified By 核證 : K M Wu

Date of Issue 簽發日期 : 27 August 2013

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
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Certificate No. : C135355
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	Description	Certificate No.
CL130	Universal Counter	C133632
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C120886

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

5.1.1 Before Adjustment

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

5.1.2 After Adjustment

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

5.2 Frequency Accuracy

5.2.1 Before Adjustment

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

5.2.2 After Adjustment

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

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Appendix H

Noise Results

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

Daytime Noise Monitoring Results

Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L_{Aeq},30min	Limit	L_{10},30min	L_{90},30min	L_{Aeq},30min	L_{Aeq},30min
04-Jul-14	10:10-10:40	58.6	70.0	60.0	55.0	57.0	53.5
10-Jul-14	13:05-13:35	59.1	70.0	60.5	55.0	57.0	54.9
16-Jul-14	09:05-09:35	59.6	70.0	61.0	57.0	57.0	56.1
22-Jul-14	09:00-09:30	58.8	70.0	60.0	51.5	57.0	54.1
28-Jul-14	09:00-09:30	57.8	70.0	59.5	52.5	57.0	50.1

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

Average	L_{Aeq},30min	58.8
Max	L_{Aeq},30min	59.6
Min	L_{Aeq},30min	57.8

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

Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L_{Aeq},30min	Limit	L_{10},30min	L_{90},30min	L_{Aeq},30min	L_{Aeq},30min
04-Jul-14	12:50-13:20	69.2	70.0	70.5	66.5	66.0	66.4
10-Jul-14	08:30-09:00	68.6	70.0	70.0	63.5	66.0	65.1
16-Jul-14	11:50-12:20	69.5	70.0	70.5	66.0	66.0	66.9
22-Jul-14	12:55-13:25	69.8	70.0	71.5	64.5	66.0	67.5
28-Jul-14	12:40-13:10	69.8	70.0	710.0	66.5	66.0	67.5

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

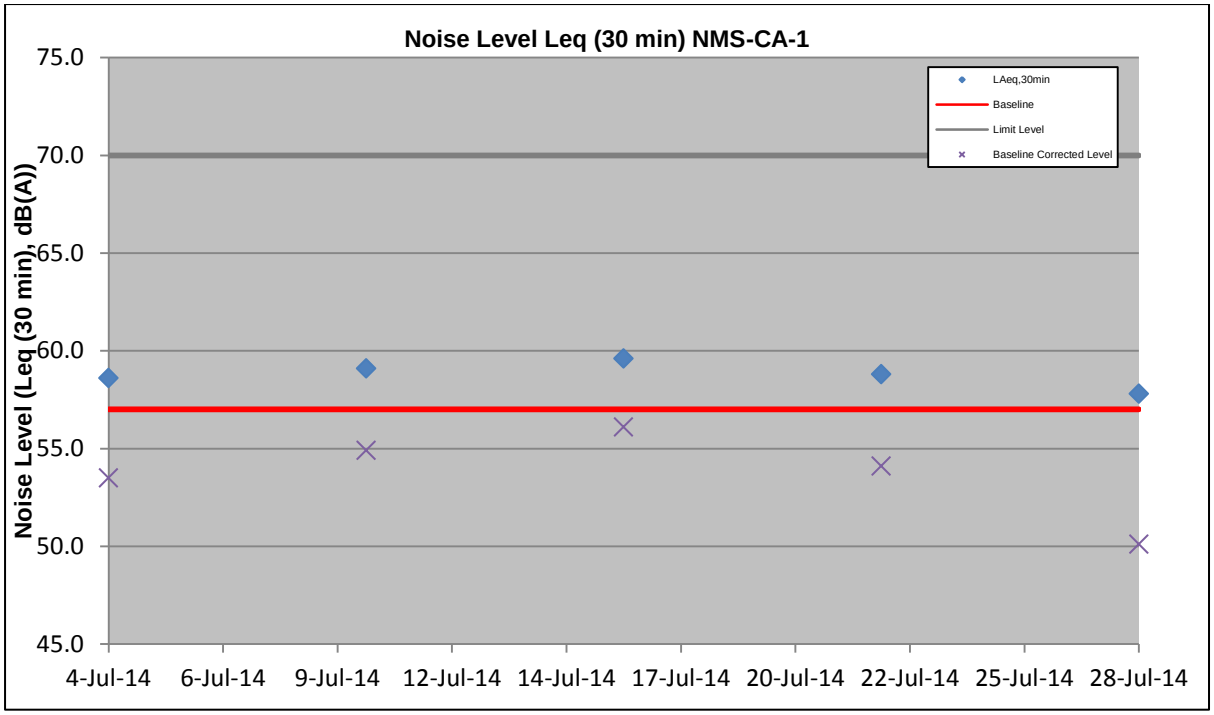
Average	L_{Aeq},30min	69.4
Max	L_{Aeq},30min	69.8
Min	L_{Aeq},30min	68.6

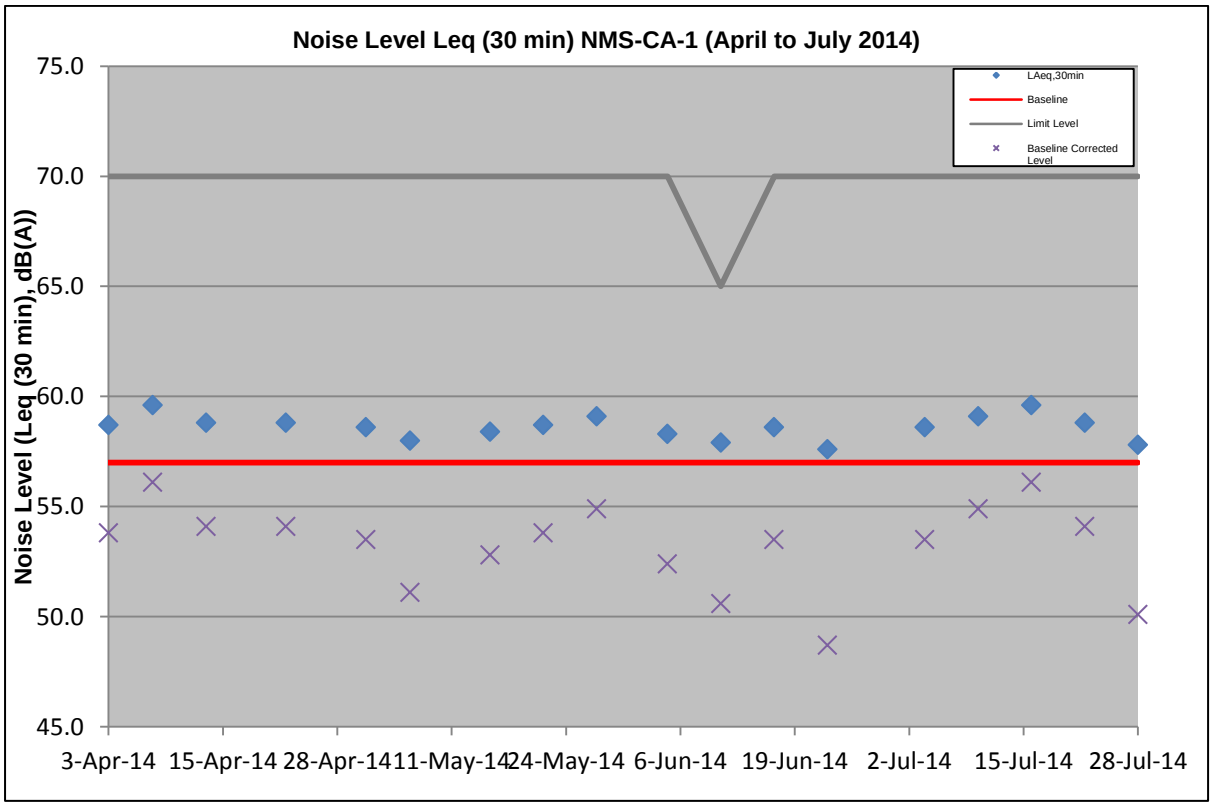
Location: NMS-CA-3 / NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home

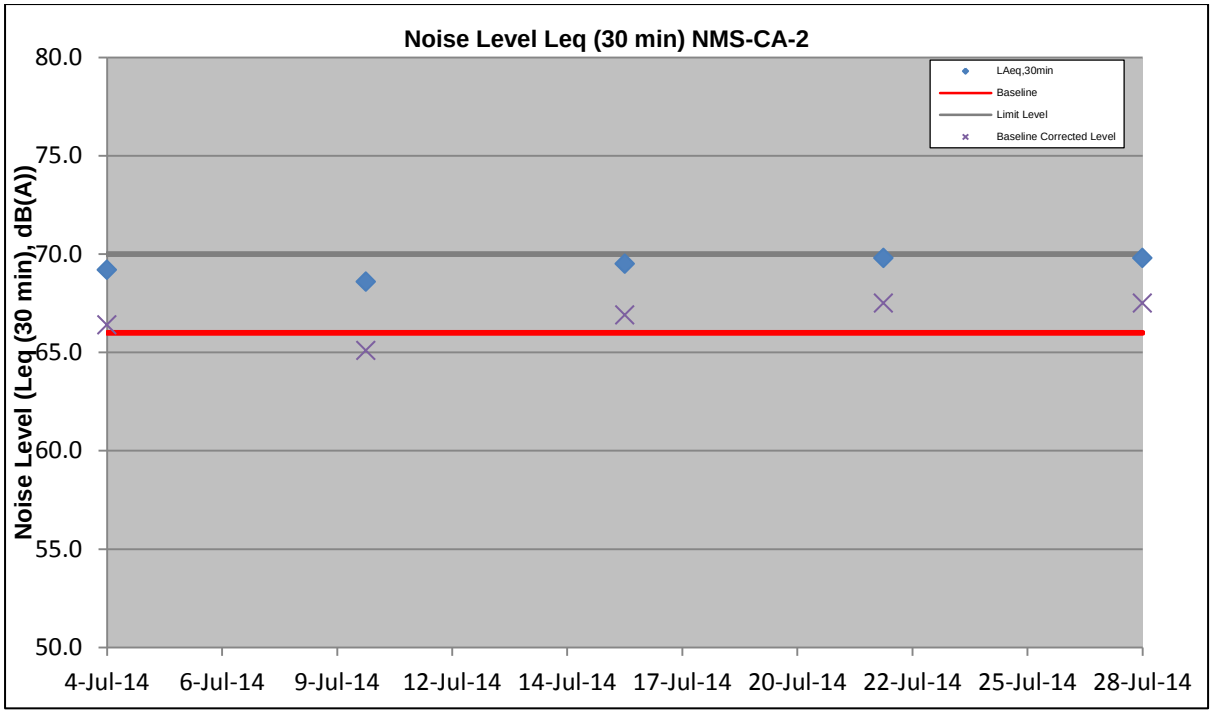
Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L_{Aeq},30min	Limit	L_{10},30min	L_{90},30min	L_{Aeq},30min	L_{Aeq},30min
04-Jul-14	14:05-14:35	68.5	70.0	69.5	64.0	73.0	< Baseline Level
10-Jul-14	10:10-10:40	68.8	70.0	70.0	63.5	73.0	< Baseline Level
16-Jul-14	13:20-13:50	68.2	70.0	69.5	62.5	73.0	< Baseline Level
22-Jul-14	11:00-11:30	67.5	70.0	69.0	64.0	73.0	< Baseline Level
28-Jul-14	14:00-14:30	68.4	70.0	70.0	64.0	73.0	< Baseline Level

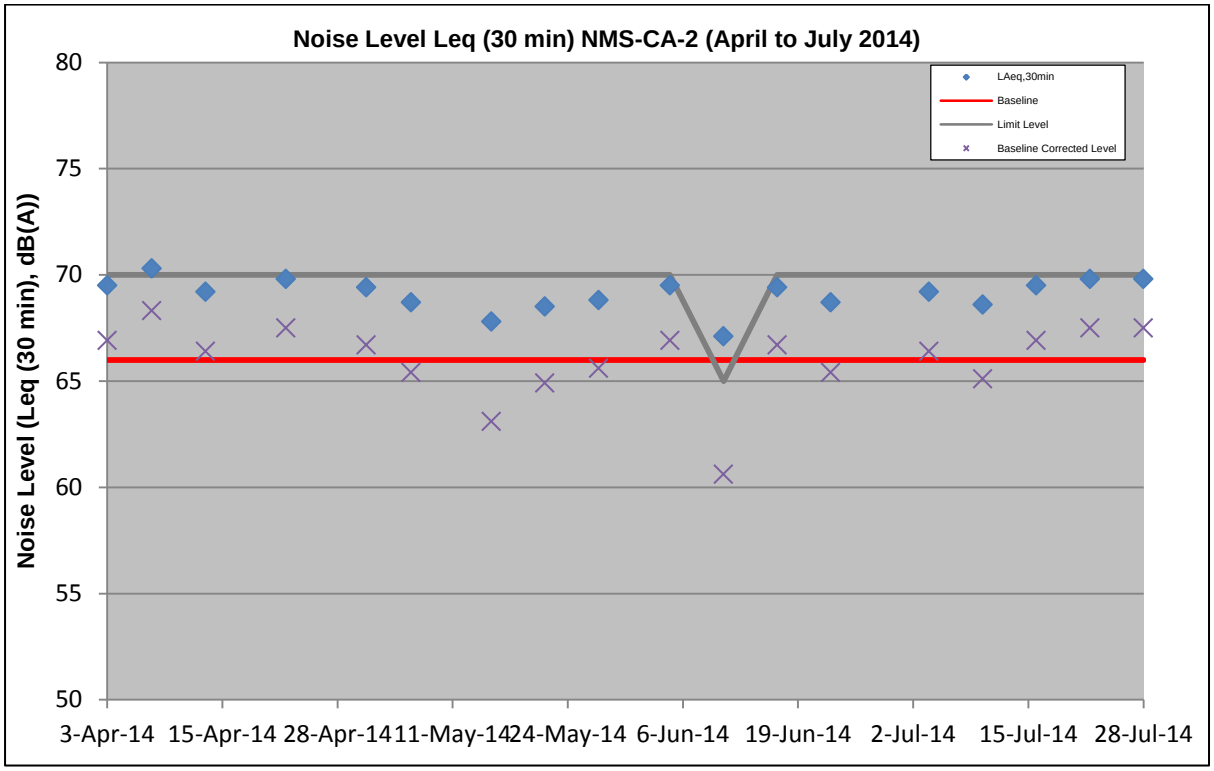
Notes: (*): Façade correction is included
(#): Baseline Corrected Level = Measured Noise Level - Baseline Noise Level

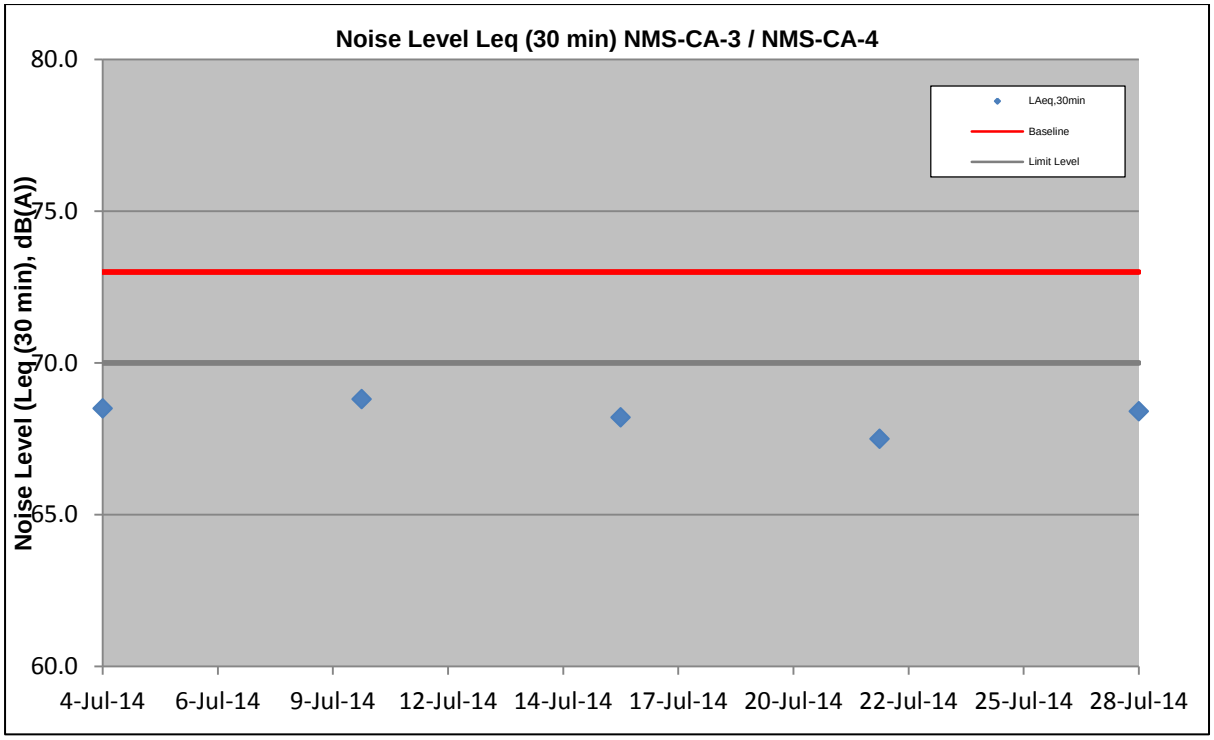
Average	L_{Aeq},30min	68.3
Max	L_{Aeq},30min	68.8
Min	L_{Aeq},30min	67.5

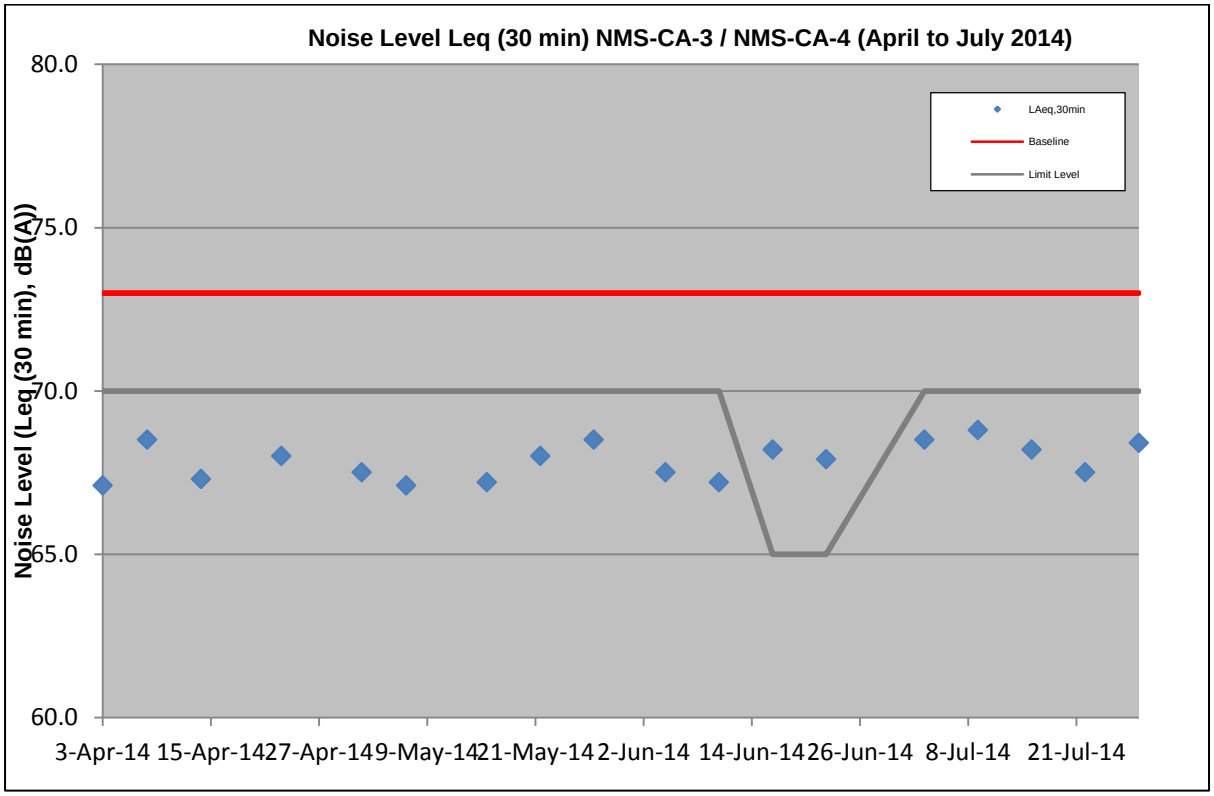

Noise Level Leq (30 min) NMS-CA-1
Noise Level (Leq (30 min), dB(A))
75.0
70.0
65.0
60.0
55.0
50.0
45.0
4-Jul-14
6-Jul-14
9-Jul-14
12-Jul-14
14-Jul-14
17-Jul-14
20-Jul-14
22-Jul-14
25-Jul-14
28-Jul-14
LAeq,30min
Baseline
Limit Level
Baseline Corrected Level


Noise Level Leq (30 min) NMS-CA-1 (April to July 2014)
Noise Level (Leq (30 min), dB(A))
75.0
70.0
65.0
60.0
55.0
50.0
45.0
3-Apr-14
15-Apr-14
28-Apr-14
11-May-14
24-May-14
6-Jun-14
19-Jun-14
2-Jul-14
15-Jul-14
28-Jul-14
LAeq,30min
Baseline
Limit Level
Baseline Corrected Level


Noise Level Leq (30 min) NMS-CA-2
Noise Level (Leq (30 min), dB(A))
80.0
75.0
70.0
65.0
60.0
55.0
50.0
4-Jul-14
6-Jul-14
9-Jul-14
12-Jul-14
14-Jul-14
17-Jul-14
20-Jul-14
22-Jul-14
25-Jul-14
28-Jul-14
LAeq,30min
Baseline
Limit Level
Baseline Corrected Level


Noise Level Leq (30 min) NMS-CA-2 (April to July 2014)
Noise Level (Leq (30 min), dB(A))
80
75
70
65
60
55
50
3-Apr-14
15-Apr-14
28-Apr-14
11-May-14
24-May-14
6-Jun-14
19-Jun-14
2-Jul-14
15-Jul-14
28-Jul-14
LAeq,30min
Baseline
Limit Level
Baseline Corrected Level


Noise Level Leq (30 min) NMS-CA-3 / NMS-CA-4
Noise Level (Leq (30 min), dB(A))
80.0
75.0
70.0
65.0
60.0
LAeq,30min
Baseline
Limit Level
4-Jul-14
6-Jul-14
9-Jul-14
12-Jul-14
14-Jul-14
17-Jul-14
20-Jul-14
22-Jul-14
25-Jul-14
28-Jul-14


Noise Level Leq (30 min) NMS-CA-3 / NMS-CA-4 (April to July 2014)
Noise Level (Leq (30 min), dB(A))
80.0
75.0
70.0
65.0
60.0
LAeq,30min
Baseline
Limit Level
3-Apr-14
15-Apr-14
27-Apr-14
9-May-14
21-May-14
2-Jun-14
14-Jun-14
26-Jun-14
8-Jul-14
21-Jul-14

Appendix I

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

Event and Action Plan for Air Quality

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

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

Event and Action Plan for Airborne Noise

Event	Action			
	ET	IEC	ER	Contractor
Action Level	1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness	1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures	1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	1. Notify the IEC, Contractor and EPD 2. Repeat measurement to confirm findings 3. Increase monitoring frequency 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Identify source and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event / Action Plan for Landscape and Visual

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

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

Appendix J

Waste Flow Table

MONTHLY SUMMARY WASTE FLOW TABLE

Name of Department: ENV

Contract No.:MTR-SCL1103

Monthly Summary Waste Flow Table for 2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	17.414	0.000	0.000	10.800	6.243	0.371	0.000	0.000	0.000	1.400	0.056
Feb	8.651	0.000	0.000	5.637	2.953	0.062	0.000	0.000	0.000	0.800	0.090
Mar	13.909	0.000	0.173	7.040	5.845	0.851	0.000	0.000	0.000	0.000	0.117
Apr	7.577	0.000	0.000	2.712	4.757	0.107	0.000	0.000	0.000	2.200	0.059
May	7.120	0.000	0.045	1.750	5.325	0.000	0.000	0.000	0.000	1.200	0.090
Jun	7.480	0.000	0.015	2.883	4.535	0.047	0.000	0.000	0.000	0.600	0.130
Sub-total	62.152	0.000	0.233	30.822	29.659	1.438	0.000	0.000	0.000	6.200	0.542
July	5.155	0.000	0.000	0.124	5.031	0.000	0.390	0.175	0.000	0.400	0.065
August											
September											
October											
November											
December											
Total	67.307	0.000	0.233	30.946	34.690	1.438	0.390	0.175	0.000	6.600	0.607

Comments:
1) Assumption: The densities of Rock, Soil, Mix Rock and Soil, and Regular Spoil are 2.0 ton/m3; the density of general refuse is 1.0 ton/m3; the density of waste oil is 1.0 ton/m3.
2) The cut-off date of waste amount in July is 28/7/2014 for TKO137FB/TM38FB, NENT landfill and Kai Tak 1108A.
3) The amounts of waste in July are 64.59 tons for NENT Landfill, 10062.3 tons for TKO137FB/TM38 FB, 247.6 tons for Kai Tak (Contract 1108A).
4) The amount of metal waste in July is 390kg for cut-off date as 28/7/2014.
5) The amount of paper waste in July is 5 bags, approximately 175kg, for cut-off date as 28/7/2014.
6) The amount of chemical waste in July is 400kg for cut-off date 28/7/2014.

Appendix K

Environmental Monitoring Programme for Coming Month

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

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

	Public Holiday
	Monitoring Day

Monitoring Details

Monitoring	Locations	Parameters
Air Quality	DMS-1 - C.U.H.K.A.A Thomas Cheung School, DMS-2 - Price Memorial Catholic Primary School and DMS-3 / DMS-4 - Hong Kong Sheng Kung Hui Nursing Home	24-hour TSP
Noise	NMS-CA-1 - C.U.H.K.A.A Thomas Cheung School, NMS-CA-2 - Price Memorial Catholic Primary School and NMS-CA-3 /NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home	$L_{Aeq(30\ min)}$, L_{10}, L_{90}

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 (July 2014)

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

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

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
February 2013	0	0	0
March 2013	0	0	0
April 2013	0	0	0
May 2013	0	0	0
June 2013	0	0	0
July 2013	0	0	0
August 2013	0	0	0
September 2013	0	0	0
October 2013	0	0	0
November 2013	0	0	0
December 2013	0	0	0
January 2014	0	0	0
February 2014	0	0	0
March 2014	0	0	0
April 2014	0	0	0
May 2014	0	0	0
June 2014	0	0	0
July 2014	0	0	0
Total	0	0	0

Appendix F

17th EM&A Report for Works Contract 1106 – Diamond Hill Station

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 17

[Period from 1 to 31 July 2014]

Works Contract 1106 – Diamond Hill Station

(August 2014)

Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 12th August 2014

Sembawang – Leader Joint Venture

Shatin to Central Link – Contract 1106 Diamond Hill Station

Monthly Environmental Monitoring and Audit Report For July 2014

(Version 2.0)

Certified By

Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

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

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

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EXECUTIVE SUMMARY

Introduction

1. This is the 17th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1106 – Diamond Hill Station**. This report documents the findings of EM&A Works conducted from 1 to 31 July 2014.

Summary of Construction Works undertaken during the Reporting Month

2. The major site activities undertaken in the reporting month include:

- D-wall construction;
- Interchange Adit – Construct Barette;
- Capping beam construction works and sheet piling;
- Gas Main Diversion Works;
- Construction of planter for tree transplantation;
- Bored piling works; and,
- Excavation and ELS works.

Environmental Monitoring and Audit Progress

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

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours
  Noise Monitoring Station ID
  - NMS-CA-3(1)(3)/NMS-CA-4(2)(3) (H.K. Sheng Kung Hui Nursing Home) 5 times
  - NMS-CA-4(1)/NMS-CA-3(2) (Block 1, Rhythm Garden (north-eastern façade)) 4 times
  - NMS-CA-5(1)/NMS-CA-2(2) (Block 1, Rhythm Garden (northern façade)) 4 times

- Construction Dust (24-hour TSP) Monitoring
  Dust Monitoring Station ID
  - DMS-3(1)(4) /DMS-4(2)(4) (H.K. Sheng Kung Hui Nursing Home) 5 times
  - DMS-4(1)/ DMS-3(2) (Block 1, Rhythm Garden) 5 times

Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
(3) Noise monitoring on NMS-CA-3(1)/ NMS-CA-4(2) (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.
(4) Dust monitoring on DMS-3(1)/ DMS-4(2) (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.

Cultural Heritage

4. An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site was approved by EPD on 8 April 2013. A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been subsequently obtained from Antiquities and Monuments Office (AMO) on 19 April 2013. The archaeological survey-cum-excavation at Former Tai Hom Village

commenced on 25 April 2013 and the fieldwork had been completed in September 2013 in accordance with the Licence granted and the approved AAP. A draft Archaeological Survey-cum-Excavation Report was submitted to AMO for review in March 2014.

5. The Conservation Plans for the two historic buildings, namely Former Royal Air Force Hangar and the Old Pillbox at the former Tai Hom Village site, were approved by EPD on 24 April 2013. Dismantling works on Former Royal Air Force Hangar was carried out in accordance with the approved Conservation Plan and completed in June 2013. Relocation works for the Old Pillbox had been completed in November 2013 in accordance with the approved Conservation Plan. Regular maintenance and inspection works of the two historic buildings were carried out in accordance with the approved Conservation Plan.

Waste Management

6. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 12,467m^3 of inert C&D materials were generated from the Project and were sent to SCL1108A and Tuen Mun Area 38 Fill Bank during the reporting month. About 91m^3 of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. 2,110kg of chemical waste was collected by licensed collector during the reporting month. No plastics, steel material but 210kg of paper/cardboard packaging was collected by the recycler during this reporting month.

Landscape and Visual

7. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 4, 17 and 31 July 2014. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

8. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 4, 10, 17, 24 and 31 July 2014. The representative of the IEC joined the site inspection on 24 July 2014. Details of the audit findings and implementation status are presented in Section 6.

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

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

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

11. No Project related environmental complaint and notification of summons/ successful prosecutions were received in this reporting period.

Future Key Issues

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

- D-wall construction;
- Interchange Adit – Construct Barette;
- Capping beam construction works and sheet piling;
- Gas Main Diversion Works;
- Drive sheet pile for cofferdam;
- Construction of planter for tree transplantation;
- Bored piling works;
- Excavation and ELS works; and
- West Unpaid Adit – Prebored socketed H-pilling works

1 INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was appointed by Sembawang – Leader Joint Venture (SLJV) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL)Works Contract 1106 – Diamond Hill Station (hereafter referred to as the Project).

Purpose of the Report

1.2 This is the 17th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 July 2014.

Structure of the Report

1.3 The structure of the report is as follows:

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

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

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

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

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

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

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

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

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

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

2.2 The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts. This Works Contract 1106 covers the construction of Shatin-to-Central Link (SCL) station in Diamond Hill (DIH).

General Site Description

2.3 For Works Contract 1106, the works area for the DIH station is located to the northeast of Choi Hung Road next to the existing Kwun Tong Line DIH Station. The DIH station will be constructed by cut-and-cover method. The alignment and works area for the Works Contract 1106 are shown in **Figure 1**.

Construction Programme and Activities

2.4 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.

- D-wall construction;
- Interchange Adit – Construct Barette;
- Capping beam construction works and sheet piling;
- Gas Main Diversion Works;
- Construction of planter for tree transplantation;
- Bored piling works; and,
- Excavation and ELS works.

Project Organisation

2.5 The project organizational chart and contact details are shown in **Figure 4.**

Status of Environmental Licences, Notification and Permits

2.6 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since the commencement of the construction works in March 2013 is presented in Table 2.1.

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

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-438/2012/E	04/04/2014	14/07/2014	Superseded by EP-438/2012/F since 15/07/2014
EP-438/2012/F	15/07/2014	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
No.: 353668	19/12/2012	N/A	Valid
Billing Account for Construction Waste Disposal			
Account No.: 7016601	27/12/2012	N/A	Valid
Registration of Chemical Waste Producer			
5213-281-S3711-01	11/01/2013	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00014959-2012	14/01/2013	31/01/2018	Valid
WT00016920-2013	06/09/2013	30/09/2018	Valid
Construction Noise Permit (CNP)			
GW-RE0485-14	27/05/2014	31/07/2014	Valid
GW-RE0517-14	27/05/2014	26/11/2014	Valid
GW-RE0585-14	03/06/2014	02/07/2014	Valid
GW-RE0754-14	08/07/2014	02/01/2015	Valid

Summary of EM&A Requirements

2.7 The EM&A programme under Works Contract 1106 requires regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

2.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.

2.9 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

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

Table 3.1 Regular Construction Noise Monitoring Location

Regular Construction Noise Monitoring Location	Description	Type of Measurement
NMS-CA-3(1)(3)(4)/ NMS-CA-4 (2)(3)(4)	Hong Kong Sheng Kung Hui Nursing Home	Façade
NMS-CA-4(1)/ NMS-CA-3(2)	Block 1, Rhythm Garden (north-eastern façade)	Façade
NMS-CA-5 (1) (5)/ NMS-CA-2(2)(5)	Block 1, Rhythm Garden (northern façade)	Façade

Note:
(1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
(3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
(4) Noise monitoring on NMS-CA-3(1)/ NMS-CA-4(2) (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.
(5) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.

Monitoring Parameter and Frequency

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

3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). L_{Aeq} (30min) (as six consecutive $L_{eq,\ 5\text{-}min}$ readings) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays.

Monitoring Equipment and Methodology

Field Monitoring

3.4 The monitoring procedures are as follows:

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

  - frequency weighting : A
  - time weighting : Fast
  - measurement time : 5 minutes (obtaining six consecutive $L_{eq,5min}$ readings for a $L_{eq,30\ min}$ reading)

- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- At the end of the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB(A) shall be made to the noise parameter obtained by free field measurement.

Monitoring Equipment

3.5 The sound level meters and calibrator used for the noise measurement, as listed in **Table 3.2**, 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**.

Table 3.2 Noise Monitoring Equipment

Monitoring Equipment	Model (Serial no.)
Sound Level Meter	SVAN 955 (Serial no.: 12553) SVAN 957 (Serial no.: 21459)
Calibrator	SV30A (Serial no.: 24780) B&K 4231 (Serial no.:2412367)

Maintenance and Calibration

3.6 Maintenance and Calibration procedures were as follows:

- The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator were checked and calibrated at yearly intervals. Copies of calibration certificates are attached in **Appendix C**.

Action & Limit Level for Construction Noise Monitoring

3.7 The Action and Limit Levels are presented in **Appendix B** and the Event / Action Plan (EAP) for noise monitoring is presented in **Appendix I.**

Continuous Noise Monitoring

3.8 With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared and submitted under EP Condition 2.10, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria will be anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (TAW-HUH) under Works Contract 1106.

Regular Construction Dust Monitoring

3.9 The proposed dust monitoring stations for the construction phase of the Project, as recommended in the approved EM&A Manual, are listed in **Table 3.3** and shown in **Figure 3**. The proposed locations have been agreed with the ER, EPD and IEC.

Table 3.3 Dust Monitoring Location

Regular Dust Monitoring Location	Description
DMS-3(1)(3)(4)/ DMS-4(2)(3)(4)/	Hong Kong Sheng Kung Hui Nursing Home
DMS-4(1) / DMS-3(2)	Block 1, Rhythm Garden

Note:
(1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
(3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
(4) Dust monitoring on DMS-3(1)/DMS-4(2) (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.

Monitoring Parameter and Frequency

3.10 The dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. The 24-hour TSP levels were monitored at the frequency and duration stated in **Table 3.4**. The TSP monitoring at Rhythm Garden was conducted as per the schedule presented in **Appendix D**.

Table 3.4 Dust Monitoring Parameters and Frequency

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring(1)	Throughout the construction period	24-hour TSP	Once per 6 days

Note:
(1) 1- hour TSP shall be conducted when one documented valid complaint is received.

Monitoring Equipment

3.11 **Table 3.5** summarizes the equipment used for the dust monitoring.

Table 3.5 Dust Monitoring Equipment

Equipment	Model and Make	Qty.
HVS	Tisch Environmental, Inc.; Model no. TE-5170, Serial no.: 2352	1
Calibration Orifice	Tisch Environmental, Inc.; Model no. TE – 5025A Orifice ID: 0993	1

Instrumentation

3.12 High Volume Samplers (HVS) connected with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 Appendix B (Part 50).

HVS Installation

3.13 The following guidelines were adopted during the installation of HVS:

- Sufficient support was provided to secure the samplers against gusty wind.
- No two samplers were placed less than 2 meters apart.
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
- A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
- No furnaces or incineration flues were nearby.
- Airflow around the sampler was unrestricted.
- The samplers were more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction

during monitoring.

Filters Preparation

3.14 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3 μm diameter. A HOKLAS accredited laboratory, Wellab Ltd. (HOKLAS Registration No. 083), was responsible for the preparation of pre-weighed filter papers for Cinotech's monitoring team.

3.15 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±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 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard.
- The power supply was checked to ensure the sampler worked properly.
- The filter holding frame and the area surrounding the filter were cleaned.
- On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the air quality monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts to avoid air leakage at the edges.
- The shelter lid was closed and secured with the aluminum strip.
- A new flow rate record chart was set into the flow recorder.
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- The flow rate of the HVS sampler would be verified to be constant and recorded on the data sheet before and after sampling.
- The elapsed time and other relevant information was recorded. After sampling, the sampled filter was removed carefully and folded in half-length so that only surfaces with collected particulate matter were in contact.
- It was then placed in a clean plastic envelope and sealed and sent to the Wellab Ltd. for weighing.
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations.

Maintenance/Calibration

3.18 The following maintenance/calibration was required for the HVS:

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

Action and Limit Levels for Dust Monitoring

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

Cultural Heritage

3.20 An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site was approved by EPD on 8 April 2013. A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been subsequently obtained from Antiquities and Monuments Office (AMO) on 19 April 2013. The archaeological survey-cum-excavation at Former Tai Hom Village shall be conducted in accordance with the Licence granted and the approved AAP.

3.21 The Conservation Plans for the two historic buildings, namely Former Royal Air Force Hangar and the Old Pillbox at the former Tai Hom Village site, were approved by EPD on 24 April 2013. Dismantling works on Former Royal Air Force Hangar and relocation work of the Old Pillbox shall be carried out in accordance with the approved Conservation Plan. Regular maintenance and inspection works of the two historic buildings shall be carried out in accordance with the approved Conservation Plan.

Landscape and Visual

3.22 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is given in **Appendix J**. The Event / Action Plan (EAP) for landscape and visual are presented in **Appendix I.**

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (June 2014)	14th July 2014

5 MONITORING RESULTS

Regular Construction Noise Monitoring

5.1 A total of 8 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. No exceedance of the limit level was recorded at designated monitoring stations.

5.2 The noise monitoring results recorded at NMS-CA-5[(1)]/NMS-CA-2[(2)] (Block 1, Rhythm Garden (northern façade)) all exceeded the daytime construction noise criterion. However, the results are not considered as exceedance as the results on 10, 16 and 28 July were below the baseline noise level; and the result on 23 July was below limit level after baseline correction. The noise monitoring results at NMS-CA-4[(1)]/NMS-CA-3[(2)] did not exceed the daytime construction noise criterion.

5.3 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.

5.4 The noise monitoring results together with their graphical presentations are presented in **Appendix F**[(3)].

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

Regular Dust Monitoring

5.6 A total of 5 sets of 24-hour TSP monitoring were carried out at the designated monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. The monitoring results together with their graphical presentations are presented in **Appendix E**[(3)] and a summary of the dust monitoring results in this reporting month is given in **Table 5.1**.

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

Parameter	Minimum µg/m^3	Maximum µg/m^3	Average µg/m^3	Action Level, µg/m^3	Limit Level, µg/m^3
24-hr TSP (DMS-3[(1)(4)]/ DMS-4[(2)(4)])	20.7	40.0	27.2	159.1	260
24-hr TSP (DMS-4[(1)]/ DMS-3[(2)])	19.2	58.2	32.0	160.4	260

Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
(3) The monitoring results and graphical presentation for H.K. Sheng Kung Hui Nursing Home are presented in Monthly EM&A Report for Contract 1103.
(4) Dust monitoring on DMS-3[(1)]/DMS-4[(2)] (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103

5.7 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.

5.8 Wind monitoring data were obtained from Kai Tak Meteorological Station of Hong Kong Observatory and shown on **Appendix E**.

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

Cultural Heritage

5.10 An Archaeological Action Plan (AAP) for the survey-cum-excavation at the former Tai Hom Village site was approved by EPD on 8 April 2013. A Licence to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been subsequently obtained from Antiquities and Monuments Office (AMO) on 19 April 2013. The archaeological survey-cum-excavation at Former Tai Hom Village commenced on 25 April 2013 and completed in September 2013 in accordance with the Licence granted and the approved AAP. A draft Archaeological Survey-cum-Excavation Report was submitted to AMO for review in March 2014.

5.11 The Conservation Plans for the two historic buildings, namely Former Royal Air Force Hangar and the Old Pillbox at the former Tai Hom Village site, were approved by EPD on 24 April 2013. Dismantling works on Former Royal Air Force Hangar was carried out in accordance with the approved Conservation Plan and completed in June 2013. Relocation works for the Old Pillbox had been completed in November 2013 in accordance with the approved Conservation Plan. Regular maintenance and inspection works of the two historic buildings were carried out in accordance with the approved Conservation Plan.

Waste Management

5.12 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.2**. No Plastic, steel material but 210kg of paper/cardboard packaging was collected by the recycler during this reporting month. Detail of waste management data is presented in **Appendix K**.

Table 5.2 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) [a]	C&D Materials (non-inert) [b]				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/ cardboard	Plastics	Metals
July 2014	12,467m^3	91m^3	*2,110kg*	210 *kg*	0*kg*	0*kg*

Notes:
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil, which were delivered to SCL 1108A and Tuen Mun Area 38 Fill Bank during the reporting month.
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. General refuse was delivered to designated landfill for disposal.

Landscape and Visual

5.13 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 4, 17 and 31 July 2014. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audits

6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix H**.

6.2 Site audits were conducted on 4, 10, 17, 24 and 31 July 2014 A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 24 July 2014. Site visit was conducted by EPD on the 15 July 2014. The details of observations during site audit carried out by ET can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

6.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix J**.

6.4 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	10 July 2014	Observation: Muddy water was observed accumulating in the wheel wash bay at bored-pile area. Contractor is reminded to clear the sludge regularly.	As observed on 17 July, the sludge and muddy water had been removed from the wheel wash bay at bored-pile area.
	24 July 2014	Observation: Leakage from the temporary ditch for muddy water discharge was observed at the bore-pile area. Contractor should properly maintain the ditch to prevent leakage and clear the pond of accumulated muddy water.	As observed on 31 July, leakage from the temporary ditch had been blocked, no muddy water discharge was observed. The pond of accumulated muddy water was clear wherever possible.
Noise	26 June 2014	Observation: Noise barrier should be provided to stone breaker at area near tree DT1885 to reduce noise generation	As observed on 4 July, noise barrier was not provided, the item was remarked as 140704-O05 and follow up actions were needed to be reviewed.
	4 July 2014	Observation: Sound proof mat should be provided to stone breaker.	As observed on 10 July, sound proof mat was provided to the breaking tip of the stone breaker.
	10 July 2014	Observation: The panel of the air compressors at the bored-pile area was opened. Contractor is reminded to close it to reduce noise impact.	As observed on 17 July, the panel of the air compressor at the bored-pile area had been closed.
	24 July 2014	Observation: The breaking tip of the stone breaker at west bound capping beam area should be covered with noise-proof mat to reduce noise impact.	As observed on 31 July, the stone breaker was not being used.
Landscape and Visual	26 June 2014	Observation: Construction materials and container were observed within the tree protection zone at bar-bending area, W8	As observed on 4 July the construction materials were either removed or sufficient space had

Parameters	Date	Observations and Recommendations	Follow-up
		and tree 1911 next to Lung Cheng Road. Contractor should remove them and set up protection zone properly.	been provided in between the tree and the container.
	4 July 2014	Reminder: Contractor was reminded to remove the construction materials inside the tree protection zone at W8.	As observed on 10 July, the construction materials inside the tree protection zone were removed.
	17 July 2014	Observation: Contractor is reminded to properly set up tree protection zone to protect trees at W8 and next to Lung Cheung Road. Construction materials near trees at W8 should also be removed.	As observed on 24 July, further rectification/improvement should be made, the item was remarked as 140724-O01 and follow up actions were needed to be reviewed
	24 July 2014	Observation: Tree protection zone should be probably set up to protect trees at W8, site office and Lung Cheung Road. Construction materials should be removed from the tree protection zones at W8 and near site office. Contractor is also reminded to carefully protect trees at W8 from runoff.	As observed on the 31 July, tree protection zone had been properly set up to protect trees at W8, site office and Lung Cheung Road; construction materials were also removed from the tree protection zones at W8 and near site office; the trees at W8 were being protected from runoff.
	31 July 2014	Observation: Tree protection zone should be set up to protect trees at the bar bending areas. Construction materials should be removed from the tree protection zones at W8.	The follow up action will be reported in next reporting month
Cultural Heritage	---	---	---
Air Quality	4 July 2014	Observation: Grouting plants on the site should be properly covered on three sides and on top.	As observed on 10 July, the grouting plant had been properly covered to reduce dust impact.
	17 July 2014	Reminder: Dusty stockpile near tree 1911 should be properly covered by impervious sheeting to prevent dust generation.	As observed on 24 July, the dusty stockpile had been properly covered to prevent dust generation.
	24 July 2014	Reminder: Smoke emission from a generator at the bored-pile area was observed. Contractor should properly maintain the generator to prevent air pollution.	As observed on 31 July, the generator was relocated from the original position. No smoke emission from other generators was observed.
Waste/ Chemical Management	26 June 2014	Observation: Oil stain was observed on the ground at bored-pile area. Contractor should remove the stain as chemical waste and properly maintain craning machine to prevent leakage.	As observed on 4 July, the oil stain had been removed properly.
	4 July 2014	Observation: Oil leakage was observed on the ground. Contractor should clear them properly as chemical waste and properly maintain the D-wall extractor.	As observed on 10 July, the oil stain had been properly removed as chemical waste and drip tray was provided to prevent further contamination.
	4 July 2014	Observation: Drip tray should be provided to chemical containers and chemical in the drip tray should be removed properly as chemical waste.	As observed on 10 July, the chemical containers had been removed and chemical in the drip tray had been properly removed as chemical waste.

Parameters	Date	Observations and Recommendations	Follow-up
	10 July 2014	Reminder: Contractor is reminded to properly block the drain hole of drip tray near the site entrance to prevent chemical leakage.	As observed on 17 July, the drain hole had not been properly blocked. Item was remarked as 140717-R04 and follow up action were needed to be reviewed
	17 July 2014	Reminder: Oil stain was observed on the ground at capping beam area. Contractor is reminded to properly remove it as chemical waste.	As observed on 24 July, oil stain on the ground had been properly removed as chemical waste.
	17 July 2014	Reminder: Drain hole of the drip tray near the site entrance should be properly blocked to prevent chemical leakage.	As observed on 24 July, the drain hole of the drip tray had been properly blocked to prevent chemical leakage.
	24 July 2014	Reminder: Oil leakage from the D-wall extractor was observed. Contractor should properly remove the oil stain as chemical waste and properly maintain the extractor or provide drip tray to prevent contamination of the ground.	As observed on 31 July, the oil stain had been properly removed as chemical waste.
	31 July 2014	Reminder: Oil stain was found on the ground near the generator at the bored piling area. Contractor is reminded to properly clear them as chemical waste.	Follow up action will be reported in next reporting month.
Permits/ Licenses	---	---	---

ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

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

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

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

Summary of Environmental Summon and Successful Prosecution

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

7 FUTURE KEY ISSUES

Construction Programme for the Next Month

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

- D-wall construction;
- Interchange Adit – Construct Barette;
- Capping beam construction works and sheet piling;
- Gas Main Diversion Works;
- Drive sheet pile for cofferdam;
- Construction of planter for tree transplantation;
- Bored piling works;
- Excavation and ELS works; and
- West Unpaid Adit – Prebored socketed H-pilling works

Key Issues in the Next Month

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

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

Monitoring Schedule in the Next Month

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

8 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

8.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 July 2014 in accordance with EM&A Manual and the requirement under EP.

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

8.3 5 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 3 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.

8.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.

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

Recommendations

8.6 Water Quality

- All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times.
- Runoff from wheel washing facilities should be desilted and deposited silt should be removed at least on a weekly basis to ensure the continued efficiency of the process.

Construction Noise

- Regular review on the noise mitigation measures and the conditions of the implemented noise mitigation measures shall be properly maintained.
- Noisy plants should be screened by acoustic mat or movable noise barrier to reduce noise generation.
- Door of operating engine and other noise generation parts should be closed at all time.

Landscape and Visual

- "No-intrusion zone" should be established and maintained for existing trees as far as practicible. The Contractor is reminded to closely monitor and restrict the site working staff and construction plants from entering the erected "no-intrusion zone" for existing trees and avoid placing construction materials within the tree protection zone for maximizing the protection. No construction works should be carried out in the "no-intrusion zone" for existing trees.

Air Quality

- Regular water spraying on site is reminded to be implemented as per EP requirement.
- Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the

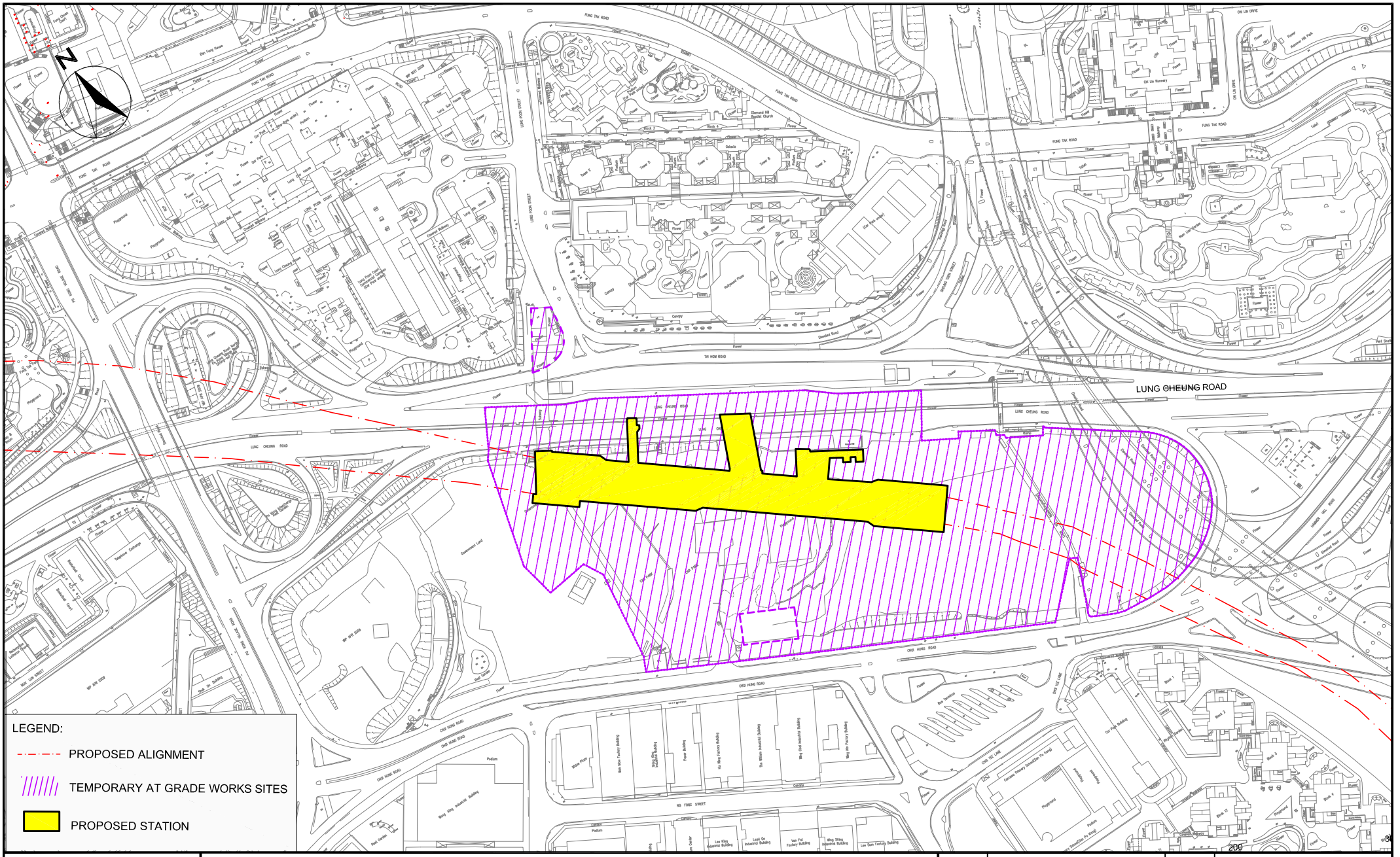
excavation or unloading.

- Regular maintenance should be provided to plants to prevent black smoke emission.
- Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) and cement grouting/mixing stations should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides

Waste/Chemical Management

- Good site practice of providing drip trays for temporary use of chemicals shall be sustained. Drip trays should be properly maintained.
- Provision and enhancement of the preventive mitigation measures to avoid oil leakage during oil filling works and from working plants.
- Any oil mixture and oil stain on the ground should be disposed of as chemical waste.

FIGURES



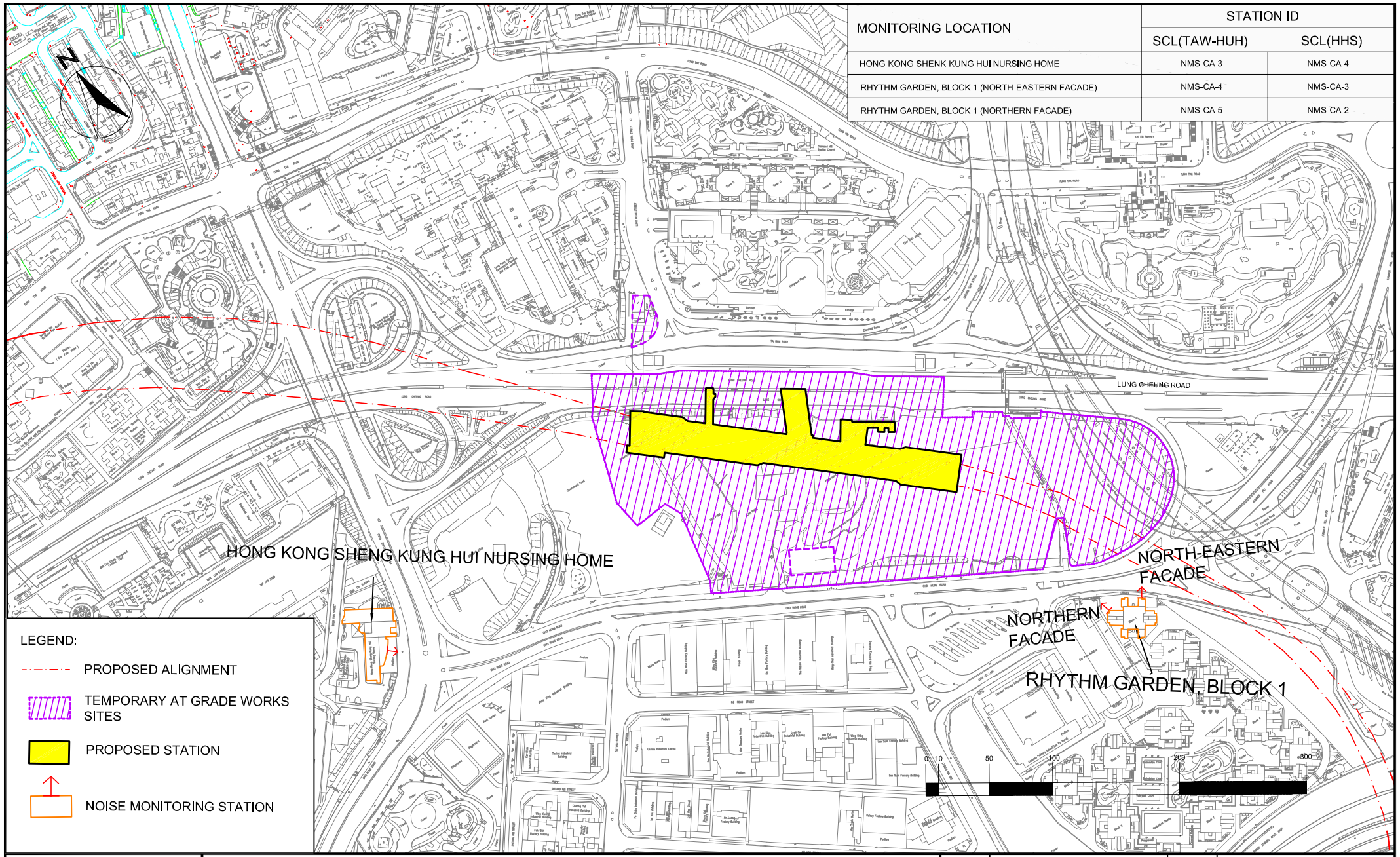
CINOTECH
Cinotech Consultants Limited

SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION

SITE LAYOUT PLAN

SCALE	1:80	DATE	MAY 2013
CHECK	KC	DRAWN	JW
JOB No.	MA12051	FIGURE NO. 1	REV -

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

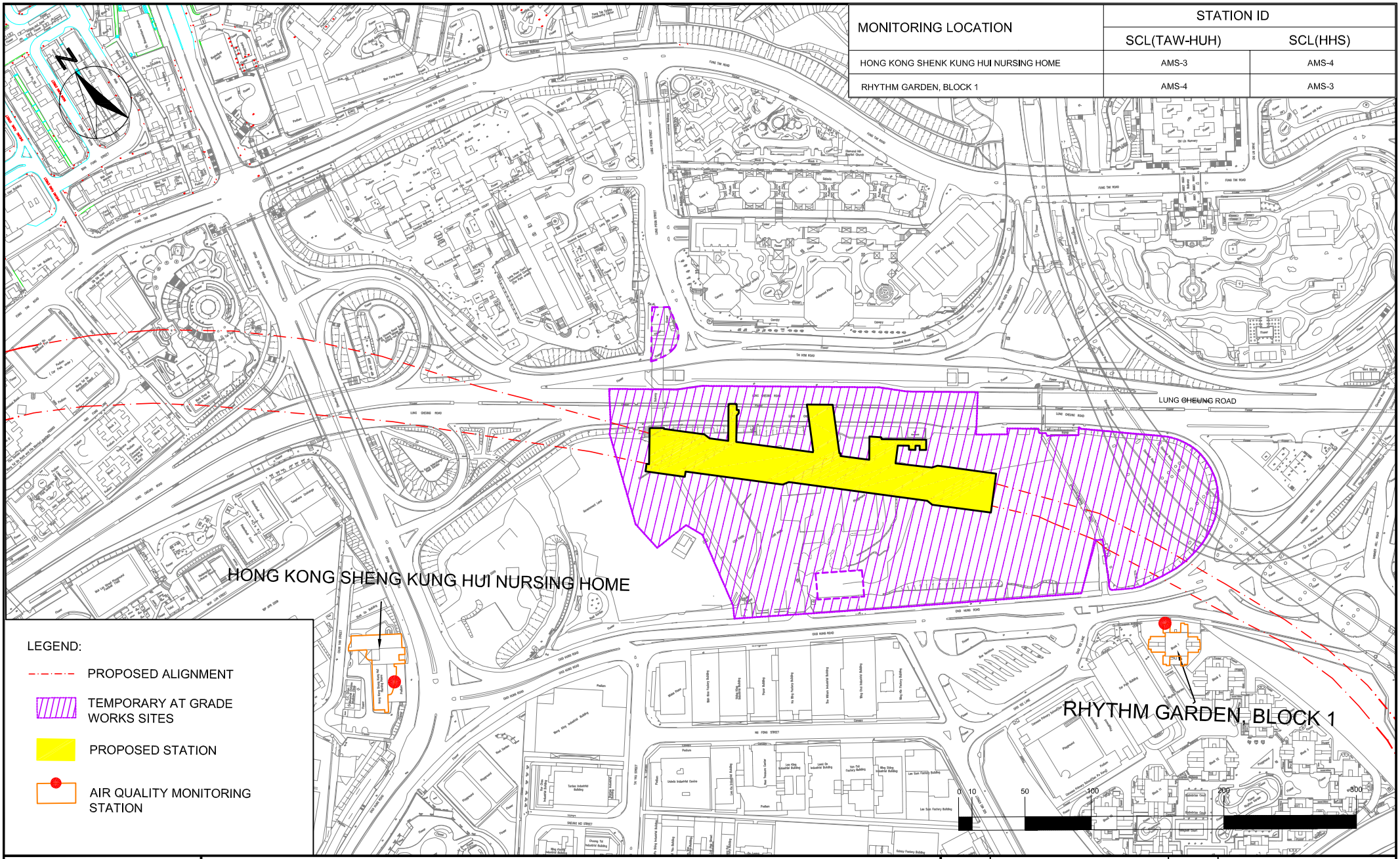


CINOTECH
Cinotech Consultants Limited

SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION

LOCATION OF NOISE MONITORING STATIONS(CONSTRUCTION AIRBORNE NOISE)

SCALE	1:100	DATE	MAY 2013
CHECK	KC	DRAWN	JW
JOB No.	MA12051	FIGURE NO. 2	REV -



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

LEGEND:

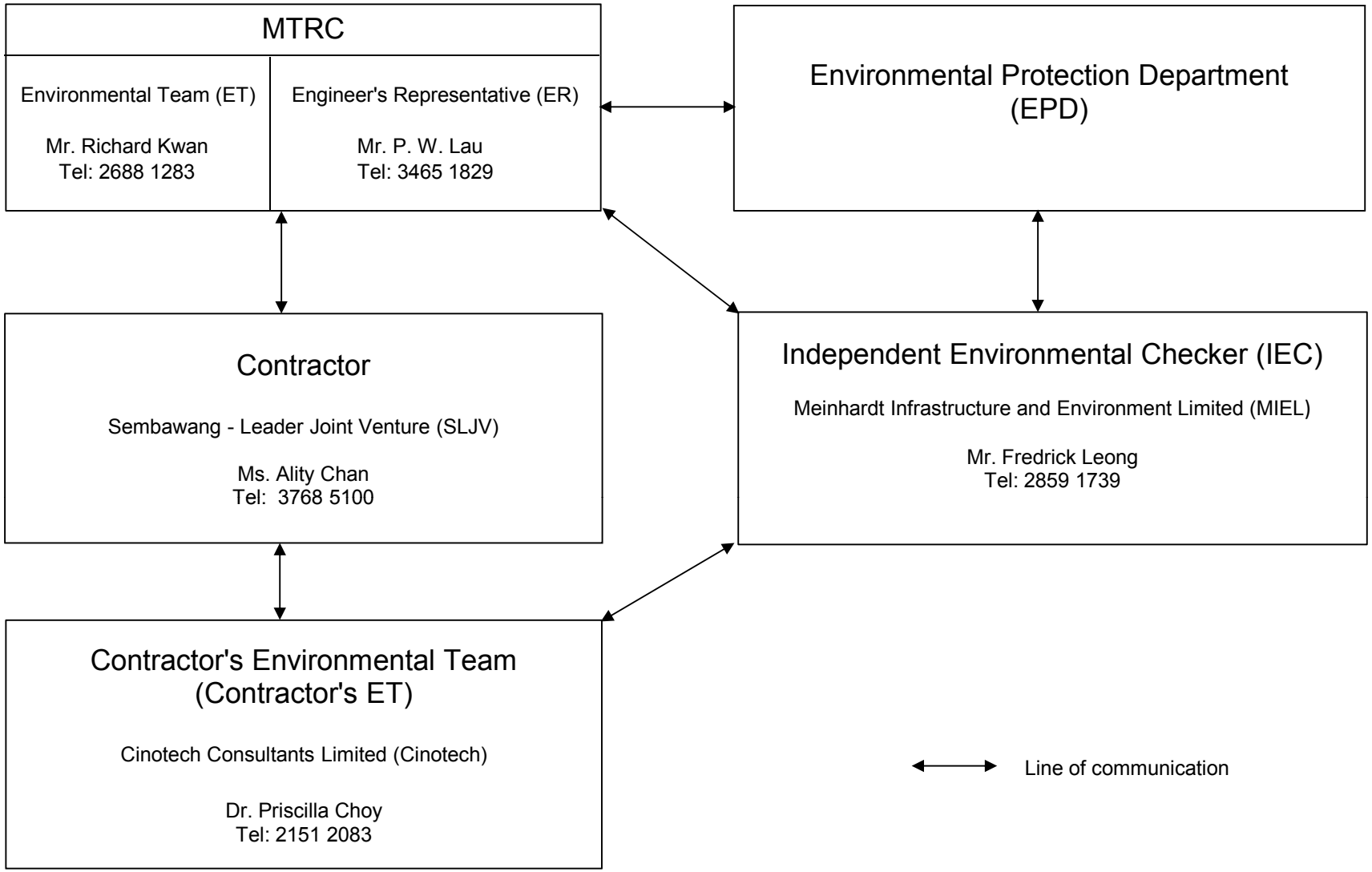
- PROPOSED ALIGNMENT
- TEMPORARY AT GRADE WORKS SITES
- PROPOSED STATION
- AIR QUALITY MONITORING STATION

CINOTECH
Cinotech Consultants Limited

SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION

LOCATION OF AIR QUALITY MONITORING STATIONS

SCALE	1:100	DATE	MAY 2013
CHECK	KC	DRAWN	JW
JOB No.	MA12051	FIGURE NO. 3	REV -



Title	Scale	Proposal
MTR SCL Works Contract 1106 Diamond Hill Station Organisation Chart and Key Contact of the Project	N.T.S	No. MA12051
	Date Jul-14	Figure 4

CINOTECH

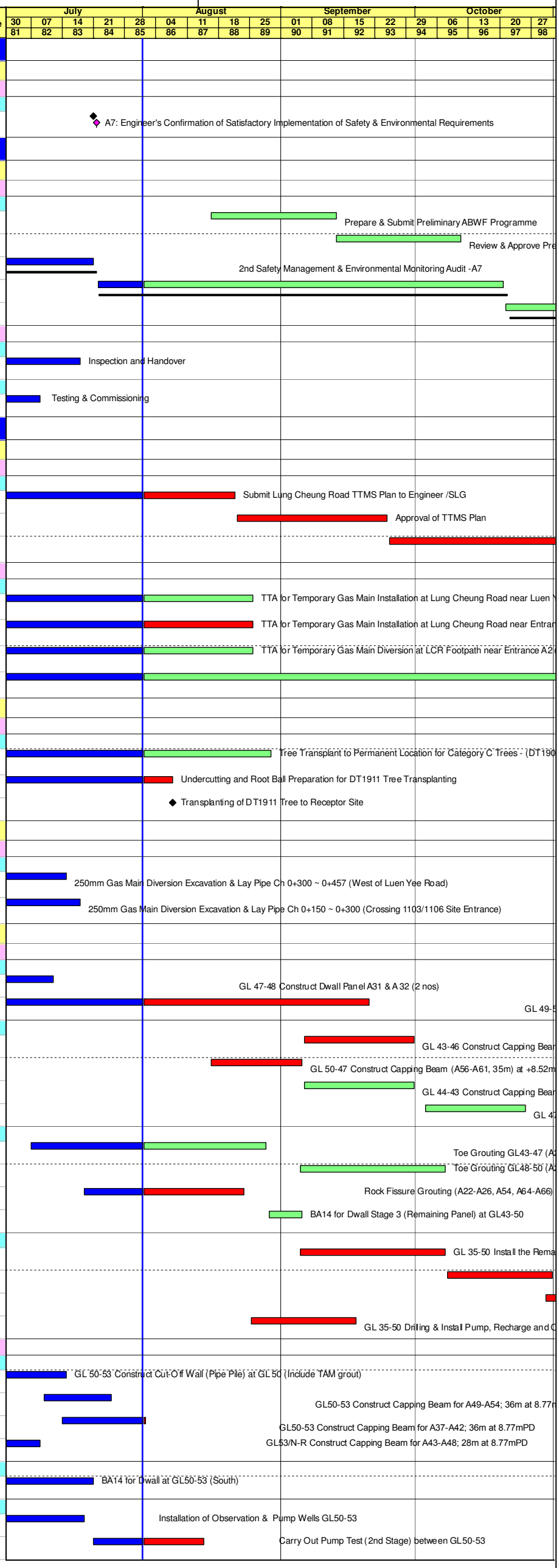
APPENDIX A
TENTATIVE CONSTRCUTION PROGRAMME

Contract 1106 - Diamond Hill Station

MTR

Sembawang - Leader Joint Venture

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete
Contract Dates					
Milestone Dates					
Cost Centre A Milestones					
Preliminaries					
C1106.MSA07	A7: Engineer's Confirmation of Satisfactory Implementation of Safety & Environmental Requirements	0		21-Jul-14 A	100%
Cost Centre A - Preliminaries					
General Requirements					
Submissions					
General					
C1106.GS0278	Prepare & Submit Preliminary ABWF Programme	28	16-Aug-14*	13-Sep-14	0%
C1106.GS0282	Review & Approve Preliminary ABWF Programme	28	13-Sep-14	11-Oct-14	0%
C1106.GS0327	2nd Safety Management & Environmental Monitoring Audit -A7	90	23-Apr-14 A	21-Jul-14 A	100%
C1106.GS0330	2nd Progress Monitoring & Programming Management System Audit - A8	92	22-Jul-14 A	20-Oct-14	10%
C1106.GS0332	2nd Quality Management Audit - A9	92	21-Oct-14	20-Jan-15	0%
Engineer's Site Office					
Construction / Installation					
C1106.GS0580	Inspection and Handover	7	27-Jun-14 A	18-Jul-14 A	100%
External Works & T&C					
C1106.GS0588	Testing & Commissioning	7	24-Jun-14 A	09-Jul-14 A	100%
Cost Centre B: SCL- DIH Station, Entrances and Adits					
TTMS Implementation					
Submissions					
TTM Submission					
C1106.TMS0332	Submit Lung Cheung Road TTMS Plan to Engineer /SLG	21	27-Jun-14 A	21-Aug-14	40%
C1106.TMS0333	Approval of TTMS Plan	28	22-Aug-14	24-Sep-14	0%
C1106.TMS0335	To Obtain Road Works Advice from Road Management Office & ready for TTMS Implementation	60	25-Sep-14	23-Nov-14	0%
Lung Cheung Road					
TTA Implementation					
C1106.TMS0489	TTA for Temporary Gas Main Installation at Lung Cheung Road near Luen Yee Rd (SLG/1106/011/DIH/007/001B)	107	10-Feb-14 A	25-Aug-14	85%
C1106.TMS0490	TTA for Temporary Gas Main Installation at Lung Cheung Road near Entrance A2 (SLG/1106/015/DIH/005/001 &2B)	107	10-Feb-14 A	25-Aug-14	85%
C1106.TMS0550	TTA for Temporary Gas Main Diversion at LCR Footpath near Entrance A2 (SLG/1106/011/DIH/008/001B)	64	05-Mar-14 A	25-Aug-14	85%
C1106.TMS0560	TTA for Installation of Hoarding at Lung Cheung Road Footway (SLG/1106/07/DIH/003/001A)	152	01-Jul-14 A	31-Dec-14	17%
Tree Feeling / Transplanting					
General					
Tree Transplanting					
C1106.BTP1482	Tree Transplant to Permanent Location for Category C Trees - (DT1904, DT1906-1907, DT1913)	43	27-Sep-13 A	29-Aug-14	86%
C1106.BTP1555	Undercutting and Root Ball Preparation for DT1911 Tree Transplanting	10	30-Jun-14 A	07-Aug-14	80%
C1106.BTP1560	Transplanting of DT1911 Tree to Receptor Site	0		07-Aug-14	0%
Utility Diversions					
Towngas (HKCG)					
Works Area other than Lung Cheung Road					
C1106.BTP1570	250mm Gas Main Diversion Excavation & Lay Pipe Ch 0+300 ~ 0+457 (West of Luen Yee Road)	20	07-Jan-14 A	15-Jul-14 A	100%
C1106.BTP1575	250mm Gas Main Diversion Excavation & Lay Pipe Ch 0+150 ~ 0+300 (Crossing 1103/1106 Site Entrance)	20	06-Jan-14 A	18-Jul-14 A	100%
Diaphragm Wall & Foundation Works					
DIH (SCL) Gridline 43 - 50					
Dwall Construction					
C1106.BDW4735	GL 47-48 Construct Dwall Panel A31 & A32 (2 nos)	60	09-May-14 A	12-Jul-14 A	100%
C1106.BDW4798	GL 49-50 Construct Dwall Panel A34, A35 & A36 (3 nos)	95	20-Jun-14 A	20-Sep-14	25%
Capping Beam & Sheet Pile					
C1106.BDW4820	GL 43-46 Construct Capping Beam (A17-A28, 39m) at +8.27mPD	20	06-Sep-14	30-Sep-14	0%
C1106.BDW4840	GL 50-47 Construct Capping Beam (A56-A61, 35m) at +8.52mPD	18	16-Aug-14	05-Sep-14	0%
C1106.BDW4855	GL 44-43 Construct Capping Beam A61-A67 (43m) at +8.52mPD	20	06-Sep-14	30-Sep-14	0%
C1106.BDW4870	GL 47-48 Construct Capping Beam A29-A36 (45m) at +8.27mPD	20	03-Oct-14	25-Oct-14	0%
Grouting					
C1106.BDW5350	Toe Grouting GL43-47 (A21-A28, A59-A62, A63-A67)	25	07-Jul-14 A	28-Aug-14	30%
C1106.BDW5352	Toe Grouting GL48-50 (A29-A36, A55-A58)	25	05-Sep-14	07-Oct-14	0%
C1106.BDW5354	Rock Fissure Grouting (A22-A26, A54, A64-A66)	40	19-Jul-14 A	23-Aug-14	20%
C1106.BDW5355	BA14 for Dwall Stage 3 (Remaining Panel) at GL43-50	7	29-Aug-14	05-Sep-14	0%
Pump Test					
C1106.BDW4849	GL 35-50 Install the Remaining Pump, Recharge & Observation Well	25	05-Sep-14	07-Oct-14	0%
C1106.BDW4853	Carry Out Pump Test (Final Stage) between GL35-53 & Report/ Approval	21	08-Oct-14	31-Oct-14	0%
C1106.BDW4878	Submit Report for MTR Review (Final stage)	5	30-Oct-14	04-Nov-14	0%
C1106.BDW5365	GL 35-50 Drilling & Install Pump, Recharge and Observation Well	20	25-Aug-14*	17-Sep-14	0%
DIH (SCL) Gridline 50- 53					
Capping Beam & Sheet Pile					
C1106.BDW5348	GL 50-53 Construct Cut-Off Wall (Pipe Pile) at GL 50 (Include TAM grout)	42	31-Mar-14 A	15-Jul-14 A	100%
C1106.BDW5370	GL50-53 Construct Capping Beam for A49-A54; 36m at 8.77mPD	25	10-Jul-14 A	25-Jul-14 A	100%
C1106.BDW5385	GL50-53 Construct Capping Beam for A37-A42; 36m at 8.77mPD	25	14-Jul-14 A	01-Aug-14	90%
C1106.BDW5390	GL53/N-R Construct Capping Beam for A43-A48; 28m at 8.77mPD	22	24-Jun-14 A	09-Jul-14 A	100%
Grouting					
C1106.BDW4828	BA14 for Dwall at GL50-53 (South)	7	23-Jun-14 A	21-Jul-14 A	100%
Pump Test					
C1106.BDW4863	Installation of Observation & Pump Wells GL50-53	28	17-Jun-14 A	19-Jul-14 A	100%
C1106.BDW4868	Carry Out Pump Test (2nd Stage) between GL50-53	7	21-Jul-14 A	14-Aug-14	40%



Remaining Work
Critical Remaining Work
Baseline (PMP)
Actual Work
Baseline Milestone
Milestone

MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 July 2014

3 Month Rolling Programme

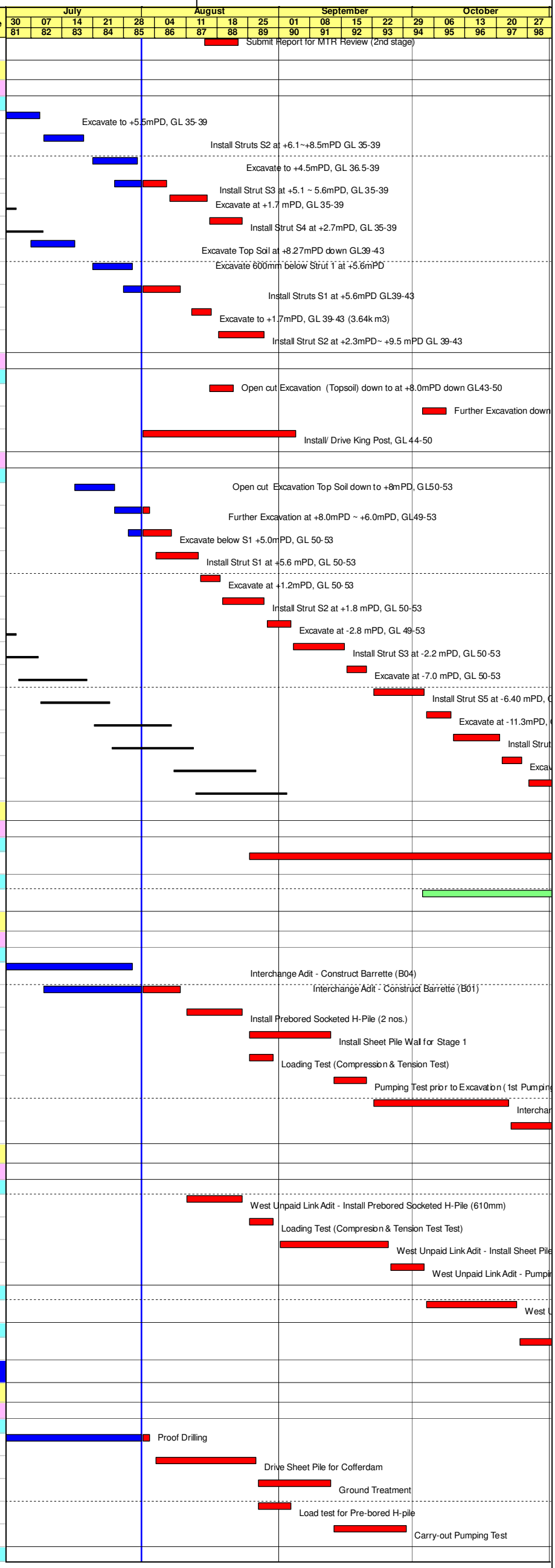
Date	Revision	Checked	Appr...
01-Aug-14	C-1106-3MRP/ 19	RR	RB

Contract 1106 - Diamond Hill Station

MTR

Sembawang - Leader Joint Venture

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete
C1106.BDW4873	Submit Report for MTR Review (2nd stage)	7	15-Aug-14	22-Aug-14	0%
Earthworks					
DIH (SCL) Gridline 35 - 43					
Excavation & ELS Works					
C1106.BEX3510	Excavate to +5.5mPD, GL 35-39	5	26-Jun-14 A	09-Jul-14 A	100%
C1106.BEX3518	Install Struts S2 at +6.1~+8.5mPD GL 35-39	7	10-Jul-14 A	19-Jul-14 A	100%
C1106.BEX3520	Excavate to +4.5mPD, GL 36.5-39	7	21-Jul-14 A	31-Jul-14 A	100%
C1106.BEX3525	Install Strut S3 at +5.1 ~ 5.6mPD, GL 35-39	7	26-Jul-14 A	06-Aug-14	29%
C1106.BEX3530	Excavate at +1.7 mPD, GL 35-39	8	07-Aug-14	15-Aug-14	0%
C1106.BEX3540	Install Strut S4 at +2.7mPD, GL 35-39	7	16-Aug-14	23-Aug-14	0%
C1106.BEX3900	Excavate Top Soil at +8.27mPD down GL39-43	10	07-Jul-14 A	17-Jul-14 A	100%
C1106.BEX3906	Excavate 600mm below Strut 1 at +5.6mPD	3	21-Jul-14 A	30-Jul-14 A	100%
C1106.BEX3908	Install Struts S1 at +5.6mPD GL39-43	10	28-Jul-14 A	09-Aug-14	15%
C1106.BEX3910	Excavate to +1.7mPD, GL 39-43 (3.64k m3)	5	12-Aug-14	16-Aug-14	0%
C1106.BEX3915	Install Strut S2 at +2.3mPD~ +9.5 mPD GL 39-43	10	18-Aug-14	28-Aug-14	0%
DIH (SCL) Gridline 43 - 50					
Excavation & ELS Works					
C1106.BEX3909	Open cut Excavation (Topsoil) down to at +8.0mPD down GL43-50	5	16-Aug-14*	21-Aug-14	0%
C1106.BEX3912	Further Excavation down to +6.27mPD at GL43-50	5	03-Oct-14	08-Oct-14	0%
C1106.BEX3920	Install/ Drive King Post, GL 44-50	30	01-Aug-14	04-Sep-14	0%
DIH (SCL) Gridline 50- 53					
Excavation & ELS Works					
C1106.BEX4903	Open cut Excavation Top Soil down to +8mPD, GL50-53	4	17-Jul-14 A	26-Jul-14 A	100%
C1106.BEX4910	Further Excavation at +8.0mPD ~ +6.0mPD, GL49-53	3	26-Jul-14 A	02-Aug-14	70%
C1106.BEX4920	Excavate below S1 +5.0mPD, GL 50-53	5	29-Jul-14 A	07-Aug-14	30%
C1106.BEX4925	Install Strut S1 at +5.6 mPD, GL 50-53	9	04-Aug-14	13-Aug-14	0%
C1106.BEX4930	Excavate at +1.2mPD, GL 50-53	4	14-Aug-14	18-Aug-14	0%
C1106.BEX4935	Install Strut S2 at +1.8 mPD, GL 50-53	9	19-Aug-14	28-Aug-14	0%
C1106.BEX4938	Excavate at -2.8 mPD, GL 49-53	5	29-Aug-14	03-Sep-14	0%
C1106.BEX4942	Install Strut S3 at -2.2 mPD, GL 50-53	9	04-Sep-14	15-Sep-14	0%
C1106.BEX4955	Excavate at -7.0 mPD, GL 50-53	5	16-Sep-14	20-Sep-14	0%
C1106.BEX4960	Install Strut S5 at -6.40 mPD, GL 50-53	9	22-Sep-14	03-Oct-14	0%
C1106.BEX4968	Excavate at -11.3mPD, GL 50-53	5	04-Oct-14	09-Oct-14	0%
C1106.BEX4975	Install Strut S6 at -10.8 mPD, GL 50-53	9	10-Oct-14	20-Oct-14	0%
C1106.BEX4977	Excavate at -15.0 mPD, GL 50-53	5	21-Oct-14	25-Oct-14	0%
C1106.BEX4980	Install Strut S7 at -14.4mPD, GL 50-53	9	27-Oct-14	05-Nov-14	0%
ABWF & Miscellaneous Works					
Procurement of Major Works					
General					
C1106.BML5963	ABWF Design Period, Sample and Shop Drawings	120	25-Aug-14*	17-Jan-15	0%
Manufacture & Delivery					
C1106.BML5973	ABWF Delivery Period	370	03-Oct-14*	29-Dec-15	0%
Construction of Interchange Adit					
Construction of Interchange Adit					
Gridline U-V					
C1106.BIA7010	Interchange Adit - Construct Barrette (B04)	32	25-Jun-14 A	30-Jul-14 A	100%
C1106.BIA7013	Interchange Adit - Construct Barrette (B01)	32	10-Jul-14 A	09-Aug-14	70%
C1106.BIA7015	Install Prebored Socketed H-Pile (2 nos.)	12	11-Aug-14	23-Aug-14	0%
C1106.BIA7020	Install Sheet Pile Wall for Stage 1	16	25-Aug-14	12-Sep-14	0%
C1106.BIA7025	Loading Test (Compression & Tension Test)	6	25-Aug-14	30-Aug-14	0%
C1106.BIA7035	Pumping Test prior to Excavation (1st Pumping Test)	7	13-Sep-14	20-Sep-14	0%
C1106.BIA7040	Interchange Adit - Excavation and ELS (4000 m3) - Stage 1	25	22-Sep-14	22-Oct-14	0%
C1106.BIA7050	Interchange Adit - Construct Base Slab	10	23-Oct-14	03-Nov-14	0%
Construction of West Unpaid Link Adit					
West Adit Link - South Section					
Adit Cofferdam					
C1106.BWA8270	West Unpaid Link Adit - Install Prebored Socketed H-Pile (610mm)	12	11-Aug-14	23-Aug-14	0%
C1106.BWA8275	Loading Test (Compresion & Tension Test Test)	6	25-Aug-14	30-Aug-14	0%
C1106.BWA8300	West Unpaid Link Adit - Install Sheet Pile for ELS	21	01-Sep-14	25-Sep-14	0%
C1106.BWA8305	West Unpaid Link Adit - Pumping Test Prior to Stage 1 Excavation	5	26-Sep-14	03-Oct-14	0%
Adit - Excavation					
C1106.BWA8310	West Unpaid Link Adit - Excavation and ELS (1350 m3) Stage 1	18	04-Oct-14	24-Oct-14	0%
Civil & Structural Works					
C1106.BWA8320	West Unpaid Link Adit - Construct Base Slab	18	25-Oct-14	14-Nov-14	0%
Cost Centre C: KTL - DIH Entrance A1 Works					
Entrance A1 (24 hr Walkway and New Lift)					
Piling and Excavation					
Piling Works					
C1106.CEA3146	Proof Drilling	14	26-Jun-14 A	02-Aug-14	95%
C1106.CEA3148	Drive Sheet Pile for Cofferdam	20	04-Aug-14	26-Aug-14	0%
C1106.CEA3155	Ground Treatment	14	27-Aug-14	12-Sep-14	0%
C1106.CEA3160	Load test for Pre-bored H-pile	7	27-Aug-14	03-Sep-14	0%
C1106.CEA3165	Carry-out Pumping Test	14	13-Sep-14	29-Sep-14	0%
Excavation & Structural Works					



Remaining Work
Critical Remaining Work
Baseline (PMP)
Actual Work
Milestone
Baseline Milestone

MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 July 2014

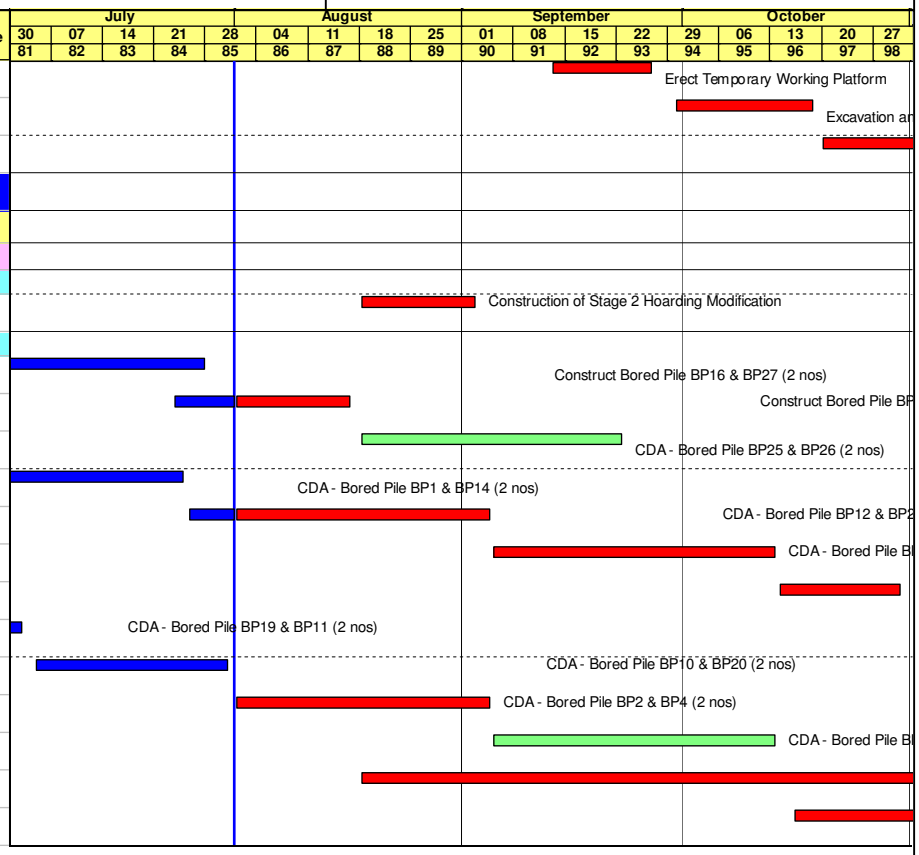
3 Month Rolling Programme			
Date	Revision	Checked	Appr...
01-Aug-14	C-1106-3MRP/ 19	RR	RB

Contract 1106 - Diamond Hill Station

MTR

Sembawang - Leader Joint Venture

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete
C1106.CEA3168	Erect Temporary Working Platform	12	13-Sep-14	26-Sep-14	0%
C1106.CEA3172	Excavation and ELS Works down to +10.00 mPD	15	30-Sep-14	18-Oct-14	0%
C1106.CEA3175	Excavation and ELS Works down to Formation Level +4.17 mPD	15	20-Oct-14	05-Nov-14	0%
Cost Centre H - Bored Piles Foundation for DIH CDA Site under STT					
Piling Works for CDA					
CDA Development Site					
General					
C1106.CDA1067	Construction of Stage 2 Hoarding Modification	14	18-Aug-14	02-Sep-14	0%
Piling Works					
C1106.CDA2060	Construct Bored Pile BP16 & BP27 (2 nos)	36	30-Jun-14 A	28-Jul-14 A	100%
C1106.CDA2065	Construct Bored Pile BP6 & B17 (2 nos)	30	24-Jul-14 A	16-Aug-14	20%
C1106.CDA2070	CDA - Bored Pile BP25 & BP26 (2 nos)	30	18-Aug-14	22-Sep-14	0%
C1106.CDA2080	CDA - Bored Pile BP1 & BP14 (2 nos)	32	25-Jun-14 A	25-Jul-14 A	100%
C1106.CDA2085	CDA - Bored Pile BP12 & BP23 (2 nos)	30	26-Jul-14 A	04-Sep-14	10%
C1106.CDA2087	CDA - Bored Pile BP22 & BP24 (2 nos)	30	05-Sep-14	13-Oct-14	0%
C1106.CDA2089	CDA - Bored Pile BP5 (1 no)	15	14-Oct-14	30-Oct-14	0%
C1106.CDA2112	CDA - Bored Pile BP19 & BP11 (2 nos)	36	28-May-14 A	03-Jul-14 A	100%
C1106.CDA2114	CDA - Bored Pile BP10 & BP20 (2 nos)	32	05-Jul-14 A	31-Jul-14 A	100%
C1106.CDA2116	CDA - Bored Pile BP2 & BP4 (2 nos)	30	01-Aug-14	04-Sep-14	0%
C1106.CDA2121	CDA - Bored Pile BP21 & BP15 (2 nos)	30	05-Sep-14	13-Oct-14	0%
C1106.CDA2130	CDA -Interface Coring	70	18-Aug-14	10-Nov-14	0%
C1106.CDA2132	CDA - Sonict Test	25	16-Oct-14	13-Nov-14	0%



Remarks: Bored piling works are entrusted by Planning Department

Remaining Work
Critical Remaining Work
Baseline (PMP)
Actual Work
Baseline Milestone
Milestone

3 of 3

MTR Contract 1106 - Diamond Hill Station
Three Month Rolling Programme
As of 31 July 2014

3 Month Rolling Programme

Date	Revision	Checked	Appr...
01-Aug-14	C-1106-3MRP/ 19	RR	RB

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$^{(1)(3)(4)}$/ DMS-4$^{(2)(3)(4)}$/	Hong Kong Sheng Kung Hui Nursing Home	159.1	260
DMS-4$^{(1)}$/ DMS-3$^{(2)}$	Block 1, Rhythm Garden	160.4	

Note:
(1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
(3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
(4) Dust monitoring on DMS-3$^{(1)}$/DMS-4$^{(2)}$ is carried out by Environmental Team of SCL Works Contract 1103.

Construction Noise

Regular Construction Noise Monitoring Location$^{(1)}$	Description	Time Period	Action Level	Limit Level (Leq (30-min))
NMS-CA-3$^{(1)(3)(4)}$/ NMS-CA-4$^{(2)(3)(4)}$	Hong Kong Sheng Kung Hui Nursing Home	0700-1900 hrs on normal weekdays	When one documented complaint is received	70 dB(A)
NMS-CA-4$^{(1)}$/ NMS-CA-3$^{(2)}$	Block 1, Rhythm Garden (north-eastern façade)			75 dB(A)
NMS-CA-5$^{(1)(5)}$/ NMS-CA-2$^{(2)(5)}$	Block 1, Rhythm Garden (northern façade)			65 / 70 dB(A)$^{(6)}$

Note:
(1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
(3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
(4) Noise monitoring on NMS-CA-3$^{(1)}$/ NMS-CA-4$^{(2)}$ is carried out by Environmental Team of SCL Works Contract 1103.
(5) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.
(6) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.

APPENDIX C
CALIBRATION CERTIFICATES FOR MONITORING EQUIPEMENT

CINOTECH

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0008

Station: DMS-4 - Rhythm Garden, Block 1 Operator: WK

Date: 30-Jun-14 Next Due Date: 29-Aug-14

Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	300.3	Pressure, Pa (mmHg)	757.9

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0588	Intercept, bc	-0.0461
Last Calibration Date:	30-Sep-13	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	29-Sep-14	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.7	3.40	58.65	7.4	2.71
2	8.6	2.92	50.40	5.6	2.35
3	7.4	2.71	46.81	4.7	2.16
4	4.5	2.11	36.67	3.0	1.72
5	3.2	1.78	31.05	2.0	1.41

By Linear Regression of Y on X

Slope , mw = 0.0467 **Intercept, bw :** -0.0177

Correlation coefficient* = 0.9990

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.00**

Remarks:

Conducted by: Wk. Tang Signature: Kwai Date: 30/6/14

Checked by: KL Signature: KL Date: 30 June 2014

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

Description	Calibration Orifice	**Manufacturer**	TISCH
Serial No.	0993	**Temperature,Ta (K)**	300.8
Model No.	TE-5025A	**Pressure, Pa (mmHg)**	759.3
Date	30 September 2013	**Equipment No.:**	A-04-04

Plate	Diff.Vol (m^3)	Diff.Time (min)	Diff.Hg (mm)	Diff.H_2O (in.)
1	1.00	1.4103	3.4	2.00
2	1.00	0.9980	6.8	4.00
3	1.00	0.8970	8.5	5.00
4	1.00	0.8540	9.4	5.50
5	1.00	0.7060	13.6	8.00

DATA TABULATION

Vstd	(X axis) Qstd	(Y axis)
0.9853	0.6986	1.4069
0.9808	0.9828	1.9897
0.9786	1.0910	2.2245
0.9775	1.1446	2.3331
0.9720	1.3768	2.8138

Y axis= SQRT[H_2O(Pa/760)(298/Ta)]

Qstd Slope (m) = 2.07768
Intercept (b) = -0.04613
Coefficient (r) = 0.99997

Va	(X axis) Qa	(Y axis)
0.9955	0.7059	0.8901
0.9910	0.9930	1.2589
0.9888	1.1023	1.4074
0.9876	1.1565	1.4761
0.9821	1.3911	1.7803

Y axis= SQRT[H_2O(Ta/Pa)]

Qa Slope (m) = 1.30101
Intercept (b) = -0.02919
Coefficient (r) = 0.99997

CALCULATIONS

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

For subsequent flow rate calculations:
Qstd=1/m{[SQRT(H_2O(Pa/760)(298/Ta))]-b}
Qa=1/m{[SQRT H_2O(Ta/Pa)]-b}

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

PATRICK TSE
Laboratory Manager

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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.:	C/N/130919/1
Date of Issue:	2013-09-21
Date Received:	2013-09-19
Date Tested:	2013-09-21
Date Completed:	2013-09-21
Next Due Date:	2014-09-20

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12553
Microphone No.	: 35222
Equipment No.	: N-08-02

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 57%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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

PATRICK TSE
Laboratory Manager

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Rms 816, 1516 & 1701, 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

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/130830/2
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30
Page:	1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 69%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, 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.:	C/N/131004/3
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24780
Equipment No.	: N-09-05

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 816, 1516 & 1701, 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.:	C/N/130830/4-v1
Date of Issue:	2014-03-07
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30

ATTN: **Mr. W.K. Tang**

Item for calibration:

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

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

Methodology:

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

Results:

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

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

PATRICK TSE
Laboratory Manager

APPENDIX D
IMPACT MONITORING SCHEDULE

Shatin to Central Link – Contract 1106 Diamond Hill Station
Impact Air Quality and Noise Monitoring Schedule for July 2014

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

Air Quality Monitoring Station

DMS-4: - Rhythm Garden, Block 1

Noise Monitoring Station

NMS-CA-4: - Block 1, Rhythm Garden (north-eastern façade)
NMS-CA-5: - Block 1, Rhythm Garden (northern façade)

Shatin to Central Link – Contract 1106 Diamond Hill Station
Tentative Impact Air Quality and Noise Monitoring Schedule for August 2014

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

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

Air Quality Monitoring Station

DMS-4: - Rhythm Garden, Block 1

Noise Monitoring Station

NMS-CA-4: - Block 1, Rhythm Garden (north-eastern façade)
NMS-CA-5: - Block 1, Rhythm Garden (northern façade)

APPENDIX E
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONIS

Appendix E - 24-hour TSP Monitoring Results

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

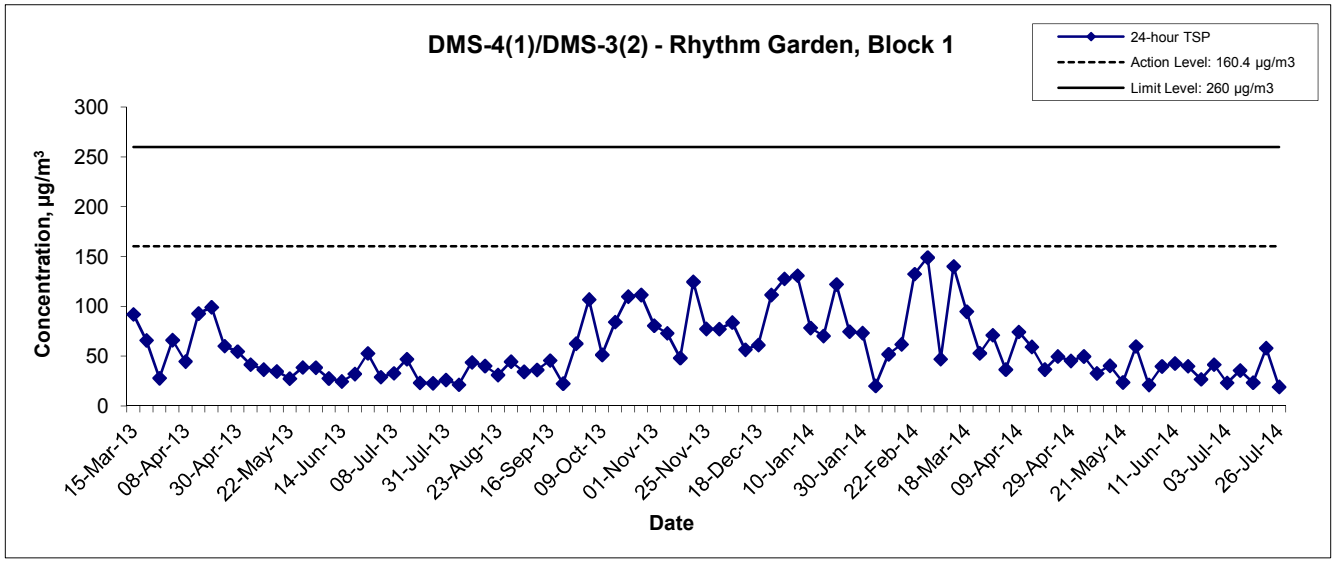
Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
					Initial	Final		Initial	Final		Initial	Final			
3-Jul-14	09:00	Sunny	302.3	756.0	3.2841	3.3247	0.0406	2863.6	2887.6	24.0	1.21	1.21	1.21	1743.7	23.3
9-Jul-14	09:00	Sunny	303.1	754.3	3.1576	3.2198	0.0622	2887.6	2911.6	24.0	1.21	1.21	1.21	1739.5	35.8
15-Jul-14	10:20	Sunny	302.2	758.3	3.1875	3.2285	0.0410	2911.6	2935.6	24.0	1.21	1.21	1.21	1746.6	23.5
21-Jul-14	09:00	Cloudy	301.5	757.0	3.2188	3.3204	0.1016	2935.6	2959.6	24.0	1.21	1.21	1.21	1747.1	58.2
26-Jul-14	09:00	Sunny	299.3	759.3	3.2454	3.2791	0.0337	2959.6	2983.6	24.0	1.22	1.22	1.22	1756.1	19.2
														Min	19.2
														Max	58.2
														Average	32.0

Remarks:

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

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

24-hour TSP Concentration Levels



Remarks:

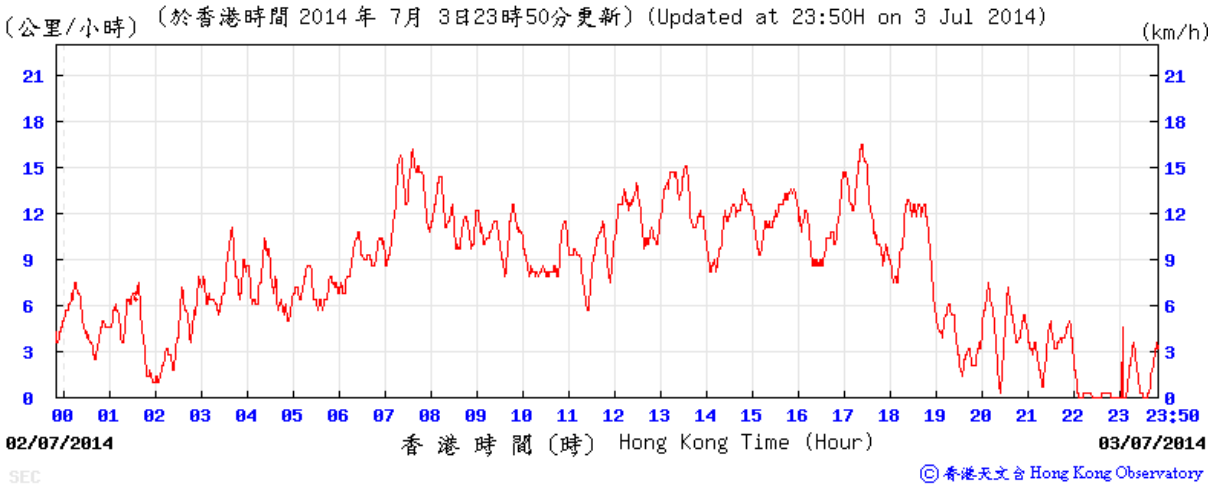
(1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

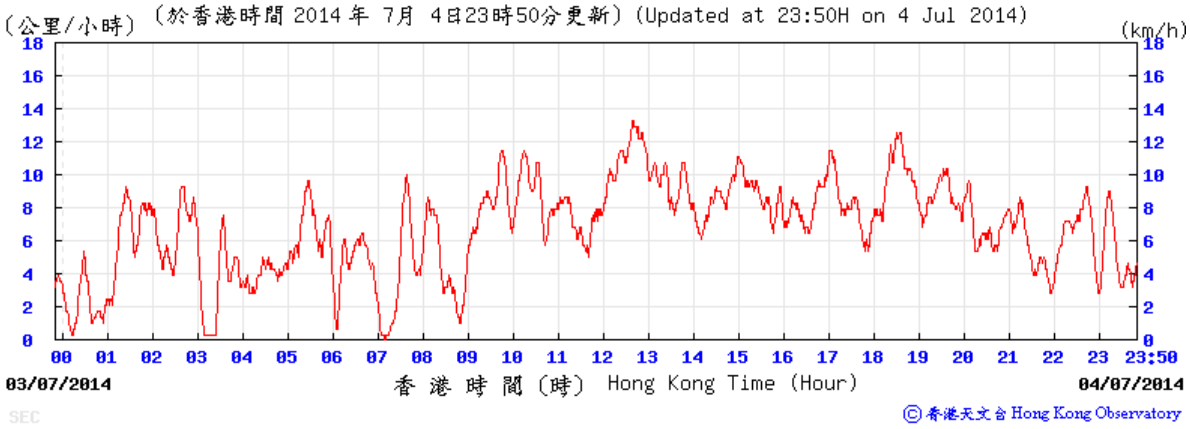
(2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Title: Shatin to Central Link – Contract 1106 Diamond Hill Station Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA12051	CINOTECH
	Date: Aug 14	Appendix: E	

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

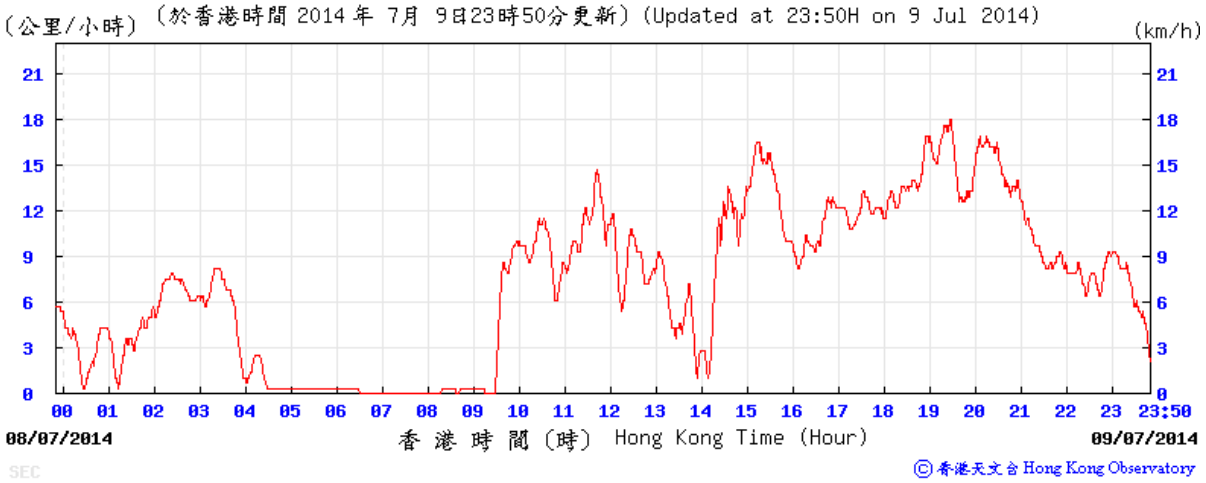
3-4 July 2014

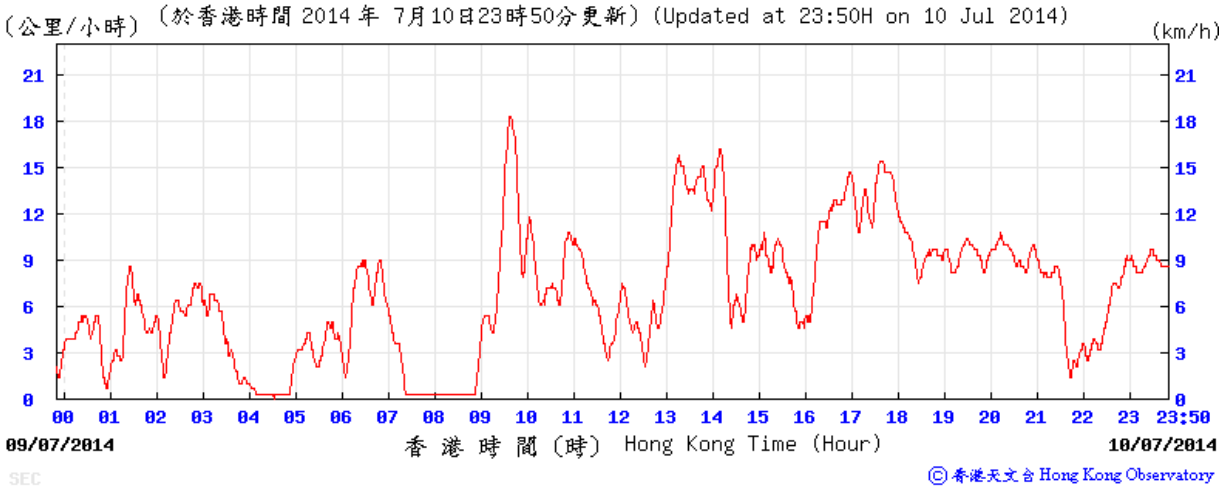




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

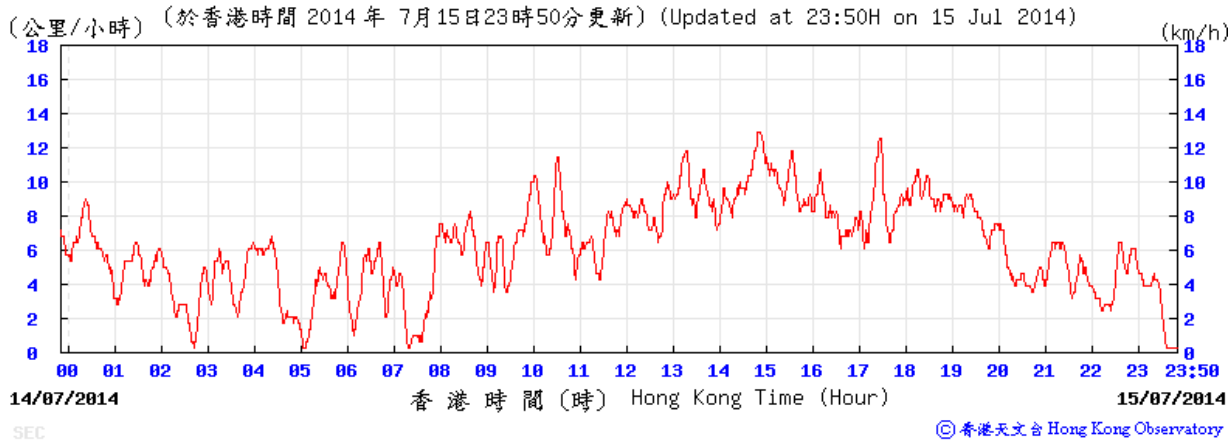
9-10 July 2014

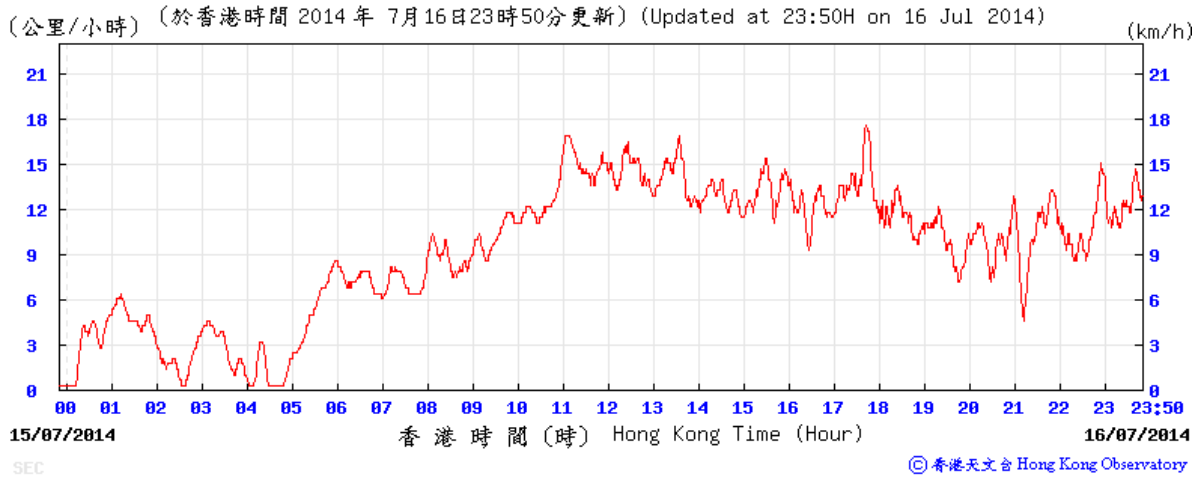




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

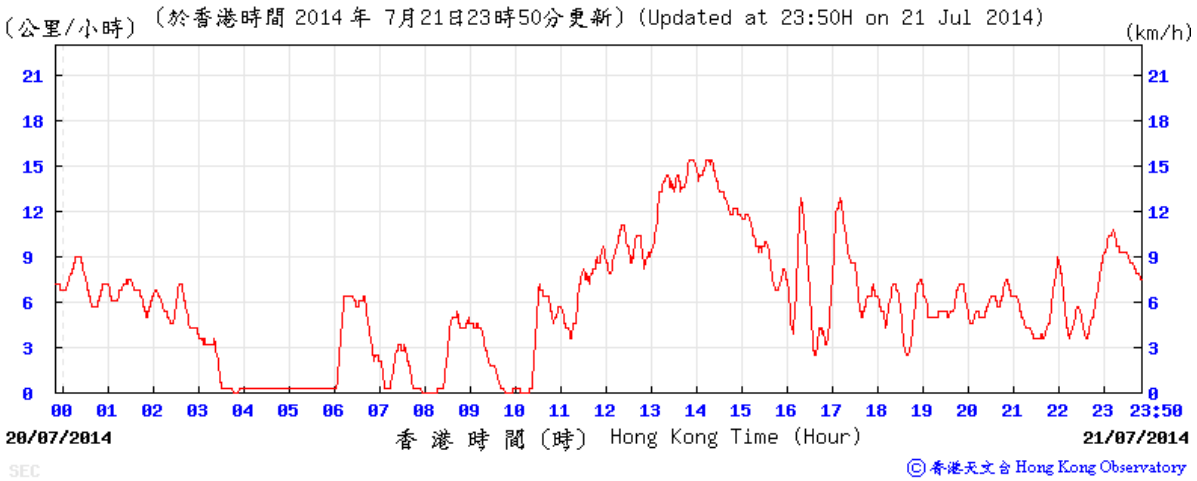
15-16 July 2014

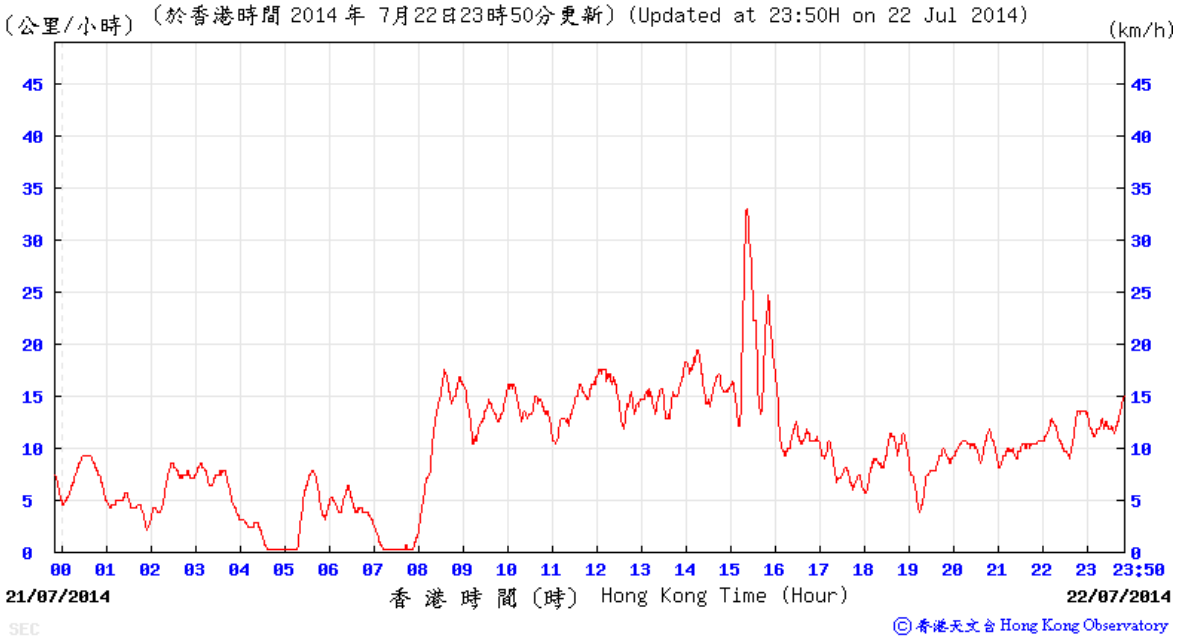




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

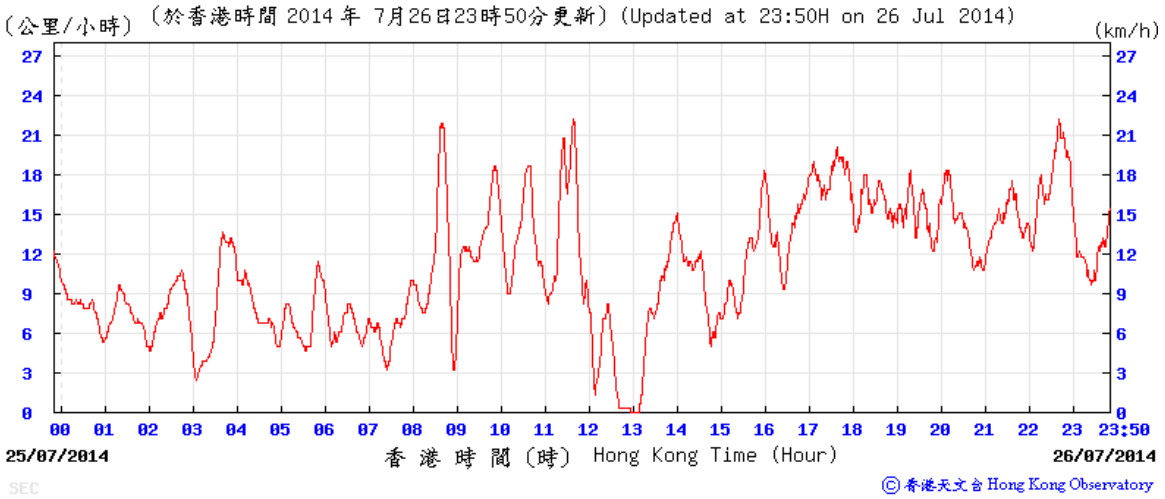
21-22 June 2014

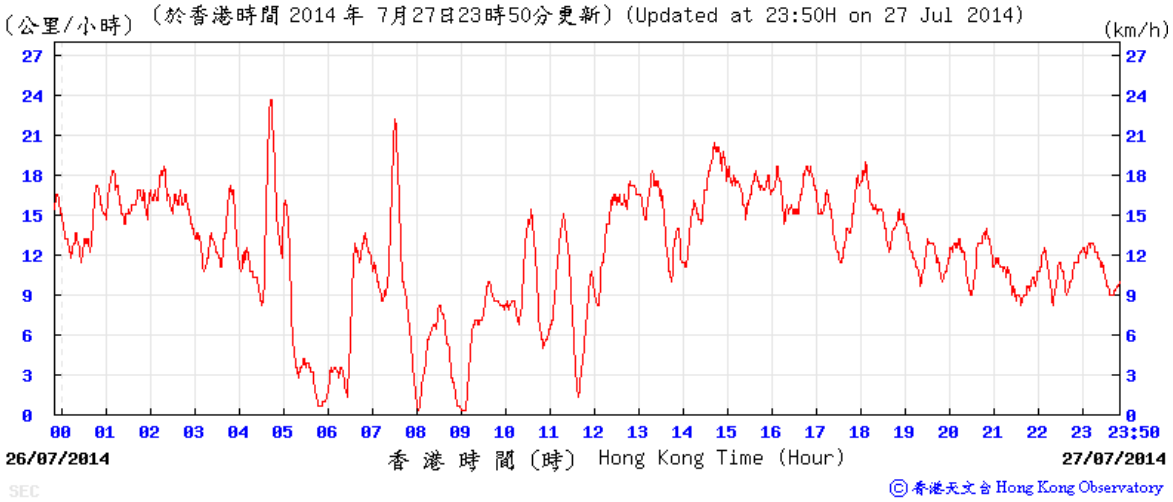




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

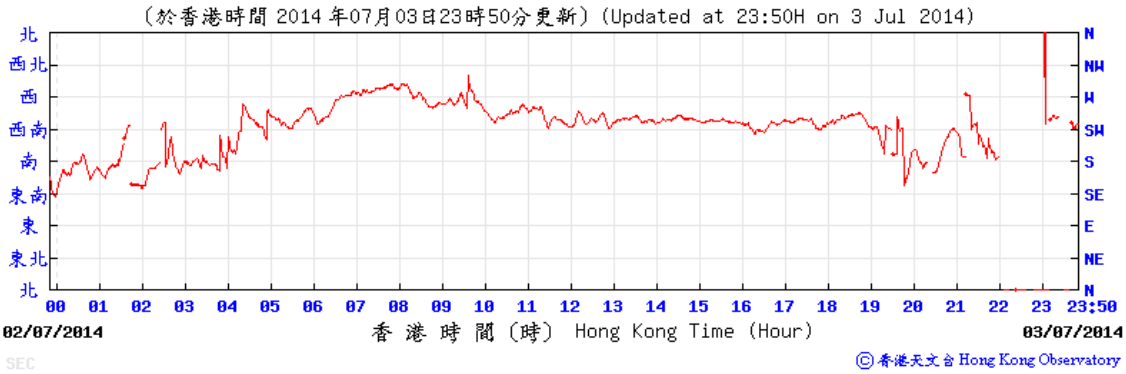
26-27 July 2014

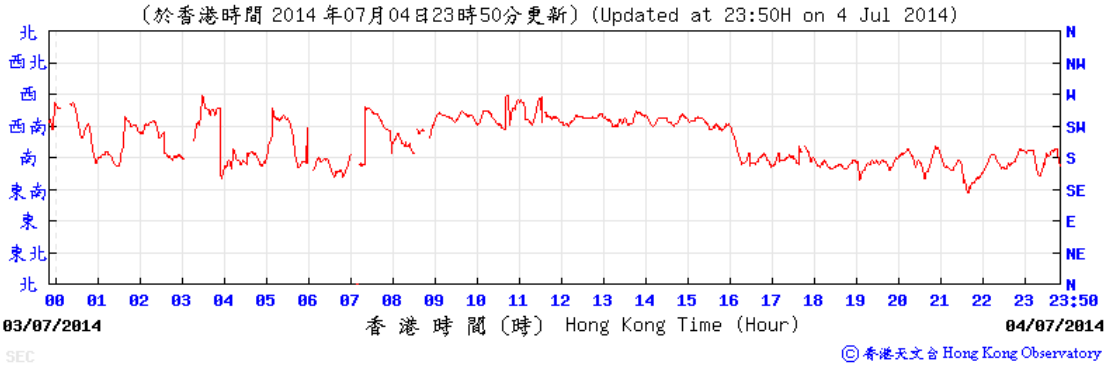




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

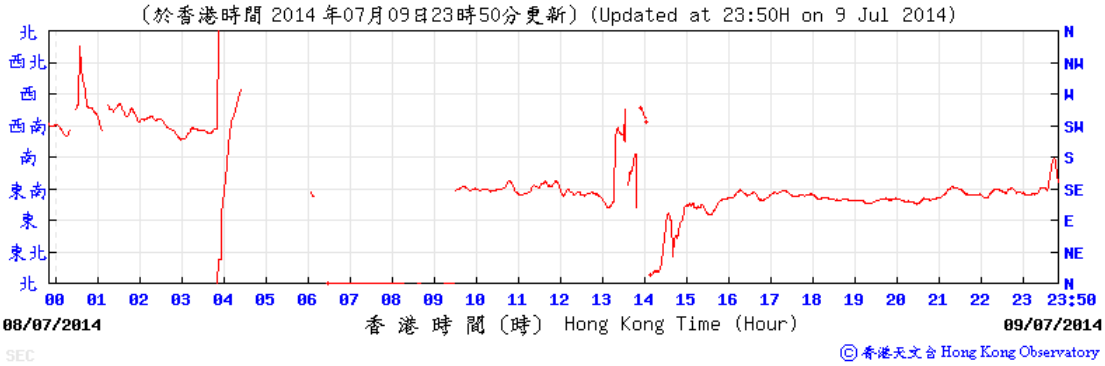
3-4 June 2014

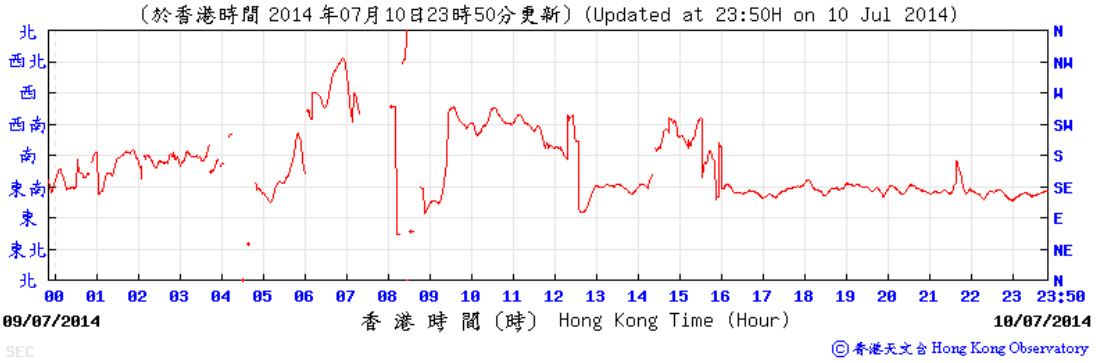




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

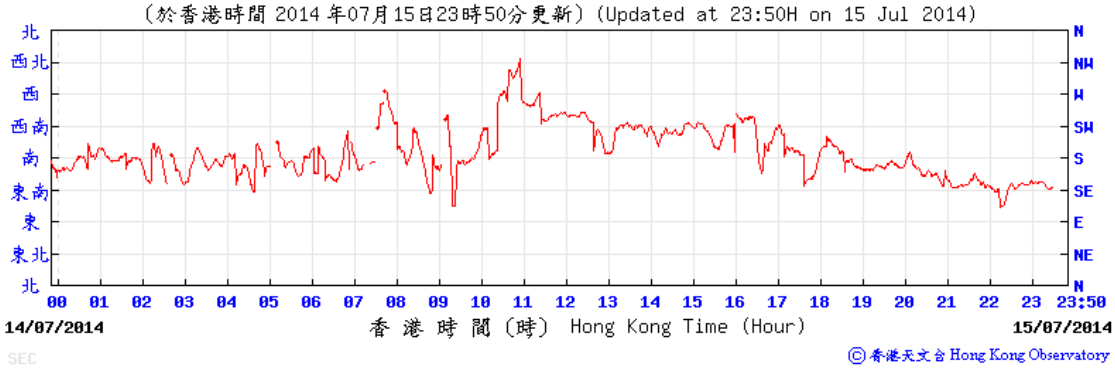
9-10 June 2014

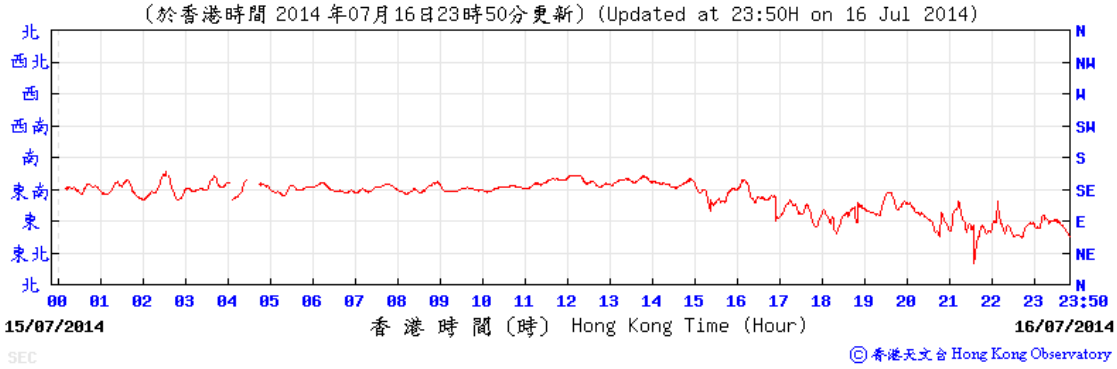




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

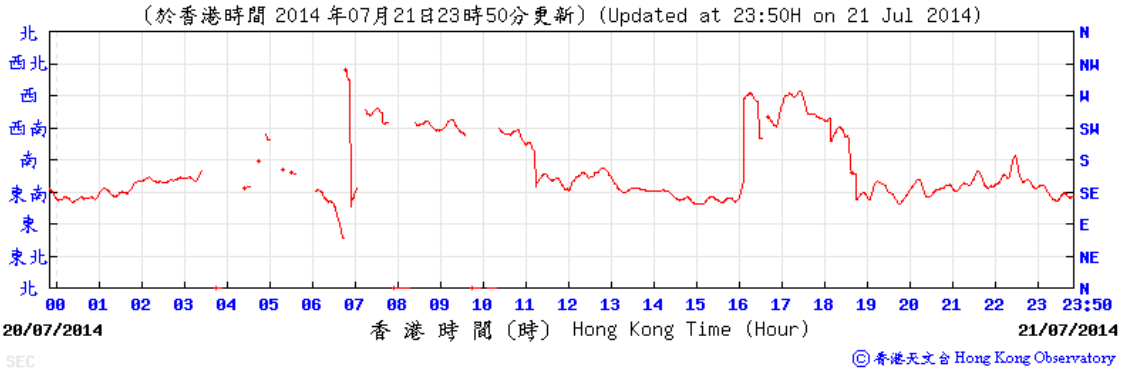
15-16 June 2014

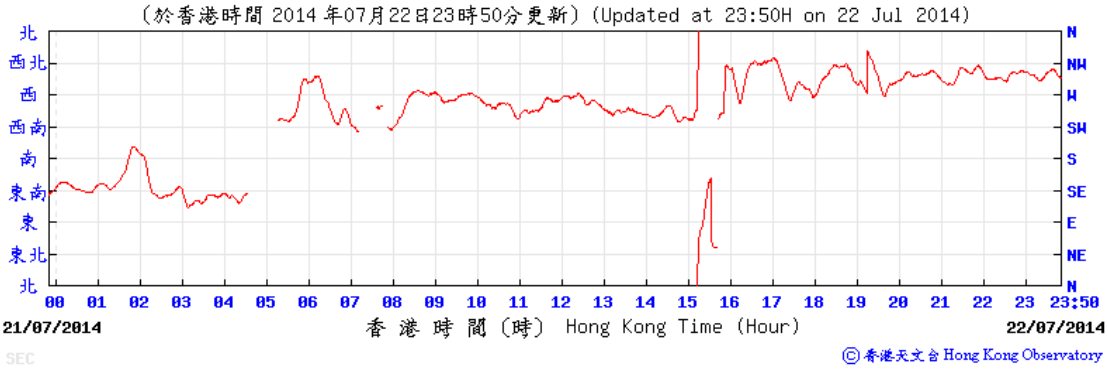




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

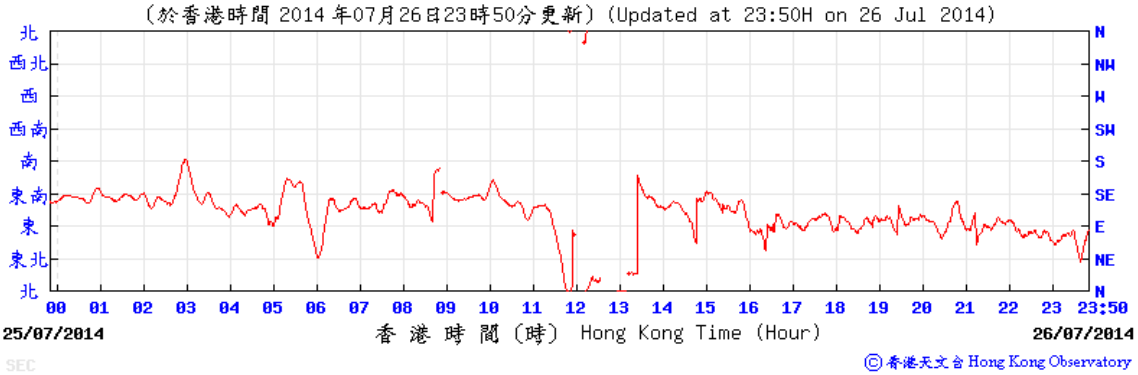
21-22 June 2014

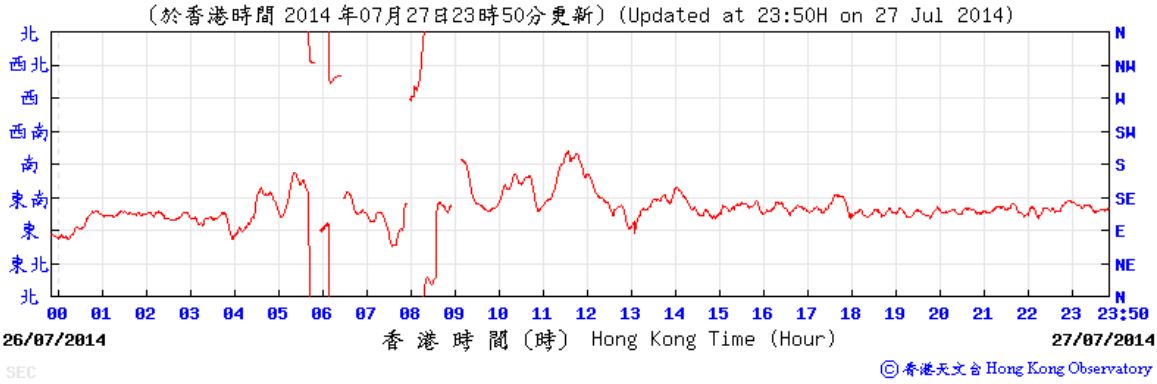




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

26-27 June 2014





APPENDIX F
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix F - Noise Monitoring Results

Location NMS-CA-4(1)/NMS-CA-3(2) - Block 1, Rhythm Garden (north-eastern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	L_{eq}
10-Jul-14	Sunny	15:05	73.6	74.3	72.1	73.4	71	69.7
		15:10	73.2	74.2	72.0			
		15:15	73.1	74.2	71.9			
		15:20	73.0	73.9	71.9			
		15:25	73.4	74.5	72.3			
		15:30	73.9	74.7	72.5			
16-Jul-14	Sunny	10:10	72.2	73.6	70.3	72.9		68.4
		10:15	73.1	74.8	71.1			
		10:20	72.9	74.4	71.2			
		10:25	73.0	74.4	71.3			
		10:30	72.7	74.2	71.1			
		10:35	73.2	74.7	71.4			
23-Jul-14	Cloudy	16:45	74.6	75.8	73.5	74.5		71.9
		16:50	74.7	75.7	73.6			
		16:55	74.7	75.5	72.8			
		17:00	74.3	75.2	72.3			
		17:05	74.5	75.1	72.1			
		17:10	74.1	74.9	71.8			
28-Jul-14	Sunny	14:55	72.3	73.4	71.1	72.5		67.2
		15:00	72.5	73.6	71.2			
		15:05	72.9	74.2	71.3			
		15:10	72.4	73.6	71.1			
		15:15	72.4	73.6	70.9			
		15:20	72.4	73.6	71.2			

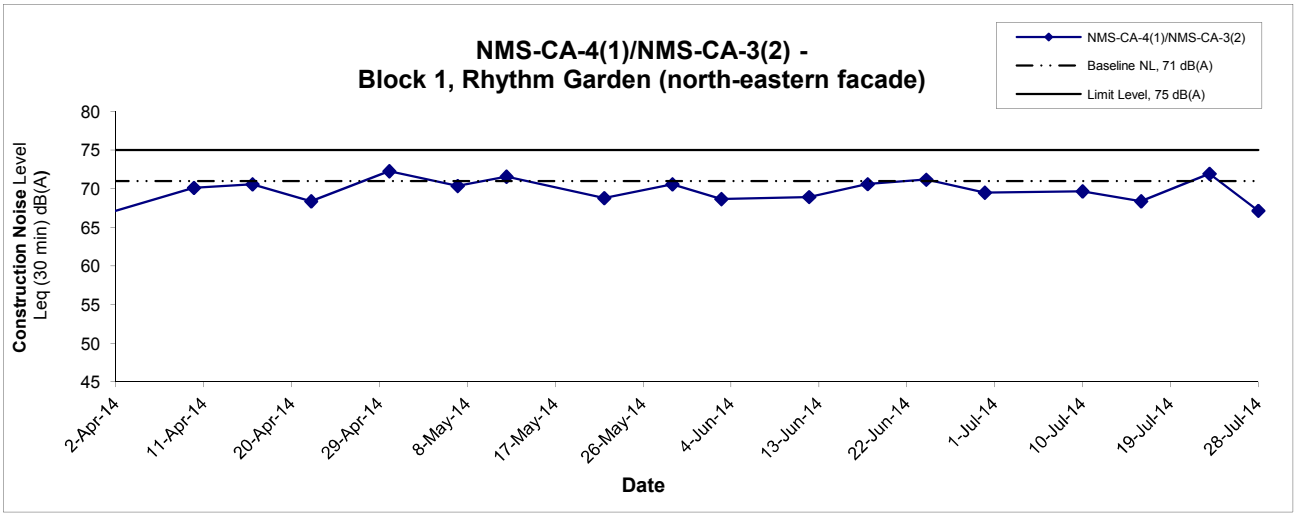
Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

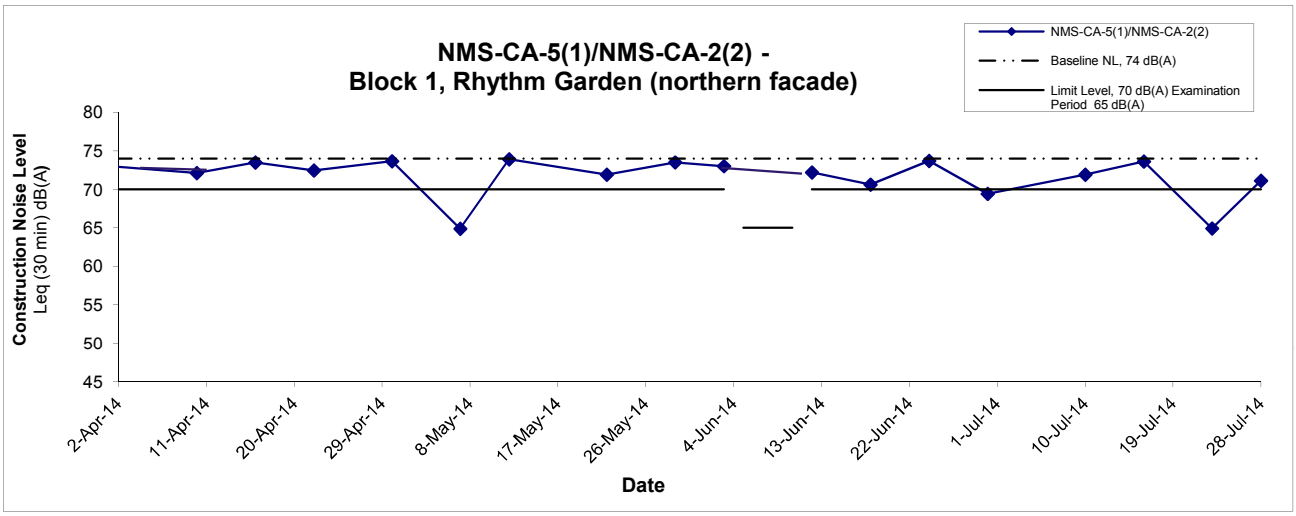
Appendix F - Noise Monitoring Results

Location NMS-CA-5(1)/NMS-CA-2(2) - Block 1, Rhythm Garden (northern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	L_{eq}
10-Jul-14	Sunny	14:23	72.3	73.3	71.1	71.9	74	71.9 Measured ≦ Baseline Level
		14:28	72.3	72.8	70.9			
		14:33	71.5	72.5	70.4			
		14:38	71.7	72.7	70.9			
		14:43	71.8	72.7	70.9			
		14:48	72.0	72.8	70.9			
16-Jul-14	Sunny	09:35	73.8	76.1	71.0	73.6		73.6 Measured ≦ Baseline Level
		09:40	73.7	75.7	71.5			
		09:45	73.8	76.4	71.1			
		09:50	73.8	76.5	71.0			
		09:55	73.2	75.6	71.0			
		10:00	73.4	75.9	70.4			
23-Jul-14	Cloudy	16:05	76.4	80.2	71.5	74.5		64.9
		16:10	72.9	73.9	71.6			
		16:15	74.5	75.9	72.1			
		16:20	74.0	75.0	72.8			
		16:25	74.2	75.2	73.1			
		16:30	74.3	75.3	72.9			
28-Jul-14	Sunny	14:18	70.3	71.5	64.4	71.1		71.1 Measured ≦ Baseline Level
		14:23	70.5	71.7	69.0			
		14:28	70.9	71.9	69.7			
		14:33	71.6	72.7	70.3			
		14:38	71.9	72.9	70.2			
		14:43	71.1	71.9	70.1			

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

Noise Levels





Remarks:

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

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

(3) In case of Measured Level ≦ Baseline Level, only Measured Level is presented on the graphical presentation.

Title: Shatin to Central Link - Contract 1106 - Diamond Hill Station Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Aug 14	Project No.: MA12051 Appendix: F	CINOTECH

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: July 2014

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140704
Date	4 July 2014 (Friday)
Time	10:30 – 12:00

Ref. No.	Non-Compliance	Related Item No.
-	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	
140704-R04	• Contractor was reminded to remove the construction materials inside the tree protection zone at W8.	D 3
	Part E – Air Quality	
140704-O02	• Grouting plants on the site should be properly covered on three sides and on top.	E 17iii
	Part F – Cultural Heritage	
	• No environmental deficiency was identified during the site inspection.	
	Part G - Construction Noise Impact	
140704-O05	• Sound proof mat should be provided to stone breaker	G 5
	Part H – Waste/Chemical Management	
140704-O01	• Oil leakage was observed on the ground. Contractor should clear them properly as chemical waste and properly maintain the D-wall extractor	H 9
140704-O03	• Drip tray should be provided to chemical containers and chemical in the drip tray should be removed properly as chemical waste.	H10
	Part I – Permits/Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part J - Others	
	• Follow-up on previous audit section (Ref. No.:140626), item 140626-O03 was remarked as 140704-O05 follow up actions are needed to be reviewed.	

	Name	Signature	Date
Recorded by	Kenneth Yuen		7 July 2014
Checked by	Dr. Priscilla Choy		7 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140710
Date	10 July 2014 (Thursday)
Time	13:30 – 16:00

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

Ref. No.	Remarks/Observations	Related Item No.
140710-O02	***Part B – Water Quality*** • Muddy water was observed accumulating in the wheel wash bay at bored-pile area. Contractor is reminded to clear the sludge regularly.	B 14ii
	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.	
140710-O01	***Part G - Construction Noise Impact*** • The panel of the air compressor at the bored-pile area was opened. Contractor is reminded to close it to reduce noise impact.	G 9
140710-R03	***Part H – Waste/Chemical Management*** • Contractor is reminded to properly block the drain hole of drip tray near the site entrance to prevent chemical leakage.	H 10
	Part I – Permits/Licenses • No environmental deficiency was identified during the site inspection.	
	Part J - Others • Follow-up on previous audit section (Ref. No.:140704), all identified environmental deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kenneth Yuen		14 July 2014
Checked by	Dr. Priscilla Choy		14 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140717
Date	17 July 2014 (Thursday)
Time	13:30 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	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.	
140717-O01	***Part D – Landscape & Visual*** • Contractor is reminded to properly set up tree protection zone to protect trees at W8 and next to Lung Cheung Road. Construction materials near trees at W8 should also be removed.	D 2,3
140717-R03	***Part E – Air Quality*** • Dusty stockpile near tree 1911 should be properly covered by impervious sheeting to prevent dust generation.	E 6
	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.	
140717-R02 140717-R04	***Part H – Waste/Chemical Management*** • Oil stain was observed on the ground at capping bin area. Contractor is reminded to properly remove it as chemical waste. • Drain hole of the drip tray near the site entrance should be properly blocked to prevent chemical leakage.	H 9 H 10
	Part I – Permits/Licenses • No environmental deficiency was identified during the site inspection.	
	Part J - Others • Follow-up on previous audit section (Ref. No.:140710), item 140710-R03 is remarked as 140717-R04 and follow up actions are needed to be reviewed.	

	Name	Signature	Date
Recorded by	Kenneth Yuen		18 July 2014
Checked by	Dr. Priscilla Choy		18 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140724
Date	24 July 2014 (Thursday)
Time	13:30 – 16:00

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

Ref. No.	Remarks/Observations	Related Item No.
140724-O02	***Part B – Water Quality*** • Leakage from the temporary ditch for muddy water discharge was observed at the bore-pile area. Contractor should properly maintain the ditch to prevent leakage and clear the pond of accumulated muddy water.	B 3, 12
	Part C – Ecology • No environmental deficiency was identified during the site inspection.	
140724-O01	***Part D – Landscape & Visual*** • Tree protection zone should be probably set up to protect trees at W8, site office and Lung Cheung Road. Construction materials should be removed from the tree protection zones at W8 and near site office. Contractor is also reminded to carefully protect trees at W8 from runoff.	D 2, 3
140724-R04	***Part E – Air Quality*** • Smoke emission from a generator at the bored-pile area was observed. Contractor should properly maintain the generator to prevent air pollution.	E 15
	Part F – Cultural Heritage • No environmental deficiency was identified during the site inspection.	
140724-O03	***Part G - Construction Noise Impact*** • The breaking tip of the stone breaker at west-borne capping bin area should be covered with noise-proof mat to reduce noise impact.	G 5
140724-R05	***Part H – Waste/Chemical Management*** • Oil leakage from the D-wall extractor was observed. Contractor should properly remove the oil stain as chemical waste and properly maintain the extractor or provide drip tray to prevent contamination of the ground.	H 9
	Part I – Permits/Licenses • No environmental deficiency was identified during the site inspection.	
	Part J - Others • Follow-up on previous audit section (Ref. No.:140717), item 140717-O01 is remarked as 140724-O01 and follow up actions are needed to be reviewed.	

	Name	Signature	Date
Recorded by	Kenneth Yuen		25 July 2014
Checked by	Dr. Priscilla Choy		25 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140731
Date	31 July 2014 (Thursday)
Time	13:30 – 16:00

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

Ref. No.	Remarks/Observations	Related Item No.
140731-O02	***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*** • Tree protection zone should be set up to protect trees at the bar bending areas. Construction materials should be removed from the tree protection zones at W8. ***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.	D 2, 3
140731-R01	***Part H – Waste/Chemical Management*** • Oil stain was found on the ground near the generator at the bored piling area. Contractor is reminded to properly clear them as chemical waste. ***Part I – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part J - Others*** • Follow-up on previous audit section (Ref. No.:140724), all environmental deficiencies were observed improved/rectified by contractor.	H 9

	Name	Signature	Date
Recorded by	Kenneth Yuen		1 August 2014
Checked by	Ivy Tam		1 August 2014

APPENDIX I
EVENT AND ACTION PLANS

Event and Action Plan for Air Quality Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1106 ET	**IEC**	**ER**	**CONTRACTOR**
ACTION LEVEL				
1. Exceedance for one sample	1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing;	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
2.Exceedance for two or more consecutive samples	1. Inform the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease addtional monitoring	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise Implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

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

Event and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1106 ET	**IEC**	**ER**	**CONTRACTOR**
Action Level	1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness	1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. .	1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures	1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	1. Notify the IEC, Contractor and EPD 2. Repeat measurement to confirm findings 3. Increase monitoring frequency 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Identify source and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event and Action Plan for Landscape and Visual during Construction Phase

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

APPENDIX J
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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: • No on-site burning of waste; • Waste and refuse in appropriate receptacles.						^ ^
Landscape & Visual (Construction Phase)								
S6.12	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	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	^ *

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		restrict the site working staff from entering the "no-intrusion zone", even for indirect construction activities and storage of equipment. <u>Protection of Retained Trees</u> • 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	<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	Minimize the visual and landscape impact of the Project during construction phase	Contractor	Within Project Site	Detailed design and construction stage	• EIAO – TM •ETWB TCW 2/2004 • ETWB TCW 3/2006	^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		the works site to minimize visual impact to adjacent VSRs. <u>Tree Transplanting</u> • Trees of medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.						^
Air Quality (Construction Phase)								
/	A1	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 construction sites	Construction stage	• APCO	^ * ^
/	A2	Open burning shall be prohibited	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	APCO	^
Construction Dust Impact								
S7.6.6	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-	*

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
							EIA criteria	
S7.6.6	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m^2 to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^
S7.6.6	D3	• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	* ^ ^ ^ ^

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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six						N/A ^ * ^ * 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.						
S7.6.6	D4	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
Construction Airborne Noise								
S8.5.6	AN1	Implement the following good site practices: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise	Control construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	* ^ ^ ^ ^ ^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		from on-site construction activities.						
S8.5.6	AN2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	*
S8.5.6	AN4	Use “Quiet” plant	Reduce the noise levels of plant items	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the	Contractor	Selected representative	Construction stage	•TM-EIA	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
			selected representative locations		noise monitoring station			
Water Quality (Construction Phase)								
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoff and Site Drainage</u> • At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	^ *

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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 sedimentation 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 advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement						^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 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, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers						* N/A ^ ^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• 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						^ * 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. • Adopt best management practices.						^ * ^ ^
S10.7.1	W3	<u>Sewage Effluent</u> • Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • TM-water	^
S10.7.1	W5	<u>Accidental Spillage</u>	To minimize water quality	Contractor	All construction	Construction	• Water Pollution	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		In order to prevent accidental spillage of chemicals, the following is recommended: • Proper storage and handling facilities should be provided; • All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains; • The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings; and • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	impact from accidental spillage		sites where practicable	stage	Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	 * * ^ ^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<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	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	• DEVB TC(W) No. 6/2010	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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	<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 promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance	^ ^ ^ 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and EPD and get their approval before implementation	disposal				• ETWB TCW No. 19/2005	^ ^ ^
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	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce	Contractor	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	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.	the amount for final disposal				• ETWB TCW No.19/2005	^
S11.5.1	WM4	<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 chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^ ^ 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.						N/A
S11.5.1	WM6	<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 450L unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; be	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	^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; be covered to prevent rainfall entering; and be arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; and be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.						^

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

• Non-compliance but rectified by the contractor

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

N/A Not Applicable

APPENDIX K
WASTE GENERATION IN THE REPORTING MONTH

Contract No: **MTR SCL 1106 - Diamond Hill Station**
Date of Report: **July, 2014**

Monthly Summary Waste Flow Table for 2014

Monthly	Actual Quantities of C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Remarks
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects (See Note 2)	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste (See Note 3)	Others, e.g. general refuse	
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	
Jan	2.940	0.000	0.000	2.529	0.411	0.000	0.000	0.000	0.000	0.000	0.073	
Feb	2.869	0.000	0.000	2.348	0.521	0.000	0.000	0.225	0.000	1.600	0.090	
Mar	5.081	0.000	0.000	2.957	2.124	0.000	0.000	0.020	0.000	1.760	0.049	
Apr	4.360	0.000	0.000	1.447	2.913	1.000	0.000	0.055	1.000	3.460	0.118	
May	4.904	0.000	0.000	0.930	3.973	0.000	0.000	0.313	2.000	2.260	0.128	
Jun	7.414	0.000	0.000	1.710	5.704	0.000	0.000	0.000	0.000	0.000	0.115	
Sub-total	27.568	0.000	0.000	11.921	15.646	1.000	0.000	0.613	3.000	9.080	0.573	
Jul	12.467	0.000	0.000	1.593	10.874	0.000	0.000	0.210	0.000	2.110	0.091	
Aug												
Sept												
Oct												
Nov												
Dec												
Total	40.035	0.000	0.000	13.514	26.520	1.000	0.000	0.823	3.000	11.190	0.664	

Notes:

1) Assume the densities of Rock, Soil, Mix Rock and Soil, are Regular Spoil to be 2.0 tonnes/m^3. Assumption the densities of general refuse is 1.0 tonnes/m^3
2) Inert C&D material was delivered to Kai Tak Barging Point Facility (Contract 1108A).
3) Chemical waste includes waste diesel oil. It is assumed density of diesel oil to be 0.8kg/L.

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

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

Cumulative Complaint Log

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

Cumulative Log for Notifications of Summons

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

Cumulative Log for Successful Prosecutions

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

Appendix G

15th EM&A Report for Works Contract 1107 –
Diamond Hill to Kai Tak Tunnels

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No.15

[Period from 1 to 31 July 2014]

Works Contract 1107 – Diamond Hill to Kai Tak Tunnels

(August 2014)

Certified by: Priscilla Choy

Position: Environmental Team Leader

Date: 12/8/2014

Chun Wo – SELI Joint Venture

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

Monthly Environmental Monitoring and Audit Report For July 2014

(Version 2.0)

Certified By

Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

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

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

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EXECUTIVE SUMMARY

Introduction

1. This is the 15th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1107 – Diamond Hill to Kai Tak Tunnels**. This report documents the findings of EM&A Works conducted from 1 to 31 July 2014.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:

- Site investigation works;
- Investigation and removal of old foundation works;
- Shaft excavation;
- Site preparation works; and
- Grouting works.

Variation in Construction Method

3. As of the reporting month, an alignment section of approximately 90m long between DIH and KAT under this Works Contract 1107 will be constructed by the cut-and-cover method, instead of bored tunnelling method as assessed in the approved Environmental Impact Assessment (EIA) Report of Shatin to Central Link - Stabling Sidings at Hung Hom Freight Yard (hereafter referred to as SCL (HHS)) [Register No.: AEIAR-164/2012] due to increased construction risk caused by potential left-in piles. Also, pile removal works would be conducted if reinforced bored piles are identified along the bored tunnelling section. Application for variation of Environmental Permit (VEP) was approved by the EPD for the varied construction method. The updated EP (EP No.: EP-438/2012/F) was issued by EPD on 15 July 2014.

Environmental Monitoring and Audit Progress

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

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours
  Noise Monitoring Station ID
  - NMS-CA-4(1)(3)/NMS-CA-3(2)(3) (Block 1, Rhythm Garden (north-eastern façade)) 4 times
  - NMS-CA-5(1)(4)/NMS-CA-2(2)(4) (Block 1, Rhythm Garden (northern façade)) 4 times
- Construction Dust (24-hour TSP) Monitoring
  Dust Monitoring Station ID
  - DMS-4(1)(5)/ DMS-3(2)(5) (Block 1, Rhythm Garden) 5 times

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

Waste Management

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

Landscape and Visual

6. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 10 and 25 July 2014. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

7. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 4, 10, 17 and 25 July 2014. The representative of the IEC joined the site inspection on 17 July 2014. Details of the audit findings and implementation status are presented in Section 6.

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

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

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

10. No Project related environmental complaint and notification of summons/ a successful prosecution was received in this reporting period.

Future Key Issues

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

- Site investigation works;
- Investigation and removal of old foundation works;
- Shaft excavation;
- Site preparation works;
- Grouting works; and
- TBM excavation

1 INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was appointed by Chun Wo – SELI Joint Venture (CSJV) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL)Works Contract 1107 – Diamond Hill to Kai Tak Tunnels (hereafter referred to as the Project).

Purpose of the Report

1.2 This is the 15th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 July 2014. The major construction works for Contract 1107 commenced on 27 May 2013.

Structure of the Report

1.3 The structure of the report is as follows:

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

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

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

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

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

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

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

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

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

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

2.2 The construction of the SCL (TAW-HUH) and SCL (HHS) have been divided into a series of civil construction works contracts. This Works Contract 1107 covers the construction of running tunnel from Kai Tak (KAT) North to SCL Diamond Hill (DIH) Station which is under the approved SCL (HHS) EIA Report. This construction contract was awarded to Chun Wo - SELI Joint Venture (CSJV) in March 2013.

General Site Description

2.3 The construction of tunnel from KAT to DIH will employ either cut-and-cover method or bored tunneling. The alignment and works area for the Works Contract 1107 are shown in **Figure 1**.

Construction Programme and Activities

2.4 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.

- Site investigation works;
- Investigation and removal of old foundation works;
- Shaft excavation;
- Site preparation works; and
- Grouting 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 is presented in **Table 2.1**. No new Construction Noise Permits (CNP) was granted by EPD in this reporting month.

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

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-438/2012/D	13/09/2013	03/04/2014	Superseded by EP-438/2012/E since 4 April 2014
EP-438/2012/E	04/04/2014	14/07/2014	Superseded by EP-438/2012/F since 15 July 2014
EP-438/2012/F	15/07/2014	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
Ref no.: 357051	18/03/2013	N/A	Valid
Billing Account for Construction Waste Disposal			
Account No. 7017163	26/03/2013	N/A	Valid
Registration of Chemical Waste Producer			
5213-286-C3798-01	29/04/2013	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00015861-2013	13/05/2013	31/05/2018	Valid
WT00016009-2013	23/05/2013	31/05/2018	Valid
Construction Noise Permit (CNP)			
GW-RE0110-14	05/02/2014	04/08/2014	Valid
GW-RE0722-14	30/06/2014	29/12/2014	Valid
GW-RE0736-14	02/07/2014	31/12/2014	Valid

Summary of EM&A Requirements

2.7 The EM&A programme under Works Contract 1107 require regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

2.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.

2.9 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

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

Table 3.1 Regular Construction Noise Monitoring Location

Regular Construction Noise Monitoring Location[4][5]	Description	Type of Measurement
NMS-CA-4[1]/ NMS-CA-3[2]	Block 1, Rhythm Garden (north-eastern façade)	Façade
NMS-CA-5[1][3]/ NMS-CA-2[2][3]	Block 1, Rhythm Garden (northern façade)	Façade

Note:
(1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
(3) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.
(4) Noise monitoring on NMS-CA-4[1]/ NMS-CA-3[2] (Block 1, Rhythm Garden (north-eastern façade) is carried out by Environmental Team of SCL Works Contract 1106.
(5) Noise monitoring on NMS-CA-5[1]/ NMS-CA-2[2] (Block 1, Rhythm Garden (northern façade) is carried out by Environmental Team of SCL Works Contract 1106.

Monitoring Parameter and Frequency

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

3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). L_{Aeq} (30min) (as six consecutive $L_{eq,\ 5\text{-}min}$ readings) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays.

Monitoring Equipment and Methodology

Field Monitoring

3.4 The monitoring procedures are as follows:

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

  - frequency weighting : A
  - time weighting : Fast
  - measurement time : 5 minutes (obtaining six consecutive $L_{eq,5min}$ readings for a $L_{eq,30\ min}$ reading)

- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- At the end of the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB(A) shall be made to the noise parameter obtained by free field measurement.

Monitoring Equipment

3.5 The sound level meters and calibrator used for the noise measurement, as listed in **Table 3.2**, 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**.

Table 3.2 Noise Monitoring Equipment

Monitoring Equipment	Model (Serial no.)
Sound Level Meter	SVAN 955 (Serial no.: 12553) and SVAN 957 (Serial no.: 21459)
Calibrator	SV30A and (Serial no.: 24780) B&K 4231 (Serial no.: 2412367)

Maintenance and Calibration

3.6 Maintenance and Calibration procedures were as follows:

- The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator were checked and calibrated at yearly intervals. Copies of calibration certificates are attached in **Appendix C**.

Action & Limit Level for Construction Noise Monitoring

3.7 The Action and Limit Levels are presented in **Appendix B** and the Event / Action Plan (EAP) for noise monitoring is presented in **Appendix I.**

Continuous Noise Monitoring

3.8 With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared submitted under EP Condition 2.9 and Condition 2.10 respectively, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria will be anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (TAW-HUH) under Works Contract 1107.

Regular Construction Dust Monitoring

3.9 The proposed dust monitoring stations for the construction phase of the Project, as recommended in the approved EM&A Manual, are listed in **Table 3.3** and shown in **Figure 3**. The proposed locations have been agreed with the ER, EPD and IEC.

Table 3.3 Dust Monitoring Location

Regular Dust Monitoring Location	Description
DMS-4[(1)(3)]/ DMS-3[(2)(3)]	Block 1, Rhythm Garden

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

Monitoring Parameter and Frequency

3.10 The dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. The 24-hour TSP levels were monitored at the frequency and duration stated in **Table 3.4**. The TSP monitoring at Rhythm Garden was conducted as per the schedule presented in **Appendix D**.

Table 3.4 Dust Monitoring Parameters and Frequency

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring(1)	Throughout the construction period	24-hour TSP	Once per 6 days

Note:
(1) 1- hour TSP shall be conducted when one documented valid complaint is received.

Monitoring Equipment

3.11 **Table 3.5** summarizes the equipment used for the dust monitoring.

Table 3.5 Dust Monitoring Equipment

Equipment	Model and Make	Qty.
HVS	Tisch Environmental, Inc.; Model no. TE-5170, Serial no.: 2352	1
Calibration Orifice	Tisch Environmental, Inc.; Model no. TE – 5025A Orifice ID: 0993	1

Instrumentation

3.12 High Volume Samplers (HVS) connected with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 Appendix B (Part 50).

HVS Installation

3.13 The following guidelines were adopted during the installation of HVS:
- Sufficient support was provided to secure the samplers against gusty wind.
- No two samplers were placed less than 2 meters apart.
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
- A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
- No furnaces or incineration flues were nearby.
- Airflow around the sampler was unrestricted.
- The samplers were more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

Filters Preparation

3.14 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3 μm diameter. A HOKLAS accredited laboratory, Wellab Ltd. (HOKLAS Registration No. 083), was responsible for the preparation of pre-weighed filter papers for Cinotech's monitoring team.

3.15 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±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 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard.
- The power supply was checked to ensure the sampler worked properly.
- The filter holding frame and the area surrounding the filter were cleaned.
- On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the air quality monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts to avoid air leakage at the edges.
- The shelter lid was closed and secured with the aluminum strip.
- A new flow rate record chart was set into the flow recorder.
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- The flow rate of the HVS sampler would be verified to be constant and recorded on the data sheet before and after sampling.
- The elapsed time and other relevant information was recorded. After sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
- It was then placed in a clean plastic envelope and sealed and sent to the Wellab Ltd. for weighing.
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations collected by each filter.

Maintenance/Calibration

3.18 The following maintenance/calibration was required for the HVS:

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

Action and Limit Levels for Dust Monitoring

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

Landscape and Visual

3.20 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The Event / Action Plan (EAP) for landscape and visual is presented in **Appendix I**. The implementation status is given in **Appendix J**.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (June 2014)	14th July 2014

5 MONITORING RESULTS

Regular Construction Noise Monitoring

5.1 A total of 8 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. No exceedance of the limit level was recorded at designated monitoring stations.

5.2 The noise monitoring results recorded at NMS-CA-5[(1)]/NMS-CA-2[(2)] (Block 1, Rhythm Garden (northern façade)) all exceeded the daytime construction noise criterion. However, the results are not considered as exceedance as the results on 10, 16 and 28 July were below the baseline noise level and the result on 23 July was below limit level after baseline correction. The noise monitoring results recorded at NMS-CA-4[(1)]/NMS-CA-3[(2)] (Block 1, Rhythm Garden (north-eastern façade)) did not exceed the daytime construction noise criterion.

5.3 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.

5.4 The noise monitoring results together with their graphical presentations are presented in **Appendix F**.

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

Regular Dust Monitoring

5.6 5 sets of 24-hour TSP monitoring were carried out at the designated monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. The monitoring results together with their graphical presentations are presented in **Appendix E** and a summary of the dust monitoring results in this reporting month is given in **Table 5.1**.

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

Parameter	Minimum $\mu g/m^3$	Maximum $\mu g/m^3$	Average $\mu g/m^3$	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
24-hr TSP (DMS-4[(1)(3)]/ DMS-3[(2)(3)])	19.2	58.2	32.0	160.4	260

Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
(3) Dust monitoring on DMS-4[(1)]/DMS-3[(2)] (Block 1, Rhythm Garden) is carried out by Environmental Team of SCL Works Contract 1106.

5.7 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.

5.8 Wind monitoring data were obtained from Kai Tak Meteorological Station of Hong Kong Observatory and shown on **Appendix E**.

5.9 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during

the reporting period.

Waste Management

5.10 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.2**. 5,640 kg of metals were generated during this reporting month. Details of waste management data is presented in **Appendix K**.

Table 5.2 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) [(a)]	C&D Materials (non-inert) [(b)]				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/ cardboard	Plastics	Metals
July 2014	*6,275m^3*	*45 m^3*	*0 kg*	*0 kg*	*0kg*	*5,640 kg*

Notes:
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil,
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.

Landscape and Visual

5.11 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 10 and 25 July 2014. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audit

6.1 Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audit are attached in **Appendix H**.

6.1.1 Site audits were conducted on 4, 10, 17 and 25 July 2014 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 17 July 2014. No site inspection was conducted by EPD during the reporting month. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

6.2 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix J**.

6.3 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	27 June 2014	Observation: Muddy water was still observed discharging into the upstream of Kai Tuk Nullah. Contractor should properly treat the water before discharging or provide appropriate measure(s) to prevent leakage.	As observed on 4 July, the muddy water was being pumped to WetSep nearby for treatment before discharging.
	4 July 2014	Reminder: Provide sand bag bunds to U-channel near the site boundary to avoid silty runoff leaked out of site.	As observed on 10 July, sand bag bunds were provided to the U-channel.
Noise	10 July 2014	Reminder: To replace the broken noise blanket for the breaker at the cut-and cover tunneling area.	As observed on 17 July, no noise blanket was provided to stone breaker. Item is remarked as 140717-R01 and follow up actions are needed to be reviewed
	17 July 2014	Reminder: Sound proof mat should be provided to the breaking tip of the stone breaker at cut and cover tunneling area to reduce noise impact.	As observed on 25 July, sound proof mat was being wrapped around the breaking tip of the stone breaker during the inspection.
	17 July 2014	Reminder: Noise barrier should be properly erected at area next to Kai Ching Estate to reduce noise impact.	As observed on 25 July, noise barrier has been properly erected to reduce noise impact.
Landscape and Visual	---	---	---
Air Quality	27 June 2014	Reminder: Dusty stockpile at downstream area should be covered with impervious sheet to prevent dust generation.	As observed on 4 July, no rectification/improvement has been made, this item was remarked as 140704-R01 and

Parameters	Date	Observations and Recommendations	Follow-up
			follow up actions were needed to be reviewed.
	4 July 2014	Reminder: Properly cover stockpile of dusty material by impervious sheet or provide water spray to the dusty material to avoid dust generation.	As observed on 10 July, the dusty materials were sprayed with water to avoid dust generation.
	17 July 2014	Reminder: Haul Road should be watered frequently to prevent dust generation.	It was raining during the site inspection, the haul road and dusty stockpile were moist as observed on 25 July.
Waste / Chemical Management	10 July 2014	Reminder: To provide drip tray to chemical container or dispose the empty chemical container as chemical waste near the TBM assembly area.	As observed on 10 July, drip tray was provided to chemical containers and empty chemical container had been disposed of properly as chemical waste.
	25 July 2014	Reminder: Contractor should provide drip tray to chemical container at the cut and cover tunnelling area to prevent chemical leakage.	The follow up action will be reported in next reporting month.
Permits/ Licenses	--	--	--

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

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

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

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

Summary of Environmental Summon and Successful Prosecution

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

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

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

- Site investigation works;
- Investigation and removal of old foundation works;
- Shaft excavation;
- Site preparation works;
- Grouting works; and
- TBM excavation.

Key Issues in the Next Month

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

- Dust impact from excavating works;
- Dust arising from loading, unloading, transfer, handling or storage of bulk cement or dry PFA and bentonite;
- Treatment of wastewater from shaft excavation works;
- To ensure the performance of sorting of C&D materials at source (during generation); and
- To carry out inspection of dump truck at site exit to ensure inert and non-inert C&D materials are properly segregated before removing off site.

Monitoring Schedule in the Next Month

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

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 July 2014 in accordance with EM&A Manual and the requirement under EP.

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

9.3 4 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 2 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.

9.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.

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

Recommendations

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

Water Quality

- The Contractor is reminded to provide appropriate measure(s) to drainage system to prevent leakage of silty runoff.

Landscape and Visual

- N/A

Noise

- The Contractor is reminded to properly erect or repair the noise barriers at hoardings near Kai Ching Estate.
- The Contractor is reminded to provide acoustic barrier to breaker during rock-breaking works at the storage area.

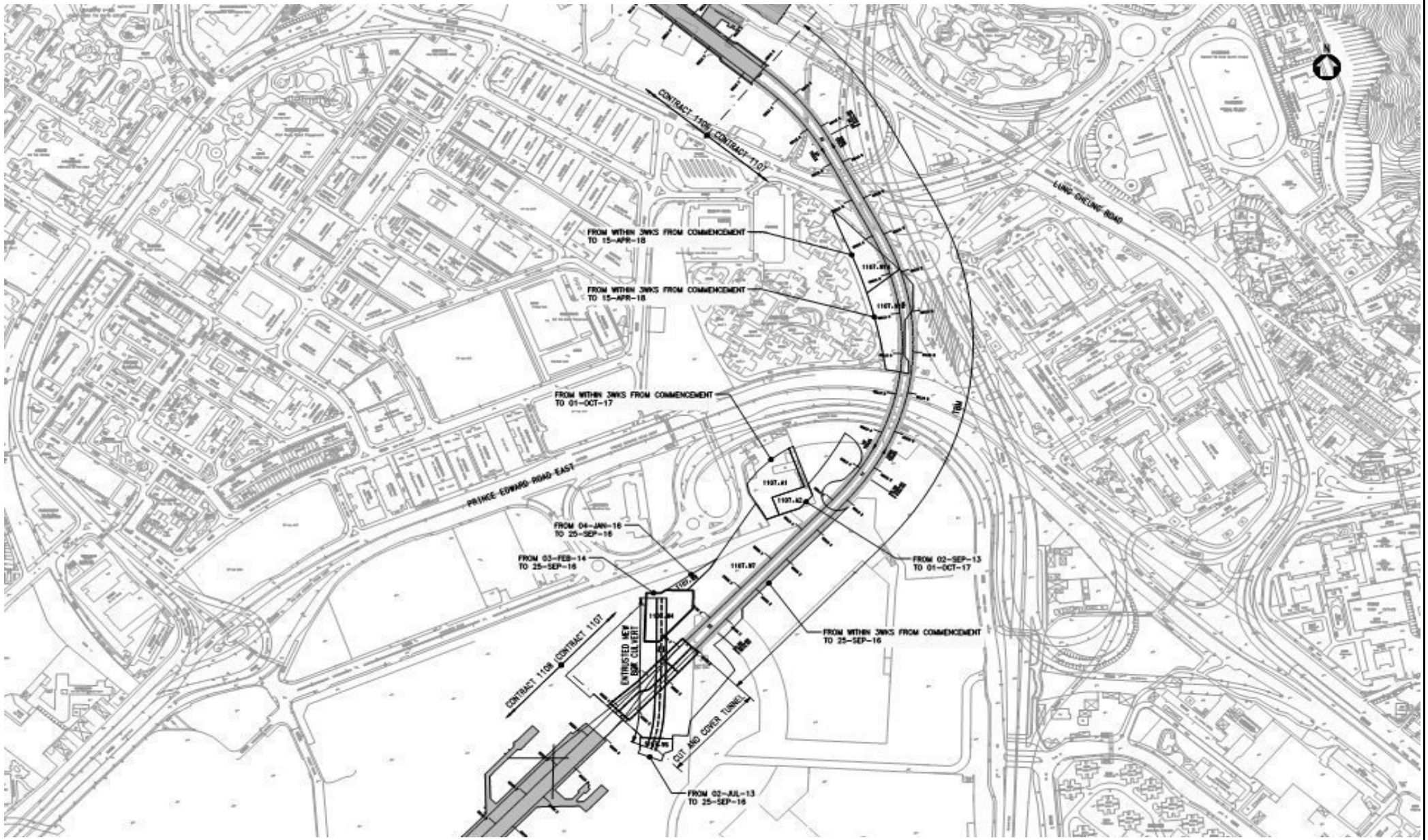
Air Quality

- The Contractor is reminded to provide water spray to exposed area to avoid dust generation.
- Dusty stockpile at the site should be covered with impervious sheet to prevent dust generation.

Waste/Chemical Management

- The Contractor was reminded to properly dispose the empty chemical containers as "chemical waste" at the storage area.
- The Contractor was reminded to provide drip tray of appropriate size to chemical containers to prevent chemical leakage.

FIGURES



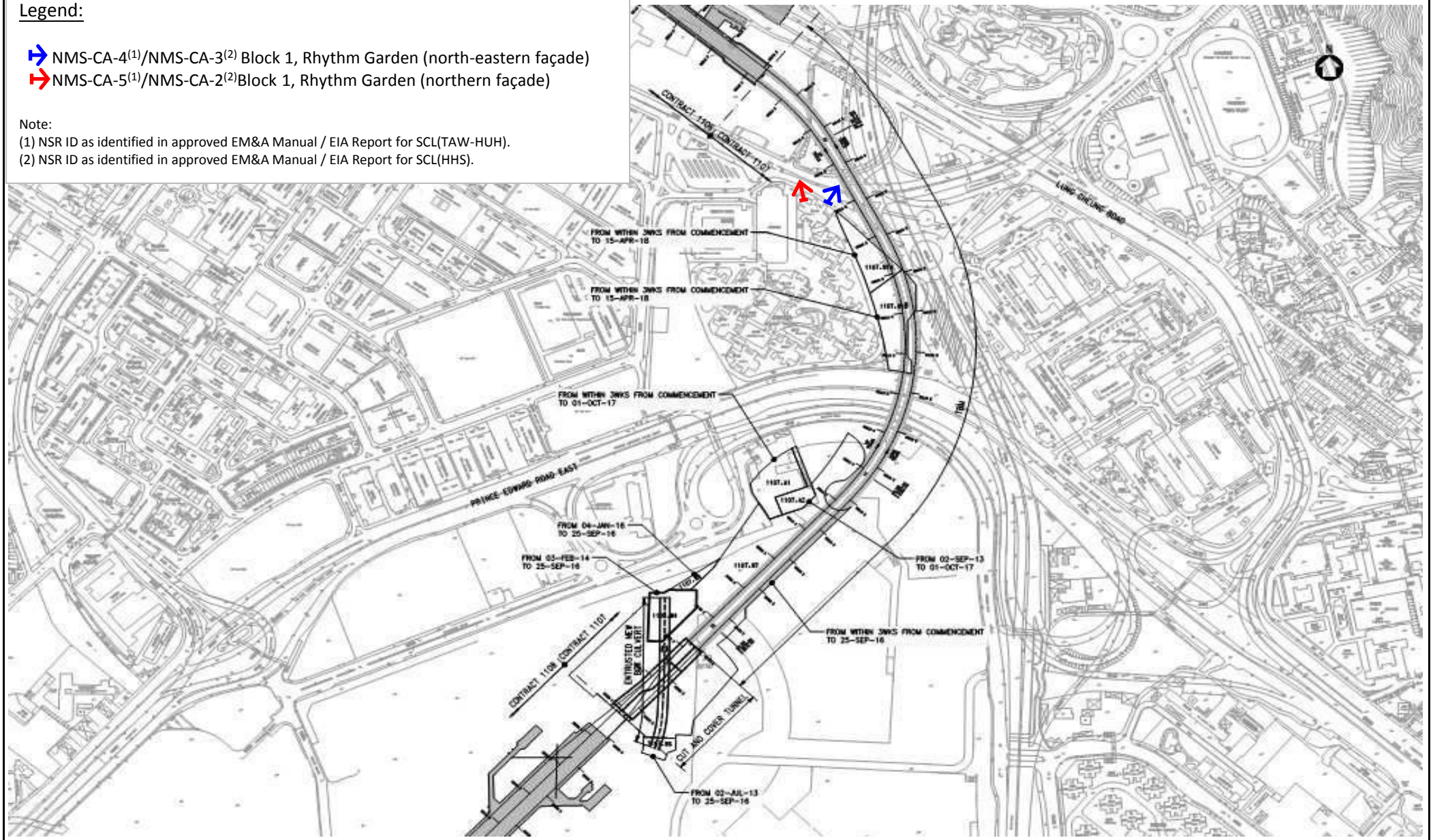
Title	MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Site Layout Plan	Scale N.T.S Date May-13	Project No. MA13018 Figure 1

CINOTECH

Legend:

NMS-CA-4(1)/NMS-CA-3(2) Block 1, Rhythm Garden (north-eastern façade)
NMS-CA-5(1)/NMS-CA-2(2)Block 1, Rhythm Garden (northern façade)

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

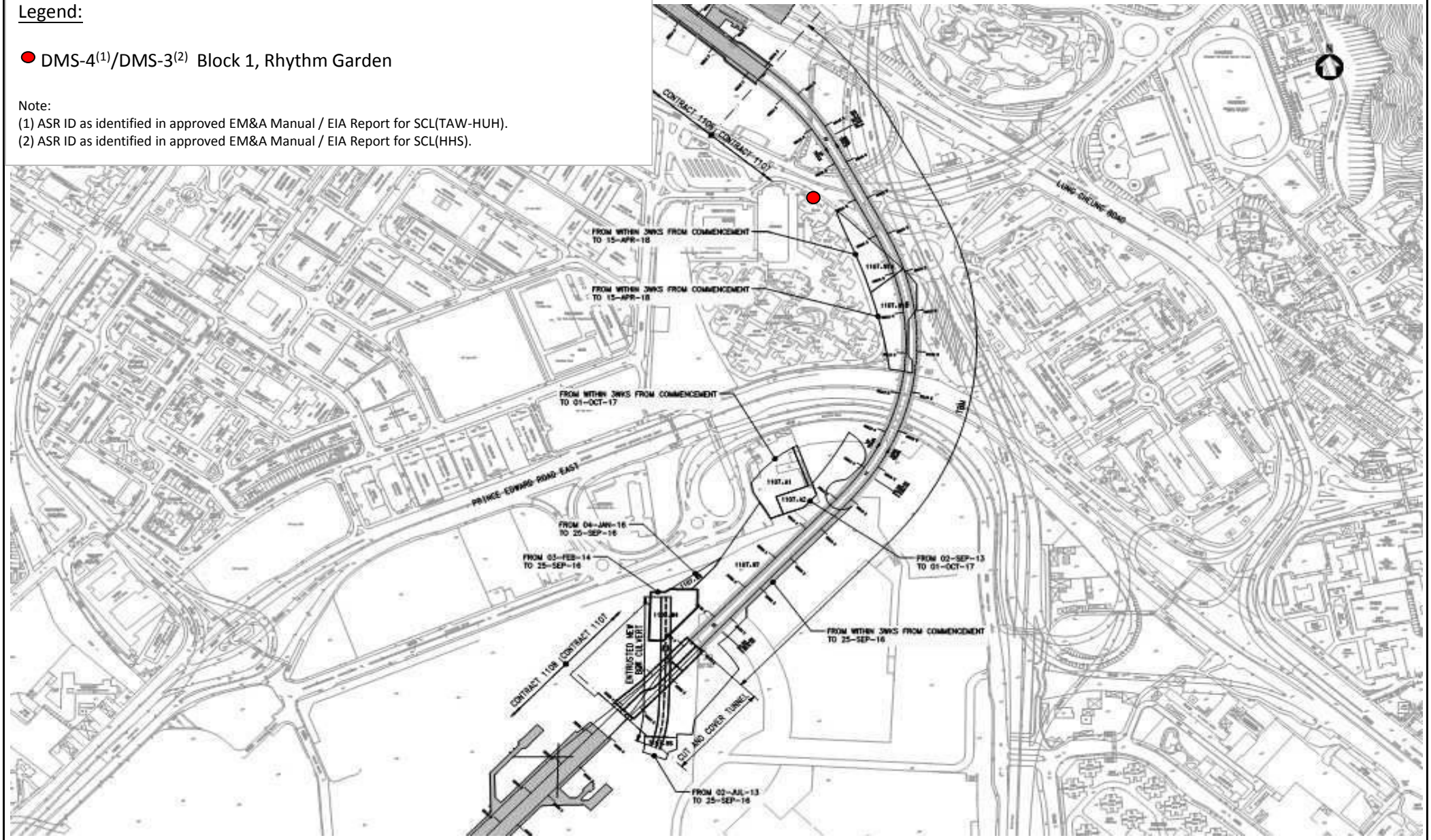


Title	MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Locations of Constrcution Noise Monitoring	Scale N.T.S	Project No. MA13018	CINOTECH
		Date May-13	Figure 2	

Legend:

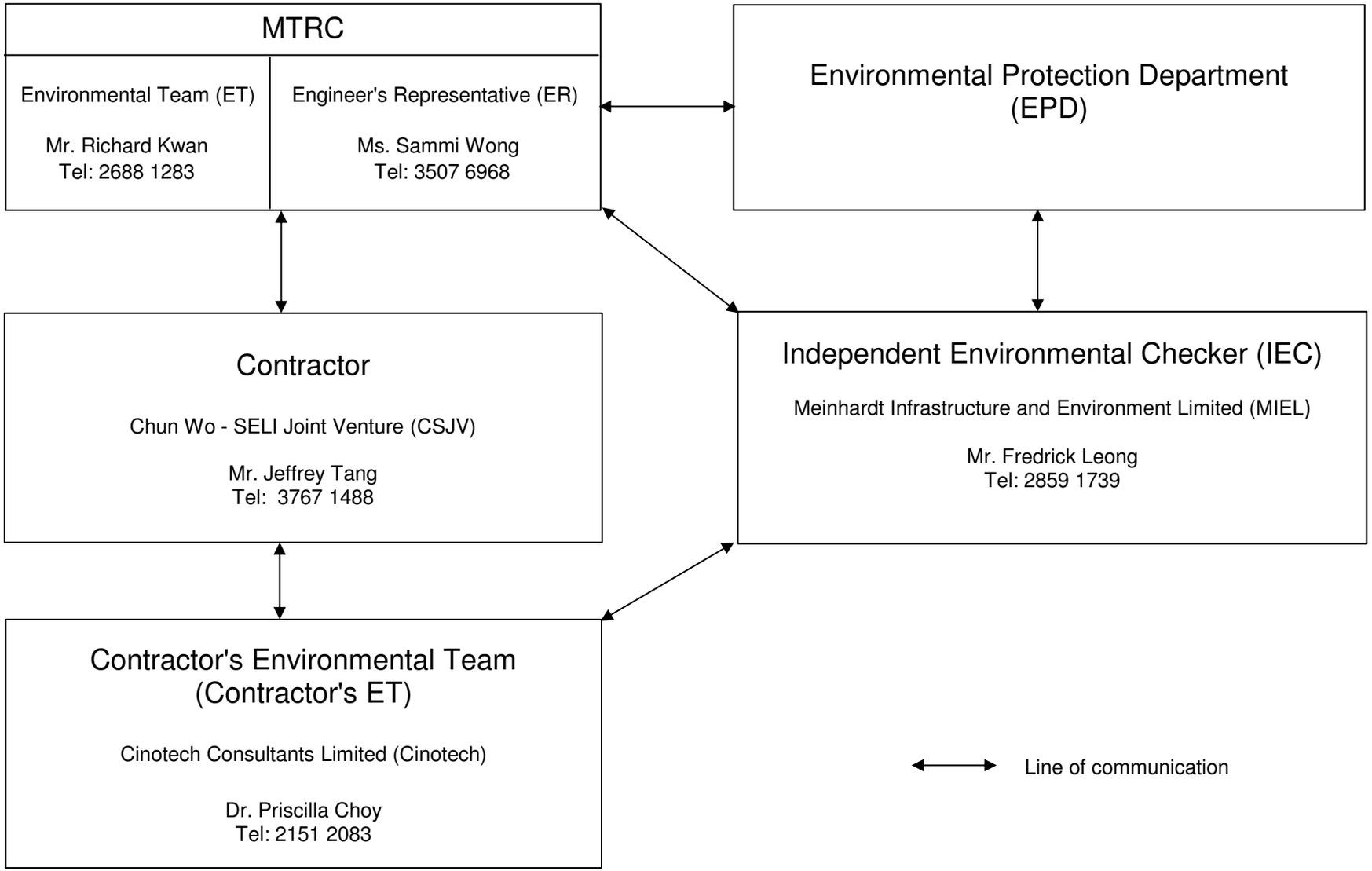
● DMS-4(1)/DMS-3(2) Block 1, Rhythm Garden

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



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

CINOTECH

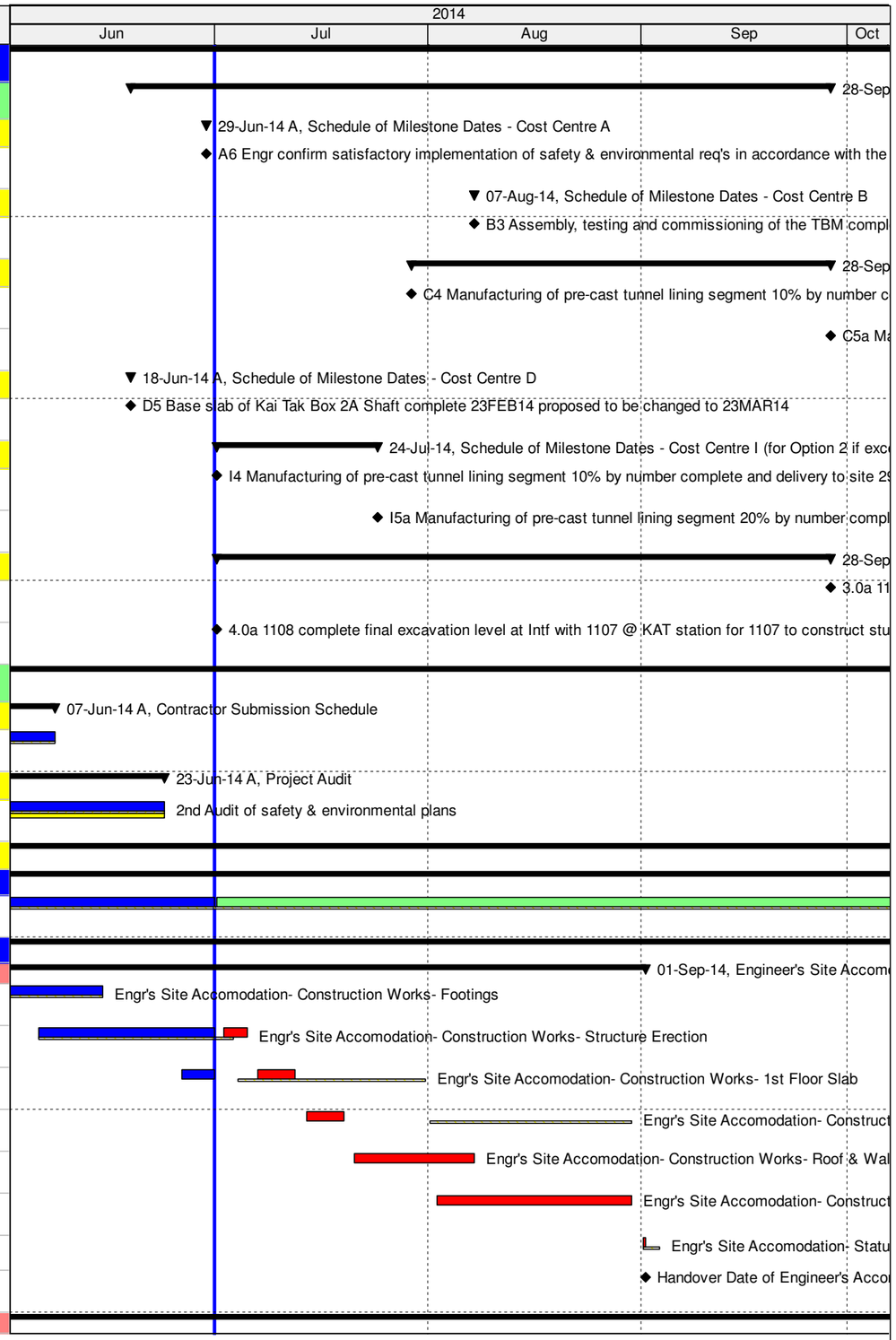


Title	Scale	Proposal No.
MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Organisation Chart and Key Contact of the Project	N.T.S	MA13018
	Date: Jun-13	Figure: 4

CINOTECH

APPENDIX A
TENTATIVE CONSTRUCTION PROGRAMME

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish
**MTRC SCL 1107 Diamond Hill to Kai Tak ' **		271	18-Jun-13	08-Jan-15	04-Feb-14	31-Dec-14	04-Feb-14 A	31-Dec-14
Shedule of Completion Obligation & Oth		102	12-Mar-14	28-Sep-14	25-May-14	06-Oct-14	18-Jun-14 A	28-Sep-14
Schedule of Milestone Dates - Cost Centre A		0	29-Jun-14	29-Jun-14	29-Jun-14	29-Jun-14	29-Jun-14 A	29-Jun-14 A
1107.MS10210	A6 Engr confirm satisfactory implementation of safety & environmental req's in accordance with the Specified Plans	0		29-Jun-14		29-Jun-14		29-Jun-14 A
Schedule of Milestone Dates - Cost Centre B		0	04-Jul-14	04-Jul-14	06-Oct-14	06-Oct-14	07-Aug-14	07-Aug-14
1107.MS10360	B3 Assembly, testing and commissioning of the TBM complete and ready for tunnel driving (UP track) 27JUL14	0		04-Jul-14		06-Oct-14		07-Aug-14*
Schedule of Milestone Dates - Cost Centre C		61	02-May-14	11-Jun-14	16-Jun-14	28-Sep-14	29-Jul-14	28-Sep-14
1107.MS10410	C4 Manufacturing of pre-cast tunnel lining segment 10% by number complete and delivery to site 29JUN14	0		02-May-14		16-Jun-14		29-Jul-14*
1107.MS10420	C5a Manufacturing of pre-cast tunnel lining segment 20% by number complete and delivery to site 28SEP14	0		11-Jun-14		28-Sep-14		28-Sep-14*
Schedule of Milestone Dates - Cost Centre D		0	12-Mar-14	12-Mar-14	18-Jun-14	18-Jun-14	18-Jun-14 A	18-Jun-14 A
1107.MS10590	D5 Base slab of Kai Tak Box 2A Shaft complete 23FEB14 proposed to be changed to 23MAR14	0		12-Mar-14		18-Jun-14		18-Jun-14 A
Schedule of Milestone Dates - Cost Centre I (for Optio		24	02-May-14	11-Jun-14	16-Jun-14	24-Jul-14	01-Jul-14	24-Jul-14
1107.MS10780	I4 Manufacturing of pre-cast tunnel lining segment 10% by number complete and delivery to site 29JUN14	0		02-May-14		16-Jun-14		01-Jul-14*
1107.MS10790	I5a Manufacturing of pre-cast tunnel lining segment 20% by number complete and delivery to site 28SEP14	0		11-Jun-14		24-Jul-14		24-Jul-14*
Programme Data		90	25-May-14	28-Sep-14	25-May-14	28-Sep-14	01-Jul-14	28-Sep-14
1107.ID10950	3.0a 1106 complete Retrieval Shaft at DIH (SCL) east 49-53 with Base Slab & Ready for 1107 TBM Retrieval 28SEP14	0		28-Sep-14		28-Sep-14		28-Sep-14*
1107.ID10980	4.0a 1108 complete final excavation level at Intf with 1107 @ KAT station for 1107 to construct stub tunnels (TBC)	0	25-May-14		25-May-14		01-Jul-14*	
Cost Centre A - Preliminaries		249	18-Jun-13	08-Jan-15	01-Mar-14	31-Dec-14	01-Mar-14 A	31-Dec-14
Contractor Submission Schedule		78	07-Oct-14	08-Jan-15	01-Mar-14	07-Jun-14	01-Mar-14 A	07-Jun-14 A
1107.12200	P14.29 Submission of Designated & Interfacing Contracts Information	78	07-Oct-14	08-Jan-15	01-Mar-14	07-Jun-14	01-Mar-14 A	07-Jun-14 A
Project Audit		24	26-May-14	23-Jun-14	26-May-14	23-Jun-14	26-May-14 A	23-Jun-14 A
1107.12480	2nd Audit of safety & environmental plans	24	26-May-14	23-Jun-14	26-May-14	23-Jun-14	26-May-14 A	23-Jun-14 A
Site Enabling Works		224	18-Jun-13	31-Dec-14	31-Mar-14	31-Dec-14	31-Mar-14 A	31-Dec-14
Hoarding Erection		108			26-May-14	22-Oct-14	26-May-14 A	22-Oct-14
1107.20900	Green Hoarding Works	108			26-May-14	22-Oct-14	26-May-14 A	22-Oct-14
Site Setup		224	18-Jun-13	31-Dec-14	31-Mar-14	31-Dec-14	31-Mar-14 A	31-Dec-14
Engineer's Site Accomodation		84	18-Jun-13	17-Sep-13	24-May-14	03-Sep-14	24-May-14 A	01-Sep-14
1107.12650	Engr's Site Accomodation- Construction Works- Footings	18	18-Jun-13	10-Sep-13	24-May-14	14-Jun-14	24-May-14 A	14-Jun-14 A
1107.12650a	Engr's Site Accomodation- Construction Works- Structure Erection	24			05-Jun-14	03-Jul-14	05-Jun-14 A	05-Jul-14
1107.12650b	Engr's Site Accomodation- Construction Works- 1st Floor Slab	24			04-Jul-14	31-Jul-14	26-Jun-14 A	12-Jul-14
1107.12650c	Engr's Site Accomodation- Construction Works- Steel Protection	6			01-Aug-14	30-Aug-14	14-Jul-14	19-Jul-14
1107.12650d	Engr's Site Accomodation- Construction Works- Roof & Wall Cladding	16					21-Jul-14	07-Aug-14
1107.12650e	Engr's Site Accomodation- Construction Works- E&M & ABWF	25					02-Aug-14	30-Aug-14
1107.12660	Engr's Site Accomodation- Statutary Inspection & Handover	1	11-Sep-13	13-Sep-13	01-Sep-14	03-Sep-14	01-Sep-14	01-Sep-14
1107.12670	Handover Date of Engineer's Accomodation (Q&A CON T051) 17SEP13	0		17-Sep-13		03-Sep-14		01-Sep-14*
Misc Items		224	01-Apr-14	31-Dec-14	31-Mar-14	31-Dec-14	31-Mar-14 A	31-Dec-14



Data Date 01-Jul-14 Page 1 of 6 SCL1107 M-3MR-016 Printed 09-Jul-1414:40	**MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme** **Data Date 01-Jul-14**	Date	Revision	Checked	Approved
		See 2nd Col	0	KCL	KCL

Master Prog Baseline Bar ◆ Milestone
Last Month Forecast Bar ▼ Summary
Actual Work
Remaining Work
Critical Remaining Work

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish
1107.18990	Provision of Site General Staff (Drivers, Amahs, etc) - Second Quarter of 2014	71	01-Apr-14	30-Jun-14	01-Apr-14	30-Jun-14	01-Apr-14 A	30-Jun-14 A
1107.19000	Provision of Site General Staff (Drivers, Amahs, etc) - Third Quarter of 2014	77	02-Jul-14	30-Sep-14	02-Jul-14	30-Sep-14	02-Jul-14	30-Sep-14
1107.19010	Provision of Site General Staff (Drivers, Amahs, etc) - Fourth Quarter of 2014	75	03-Oct-14	31-Dec-14	03-Oct-14	31-Dec-14	03-Oct-14	31-Dec-14
1107.19180	Provision of Site General Labour for Temporary Works - Second Quarter of 2014	71	01-Apr-14	30-Jun-14	31-Mar-14	28-Jun-14	31-Mar-14 A	28-Jun-14 A
1107.19190	Provision of Site General Labour for Temporary Works - Third Quarter of 2014	77	02-Jul-14	30-Sep-14	30-Jun-14	29-Sep-14	02-Jul-14	30-Sep-14
1107.19200	Provision of Site General Labour for Temporary Works - Fourth Quarter of 2014	75	03-Oct-14	31-Dec-14	30-Sep-14	30-Dec-14	03-Oct-14	31-Dec-14
Instrumentation & Monitoring		20			26-Jun-14	19-Jul-14	26-Jun-14 A	19-Jul-14
1107.17300	Tunneling works I&M Installation- Installation of Extensometers & Tilt Plates	20			26-Jun-14	19-Jul-14	26-Jun-14 A	19-Jul-14
Cost Centre B - Procurement of TBM		89	25-Feb-14	01-Mar-14	15-Mar-14	10-Jun-14	15-Mar-14 A	05-Jul-14
Test		89	25-Feb-14	01-Mar-14	15-Mar-14	10-Jun-14	15-Mar-14 A	05-Jul-14
1107.19420	Manufacture of Cutting Tools and Spare Parts	48	25-Feb-14	01-Mar-14	15-Mar-14	16-May-14	15-Mar-14 A	04-Jul-14
1107.19930	Delivery of Cutting Tools and Spare Parts	1			04-Jun-14	10-Jun-14	05-Jul-14	05-Jul-14
Cost Centre C - Tunnel Construction by T		212	09-Oct-13	06-Oct-14	10-Mar-14	17-Nov-14	10-Mar-14 A	24-Nov-14
Site Enabling Works for TBM		212	09-Oct-13	17-Jul-14	10-Mar-14	27-Oct-14	10-Mar-14 A	24-Nov-14
Instrumentation & Monitoring		122			03-Jun-14	27-Oct-14	03-Jun-14 A	27-Oct-14
1107.19940	TTMS Application for I&M Installation along TBM Alignment	64			03-Jun-14	16-Aug-14	03-Jun-14 A	16-Aug-14
1107.19940a	Installation of I&M along TBM not Requiring TTMS	64			03-Jun-14	16-Aug-14	03-Jun-14 A	16-Aug-14
1107.19940b	Installation of I&M along TBM Requiring TTMS	58			18-Aug-14	27-Oct-14	18-Aug-14	27-Oct-14
OPTION 3 - Obstruction Removal		137	07-Nov-13	11-Feb-14	29-May-14	21-Oct-14	29-May-14 A	10-Nov-14
Removal of Abandoned Airport Admin Bldg Foundations DN Track		137	07-Nov-13	11-Feb-14	29-May-14	21-Oct-14	29-May-14 A	10-Nov-14
1107.13560	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed) (Portion 1a)	17	07-Nov-13	11-Feb-14	11-Aug-14	29-Aug-14	30-Aug-14	19-Sep-14
1107.13560a	Remove Abandoned Airport Admin. Bldg Piles (PROVISIONAL, To be Confirmed)) (Portion 1b)	14			30-Aug-14	16-Sep-14	20-Sep-14	08-Oct-14
1107.20053a	Pump Test- Approval of Design Submission	14			03-Jun-14	18-Jun-14	03-Jun-14 A	18-Jun-14 A
1107.20053b	Pump Test- Install Pumps & Observation Wells	5			09-Jun-14	13-Jun-14	09-Jun-14 A	13-Jun-14 A
1107.20053c	Pump Test- Excavate to Strut 1 level & Install Strut 1	6			29-May-14	05-Jun-14	29-May-14 A	31-May-14 A
1107.20053d	Pump Test- Excavate to Strut 2 level, Demolish Conc pile cap & Install Strut 2	9			03-Jun-14	12-Jun-14	14-Jun-14 A	03-Jul-14
1107.20053e	Pump Test- Demolish Conc pile cap Further down & Install Dewatering Pump	5			13-Jun-14	18-Jun-14	04-Jul-14	09-Jul-14
1107.20053f	Pump Test- Carry out Pump Test & Submit Results	4			19-Jun-14	23-Jun-14	10-Jul-14	14-Jul-14
1107.20060	ELS to Locate Foundations (Portion 1) DN 98005 to 98055	40			24-Jun-14	09-Aug-14	15-Jul-14	29-Aug-14
1107.20062	ELS to Locate Foundations (Portion 2) DN 98040 to 98080	59			11-Aug-14	21-Oct-14	30-Aug-14	10-Nov-14
Ground Treatment		212	09-Oct-13	17-Jul-14	10-Mar-14	16-Oct-14	10-Mar-14 A	24-Nov-14
Jet Grouting Treatment for KAT TBM Launch Shaft		0	22-Apr-14	22-Apr-14	25-Jul-14	25-Jul-14	08-Aug-14	08-Aug-14
1107.13020	Approx date of TBM Break Through (Up Track)	0	22-Apr-14		25-Jul-14		08-Aug-14*	
Jet Grouting Treatment for Cross Passage 3		122	30-Jan-14	21-Mar-14	20-May-14	14-Oct-14	20-May-14 A	14-Oct-14
1107.13090	Stage 2 TTMS	12	30-Jan-14	30-Jan-14	20-May-14	03-Jun-14	20-May-14 A	03-Jun-14 A
1107.13091	Trial Holes	6			03-Jun-14	09-Jun-14	03-Jun-14 A	09-Jun-14 A

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish
1107.13092	Construction of Temp Road	24			10-Jun-14	08-Jul-14	10-Jun-14 A	08-Jul-14
1107.13093	Stage 3 TTMS	12			09-Jul-14	22-Jul-14	09-Jul-14	22-Jul-14
1107.13094	Trial Holes	6			09-Jul-14	15-Jul-14	09-Jul-14	15-Jul-14
1107.13100	Jet Grouting (36 nos) (Average 2.25 Columns per day) Stage 1 (Cutterhead Intervention omitted- smaller grout block)	20	31-Jan-14	25-Feb-14	16-Jul-14	07-Aug-14	16-Jul-14	07-Aug-14
1107.13101	Curing of Grout	21			08-Aug-14	28-Aug-14	08-Aug-14	28-Aug-14
1107.13102	3 nos core Sample	3			29-Aug-14	01-Sep-14	29-Aug-14	01-Sep-14
1107.13103	Reinstatement of Road	11			29-Aug-14	11-Sep-14	29-Aug-14	11-Sep-14
1107.13110	Stage 4 TTMS	12	26-Feb-14	26-Feb-14	12-Sep-14	25-Sep-14	12-Sep-14	25-Sep-14
1107.13111	Trial Holes	6			12-Sep-14	18-Sep-14	12-Sep-14	18-Sep-14
1107.13120	Jet Grouting (36 nos) (Average 2.25 Columns per day) Stage 2 (Cutterhead Intervention omitted- smaller grout block)	20	27-Feb-14	21-Mar-14	19-Sep-14	14-Oct-14	19-Sep-14	14-Oct-14
Jet Grouting Treatment for Cross Passage 2		64	07-Apr-14	17-Jul-14	22-May-14	21-Aug-14	22-May-14 A	04-Aug-14
1107.13190	Jet Grouting (144 nos incl of TBM Intervention) Average 2.25 Grout Columns per day	64	07-Apr-14	26-Jun-14	22-May-14	06-Aug-14	22-May-14 A	14-Jul-14
1107.13200	Demobilise	3	27-Jun-14	30-Jun-14	01-Aug-14	04-Aug-14	15-Jul-14	17-Jul-14
1107.13210	Reinstatement of Site	12	02-Jul-14	15-Jul-14	05-Aug-14	18-Aug-14	18-Jul-14	31-Jul-14
1107.13220	Curing of Grout	21	27-Jun-14	17-Jul-14	01-Aug-14	21-Aug-14	15-Jul-14	04-Aug-14
Jet Grouting Treatment for Cross Passage 1		71	08-Jan-14	04-Apr-14	16-Jun-14	09-Sep-14	24-Jul-14	17-Oct-14
1107.13239a	Access to 1106 CP1 Site Area	0			16-Jun-14		24-Jul-14*	
1107.13240	Site Clearance Plant set up	3	08-Jan-14	10-Jan-14	16-Jun-14	18-Jun-14	24-Jul-14	26-Jul-14
1107.13250	Trial pit for Locating Underground Utilities	6	11-Jan-14	17-Jan-14	19-Jun-14	25-Jun-14	28-Jul-14	02-Aug-14
1107.13260	Jet Grouting (104 nos) Average 2.25 Grout Columns	46	18-Jan-14	14-Mar-14	26-Jun-14	19-Aug-14	04-Aug-14	26-Sep-14
1107.13270	Demobilise	6	15-Mar-14	21-Mar-14	20-Aug-14	26-Aug-14	27-Sep-14	06-Oct-14
1107.13280	Curing of Grout	21	15-Mar-14	04-Apr-14	20-Aug-14	09-Sep-14	27-Sep-14	17-Oct-14
Pressure Grouting Treatment to Pier Z5 Foundation		116	09-Oct-13	28-Jan-14	10-Mar-14	21-Jul-14	10-Mar-14 A	31-Jul-14
1107.13330	Pressure Grouting (148 nos) Average 2 Points per day	74	09-Oct-13	07-Jan-14	10-Mar-14	11-Jun-14	10-Mar-14 A	10-Jul-14
1107.13334	F4 Ground treatment and grouting work to Pier Z5 complete	0		26-Jan-14		30-Jun-14		10-Jul-14*
1107.13340	Demobilise	6	08-Jan-14	14-Jan-14	02-Jul-14	08-Jul-14	11-Jul-14	17-Jul-14
1107.13350	Curing of Grout	21	08-Jan-14	28-Jan-14	01-Jul-14	21-Jul-14	11-Jul-14	31-Jul-14
Pressure Grouting Treatment for DIH TBM Retrieval Shaft		102	09-Nov-13	22-Mar-14	16-Jun-14	16-Oct-14	25-Jul-14	24-Nov-14
1107.13390	1107 Allowed Access to 1106 Eastern Retreival Shaft Grout Block Work Area	0	09-Nov-13		16-Jun-14		25-Jul-14*	
1107.13410	Site Clearance Plant set up	6	09-Nov-13	15-Nov-13	16-Jun-14	21-Jun-14	25-Jul-14	31-Jul-14
1107.13420	Trial pit for Locating Underground Utilities	6	16-Nov-13	22-Nov-13	23-Jun-14	28-Jun-14	01-Aug-14	07-Aug-14
1107.13430	Pressure Grouting UP Track (181 nos) Average 4 Points/day with 2 machines	45	03-Dec-13	27-Jan-14	30-Jun-14	21-Aug-14	08-Aug-14	30-Sep-14
1107.13431	Pressure Grouting DN Track (181 nos) Average 4 Points/day with 2 machines	45	28-Jan-14	22-Mar-14	22-Aug-14	16-Oct-14	03-Oct-14	24-Nov-14
1107.13432	Curing of Grout (UP Track)	21					01-Oct-14	21-Oct-14
Mobilisation of TBM		144	18-Feb-14	21-Jun-14	15-Apr-14	26-Sep-14	15-Apr-14 A	10-Oct-14
1107.13860	Gantry Crane Beams Installation	8	18-Feb-14	20-Feb-14	19-Jun-14	27-Jun-14	02-Jul-14	10-Jul-14

MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme

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Master Prog Baseline Bar ◆ Milestone

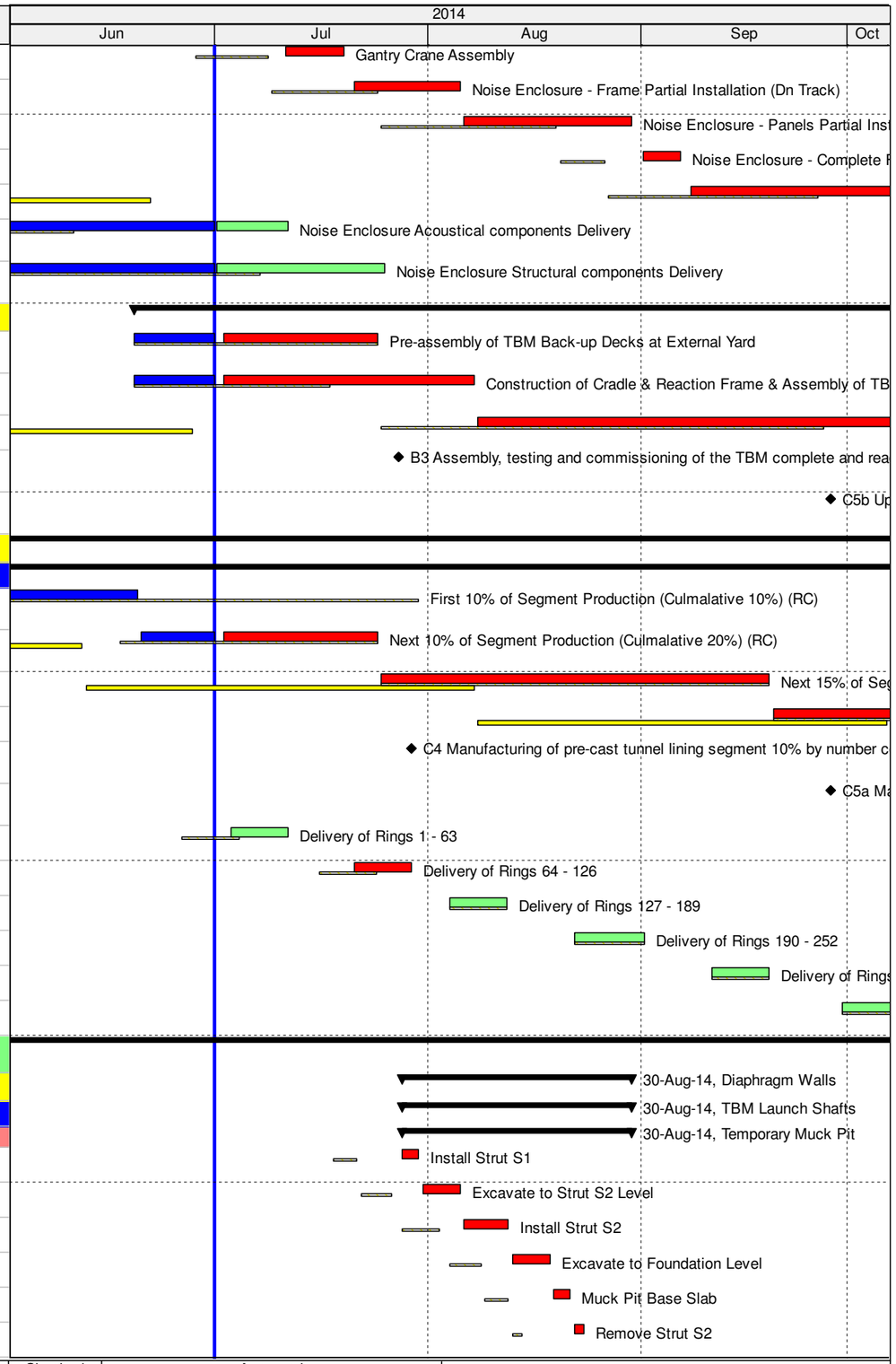
Last Month Forecast Bar ▼ Summary

Actual Work

Remaining Work

Critical Remaining Work

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish
1107.13870	Gantry Crane Assembly	8	21-Feb-14	24-Feb-14	28-Jun-14	08-Jul-14	11-Jul-14	19-Jul-14
1107.13880	Noise Enclosure - Frame Partial Installation (Dn Track)	14	25-Feb-14	12-Mar-14	09-Jul-14	24-Jul-14	21-Jul-14	05-Aug-14
1107.13890	Noise Enclosure - Panels Partial Installation (Dn Track)	22	13-Mar-14	08-Apr-14	25-Jul-14	19-Aug-14	06-Aug-14	30-Aug-14
1107.13900	Noise Enclosure - Complete Frame Installation	6	11-Apr-14	17-Apr-14	20-Aug-14	26-Aug-14	01-Sep-14	06-Sep-14
1107.13910	Noise Enclosure - Complete Panels Installation	26	22-Apr-14	21-Jun-14	27-Aug-14	26-Sep-14	08-Sep-14	10-Oct-14
1107.20870	Noise Enclosure Acoustical components Delivery	41			15-Apr-14	10-Jun-14	15-Apr-14 A	11-Jul-14
1107.20880	Noise Enclosure Structural components Delivery	34			21-May-14	07-Jul-14	21-May-14 A	25-Jul-14
Tunnel Boring Construction - UP Track		97	13-Mar-14	28-Sep-14	19-Jun-14	28-Sep-14	19-Jun-14 A	14-Oct-14
1107.13920	Pre-assembly of TBM Back-up Decks at External Yard	30	13-Mar-14	28-Apr-14	19-Jun-14	24-Jul-14	19-Jun-14 A	24-Jul-14
1107.13930	Construction of Cradle & Reaction Frame & Assembly of TBM Shield in Shaft	24	13-Mar-14	10-Apr-14	19-Jun-14	17-Jul-14	19-Jun-14 A	07-Aug-14
1107.13940	TBM Initial 90m Driving - TBM Fully Embedded	55	22-Apr-14	27-Jun-14	25-Jul-14	27-Sep-14	08-Aug-14	14-Oct-14
1107.13951	B3 Assembly, testing and commissioning of the TBM complete and ready for tunnel driving (UP track)	0		27-Jul-14		27-Jul-14		27-Jul-14*
1107.13990	C5b Up track TBM tunnel drive from Kai Tak to DIH 35% by plan length complete	0		28-Sep-14		28-Sep-14		28-Sep-14*
Production of Pre - Cast Tunnel Lining		145	24-Feb-14	06-Oct-14	27-May-14	17-Nov-14	28-Apr-14 A	17-Nov-14
Production of Segments		145	24-Feb-14	06-Oct-14	27-May-14	17-Nov-14	28-Apr-14 A	17-Nov-14
1107.14710	First 10% of Segment Production (Culmalative 10%) (RC)	54	24-Feb-14	02-May-14	27-May-14	30-Jul-14	28-Apr-14 A	19-Jun-14 A
1107.14720	Next 10% of Segment Production (Culmalative 20%) (RC)	32	03-May-14	11-Jun-14	17-Jun-14	24-Jul-14	20-Jun-14 A	24-Jul-14
1107.14730	Next 15% of Segment Production (Culmalative 35%) (RC)	48	12-Jun-14	07-Aug-14	25-Jul-14	19-Sep-14	25-Jul-14	19-Sep-14
1107.14731	Next 15% of Segment Production (Culmalative 50%) (RC)	48	08-Aug-14	06-Oct-14	20-Sep-14	17-Nov-14	20-Sep-14	17-Nov-14
1107.14780	C4 Manufacturing of pre-cast tunnel lining segment 10% by number complete and delivery to site	0		29-Jun-14		29-Jun-14		29-Jul-14*
1107.14790	C5a Manufacturing of pre-cast tunnel lining segment 20% by number complete and delivery to site	0		28-Sep-14		28-Sep-14		28-Sep-14*
1107.20190	Delivery of Rings 1 - 63	7			26-Jun-14	04-Jul-14	03-Jul-14	11-Jul-14
1107.20680	Delivery of Rings 64 - 126	7			16-Jul-14	24-Jul-14	21-Jul-14	29-Jul-14
1107.20690	Delivery of Rings 127 - 189	7			04-Aug-14	12-Aug-14	04-Aug-14	12-Aug-14
1107.20700	Delivery of Rings 190 - 252	7			22-Aug-14	01-Sep-14	22-Aug-14	01-Sep-14
1107.20710	Delivery of Rings 253 - 315	7			11-Sep-14	19-Sep-14	11-Sep-14	19-Sep-14
1107.20720	Delivery of Rings 316 - 378	7			30-Sep-14	08-Oct-14	30-Sep-14	08-Oct-14
Cost Centre D - KAT Cut & Cover Tunnels		108	16-Oct-13	24-Sep-14	31-May-14	15-Nov-14	31-May-14 A	09-Oct-14
Diaphragm Walls		30	16-Oct-13	19-Nov-13	18-Jul-14	21-Aug-14	28-Jul-14	30-Aug-14
TBM Launch Shafts		30	16-Oct-13	19-Nov-13	18-Jul-14	21-Aug-14	28-Jul-14	30-Aug-14
Temporary Muck Pit		30	16-Oct-13	19-Nov-13	18-Jul-14	21-Aug-14	28-Jul-14	30-Aug-14
1107.19440	Install Strut S1	3	16-Oct-13	18-Oct-13	18-Jul-14	21-Jul-14	28-Jul-14	30-Jul-14
1107.19450	Excavate to Strut S2 Level	5	19-Oct-13	24-Oct-13	22-Jul-14	26-Jul-14	31-Jul-14	05-Aug-14
1107.19460	Install Strut S2	6	25-Oct-13	31-Oct-13	28-Jul-14	02-Aug-14	06-Aug-14	12-Aug-14
1107.19470	Excavate to Foundation Level	5	01-Nov-13	06-Nov-13	04-Aug-14	08-Aug-14	13-Aug-14	18-Aug-14
1107.19480	Muck Pit Base Slab	3	07-Nov-13	09-Nov-13	09-Aug-14	12-Aug-14	19-Aug-14	21-Aug-14
1107.19490	Remove Strut S2	2	11-Nov-13	12-Nov-13	13-Aug-14	14-Aug-14	22-Aug-14	23-Aug-14



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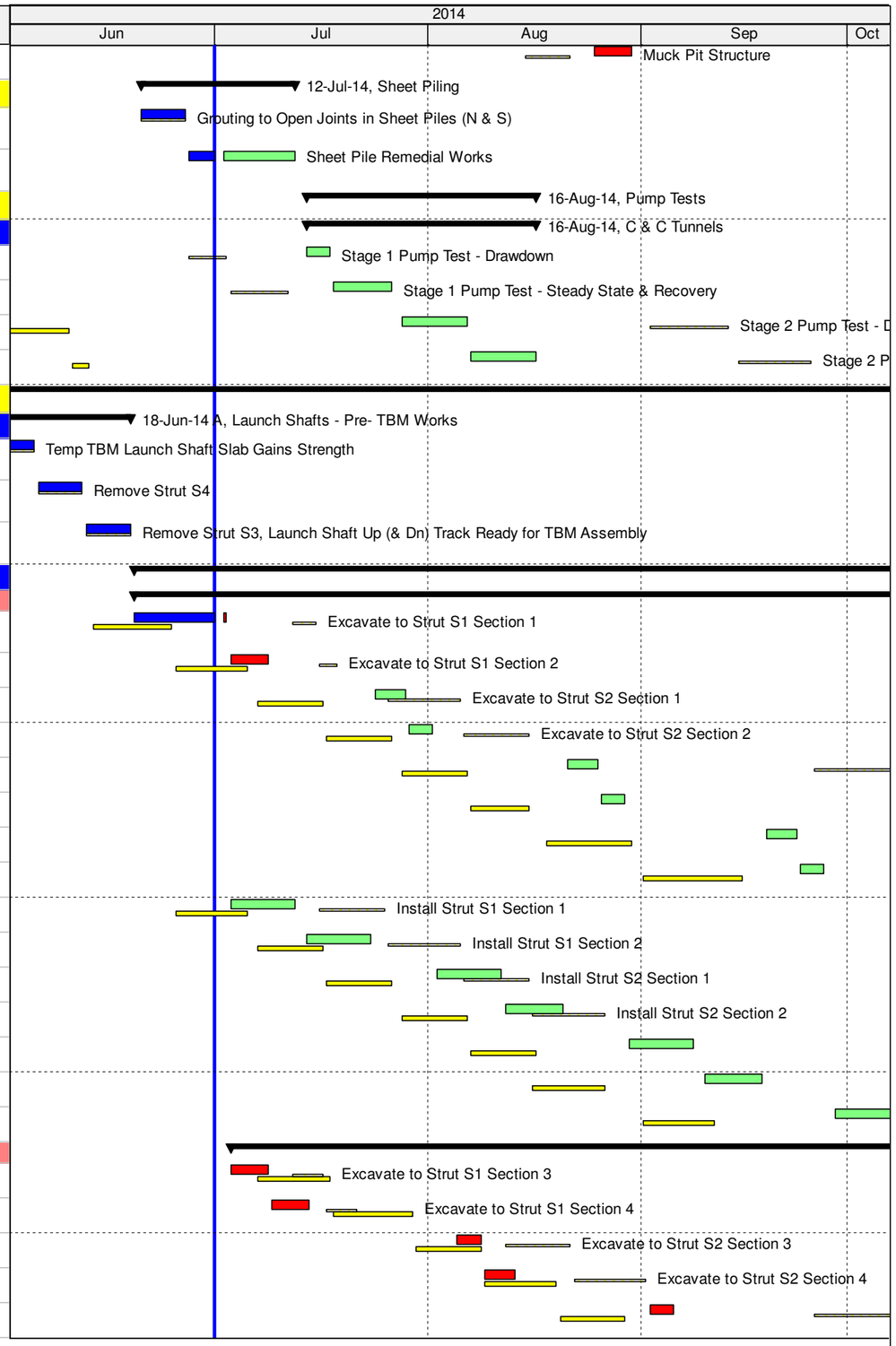
Master Prog Baseline Bar ◆ ◆ Milestone
Last Month Forecast Bar ▼ ▼ Summary
Actual Work
Remaining Work
Critical Remaining Work

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish
1107.19500	Muck Pit Structure	6	13-Nov-13	19-Nov-13	15-Aug-14	21-Aug-14	25-Aug-14	30-Aug-14
Sheet Piling		19			20-Jun-14	26-Jun-14	20-Jun-14 A	12-Jul-14
1107.15882	Grouting to Open Joints in Sheet Piles (N & S)	6			20-Jun-14	26-Jun-14	20-Jun-14 A	26-Jun-14 A
1107.15883	Sheet Pile Remedial Works	13					27-Jun-14 A	12-Jul-14
Pump Tests		30	17-May-14	12-Jun-14	27-Jun-14	25-Sep-14	14-Jul-14	16-Aug-14
C & C Tunnels		30	17-May-14	12-Jun-14	27-Jun-14	25-Sep-14	14-Jul-14	16-Aug-14
1107.15990	Stage 1 Pump Test - Drawdown	4	17-May-14	23-May-14	27-Jun-14	02-Jul-14	14-Jul-14	17-Jul-14
1107.16000	Stage 1 Pump Test - Steady State & Recovery	8	24-May-14	29-May-14	03-Jul-14	11-Jul-14	18-Jul-14	26-Jul-14
1107.16010	Stage 2 Pump Test - Drawdown	9	30-May-14	09-Jun-14	02-Sep-14	13-Sep-14	28-Jul-14	06-Aug-14
1107.16020	Stage 2 Pump Test - Steady State & Recovery	9	10-Jun-14	12-Jun-14	15-Sep-14	25-Sep-14	07-Aug-14	16-Aug-14
Excavation & C&C Tunnel Structure		108	25-Feb-14	24-Sep-14	31-May-14	15-Nov-14	31-May-14 A	09-Oct-14
Launch Shafts - Pre- TBM Works		15	25-Feb-14	12-Mar-14	31-May-14	18-Jun-14	31-May-14 A	18-Jun-14 A
1107.16130	Temp TBM Launch Shaft Slab Gains Strength	5	25-Feb-14	03-Mar-14	31-May-14	04-Jun-14	31-May-14 A	04-Jun-14 A
1107.16140	Remove Strut S4	6	04-Mar-14	07-Mar-14	05-Jun-14	11-Jun-14	05-Jun-14 A	11-Jun-14 A
1107.16150	Remove Strut S3, Launch Shaft Up (& Dn) Track Ready for TBM Assembly	6	08-Mar-14	12-Mar-14	12-Jun-14	18-Jun-14	12-Jun-14 A	18-Jun-14 A
C&C Tunnel Structure (Previously Boxes 2B & 1B)		93	13-Jun-14	24-Sep-14	12-Jul-14	15-Nov-14	19-Jun-14 A	09-Oct-14
ELS Section 1 & 2		93	13-Jun-14	15-Sep-14	12-Jul-14	15-Nov-14	19-Jun-14 A	09-Oct-14
1107.16400	Excavate to Strut S1 Section 1	5	13-Jun-14	24-Jun-14	12-Jul-14	15-Jul-14	19-Jun-14 A	02-Jul-14
1107.16410	Excavate to Strut S1 Section 2	5	25-Jun-14	05-Jul-14	16-Jul-14	18-Jul-14	03-Jul-14	08-Jul-14
1107.16420	Excavate to Strut S2 Section 1	4	07-Jul-14	16-Jul-14	26-Jul-14	05-Aug-14	24-Jul-14	28-Jul-14
1107.16430	Excavate to Strut S2 Section 2	4	17-Jul-14	26-Jul-14	06-Aug-14	15-Aug-14	29-Jul-14	01-Aug-14
1107.16440	Excavate to Strut S3 Section 1	4	28-Jul-14	06-Aug-14	26-Sep-14	08-Oct-14	21-Aug-14	25-Aug-14
1107.16450	Excavate to Strut S3 Section 2	4	07-Aug-14	15-Aug-14	09-Oct-14	17-Oct-14	26-Aug-14	29-Aug-14
1107.16460	Excavate to Strut S4 Section 1	4	18-Aug-14	30-Aug-14	20-Oct-14	01-Nov-14	19-Sep-14	23-Sep-14
1107.16470	Excavate to Strut S4 Section 2	4	01-Sep-14	15-Sep-14	03-Nov-14	15-Nov-14	24-Sep-14	27-Sep-14
1107.16500	Install Strut S1 Section 1	9	25-Jun-14	05-Jul-14	16-Jul-14	25-Jul-14	03-Jul-14	12-Jul-14
1107.16510	Install Strut S1 Section 2	9	07-Jul-14	16-Jul-14	26-Jul-14	05-Aug-14	14-Jul-14	23-Jul-14
1107.16520	Install Strut S2 Section 1	8	17-Jul-14	26-Jul-14	06-Aug-14	15-Aug-14	02-Aug-14	11-Aug-14
1107.16530	Install Strut S2 Section 2	8	28-Jul-14	06-Aug-14	16-Aug-14	26-Aug-14	12-Aug-14	20-Aug-14
1107.16540	Install Strut S3 Section 1	8	07-Aug-14	16-Aug-14	09-Oct-14	18-Oct-14	30-Aug-14	08-Sep-14
1107.16550	Install Strut S3 Section 2	8	16-Aug-14	26-Aug-14	18-Oct-14	28-Oct-14	10-Sep-14	18-Sep-14
1107.16560	Install Strut S4 Section 1	8	01-Sep-14	11-Sep-14	03-Nov-14	12-Nov-14	29-Sep-14	09-Oct-14
ELS Section 3 & 4		80	07-Jul-14	24-Sep-14	12-Jul-14	01-Nov-14	03-Jul-14	07-Oct-14
1107.16600	Excavate to Strut S1 Section 3	5	07-Jul-14	17-Jul-14	12-Jul-14	16-Jul-14	03-Jul-14	08-Jul-14
1107.16610	Excavate to Strut S1 Section 4	5	18-Jul-14	29-Jul-14	17-Jul-14	21-Jul-14	09-Jul-14	14-Jul-14
1107.16620	Excavate to Strut S2 Section 3	4	30-Jul-14	08-Aug-14	12-Aug-14	21-Aug-14	05-Aug-14	08-Aug-14
1107.16630	Excavate to Strut S2 Section 4	4	09-Aug-14	19-Aug-14	22-Aug-14	01-Sep-14	09-Aug-14	13-Aug-14
1107.16640	Excavate to Strut S3 Section 3	4	20-Aug-14	29-Aug-14	26-Sep-14	08-Oct-14	02-Sep-14	05-Sep-14



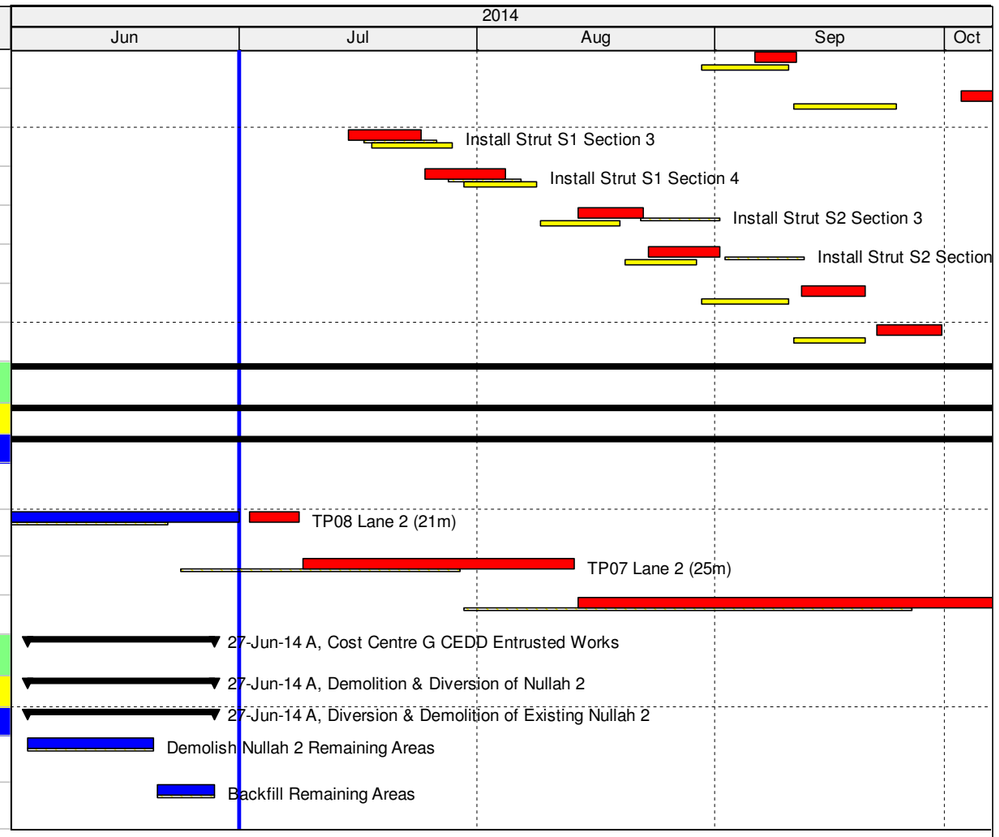
MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme

Data Date 01-Jul-14

Date	Revision	Checked	Approved
See 2nd Col	0	KCL	KCL

Master Prog Baseline Bar ◆ ◆ Milestone
Last Month Forecast Bar ▼ ▼ Summary
Actual Work
Remaining Work
Critical Remaining Work

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish
1107.16650	Excavate to Strut S3 Section 4	4	30-Aug-14	10-Sep-14	09-Oct-14	18-Oct-14	06-Sep-14	11-Sep-14
1107.16660	Excavate to Strut S4 Section 3	4	11-Sep-14	24-Sep-14	20-Oct-14	01-Nov-14	03-Oct-14	07-Oct-14
1107.16700	Install Strut S1 Section 3	9	18-Jul-14	28-Jul-14	17-Jul-14	26-Jul-14	15-Jul-14	24-Jul-14
1107.16710	Install Strut S1 Section 4	9	30-Jul-14	08-Aug-14	28-Jul-14	06-Aug-14	25-Jul-14	04-Aug-14
1107.16720	Install Strut S2 Section 3	8	09-Aug-14	19-Aug-14	22-Aug-14	01-Sep-14	14-Aug-14	22-Aug-14
1107.16730	Install Strut S2 Section 4	8	20-Aug-14	29-Aug-14	02-Sep-14	12-Sep-14	23-Aug-14	01-Sep-14
1107.16740	Install Strut S3 Section 3	8	30-Aug-14	10-Sep-14	09-Oct-14	18-Oct-14	12-Sep-14	20-Sep-14
1107.16750	Install Strut S3 Section 4	8	11-Sep-14	20-Sep-14	20-Oct-14	29-Oct-14	22-Sep-14	30-Sep-14
Cost Centre F3 - Utilities Protection / Div		206			04-Feb-14	26-Sep-14	04-Feb-14 A	14-Oct-14
Diversion/ Replacement of WaterMains at Choi Hung F		206			04-Feb-14	26-Sep-14	04-Feb-14 A	14-Oct-14
Trial Holes and Pipe Installation		206			04-Feb-14	26-Sep-14	04-Feb-14 A	14-Oct-14
1107.20250	TP09 Lane 2 (25m - 24hrs)	37			04-Feb-14	18-Mar-14	04-Feb-14 A	18-Mar-14 A
1107.20260	TP08 Lane 2 (21m)	40			05-May-14	21-Jun-14	05-May-14 A	08-Jul-14
1107.20270	TP07 Lane 2 (25m)	31			23-Jun-14	29-Jul-14	09-Jul-14	13-Aug-14
1107.20271	TP11 Lane 3	50			30-Jul-14	26-Sep-14	14-Aug-14	14-Oct-14
Cost Centre G CEDD Entrusted Works		22	15-Apr-14	15-May-14	03-Jun-14	27-Jun-14	03-Jun-14 A	27-Jun-14 A
Demolition & Diversion of Nullah 2		22	15-Apr-14	15-May-14	03-Jun-14	27-Jun-14	03-Jun-14 A	27-Jun-14 A
Diversion & Demolition of Existing Nullah 2		22	15-Apr-14	15-May-14	03-Jun-14	27-Jun-14	03-Jun-14 A	27-Jun-14 A
1107.18070	Demolish Nullah 2 Remaining Areas	15	15-Apr-14	07-May-14	03-Jun-14	19-Jun-14	03-Jun-14 A	19-Jun-14 A
1107.18080	Backfill Remaining Areas	7	08-May-14	15-May-14	20-Jun-14	27-Jun-14	20-Jun-14 A	27-Jun-14 A



MTRC SCL 1107 Diamond Hill to Kai Tak Tunnels 3 Month Rolling Programme

Data Date 01-Jul-14

Date	Revision	Checked	Approved
See 2nd Col	0	KCL	KCL

Master Prog Baseline Bar ◆ Milestone

Last Month Forecast Bar Summary

Actual Work

Remaining Work

Critical Remaining Work

APPENDIX B
ACTION AND LIMIT LEVELS

APPENDIX B – Action and Limit Levels

24-Hour TSP

Regular Dust Monitoring Location	Description	Action Level, µg/m^3	Limit Level, µg/m^3
DMS-4[(1)(3)]/ DMS-3[(2)(3)]	Block 1, Rhythm Garden	160.4	260

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

Construction Noise

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

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

APPENDIX C
CALIBRATION CERTIFICATES FOR MONITORING EQUIPEMENT

CINOTECH

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0008

Station: DMS-4 - Rhythm Garden, Block 1 Operator: WK

Date: 30-Jun-14 Next Due Date: 29-Aug-14

Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	300.3	Pressure, Pa (mmHg)	757.9

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0588	Intercept, bc	-0.0461
Last Calibration Date:	30-Sep-13	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	29-Sep-14	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.7	3.40	58.65	7.4	2.71
2	8.6	2.92	50.40	5.6	2.35
3	7.4	2.71	46.81	4.7	2.16
4	4.5	2.11	36.67	3.0	1.72
5	3.2	1.78	31.05	2.0	1.41

By Linear Regression of Y on X

Slope , mw = 0.0467 **Intercept, bw :** -0.0177

Correlation coefficient* = 0.9990

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.00**

Remarks:

Conducted by: Wk. Tang Signature: Kwai Date: 30/6/14

Checked by: KL Signature: KL Date: 30 June 2014

WELLAB 匯力
Testing & Research

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

Description	Calibration Orifice	**Manufacturer**	TISCH
Serial No.	0993	**Temperature,Ta (K)**	300.8
Model No.	TE-5025A	**Pressure, Pa (mmHg)**	759.3
Date	30 September 2013	**Equipment No.:**	A-04-04

Plate	Diff.Vol (m^3)	Diff.Time (min)	Diff.Hg (mm)	Diff.H_2O (in.)
1	1.00	1.4103	3.4	2.00
2	1.00	0.9980	6.8	4.00
3	1.00	0.8970	8.5	5.00
4	1.00	0.8540	9.4	5.50
5	1.00	0.7060	13.6	8.00

DATA TABULATION

Vstd	(X axis) Qstd	(Y axis)
0.9853	0.6986	1.4069
0.9808	0.9828	1.9897
0.9786	1.0910	2.2245
0.9775	1.1446	2.3331
0.9720	1.3768	2.8138

Y axis= SQRT[H_2O(Pa/760)(298/Ta)]

Qstd Slope (m) = 2.07768
Intercept (b) = -0.04613
Coefficient (r) = 0.99997

Va	(X axis) Qa	(Y axis)
0.9955	0.7059	0.8901
0.9910	0.9930	1.2589
0.9888	1.1023	1.4074
0.9876	1.1565	1.4761
0.9821	1.3911	1.7803

Y axis= SQRT[H_2O(Ta/Pa)]

Qa Slope (m) = 1.30101
Intercept (b) = -0.02919
Coefficient (r) = 0.99997

CALCULATIONS

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

For subsequent flow rate calculations:
Qstd=1/m{[SQRT(H_2O(Pa/760)(298/Ta))]-b}
Qa=1/m{[SQRT H_2O(Ta/Pa)]-b}

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

PATRICK TSE
Laboratory Manager

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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.:	C/N/130919/1
Date of Issue:	2013-09-21
Date Received:	2013-09-19
Date Tested:	2013-09-21
Date Completed:	2013-09-21
Next Due Date:	2014-09-20

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12553
Microphone No.	: 35222
Equipment No.	: N-08-02

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 57%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
Rms 816, 1516 & 1701, 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

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/130830/2
Date of Issue:	2013-08-31
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30
Page:	1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 69%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

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Tel: 2898 7388 Fax: 2898 7076
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TEST REPORT

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

Test Report No.:	C/N/131004/3
Date of Issue:	2013-10-05
Date Received:	2013-10-04
Date Tested:	2013-10-04
Date Completed:	2013-10-05
Next Due Date:	2014-10-04
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24780
Equipment No.	: N-09-05

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

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

PATRICK TSE
Laboratory Manager

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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.:	C/N/130830/4-v1
Date of Issue:	2014-03-07
Date Received:	2013-08-30
Date Tested:	2013-08-30
Date Completed:	2013-08-31
Next Due Date:	2014-08-30

ATTN: **Mr. W.K. Tang**

Item for calibration:

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

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

Methodology:

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

Results:

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

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

PATRICK TSE
Laboratory Manager

APPENDIX D
IMPACT MONITORING SCHEDULE

Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tuk Tunnels
Impact Air Quality and Noise Monitoring Schedule for July 2014

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

Air Quality Monitoring Station

DMS-4: - Rhythm Garden, Block 1

Noise Monitoring Station

NMS-CA-4: - Block 1, Rhythm Garden (north-eastern façade)
NMS-CA-5: - Block 1, Rhythm Garden (northern façade)

Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tuk Tunnel
Tentative Impact Air Quality and Noise Monitoring Schedule for August 2014

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

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

Air Quality Monitoring Station

DMS-4: - Rhythm Garden, Block 1

Noise Monitoring Station

NMS-CA-4: - Block 1, Rhythm Garden (north-eastern façade)
NMS-CA-5: - Block 1, Rhythm Garden (northern façade)

APPENDIX E
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONIS

Appendix E - 24-hour TSP Monitoring Results

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

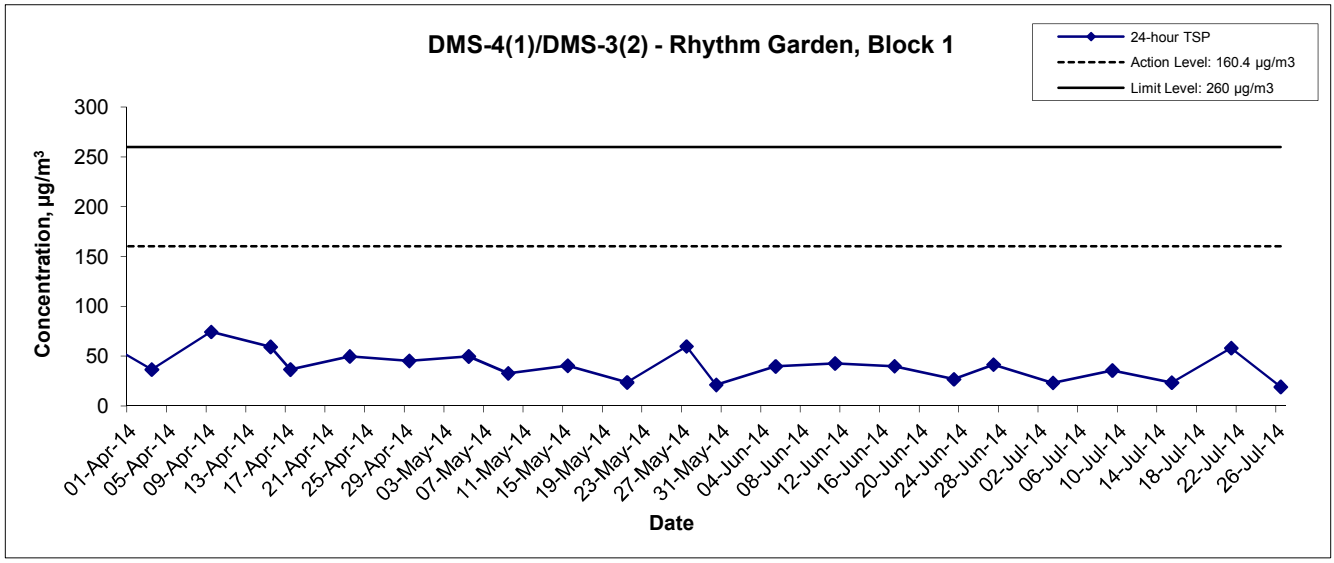
Sampling Date	Start Time	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (μg/m^3)
					Initial	Final		Initial	Final		Initial	Final			
3-Jul-14	09:00	Sunny	302.3	756.0	3.2841	3.3247	0.0406	2863.6	2887.6	24.0	1.21	1.21	1.21	1743.7	23.3
9-Jul-14	09:00	Sunny	303.1	754.3	3.1576	3.2198	0.0622	2887.6	2911.6	24.0	1.21	1.21	1.21	1739.5	35.8
15-Jul-14	10:20	Sunny	302.2	758.3	3.1875	3.2285	0.0410	2911.6	2935.6	24.0	1.21	1.21	1.21	1746.6	23.5
21-Jul-14	09:00	Cloudy	301.5	757.0	3.2188	3.3204	0.1016	2935.6	2959.6	24.0	1.21	1.21	1.21	1747.1	58.2
26-Jul-14	09:00	Sunny	299.3	759.3	3.2454	3.2791	0.0337	2959.6	2983.6	24.0	1.22	1.22	1.22	1756.1	19.2
														Min	19.2
														Max	58.2
														Average	32.0

Remarks:

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

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

24-hour TSP Concentration Levels



Remarks:

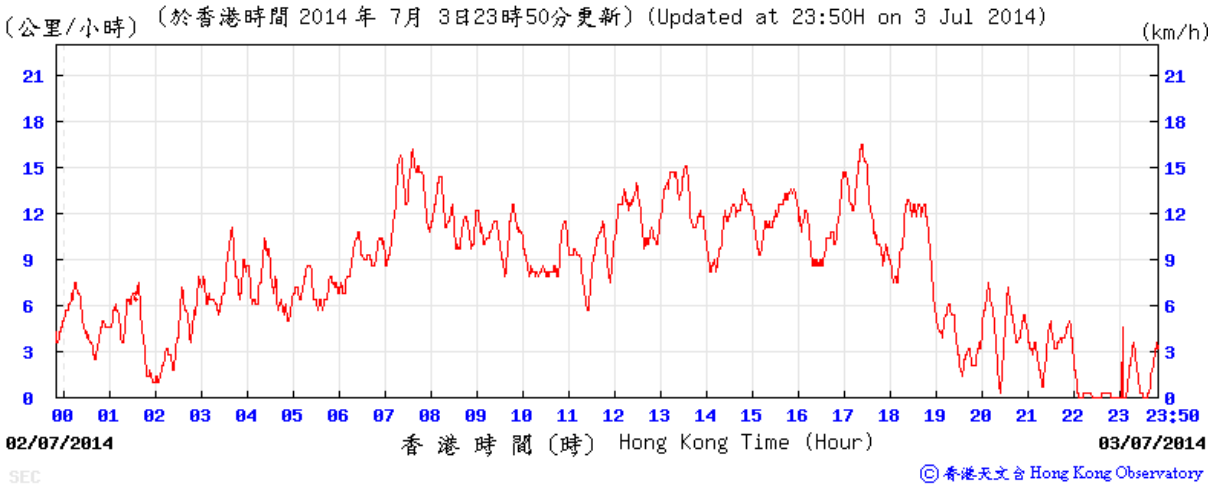
(1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

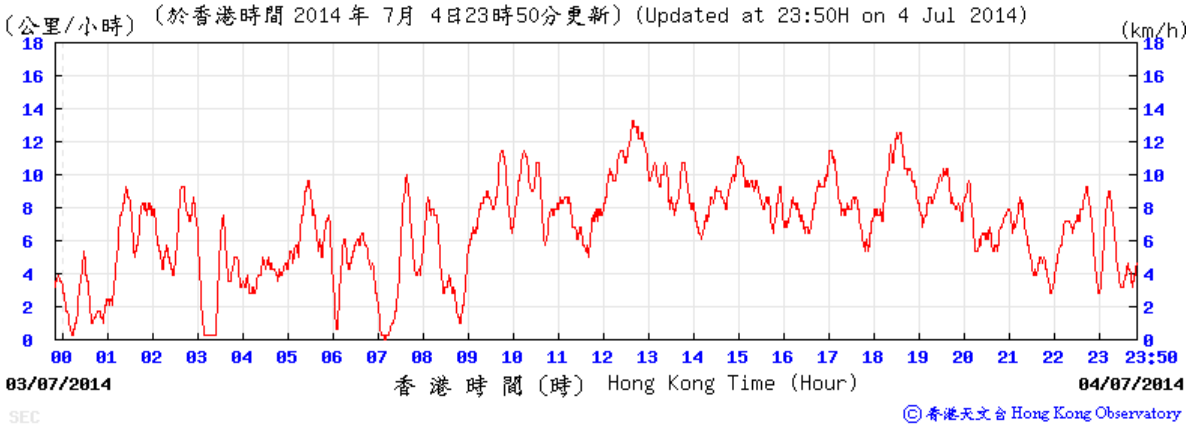
(2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

Title: Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tul Tunnels Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA13018	CINOTECH
	Date: Aug 14	Appendix: E	

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

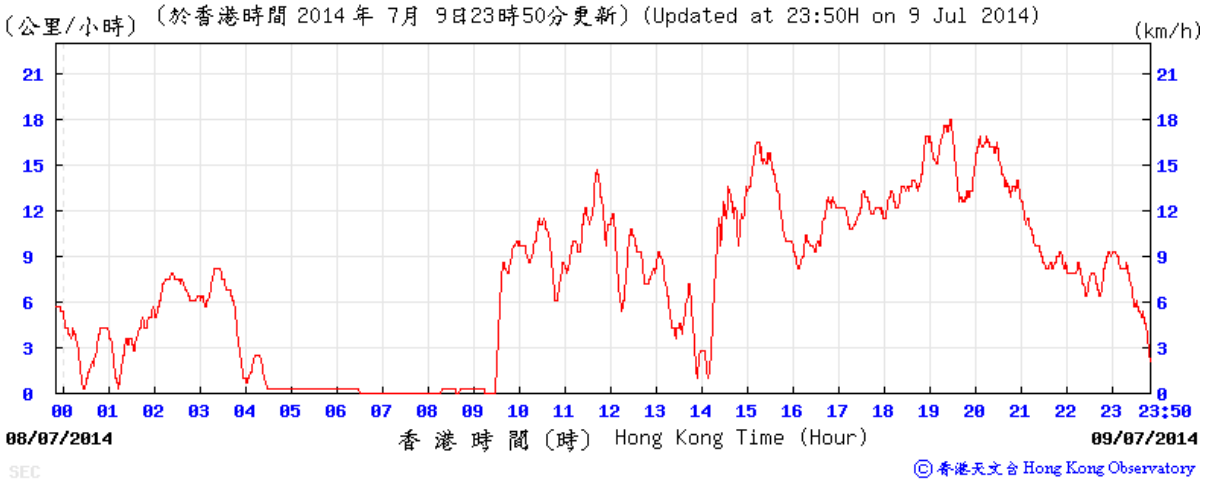
3-4 July 2014

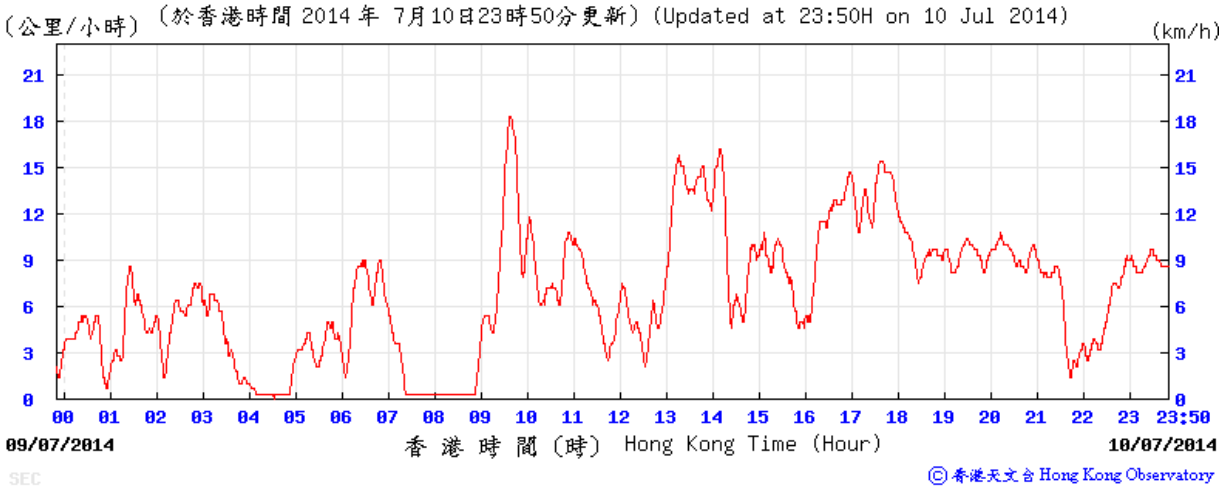




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

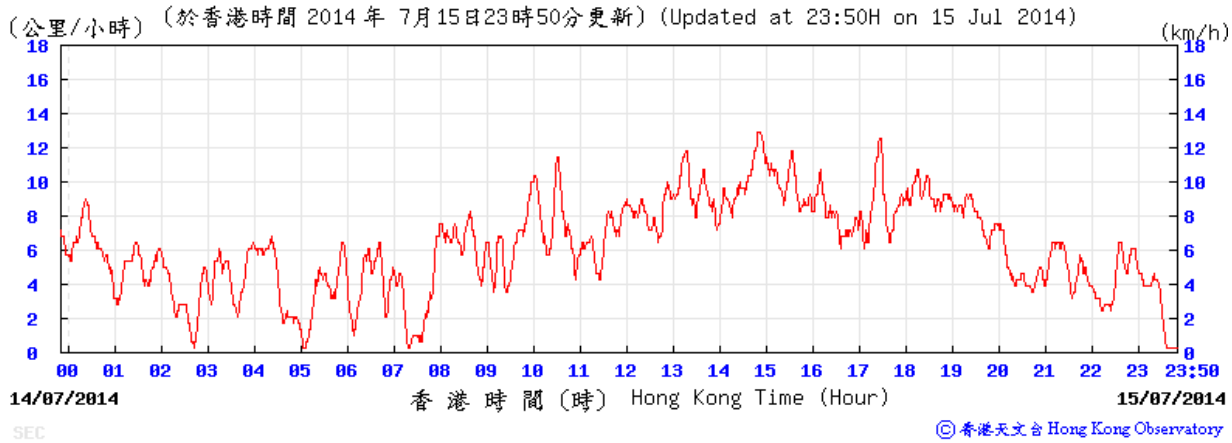
9-10 July 2014

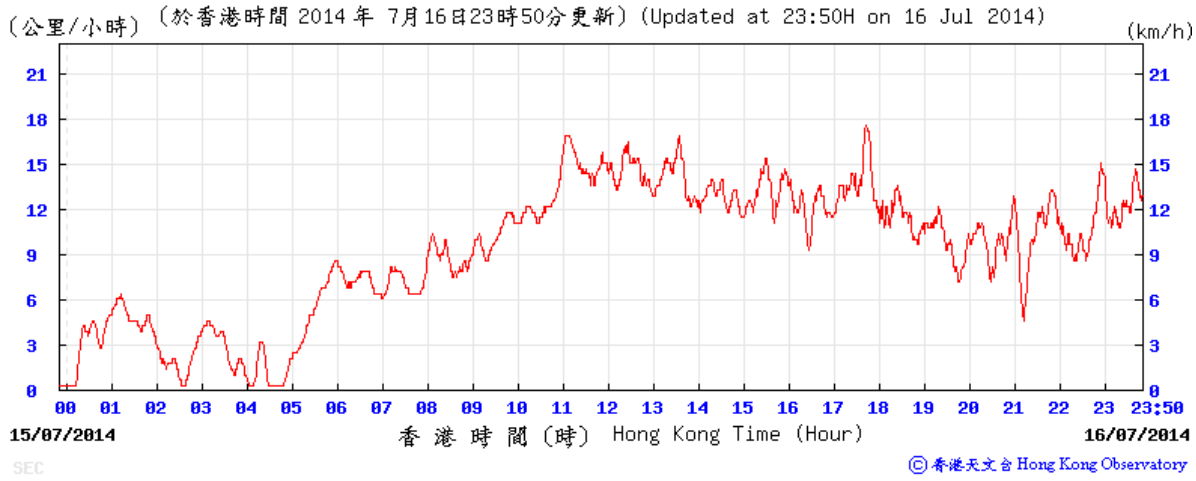




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

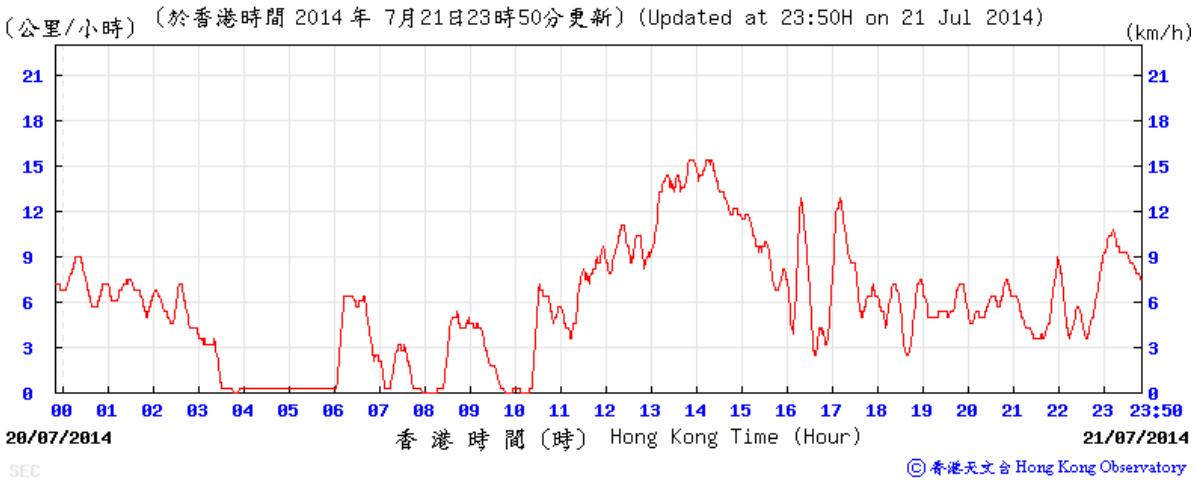
15-16 July 2014

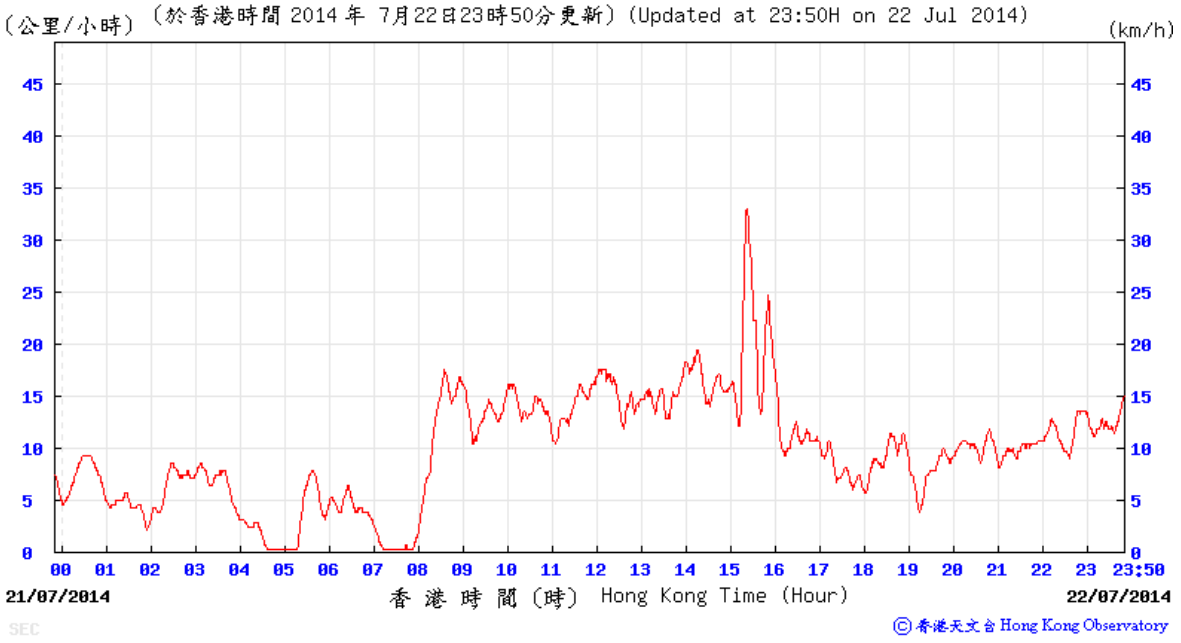




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

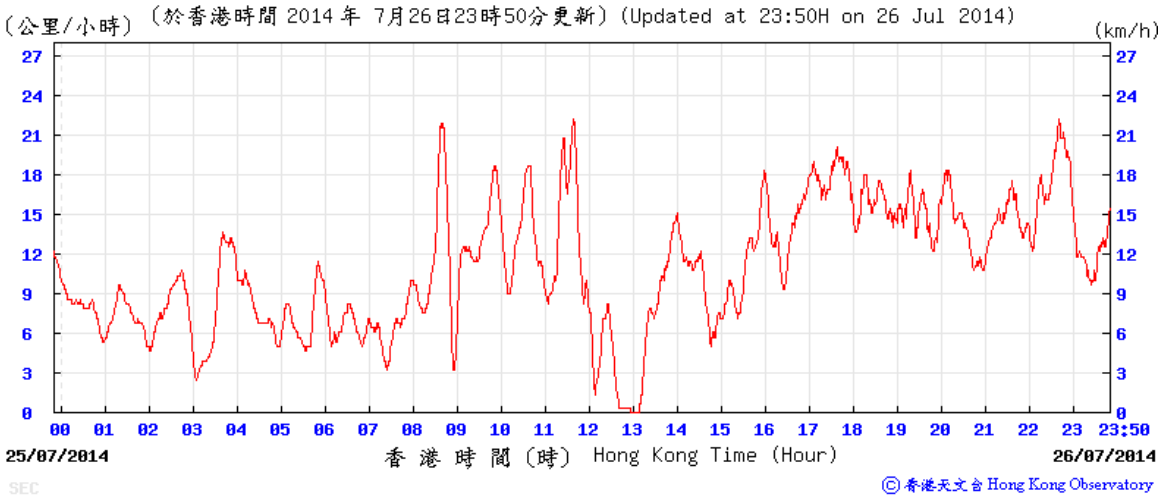
21-22 July 2014

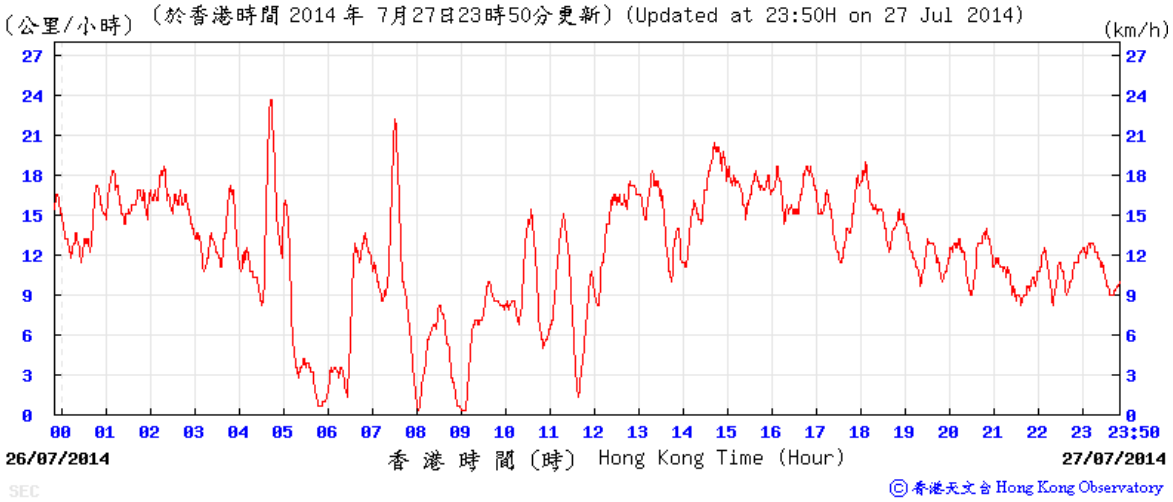




Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

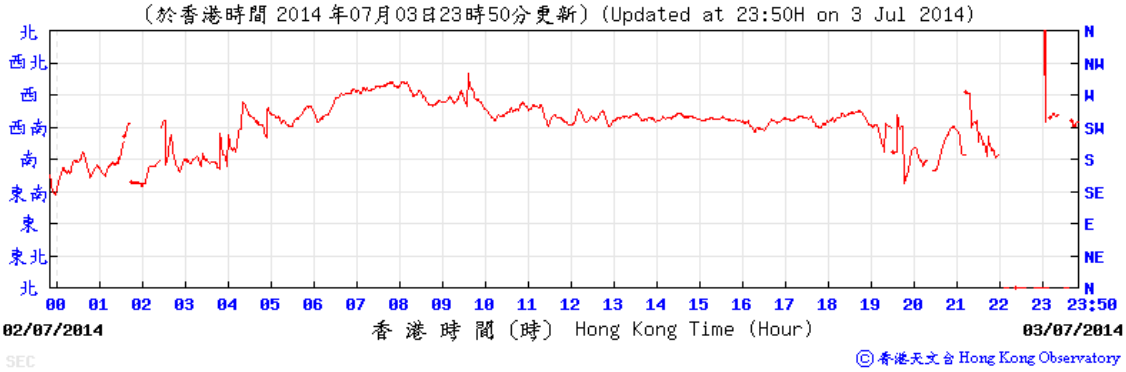
26-27 July 2014

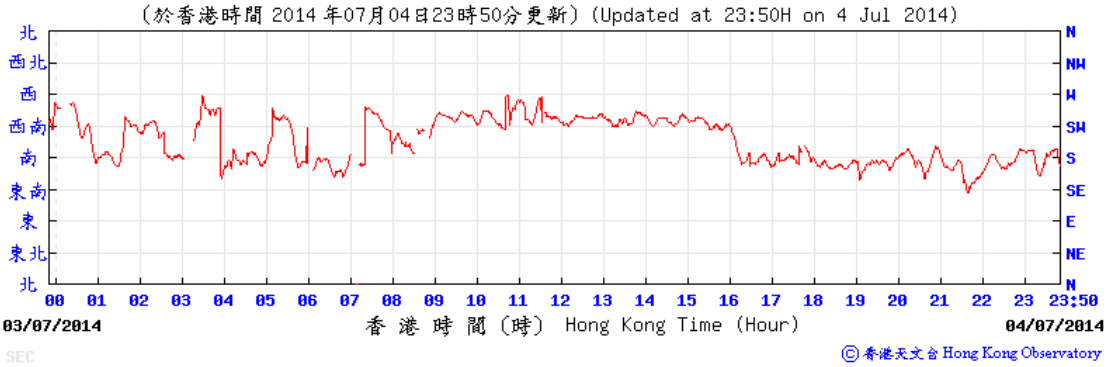




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

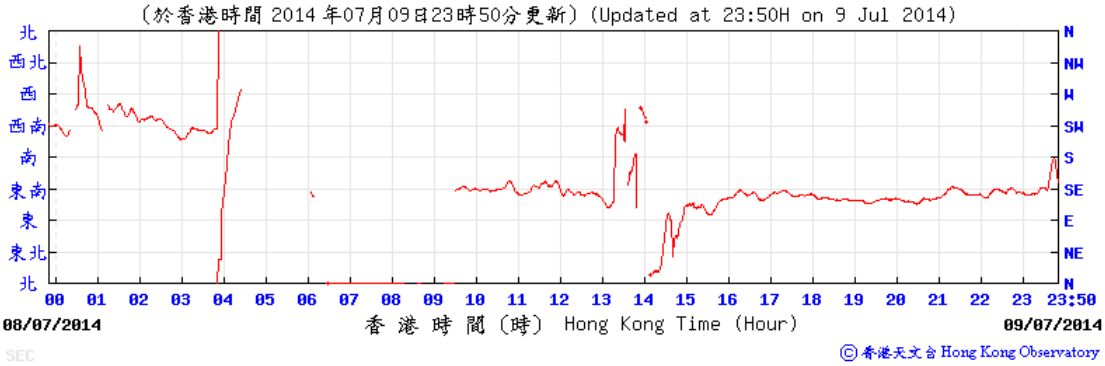
3-4 July 2014

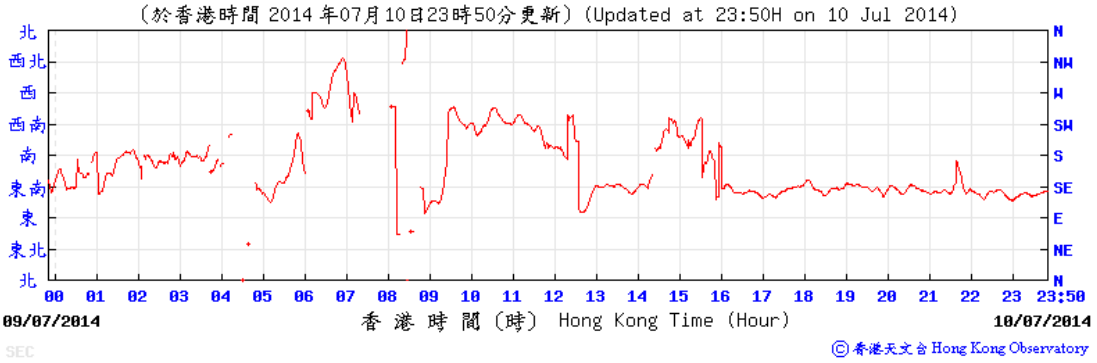




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

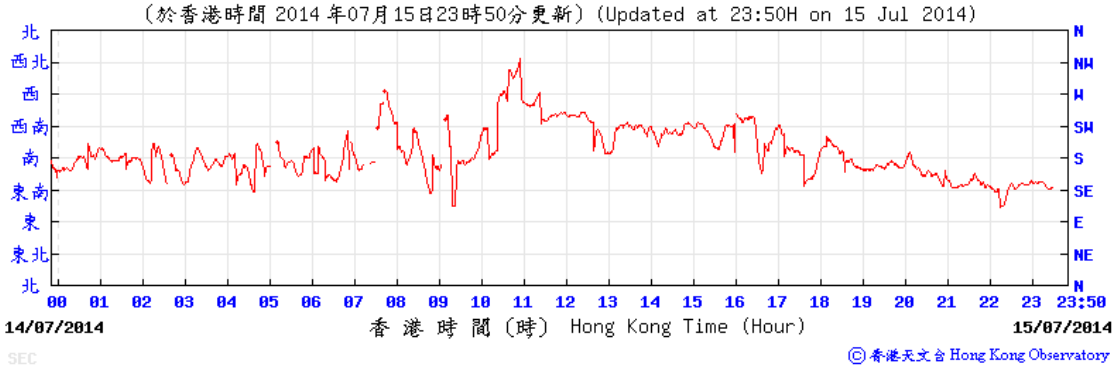
9-10 July 2014

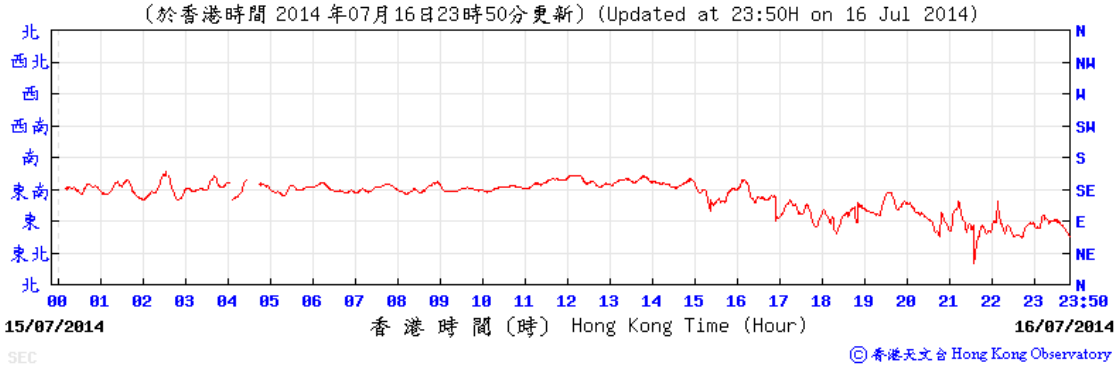




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

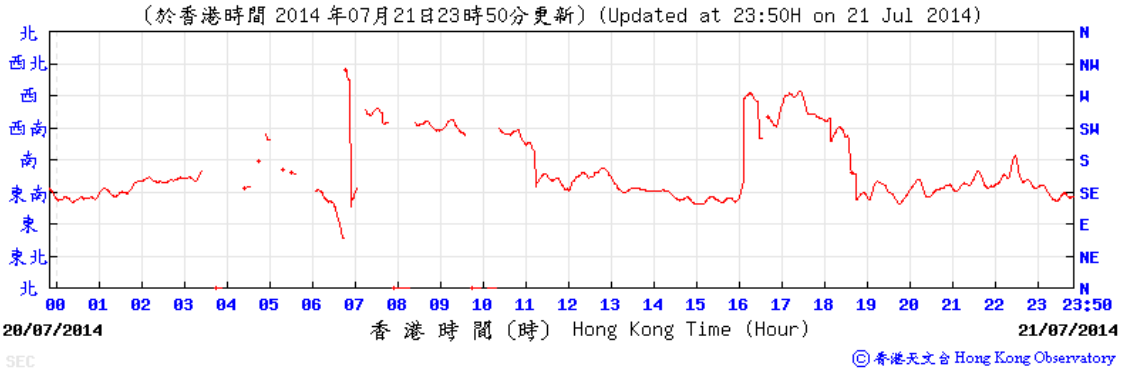
15-16 July 2014

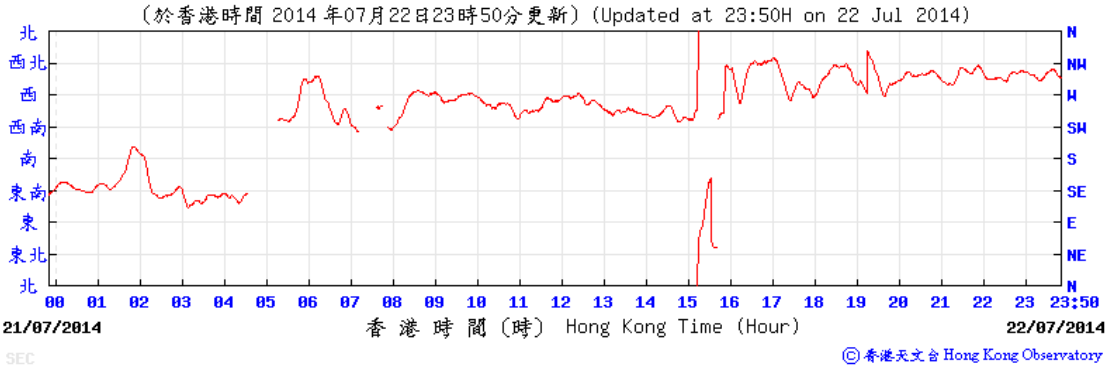




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

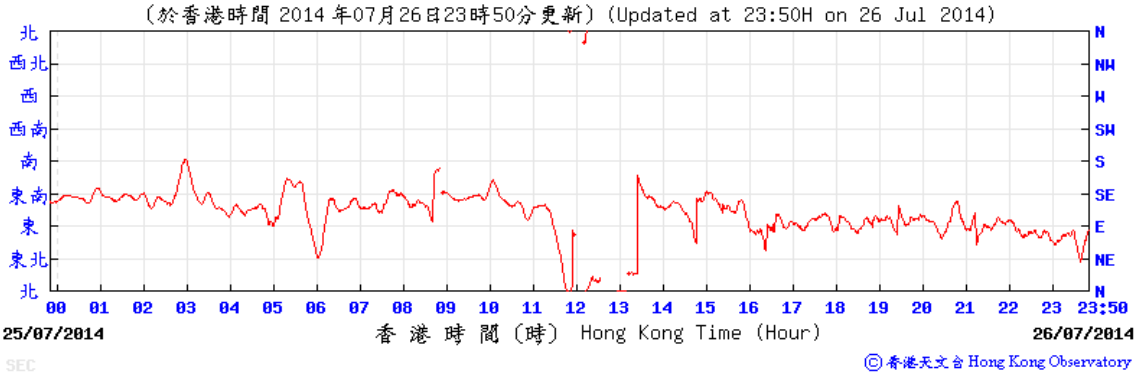
21-22 July 2014

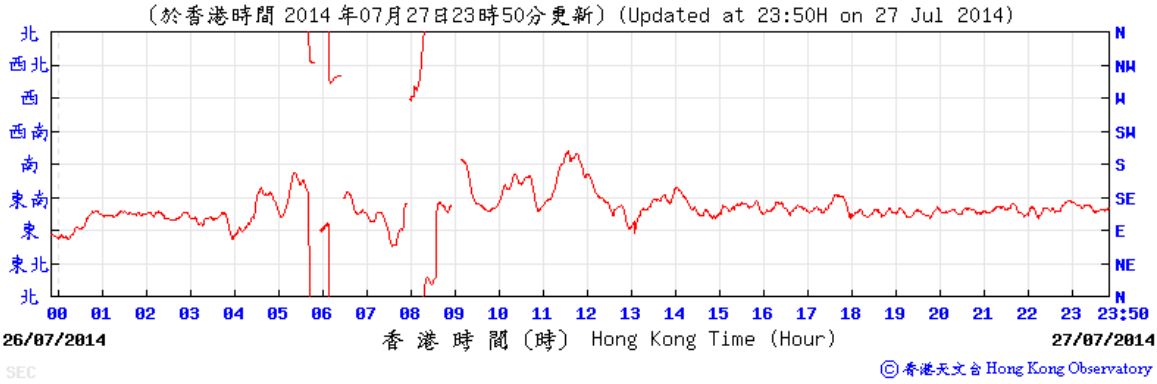




Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

26-27 July 2014





APPENDIX F
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix F - Noise Monitoring Results

Location NMS-CA-4(1)/NMS-CA-3(2) - Block 1, Rhythm Garden (north-eastern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	L_{eq}
10-Jul-14	Sunny	15:05	73.6	74.3	72.1	73.4	71	69.7
		15:10	73.2	74.2	72.0			
		15:15	73.1	74.2	71.9			
		15:20	73.0	73.9	71.9			
		15:25	73.4	74.5	72.3			
		15:30	73.9	74.7	72.5			
16-Jul-14	Sunny	10:10	72.2	73.6	70.3	72.9		68.4
		10:15	73.1	74.8	71.1			
		10:20	72.9	74.4	71.2			
		10:25	73.0	74.4	71.3			
		10:30	72.7	74.2	71.1			
		10:35	73.2	74.7	71.4			
23-Jul-14	Cloudy	16:45	74.6	75.8	73.5	74.5		71.9
		16:50	74.7	75.7	73.6			
		16:55	74.7	75.5	72.8			
		17:00	74.3	75.2	72.3			
		17:05	74.5	75.1	72.1			
		17:10	74.1	74.9	71.8			
28-Jul-14	Sunny	14:55	72.3	73.4	71.1	72.5		67.2
		15:00	72.5	73.6	71.2			
		15:05	72.9	74.2	71.3			
		15:10	72.4	73.6	71.1			
		15:15	72.4	73.6	70.9			
		15:20	72.4	73.6	71.2			

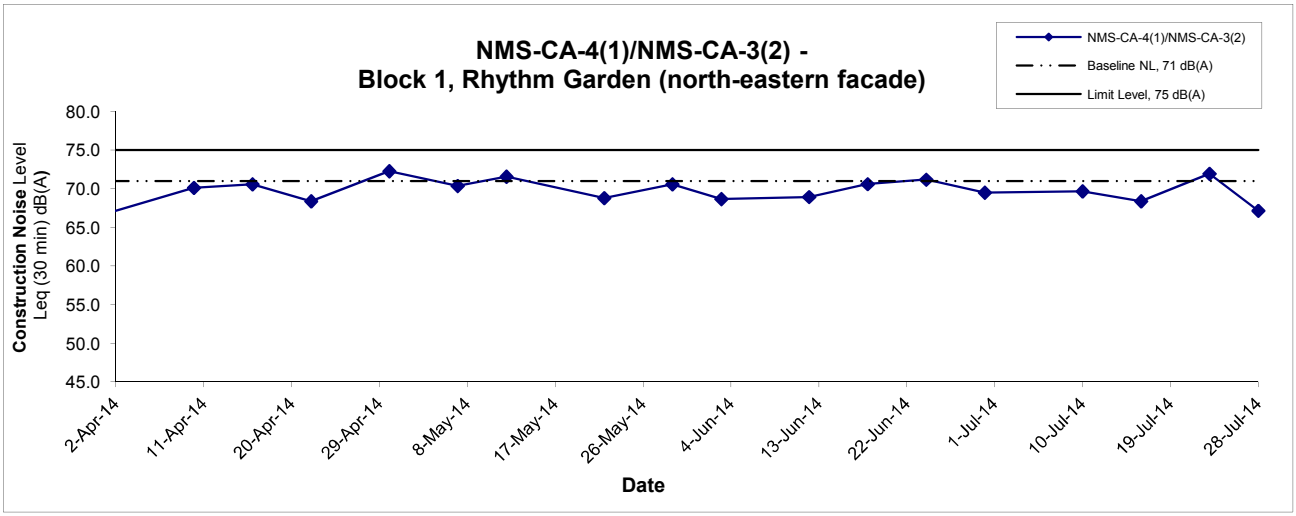
Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).

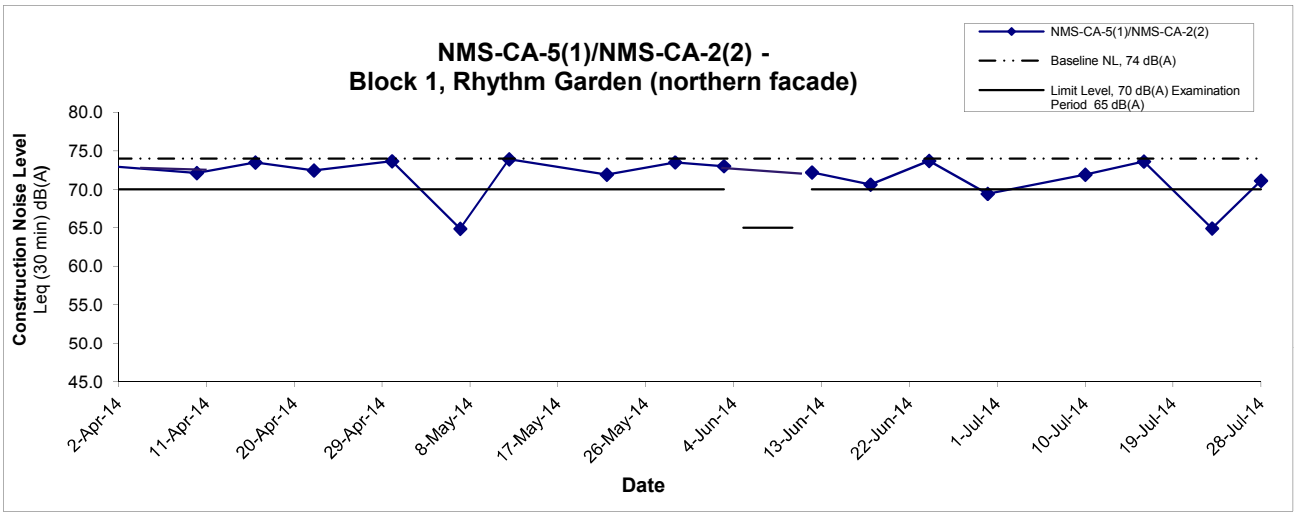
Appendix F - Noise Monitoring Results

Location NMS-CA-5(1)/NMS-CA-2(2) - Block 1, Rhythm Garden (northern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	L_{eq}
10-Jul-14	Sunny	14:23	72.3	73.3	71.1	71.9	74	71.9 Measured ≦ Baseline Level
		14:28	72.3	72.8	70.9			
		14:33	71.5	72.5	70.4			
		14:38	71.7	72.7	70.9			
		14:43	71.8	72.7	70.9			
		14:48	72.0	72.8	70.9			
16-Jul-14	Sunny	09:35	73.8	76.1	71.0	73.6		73.6 Measured ≦ Baseline Level
		09:40	73.7	75.7	71.5			
		09:45	73.8	76.4	71.1			
		09:50	73.8	76.5	71.0			
		09:55	73.2	75.6	71.0			
		10:00	73.4	75.9	70.4			
23-Jul-14	Cloudy	16:05	76.4	80.2	71.5	74.5		64.9
		16:10	72.9	73.9	71.6			
		16:15	74.5	75.9	72.1			
		16:20	74.0	75.0	72.8			
		16:25	74.2	75.2	73.1			
		16:30	74.3	75.3	72.9			
28-Jul-14	Sunny	14:18	70.3	71.5	64.4	71.1		71.1 Measured ≦ Baseline Level
		14:23	70.5	71.7	69.0			
		14:28	70.9	71.9	69.7			
		14:33	71.6	72.7	70.3			
		14:38	71.9	72.9	70.2			
		14:43	71.1	71.9	70.1			

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

Noise Levels





Remarks:

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

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

(3) In case of Measured Level ≦ Baseline Level, only Measured Level is presented on the graphical presentation.

Title: Shatin to Central Link - Contract 1107 - Diamond Hill to Kai Tuk Tunnels Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S Date: Aug 14	Project No.: MA13018 Appendix: F	CINOTECH

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENIDX G – SUMMARY OF EXCEEDANCE

Reporting Month: July 2014

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140704
Date	4 July 2014 (Friday)
Time	9:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
140704-R02	***Part B – Water Quality*** • Provide sand bag bunds to U-channel near the site boundary to avoid silty runoff leaked out of site. ***Part C – Landscape & Visual*** • No environmental deficiency was identified during the site inspection.	B1
140704-R01	***Part D – Air Quality*** • Properly cover stockpile of dusty material by impervious sheet or provide water spray to the dusty material to avoid dust generation. ***Part E - Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part F – Waste/Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part G – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part H - Others*** • Follow-up on previous audit section (Ref. No.:140627), items 140627-R02 is remarked as 140704-R01 and follow up actions are needed to be reviewed.	D 6

	Name	Signature	Date
Recorded by	Johnny Fung		9 July 2014
Checked by	Dr. Priscilla Choy		9 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140710
Date	10 July 2014 (Friday)
Time	9:00 – 10:15

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality • No environmental deficiency was identified during the site inspection. ***Part C – Landscape & Visual*** • No environmental deficiency was identified during the site inspection. ***Part D – Air Quality*** • No environmental deficiency was identified during the site inspection.	
140710-R02	***Part E - Construction Noise Impact*** • To replace the broken noise blanket for the breaker at the cut-and cover tunneling area.	E 5
140710-R01	***Part F – Waste/Chemical Management*** • To provide drip tray to chemical container or dispose the empty chemical container as chemical waste near the TBM assembly area	F 10
	Part G – Permits/Licenses • No environmental deficiency was identified during the site inspection. ***Part H - Others*** • Follow-up on previous audit section (Ref. No.:140704), all environmental deficiencies have been improved/rectified by contractor.	

	Name	Signature	Date
Recorded by	Johnny Fung		11 July 2014
Checked by	Dr. Priscilla Choy		11 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140717
Date	17 July 2014 (Thursday)
Time	9:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality • No environmental deficiency was identified during the site inspection. ***Part C – Landscape & Visual*** • No environmental deficiency was identified during the site inspection.	
140717-R03	***Part D – Air Quality*** • Haul Road should be watered frequently to prevent dust generation.	D 5
140717-R01 140717-R02	***Part E - Construction Noise Impact*** • Sound proof mat should be provided to the breaking tip of the stone breaker at cut and cover tunneling area to reduce noise impact. • Noise barrier should be properly erected at area next to Kai Ching Estate to reduce noise impact	E 5 E 5
	Part F – Waste/Chemical Management • No environmental deficiency was identified during the site inspection. ***Part G – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part H - Others*** • Follow-up on previous audit section (Ref. No.:140710), items 140710-R02 is remarked as 140717-R01 and follow up actions are needed to be reviewed.	

	Name	Signature	Date
Recorded by	Kenneth Yuen		18 July 2014
Checked by	Dr. Priscilla Choy		18 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140725
Date	25 July 2014 (Friday)
Time	9:00 – 10:30

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

Ref. No.	Remarks/Observations	Related Item No.
140725-R01	***Part B – Water Quality*** • No environmental deficiency was identified during the site inspection. ***Part C – Landscape & Visual*** • No environmental deficiency was identified during the site inspection. ***Part D – Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part E - Construction Noise Impact*** • No environmental deficiency was identified during the site inspection. ***Part F – Waste/Chemical Management*** • Contractor should provide drip tray to chemical container at the cut and cover tunneling area to prevent chemical leakage. ***Part G – Permits/Licenses*** • No environmental deficiency was identified during the site inspection. ***Part H - Others*** • Follow-up on previous audit section (Ref. No.:140717), all environmental deficiencies were observed improved/rectified by contractor.	F 10

	Name	Signature	Date
Recorded by	Kenneth Yuen		25 July 2014
Checked by	Dr. Priscilla Choy		25 July 2014

APPENDIX I
EVENT AND ACTION PLANS

Appendix I - Event and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1107 ET	**IEC**	**ER**	**CONTRACTOR**
Action Level	1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness	1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on effectiveness of the remedial measures proposed by the Contractor. .	1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures	1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	1. Notify the IEC, Contractor and EPD 2. Repeat measurement to confirm findings 3. Increase monitoring frequency 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 5. Arrange meeting with the IEC, and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Identify source and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Appendix I - Event and Action Plan for Air Quality Monitoring during Construction Phase

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

Appendix I - Event and Action Plan for Air Quality Monitoring during Construction Phase

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

Appendix I - Event and Action Plan for Landscape and Visual during Construction Phase

EVENT	ACTION			
	Works Contract 1107 ET	**IEC**	**ER**	**CONTRACTOR**
Non-conformity on one occasion	1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures.	1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures	1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures.	1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

APPENDIX J
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Landscape & Visual (Construction Phase)								
S6.12	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. <u>Protection of Retained Trees</u> • All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	N/A ^ ^

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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	<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 medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB	Minimize the visual and landscape impact of the Project during construction phase	Contractor	Within Project Site	Detailed design and construction stage	• EIAO – TM •ETWB TCW 2/2004 • ETWB TCW 3/2006	N/A N/A N/A

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		TCW No 3/2006.						
Air Quality (Construction 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	Contractor	All construction sites	Construction stage	• APCO	^ ^ ^
/	A2	Open burning shall be prohibited	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	• APCO	^
Construction Dust Impact								
S7.6.6	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^
S7.6.6	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	*

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		an equivalent intensity of no less than 1.8 L/m^2 to achieve the dust removal efficiency						
S7.6.6	D3	• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extending beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	* ^ ^ N/A ^ N/A

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;						
		• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;						^
		• Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;						^
		• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;						^
		• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;						N/A
		• Any skip hoist for material transport should be totally enclosed by						N/A

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.						^ ^ ^ N/A
S7.6.6	D4	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
Construction Airborne Noise								
S8.5.6	AN1	Implement the following good site practices:	Control construction	Contractor	All Construction	Construction	• Annex 5, TM-EIA	

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	airborne noise		Sites where practicable	stage		^ ^ ^ N/A ^ N/A
S8.5.6	AN2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	N/A
S8.5.6	AN3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal	Screen the noisy plant items	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	*

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	to be used at all construction sites					
S8.5.6	AN4	Use "Quiet" plant	Reduce the noise levels of plant items	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	N/A
S8.5.6	AN5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	•TM-EIA	^
Water Quality (Construction Phase)								
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoff and Site Drainage</u> • At the start of site establishment (including the barging facilities),	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	*

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m^3/s a sedimentation 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						^

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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. • 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						^ N/A ^ N/A

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

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed						N/A ^ N/A ^

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		areas during the wet season (April to September) as far as practicable. • Adopt best management practices.						^
S10.7.1	W2	<u>Tunneling 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 • The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. • Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	• Water Pollution Control Ordinance • ProPECC PN 1/94 • TM-water • TM-EIAO	^ ^ ^ N/A

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
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 appropriate disposal and maintenance.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • TM-water	^
S10.7.1	W5	Accidental Spillage In order to prevent accidental spillage of chemicals, the following is recommended: • Proper storage and handling facilities should be provided; • All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains; • The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings; and • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	^ * ^ N/A
Waste Management (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.	

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.	rock from ending up at concrete batching plants and be turned into concrete for structural use		sites	stage	6/2010	^
S11.5.1	WM2	Construction and Demolition Material • Maintain temporary stockpiles and reuse excavated fill material	Good site practice to minimize the waste	Contractor	All construction sites	Construction stage	• Land (Miscellaneous	^

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and EPD and get their approval before implementation	generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal				Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	^ ^ N/A ^ ^ ^
S11.5.1	WM3	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as	Good site practice to minimize the waste	Contractor	All construction sites	Construction stage	• Land (Miscellaneous	^

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.	generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal				Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No.19/2005	^
S11.5.1	WM4	<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 chemical wastes, on a daily basis to minimize	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^ ^

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.						N/A ^
S11.5.1	WM6	<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 450L unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labeled	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All Construction Sites	Construction Stage	• Waste Disposal (Chemical Waste) (General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	* ^ ^

Ap[riA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		and used solely for the storage of chemical waste; be enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; be covered to prevent rainfall entering; and be arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; and be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.						N/A

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

• Non-compliance but rectified by the contractor

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

N/A Not Applicable

APPENDIX K
WASTE GENERATION IN THE REPORTING MONTH

CW - SELI Joint Venture

Name of Department: MTRC

Contract No.:1107

Monthly Summary Waste Flow Table for 2014

Year	Estimated Quantities of Inert C&D Materials (in '000m^3) (see Note 3)										Estimated Quantities of C&D Wastes									
	Total Quantity Generated		Suitable for Recycled Aggregates		Reused in the Contract		Reused in other Projects		Disposed as Public Fill		Metals		Paper/cardboard packaging		Plastics (see Note 2)		Chemical Waste		Others, e.g. general refuse	
	(a)		(b)		(c)		(d)		(e=a-b-c-d)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000m^3)	
	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.
January	5.500	5.330	0.000	0.000	0.000	0.000	2.500	1.840	3.000	3.49	0.000	0.000	0.100	0.158	0.100	0.810	0.000	0.108	0.100	0.040
February	5.500	2.685	0.000	0.000	0.000	0.000	0.000	0.660	5.500	2.025	1.000	2.660	0.100	0.230	1.000	0.650	0.000	0.000	0.100	0.015
March	8.400	5.945	0.000	0.000	0.000	0.000	4.000	3.145	4.400	2.800	0.000	0.000	0.100	0.135	0.000	0.000	0.000	0.000	0.100	0.025
April	4.400	4.025	0.000	0.000	0.000	0.000	0.000	2.670	4.400	1.355	5.000	5.950	0.100	0.000	0.000	0.000	0.100	0.000	0.100	0.025
May	8.400	2.740	0.000	0.000	0.000	0.000	4.000	1.810	4.400	0.930	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.040
June	8.400	4.340	0.000	0.000	0.000	0.000	4.000	2.110	4.400	2.230	0.000	9.260	0.100	0.277	0.000	0.000	0.100	0.400	0.100	0.035
July	8.400	6.275	0.000	0.000	0.000	0.000	4.000	4.150	4.400	2.125	0.000	5.640	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.045
August																				
September																				
October																				
November																				
December																				
Total	**49.000**	**31.340**	**0.000**	**0.000**	**0.000**	**0.000**	**18.500**	**16.385**	**30.500**	**14.955**	**6.000**	**23.510**	**0.700**	**0.800**	**1.100**	**1.460**	**0.200**	**0.508**	**0.700**	**0.225**

Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
(3) The quantitles of C&D Materials, in m^3, was calculated by multiply the no. of truck with the volume of truck, which is 5m^3.

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

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

Cumulative Complaint Log

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

Cumulative Log for Notifications of Summons

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

Cumulative Log for Successful Prosecutions

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

Appendix H

14th 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 July 2014]

(August 2014)

Certified by: Vivian Chan

Position: Environmental Team Leader

Date: 14 August 2014

14th Monthly EM&A Report for July 2014

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

August 2014

AUSTRALIA | ASIA | MIDDLE EAST | AFRICA | PACIFIC

Project/Deliverable No.	7076187 | D30/02
Project Name	Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings
Report Name	14th Monthly EM&A Report for July 2014
Report Date	August 2014
Report for	Leighton Contractors (Asia) Limited

PREPARATION, REVIEW AND AUTHORISATION

Revision #	Date	Prepared by	Reviewed by	Approved by
1.0 (Draft)	August 2014	Francis LEE	Vivian CHAN	Alexi BHANJA
2.0 (Final)	August 2014	Francis LEE	Vivian CHAN	Alexi BHANJA

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APPENDICES

TABLES

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 14th monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 July 2014 in accordance with the EM&A manual.

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

- Piling for HUH, NAT and SAT
- Diaphragm wall construction at HUH
- Initial excavation at HUH and HHS
- Barging point operation at Hung Hom Freight Pier
- Operation of Material Receiving Hopper at Hung Hom Freight Pier
- Marine transportation and disposal of spoil to designated dumping ground(s)

Landscape and Visual Monitoring

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 10 and 28 July 2014. All necessary mitigation measures have been implemented by the Contractor.

Air Quality Monitoring

Air quality (24-hour TSP) monitoring was carried out on 5, 11, 17, 23 and 29 July 2014. No exceedance of Action and Limit Level of 24-hour TSP monitoring was recorded at the monitoring location in the reporting month.

Noise Quality Monitoring

Construction airborne noise monitoring can be referred to the Monthly EM&A Report for Contract 1111.

Waste Management

As advised by the Contractor, 40,500 kg of general refuse was generated from the Project and disposed of at NENT landfill. A total of 8,609 m^3 inert construction and demolition (C&D) materials were generated from the Project, where 338.7 m^3 was imported from SCL 1111, 2,894 m^3 was reused in other projects, 4,843 m^3 was disposed of at TM38 Public Fill, and 872 m^3 was disposed of at TKO137 Public Fill. No chemical waste was disposed and no waste was recycled during the reporting month.

Environmental Auditing

A total of 5 weekly environmental site audits were conducted on 3, 10, 17, 24 and 31 July 2014. The IEC joint site audit was undertaken on 17 July 2014.

Compliant, Notification of Summons and Successful Prosecution

No complaint in relation to the environmental issues was recorded during the reporting period.

No summons or prosecution related to the environmental issues were received in the reporting period.

Future Key Issues

Major site activities for the coming reporting month will include:

- Piling for HUH, NAT and SAT
- Diaphragm wall construction at HUH
- Initial excavation at HUH and HHS
- Barging point operation at Hung Hom Freight Pier
- Operation of Material Receiving Hopper at Hung Hom Freight Pier
- Marine transportation and disposal of spoil to designated dumping ground(s)
- Demolition of locomotive shed

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

1 INTRODUCTION

1.1 Project Background

1.1.1 The Shatin to Central Link (SCL) is a designated project (DP) under the Environmental Impact Assessment Ordinance (EIAO). For the purposes of the Environmental Impact Assessment (EIA), five EIA studies have been conducted to cover different sections of the SCL. These are Tai Wai to Hung Hom Section (SCL (TAW-HUH)), Mong Kok East to Hung Hom Section (SCL (MKK-HUH)), Hung Hom to Admiralty Section (SCL (HUH-ADM)), Protection Works at Causeway Bay Typhoon Shelter and Stabling Sidings at Hung Hom Freight Yard (SCL (HHS)).

1.1.2 Three EIA reports are of relevance to Works Contract 1112 (the Project), namely EIA for SCL (TAW-HUH) (Register No. AEIAR-167/2012), EIA for SCL (MKK-HUH) (Register No. AEIAR-165/2012) and EIA for SCL (HHS) (Register No. AEIAR-164/2012). These were submitted and subsequently approved with conditions by the Environmental Protection Department (EPD) on 17 February 2012. Two Environmental Permits (EPs), Environmental Permit No. EP-437/2012 for SCL (MKK-HUH) and Environmental Permit No. EP-438/2012 for SCL (TAW-HUH) were subsequently obtained on 22 March 2012. A recent application for variation of the EP for SCL (TAW-HUH) was approved and a varied EP (EP No. EP-438/2012/E) was issued by Director of Environmental Protection (DEP) on 4 April 2014.

1.1.3 Construction of the SCL has been divided into a number of works contracts. This Works Contract 1112 was awarded to Leighton Contractors (Asia) Limited (the Contractor) in March 2013. Leighton has engaged SMEC Asia Limited as the Environmental Team under the EIAO for Works Contract 1112.

1.2 Purpose of the Report

1.2.1 This is the 14th EM&A report which summarizes the monitoring results and audit findings during the reporting period from 1 to 31 July 2014.

1.3 Report Structure

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

2 PROJECT INFORMATION

2.1 General Site Description

2.1.1 The works under Works Contract 1112 comprise permanent works and the necessary temporary works for Hung Hom Station (HUH), Hung Hom Stabling Sidings (HHS), the South Approach Tunnels (SAT) and the North Approach Tunnels (NAT) to the new station, HHS and any reprovisioning remedial and improvement works (RRIW). The major permanent works under Works Contract 1112 generally comprise the following:

- New HUH integrated with the existing HUH station, with associated entrances, ventilation facilities, plant rooms, other ancillary facilities, and ABWF works.
- Modification of the existing HUH station to allow interchange between Existing East Rail Line and SCL(TAW-HUH), and between SCL(MKK-HUH) and SCL(TAW-HUH) comprising alteration and addition works at podium level, mid-level, and platform level.
- Running tunnels of the SCL(TAW-HUH) at the south and north ends of the new HUH to the existing stub tunnel of Existing West Rail and interface with Works Contract 1111.
- Running tunnels of the SCL(MKK-HUH) at the south and north ends of the new HUH to the proposed North Ventilation Building and interface with Works Contract 1111.
- Extensive underpinning and modification of the existing podium structure of HUH and the Hong Kong Coliseum, and associated protection works.
- Diversion, modification and dismantling of existing building services associated with underpinning and modification of existing structures.
- Demolition and clearance of the majority of the existing Hung Hom Freight Terminal infrastructure.
- Protection, diversion, and modification of utilities and services.
- Launching and retrieval track connecting the SCL(TAW-HUH) to HHS from the turnout close to WRL at the south and interface with Works Contract 1111 at the north.
- CLP Transformer Building.
- Demolition of the existing International Mail Centre adjacent to Salisbury Road, the MTR Freight Operations Building within the southern end of the Hung Hom Freight Terminal, and other ancillary buildings.
- Reconstruction of Cheong Wan Road Viaduct.
- Civil, BS and ABWF provisions for designated and interfacing contracts.
- Landscape works.
- Modification to various parts of existing disused Freight Yard structure for provision of HHS, comprising alteration and addition works at underground level, ground level, mezzanine level and podium level including new

accommodation and plant areas and stablings and associated track provisions connecting to the interface with Works Contract 1111.

- Extensive underpinning of the podium structures above the existing disused Freight Yard for provision of HHS and its associated works.
- Construct part of the shunting track.
- Construct the emergency track and its associated works which connect the stabling siding to the mainline which run parallel with the northern approach of HUH.
- Construct the semi-enclosed noise enclosure and its associated works over the entire HHS north fan area.

2.1.2 The works area for the Works Contract 1112 is shown in ***Appendix A***.

2.2 Construction Programme and Activities

2.2.1 The summary of construction programme is presented in ***Appendix B***.

2.2.2 The major construction activities carried out by the Contractor in the reporting period are summarized as below:

- Piling for HUH, NAT and SAT
- Diaphragm wall construction at HUH
- Initial excavation at HUH and HHS
- Barging point operation at Hung Hom Freight Pier
- Operation of Material Receiving Hopper at Hung Hom Freight Pier
- Marine transportation and disposal of spoil to designated dumping ground(s)

2.3 Project Organisation

2.3.1 The project organization structure is presented in ***Appendix C***. The contact names and numbers for key personnel of the Project are summarized in ***Table 2-1***.

Table 2-1 Contact Information of Key Personnel

Company	Position	Name	Telephone	Fax
MTR	Construction Manager	Mr Patrick CHENG	3127 6203	3127 6422
	SCL Project Environmental Team Leader	Mr Richard KWAN	2688 1283	2993 7577
Meinhardt	Independent Environmental Checker	Mr Fredrick LEONG	2859 1739	2540 1580
Leighton	Environmental Manager	Mr Kevin HARMAN	3973 0270	2356 9355
SMEC	ET Leader	Ms Vivian CHAN	3995 8140	3995 8101

2.4 Status of Environmental Licences, Notification and Permits

2.4.1 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in ***Table 2-2***.

Table 2-2 Status of Environmental Licenses, Notification and Permits

Permit / Licence No. / Notification / Reference No.	Valid Period		Status	Remark
	From	To		
Environmental Permit				
EP-437/2012	22 Mar 2012	-	Valid	EP for SCL (MKK-HUH)
EP-438/2012/E	4 Apr 2014	14 Jul 2014	Valid until cancellation on 14 Jul 2014	EP for SCL (TAW-HUH)
EP-438/2012/F	15 Jul 2014	-	Valid	EP for SCL (TAW-HUH)
Construction Noise Permit				
GW-RE0238-14	10 Mar 2014	09 Sep 2014	Valid	Generator for Intrafor office in barging point
GW-RE0414-14	16 Apr 2014	16 Jul 2014	Valid until cancellation on 16 Jul 2014	ADMS installation under podium and in concourse level
GW-RE0422-14	17 Apr 2014	15 Jul 2014	Valid until cancellation on 15 Jul 2014	Pipe welding at SAT area and 24 hours pump
GW-RE0465-14	03 May 2014	03 Sep 2014	Valid	Water mains connection
GW-RE0507-14	14 May 2014	13 Nov 2014	Valid	Dewatering at HHS
GW-RE0523-14	26 May 2014	12 Jul 2014	Valid until cancellation on 12 Jul 2014	Delivery of heavy vehicles
GW-RE0530-14	30 May 2014	30 Nov 2014	Valid	ADMS installations within live rail areas
GW-RE0548-14	27 May 2014	10 Jul 2014	Valid until cancellation on 10 Jul 2014	Erection of 9m protection barrier for bored pile GP1

Permit / Licence No. / Notification / Reference No.	Valid Period		Status	Remark
	From	To		
GW-RE0553-14	27 May 2014	31 Jul 2014	Valid until cancellation on 31 Jul 2014	Loading and unloading of scissor lift outside Hung Hom Station
GW-RE0706-14	27 Jun 2014	26 Dec 2014	Valid	Installation of Pre-bored H-Piles (grouting or welding)
GW-RE0750-14	12 Jul 2014	30 Sep 2014	Valid	Delivery of heavy vehicles
GW-RE0741-14	16 Jul 2014	16 Nov 2014	Valid	ADMS installation under podium and in concourse level
GW-RE0766-14	12 Jul 2014	10 Oct 2014	Valid	Erection of 9m protection barrier for bored pile GP1
GW-RE0781-14	18 Jul 2014	17 Aug 2014	Valid	Erection/removal of temporary footbridge, replacement of the precast beams and movement joints
GW-RE0815-14	25 Jul 2014	24 Aug 2014	Valid	Erection/removal of temporary footbridge, replacement of the precast beams and movement joints
Wastewater Discharge License				
WT00015983-2013	28 Jun 2013	30 Jun 2018	Valid	-
Chemical Waste Producer Registration				
5213-213-L2603-03	28 Jun 2013	-	Valid	-
Billing Account for Construction Waste Disposal				
7017179	27 Mar 2013	-	Active Account	-
Notification Under Air Pollution Control (Construction Dust) Regulation				
357078	18 Mar 2013	-	Notified	-

3 ENVIORNMENTAL MONITORTING PARAMETERS

3.1 Landscape and Visual Impact Monitoring

3.1.1 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period.

3.2 Air Quality Monitoring

Parameter, Frequency and Duration

3.2.1 In accordance with the EM&A Manual, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required throughout the construction period. The monitoring parameters and frequency are provided in ***Table 3-1***.

Table 3-1 Air Quality Monitoring Parameters and Frequency

Parameter	Frequency
1-hour TSP	3 times in every 6 days when one documented valid complaint is received
24-hour TSP [1]	Once per 6 days

Note:
1. 24-hour TSP will be conducted when project-related construction activities are being undertaken within a radius of 500m from monitoring stations.

Monitoring Location

3.2.2 One air quality monitoring station was set up at the location in accordance with the approved EM&A Manuals. The location of the construction dust monitoring station is summarised in ***Table 3-2*** and shown in ***Appendix D***.

3.2.3 The monitoring location of AM2 has been located on the roof of the Site Office Building next to Harbourfront Horizon since 19 March 2014.

Table 3-2 Air Quality Monitoring Location

ID	Location
AM2 [1]	Harbourfront Horizon [2]

Note:
1. Different IDs were used in various EM&A Manuals for dust monitoring location at Harbourfront Horizon, DMS-12 was used in EM&A Manual for SCL(TAW-HUH), AM2 were used in EM&A Manual and EIA report for SCL(MKK-HUH), and DMS-1 Works Contract 1112 were used in EM&A Manual and EIA report for HHS. For ease of future reference, AM2 will be adopted for EM&A reporting for Works Contract 1112 when referring to this monitoring location.
2. Air quality monitoring location at Harbourfront Horizon is the same as monitoring station CD6a as proposed in the EM&A Manual for "*Kwun Tong Line Extension (KTE)*". Access to Harbourfront Horizon was rejected by the owner during preparation for baseline monitoring

for the KTE in early 2011. A representative monitoring location at the adjacent Finger Pier, at about 25m from Harbourfront Horizon, was adopted as an alternative monitoring location for KTE. This monitoring location is considered the most appropriate alternative monitoring location for AM2 and have been adopted for dust monitoring for Contract 1112.

Monitoring Equipment

3.2.4 The air quality monitoring was performed using High Volume Sampler (HVS). The HVS meets all the requirements of the EM&A Manual. Detail of the HVS used in air quality monitoring is provided in ***Table 3-3***.

Table 3-3 Air Quality Monitoring Equipment

Equipment	Brand and Model	Serial Number
High Volume Sampler	GS-2310 Accu-vol	694-0665
Calibration Kit	Tisch (TE-5025A)	1612

3.2.5 The HVS were calibrated in every six months interval using calibration kit which is re-calibrated by the manufacturer after one year of use. The calibration certificate of the calibration kit and the calibration spreadsheet of the HVS is provided in ***Appendix E***.

Monitoring Procedures

3.2.6 Specifications of HVS are as follow:

i. 0.6 - 1.7m^3 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 406cm^2
v. Flow control accuracy: +/- 2.5% deviation over 24-hour sampling period
vi. Equipped with a shelter to protect the filter and sampler
vii. Incorporated with an electronic mass flow rate controller or other equivalent devices
viii. Equipped with a flow recorder for continuous monitoring
ix. Provided with a peaked roof inlet
x. Incorporated with a manometer
xi. Able to hold and seal the filter paper to the sampler housing at horizontal position
xii. Easily changeable filter and
xiii. Capable of operating continuously for a 24-hour period.

3.2.7 Preparation of Filter Papers

i. Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.

ii. All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25°C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.

iii. All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

3.2.8 Field Monitoring

i. The power supply was checked to ensure the HVS works properly.
ii. The filter holder and the area surrounding the filter were cleaned.
iii. The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
iv. The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
v. The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
vi. Then the shelter lid was closed and was secured with the aluminium strip.
vii. The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
viii. A new flow rate record sheet was set into the flow recorder.
ix. On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m^3/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m^3/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 July 2014 is provided in ***Appendix G***.

3.3 Construction Noise Monitoring

3.3.1 In accordance with the approved EM&A Manuals for SCL (TAW-HUH), SCL (MKK-HUH) and SCL (HHS), construction noise monitoring is required at No. 234-238 Chatham Road North (originally proposed as Wing Fung Building in the approved EM&A Manuals).

3.3.2 Construction airborne noise monitoring requirement details at No. 234-238 Chatham Road North (NM2) can be referred to the Monthly EM&A Report for Contract 1111.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

4.1.1 All environmental mitigation measures and requirements as stated in EIA Reports, Environmental Permits and EM&A Manuals are implemented. The implementation status of the environmental mitigation measures for this Works Contract during the reporting period is summarized in ***Appendix H***.

4.1.2 Submissions to EPD during construction stage had been made in accordance with the EP requirements. A summary of EP submission requirements and their status is presented in ***Table 4-1***.

Table 4-1 Summary of Status of Required Submission under EP

Required Submission	Environmental Permit	Date of Submission	Status
EP Condition 3.4 - Monthly Environmental Monitoring & Audit (EM&A) Report	EP-437/2012	14 July 2014	Submitted
	EP-438/2012/E	14 July 2014	Submitted

5 MONITORING RESULTS

5.1 Landscape and Visual

5.1.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 10 and 28 July 2014. All necessary mitigation measures have been implemented by the Contractor.

5.1.2 The Event and Action Plan for Landscape and Visual Impact Monitoring is provided in ***Appendix I***.

5.2 Air Quality Monitoring

5.2.1 The monitoring results for 24-hour TSP are summarized in ***Table 5-1.*** Detailed air quality monitoring results are presented in ***Appendix J***.

Table 5-1 Summary of 24-hour TSP Monitoring Results

ID	Average (µg/m^3)	Range (µg/m^3)	Action Level (µg/m^3)	Limit Level (µg/m^3)
AM2	34.8	17.7 – 54.1	182	260

5.2.2 No Action and Limit Level exceedance was recorded in the reporting month.

5.2.3 The Event and Action Plan is provided in ***Appendix I***.

5.3 Regular Construction Noise Monitoring

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

5.4 Waste Management

5.4.1 Receptacles for collection of general refuse were provided at the site. As advised by the Contractor, 40,500 kg of general refuse was generated from the Project and disposed of at NENT landfill. A total of 8,609 m^3 inert construction demolition (C&D) materials was generated from the Project, where 338.7 m^3 was imported from SCL 1111, 2,894 m^3 was reused in other projects, 4,843 m^3 was disposed of at TM38 Public Fill, 872 m^3 was disposed of at TKO137 Public Fill. No chemical waste was disposed and no waste was recycled in the reporting period. The waste flow table is presented in ***Appendix K***.

5.4.2 A billing account for construction waste disposal has been approved and a trip ticket system was implemented to record the waste generated from the Project in the reporting month.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

6.1.1 Weekly site audits were conducted by the ET and attended by the ER and the Contractor to monitor the timely implementation of proper environmental management practices and mitigation measures at the site. 5 site audits were carried out on 3, 10, 17, 24 and 31 July 2014 during the reporting month. Representative of the IEC joined the site inspection on 17 July 2014. A summary of the implementation schedule of environmental mitigation measures is provided in ***Appendix H***.

6.1.2 No adverse comments from EPD site inspection conducted on 28 and 31 July 2014 during the reporting month.

6.1.3 During the weekly site inspections, no non-conformance was identified. Details of observations recorded during site inspection are summarized in ***Table 6-1***.

Table 6-1 Observations and Recommendations of Site Audits

Parameters	Description	Works Area	Observation Date	Status
Landscape and Visual	N/A	N/A	N/A	N/A
Air Quality	Stockpile was observed without impervious sheeting cover. The Contractor should cover stockpile properly.	NAT	26 June 2014	The item was rectified by the Contractor on 3 July 2014.
	White smoke emission was observed. The Contractor should review the efficiency of exhaust system regularly and maintain equipment in good condition.	NAT	19 June 2014	The item was rectified by the Contractor on 10 July 2014.
		SAT	17 July 2014	The item was rectified by the Contractor on 24 July 2014.
		NAT near HHS	17 July 2014.	The item was rectified by the Contractor on 24 July 2014.
		SAT	24 July 2014	The item will be followed-up in the next reporting month.
		HHS	24 July 2014	The item was rectified by the Contractor on 31 July 2014.
		SAT	31 July 2014	The item will be followed-up in the next reporting month.
		SAT	31 July 2014	The item will be followed-up in the next reporting month.

Parameters	Description	Works Area	Observation Date	Status
	A small instant of dark smoke emission was observed emitting from air compressors. The Contractor should review the efficiency of exhaust system and implement control measures to prevent such emission to comply with the requirements stipulated in APCO.	HHS	26 June 2014	The item was rectified by the Contractor on 3 July 2014.
	More than 20 bags of cement were observed without entirely covered with impervious sheeting. The Contractor should cover the 20 or more cement bags entirely with impervious sheeting.	HHS	10 July 2014	The item was rectified by the Contractor on 17 July 2014.
Noise	Door of site plant equipment was observed open. The Contractor should ensure all non-essential openings kept closed at all times to prevent a reduction in the acoustic performance of the enclosure for plants and equipment	SAT	17 July 2014	The item was rectified by the Contractor on 24 July 2014.
Water Quality	N/A	N/A	N/A	N/A
Waste/ Chemicals Management	Chemical containers were observed without secondary containment. The Contractor should provide secondary containments to all chemical containers to prevent land contamination.	HHS	26 June 2014	The item was rectified by the Contractor on 3 July 2014.
		HUH	3 July 2014	The item was rectified by the Contractor on 10 July 2014.
		HUH	17 July 2014	The item was rectified by the Contractor on 24 July 2014.
		HHS	17 July 2014	The item was rectified by the Contractor on 24 July 2014.
		NAT	17 July 2014	The item was rectified by the Contractor on 24 July 2014.
		SAT	17 July 2014	The item was rectified by the Contractor on 31 July

Parameters	Description	Works Area	Observation Date	Status
				2014.
		HUH	31 July 2014	The item will be followed-up in the next reporting month.
	Oil stains were observed. The Contractor should provide effective control measures to prevent ground contamination.	NAT	26 June 2014	The item was rectified by the Contractor on 3 July 2014.
		HUH	3 July 2014	The item was rectified by the Contractor on 10 July 2014.
	Stacking of chemical containers was observed within a drip tray. The Contractor should provide sufficient secondary containment to all chemical containers and prevent stacking up of the containers to avoid land contamination.	SAT	26 June 2014	The item was rectified by the Contractor on 3 July 2014.
	Waste receptacle was full. The Contractor should arrange regular collection of waste for disposal.	HUH	3 July 2014	The item was rectified by the Contractor on 10 July 2014.
Permits/ License	N/A	N/A	N/A	N/A

Note:

1. HUH: Hung Hom Station
2. HHS: Hung Hom Stabling Sidings
3. NAT: North Approach Tunnels
4. SAT: South Approach Tunnels
5. N/A: Not Applicable

6.1.4 Follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period. Inspection for follow-up actions that are outstanding in the reporting month will be carried out in following inspections, until the corresponding action has been undertaken by the Contractor.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

7.1.1 All 24-hour TSP results were below the Action and Limit level at all monitoring locations in the reporting month.

7.2 Summary of Environmental Non-Compliance

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

7.3 Summary of Environmental Complaint

7.3.1 No environmental related complaint was reported during the reporting month.

7.3.2 Cumulative statistics on environmental complaints is provided in ***Appendix L***.

7.4 Summary of Environmental Summons and Successful Prosecution

7.4.1 No summon was received during the reporting month.

7.4.2 The cumulative statistics on notification of summons and successful prosecutions is provided in ***Appendix L***.

8 FUTURE KEY ISSUES

8.1 Construction Programme for Next Month

8.1.1 The construction programme for the upcoming month is provided in ***Appendix B*** and the key issues to be considered in the upcoming months include:

- Piling for HUH, NAT and SAT
- Diaphragm wall construction at HUH
- Initial excavation at HUH and HHS
- Barging point operation at Hung Hom Freight Pier
- Operation of Material Receiving Hopper at Hung Hom Freight Pier
- Marine transportation and disposal of spoil to designated dumping ground(s)
- Demolition of locomotive shed

8.2 Key Issues for the Coming Months

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

8.3 Monitoring Schedule for Next Month

8.3.1 The tentative schedule for environmental monitoring in August 2014 is provided in ***Appendix G***.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

9.1.1 The construction phase of the Project was commenced on 3 June 2013. The EM&A programme has been implemented to include air quality monitoring and environmental site audits. This is the 14th monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 31 July 2014.

9.1.2 5 nos. of 24-hour TSP monitoring were carried out in the reporting month.

9.1.3 No exceedance of the Action and Limit Levels of air quality monitoring was recorded at the designated monitoring stations during reporting period.

9.1.4 Two landscape and visual monitoring and four environmental site audits were conducted in the reporting month. Recommendations on remedial actions were provided to the Contractor for deficiencies identified during the site audits.

9.1.5 There was no environmental complaint, prosecution or notification of summons received.

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

9.2 Recommendations

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

Air Quality Impact

- Cover impervious sheeting properly for cement with more than 20 bags.
- Provide impervious sheeting to dusty stockpiles.
- Maintain all site plant equipment to function in good condition to prevent fume generation.

Airborne Noise Impact

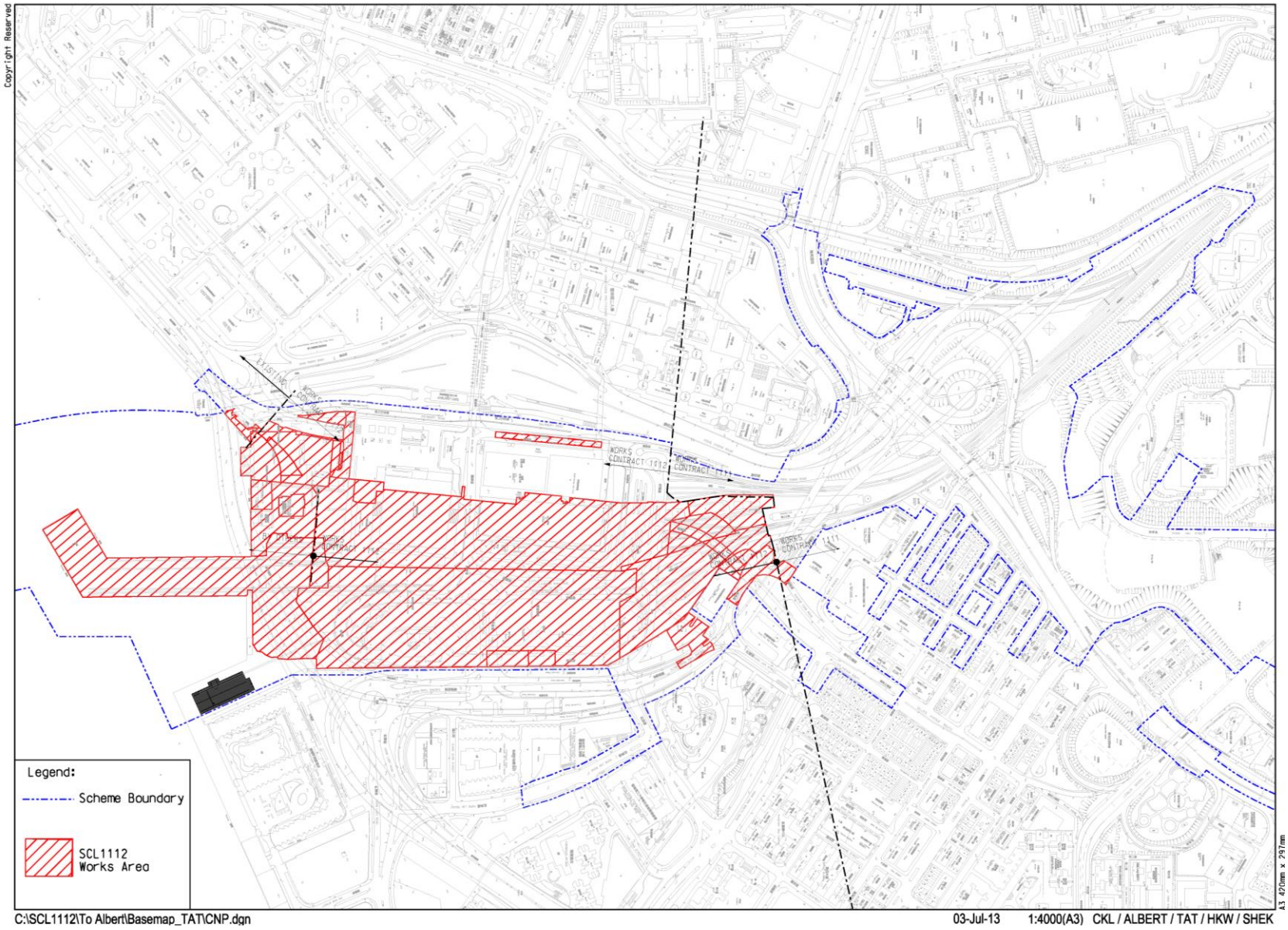
- Ensure acoustic cover is being fully utilized during plant operation.

Chemical and Waste Management

- Provide secondary containment with proper maintenance and usage to prevent any possibility in contaminating the land.
- Enhance training on chemical handling to prevent oil spillage.
- Arrange regular collection of waste for disposal.

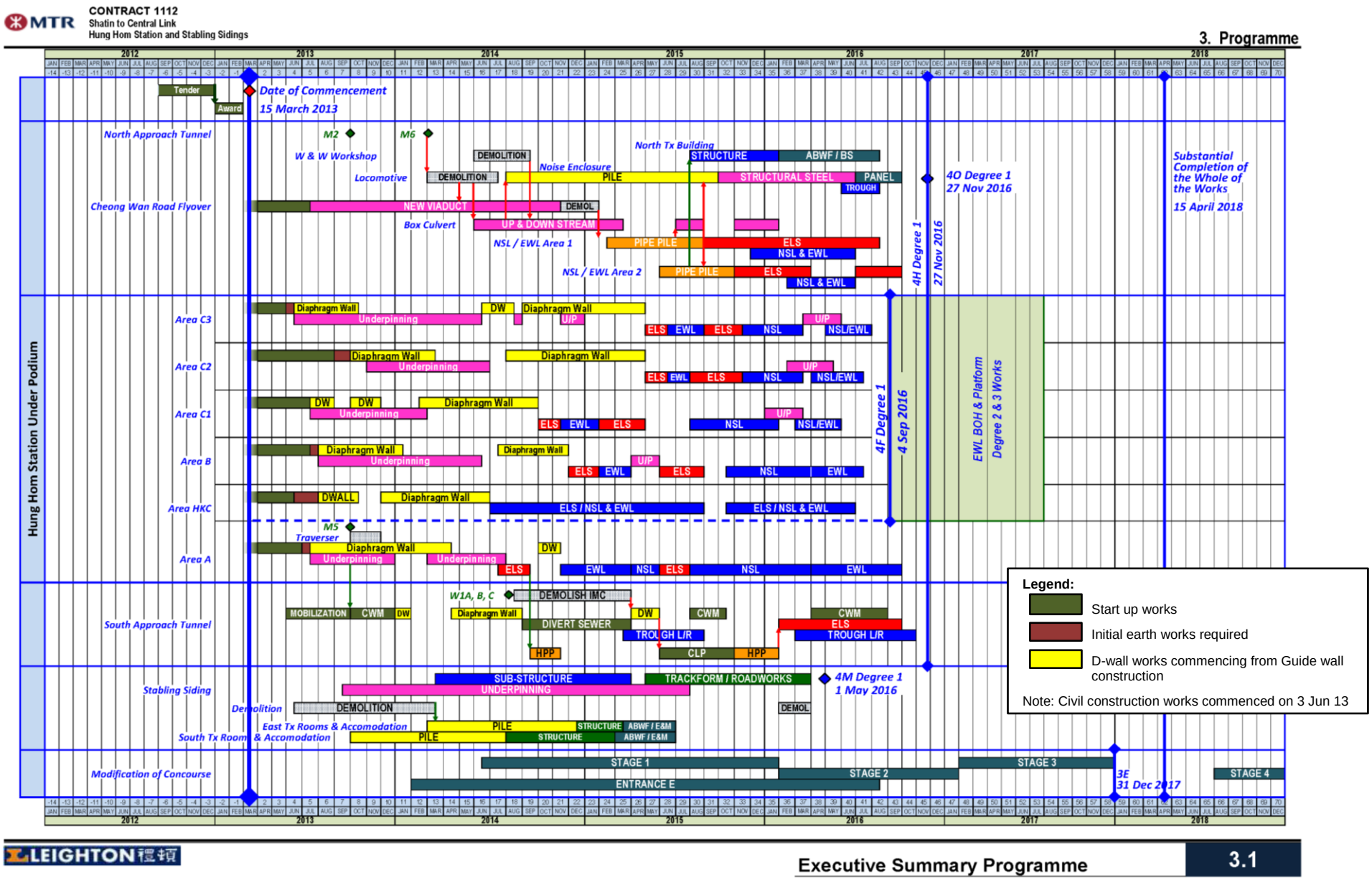
APPENDIX A

Project Works Boundary


Copyright Reserved
Legend:
Scheme Boundary
SCL1112
Works Area
C:\SCL1112\To Albert\Basemap_TAT\CNP.dgn
03-Jul-13
1:4000(A3) CKL / ALBERT / TAT / HKW / SHEK
A3 420mm x 297mm

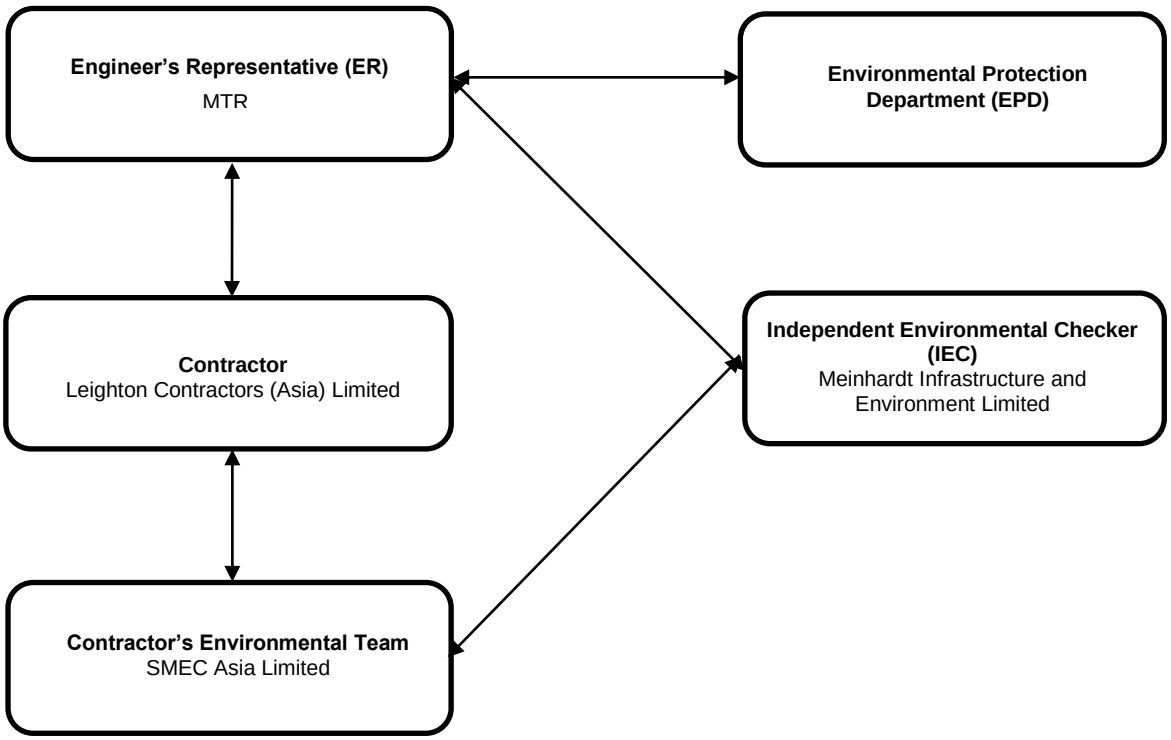
APPENDIX B

Construction Programme


MTR
CONTRACT 1112
Shatin to Central Link
Hung Hom Station and Stabling Sidings
3. Programme
2012
2013
2014
2015
2016
2017
2018
Tender
Award
Date of Commencement
15 March 2013
Hung Hom Station Under Podium
North Approach Tunnel
M2
M6
W & W Workshop
Locomotive
DEMOLITION
Noise Enclosure
PILE
North Tx Building
STRUCTURE
ABWF / BS
STRUCTURAL STEEL
PANEL
TROUGH
4O Degree 1
27 Nov 2016
Substantial Completion of the Whole of the Works
15 April 2018
Cheong Wan Road Flyover
NEW VIADUCT
DEMOL
Box Culvert
UP & DOWN STREAM
NSL / EWL Area 1
PIPE PILE
ELS
NSL & EWL
NSL / EWL Area 2
4H Degree 1
27 Nov 2016
Area C3
Area C2
Area C1
Area B
Area HKC
Area A
Diaphragm Wall
Underpinning
DW
U/P
ELS
EWL
NSL
NSL/EWL
DWALL
ELS / NSL & EWL
4F Degree 1
4 Sep 2016
EWL BOH & Platform
Degree 2 & 3 Works
M5
Traverser
South Approach Tunnel
MOBILIZATION
CWM
W1A, B, C
DEMOLISH IMC
DIVERT SEWER
TROUGH L/R
HPP
CLP
Stabling Siding
SUB-STRUCTURE
TRACKFORM / ROADWORKS
UNDERPINNING
4M Degree 1
1 May 2016
Demolition
East Tx Rooms & Accomodation
South Tx Room & Accomodation
ABWF / E&M
Modification of Concourse
STAGE 1
STAGE 2
STAGE 3
STAGE 4
ENTRANCE E
3E
31 Dec 2017
Legend:
Start up works
Initial earth works required
D-wall works commencing from Guide wall construction
Note: Civil construction works commenced on 3 Jun 13
LEIGHTON 禮頓
Executive Summary Programme
3.1

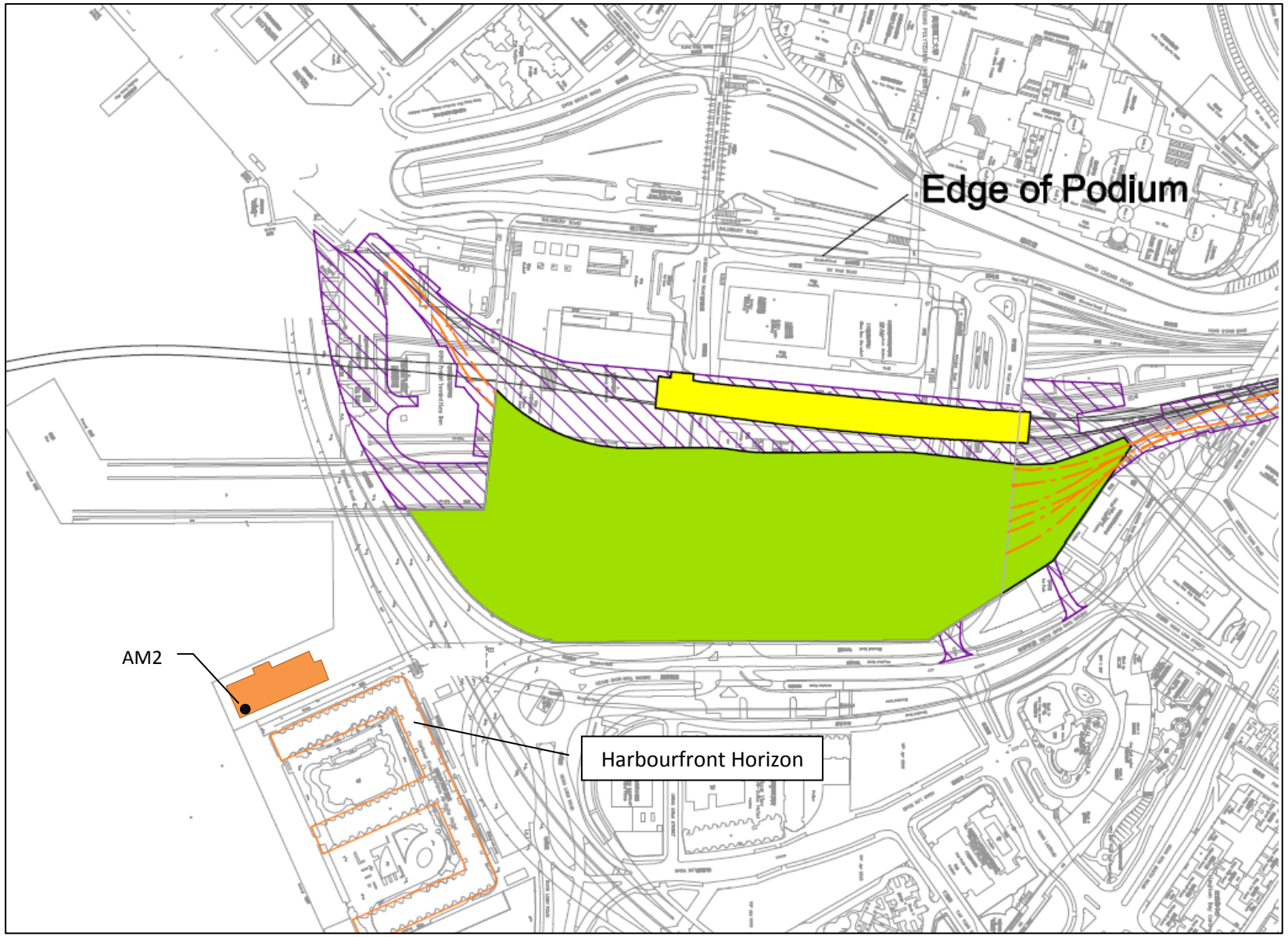
APPENDIX C

Project Organisation for Environmental Works


Engineer's Representative (ER)
MTR
Environmental Protection Department (EPD)
Contractor
Leighton Contractors (Asia) Limited
Independent Environmental Checker (IEC)
Meinhardt Infrastructure and Environment Limited
Contractor's Environmental Team
SMEC Asia Limited

APPENDIX D

Location of Air Quality Monitoring Station


Edge of Podium
AM2
Harbourfront Horizon

APPENDIX E

Calibration Certificates for Monitoring Equipment

TSP Sampler Calibration

SITE

Location:	Hung Hom	Calibration Date:	June 6, 2014
Sampler:	Hunghom MTR TSP	Next Calibration Date:	August 6, 2014
Serial No	694-0665	Tech:	Sam Wong

CONDITIONS

Barometric Pressure (in Hg):	39.54	Corrected Pressure (mm Hg):	1004
Temperature (deg F):	88	Temperature (deg K):	304
Average Press. (in Hg):	39.54	Corrected Average (mm Hg):	1004
Average Temp. (deg F):	88	Average Temp. (deg K):	304

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.00757
Model:	TE-5025A	Qstd Intercept:	-0.01628
Serial#:	1612	Date Certified:	April 7, 2014

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
1	11.80	1.955	60.0	68.28	Slope =	35.0633
2	10.00	1.801	54.0	61.45	Intercept =	-1.0378
3	7.80	1.591	48.0	54.62	Corr. coeff.=	0.9991
4	5.00	1.276	38.0	43.24		
5	3.00	0.990	30.0	34.14	# of Observations:	5

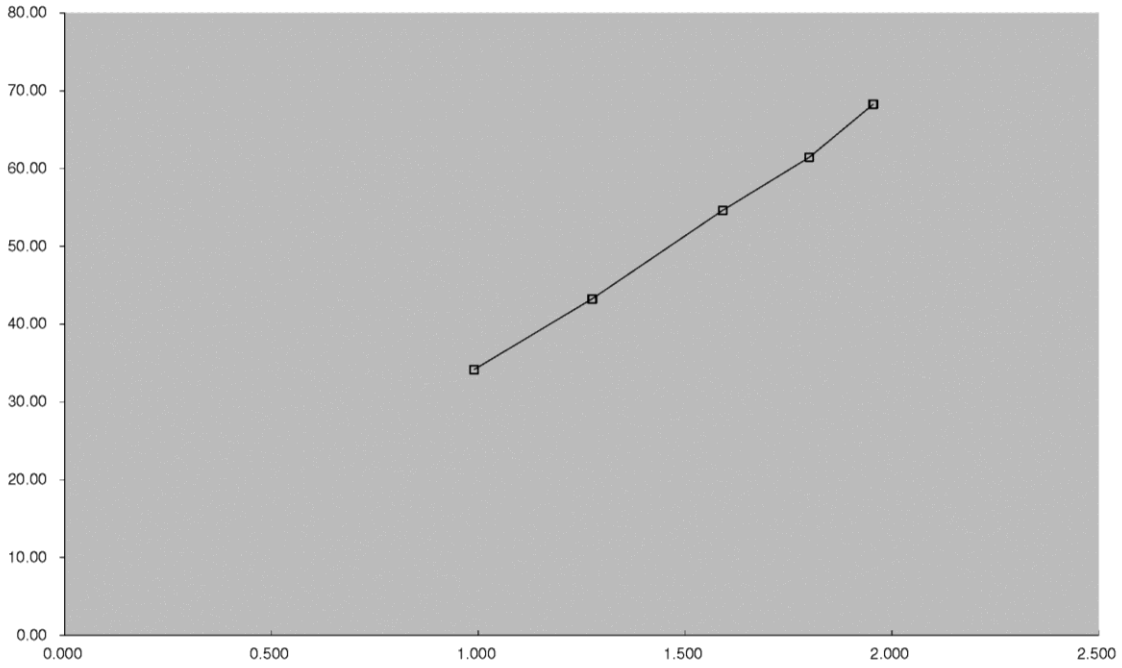
Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

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

Reviewer: Sam Wong Signature: _____ Date: June 6, 2014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70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.000
0.500
1.000
1.500
2.000
2.500

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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 07, 2014 Rootsmeter S/N 0438320 Ta (K) - 294
Operator Tisch Orifice I.D. - 1612 Pa (mm) - 742.95

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3940	3.2	2.00
2	NA	NA	1.00	0.9790	6.4	4.00
3	NA	NA	1.00	0.8800	7.8	5.00
4	NA	NA	1.00	0.8350	8.8	5.50
5	NA	NA	1.00	0.6910	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9866	0.7077	1.4077		0.9957	0.7142	0.8896
0.9823	1.0034	1.9908		0.9914	1.0127	1.2581
0.9804	1.1140	2.2258		0.9894	1.1243	1.4066
0.9791	1.1726	2.3345		0.9881	1.1834	1.4753
0.9739	1.4094	2.8155		0.9829	1.4224	1.7793
Qstd slope (m) =		2.00757		Qa slope (m) =		1.25710
intercept (b) =		-0.01628		intercept (b) =		-0.01029
coefficient (r) =		0.99989		coefficient (r) =		0.99989
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

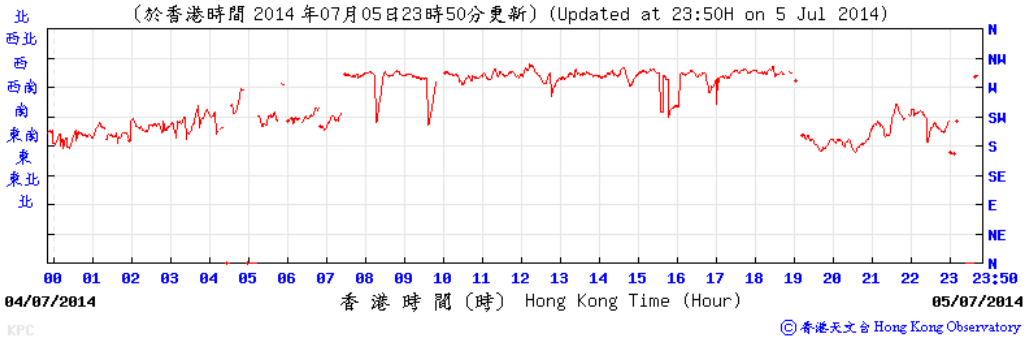
For subsequent flow rate calculations:

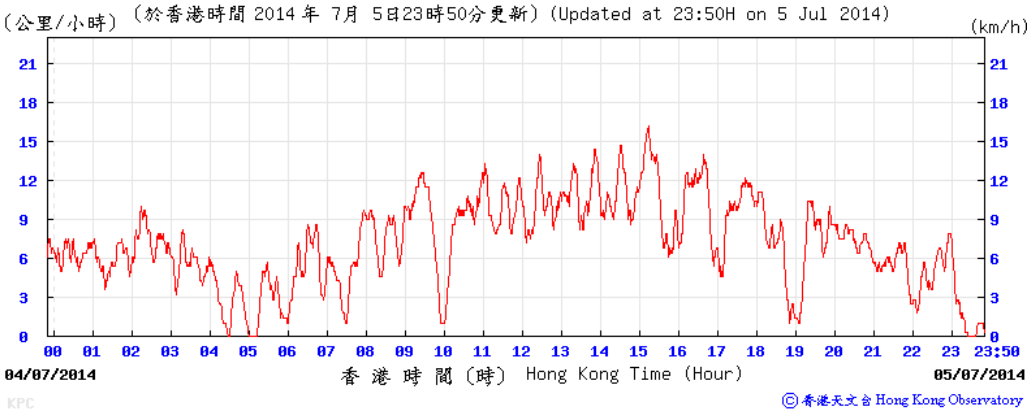
Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

Appendix F

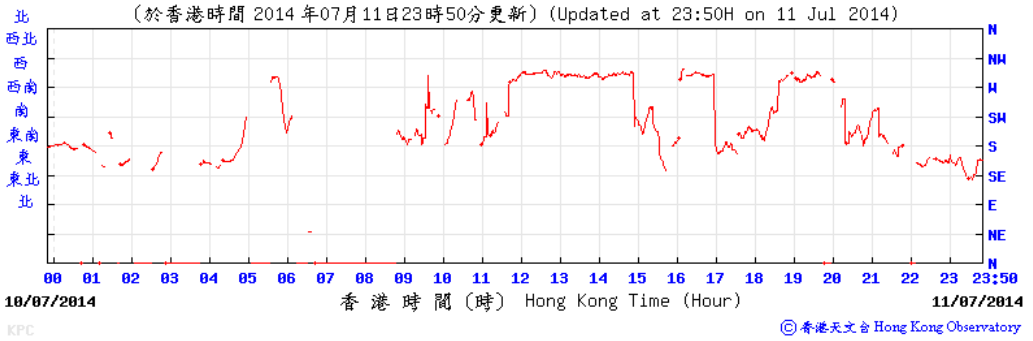
Wind Data

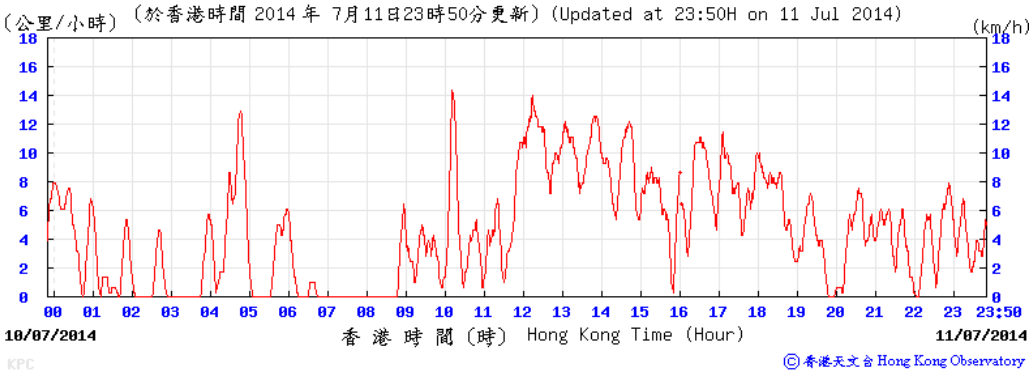
5 July 2014



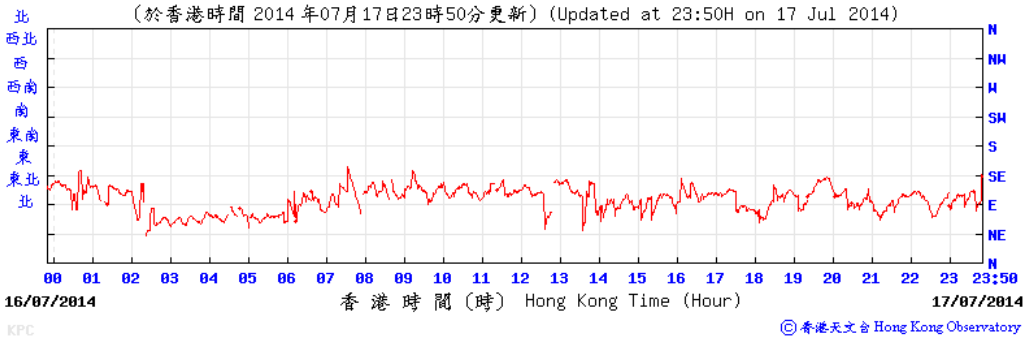


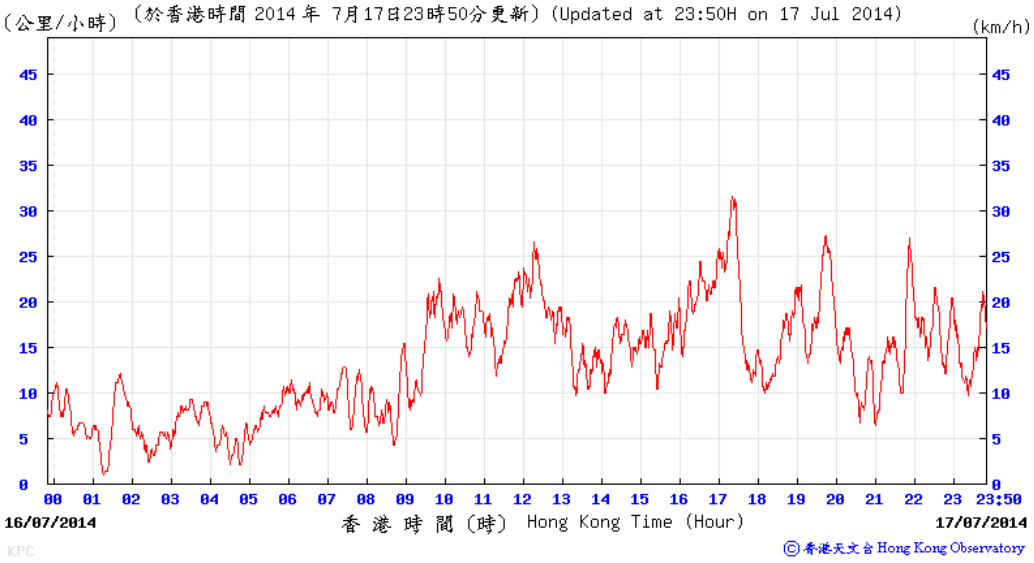
11 July 2014



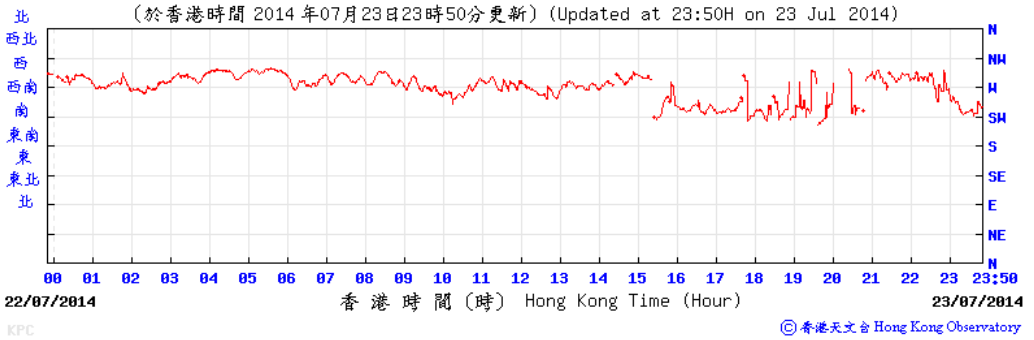


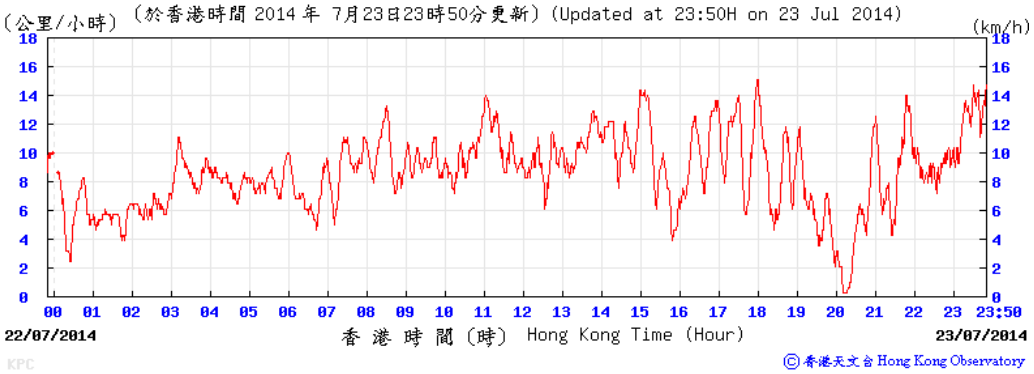
17 July 2014



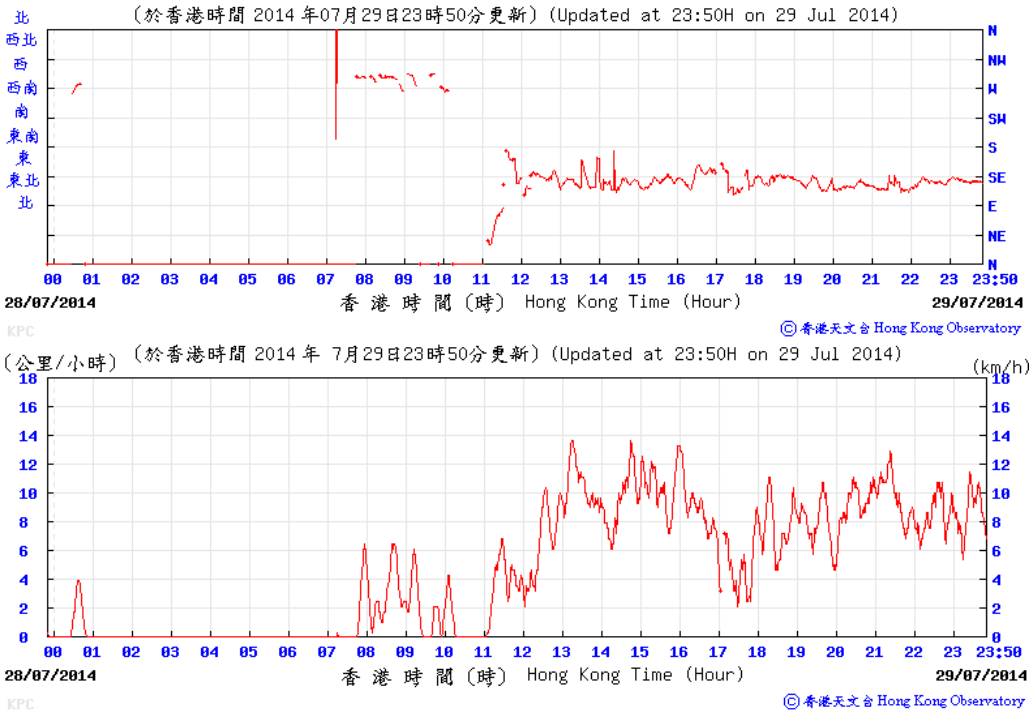


23 July 2014





29 July 2014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東南
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東北
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N
NW
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SW
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28/07/2014
香 港 時 間 (時) Hong Kong Time (Hour)
29/07/2014
© 香港天文台 Hong Kong Observatory
(公里/小時) (於香港時間 2014 年 7月29日23時50分更新) (Updated at 23:50H on 29 Jul 2014)
(km/h)
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14
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10
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28/07/2014
香 港 時 間 (時) Hong Kong Time (Hour)
29/07/2014
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Appendix G

Environmental Monitoring Programme

Environmental Monitoring Schedule for SCL1112 in July 2014

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

Environmental Monitoring Schedule for SCL1112 in August 2014

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

APPENDIX H

Implementation Schedule of Environmental Mitigation Measures

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
Landscape & Visual (Construction Phase)							
S6.9.3 and S6.12 of Ref.1; Table 4.9 of Ref. 2; S6.12 of Ref. 3	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. <u>No-intrusion zone</u> • 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. <u>Protection of retained trees</u> • All retained trees will be recorded photographically at the commencement of the contract, and carefully protected during the construction period. • The contractor will be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites.	Minimise visual and landscape impact	Contractor	Within project site	Construction Stage	EIAO-TM	^ ^ ^ ^
S6.12 of Ref.1; Table 4.9 of Ref. 2; Table 6.9 of Ref. 3	<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 the works will be transplanted where possible and	Minimise the visual and landscape impact of the Project during construction phase	Contractor	Within project site	Detailed design and construction stage	EIAO-TM ETWB TCW 2/2004 ETWB TCW 3/2006	^ ^ ^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	practicable. Tree transplanting proposal including final location for transplanted trees will be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.						
Air Quality (Construction Phase)							
N.A.	Emission from Vehicles and Plants: • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD).	Reduce air pollution emission from construction vehicles and plants	Contractor	All constructions sites	Construction stage	Air Pollution Control Ordinance (APCO)	^ # ^
Construction Dust Impact							
S7.6.5 of Ref. 1; S7.6.6 of Ref. 3	The contractor will follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation.	Minimise dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	APCO To control the dust impact to meet HKAQO and EIAO-TM criteria	^
S5.20, S5.21, S5.50 and Table 5.4 of Ref. 2	Barging Facility: • 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/m^2 to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the	To minimize the construction dust impacts to the nearby sensitive receivers	Contractor	Barging point at Hung Hom Freight Pier	Construction stage	APCO	^ ^

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	EM&A Manual. • Vehicles leaving the barging facilities – vehicles would be required to pass through the wheel washing facilities to be provided at site exit.						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 a stockpile is removed will be wetted and cleared from the surface of roads. • A stockpile of dusty material will not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site will be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle. • Where practicable, vehicle washing facilities with high pressure water jet will be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point will be paved with concrete, bituminous materials or hardcore. • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high will be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice will also be adopted by the contractor to ensure the conditions of the hoardings are properly maintained in construction period. • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit will be kept clear of dusty materials. • Surfaces where any pneumatic or power-driven drilling,	Minimise dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	APCO Air Pollution Control (Construction Dust) Regulation To control the dust impact to meet HKAQO and EIAO-TM criteria	* ^ ^ ^ ^ ^

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	cutting, polishing or other mechanical breaking operation takes place will be sprayed with water or a dust suppression chemical continuously. • Any area that involves demolition activities will be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet. • Where scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting will be provided to enclose the scaffolding from the ground floor level of the building, or a canopy will be provided from the first floor level up to the highest level of the scaffolding. • Any skip hoist for material transport will be totally enclosed by impervious sheeting. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) will be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Cement or dry PFA delivered in bulk will be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed. • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA will be carried out in a totally enclosed system or facility, and any vent or exhaust will be fitted with an effective fabric filter or equivalent air pollution control system. • Exposed earth will be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.						^ ^ N/A ^ * ^ ^ ^
S7.6.5 of Ref. 1; S5.57 of Ref. 2; S7.6.6 of Ref. 3	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Harbourfront Horizon	Construction stage	EIAO-TM APCO	^

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Construction Airborne Noise							
S8.3.6 of Ref. 1; S6.61 of Ref. 2; S8.5.6 of Ref. 3	Implement the following good site practices: • Only well-maintained plant will be operated on-site and plant will be serviced regularly during the construction programme. • Machines and plant (such as trucks, cranes) that may be in intermittent use will be shut down between work periods or will be throttled down to a minimum. • Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs. • Silencers or mufflers on construction equipment will be properly fitted and maintained during the construction works. • Mobile plant will be sited as far away from NSRs as possible and practicable. • Material stockpiles, mobile container site office and other structures will be effectively utilised, where practicable, to screen noise from onsite construction activities.	Control construction airborne noise	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^ ^ ^ ^ ^ ^
S8.3.6 of Ref. 1; S6.68 of Ref. 2; S8.5.6 of Ref. 3	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings will be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S6.64 – 6.67 and Table 6.20 of Ref. 2; S8.5.6 of Ref. 3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, gene rators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	*
S8.3.6 of Ref. 1; S6.62 – 6.63 and Table 6.19 of Ref. 2; S8.5.6 of Ref. 3	The following quiet PME should be used: • Asphalt Paver (SWL=101dB(A)) • Backhoe (SWL=106dB(A)) • Backhoe with Hydraulic Breaker (SWL=110dB(A)) • Concrete lorry mixer (SWL=96dB(A)) • Concrete mixer truck (SWL=96dB(A)) • Concrete Pump (SWL=106dB(A)) • Concrete Pump Truck (SWL=106dB(A)) • Crane, mobile (SWL=94dB(A)) • Crawler Crane (SWL=102dB(A))	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^

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	• Drill, hand-held (SWL=98dB(A)) • Dump truck (SWL=104dB(A)) • Excavator (SWL=106dB(A)) • Flat Bed Lorry (SWL=102dB(A)) • Generator (SWL=95dB(A)) • Giken Piler and Power-pack (SWL=94dB(A)) • Hydraulic breaker (SWL=110dB(A)) • Hydraulic excavator (SWL=106dB(A)) • Lorry (SWL=102dB(A)) • Lorry with crane/ grab (SWL=94dB(A)) • Mini Piling Rig (SWL=112dB(A)) • Piling Rig (SWL=112dB(A)) • Poker, vibrator, hand-held (SWL=98dB(A)) • Road Roller (SWL=101dB(A)) • Rock Drill (SWL = 108dB(A) • Roller (SWL = 101dB(A) • Truck (SWL=103dB(A)) • Vibratory Hammer (SWL=118dB(A))						
S8.3.6 of Ref. 1; S8.5.6 of Ref. 3	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S8.5.6 of Ref. 3	Implement noise monitoring under EM&A programme.	Monitoring of construction noise impact	Contractor	Wing Fung Building	Construction stage as required by IEC	TM-EIA	^

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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 Note 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 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. • All exposed earth areas will be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces will be covered by tarpaulin or other means. • All drainage facilities and erosion and sediment control structures will be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit will be removed regularly and disposed of by spreading evenly over stable,	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	Water Pollution Control Ordinance (WPCO) ProPECC PN1/94 EIAO-TM TM-Water Technical Memorandum on Effluent Discharge Standard (TM-DSS)	^ ^ ^ ^ ^

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	vegetated areas. • Measures will be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they will be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations will be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than $50m^3$ will be covered with tarpaulin or similar fabric during rainstorms. • Measures will be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) will always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention will be paid to the control of silty surface runoff during storms, especially areas near steep slopes. • All vehicles and plant will be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities will be provided at every construction site exit where practicable. Wash-water will have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road will be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors will be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors will be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass will be provided for						^ ^ ^ ^ ^ ^

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	the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site will be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas will be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. • All the earth works involving will be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. • Adopt Best Management Practices.						^ * ^ ^
S10.7.1 of Ref. 1; S10.7.1 of Ref. 3	<u>Tunnelling works</u> • Cut-and-cover/ open-cut tunnelling work will be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. • Uncontaminated discharge will pass through sedimentation tanks prior to off-site discharge. • The wastewater with a high concentration of SS will be treated (eg, by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. • Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It will be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) will be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 will be adhered to in the handling and disposal of bentonite slurries.	To minimize construction water quality impact from tunnelling works	Contractor	All tunnelling portion	Construction stage	WPCO ProPECC PN1/94 EIAO-TM TM-Water	^ ^ ^ ^

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S8.68 of Ref. 2; S10.7.1 of Ref. 1	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 *construction runoff and site drainage* provide above should be applied to minimise water quality impacts from site runoff and open stockpile spoils at the proposed barging facilities where appropriate.	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	WPCO TM-EIA	^ ^ ^ ^ ^
S8.51 – 8.52 of Ref. 2	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	To minimize water quality impact from building construction	Contractor	All construction sites where practicable	Construction stage	WPCO EIAO-TM	^ N/A

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	consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence which is under the ambit of regional office of EPD.						
S8.62 of Ref. 2	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	^
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	^
S8.64 of Ref. 2; S10.7.1 of Ref. 3	Groundwater seepage 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	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	WPCO TM-Water EIAO-TM	^

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	removal facilities. Groundwater from dewatering process will also be discharged into the storm system via silt traps.						
S10.7.1 of Ref. 1; S8.57 – 8.59 of Ref. 2; S10.7.1 of Ref. 3	<u>Accidental spillage</u> 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	* # ^ ^
S8.72 of Ref.2	Regular site inspections should be undertaken to inspect the construction activities and works areas	To ensure the recommended water quality mitigation measures are properly implemented	Contractor	All construction sites	Construction stage	EIAO-TM WPCO ProPECC PN 1/94 TM-DSS WDO	^

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Waste Management (Construction Phase)							
S11.4.1.1 of Ref. 1; S9.80 – 9.83 of Ref. 2; S11.4.1.1 of Ref.3	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	^
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	Good site practice to minimise the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW Ref 19/2005	^ ^ ^ ^ ^ ^ ^

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	Proponent and EPD and get their approval before implementation.						
S11.5.1 of Ref.1; S9.73 of Ref. 2; S11.5.1 of Ref.3	<u>C&D waste</u> • Standard formwork or pre-fabrication will be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works will be considered. Use of wooden hoardings will not be used, as in other projects. Metal hoarding will be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The contractor will recycle as much of the C&D materials as possible onsite. Public fill and C&D waste will be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites will be considered for such segregation and storage.	Good site practice to minimise the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW Ref 19/2005	^ ^
S11.5.1 of Ref.1; S9.100-9.102 of Ref.2; S11.5.1 of Ref. 3	<u>General refuse</u> • 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	<u>Land-based sediment</u> • The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. • The Project Proponent should agree in advance with MFC of CEDD on the site allocation. Subject to the final decision by MFC, Type 1 sediments are typically disposed to South Cheung Chau and/or East of Ninepin as open sea disposal while Type 2 sediments are disposed to East Sha Chau as confined marine disposal. • Sampling and Testing Plan(s) should be prepared in accordance with ETWB TC(W) No. 34/2002. Site investigation, based on the Sediment Sampling and Testing Plan(s), should be carried out in order to confirm the disposal arrangements for the proposed excavated sediments. A Sediment Quality Report (SQR) should then be submitted to EPD for agreement prior to the tendering of the construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal. • The excavated sediments is expected to be loaded onto the dumping trucks and transferred to the barging point where the sediments would be transported via barge to the existing designated disposal sites allocated by the MFC. The excavated sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002. • Requirements of the Air Pollution Ordinance (Construction Dust) Regulation, where relevant, shall be adhered to during excavation, transportation and disposal of sediments. • Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged	To ensure the sediment is handled and disposed of in a least impacted way and in accordance to the statutory	Contractor	All construction sites	Construction stage	ETWB TC(W) NO. 34/2002 Dumping at Sea Ordinance (DASO) APCO WPCO	N/A N/A N/A N/A N/A 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
	according to the Water Pollution Control Ordinance (WPCO). • In order to minimize the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments should be wetted during excavation / material handling and should be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. • The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. • In order to minimize the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site.						^ N/A N/A
S11.5.1 of Ref.1; S8.94 – 9.97 of Ref. 2; S11.5.1 of Ref. 3	<u>Chemical waste</u> • 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	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	^ ^ ^

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
	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.						^
S9.98 – 9.99 of Ref 2	<u>Asbestos wastes</u> • All storage of asbestos waste should be carried out properly in a secure place isolated from other substances so as to prevent any possible release of asbestos fibres into the atmosphere and contamination of other substances. The storage area should bear warning panels to alert people of the presence of asbestos waste. Collection, transportation and disposal of asbestos waste will follow the trip-ticket system. • Licensed asbestos waste collectors will be appointed to collect the asbestos waste and deliver to the designated landfill for disposal. The Project Proponent should notify to EPD in advance for disposal of asbestos waste. After processing the notification, EPD will issue specific instructions and directions for disposal. The waste producer must strictly follow these directions	To ensure the asbestos wastes are handled and disposed of in accordance with the statutory requirements	Contractor	All construction sites	Construction stage	Code of practice on the Handling, Transportation and Disposal of Asbestos Waste	N/A N/A

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
Land Contamination							
S10.24 – 10.34 of Ref 2	<u>Precautionary measures</u> • 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	^ ^
S10.35 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, health and safety; • Excavation should be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; • Supply of suitable clean backfill material is needed after excavation; • If proposed remediation methods employ chemical oxidation methods as the contaminant mass reduction technology, chemicals will be securely and separately stored away from	To remediate contaminated soil	Contractor	All construction sites	Construction stage	"Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair /Dismantling Workshop"	N/A N/A N/A N/A N/A 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
	sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and Personal Protective Equipment • Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates should be sealed to prevent any discharge during transport or during wet conditions; • Speed control for the trucks carrying coVehicle wheel and body washing facilities at the site's exit points should be established and used; and contaminated materials should be enforced; • Pollution control measures for air emissions e.g. from biopile blower, noise emissions e.g. from blower, and water discharges e.g. runoff control should be implemented and complied with relevant regulations and guidelines.						N/A ^ ^ ^
S10.36 of Ref 2	The Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations should be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures should be implemented as far as possible: Set up a list of safety measures for site workers. Provide written information and training on safety for site workers. Keep a log-book and plan showing the contaminated zones and clean zones. Maintain a hygienic working environment. Avoid dust generation. Provide face and respiratory protection gear to site workers. Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers. Provide first aid training and materials to site workers.	To minimise the potentially adverse effects on health and safety of construction workers during the course of site remediation.	Contractor	All construction sites	Site remediation and prior to construction phase	"Guidance Note for Contaminated Land Assessment and Remediation" "Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management "Occupation Safety and Health Ordinance (Chapter 509)"	^
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	Perform environmental monitoring & auditing	Contractor	All construction sites	Construction stage	EIAO Guidance Note Ref4/2010 EIAO-TM	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	EM&A Manual are fully complied with.						

Remark for Status:

^ Compliance of mitigation measure
+ Non-compliance but rectified by the contractor
N/A Not Applicable
X Non-compliance of mitigation measure
* Recommendation was made during site audit but improved/rectified by the contractor
# Recommendation was made during site audit and improvement/rectification not yet completed by the contractor

Notes:

Ref. 1 – EIA Report for SCL (TAW-HUH)
Ref. 2 – EIA Report for SCL (MKK-HUH)
Ref. 3 – EIA Report for SCL (HHS)

This EMIS contains only those requirements that are relevant to Works Contract 1112 in terms of:

- EM&A required under Works Contract 1112
- Who to implement the measures – the Contractor (Leighton)
- The location of the measures – within and in the vicinity of the Works Contract 1112 Site Boundary
- When to implement the measures – during the design and construction

APPENDIX I

Event and Action Plan

Event and Action Plan for Landscape and Visual Impact Monitoring

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

Event and Action Plan for Air Quality

Event	ET	IEC	ER	Contractor
Action level				
1. Exceedance for one sample	1. Inform the IEC, Contractor and ER 2. Discuss with the Contractor, IEC and ER on the remedial measures required 3. Repeat measurement to confirm findings 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET 2. Check Contractor's working method 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures	1. Confirm receipt of notification of exceedance in writing	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate
2. Exceedance for two or more consecutive samples	1. Inform the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Repeat measurements to confirm findings 4. Increase monitoring frequency to daily 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor 6. If exceedance stops, cease additional monitoring	2. Check monitoring data submitted by the ET 3. Check Contractor's working method 4. Review and advise the ET and ER on the effectiveness of the proposed remedial measures	1. Confirm receipt of notification of exceedance in writing 2. Review and agree on the remedial measures proposed by the Contractor 3. Supervise Implementation of remedial measures	1. Identify source and investigate the causes of exceedance 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification 3. Implement the agreed proposals 4. Amend proposal as appropriate

Event	ET	IEC	ER	Contractor
Limit Level				
1. Exceedance for one sample	1. Inform the IEC, EPD, Contractor and ER 2. Repeat measurement to confirm findings 3. Increase monitoring frequency to daily 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check monitoring data submitted by the ET 2. Check the Contractor's working method 3. Discuss with the ET, ER and Contractor on possible remedial measures 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor 4. Supervise implementation of remedial measures.	1. Identify source(s) and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification 4. Implement agreed proposals 5. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify IEC, Contractor & EPD 2. Repeat measurement to confirm findings 3. Increase monitoring frequency to daily 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET 2. Check the Contractor's working method 3. Discuss with ET, ER, and Contractor on the potential remedial measures 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source(s) and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Note:
ET – Environmental Team, IEC – Independent Environmental Checker, ER – Engineer's Representative

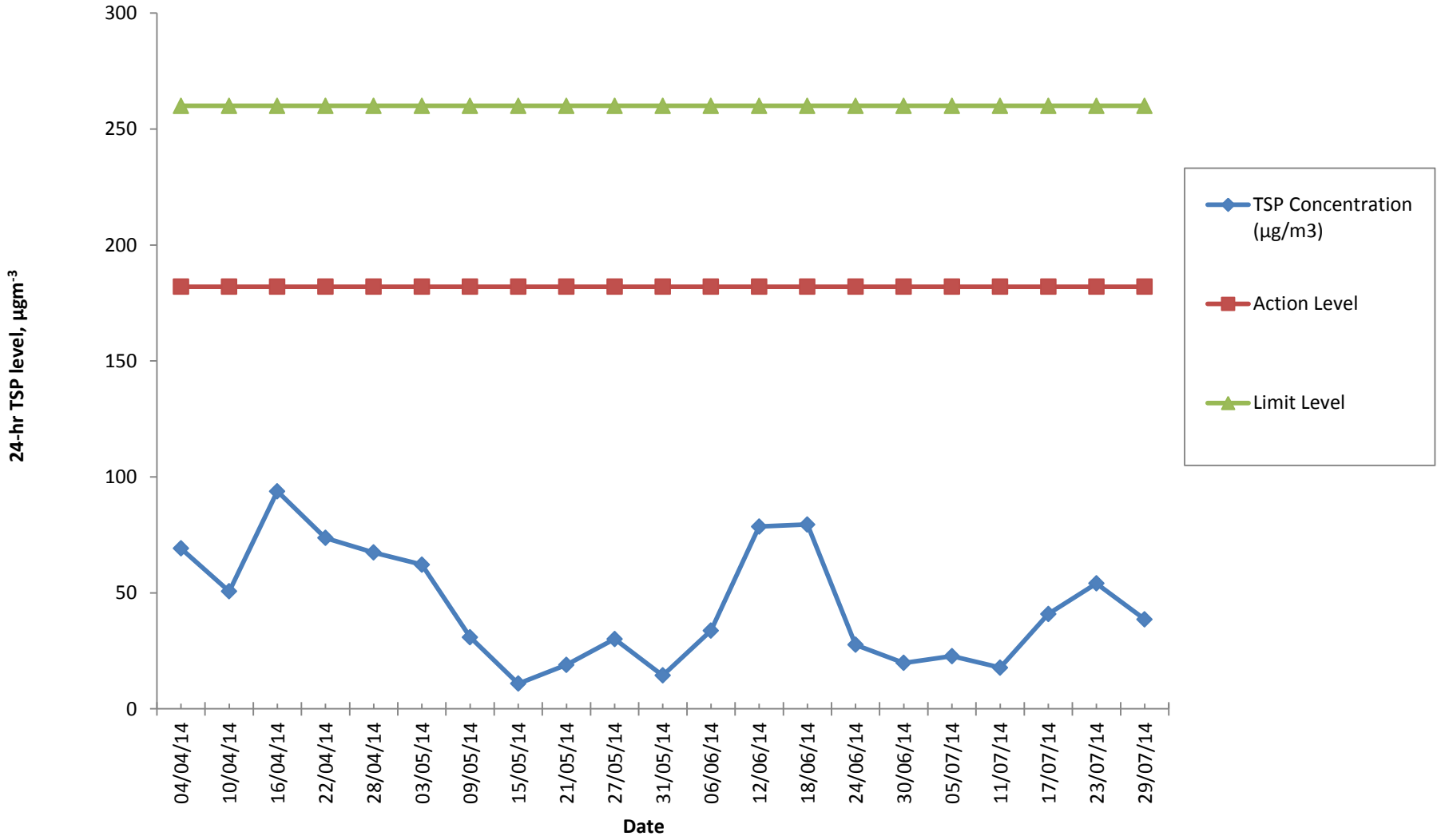
APPENDIX J

Monitoring Results and their Graphical Presentations

Air Quality Monitoring Results for AM2

Sampling Date	Wt. of paper (g)				Elapse Time			Flow Rate (CFM)			Total Volume (m^3)	TSP Concentration (µg/m3)	Weather	Reference
	Paper No.	Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate				
05/07/14	36	2.7310	2.7680	0.0370	11319.30	11343.30	24.00	40	40	40	1631.05	22.7	Sunny	-
11/07/14	37	2.7306	2.7595	0.0289	11343.30	11367.30	24.00	40	40	40	1631.05	17.7	Cloudy	-
17/07/14	38	2.7034	2.7701	0.0667	11367.30	11391.30	24.00	40	40	40	1631.05	40.9	Cloudy	-
23/07/14	39	2.7091	2.7973	0.0882	11391.30	11415.30	24.00	40	40	40	1631.05	54.1	Sunny	-
29/07/14	40	2.7397	2.8026	0.0629	11415.30	11439.30	24.00	40	40	40	1631.05	38.6	Hazy	-

Construction Dust Monitroing Results for AM2 (Harbourfront Horizon)



APPENDIX K

Waste Flow Table

Waste Flow Table

Month	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of non-inert C&D Wastes Generated Monthly					
	Generated		Disposed						Recycled				Disposed	
	Total Quantity Generated	Hard Rock and Broken Concrete	Imported from other Projects	Reused in the Contract	Reused in other Projects	Disposed as Public Fills at HH Barging Point	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Metals	Paper/ Cardboard Packaging	Asphalt	Plastics	Chemical Waste	General Refuse [Note 2]
Unit	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000Kg)	(in '000Kg)	(in '000Kg)	(in '000Kg)	(in '000Kg)	(in '000Kg)
Jun-13	0	0	0	0	0	0	0	0	137.3	0	0	0	0	6.55
Jul-13	0.36	0	0	0	0	0	0	0.36	365.34	0	0	0	0	16.87
Aug-13	1.68	0	0	0	0	0.05	0	1.63	69.98	0.25	0	0	0	12.67
Sep-13	3.39	0	0	0	0	0.20	0	3.19	131.18	0.22	0	0.46	0	16.25
Oct-13	4.04	0	0	0	0	0.78	0	3.26	179.97	0.63	8.28	2.04	0	39.87
Nov-13	6.09	0	0	0	0	2.09	0.18	3.82	125.70	0.45	160.35	0	0	28.69
Dec-13	5.69	0	0	0	0	1.74	0.01	3.94	72.15	0.39	4.13	0	0	18.04
Jan-14	4.58	0	0	0	0	0	0.27	4.31	117.57	0.26	147.67	0.26	0	30.09
Feb-14	3.80	0	0	0	0.14 [Note3]	0	0.19	3.46	28.32	0.29	414.67	0	0	15.73
Mar-14	10.10	0	0	0	6.18[Note4]	0	0.29	3.63	96.26	0.25	0	0	0	47.76
Apr-14	6.67	0	0	0	4.82[Note5]	0	0.0053	1.85	75.43	0.23	1,322.39	0	0.2	78.63
May-14	5.77	0	0.52[Note7]	0.42	2.00[Note6]	0	0.12	3.65	48.86	0.28	501.45	0	0	66.03
Jun-14	4.56	0	0.47[Note9]	0	1.73[Note8]	0	0.29	2.54	0	0.25	0	0	0.4	45.97
Jul-14	8.61	0	0.34[Note11]	0	2.89[Note10]	0	0.87	4.84	0	0	0	0	0	40.50
TOTAL	**65.33**	**0.00**	**1.32**	**0.42**	**17.75**	**4.85**	**2.24**	**40.50**	**1448.05**	**3.51**	**2558.94**	**2.76**	**0.60**	**463.65**

Note:

1. Assume the density of fill is 2 ton/m^3.
2. Refuses disposed of at NENT landfill.
3. 137 m^3 of the Inert C&D materials were reused in South Island Line (SIL) Project Contract 904.
4. 267 m^3 of the Inert C&D materials were reused in South Island Line (SIL) Project Contract 904;
   3,998 m^3 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 m^3 of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08.

5. 1,728 m^3 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 m^3 of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08.
6. 184 m^3 of the Inert C&D materials were reused in South Island Line (SIL) Project Contract 904; and
   1814 m^3 of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08.
7. 516 m^3 of the Inert C&D materials were imported from Shatin to Central Link (SCL) Project Contract 1111.
8. 1,021 m^3 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 m^3 of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08.
9. 468.7 m^3 of the Inert C&D materials were imported from Shatin to Central Link (SCL) Project Contract 1111.
10. 2,894 m3 of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08.
11. 338.7 m^3 of the Inert C&D materials were imported from Shatin to Central Link (SCL) Project Contract 1111.

APPENDIX L

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. received in this month	Total no. recorded since project commencement
Environmental complaints	-	-	-	0	0
Notification of summons	-	-	-	0	0
Successful Prosecution	-	-	-	0	0

Appendix I

14th Monthly EM&A Report for Works Contract 1108 – Kai Tak Station and Associated Tunnels

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 14

[Period from 1 to 31 July 2014]

Works Contract 1108 – Kai Tak Station and Associated Tunnels

(August 2014)

Certified by: Goldie Fung

Position: Environmental Team Leader

Date: 13 August 2014

Kaden – Chun Wo Joint Venture (KCJV)

Shatin to Central Link –

Contract 1108

Kai Tak Station and Associated Tunnels

Monthly Environmental Monitoring & Auditing Report for

July 2014

The Contents of this report have been certified by:

Ms. Goldie Fung
(Environmental Team Leader)

Environmental Pioneers & Solutions Limited
Flat A, 19/F, Chaiwan Industrial Centre,
20 Lee Chung Street, Chai Wan, Hong Kong
Tel: 2556 9172 Fax: 2856 2010

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Executive Summary

This is the fourteenth monthly Environmental Monitoring and Audit (EM&A) Report for **MTR Shatin to Central Link (SCL) Works Contract 1108 – Kai Tak Station and Associated Tunnels**. The project commenced on 17th June 2013. This report documents the finding of EM&A Works conducted from 1st July 2014 to 31st July 2014.

Summary of the Construction Works undertaken during the Reporting Month

The major site activities in this reporting period were including:

- Excavation ongoing
- Base slab construction
- Wall and top slab construction
- Disposal of marine deposit
- Station structure: concourse slab concreting, base slab concreting, base slab rebar fixing
- Nullah diversion: Plastering for shotcrete surface
- Mined tunnel: Strut installation, jet grouting, sheet piling for water cut off wall by silent piler

Variation in Construction Method

Based on recent engineering information and having considered the high construction risk for tunnel excavation, the tunnel with mining method is required to be shortened and the associated at-grade construction works within the buffer zone above the Former Kowloon City Pier (FKCP) is therefore proposed to minimize the potential impact on FKCP. The application for variation of an Environmental Permit with Environmental Review Report has been submitted to EPD on 19th March 2014 and the amended Environmental Permit (EP-438/2012/E) was issued to MTRC on 4th April 2014.

Environmental Monitoring and Audit Progress

Culture Heritage

Inspection of the Former Kowloon City Pier was conducted during the weekly environmental site inspection. Details of the inspection findings are presented in Section 6.

Landscape and Visual

The implementation of landscape and visual mitigation measures was inspected during the weekly environmental site inspection. Most of the necessary mitigation measures have been implemented. Details of the audit findings and implementation status are presented in Section 6.

Waste Management

According to Contractor's waste flow data, 1,729 m^3 of Type 1 marine mud were generated during this reporting month and were disposed to the receiving facility of Contract 1108A. 7,001m^3 of inert C&D materials were generated and were disposed to the receiving facility of Contract 1108A or Public Fill Reception Facilities of CEDD. 74.67 m^3 of non-inert C&D waste were generated and disposed at landfill site. 22 kg of paper and 3 kg plastics were sent to recyclers for recycling.

Environmental Site Inspection

Joint weekly inspections were conducted by representatives of the Contractor, Engineer and ET on 2nd, 8th, 15th, 22nd and 29th July 2014. The representative of the IEC jointed the site inspection on 15th July 2014. EPD conducted a site inspection on 28th July 2014. Details of the audit findings and implementation status are presented in Section 6.

Environmental Exceedance / Non-conformance / Compliant / Summons and Successful Prosecution

No breaches of Action and Limits levels, non-compliance event, environmental complaint, notification of summons and successful prosecution against the Project were received in this reporting month.

Future Key Issues

The major construction works to be undertaken in the next reporting month include:

- Cast concrete
- Wall and top slab
- Station structure: base slab concreting
- Mined tunnel: plastering for shotcrete surface, sheet piling for water cut off wall

1 Introduction

The Environmental Team (ET), Environmental Pioneers & Solutions Limited (EPSL), was appointed by Kaden – Chun Wo Joint Venture (KCJV) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL) Works Contract 1108 – Kai Tak Station and Associated Tunnels (the Project). The project commenced on 17th June 2013.

1.1 Purpose of the Report

This is the fourteenth monthly EM&A Report which summarises the audit findings for the EM&A programme during the reporting period from 1st July 2014 to 31st July 2014.

1.2 Structure of the Report

The structure of the report is as follow:

Section 1: Introduction - details the scope and structure of the report.

Section 2: Project Information - summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: Environmental Monitoring Requirement - summarises the monitoring requirements and environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: Implementation Status on Environmental Mitigation Measures - summarises the implementation of environmental protection measures during the reporting period.

Section 5: Monitoring Results - summarises the monitoring results obtained in the reporting period.

Section 6: Environmental Site Inspection - summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: Environmental Non-conformance - summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: Future Key Issues - summarises the impact forecast and monitoring schedule for the next three months.

Section 9: Conclusions and Recommendations

2 Project Information

2.1 Background

The Shatin to Central Link – Tai Wai to Hung Hom Section (SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic East-West rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).

The construction of the SCL (TAW-HUH) and SCL (HHS) have been divided into a series of civil construction works contracts. This Works Contract 1108 covers the construction of Kai Tak Station (KAT) and the section of tunnel between KAT and Sung Wong Toi Station (SUW) plus a short section of tunnel from KAT towards Diamond Hill Station (DIH). This construction contract was awarded to Kaden - Chun Wo Joint Venture (KCJV) in April 2013.

2.2 General Site Description

The works area includes work sites in the Kai Tak New Development Area. The construction of tunnel will employ cut & cover method. The alignment and works area for the Project is shown in **Appendix A**.

2.3 Construction Programme and Activities

A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix B**.

- Excavation ongoing
- Base slab construction
- Wall and top slab construction
- Disposal of marine deposit
- Station structure: concourse slab concreting, base slab concreting, base slab rebar fixing
- Nullah diversion: Plastering for shotcrete surface
- Mined tunnel: Strut installation, jet grouting, sheet piling for water cut off wall by silent piler

2.4 Project Organization

The project organization chart and contact details are shown in **Appendix C.**

2.5 Status of Environmental Licences, Notification and Permits

A summary of the relevant permits, licences, and notifications on environmental protection for this Project is presented in Table 2.1.

Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status	Remark
	From	To		
Environmental Permit (EP)				
EP-438/2012/E	04/04/2014	14/07/2014	Invalid	/
EP-438/2012/F	15/07/2014	N/A	Valid	Supersede the permit (EP-438/2012/E)
Notification pursuant to Air Pollution Control (Construction Dust) Regulation				
Ref. Number 359540	16/05/2013	N/A	Valid	/
Construction Noise Permit for the Carrying Out of Percussive Piling				
PP-RE0002-14	01/03/2014	30/08/2014	Valid	/
Construction Noise Permit for General Works				
GW-RE0046-14	17/01/2014	14/07/2014	Expired	/
GW-RE0246-14	15/03/2014	14/09/2014	Valid	/
GW-RE0308-14	22/03/2014	20/09/2014	Valid	/
GW-RE0460-14	27/04/2014	26/10/2014	Valid	/
GW-RE0583-14	30/05/2014	21/11/2014	Valid	/
GW-RE0757-14	11/07/2014	10/01/2015	Valid	/
GW-RE0748-14	15/07/2014	14/01/2015	Valid	Supersede the permit (GW-RE0046-14)
Effluent Discharge License				
WT00018268-2014	17/03/2014	31/08/2018	Valid	/
Waste Disposal (Charges for Disposal of Construction Waste) Regulation				
Billing Account No. 7017544	07/06/2013	N/A	Valid	/
Registration of Chemical Waste Producer				
WPN 5213-286-K3069-01	09/07/2013	N/A	Valid	/
Marine Dumping Permit				
EP/MD/15-021	27/05/2014	26/11/2014	Valid	Permit held by C1108A

2.6 Summary of EM&A Requirements

The EM&A programme under Works Contract 1108 require regular environmental site audits. The EM&A requirements are described in the following sections, including:

- Weekly inspection for Cultural Heritage;
- Weekly inspection for Landscape and Visual;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.

3 Environmental Monitoring Requirements

3.1 Culture Heritage

In accordance with the Environmental Permit and EM&A Manual, a buffer zone shall be maintained between both Lung Tsun Stone Bridge and Former Kowloon City Pier and SCL (TAW-HUH) works sites during the tunneling work. For Lung Tsun Stone Bridge, a horizontal distance of 25m between the bridge and the buffer boundary shall be maintained. For Former Kowloon City Pier, a vertical buffer distance of 1.8 – 2.2m from the top of the tunnel shall be maintained. The layout of the buffer zone was attached in **Appendix D**. No at-grade construction activities shall be allowed within the buffer zone. Audit shall be conducted on a weekly basis throughout the construction period for the mined tunnel section under Former Kowloon City Pier.

3.2 Landscape and Visual

In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted every week throughout the construction period. The implementation status is given in **Appendix G**.

The event/action plan for Landscape and Visual during Construction Stage is attached in **Appendix E**.

4 Implementation Status on Environmental Protection Requirements

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status of the environmental mitigation measures of the reporting period is summarized in **Appendix G**. Status of required submissions under the Environmental Permit (EP) as of the reporting period is presented in Table 4.1.

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Thirteenth Monthly EM&A Report	14th July 2014

5 Monitoring Results

5.1 Cultural Heritage

Inspection of the Former Kowloon City Pier was conducted during the weekly environmental site inspection. Details of the inspection findings are presented in Section 6.

5.2 Landscape and Visual

Inspections of the implementation of landscape and visual mitigation measures were conducted on weekly basis. The observations and recommendations made during the audit sessions are summarized in Table 6.1.

5.3 Waste Management

With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in Table 5.1. 1,729 m^3 of Type 1 marine mud was disposed to the Contract 1108A receiving facility in this reporting month. The inert C&D materials were disposed to the Contract 1108A receiving facility or Public Fill Reception Facilities of CEDD. The general refuse was disposed to designated landfill site. Paper and plastics were sent to recycler for recycling. No metals were recycled during this reporting month. No chemical waste was generated and disposed. Detail of waste management data is presented in **Appendix F**.

Table 5.1 Quantities of Waste Disposed from the Project

Reporting Month	Quantity					
	C&D Materials (inert) [(a)]	C&D Materials (non-inert) [(b)]				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/cardboard	Plastics	Metals
July 2014	7,001 m^3	74.67 m^3	0 kg	22 kg	3 kg	0 kg

Notes:

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.

(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel metal generated from the Project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.

6 Environmental Site Inspection

6.1 Site Audit

Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

Joint weekly inspections were conducted by representatives of the Contractor, Engineer and ET on 2nd, 8th, 15th, 22nd and 29th July 2014. The representative of the IEC jointed the site inspection on 15th July 2014. The details of observations during site audit can refer to Table 6.1.

EPD conducted a site inspection on 28th July 2014 regarding the water sampling carried out by the Contractor. EPD has no comments after the inspection.

6.2 Implementation Status of Environmental Mitigation Measures

According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. Updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix G**.

During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in Table 6.1.

Table 6.1 Summary results of site inspections findings

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
Noise	N/A	N/A	N/A	N/A	N/A	/
Air Quality	2 Jul 14	Insufficient dust prevention measure for the earthy stockpile at Area 2 was observed.	Contractor was reminded to cover the stockpile with tarpaulin or spray with water to avoid dust generation.	The earthy stockpile at Area 2 was covered with tarpaulin for dust prevention.	8 Jul 14	/
	8 Jul 14	Improper enclosure for the cement mixing area at Area2 was observed.	Contractor was reminded to shelter the cement mixing area with tarpaulin 3 sides and on top for proper dust screening.	The cement mixing area at Area 2 was properly sheltered with tarpaulin 3 sides and on top for dust screening.	15 Jul 14	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
Water Quality	2 Jul 14	Inadequate treatment for site water before discharge was identified.	Contractor was urged to provide sufficient wastewater treatment for better desilting of site water.	The effluent at the concerned area was proper treated before discharge and observed to be clear.	8 Jul 14	/
	2 Jul 14	The haul road of Area 2 was muddy.	Contractor was reminded to frequently wash out the mud on the haul road and maintain proper wheel washing to maintain good site environmental condition.	The paved haul road of Area 2 was washed by water tanker to remove the mud on the haul road.	8 Jul 14	/
	8 Jul 14	The effluent discharged from the sedimentation tank was silty. Contractor turned off the tank immediately to stop further discharge of silty water.	Contractor was advised to provide maintenance of the sedimentation tank for proper treatment of site water before discharge.	The effluent discharged from the concerned sedimentation tank was clear.	15 Jul 14	/
	8 Jul 14	Some oil stain was observed on the wastewater on the paved ground at Area2.	Contractor was suggested to provide sandbags or bunding and divert the collected wastewater for proper treatment.	Sandbags and bunding were provided for collecting the wastewater generated at Area 2. The collected wastewater was diverted to treatment facility prior to discharge	15 Jul 14	/
	15 Jul 14	Silty effluent was observed discharging from the primary de-silting tank at Area 2.	Contractor was urged to enhance the capacity of the wastewater treatment facility and ensure proper de-silting of wastewater prior to discharge.	No silty effluent was observed from the primary de-silting tank at Area 2.	22 Jul 14	/
	15 Jul 14	Oil drums were observed without secondary containment at Area 2.	Contractor was advised to provide drip trays to contain any leaked oil.	The oil drums at Area 2 were removed.	22 Jul 14	/
	15 Jul 14	The paved haul road of the junction between Area 1 and Area2 was muddy.	Contractor was urged to remove the mud to improve the environmental condition of the site. Contractor was also recommended to enhance the vehicles washing measure to avoid earth deposition of paved road.	Water tanker and sweeper were provided to frequently wash off the mud on the paved haul road of the junction between Area 1 and Area2.	29 Jul 14	/
	15 Jul 14	The pH meter of the chemical enhanced sedimentation tank at Area 3 near the nullah was noted to be malfunctioned.	Contractor was reminded to repair and maintain the tank as for proper treatment of site water prior to discharge.	The pH meter of the chemical-enhanced sedimentation tank at Area 3 was repaired.	29 Jul 14	/
	22 Jul 14	Inadequate treatment was noted for the effluent from the chemical-enhanced sedimentation tank at Area 3.	Contractor was advised to enhance the capacity of the wastewater treatment facility and provide maintenance of the tank to ensure proper de-silting of wastewater prior to discharge.	Proper de-silting was provided for the effluent from the chemical-enhanced sedimentation tank at Area 3.	29 Jul 14	/
Waste / Chemical Management	N/A	N/A	N/A	N/A	N/A	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
Cultural Heritage	N/A	N/A	N/A	N/A	N/A	/
Landscape and Visual	N/A	N/A	N/A	N/A	N/A	/
Permits/ Licenses	N/A	N/A	N/A	N/A	N/A	/

7 Environmental Non-Conformance

7.1 Summary of Environmental Exceedances

No breaches of Action and Limit levels was recorded in the reporting month.

7.2 Summary of Environmental Non-Compliance

No environmental non-compliance was recorded in the reporting month.

7.3 Summary of Environmental Complaint

No environmental project-related complaint was received in the reporting month.

7.4 Summary of Environmental Summon and Successful Prosecution

There was no successful environmental prosecution or notification of summons received since the Project commencement.

The cumulative log for environmental exceedance, non-compliance, complaint and summon and successful prosecution since the commencement of the Project is presented in **Appendix H**.

8 Future Key Issues

The major construction activities in the coming month will include:

- Cast concrete
- Wall and top slab
- Station structure: base slab concreting
- Mined tunnel: plastering for shotcrete surface, sheet piling for water cut off wall

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, water quality and waste management. The Contractor has been reminded to properly implement dust, construction noise and water quality control measures as well as proper waste management in order to minimize the potential environmental impacts due to the construction works of the Project.

9 Conclusions and Recommendations

9.1 Conclusions

This is the fourteenth monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during 1st July 2014 to 31st July 2014 in accordance with the EM&A Manual and the requirement under EP-438/2012/F.

5 nos. of environmental site inspections were carried out in this reporting month. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

No exceedances, non-compliance event, complaint and summons/prosecution was received during the reporting period.

The ET will keep tracking of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all the necessary mitigation measures.

9.2 Recommendations

According to the environmental audit performed in the reporting month, the following recommendations were made:

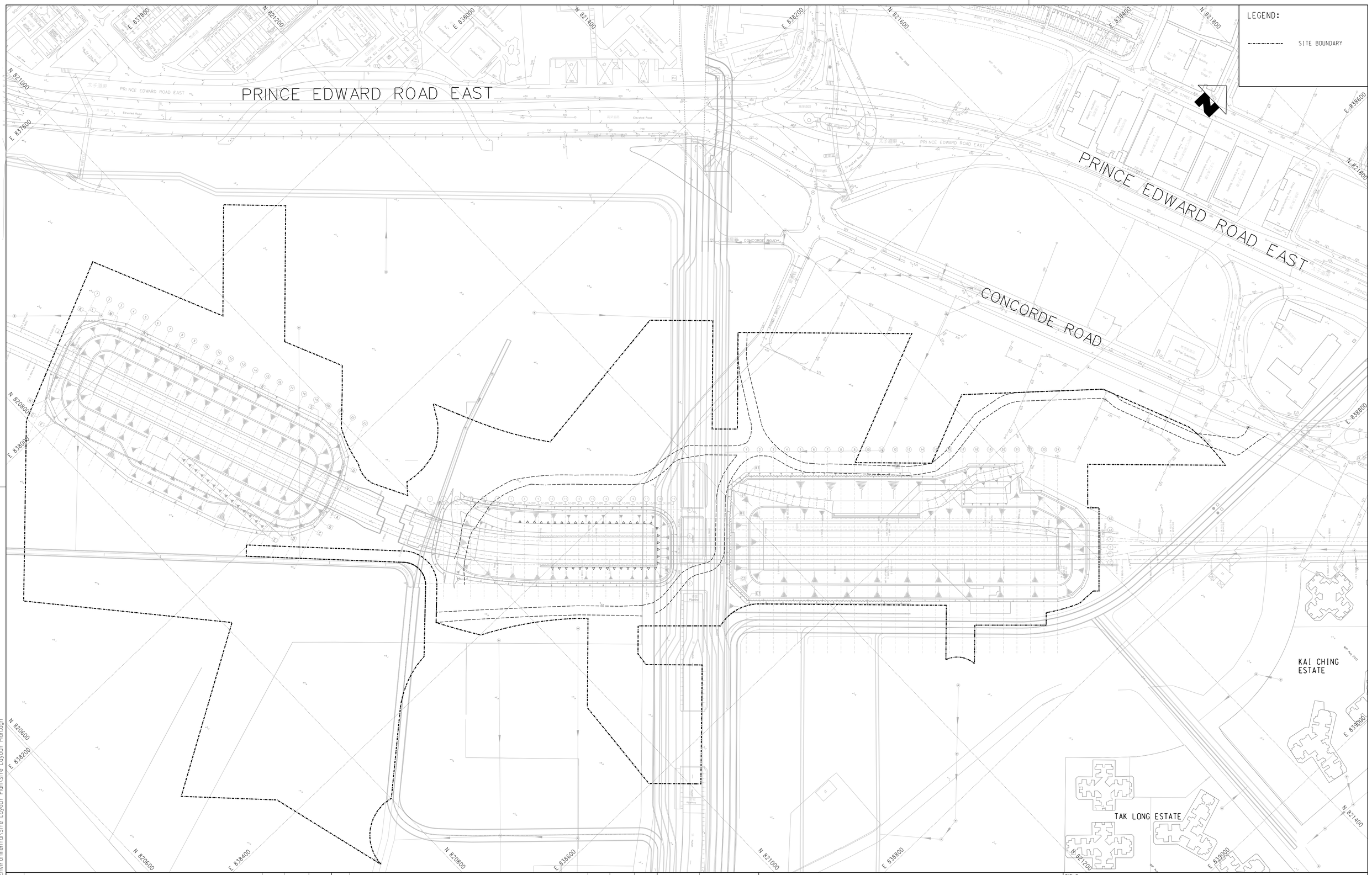
<u>Air Quality Impact</u>

- Cover dusty stockpiles entirely with tarpaulin to avoid dust generation
- Provide proper enclosure for the cement production area for dust screening

<u>Water Quality Impact</u>

- Divert site water and runoff to wastewater treatment facilities with sufficient capacity prior to discharge
- Provide proper collection and treatment of wastewater to remove the oil stain on the wastewater
- Provide secondary containment for the storage of chemical/chemical waste on-site
- Check and maintain wastewater treatment facilities regularly to ensure proper functioning
- Remove the mud on haul road and improve the vehicle washing measures to avoid soil deposition

Appendix A – Site Location Plan



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FILENAME:

REV	DESCRIPTION	BY	DATE	APPROVED
A	FIRST SUBMISSION	KW	110814	BW

DRAWN	CC
DESIGNED	KW
CHECKED	ET
APPROVED	BW
DATE	11/AUG/2014

MTR

SHATIN TO CENTRAL LINK

ORIGINATOR

Kaden – Chun Wo Joint Venture

CADD REF. Site Layout Plan.dgn

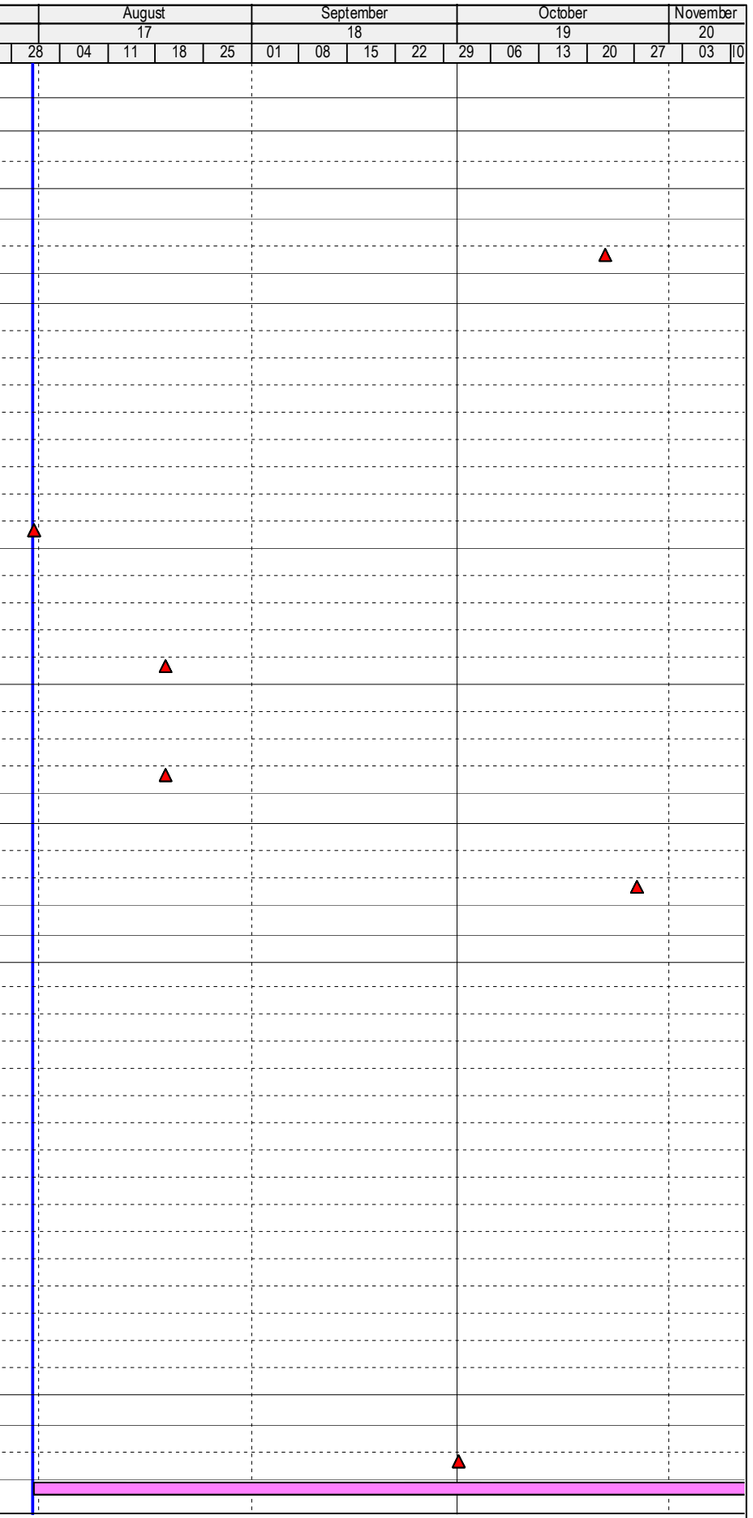
TITLE

CONTRACT 1108
KAI TAK STATION AND ASSOCIATED TUNNELS
SITE LAYOUT PLAN

SCALE	DRAWING NO.	REV.
1 : 1500 (A1)	SITE LAYOUT PLAN	A

Appendix B –Construction Programme

Activity ID	Activity Name	Activity % Complete	Start	Finish
Contract 1108 Kai Tak Station and Associated Tunnels				
Contractual Dates and Project Key Dates				
Contractual Dates				
01108.CD1-COMM	Date for Commencement (25-Apr-13)	100%	25-Apr-13 A	
Critical Dates				
Specified Parts Completion of the Works (General Damages Applicable)				
01108.CD3B	3B - Complete excavation at the Interface Area at Contract 1107 stub tunnel construction (Wk.37/14,14-Sep-14)	0%		22-Oct-14*
IPS Milestone Dates				
Cost Centre A - Preliminaries				
01108.MSA01	A1 - Complete haul/access road, Access for Interface/Designated/CEDD Contractor to KTBarging Facility (WN.22/13,02-Jun	100%		02-Jun-13 A
01108.MSA02	A2-Approval of Submissions:EMP(G5.1.10),QP(G9.2.1), MC(G12.1.1),SS(G12.11.1),SARMP(P25.3.1),DSCP(AppQ) WN28/13,	100%		14-Jul-13 A
01108.MSA03	A3 - Approval of Preliminary Master Progaramme, Time Chainage Programme, Health & Safety Plan, (Wk.No.37/13, 15-Se	100%		17-Oct-13 A
01108.MSA05a	A5a Engineer's confirmation of satisfactory implementation of Safety& Environ.requirements in ASPs (WN.50/13, 15-Dec-	100%		15-Dec-13 A
01108.MSA05b	A5a - Complete survey of utilities (Week No. 50/13, 15-Dec-13)	100%		15-Dec-13 A
01108.MSA06	A6 - Engineer's confirmation of satisfactory implementation of Programming Management System (Week No. 08/14, 23-Fe	100%		23-Feb-14 A
01108.MSA07	A7 - Engineer's confirmation of satisfactory implementation of Quality requirements in ASPs (Week No. 21/14, 25-May-14)	100%		25-May-14 A
01108.MSA08	A8 - Engineer's confirmation of sat. implementation of SARM & Design for Safety& Constructability in ASP(WN33/14,17-Au	0%		31-Jul-14*
Cost Centre B - Kai Tak Station, Entrances and Adits				
01108.MSB01	B1 - Pump test completed, accepted by Engineer & ready for open cut excavation of KAT station (Week No.36/13, 8-Sep-13	100%		22-Oct-13 A
01108.MSB02	B2 - Complete 30% of open cut excavation of KAT station (Week No. 45/13, 10-Nov-13)	100%		13-Dec-13 A
01108.MSB03	B3 - Complete 50% of open cut excavation of KAT station (Week No. 11/14, 16-Mar-14)	100%		16-Mar-14 A
01108.MSB04	B4 - Complete excavation down to station formation level (Week No. 48/14, 30-Nov-14)	0%		19-Aug-14
Cost Centre C - South Approach Tunnel				
01108.MSC01	C1 - Pump test completed, accepted by Engineer & ready for open cut excavation (Week No. 38/13, 22-Sep-13)	100%		11-Mar-14 A
01108.MSC02	C2a - 100% completion of launching shaft sheetpile works (Week No. 20/14,15-May-14) under VE proposal	100%		05-Jun-14 A
01108.MSC03a	C3a - Complete 50% excavation by volume to tunnel formation levels (Week No. 26/14, 23-Jun-14) under VE proposal	0%		19-Aug-14
Programme Data				
Interface with Contract 1107				
01108.PD4-IF1107.1	Contract 1107 Provide access to Contract 1108 at interface area for ELS Works (Week No. 52/13, 29-Dec-13)	100%	27-Dec-13 A	
01108.PD4-IF1107.2	C1107 Complete D-wall/stub tunnels interface works for C1108 stub tunnel construction (Week No. 43/14, 26-Oct-14)	0%	27-Oct-14*	
Schedule of Access & Vacate Dates for Works Areas				
Possession Dates				
Works Areas				
01108.ACWA1	Works Area 1108.A1 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW02	Works Area 1108.W2 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW07	Works Area 1108.W7 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW08	Works Area 1108.W8 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW09	Works Area 1108.W9 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW11	Works Area 1108.W11 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW12	Works Area 1108.W12 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW13	Works Area 1108.W13 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACWA3	Works Area 1108.A3 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACWA4	Works Area 1108.A4 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACWA2	Works Area 1108.A2 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW01	Works Area 1108.W1 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW10	Works Area 1108.W10 (Within 3 weeks from commencement of works)	100%	29-Apr-13 A	
01108.ACW04	Works Area 1108.W4 (04-Jan-16)	100%	15-Jul-13 A	
01108.ACW01a	Works Area 1108.W1a (Week No. 52/13)	100%	27-Dec-13 A	
Schedule of Access Dates for Designated Contractors				
Programme Constraints				
01108.PC.P10.17a	Earliest date for connection of temporary diversion of the existing Kai Tak Nullah (01-Oct-14, ref. PS P10.17)	0%	01-Oct-14*	
A - Preliminaries				



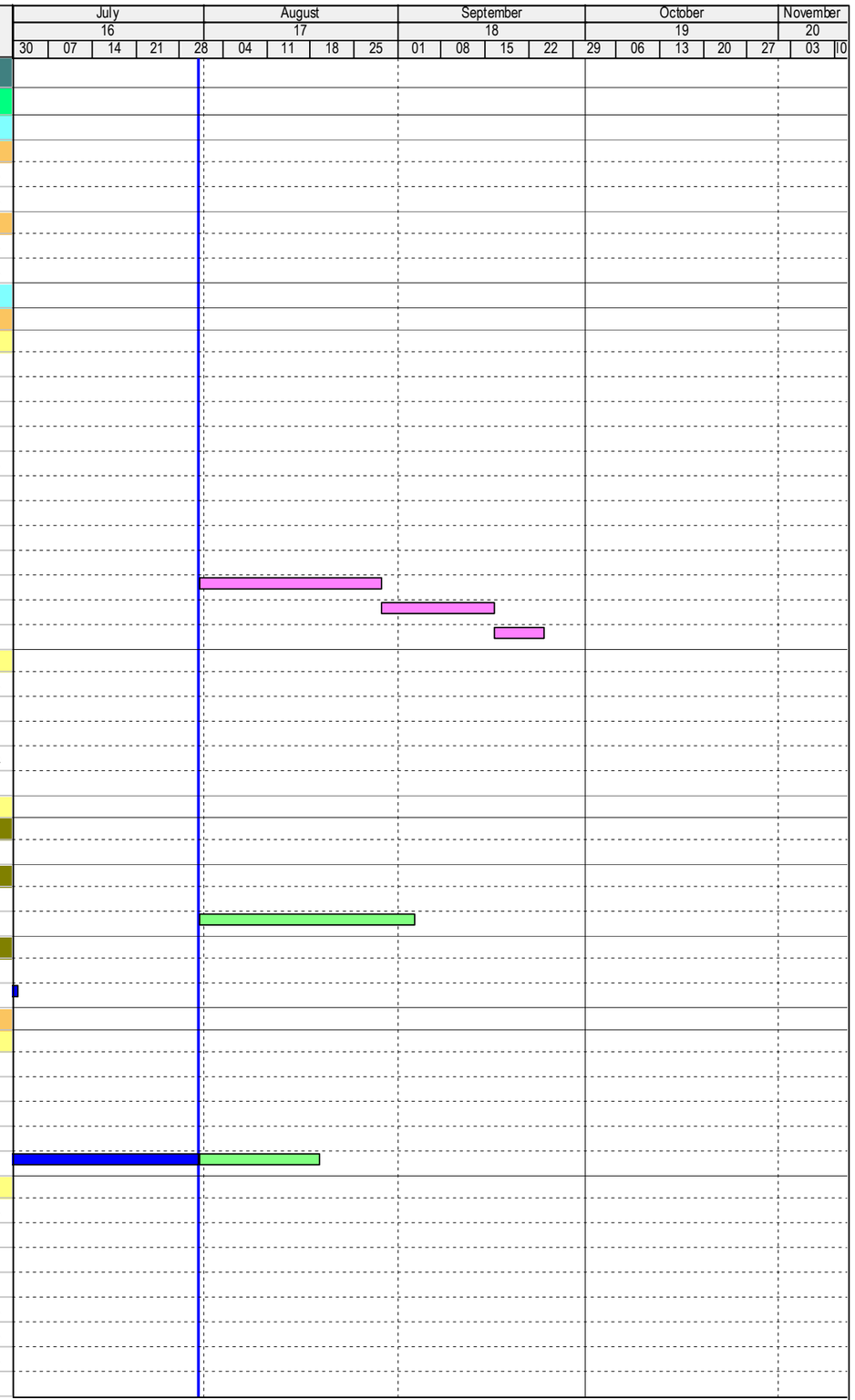
Milestone
Critical Milestone
Critical Remaining Work
Remaining Work
Remaining Level of Effort
Primary Baseline
Actual Work

Contract 1108
Kai Tak Station and Associated Tunnels

3-months Rolling Programme (July 2014)

Kaden – Chun Wo Joint Venture

Activity ID	Activity Name	Activity % Complete	Start	Finish
B - Kai Tal Station, Entrances and Adits				
B1 KAT Station				
Preliminaries				
General Items				
01108.STN.HR0010	Erection of hoarding and haul road	100%	15-Jun-13 A	30-Aug-13 A
01108.STN.HR0100	Demoliation of existing abandoned nullah, No. 1, ~120m L at GL 1/2~4/5 running northwards	100%	01-Aug-13 A	30-Aug-13 A
Ground Investigation, Instrumentation & Monitoring				
01108.STN.GI13-17	Ground investigation - Boreholes BH13 to BH17, 5 nr.	100%	02-Jul-13 A	30-Aug-13 A
01108.STN.IM0000	Instrumentation - Install & monitor, GS markers 7+6+9nr, 7nr on utilities & 3 nr on structure; VM, 2 nr; PZ, 4 nr; etc.	100%	02-Jul-13 A	30-Aug-13 A
B1.2 Station - Excavation				
B1.2.2 Temporary Works				
Temporary Works Design, Review & Approval				
01108.STN.DN09.2.1	Advance Open Excavation - Design, ICE & Submit to MTRC for review	100%	07-Jun-13 A	16-Sep-13 A
01108.STN.DN09.1.1	Hydraulic Cut Off - Design, ICE & Submit to MTRC for review	100%	21-Jun-13 A	30-Jul-13 A
01108.STN.DN09.1.2	Hydraulic Cut Off - Revision, if required, & Submit to RDO/ BD/ GEO	100%	15-Jul-13 A	20-Jul-13 A
01108.STN.DN09.1.3	Hydraulic Cut Off - No-adverse-comment by RDO/ BD/ GEO	100%	19-Jul-13 A	16-Sep-13 A
01108.STN.DN09.2.2	Advance Open Excavation - Revision, if required, & Submit to RDO/ BD/ GEO	100%	08-Aug-13 A	21-Aug-13 A
01108.STN.DN09.2.3	Advance Open Excavation - No-adverse-comment by RDO/ BD/ GEO	100%	08-Aug-13 A	26-Sep-13 A
01108.STN.DN04.1.1	Open Cut Design, ICE & Submit to MTRC for review	100%	22-Aug-13 A	08-Oct-13 A
01108.STN.DN04.1.2	Open Cut Design - Revision, if required, & Submit to RDO/ BD/ GEO	100%	22-Aug-13 A	17-Sep-13 A
01108.STN.DN04.1.3	Open Cut Design - No-adverse-comment by RDO/ BD/ GEO	100%	09-Sep-13 A	04-Oct-13 A
01108.STN.DN04.1.13	GL0-3 ELS ICE & Submit to MTRC for review	10%	31-Jul-14 A	29-Aug-14
01108.STN.DN04.1.23	GL0-3 ELS - Revision, if required, & Submit to RDO/ BD/ GEO	0%	29-Aug-14	16-Sep-14
01108.STN.DN04.1.33	GL0-3 ELS - No-adverse-comment by RDO/ BD/ GEO	0%	16-Sep-14	24-Sep-14
Dewatering Wells & Observation Wells				
01108.STN.DW10-19	Stage 1 & 2 Dewatering wells, Observation wells,Piezometers	100%	24-Jul-13 A	18-Nov-13 A
01108.STN.DW10-19t	Stage 1 Pumping tests	100%	04-Oct-13 A	18-Oct-13 A
01108.STN.DW19-24t	Stage 2 Pumping tests	100%	19-Nov-13 A	15-Jan-14 A
01108.STN.DWAN-10	GL0-3 Additional Dewatering wells, Observation wells,Piezometers	100%	10-Dec-13 A	22-May-14 A
01108.STN.DWAN-10t	GL 0~3 Pumping tests	100%	23-May-14 A	06-Jun-14 A
Sheet Piles				
Cut-off Wall GL0-24 for Stage 1 & 2 pumping test				
01108.STN.SPAN-10w	GL 01-24 Sheet pile cut-off wall for Stage 1 & 2 pumping test	100%	11-Jul-13 A	27-Sep-13 A
Cut-off Wall - Enclosure at Nullah Area				
01108.STN.SP00-0	GL 0 to 2 Sheet pile cut-off wall	100%	01-Sep-13 A	28-Sep-13 A
01108.STN.SP00-00	Enclosure adj. Nullah Area after diversion of haul road	0%	31-Jul-14*	03-Sep-14
Sum Pit at GL 24				
01108.STN.SP24P	Sum Pit at GL 24/B-C - Sheet piling, Type A8: 103 nr x 8.475m (873m, 58t, total)	100%	29-Aug-13 A	30-Sep-13 A
01108.STN.EX19-21	GL 19~21 Excavation, 36895 m3	100%	01-Mar-14 A	02-Jul-14 A
B1.2.3 Earthworks				
General Site Clearance & Trim to +3.5mPD				
01108.STN.EX10-19	GL 10~19 General clearance & trim existing ground to +3.5mPD, 20381 m3	100%	31-Jul-13 A	04-Oct-13 A
01108.STN.EX0000	Construct station drainage protection system	100%	31-Jul-13 A	31-Jan-14 A
01108.STN.EX19-24	GL 19~24 General clearance & trim existing ground to +3.5mPD, 11469 m3	100%	31-Jul-13 A	04-Oct-13 A
01108.STN.EX06-10	GL 06~10 General clearance & trim existing ground to +3.5mPD, 8614 m3	100%	31-Jul-13 A	04-Oct-13 A
01108.STN.EX00-06	Adj to Nullah to GL06 General clearance & trim existing ground to +3.5mPD, 11906 m3	90%	14-Mar-14 A	19-Aug-14
Excavation to Formation Level				
01108.STN.EX16-19	GL 16~19 Excavation, 38998 m3	100%	18-Oct-13 A	18-Mar-14 A
01108.STN.EX14-16	GL 14~16 Excavation, 38998 m3	100%	18-Oct-13 A	15-Feb-14 A
01108.STN.EX12-14	GL 12~14 Excavation, 31199 m3	100%	18-Oct-13 A	30-Jan-14 A
01108.STN.EX06-08	GL 06~08 Excavation, 31442 m3	100%	05-Dec-13 A	09-Apr-14 A
01108.STN.EX10-12	GL 10~12 Excavation, 31294 m3	100%	05-Dec-13 A	04-Mar-14 A
01108.STN.EX08-10	GL 08~10 Excavation, 31442 m3	100%	05-Dec-13 A	07-Mar-14 A
01108.MSB02P	KTS Milestone B2 - 30% Excavation - Programmed	100%		13-Dec-13 A
01108.STN.EX04-06	GL 04~06 Excavation, 31510 m3	100%	15-Jan-14 A	16-Apr-14 A



Milestone
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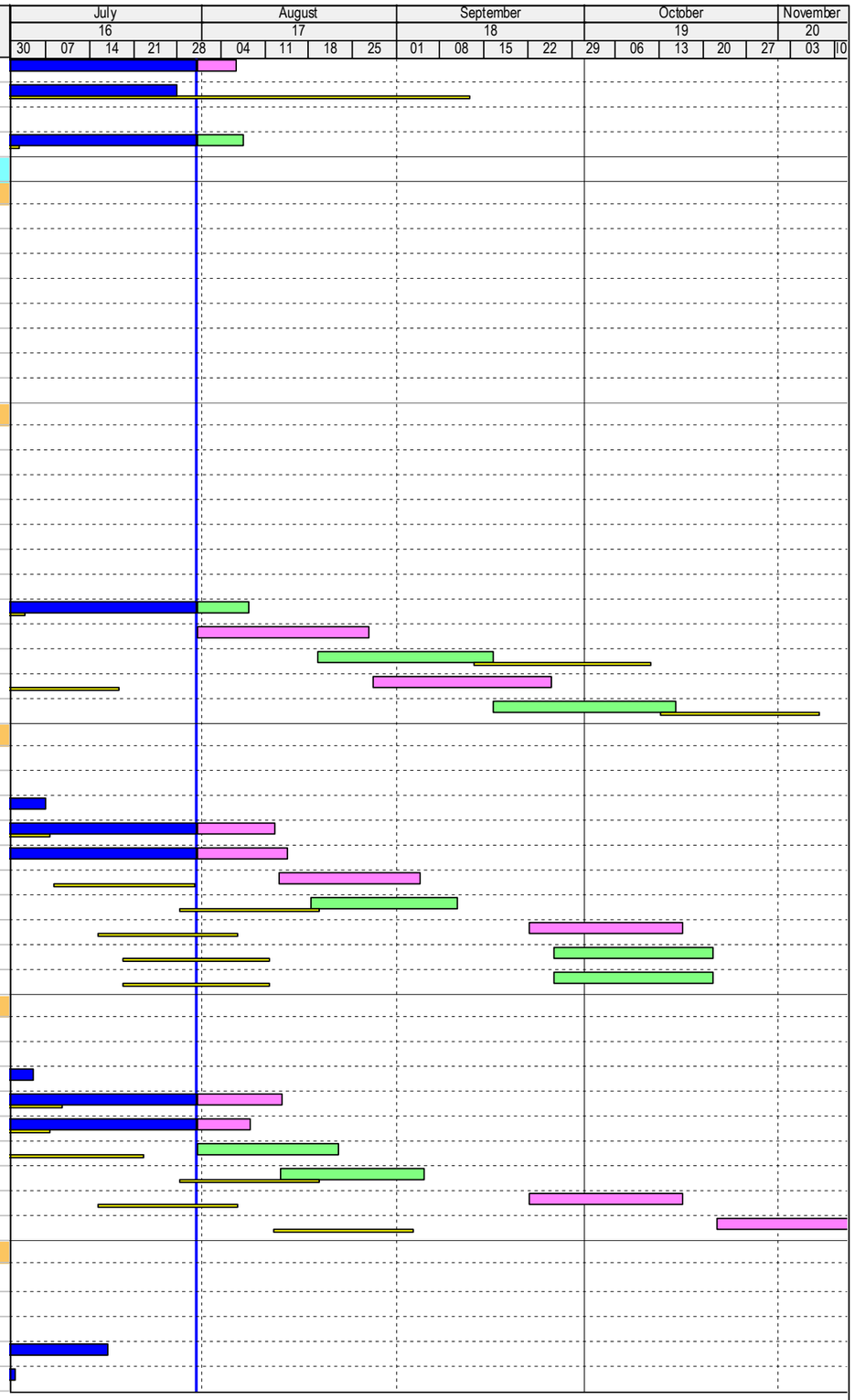
Contract 1108

Kai Tak Station and Associated Tunnels

3-months Rolling Programme (July 2014)

Kaden – Chun Wo Joint Venture

Activity ID	Activity Name	Activity % Complete	Start	Finish
01108.STN.EX21-24	GL 21~24 Excavation, 38731 m3	85%	15-Jan-14 A	06-Aug-14
01108.STN.EX02-04	GL 03~04 Excavation, 15755 m3	100%	15-Jan-14 A	28-Jul-14 A
01108.MSB03P	KTS Milestone B3 - 50% Excavation - Programmed	100%		24-Mar-14 A
01108.STN.EX14-26	Nullah to GL 0-3 Excavation, 28000 m3	73%	07-Jun-14 A	07-Aug-14
B1.3 Station - U/G C&S Works (Below Concourse Level Soffit)				
Temporary Foundation for Lifting Crane Tower				
01108.STN.BL001	Temporary foundation for lifting crane tower, 3 nr., Approved	100%	25-Oct-13 A	28-Apr-14 A
01108.STN.BL000	Design, ICE & submission of temporary foundation for lifting crane tower, 3 nr at GL 11-12, GL 19-20, GL 4-5	100%	25-Oct-13 A	31-Mar-14 A
01108.STN.BL11-12	Temporary foundation for lifting crane tower at GL 11~12	100%	27-Jan-14 A	20-Feb-14 A
01108.STN.BL11-12i	Installation and testing of lifting crane tower at GL 11~12	100%	24-Feb-14 A	25-Feb-14 A
01108.STN.BL19-20	Temporary foundation for lifting crane tower at GL 19~20	100%	24-Apr-14 A	05-May-14 A
01108.STN.BL04-05	Temporary foundation for lifting crane tower at GL 04~05	100%	25-Apr-14 A	29-Apr-14 A
01108.STN.BL04-05i	Installation and testing of lifting crane tower at GL 04~05	100%	29-Apr-14 A	02-May-14 A
01108.STN.BL19-20i	Installation and testing of lifting crane tower at GL 19~20	100%	06-May-14 A	08-May-14 A
Base Slab				
01108.STN.BS12-14	GL 12~14 Base slab, 24mL (Team 2)	100%	27-Jan-14 A	27-Mar-14 A
01108.STN.BS0	Commencement of Structure after excavation & test completed to GL 10~19	100%		13-Feb-14 A
01108.STN.BS10-12	GL 10~12 Base slab, 24mL (Team 2)	100%	01-Mar-14 A	24-Apr-14 A
01108.STN.BS14-16	GL 14~16 Base slab, 30mL (Team 1)	100%	01-Apr-14 A	15-Apr-14 A
01108.STN.BS08-10	GL 08~10 Base slab, 24mL (Team 2)	100%	04-Apr-14 A	07-May-14 A
01108.STN.BS16-19	GL 16~19 Base slab, 30mL (Team 1)	100%	15-Apr-14 A	26-May-14 A
01108.STN.BS06-08	GL 06~08 Base slab, 24mL (Team 2)	100%	20-May-14 A	18-Jun-14 A
01108.STN.BS04-06	GL 04~06 Base slab, 24mL	70%	13-Jun-14 A	08-Aug-14
01108.STN.BS19-21	GL 19~21 Base slab, 30mL (Team 1)	0%	31-Jul-14	27-Aug-14
01108.STN.BS02-04	GL 02~04 Base slab, 24mL	0%	19-Aug-14	16-Sep-14
01108.STN.BS21-24	GL 21~24 Base slab, 34mL (Team 1)	0%	28-Aug-14	25-Sep-14
01108.STN.BS00-02	GL 00~02 Base slab, 19.6mL	0%	16-Sep-14	15-Oct-14
External Wall to Concourse				
01108.STN.EC14-16	GL 14~16 External wall (2 teams, 10cycles)	100%	04-Apr-14 A	24-Jun-14 A
01108.STN.EC12-14	GL 12~14 External wall (2 teams, 8 cycles)	100%	17-Apr-14 A	29-May-14 A
01108.STN.EC10-12	GL 10~12 External wall (2 teams, 8 cycles)	100%	07-May-14 A	07-Jul-14 A
01108.STN.EC08-10	GL 08~10 External wall (2 teams, 8 cycles)	45%	03-Jun-14 A	12-Aug-14
01108.STN.EC16-19	GL 16~19 External wall (2 teams, 10cycels)	35%	18-Jun-14 A	14-Aug-14
01108.STN.EC06-08	GL 06~08 External wall (2 teams, 8 cycles)	0%	13-Aug-14	04-Sep-14
01108.STN.EC04-06	GL 04~06 External wall (2 teams, 8 cycles)	0%	18-Aug-14	10-Sep-14
01108.STN.EC19-21	GL 19~21 External wall (2 teams, 10cycles)	0%	22-Sep-14	16-Oct-14
01108.STN.EC24-24	GL 24~24 End wall (2 teams in 10m panel, 2 cycles)	0%	26-Sep-14	21-Oct-14
01108.STN.EC21-24	GL 21~24 External wall (2 teams, 10cycles)	0%	26-Sep-14	21-Oct-14
Internal Wall & Column to Concourse				
01108.STN.IC12-14	GL 12~14 Internal wall & column (168m with 6 teams in 10m panel)	100%	25-Mar-14 A	07-Jun-14 A
01108.STN.IC14-16	GL 14~16 Internal wall & column (224m with 8 teams in 10m panel)	100%	04-Apr-14 A	27-Jun-14 A
01108.STN.IC10-12	GL 10~12 Internal wall & column (138m with 6 teams in 10m panel)	100%	14-May-14 A	05-Jul-14 A
01108.STN.IC16-19	GL 16~19 Internal wall & column (196m wiht 6 teams in 10m panel)	40%	28-May-14 A	13-Aug-14
01108.STN.IC08-10	GL 08~10 Internal wall & column (168m with 6 teams in 10m panel)	60%	13-Jun-14 A	08-Aug-14
01108.STN.IC06-08	GL 06~08 Internal wall & column (168m with 6 teams in 12m panel)	0%	31-Jul-14	22-Aug-14
01108.STN.IC04-06	GL 04~06 Internal wall & column (168m with 6 teams in 10m panel)	0%	13-Aug-14	05-Sep-14
01108.STN.IC19-21	GL 19~21 Internal wall & column (224m with 8 teams in 10m panel)	0%	22-Sep-14	16-Oct-14
01108.STN.IC21-24	GL 21~24 Internal wall & column (224m with 8 teams in 13m panel)	0%	22-Oct-14	13-Nov-14
Platform Slab and Wall				
01108.STN.PS12-14	GL 12~14 Platform slab & wall (wall - 2 teams x 2 cycles)	100%	02-Apr-14 A	25-Apr-14 A
01108.STN.PS14-16	GL 14~16 Platform slab & wall (wall - 2 teams x 2 cycles)	100%	14-Apr-14 A	06-Jun-14 A
01108.STN.PS10-12	GL 10~12 Platform slab & wall (wall - 2 teams x 2 cycles)	100%	24-Apr-14 A	24-May-14 A
01108.STN.PS16-19	GL 16~19 Platform slab & wall (wall - 2 teams x 2 cycles)	100%	07-May-14 A	17-Jul-14 A
01108.STN.PS08-10	GL 08~10 Platform slab & wall (wall - 2 teams x 2 cycles)	100%	14-May-14 A	02-Jul-14 A



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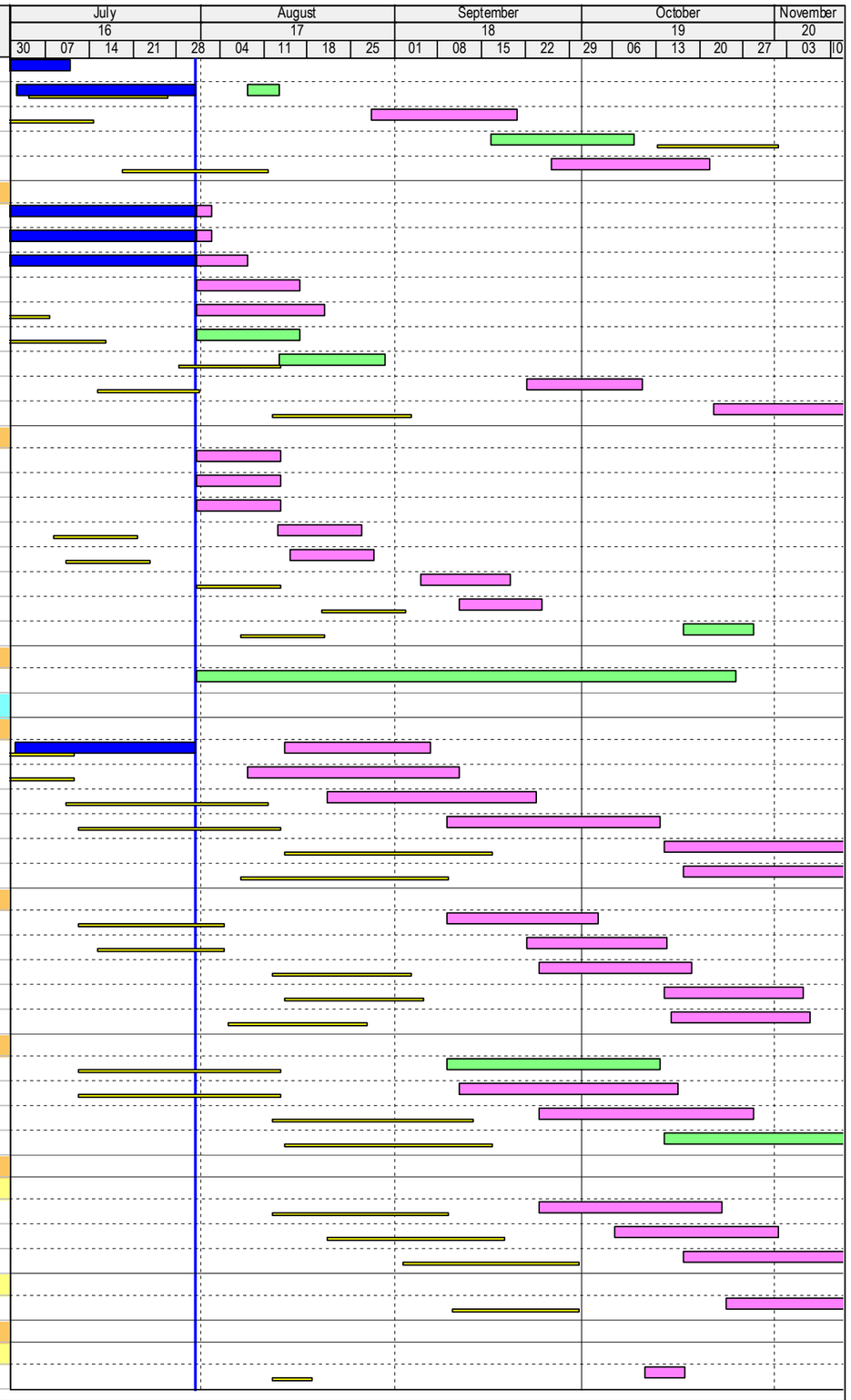
Kai Tak Station and Associated Tunnels

3-months Rolling Programme (July 2014)

Kaden 基利 Kaden – Chun Wo Joint Venture

Activity ID	Activity Name	Activity % Complete	Start	Finish
01108.STN.PS06-08	GL 06~08 Platform slab & wall (wall - 2 teams x 2 cycles)	100%	18-Jun-14 A	11-Jul-14 A
01108.STN.PS04-06	GL 04~06 Platform slab & wall (wall - 2 teams x 2 cycles)	80%	02-Jul-14 A	13-Aug-14
01108.STN.PS19-21	GL 19~21 Platform slab & wall (wall - 2 teams x 2 cycles)	0%	28-Aug-14	20-Sep-14
01108.STN.PS02-04	GL 02~04 Platform wall & slab (wall - 2 teams x 2 cycles)	0%	16-Sep-14	09-Oct-14
01108.STN.PS21-24	GL 21~24 Platform slab & wall (wall - 2 teams x 2 cycles)	0%	26-Sep-14	21-Oct-14
Over Track Exhaust				
01108.STN.OT12-14	GL 12~14 Over Track Exhaust	80%	02-Jun-14 A	02-Aug-14
01108.STN.OT10-12	GL 10~12 Over Track Exhaust	80%	18-Jun-14 A	02-Aug-14
01108.STN.OT14-16	GL 14~16 Over Track Exhaust	50%	25-Jun-14 A	08-Aug-14
01108.STN.OT08-10	GL 08~10 Over Track Exhaust	0%	31-Jul-14	16-Aug-14
01108.STN.OT16-19	GL 16~19 Over Track Exhaust	0%	31-Jul-14	20-Aug-14
01108.STN.OT06-08	GL 06~08 Over Track Exhaust	0%	31-Jul-14	16-Aug-14
01108.STN.OT04-08	GL 04~06 Over Track Exhaust	0%	13-Aug-14	30-Aug-14
01108.STN.OT19-21	GL 19~21 Over Track Exhaust	0%	22-Sep-14	10-Oct-14
01108.STN.OT21-24	GL 21~24 Over Track Exhaust	0%	22-Oct-14	13-Nov-14
Compacted Soil Backfill between Up Track and Refuge Track				
01108.STN.BF14-16	GL 14~16 Backfill and compaction, 1366 m3	0%	31-Jul-14	13-Aug-14
01108.STN.BF12-14	GL 12~14 Backfill and compaction, 1366 m3	0%	31-Jul-14	13-Aug-14
01108.STN.BF10-12	GL 10~12 Backfill and compaction, 1093 m3	0%	31-Jul-14	13-Aug-14
01108.STN.BF08-10	GL 08~10 Backfill and compaction, 1093 m3	0%	13-Aug-14	26-Aug-14
01108.STN.BF16-19	GL 16~19 Backfill and compaction, 1366 m3	0%	15-Aug-14	28-Aug-14
01108.STN.BF06-08	GL 06~08 Backfill and compaction, 1093 m3	0%	05-Sep-14	19-Sep-14
01108.STN.BF04-06	GL 04~06 Backfill and compaction, 1093 m3	0%	11-Sep-14	24-Sep-14
01108.STN.BF19-21	GL 19~21 Backfill and compaction, 1366 m3	0%	17-Oct-14	28-Oct-14
Metalworks, BWIC with Services and BS Works				
01108.STN.BW12-24	GL 12~24 BWIC and BS works	0%	31-Jul-14	25-Oct-14
B1.4 Station U/G C&S Works (Concourse Level and Above)				
Concourse Level				
01108.STN.CS12-14	GL 12~14 Concourse slab	25%	02-Jul-14 A	06-Sep-14
01108.STN.CS14-16	GL 14~16 Concourse slab	0%	08-Aug-14	11-Sep-14
01108.STN.CS16-19	GL 16~19 Concourse slab	0%	21-Aug-14	23-Sep-14
01108.STN.CS10-12	GL 10~12 Concourse slab	0%	09-Sep-14	13-Oct-14
01108.STN.CS08-10	GL 08~10 Concourse slab	0%	14-Oct-14	14-Nov-14
01108.STN.CS19-21	GL 19~21 Concourse slab	0%	17-Oct-14	18-Nov-14
External Wall to Lower Ground				
01108.STN.EG12-14	GL 12~14 External wall (2 teams, 8 cycles)	0%	09-Sep-14	03-Oct-14
01108.STN.EG0	External wall hanging platform	0%	22-Sep-14	14-Oct-14
01108.STN.EG16-19	GL 16~19 Externall wall (2 teams, 10 cycles)	0%	24-Sep-14	18-Oct-14
01108.STN.EG10-12	GL 10~12 External wall (2 teams, 8 cycles)	0%	14-Oct-14	05-Nov-14
01108.STN.EG14-16	GL 14~16 Exteranl wall (2 teams, 10 cycles)	0%	15-Oct-14	06-Nov-14
Internal Wall to Lower Ground				
01108.STN.IG12-14	GL 12~14 Internal wall & column (196m with 6 teams in 10m panel)	0%	09-Sep-14	13-Oct-14
01108.STN.IG14-16	GL 14~16 Internal wall & column (261m with 8 teams in 10m panel)	0%	11-Sep-14	16-Oct-14
01108.STN.IG16-19	GL 16~19 Internal wall & column (229m with 6 teams in 10m panel)	0%	24-Sep-14	28-Oct-14
01108.STN.IG10-12	GL 10~12 Internal wall & column (196m with 6 teams in 10m panel)	0%	14-Oct-14	14-Nov-14
Mezzanine Level				
Mezzanine Slab				
01108.STN.MS17-19	GL 17~19/ A1-B Mezzanine slab	0%	24-Sep-14	23-Oct-14
01108.STN.MS15-17	GL 15~17/ A1-B Mezzanine slab	0%	06-Oct-14	01-Nov-14
01108.STN.MS12-14	GL 12~14/ A1-A Mezzanine slab	0%	17-Oct-14	13-Nov-14
Mezzanine Internal Wall				
01108.STN.MW17-19	GL 17~19/ A1-B Mezzanine wall	0%	24-Oct-14	13-Nov-14
Waterproofing				
Waterproofing to Concourse Level				
01108.STN.WP12-14.1	GL 12~14 Waterproofing works to external wall up to concourse slab, 2 x 24mL x 7.66mH (368 m2)	0%	11-Oct-14	17-Oct-14



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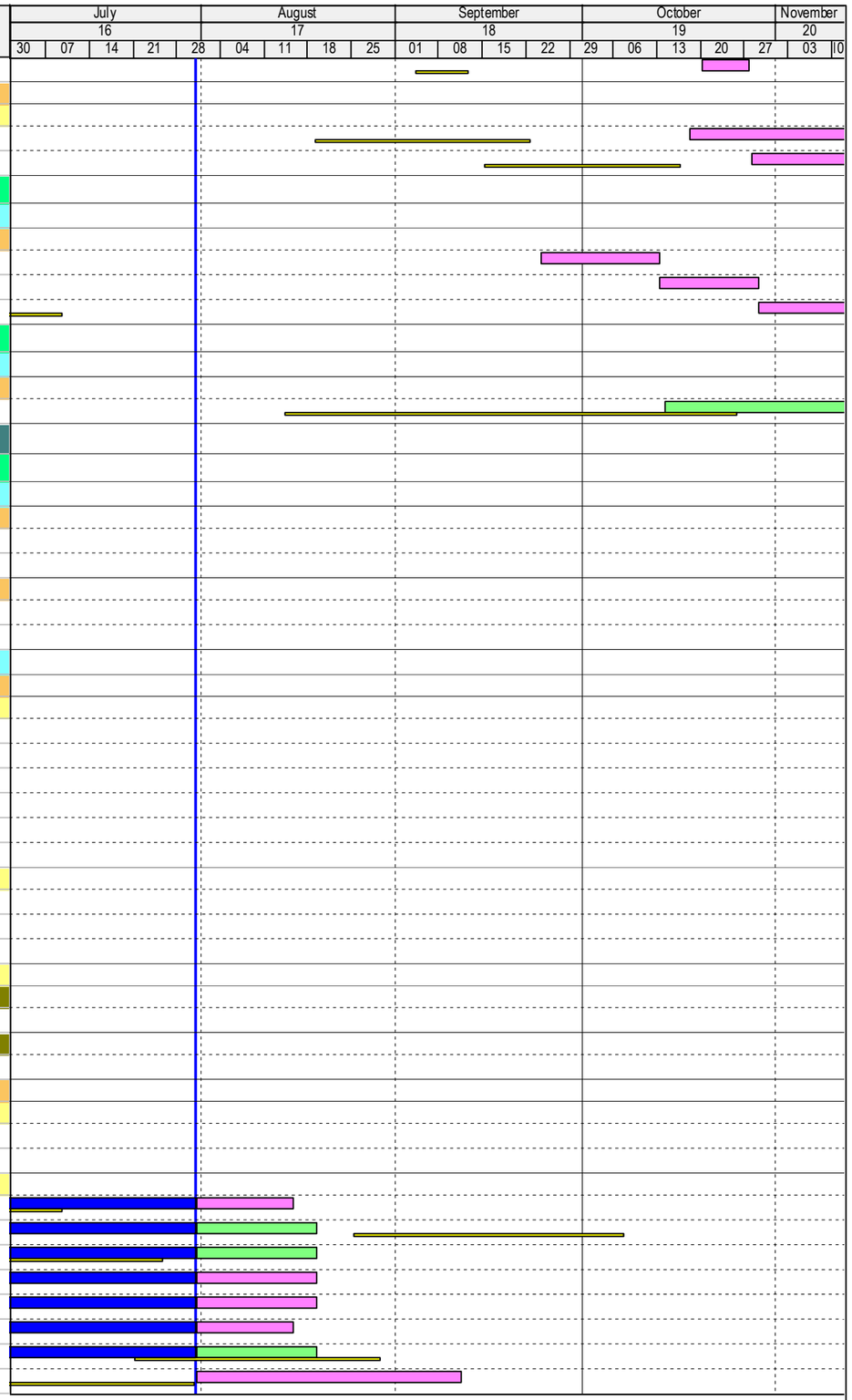
Activity ID	Activity Name	Activity % Complete	Start	Finish
01108.STN.WP16-19.1	GL 16~19 Waterproofing works to external wall up to concourse slab, 2 x 30mL x 7.66mH (460 m2)	0%	20-Oct-14	27-Oct-14
Backfilling				
Backfilling to Concourse Level				
01108.STN.BF12-14.1	GL 12~14 Backfill and compaction, 7920 m3	0%	18-Oct-14	14-Nov-14
01108.STN.BF16-19.1	GL 16~19 Backfill and compaction, 7920 m3	0%	28-Oct-14	24-Nov-14
B2 Entrance A, Adit & SEE				
B2.1 Entrance A, Adit & SEE - Excavation				
Temporary Works				
01108.STN.DN04.3.1	Entrance A & SEE - ELS Design, ICE & Submit to MTRC for review	0%	24-Sep-14	13-Oct-14
01108.STN.DN04.3.2	Entrance A & SEE - Design Revision, if required, & Submit to RDO/ BD/ GEO	0%	13-Oct-14	29-Oct-14
01108.STN.DN04.3.3	Entrance A & SEE - Design No-adverse-comment by RDO/ BD/ GEO	0%	29-Oct-14	14-Nov-14
B3 Entrance B and Adit				
B3.1 Entrance B and Adit - C&S Works				
Entrance B and Adit				
01108.STN.EB010	Adit at concourse level	0%	14-Oct-14	22-Dec-14
C - South Approach Tunnel				
C1 Open Cut Tunnel / Cut & Cover Tunnel (U=341m, D=340m)				
Preliminaries				
General Items				
01108.OCT.HR0100	Diversiion of ex. AP2- DN1200/ DN1800 drain, ~170mL crossing at ~CH U99187 (near SUA) SE direction	100%	30-Apr-13 A	30-Aug-13 A
01108.OCT.HR0020	Haul road, condition survery, incl. utility survey	100%	02-Jul-13 A	30-Aug-13 A
Ground Investigation, Instrumentation & Monitoring				
01108.OCT.G08-0010	Ground investigation - Boreholes BH1 to BH7, 7 nr.	100%	01-Aug-13 A	30-Aug-13 A
01108.OCT.IM00000	Instrumentation - Install & monitor, GS markers 8+12+8nr & 4 nr on utilities; PZ, 8 nr; etc	100%	01-Aug-13 A	30-Aug-13 A
C1.2 Excavation				
C1.2.2 Temporary Works				
Temporary Works Design & Approval				
01108.OCT.DN09.1.1	Hydraulic Cut Off - Design, ICE & Submit to MTRC for review	100%	21-Jun-13 A	24-Jun-13 A
01108.OCT.DN09.1.2	Hydraulic Cut Off - Revision, if required, & Submit to RDO/ BD/ GEO	100%	21-Jun-13 A	22-Aug-13 A
01108.OCT.DN06.1.1	Open Cut (CH 98976 to 99222) - Design, ICE & Submit to MTRC for review	100%	21-Jun-13 A	16-Sep-13 A
01108.OCT.DN09.1.3	Hydraulic Cut Off - No-adverse-comment by RDO/ BD/ GEO	100%	22-Aug-13 A	19-Sep-13 A
01108.OCT.DN06.1.3	Open Cut (CH 98976 to 99222) - Design - No-adverse-comment by RDO/ BD/ GEO	100%	16-Sep-13 A	27-Feb-14 A
01108.OCT.DN06.1.2	Open Cut (CH 98976 to 99222) - Design Revision, if required, & Submit to RDO/ BD/ GEO	100%	16-Sep-13 A	16-Sep-13 A
Dewatering and Observation Wells				
01108.OCT.DW9080	Ch 99080 to Ch 99217 Installation of Dewatering well, Recharge well, Observation well and Piezometer	100%	18-Sep-13 A	18-Dec-13 A
01108.OCT.DW9080t	Ch 98926~99080 Pumping tests	100%	27-Feb-14 A	30-Mar-14 A
01108.OCT.DW9185t	Ch 99080~99217 Pumping tests	100%	12-Apr-14 A	30-Apr-14 A
Sheet Piles				
Water Cut-off Wall at NW Side				
01108.OCT.SP9080w	Sheet piling and additonal toe grouting	100%	23-Aug-13 A	27-Dec-13 A
Water Cut-off Wall at SE Side				
01108.OCT.SP9080e	Sheet piling and additional toe grouting	100%	16-Aug-13 A	24-Sep-13 A
C1.2.3 Excavation CH 98975 to CH 99217				
General Site Clearance				
01108.OCT.EX0015	General clearance & trim existing ground by +3.5mPD	100%	05-Aug-13 A	03-Sep-13 A
01108.OCT.EX0010	Construct drainge protection system	100%	10-Feb-14 A	21-Mar-14 A
From Exisitng Ground Level to Formation Level				
01108.OCT.EX9122	CH 99101~99122 Excavation	60%	28-Sep-13 A	15-Aug-14
01108.OCT.EX8996	CH 98975~98996 Excavation	55%	28-Sep-13 A	19-Aug-14
01108.OCT.EX9038	CH 99017~99038 Excavation	55%	28-Sep-13 A	19-Aug-14
01108.OCT.EX9059	CH 99038~99059 Excavation	55%	28-Sep-13 A	19-Aug-14
01108.OCT.EX9080	CH 99059~99080 Excavation	55%	28-Sep-13 A	19-Aug-14
01108.OCT.EX9101	CH 99080~99101 Excavation	60%	28-Sep-13 A	15-Aug-14
01108.OCT.EX9017	CH 98996~99017 Excavation	55%	30-Sep-13 A	19-Aug-14
01108.OCT.EX9143	CH 99122~99143 Excavation	0%	31-Jul-14	11-Sep-14



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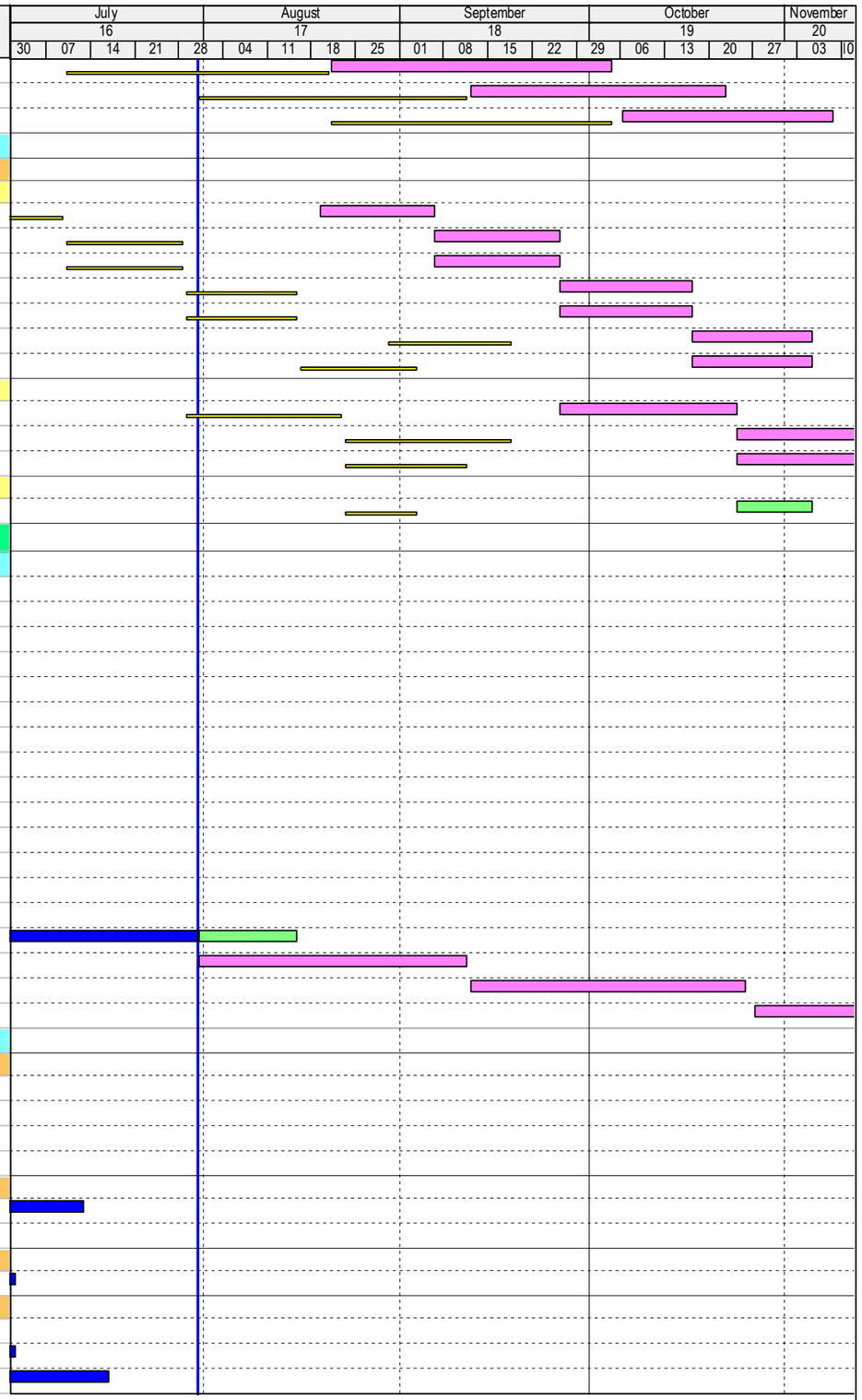
01108.OCT.EX9164	CH 99143~99164 Excavation	0%	21-Aug-14	04-Oct-14
01108.OCT.EX9185	CH 99164~99185 Excavation	0%	12-Sep-14	22-Oct-14
01108.OCT.EX9206	CH 99185~99206 Excavation	0%	06-Oct-14	08-Nov-14
C1.3 C&S Works				
Tunnel Construction CH 98975 to CH99217				
Base Slabs				
01108.OCT.TS9080	CH 99059~99080 Base slabs, 2 x 2 x 10.5mL	0%	19-Aug-14	06-Sep-14
01108.OCT.TS9059	CH 99038~99059 Base slabs, 2 x 2 x 10.5mL	0%	06-Sep-14	26-Sep-14
01108.OCT.TS9101	CH 99080~99101 Base slabs, 2 x 2 x 10.5mL	0%	06-Sep-14	26-Sep-14
01108.OCT.TS9038	CH 99017~99038 Base slabs, 2 x 2 x 10.5mL	0%	26-Sep-14	17-Oct-14
01108.OCT.TS9122	CH 99101~99122 Base slabs, 2 x 2 x 10.5mL	0%	26-Sep-14	17-Oct-14
01108.OCT.TS9017	CH 98996~99017 Base slabs, 2 x 2 x 10.5mL	0%	17-Oct-14	05-Nov-14
01108.OCT.TS9143	CH 99122~99143 Base slabs, 2 x 2 x 10.5mL	0%	17-Oct-14	05-Nov-14
Walls & Top Slabs				
01108.OCT.TR9101	CH 99080~99101 Wall & top slabs, 2 x 2x 10.5mL	0%	26-Sep-14	24-Oct-14
01108.OCT.TR9080	CH 99059~99080 Wall & top slabs, 2 x 2x 10.5mL	0%	24-Oct-14	19-Nov-14
01108.OCT.TR9122	CH 99101~99122 Wall & top slabs, 2 x 2x 10.5mL	0%	24-Oct-14	12-Nov-14
Internal C&S Works				
01108.OCT.IC9101	CH 99080~99101 Track level concrete works & finishes	0%	24-Oct-14	05-Nov-14
C2 Mined Tunnels (U=20m; D=19m)				
Design, Temporary Works Design, Approval, Fabrication & Installation of Tunnel Formwork				
01108.MT.DN07.1.73	MIT Launching Shaft Vertical Elements - Design, ICE & Submit to MTRC for review	100%	01-Nov-13 A	29-Nov-13 A
01108.MT.DN07.1.83	MIT Launching Shaft Vertical Elements - Revision, if required, & Submit to RDO/ BD/ GEO	100%	22-Nov-13 A	13-Dec-13 A
01108.MT.DN07.1.103	MIT Receiving Shaft Vertical Elements - Design, ICE & Submit to MTRC for review	100%	02-Dec-13 A	16-Jan-14 A
01108.MT.DN07.1.13	MIT Launching Shaft ELS - Design, ICE & Submit to MTRC for review	100%	02-Dec-13 A	16-Jan-14 A
01108.MT.DN07.1.43	MIT Receiving Shaft ELS - Design, ICE & Submit to MTRC for review	100%	05-Dec-13 A	21-Jan-14 A
01108.MIT.DN07.1.93	MIT Launching Shaft Vertical Elements - Design - No-adverse-comment by RDO/ BD/ GEO	100%	09-Dec-13 A	21-Jan-14 A
01108.MT.DN07.1.113	MIT Receiving Shaft Vertical Elements - Revision, if required, & Submit to RDO/ BD/ GEO	100%	08-Jan-14 A	28-Jan-14 A
01108.MT.DN07.1.23	MIT Launching Shaft ELS - Revision, if required, & Submit to RDO/ BD/ GEO	100%	09-Jan-14 A	30-Jan-14 A
01108.MT.DN07.2.13	MIT Temporary Support - Design & Method statement, ICE & Submit to MTRC for review	100%	09-Jan-14 A	25-Feb-14 A
01108.MT.DN07.1.53	MIT Receiving Shaft ELS - Revision, if required, & Submit to RDO/ BD/ GEO	100%	13-Jan-14 A	31-Jan-14 A
01108.MT.DN07.1.123	MIT Receiving Shaft Vertical Elements - Design - No-adverse-comment by RDO/ BD/ GEO	100%	23-Jan-14 A	07-Mar-14 A
01108.MT.DN07.1.33	MIT Launching Shaft ELS - Design - No-adverse-comment by RDO/ BD/ GEO	100%	27-Jan-14 A	11-Mar-14 A
01108.MT.DN07.1.63	MIT Receiving Shaft ELS - Design - No-adverse-comment by RDO/ BD/ GEO	100%	28-Jan-14 A	12-Mar-14 A
01108.MT.DN07.2.23	MIT Temporary Support - Revision, if required, & Submit to RDO/ BD/ GEO	100%	10-Feb-14 A	13-Mar-14 A
01108.MT.DN07.2.33	MIT Temporary Support - No-adverse-comment by RDO/ BD/ GEO	50%	13-Mar-14 A	15-Aug-14
01108.MT.DN07.3.163	Tunnel formwork design - Design, ICE and submission	0%	31-Jul-14	11-Sep-14
01108.MT.DN07.3.173	Tunnel formwork design - No adverse comment	0%	12-Sep-14	25-Oct-14
01108.MT.GI210	Tunnel formwork - Fabrication	0%	27-Oct-14	23-Jan-15
C 2.1.1 Launching Shaft				
Box Type/ Single Sheet Piles Installation				
01108.MT.SP10	NW side (97 nos.) - Driving Box-type/ single sheet piles by 2 rigs	100%	31-Dec-13 A	16-Apr-14 A
01108.MT.SP110	SE side (115 nos.) - Driving Box-type / single sheet piles by 2 rigs	100%	31-Dec-13 A	14-Apr-14 A
01108.MT.ISP120	NW side (48 nos) + NE side (35 nos.) - Driving Box-type/ single sheet piles within buffer zone	100%	27-Mar-14 A	09-May-14 A
01108.MT.ISP90	SW side (96 nos.) - Driving Box-type/ single sheet piles within buffer zone	100%	07-Apr-14 A	23-Jun-14 A
Instrumentation Installation (DW,OW and other Instrumentation)				
01108.MT.GI170	Instrumentation installation	100%	03-Jun-14 A	13-Jul-14 A
01108.MT.GI2220	Preparation Test for Pumping Test	100%	16-Jun-14 A	17-Jun-14 A
Pumping Test				
01108.MT.DW180	Pumping Test	100%	18-Jun-14 A	02-Jul-14 A
Vertical grout for FKCP, Grout Block and Sheet pile cut-off wall within buffer zone				
01108.MT.G260	Trial Grout	100%	23-Jan-14 A	11-Feb-14 A
01108.MT.G2080	Drilling for protection grout to FKCP approx. 166 nos.	100%	08-May-14 A	02-Jul-14 A
01108.MT.G2090	Grouting for protection grout to FKCP approx. 166 nos.	100%	16-May-14 A	17-Jul-14 A



Milestone
Critical Milestone
Critical Remaining Work
Remaining Work
Remaining Level of Effort
Primary Baseline
Actual Work

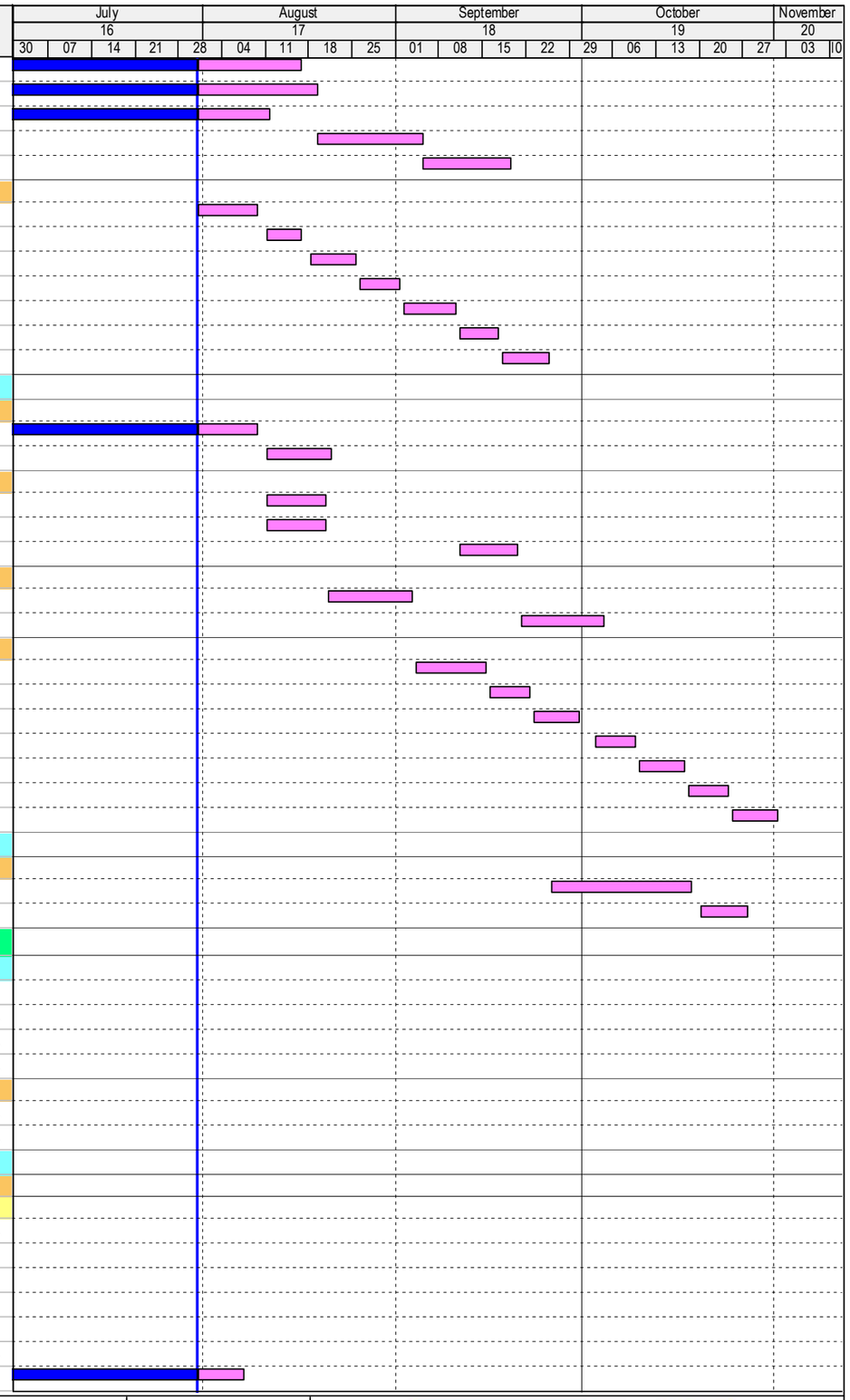
Contract 1108

Kai Tak Station and Associated Tunnels

3-months Rolling Programme (July 2014)

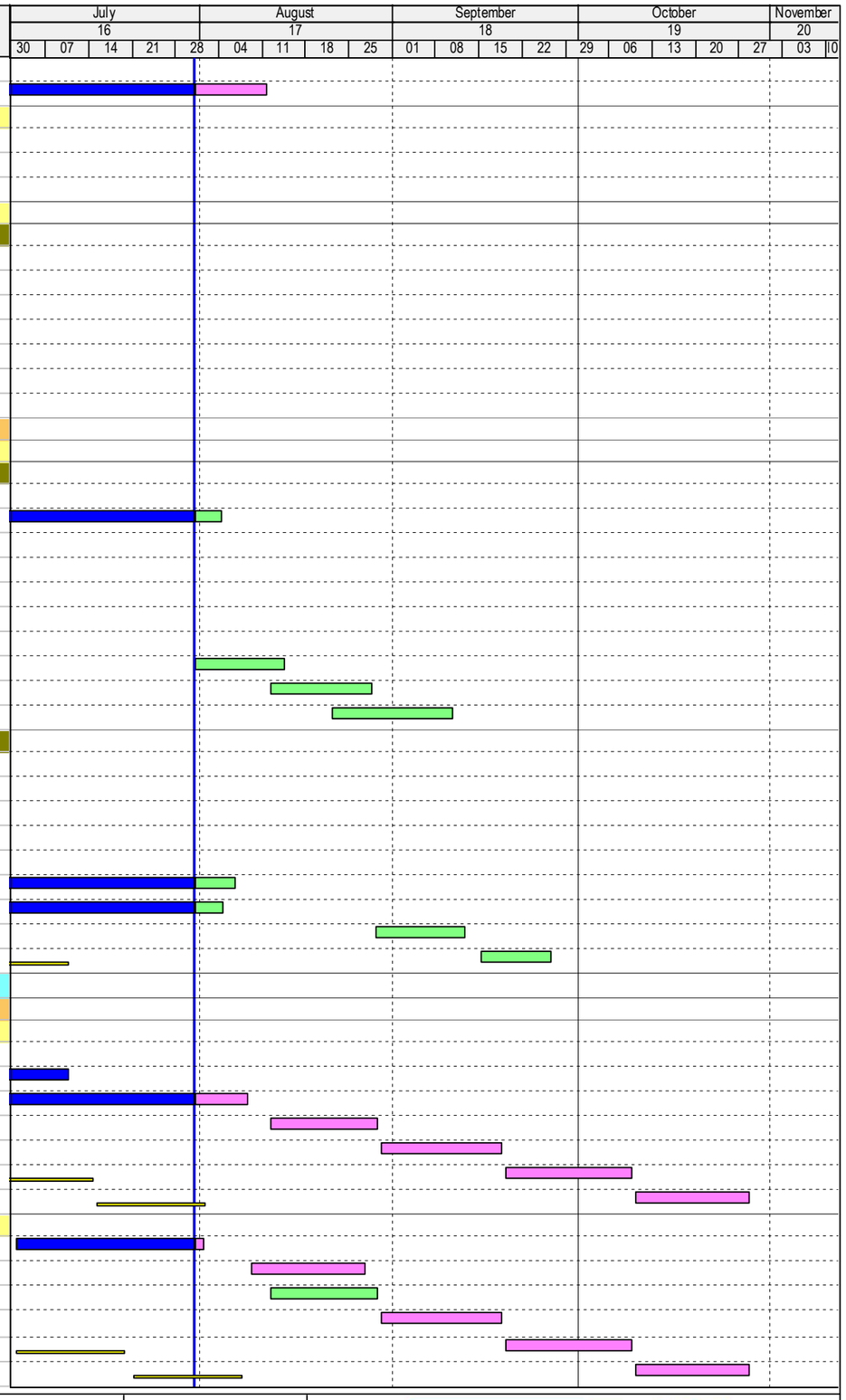
Kaden – Chun Wo Joint Venture

Activity ID	Activity Name	Activity % Complete	Start	Finish
01108.MT.G240	Drilling for jet grouting for mined tunnel face by 2 rigs	50%	12-Jun-14 A	16-Aug-14
01108.MT.G250	Jet Grouting for mined tunnel face by 2 p umps	45%	15-Jun-14 A	19-Aug-14
01108.MT.SP2050	Installation of sheet p il e cut-off wall (105 nos.)	50%	18-Jun-14 A	11-Aug-14
01108.MT.GI2100	Instrumentation installation	0%	19-Aug-14	05-Sep-14
01108.MT.DW2110	Dewateri ng	0%	05-Sep-14	19-Sep-14
Excavation and Struts				
01108.MT.EX300	Excavation from +3.5mPD to +0.5mPD (approx.4200m 3)	0%	31-Jul-14	09-Aug-14
01108.MT.EX310	Install S1 (+1.0mPD) (wal ing and strut)	0%	11-Aug-14	16-Aug-14
01108.MT.EX320	Excavation down to -2.0mPD (approx.3000m3)	0%	18-Aug-14	25-Aug-14
01108.MT.EX330	Install S2 (-1.5mPD)	0%	26-Aug-14	01-Sep-14
01108.MT.EX340	Excavation down to -4.5mPD (approx.3000m3)	0%	02-Sep-14	10-Sep-14
01108.MT.EX350	Install S3 (-4.0mPD)	0%	11-Sep-14	17-Sep-14
01108.MT.EX480	Excavation down to -8.3mPD (approx.3000m3)	0%	18-Sep-14	25-Sep-14
C2.1.2 Receiving Shaft				
Box Type/ Single Sheet Piles Installation				
01108.MT.SP920	Driving Box-ty pe/single sheet piles (Stage 1)	70%	06-Feb-14 A	09-Aug-14
01108.MT.SP940	Driving Box-ty pe/single sheet piles (Stage 2)	0%	11-Aug-14	21-Aug-14
Instrumentation Installation (DW,OW and other Instrumentation)				
01108.MT.GI1500	Instrumentation installation	0%	11-Aug-14	20-Aug-14
01108.MT.GI2230	Preparation works for Pump Test Stage 1	0%	11-Aug-14	20-Aug-14
01108.MT.GI2240	Preparation works for Pump Test Stage 2	0%	11-Sep-14	20-Sep-14
Pumping Test				
01108.MT.DW970	Pumping Test Stage 1	0%	21-Aug-14	03-Sep-14
01108.MT.DW980	Pumping Test Stage 2	0%	21-Sep-14	04-Oct-14
Excavation and Struts				
01108.MT.EX1000	Excavation from +3.5mPD to +0.5mPD (approx.4200m 3)	0%	04-Sep-14	15-Sep-14
01108.MT.EX1010	Install S1 (+1.0mPD) (wal ing and strut)	0%	16-Sep-14	22-Sep-14
01108.MT.EX1020	Excavation down to -2.0mPD (approx.3000m3)	0%	23-Sep-14	30-Sep-14
01108.MT.EX1030	Install S2 (-1.5mPD)	0%	03-Oct-14	09-Oct-14
01108.MT.EX1040	Excavation down to -5.0mPD (approx.3000m3)	0%	10-Oct-14	17-Oct-14
01108.MT.EX1050	Install S3 (-4.0mPD)	0%	18-Oct-14	24-Oct-14
01108.MT.EX1060	Excavation down to -8.3mPD (approx.3000m3)	0%	25-Oct-14	01-Nov-14
C2.1.3 Horizontal Pipe Pile				
Downtrack and Uptrack				
01108.MT.HPP1170	1st batch (12 nos.x 610m m & 4nos. x 219m m) after excavation down to -8.3mPD + Back to Back Tie + grouting	0%	26-Sep-14	18-Oct-14
01108.MT.EX1190	Waling (TW1)	0%	20-Oct-14	27-Oct-14
C3 Cut and Cover Tunnels				
Preliminaries				
01108.CCT.HR0010	Erection of hoarding and haul road	100%	01-Jul-13 A	30-Jul-13 A
01108.CCT.HR0020	Condition survery, incl. utility survey	100%	01-Jul-13 A	30-Aug-13 A
01108.CCT.HR0030	Relocate existing haul road	100%	01-Aug-13 A	30-Aug-13 A
01108.CCT.HR0040	Trial trench for existing seawall	100%	01-Aug-13 A	30-Aug-13 A
Ground Investigation, Instrumentation & Monitoring				
01108.CCT.IM0000	Instrumentation - Install & monitor, GS markers 8+11nr & 3 nr on structure; VM, 3 nr; PZ, 8 nr	100%	02-Jul-13 A	30-Aug-13 A
01108.CCT.G08-00	Ground investigation - Boreholes BH8, 9, 10, 10a, 10b, 11 & 12, 7 nr.	100%	01-Aug-13 A	30-Aug-13 A
C3.2 Excavation CH 98650 to CH 98866 and CH 98907 to CH 98975				
C3.2.2 Temporary Works and ELS				
Temporary Works Design & Approval				
01108.CCT.DN05.2.1	CCT ELS (CH 98750 to 98976) - Design, ICE & Submit to MTRC for review	100%	25-Jul-13 A	06-Dec-13 A
01108.CCT.DN05.1a.1	CCT Cofferdam (CH 98650 to 98750) for KTND - Design, ICE & Submit to MTRC for review	100%	30-Jul-13 A	30-Jul-13 A
01108.CCT.DN05.1a.2	CCT Cofferdam (CH 98650 to 98750) for KTND - Revision, if required, & Submit to RD O/ BD/ GEO	100%	30-Jul-13 A	30-Jul-13 A
01108.CCT.DN05.1a.3	CCT Cofferdam (CH 98650 to 98750) for KTND - No-adverse-comment by RD O/ BD/ GEO	100%	30-Jul-13 A	26-Feb-14 A
01108.CCT.DN05.1b.1	CCT ELS/ Hydraulic (CH 98650 to 98750) - Desi gn, ICE & Submit to MTRC for review	100%	30-Jul-13 A	30-Jul-13 A
01108.CCT.DN05.1b.2	CCT ELS/ Hydraulic (CH 98650 to 98750) - Revision, if required, & Submit to RDO/ BD/ GEO	100%	30-Jul-13 A	20-Aug-13 A
01108.CCT.DN05.1b.3	CCT ELS/ Hydraulic (CH 98650 to 98750) - No-adverse-comment by RDO/ BD/ GEO	80%	20-Aug-13 A	07-Aug-14



△ Milestone
▲ Critical Milestone
Critical Remaining Work
Remaining Work
Remaining Level of Effort
Primary Baseline
Actual Work

Activity ID	Activity Name	Activity % Complete	Start	Finish
01108.CCT.DN05.2.2	CCT ELS (CH 98750 to 98976) - Design Revision, if required, & Submit to RDO/ BD/ GEO	100%	06-Dec-13 A	23-Dec-13 A
01108.CCT.DN05.2.3	CCT ELS (CH 98750 to 98976) - Design No-adverse-comment by RDO/ BD/ GEO	50%	23-Dec-13 A	11-Aug-14
Dewatering and Observation Wells				
01108.CCT.DW0030	Install dewatering wells, 51 nos. and observation wells, 10nr (4 Rigs) (CH 98636 to 98846)	100%	28-Aug-13 A	16-Sep-13 A
01108.CCT.DW0040	Pumping tests (CH 98650 to 98750)	100%	17-Oct-13 A	24-Oct-13 A
01108.CCT.DW40	Pumping tests (CH 98750 to 98846)	100%	19-Apr-14 A	12-May-14 A
Sheet Piles				
Partial Open Cut				
01108.CCT.SP0020	Sheet piling as cut-off wal ls, 2x 525nr x 12m L, 2 x 6300m total (2 rigs)	100%	02-Jul-13 A	28-Sep-13 A
01108.CCT.SP8650	NW - CH 98650~98750 Sheet piling FSP V & IV	100%	21-Dec-13 A	24-Feb-14 A
01108.CCT.SP8650e	SE - CH 98650~98750 Sheet piling FSP V & IV	100%	21-Dec-13 A	24-Feb-14 A
01108.CCT.SP8770	NW - CH 98750~98840 Sheet piling FSP V & IV	100%	24-Feb-14 A	23-Mar-14 A
01108.CCT.SP8770e	SE - CH 98750~98840 Sheet piling FSP V & IV	100%	24-Feb-14 A	23-Mar-14 A
01108.CCT.SP8650pt	Pumping Tests (Cofferdam Excavation) Stage 1	100%	26-Feb-14 A	17-Mar-14 A
01108.CCT.SP8650pt1	Pumping Tests (Cofferdam Excavation) Stage 2	100%	29-Apr-14 A	12-May-14 A
C3.2.3 Earthworks				
Partial Open Cut				
Open Cut from Existing Ground Level to -3.5mPD				
01108.CCT.EX8636	CH 98650~98866 Clearance & trim ground level to +3.5mPD, 18480 m3	100%	30-Oct-13 A	14-Nov-13 A
01108.CCT.EX8762c	CH 98755~98776 Excavation to -3.5mPD, 3906 m3 + 1680 m3 seawall	80%	06-Jan-14 A	04-Aug-14
01108.CCT.EX8657c	CH 98650~98671 Excavation to -3.5mPD, 5586 m3	100%	06-Jan-14 A	20-Jun-14 A
01108.CCT.EX8678c	CH 98671~98692 Excavation to -3.5mPD, 5166 m3 + 420 m3 seawall	100%	06-Jan-14 A	12-Jun-14 A
01108.CCT.EX8699c	CH 98692~98713 Excavation to -3.5mPD, 3381 m3 + 2205 m3 seawall	100%	06-Jan-14 A	04-Jun-14 A
01108.CCT.EX8720c	CH 98713~98734 Excavation to -3.5mPD, 3381 m3 + 2205 m3 seawall	100%	06-Jan-14 A	31-May-14 A
01108.CCT.EX8741c	CH 98734~98755 Excavation to -3.5mPD, 3381 m3 + 2205 m3 seawall	100%	06-Jan-14 A	31-May-14 A
01108.CCT.EX8783c	CH 98776~98797 Excavation to -3.5mPD, 4746 m3 + 840 m3 seawall	0%	31-Jul-14	14-Aug-14
01108.CCT.EX8804c	CH 98797~98818 Excavation to -3.5mPD, 6384 m3	0%	12-Aug-14	28-Aug-14
01108.CCT.EX8825c	CH 98818~98840 Excavation to -3.5mPD, 6688 m3	0%	22-Aug-14	10-Sep-14
Cofferdam below -3.5mPD				
01108.CCT.EX8720s	CH 98713~98734 Excavation & struts, 5141 m3	100%	10-Feb-14 A	31-May-14 A
01108.CCT.EX8741s	CH 98734~98755 Excavation & struts, 5348 m3	100%	10-Feb-14 A	31-May-14 A
01108.CCT.EX8657s	CH 98650~98671 Excavation & struts, 4726 m3 (Design Package 5. 1)	100%	10-Feb-14 A	27-Jun-14 A
01108.CCT.EX8678s	CH 98671~98692 Excavation & struts, 4864 m3 (Design Package 5. 1)	100%	10-Feb-14 A	18-Jun-14 A
01108.CCT.EX8699s	CH 98692~98713 Excavation & struts, 5002 m3 (Design Package 5. 1)	100%	10-Feb-14 A	09-Jun-14 A
01108.CCT.EX8783s	CH 98776~98797 Excavation & struts, 5684 m3	50%	20-Jun-14 A	06-Aug-14
01108.CCT.EX8762s	CH 98755~98776 Excavation & struts, 5556 m3	70%	20-Jun-14 A	04-Aug-14
01108.CCT.EX8804s	CH 98797~98818 Excavation & struts, 5811 m3	0%	29-Aug-14	12-Sep-14
01108.CCT.EX8825s	CH 98818~98840 Excavation & struts, 6222m3	0%	15-Sep-14	26-Sep-14
C3.3 C&S Works				
Tunnel Construction CH 98650 to CH 98840 (Area 2 - 5.1 to 5.2)				
Base Slabs				
01108.CCT.TB8678	CH98680~98710 Base slabs, 2 x 2 x 15mL (Design Package 5. 1)	100%	05-Jun-14 A	27-Jun-14 A
01108.CCT.TB8657	CH98650~98680 Base slabs, 2 x 2 x 15mL (Design Package 5. 1)	100%	25-Jun-14 A	10-Jul-14 A
01108.CCT.TB8699	CH98710~98740 Base slabs, 2 x 2 x 15mL (Design Package 5. 1)	50%	28-Jun-14 A	08-Aug-14
01108.CCT.TB8720	CH98740~98761 Base slabs, 2 x 2 x 10.5mL	0%	12-Aug-14	29-Aug-14
01108.CCT.TB8741	CH98761~98782 Base slabs, 2 x 2 x 10.5mL	0%	30-Aug-14	18-Sep-14
01108.CCT.TB8762	CH98782~98803 Base slabs, 2 x 2 x 10.5mL	0%	19-Sep-14	09-Oct-14
01108.CCT.TB8783	CH98803~98824 Base slabs, 2 x 2 x 10.5mL	0%	10-Oct-14	28-Oct-14
Walls & Top Slabs				
01108.CCT.TW8678	CH98680~98710 Walls and Top Slab 2 x 2 x 15mL (Design Package 5.1)	90%	02-Jul-14 A	01-Aug-14
01108.CCT.TW8699	CH98710~98740 Walls and Top Slab 2 x 2 x 15mL (Design Package 5.1)	0%	09-Aug-14	27-Aug-14
01108.CCT.TW8657	CH98650~98680 Walls and Top Slab 2 x 2 x 15mL (Design Package 5.1)	0%	12-Aug-14	29-Aug-14
01108.CCT.TW8720	CH98740~98761 Walls and Top Slab 2 x 2 x 10.5mL	0%	30-Aug-14	18-Sep-14
01108.CCT.TW8741	CH98761~98782 Walls and Top Slab 2 x 2 x 10.5mL	0%	19-Sep-14	09-Oct-14
01108.CCT.TW8762	CH98782~98803 Walls and Top Slab 2 x 2 x 10.5mL	0%	10-Oct-14	28-Oct-14



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Kai Tak Station and Associated Tunnels

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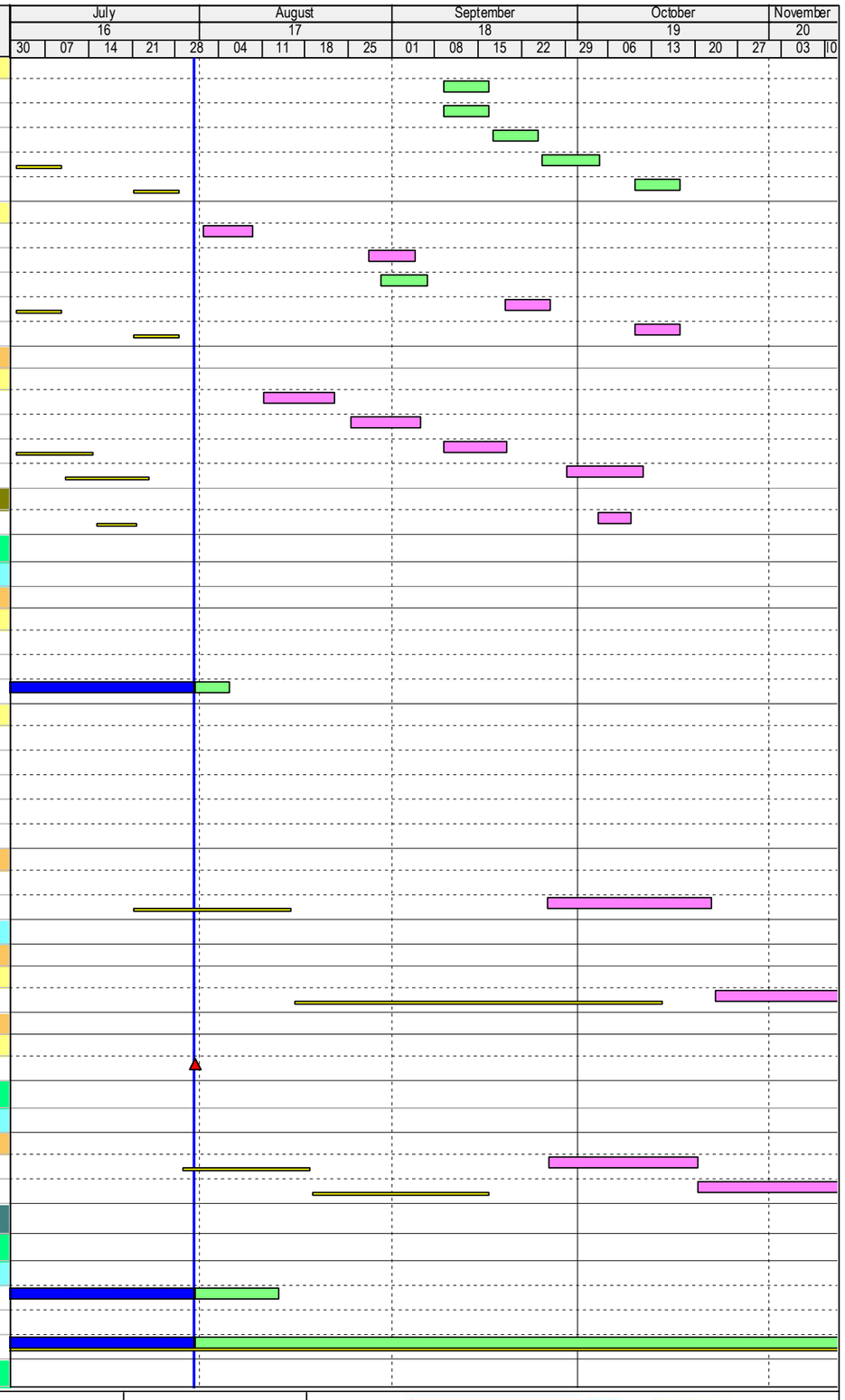
Kaden – Chun Wo Joint Venture

Activity ID	Activity Name	Activity % Complete	Start	Finish
Internal C&C Works				
01108.CCT.IC8657	CH98650~98680 Track level concreteworks & finishes	0%	09-Sep-14	16-Sep-14
01108.CCT.IC8678	CH98680~98710 Track level concreteworks & finishes	0%	09-Sep-14	16-Sep-14
01108.CCT.IC8699	CH98710~98740 Track level concreteworks & finishes	0%	17-Sep-14	24-Sep-14
01108.CCT.IC8720	CH98713~98734 Track level concreteworks & finishes	0%	25-Sep-14	04-Oct-14
01108.CCT.IC8741	CH98734~98755 Track level concreteworks & finishes	0%	10-Oct-14	17-Oct-14
Waterproofing Works				
01108.CCT.WP8678	CH98680~98710 2-coat spray, 75mm screed & 75mm blockworks, 2 x 2 x 15mL	0%	01-Aug-14	09-Aug-14
01108.CCT.WP8699	CH98710~98740 2-coat spray, 75mm screed & 75mm blockworks, 2 x 2 x 15mL	0%	28-Aug-14	04-Sep-14
01108.CCT.WP8657	CH98650~98680 2-coat spray, 75mm screed & 75mm blockworks, 2 x 2 x 15mL	0%	30-Aug-14	06-Sep-14
01108.CCT.WP8720	CH98713~98734 2-coat spray, 75mm screed & 75mm blockworks, 2 x 2 x 10.5mL	0%	19-Sep-14	26-Sep-14
01108.CCT.WP8741	CH98734~98755 2-coat spray, 75mm screed & 75mm blockworks, 2 x 2 x 10.5mL	0%	10-Oct-14	17-Oct-14
Backfill and Compaction				
Backfill and Compaction CH 98650 to CH 98840				
01108.CCT.BF8657	CH98650~98680 Backfill, compaction & remove strut, 8470m3	0%	11-Aug-14	22-Aug-14
01108.CCT.BF8678	CH98680~98710 Backfill, compaction & remove strut, 8470m3	0%	25-Aug-14	05-Sep-14
01108.CCT.BF8699	CH98710~98740 Backfill, compaction & remove strut, 8470m3	0%	09-Sep-14	19-Sep-14
01108.CCT.BF8720	CH98713~98734 Backfill, compaction & remove strut, 8470m3	0%	29-Sep-14	11-Oct-14
CSMM Backfill CH 98650 to CH 98840				
01108.CCT.BF8720c	CH98707~98720 CSMM backfill, 13mL x 42m2, total 546 m3	0%	04-Oct-14	09-Oct-14
C4 Stub Tunnels (U=32m; D=32m; R=33m)				
C4.1 Excavation CH 98255 to CH 98290				
Temporary Works				
Temporary Works Design, Review & Approval				
01108.STT.DN04.2.1	Stub Tunnel Interface with C1107 - Design, ICE & Submit to MTRC for review	100%	12-Sep-13 A	24-Dec-13 A
01108.STT.DN04.2.2	Stub Tunnel Interface with C1107 - Design Revision, if required, & Submit to RDO/ BD/ GEO	100%	18-Jan-14 A	25-Jan-14 A
01108.STT.DN04.2.3	Stub Tunnel Interface with C1107 - Design No-adverse-comment by RDO/ BD/ GEO	50%	27-Jan-14 A	05-Aug-14
Temporay Works - Sheet Pile & ELS				
01108.ACW01aP	Works Area 1108.W 1a (Week No. 52/13, 30-Dec-13)	100%	27-Dec-13 A	
01108.IF1107.1P	Contract 1107 provide access to Contract 1108 at interface area for ELS works	100%	27-Dec-13 A	
01108.STT.SP050	Sheet piling, D-F FSP IV 133nr , 2740m with level varies	100%	08-Jan-14 A	15-Apr-14 A
01108.STT.SP020	Sheet piling, A-C FSP IV 133nr , 2740m with level varies	100%	08-Jan-14 A	15-Apr-14 A
01108.STT.SP50	Pumping test	100%	16-Apr-14 A	25-Apr-14 A
Earthworks				
01108.STT.EX8273	CH98254~98290 Excavation & struts, 3468 m3 (S1-S2)	100%	27-May-14 A	28-Jun-14 A
01108.STT.EX8300	CH98254~98290 Excavation & struts, 7140 m3 (S3-S4)	0%	26-Sep-14	22-Oct-14
C4.2 Stub Tunnels - C&S Works				
Tunnel Construction CH98254 to CH98290 (Up Track & Refuge Track)				
Base Slabs				
01108.STT.TB8279n	CH98254~98290 Base slabs, 1 x 12mL (Refuge racks)	0%	23-Oct-14	17-Dec-14
Tunnel Construction CH98254 to CH98290 (Down Track)				
Base Slabs				
01108.STT.IF1107.2	Contract 1107 to commence excavation sequence	0%	31-Jul-14*	
C5 SUA				
C5.1 SUA - C&S Works				
SUA Access at GL A1/A2				
01108.OCT.SU010	At CH99088/GL A1~A2 SUA- Base slab	0%	26-Sep-14	20-Oct-14
01108.OCT.SU020	At CH99088/GL A1~A2 SUA- Suspended slabs, beams & walls to -9.482mPD	0%	20-Oct-14	17-Nov-14
D - Associated Works				
D3 Instrumentation and Monitoring				
Instrumentation Installation and Monitoring				
01108.AWM.0010	Installation of piezometers, inclinometers, ground/ bldg/ utility settlement markers	80%	02-Jul-13 A	13-Aug-14
01108.AWM.0020	Baseline Reading	100%	01-Aug-13 A	30-Aug-13 A
01108.AWM.0030	Regular Monitorings and Submit Monitoring Reports (weekly for 50 months)	50%	01-Aug-13 A	12-Jul-16
D4 Landscape				



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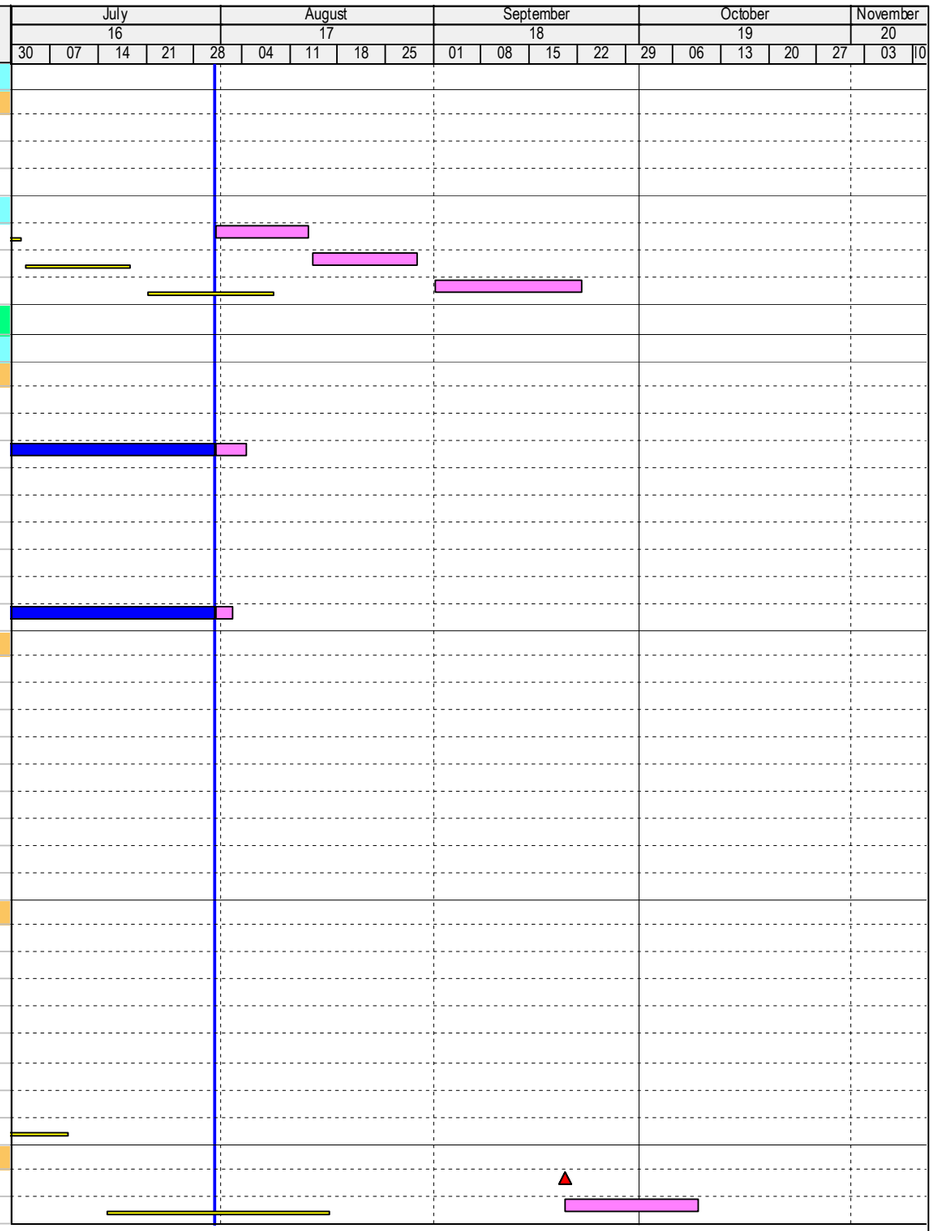
Kai Tak Station and Associated Tunnels

3-months Rolling Programme (July 2014)

Kaden – Chun Wo Joint Venture

Activity ID	Activity Name	Activity % Complete	Start	Finish
Soft Landscape				
Tree Felling Permit & Tree Felling				
01108.AWL.2035	Tree felling, 4 nr. at Proposed Station open cut slope, tree survey nr. T0028, T0029, T0031 & T0032.	100%	01-Aug-13 A	30-Aug-13 A
01108.AWL.2000	Tree felling permit, ref. P10.21 & P46.1, no longer than 60 days	100%	01-Aug-13 A	30-Aug-13 A
01108.AWL.2039	Tree felling, Girth, rest 32 nr. (with majority at Works Area 1108.A2)	100%	01-Aug-13 A	30-Aug-13 A
Site Formation Works for Engineers's Accommodation				
01108.AWS.0010	Site formation for Engineer's accommodation - Design, ICE and submission	0%	31-Jul-14*	13-Aug-14
01108.AWS.0020	Site formation for Engineer's accommodation - Approval	0%	14-Aug-14	29-Aug-14
01108.AWS.0030	Filling to formation l evel for Engineer's accommodation, imported natural material, 3544 m3	0%	01-Sep-14	22-Sep-14
D5 Utilities Diversion				
Diversion of Existing Nullah				
Temporary Works & Hydraulic Assessment				
01108.AWD.DNA1.1	KTND Hydraulic Assessment, incl. pre-construction CCTV, as-built survey - Design, ICE & TW & Submit to MTRC for reviev	100%	11-Jul-13 A	28-Nov-13 A
01108.AWD.DNA1.2	KTND Hydraulic Assessment - Revision, if required, & Submit to DSD	100%	24-Jul-13 A	28-Nov-13 A
01108.AWD.DNA1.3	KTND Hydraulic Assessment - No-adverse-comment by DSD	90%	08-Aug-13 A	04-Aug-14
01108.AWD.DN09.5.1	KTND Temporary Channel - Design, ICE & TW & Submit to MTRC for review	100%	15-Aug-13 A	16-Dec-13 A
01108.AWD.DN09.6.1	KTND Temp. Suppport for Demolishing Ex. KTN Decking - Design, ICE & TW & Submit to MTRC for review	100%	15-Aug-13 A	04-Sep-13 A
01108.AWD.DN09.6.2	KTND Temp. Suppport for Demolishing Ex. KTN Decking - Design Revision, if required, & Submit to DSD & RDO/BD/ GEO	100%	04-Sep-13 A	26-Sep-13 A
01108.AWD.DN09.6.3	KTND Temp. Suppport for Demolishing Ex. KTN Decking - Design - No-adverse-comment by DSD & RDO/ BD/ GEO	100%	26-Sep-13 A	26-Sep-13 A
01108.AWD.DN09.5.2	KTND Temporary Channel - Design Revision, if required, & Submit to DSD & RDO/ BD/ GEO	100%	28-Nov-13 A	07-Mar-14 A
01108.AWD.DN09.5.3	KTND Temporary Channel - Design - No-adverse-comment by DSD & RDO/ BD/ GEO	90%	16-Jan-14 A	02-Aug-14
North Section				
01108.AWD.0120	Connection section: North/ upstream - Remove concrete surface	100%	01-Aug-13 A	30-Aug-13 A
01108.AWD.0122	Connection section: North/ upstream - Saw-cut precast slab and beam, 140 pieces	100%	29-Aug-13 A	10-Oct-13 A
01108.AWD.0124	Connection section: North/ upstream - Remove saw-cut precast slab and beam, 140 pieces	100%	29-Aug-13 A	10-Oct-13 A
01108.AWD.0130	Connection section: North/ upstream - Demolish and remove partition wall	100%	02-Nov-13 A	16-Nov-13 A
01108.AWD.0170	Connection section: North - Place concrete blocks & sealing before demolish nullah wall	100%	05-Dec-13 A	24-Dec-13 A
01108.AWD.0100	North section: Open cut excavation, 205mL x 36.4mW x ~4mD, 25750 m3	100%	06-Jan-14 A	21-May-14 A
01108.AWD.0180	Connection section: North - Demolish and remove nullah wall	100%	14-Jan-14 A	21-Jan-14 A
01108.AWD.0150	North section: Concrete lining, 205mL x 39.4mW x 0.3mT	100%	12-Feb-14 A	30-Jun-14 A
01108.AWD.0110	North section across haul road : Concrete lining with concrete pipes & shotcrete surfaces, 24mL x 36.4mW x 0.4mT	100%	25-Feb-14 A	26-Mar-14 A
South Section				
01108.AWD.0220	Connection section: South/ downstream - Remove concrete surface	100%	01-Aug-13 A	30-Aug-13 A
01108.AWD.0222	Connection section: South/ downstream - Saw-cut precast slab and beam, 84 pieces	100%	14-Sep-13 A	30-Oct-13 A
01108.AWD.0224	Connection section: South/ downstream - Remove saw-cut precast slab and beam, 84 pieces	100%	14-Sep-13 A	30-Oct-13 A
01108.AWD.0230	Connection section: South/ downstream - Demolish and remove partition wall	100%	22-Nov-13 A	03-Dec-13 A
01108.AWD.0270	Connection section: South - Place concrete blocks & sealing before demolish nullah wall	100%	26-Dec-13 A	09-Jan-14 A
01108.AWD.0240	South section: Open cut excavation, 205mL x 36.4mW x ~4mD, 25750 m3	100%	09-Jan-14 A	21-May-14 A
01108.AWD.0280	Connection section: South - Demolish and remove nullah wall	100%	22-Jan-14 A	23-Jan-14 A
01108.AWD.0250	South section: Concrete lining, 205mL x 39.4mW x 0.3mT	100%	16-Apr-14 A	30-Jun-14 A
Remaining Section				
01108.AWD.1010	Completion of backfill after tunnel construction for remaining section of temporary nullah - Programmed	0%	20-Sep-14	
01108.AWD.1030	Tunnel section: Concrete lining, 60mL x 39.4mW x 0.3mT	0%	20-Sep-14	09-Oct-14



Milestone
Critical Milestone
Critical Remaining Work
Remaining Work
Remaining Level of Effort
Primary Baseline
Actual Work

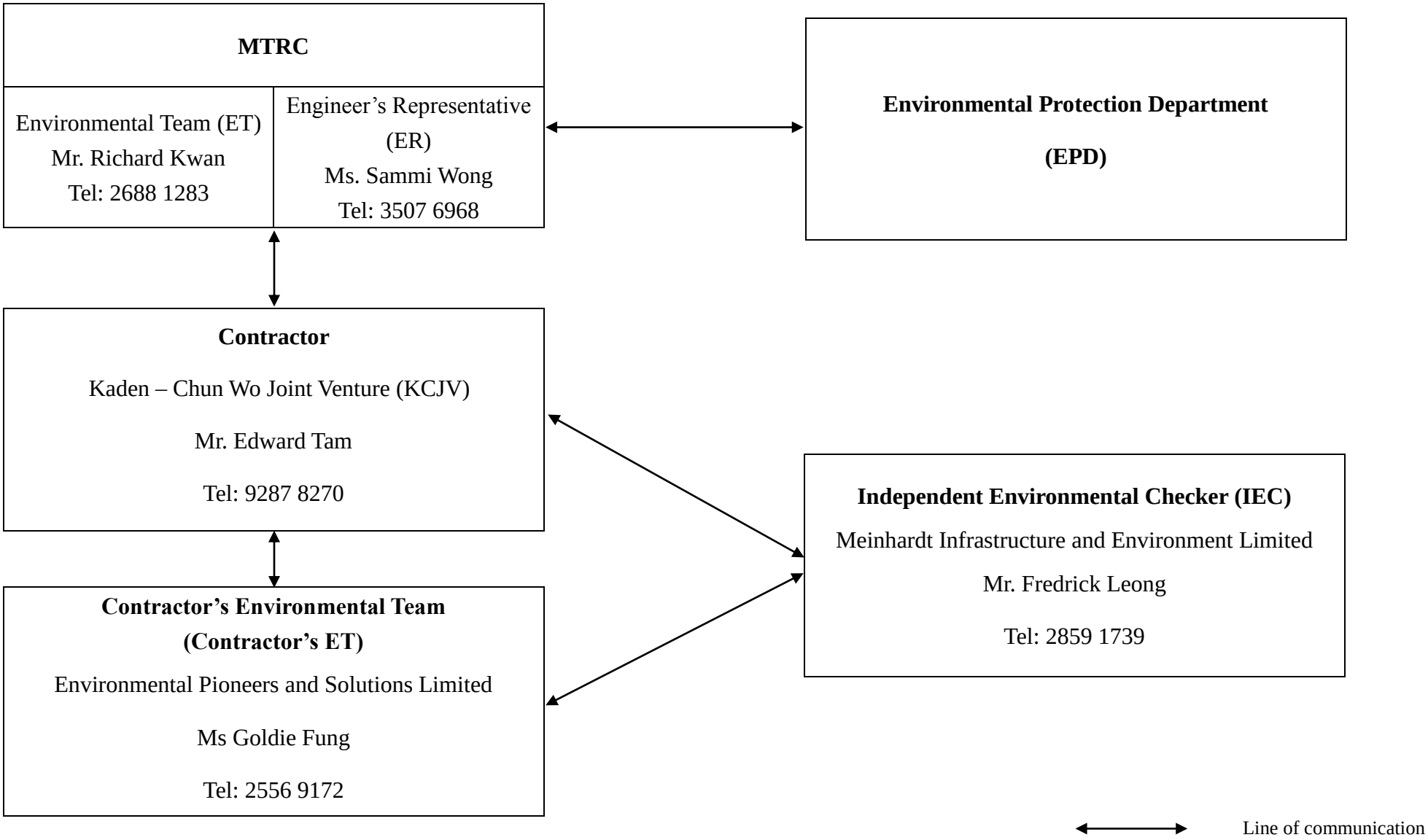
Contract 1108

Kai Tak Station and Associated Tunnels

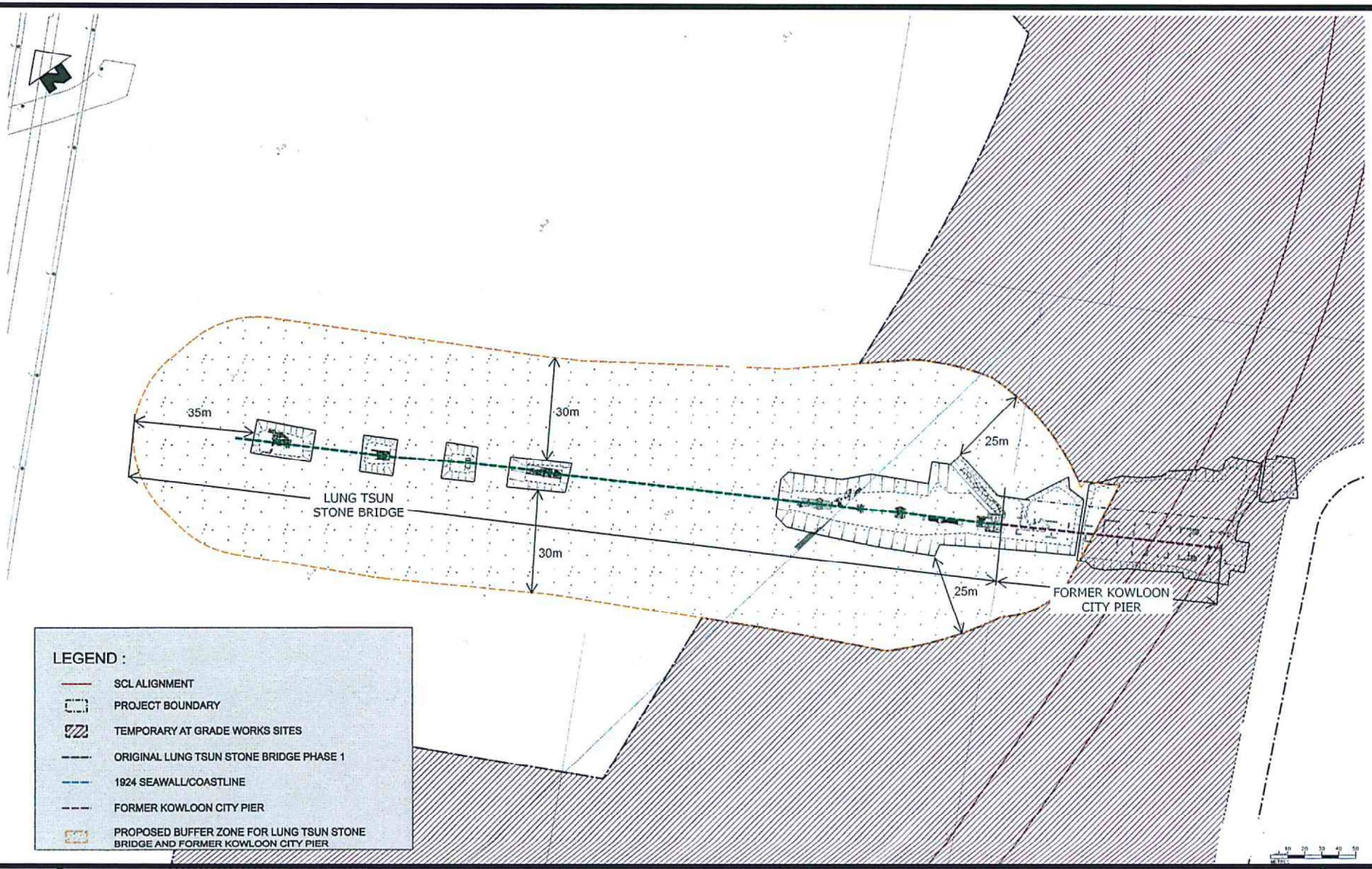
3-months Rolling Programme (July 2014)

Kaden – Chun Wo Joint Venture

Appendix C –Project Organization Chart & Contact Details


MTRC
Environmental Team (ET)
Mr. Richard Kwan
Tel: 2688 1283
Engineer's Representative (ER)
Ms. Sammi Wong
Tel: 3507 6968
Environmental Protection Department
(EPD)
Contractor
Kaden – Chun Wo Joint Venture (KCJV)
Mr. Edward Tam
Tel: 9287 8270
Independent Environmental Checker (IEC)
Meinhardt Infrastructure and Environment Limited
Mr. Fredrick Leong
Tel: 2859 1739
Contractor's Environmental Team (Contractor's ET)
Environmental Pioneers and Solutions Limited
Ms Goldie Fung
Tel: 2556 9172
Line of communication

Appendix D – Buffer Zone for Lung Tsun Stone Bridge & Former Kowloon City Pier



Project Title 工程名稱	Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section(TAW-HUH) 沙田至中環綫 - 大圍至紅磡段	Environmental Permit No.: EP-438/2012/E 環境許可證編號：EP-438/2012/E
Figure 6 圖六	Buffer Zone from the Boundary of Lung Tsun Stone Bridge 龍津石橋界線之緩衝區 [This figure was prepared based on the attachment of the Application No.: VEP-432/2014] [本圖是根據申請編號 VEP-432/2014 的附件編制]	

EIAO EPD

Appendix E – Event/Action Plan for landscape & Visual During Construction Stage

Event / Action Plan for Landscape and Visual during Construction Stage

Action Level	ET	IEC	ER	Contractor
Non-conformity on one occasion	1) Inform the Contractor, the IEC and the ER 2) Discuss remedial actions with the IEC, the ER and the Contractor 3) Monitor remedial actions until rectification has been completed	1) Check inspection report 2) Check the Contractor's working method 3) Discuss with the ET, ER and the Contractor on possible remedial measures 4) Advise the ER on effectiveness of proposed remedial measures.	1) Confirm receipt of notification of non-conformity in writing 2) Review and agree on the remedial measures proposed by the Contractor 3) Supervise implementation of remedial measures	1) Identify Source and investigate the non-conformity 2) Implement remedial measures 3) Amend working methods agreed with the ER as appropriate 4) Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1) Identify Source 2) Inform the Contractor, the IEC and the ER 3) Increase inspection frequency 4) Discuss remedial actions with the IEC, the ER and the Contractor 5) Monitor remedial actions until rectification has been completed 6) If non-conformity stops, cease additional monitoring	1) Check inspection report 2) Check the Contractor's working method 3) Discuss with the ET and the Contractor on possible remedial measures 4) Advise the ER on effectiveness of proposed remedial measures	1) Notify the Contractor 2) In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3) Supervise implementation of remedial measures.	1) Identify Source and investigate the non-conformity 2) Implement remedial measures 3) Amend working methods agreed with the ER as appropriate 4) Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

Appendix F – Waste Flow Table

Monthly Summary Waste Flow Table for _2014__ (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Materials Generated Monthly				
	Total Quantity Generated	Hard Rocks & Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals	Paper / cardboard packaging	Plastics	Chemical waste	Others (general refuse)
					1108A*	CEDD#					
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	74.526	0.000	0.000	0.000	72.007	2.519	32.340	0.110	0.000	0.000	0.059
Feb	57.988	0.000	0.000	0.000	55.963	2.025	0.000	0.160	0.007	0.640	0.123
Mar	45.732	0.000	0.000	0.000	41.405	4.327	0.000	0.096	0.000	0.000	0.146
Apr	32.976	0.000	0.000	0.000	30.126	2.850	0.000	0.034	0.000	0.000	0.060
May	26.839	0.000	0.000	0.000	26.839	0.000	46.620	0.048	0.000	0.260	0.135
Jun	15.390	0.000	0.000	0.000	11.868	3.522	0.000	0.060	0.004	0.000	0.240
Sub-total	253.451	0.000	0.000	0.000	238.208	15.243	78.960	0.508	0.011	0.900	0.763
July	7.001	0.000	0.000	0.000	0.015	6.986	0.000	0.022	0.003	0.000	0.075
August	--	--	--	--	--	--	--	--	--	--	--
September	--	--	--	--	--	--	--	--	--	--	--
October	--	--	--	--	--	--	--	--	--	--	--
November	--	--	--	--	--	--	--	--	--	--	--
December	--	--	--	--	--	--	--	--	--	--	--
Total	260.452	0.000	0.000	0.000	260.452		78.960	0.530	0.014	0.900	0.838
Year 2013	144.512	0.000	0.000	0.000	144.512		93.330	0.030	0.000	0.480	2.568
Grand Total	404.964	0.000	0.000	0.000	404.964		172.290	0.560	0.014	1.380	3.406

Notes: * MTR SCL Contract 1108A barging point.

Government (CEDD) Public Fill Reception Facilities

Appendix G – Updated Environmental Mitigation Implementation Schedule

Environmental Mitigation Implementation Schedule –SCL Contract 1108 (Kai Tak Station and Associated Tunnels)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
Cultural Heritage Impact (Construction and Operational Phase)							
S4.9	CH1	Maintain a buffer distance as shown in **Appendix D**. A 1.8-2.2m vertical separation distance shall be maintained between the top of tunnel and the piles of the Former Kowloon City Pier.	Reserve sufficient area for necessary archaeological conservation and display works for Lung Tsun Stone Bridge in the future. Avoid direct impact on the Lung Tsun Stone Bridge and the Former Kowloon City Pier.	MTR Corporation Contractor	Lung Tsun Stone Bridge & Former Kowloon City Pier.	During the Construction of the tunnel section at Kai Tak	✔
Landscape & Visual (Construction Phase)							
S6.9.3	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary.	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	✔

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		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 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,					
S6.12	LV2	Decorative Hoarding Erection of decorative screen during construction stage to screen	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and	✔

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		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.				construction stage	
Air Quality (Construction Phase)							
/	A1	<u>Emission from Vehicles and Plants</u> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	✔

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		powered by ultra low sulphur diesel fuel (ULSD).					
/	A2	Open burning shall be prohibited.	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	✔
Construction Dust Impact							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	✔
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m^2 to achieve the dust removal efficiency.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	✔
S7.6.5	D3	• Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	*

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing,					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					
Construction 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; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	Control construction airborne noise	Contractor	All construction sites	Construction stage	✔
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy	Reduce the construction noise	Contractor	All construction sites	Construction	✔

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	levels at low-level zone of NSRs through partial screening.			stage	
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	✔
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	✔
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	✔
Water Quality (Construction Phase)							
S10.7.1	W1	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	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	*

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m^3/s a sedimentation 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.					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		• All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		• 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, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		• 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 • The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. • Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	N/A
S10.7.1	W3	<u>Sewage Effluent</u> • Portable chemical toilets and sewage holding tanks are	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	✔

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.					
S10.7.1	W4	<u>Groundwater from Contaminated Area:</u> • No direct discharge of groundwater from contaminated areas should be adopted. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in this EIA report for compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water) and the existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination If the review results indicated that the groundwater to be generated from the excavation works would be contaminated; the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground. • If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found	Construction stage	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers. • If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
S10.7.1	W7	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	Contractor	All construction sites where practicable	Construction stage	*
Waste Management (Construction Waste)							
S11.4.1.1	WM1	On-site sorting of C&D material • Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	✔

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		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	<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 promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	✔

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation					
S11.5.1	WM3	<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. • 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	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	✔

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.					
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	✔
S11.5.1	WM6	<u>Land-based and Marine-based Sediment</u>	To control pollution due to	Contractor	Within Project Site	Construction	✔

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		• All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location; • All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations; • Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action. • The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers; • The Contractors shall comply with the conditions in the dumping licence.	marine sediment		Area	Stage	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		• All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material; • The material shall be placed into the disposal pit by bottom dumping; • Contaminated marine mud shall be transported by spit barge of not less than 750m ^{3} capacity and capable of rapid opening and discharge at the disposal site; • Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site. • For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping into designated mud pit would be a possible arrangement. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping at the disposal site, thereby fulfil confined mud disposal.					
S11.5.1	WM7	<u>Chemical Waste</u> • Chemical waste that is produced, as defined by Schedule 1 of the	Control the chemical waste and ensure proper storage,	Contractor	All construction sites	Construction stage	✔

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary	handling and disposal.				

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		storage containers; or be to a reuser of the waste, under approval from the EPD.					
EM&A Project							
S14.2 – 14.4	EM2	1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	✔

Remarks :

✔ Compliance of mitigation measure

X Non-compliance of mitigation measure

• Non-compliance but rectified by the contractor

* Recommendation was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

Appendix H – Cumulative Log for Environmental Exceedance, Complaints, Notification of Summons and Successful Prosecutions

Cumulative Log for Environmental Exceedance, Complaints, Notification of Summons and Successful Prosecution

Reporting Month	Number of Exceedance	Number of Environmental Complaints	Number of Notification of Summons	Number of Successful Prosecutions
January 2014	0	0	0	0
February 2014	0	0	0	0
March 2014	0	0	0	0
April 2014	0	0	0	0
May 2014	0	0	0	0
June 2014	0	0	0	0
July 2014	0	0	0	0
Total	0	0	0	0
Year 2013	0	0	0	0
Grand Total	0	0	0	0

Appendix J

10th Monthly EM&A Report for Works Contract 1102 – Hin Keng Station and Approach Structures

MTR Corporation Limited

Shatin to Central Link –
Tai Wai to Hung Hom Section

Monthly EM&A Report No. 10

[Period from 1 to 31 July 2014]

Works Contract 1102 –

Hin Keng Station and Approach Structures

(August 2014)

Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 11th August 2014

Penta-Ocean Construction Co. Ltd.

Shatin to Central Link –

Contract 1102
Hin Keng Station and Approach Structures

Monthly Environmental Monitoring and Audit Report

(Version 1.0)

July 2014

Approved By	(Contractor's Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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EXECUTIVE SUMMARY

Introduction

1. This is the 10th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for MTR Shatin to Central Link (SCL) Works Contract 1102 – Hin Keng Station and Approach Structures. This report documents the findings of EM&A Works conducted from 1 to 31 July 2014.

Summary of Construction Works undertaken during the Reporting Month

2. The major site activities undertaken in the reporting month include:

- Slope improvement works;
- Bored piling;
- Pre-bored H-pile;
- King Post Piling;
- Sheet Piling;
- ELS Construction; and
- Modification of Retaining Wall.

Environmental Monitoring and Audit Progress

3. A summary of the monitoring activities in this reporting period is listed below and the monitoring works were undertaken by Contractor ET of Works Contract SCL 1103:

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours
  Noise Monitoring Station ID
  - NMS-CA-1(1) (C.U.H.K.A.A Thomas Cheung School) 5 times

- Construction Dust (24-hour TSP) Monitoring
  Dust Monitoring Station ID
  - DMS-1(1) (C.U.H.K.A.A Thomas Cheung School) 5 times

Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

Waste Management

4. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 6,453.9 m^3 of inert C&D materials were generated from the Project and were sent to Contract 1108A Kai Tak Barging Point and Tseung Kwan O Area 137 Fill Bank during the reporting month. No non-recyclable non-inert C&D materials and 30.7 m^3 general refuse were disposed of at NENT Landfill. No chemical wastes, steel material, plastics and paper/cardboard packaging was generated and collected by the recycler during this reporting month.

Landscape and Visual

5. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 17 and 29 July 2014. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in **Section 6**.

Environmental Site Inspection

6. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 8, 17, 22 and 29 July 2014.The representative of the IEC joined the site inspection on 17 July 2014. Details of the audit findings and implementation status are presented in **Section 6**.

Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution

7. No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the reporting period.

8. No non-compliance event was recorded during the reporting period.

9. No reporting change was recorded during the reporting period.

10. No Project related environmental complaint and notification of summons/ successful prosecutions were received in this reporting period.

Future Key Issues

11. Major site activities for the coming reporting month will include:

- Slope improvement works;
- Bored piling;
- Pre-bored H-pile;
- King Post Piling;
- Sheet piling;
- ELS Construction;
- Erection of Steel Platform at haul road; and
- Modification of Retaining Wall.

1 INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was appointed by Penta-Ocean Construction Co.Ltd. (POC) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL)Works Contract 1102 – Hin Keng Station and Approach Structures (hereafter referred to as the Project).

Purpose of the Report

1.2 This is the 10th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 31 July 2014.

Structure of the Report

1.3 The structure of the report is as follows:

Section 1: **Introduction -** details the scope and structure of the report.

Section 2: **Project Information** - summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: **Environmental Monitoring Requirement -** summarises the monitoring parameters, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: **Implementation Status on Environmental Mitigation Measures -** summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Monitoring Results** - summarises the monitoring results obtained in the reporting period.

Section 6: **Environmental Site Inspection -** summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: **Environmental Non-conformance -** summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: **Future Key Issues -** summarises the impact forecast and monitoring schedule for the next three months.

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

2.1 The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).

2.2 The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts. This Works Contract 1102 covers the construction of SCL Hin Keng Station (HIK Station) and its approach structures. This construction contract was awarded to Penta-Ocean Construction Co. Ltd. (POC) in July 2013 and the EM&A programme was commenced on 1st October 2013.

General Site Description

2.3 For Works Contract 1102, the works area for the HIK Station is located next to Hin Keng Estate and Che Kung Miu Road. The alignment and works area for the Works Contract 1102 are shown in **Figure 1**.

Construction Programme and Activities

2.4 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.

- Slope improvement works;
- Bored piling;
- Pre-bored H-pile;
- King Post Piling;
- Sheet piling;
- ELS Construction; and
- Modification of Retaining Wall.

Project Organization

2.5 The project organization chart and contact details are shown in **Figure 2.**

Status of Environmental Licences, Notification and Permits

2.6 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since the commencement of the construction works in October 2013 are presented in **Table 2.1**.

Table 2.1 Summary of the Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-438/2012/E	4/4/2014	14/7/2014	Updated to EP-438/2012/F
EP-438/2012/F	15/7/2014	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
Reference No: 362534	29/7/2013	N/A	Valid
Billing Account for Construction Waste Disposal			
A/C No.: 7017900	02/8/2013	N/A	Valid
Registration of Chemical Waste Producer			
Registration No. 5218-759-P1057-03	3/9/2013	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00018589-2014	29/4/2014	30/9/2018	Valid
Construction Noise Permit (CNP)			
GW-RN0380-14	30/6/2014	29/12/2014	Valid

Summary of EM&A Requirements

2.7 The EM&A programme under Works Contract 1102 require regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

2.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in **Section 6** of this report.

2.9 This report presents the monitoring results, observations, locations of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

3.1 In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring station. The construction noise monitoring location is listed in **Table 3.1** and shown in **Figure 3**.

Table 3.1 Regular Construction Noise Monitoring Station

Regular Construction Noise Monitoring Location	Description	Type of Measurement
NMS-CA-1(1)	C.U.H.K.A.A Thomas Cheung School	Façade

Note (1): NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

Monitoring Parameter and Frequency

3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual by the Contractor Environmental Team of Works Contract SCL 1103. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period could be referred to Appendix K of SCL 1103 monthly EM&A report. The construction noise was monitored at the frequency and duration stated in **Table 3.2**.

Table 3.2 Construction Noise Monitoring Parameters and Frequency

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring	Throughout the construction period	L_{eq} (30min)	Once per week

3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). L_{Aeq} (30min) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays while L_{10} and L_{90} were also recorded as supplementary reference information for data auditing.

Monitoring Equipment, Maintenance, Calibration and Procedures

3.4 The detailed information of monitoring equipment, maintenance, calibration and procedures could be referred to Section 4.2 of SCL 1103 monthly EM&A report.

Action & Limit Level for Construction Noise Monitoring

3.5 The Action and Limit Levels are presented in **Appendix B** and the Event / Action Plan (EAP) for noise monitoring is presented in **Appendix F.**

Continuous Noise Monitoring

3.6 With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared and submitted under EP Condition 2.10, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria will be anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (TAW-HUH) under Works Contract 1102.

Regular Construction Dust Monitoring

3.7 The proposed dust monitoring station for the construction phase of the Project, as recommended in the approved EM&A Manual, is listed in **Table 3.3** and shown in **Figure 4**.

Table 3.3 Dust Monitoring Station

Regular Dust Monitoring Location	Description
DMS-1 (1)	C.U.H.K.A.A. Thomas Cheung School

Note (1): ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).

Monitoring Parameter and Frequency

3.8 The dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring station in accordance with the requirements stipulated in the EM&A Manual. The monitoring schedule for this reporting period could be referred to Appendix K of SCL 1103 monthly EM&A report. The 24-hour TSP levels were monitored at the frequency and duration stated in **Table 3.4**.

Table 3.4 Dust Monitoring Parameters and Frequency

Monitoring Period	Duration	Parameter	Frequency
Impact Monitoring (1)	Throughout the construction period	24-hour TSP (2)	Once per 6 days

Note:
(1) 1- hour TSP shall be conducted when one documented valid complaint is received.
(2) 24-hour TSP will be conducted when project-related construction activities are being undertaken within a radius of 500m from monitoring stations.

Monitoring Equipment, Maintenance, Calibration and Procedures

3.9 The detailed information of monitoring equipment, maintenance, calibration and procedures could be referred to Section 3.2 of SCL 1103 monthly EM&A report.

Action and Limit Levels for Dust Monitoring

3.10 The Action and Limit levels have been established and are presented in **Appendix B** and the Event / Action Plan (EAP) for dust monitoring is presented in **Appendix F.**

Landscape and Visual

3.11 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is given in **Appendix E**. The Event / Action Plan (EAP) for landscape and visual are presented in **Appendix F.**

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status of the environmental mitigation measures of the reporting period is summarized in **Appendix E**. Status of required submissions under the Environmental Permit (EP) of the reporting period is presented in **Table 4.1**.

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
3.4	Monthly Environmental Monitoring & Audit Report (June 2014)	14 July 2014

5 MONITORING RESULTS

Regular Construction Noise Monitoring

5.1 A total of 5 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays during the reporting period by ET of SCL 1103. No exceedance of the limit level was recorded at designated monitoring station.

5.2 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.

5.3 The detailed noise monitoring results together with their graphical presentations are presented in Appendix H of SCL 1103 monthly EM&A report.

Table 5.1 Summary Table of Construction Noise Monitoring Results

Parameter	Minimum Leq(30min), dB(A)	Maximum Leq(30min), dB(A)	Action Level	Limit Level, Leq(30min), dB(A)
Noise	50.1(2)	56.1(2)	When one documented complaint is received	70/65(1)

Remarks:
(1) For normal day-time working hours, the noise criteria is 70dB(A) and 65 dB(A) for normal teaching period and examination periods respectively.
(2) The noise monitoring data presented in the table is baseline corrected.

5.4 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period.

Regular Dust Monitoring

5.5 A total of 5 sets of 24-hour TSP monitoring were carried out at the designated monitoring station of the reporting period by ET of Works Contract SCL 1103. The monitoring results together with their graphical presentations are presented in Appendix E of SCL 1103 monthly EM&A report and a summary of the dust monitoring results in this reporting month is given in **Table 5.2**.

Table 5.2 Summary Table of Dust Monitoring Results

Parameter	Minimum $\mu g/m^3$	Maximum $\mu g/m^3$	Average $\mu g/m^3$	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
24-hr TSP	13.6	39.7	25.1	148.7	260

5.6 Wind monitoring data obtained from Kai Tak Meteorological Station of Hong Kong Observatory is shown in Appendix F of SCL 1103 monthly EM&A report.

5.7 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.

5.8 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period.

Waste Management

5.9 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and paper/cardboard packaging materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.3**. No chemical waste, steel material, plastics, paper/cardboard packaging was generated during this reporting month. Details of waste management data is presented in **Appendix G**.

Table 5.3 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) [a][b]	C&D Materials (non-inert) [c]				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/ cardboard	Plastics	Metals
July 2014[d]	6,453.9 m^3	30.7 m^3	0 kg	0 kg	0 kg	0 kg

Notes:
(a) Inert C&D materials include excavated soil and rock, which were delivered to Tseung Kwan O Area 137 Fill Bank during the reporting month.
(b) In 6,453.9 m^3 inert C&D materials, 210.8 m^3 of excavated soil was delivered to Contract 1108A Kai Tak Barging Point and would be reused in other project.
(c) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. General refuse was delivered to designated landfill for disposal.
(d) The cut-off date of the waste flow data in reporting month was 30 July 2014.

Landscape and Visual

5.10 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 17 and 29 July 2014. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audits

6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix D**.

6.2 Site audits were conducted on 8, 17, 22 and 29 July 2014 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 17 July 2014. No EPD site inspection was conducted during the reporting month. The details of observations during site audit carried out by ET can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

6.3 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix E**.

6.4 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	10, 20, 24 and 30 Jun 2014	Reminder: Sediment in wheel washing bay should be removed more frequently.	The sediment had been regularly removed on 8 Jul 2014.
	24 and 30 Jun, 8 Jul 2014	Anonymous effluent discharge was observed at discharge point. The Contractor should ensure all effluent treated before discharge.	Sand bags were provided to block the anonymous channel on 17 Jul 2014.
	30 Jun 2014	Reminder: Exposed area should be properly covered during holiday.	Construction work was observed on exposed area on 8 Jul 2014.
	17 Jul 2014	Reminder: To properly bund the gullies to avoid untreated discharge.	Sand bag bund was provided to the gully on 22 Jul 2014.
	22 Jul 2014	Anonymous effluent discharge was observed at two discharge points. The Contractor shall direct and treat wastewater by de-silting facilities before discharge.	Anonymous effluent discharge at two discharge points were blocked and directed to de-silting facilities on 29 Jul 2014.
Noise	8 Jul 2014	Reminder: Movable noise barrier at Slope FR326 should be improved.	Movable noise barrier was improved on 17 Jul 2014.
	22 Jul 2014	Reminder: Movable noise barrier should be improved at Slope FR326.	Movable noise barrier was properly provided on 29 Jul 2014.
Landscape and Visual	20, 24 and 30 Jun, 8 Jul 2014	Tree protection zone should be properly improved for the remained tree near football court. The Contractor shall ensure keeping construction materials a distance from tree protection zone.	Tree protection zone was set up and the construction materials nearby were removed on 17 Jul 2014.

Parameters	Date	Observations and Recommendations	Follow-up
	29 Jul 2014	Reminder: Fencing for tree protection zone should be properly maintained.	Follow up actions will be reported in the next month.
Air Quality	8 Jul 2014	Smoke emission from loading machine was observed. The Contractor should provide regular maintenance to working machine.	Smoke emission was not observed during site inspection on 17 Jul 2014
	8 and 17 Jul 2014	Reminder: Water spraying should be provided more frequently.	Water spraying was provided to the exposed area on 22 Jul 2014.
Waste / Chemical Management	8, 17 and 22 Jul 2014	Drip tray should be provided to working air compressor.	Please refer to remark on item for 29 Jul 2014.
	17, 22 and 29 Jul 2014	To provide a drip tray for oil container near the site office.	Follow up actions will be reported in the next month.
	22 Jul 2014	Reminder: Good housekeeping should be kept and waste should be recycled where possible.	Receptacle was provided to collect construction waste on 29 Jul 2014.
	29 Jul 2014	Reminder: Drip tray should be provided to unused air compressor for future use.	Follow up actions will be reported in the next month.
Permits/ Licenses	N/A	There was no observation in the reporting period.	N/A

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

7.1 No exceedance of the Action and Limit Levels of the regular construction noise and 24-hour TSP monitoring was recorded during the reporting month. The summary of exceedance is provided in **Appendix C**.

Summary of Environmental Non-Compliance

7.2 No environmental non-compliance was recorded in the reporting month.

Summary of Environmental Complaint

7.3 No environmental Project-related complaint was received in the reporting month. The Cumulative Complaint Log since the commencement of the Project is presented in **Appendix H**.

Summary of Environmental Summon and Successful Prosecution

7.4 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix H**.

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

8.1 A tentative construction programme is provided in **Appendix A**. The major construction activities in the coming month will include:

- Slope improvement works;
- Bored piling;
- Pre-bored H-pile;
- King Post Piling;
- Sheet piling;
- ELS Construction;
- Erection of Steel Platform at haul road; and
- Modification of Retaining Wall.

Key Issues in the Next Month

8.2 Key issues to be considered in the coming month include:

- Dust arising from loading, unloading, transfer, handling or storage of bulk cement, excavated materials and soil erosion in dry days;
- Control of silty surface runoff;
- Implementation of mitigation measures for wastewater spillage from construction works.
- Preservation and protection of retained and transplanted trees;
- Implementation of mitigation measures for noise nuisance from construction works;
- Control of silty surface runoff during wet season;
- Overflow of the sedimentation tanks and desilting facilities; and
- Regular removal of silt, mud and sand along u-channels and sedimentation tanks.

Monitoring Schedule in the Next Month

8.3 The tentative schedule of regular construction noise monitoring and 24-hour TSP monitoring at in the next reporting period is presented in Appendix K of SCL 1103 monthly EM&A report. The regular construction noise monitoring and 24-hour TSP monitoring will be conducted at the same monitoring locations in the next reporting period.

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 July 2014 in accordance with EM&A Manual and the requirement under EP.

9.2 No exceedance of the Action and Limit Levels of regular construction noise and 24-hour TSP monitoring was recorded at the designated monitoring stations during the reporting month.

9.3 4 times of joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET and 2 times of bi-weekly inspection of the implementation of landscape and visual mitigation measures were conducted during the reporting period.

9.4 There was no Project related environmental complaint, successful prosecution or notification of summons received during the reporting month.

9.5 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

9.6 According to the environmental audit performed in the reporting month, the following recommendations were made:

Water Quality

- All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times;
- Site runoff should be directed and treated by de-silting facilities before discharged; and
- Sand bag bund should be provided to gullies in construction area to avoid untreated discharge.

Construction Noise

- Regular review on the noise mitigation measures and the conditions of the implemented noise mitigation measures shall be properly maintained.

Landscape and Visual

- "No-intrusion zone" should be established and maintained for existing trees as far as practicable. The Contractor is reminded to closely monitor and restrict the site working staff from entering the erected "no-intrusion zone" for existing trees and avoid placing construction materials within the tree protection zone for maximizing the protection.

Air Quality

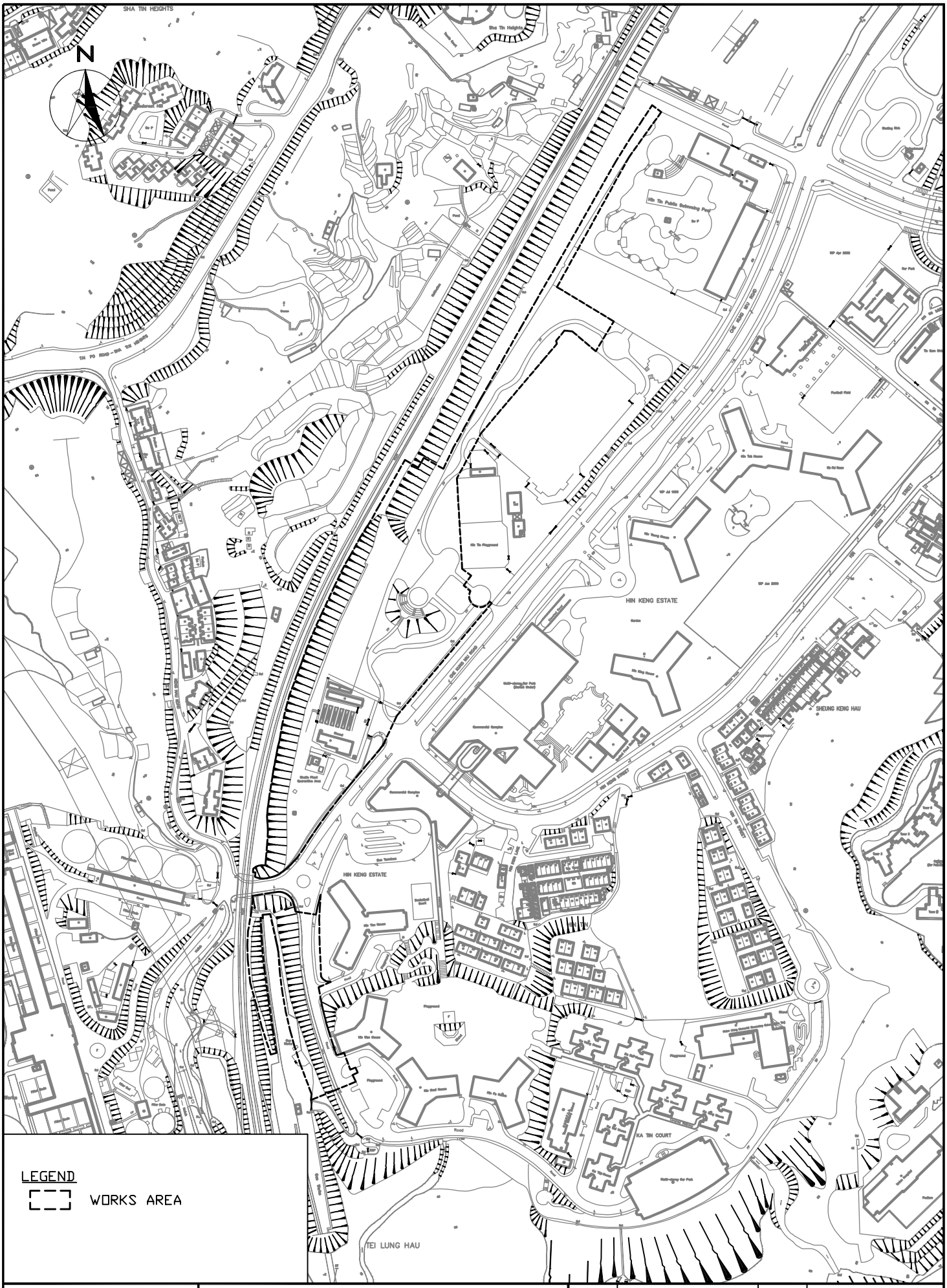
- Regular water spraying on site is reminded to be implemented as per EP requirement. Exposed work area should be covered with impervious sheet where possible to suppress dust emission; and
- Regular maintenance should be provided to machine and plant to prevent smoke

emission.

Waste/Chemical Management

- Good site practice of providing drip trays for temporary use of chemicals shall be sustained. Drip trays should be properly maintained;
- Provision and enhancement of the preventive mitigation measures to avoid oil leakage during oil filling works; and
- General refuse and construction waste should be properly collected and sorted. Waste shall be recycled where possible.

FIGURES



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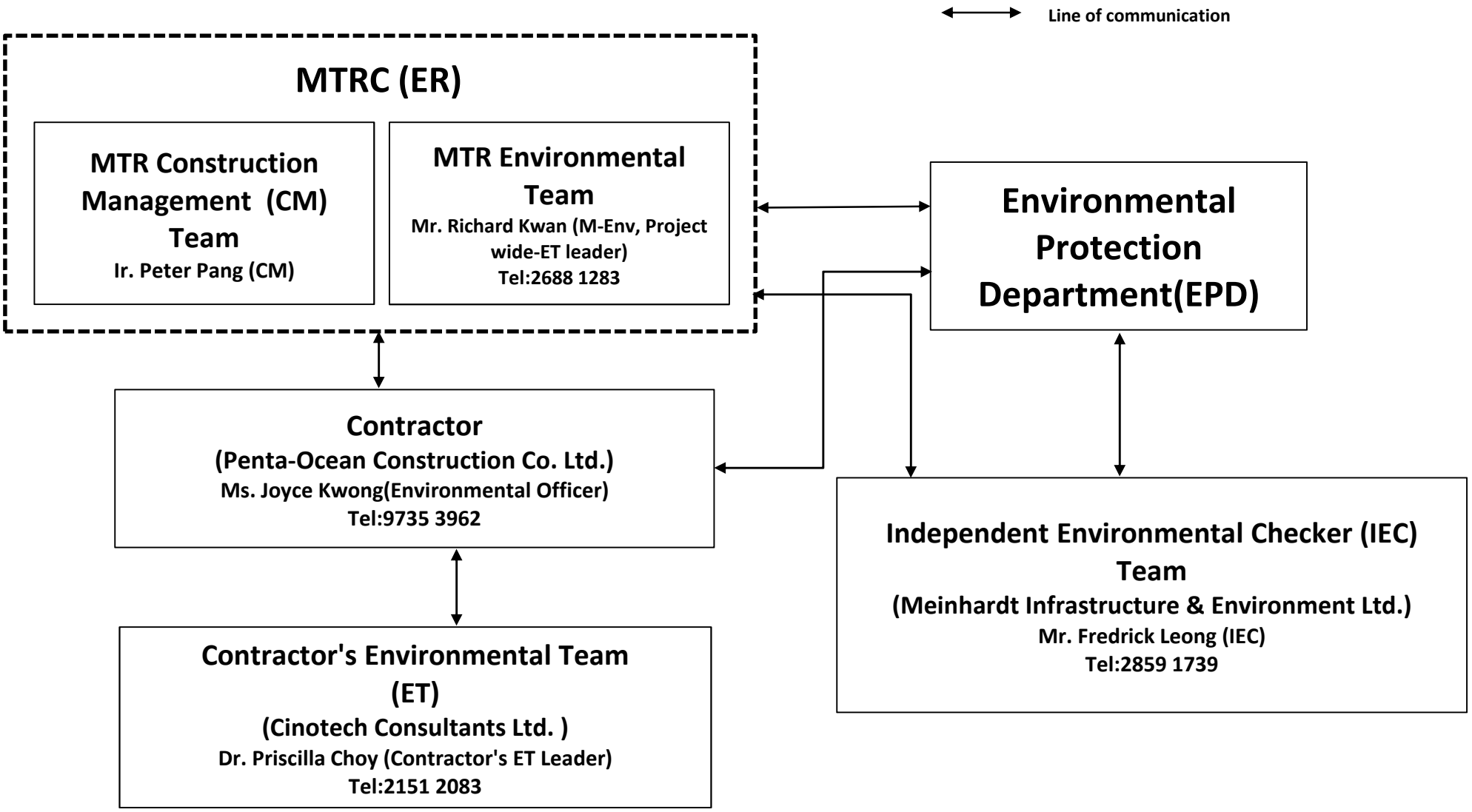
SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK –
HIN KENG STATION AND APPROACH STRUCTURES

SITE LAYOUT PLAN OF
WORKS CONTRACT 1102

SCALE	1:10000@A4	DATE	NOV 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 1
		REV	–



Title	SCL Contract 1102 The Shatin to Central Link - Hin Keng Station and Approach Structures Organization Chart and Key Contact of the Project	Scale N.T.S Date Oct-13	Project No. MA13040 Figure 2

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SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK -
HIN KENG STATION AND APPROACH STRUCTURES

LOCATION OF NOISE MONITORING STATION

SCALE	1:10000@A4	DATE	OCT 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 3
		REV	-

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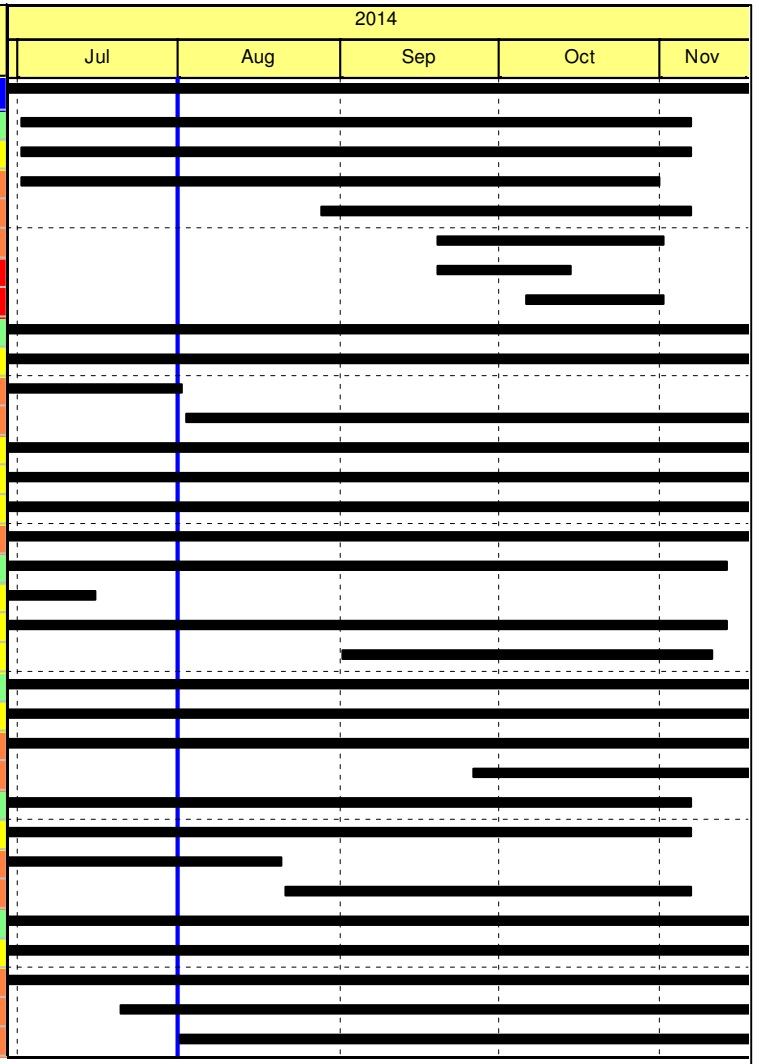
SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK –
HIN KENG STATION AND APPROACH STRUCTURES

LOCATION OF DUST MONITORING STATION

SCALE	1:10000@A4	DATE	OCT 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 4
		REV	–

APPENDIX A
TENTATIVE CONSTRUCTION PROGRAMME

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish
	3-month Rolling Programme Summary (Aug to Oct	910	724	21-Oct-13 A	17-Jan-17
	Hin Keng Station	88	81	02-Jul-14 A	06-Nov-14
	Sub-structure	88	81	02-Jul-14 A	06-Nov-14
	Cap and Tie Beams	88	76	02-Jul-14 A	31-Oct-14
	Earth Mat Installation	58	58	28-Aug-14	06-Nov-14
	Superstructure	36	36	19-Sep-14	01-Nov-14
	Concourse Level	20	20	19-Sep-14	14-Oct-14
	Mezzanine Floor	24	24	06-Oct-14	01-Nov-14
	Ma On Shan Line & Tail Track	910	724	21-Oct-13 A	17-Jan-17
	Retaining Wall RW7	330	140	02-Dec-13 A	17-Jan-15
	Initial Work	171	1	02-Dec-13 A	01-Aug-14
	Structural Works	139	139	02-Aug-14	17-Jan-15
	Noise Barrier Mini-pile	414	188	21-Oct-13 A	24-Mar-15
	Noise Barrier Work	768	724	15-May-14 A	17-Jan-17
	Miscellaneous Items within Operation Area	146	178	28-Mar-14 A	12-Mar-15
	Elevated Evacuation Walkway	146	178	28-Mar-14 A	12-Mar-15
	At-grade Box	211	87	26-Feb-14 A	13-Nov-14
	Haul Road Construction	30	0	11-Jun-14 A	16-Jul-14 A
	Temporary Piling Platform	177	87	26-Feb-14 A	13-Nov-14
	Bored Pile Construction	58	58	01-Sep-14	10-Nov-14
	Hin Keng Viaduct	453	281	23-Dec-13 A	18-Jul-15
	Foundation	453	281	23-Dec-13 A	18-Jul-15
	Bored Piles Construction & Pile Test	414	178	23-Dec-13 A	12-Mar-15
	Pile Cap Construction	234	234	26-Sep-14	18-Jul-15
	FR63 Slope	218	81	15-Feb-14 A	06-Nov-14
	Pit by Pit Construction	218	81	15-Feb-14 A	06-Nov-14
	Row 1	128	17	15-Feb-14 A	20-Aug-14
	Row 2	64	64	21-Aug-14	06-Nov-14
	FR65 Slope	382	282	14-Jan-14 A	20-Jul-15
	Pit by Pit Construction	382	282	14-Jan-14 A	20-Jul-15
	Zone 1	300	139	14-Jan-14 A	16-Jan-15
	Zone 2	282	282	21-Jul-14 A	20-Jul-15
	Zone 4	270	270	01-Aug-14	06-Jul-15



PENTA-OCEAN CONSTRUCTION CO.LTD 五洋建設

Actual Work
Remaining Work
Critical Remaining Work
Milestone

MTRC SCL Project Contract 1102

Hin Keng Station and Approach Structures

Page 1 of 1

3 Months Rolling Programme Summary

(Period - Aug to Oct 2014)

Date	Revision	Checked	Approved
1-Aug-14	0		

APPENDIX B
ACTION AND LIMIT LEVELS

APPENDIX B – Action and Limit Levels

24-Hour TSP

Regular Dust Monitoring Station	Description	Action Level, μg/m^3	Limit Level, μg/m^3
DMS-1 (1)(2)	C.U.H.K.A.A. Thomas Cheung School	148.7	260

Note:
(1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) Dust monitoring is carried out by Environmental Team of SCL Works Contract 1103.

Construction Noise

Regular Construction Noise Monitoring Station	Description	Time Period	Action Level	Limit Level
NMS-CA-1 (1)(2)	C.U.H.K.A.A Thomas Cheung School	0700-1900 hrs on normal weekdays	When one documented complaint is received	65 / 70 dB(A) (3)

Note:
(1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
(2) Construction Noise monitoring is carried out by Environmental Team of SCL Works Contract 1103.
(3) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.

APPENDIX C
SUMMARY OF EXCEEDANCE

APPENIDX C – SUMMARY OF EXCEEDANCE

Reporting Month: July 2014

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX D
SITE AUDIT SUMMARY

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140708
Date	8 July 2014 (Tuesday)
Time	09:00 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	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	
140708-O01	• Smoke emission from loading machine was observed. The Contractor should provide regularly maintenance to working machine.	E 15
140708-R04	• Water spraying should be provided more frequently.	E 5
	Part F – Construction Noise Impact	
140708-R03	• Movable noise barrier at Slope FR326 should be improved.	F 7
	Part G – Waste/Chemical Management	
140708-O02	• Drip tray should be provided to working air compressor.	G 10
	Part H – Permits/Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part I – Others	
140708-F05	• Anonymous effluent discharge was observed at discharge point. The Contractor should ensure all effluent treated before discharge.	B 7
140708-F06	• Tree protection zone should be properly improved for the remained tree near football court.	D2 and D3

	Name	Signature	Date
Recorded by	Jason Lai		8 July 2014
Checked by	Dr. Priscilla Choy		8 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140717
Date	17 July 2014 (Thursday)
Time	14:00 – 15:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality	
140717-R01	• To properly bund the gullies to avoid untreated discharge.	B 11
	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 – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part G – Waste/Chemical Management	
140717-O02	• To provide a drip tray for oil container near the site office.	G 9 and G 10
	Part H – Permits/Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part I – Others	
140717-F03	• To increase the frequency of water spray to exposed area to prevent dust generation.	E 5
140717-F04	• To provide a drip tray to the air compressor.	G 9 and G 10

	Name	Signature	Date
Recorded by	Kevin Lam		17 July 2014
Checked by	Dr. Priscilla Choy		17 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140722
Date	22 July 2014 (Tuesday)
Time	09:00 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	Part B – Water Quality	
140722-O01	• Anonymous effluent discharge was observed at two discharge points. The Contractor shall direct and treat wastewater by de-silting facilities before discharge.	B 7
	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 – Construction Noise Impact	
140722-R02	• Movable noise barrier should be improved at Slope FR326.	F 7
	Part G – Waste/Chemical Management	
140722-R03	• Good housekeeping should be kept and waste should be recycled where possible.	G 4i
	Part H – Permits/Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part I – Others	
140722-F04	• To provide a drip tray for oil container near the site office.	G 9 and G 10
140722-F05	• To provide a drip tray to the air compressor.	G 9 and G 10

	Name	Signature	Date
Recorded by	Jason Lai		22 July 2014
Checked by	Dr. Priscilla Choy		22 July 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	140729
Date	29 July 2014 (Tuesday)
Time	09:00 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	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.	
140729-R01	***Part D – Landscape & Visual*** • Fencing for tree protection zone should be properly maintained.	D 2
	Part E – Air Quality • No environmental deficiency was identified during the site inspection.	
	Part F – Construction Noise Impact • No environmental deficiency was identified during the site inspection.	
140729-R02	***Part G – Waste/Chemical Management*** • Drip tray should be provided to unused air compressor for future use.	G 9
	Part H – Permits/Licenses • No environmental deficiency was identified during the site inspection.	
140729-F03	***Part I – Others*** • To provide a drip tray for oil container near the site office.	G 9 and G 10

	Name	Signature	Date
Recorded by	Jason Lai		29 July 2014
Checked by	Dr. Priscilla Choy		29 July 2014

APPENDIX E
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecology (Construction Phase)								
S5.4	E1	Engineering works should not encroach into country park boundary, Tei Lung Hau Stream and secondary woodland near the portal at Hin Keng	Minimise ecological impacts	Contractor	Lion Rock Country Park, Tei Lung Hau Stream	Detailed design and construction stage	• AFCD's requirements • EIAO • Country Parks Ordinance	^
S5.7	E5	<u>Good Site Practices</u> Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, 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; • Avoidance of soil storage against trees or close to	Minimise ecological impacts	Contractor	All construction sites	During construction	• ProPECC PN 1/94	^ ^ 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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		waterbodies in particular the Tei Lung Hau stream; • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. Tei Lung Hau Stream and the adjoining secondary woodland, tunnel on hill at top of slope stabilisation works; • No on-site burning of waste; • Waste and refuse in appropriate receptacles.						N/A ^ ^
S5.7	E7	<u>Water Quality and Hydrology</u> • 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 theTei Lung Hau Stream) and good site practices.	• Avoid indirect water impact to any wetland habitats or wetland fauna • Minimize the drawdown of water table	Contractor	Works area in Hin Keng	Construction stage	• TCW No. 5/2005	^
Landscape & Visual (Construction Phase)								
S6.9.3	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	TM-EIAO	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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. <u>Protection of Retained Trees</u> • 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,						* ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		including trees in contractor's works sites.						
S6.12	LV2	• Decorative Hoarding 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. • Management of facilities on work sites 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. • Tree Transplanting Trees of high to medium survival rate would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and Construction stage	EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006	^ ^ ^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Air Quality (Construction 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	Contractor	All construction sites	Construction stage	• APCO	^ * ^
/	A2	Open burning shall be prohibited	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	• APCO	^
Construction Dust Impact								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^
S7.6.5	D2	• Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area and once per 1.5hour at those in the Tai Wai area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	*

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m2 to achieve the dust removal efficiency						
S7.6.5	D3	• Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^ ^ ^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building						^ ^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl,bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the						^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		construction site or part of the construction site where the exposed earth lies.						
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
Construction Noise (Airborne)								
S8.3.6	N1	Implement the following good site practices: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other	Control construction airborne noise	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^ ^ ^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.						
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	*
S8.3.6	N4	Use “Quiet plants”	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected	Contractor	Selected representative	Construction stage	• TM-EIA	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
			representative locations		noise monitoring station			
Water Quality (Construction Phase)								
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 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), earthbunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	• 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	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		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, 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.						^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.						* ^ ^ *

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• 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						^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. • Adopt best management practices						^ * ^ ^
S10.7.1	W3	<u>Sewage Effluent</u> • Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • TM-water	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S10.7.1	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 compliancewith 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	• Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water	^ ^ ^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<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	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	• DEVB TC(W) No. 6/2010	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.						
S11.5.1	WM2	Construction and Demolition 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 promotethe use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	^ ^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation						^ ^ ^
S11.5.1	WM3	<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	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.						^
S11.5.1	WM4	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	* ^ * ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.						
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 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.	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	^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		• Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.						^
Land Contamination								

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S12.12	LC2	Re-sampling at NTSAMC • The soil re-sampling and analysis of cyanide (free) at Site L1 (NT South Animal Centre) should be conducted after the site is resumed and handed over to the Project Proponent. • Following the completion of re-sampling and lab testing works of this site, a second Supplementary CAR and SupplementaryRAP (if contamination is confirmed) shall be prepared and submitted to EPD for agreement. • Supplementary Remediation Report (RR) shall also be prepared and submitted to EPD for endorsement prior to the commencement of any construction/ development works at Site L1 (NT South Animal Centre)	To analyse cyanide (free) at Site L1 (NT South Animal Centre)	Contractor	Site L1 (NT South Animal Centre)	After the site is resumed and handed over to the Project Proponent	• Practice Guide (PG) forInvestigation and Remediation of ContaminatedLand • GN/GM for land contamination • Risk-Based Remediation Goals	^ ^ ^
Hazard to Life								
Chapter 13.13	A13C.8	Installation of on-site gas monitors in all relevant SCL construction/operation areas;	To reduce the risks to the SCL staff, construction workers and passengers	MTRC/ Contractor	-	Construction and operation		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 measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
						phases		
Chapter 13.13	A13C.8	Establishment of emergency response and evacuation plans (cooperation of various parties/departments required. For theoperational 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, constructionworkers and passengers	MTRC/ Contractor	-	Construction and operation phases		^
Chapter 13.13	A13C.8	Safety/emergency response/evacuation training and drills for all personnel	To reduce the risks to the SCL staff, constructionworkers and passengers	MTRC/ Contractor	-	Construction and operation phases		^
EM&A Project								

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S 14.2	EM1	• An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	MTR Corporation	All construction sites	Construction stage	• EIAO Guidance Note No.4/2010 • TM-EIAO	^
S 14.2 – 14.4	EM2	• An Environmental Team needs to be employed as per the EM&A Manual • Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. • An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	• EIAO Guidance Note No.4/2010 • TM-EIAO	^ ^ ^

Remarks: ^ Compliance of mitigation measure X Non-compliance of mitigation measure

• Non-compliance but rectified by the contractor

* Recommendation was made during site audit but improved/rectified by the contractor.

N/ANot Applicable

APPENDIX F
EVENT AND ACTION PLANS

Appendix F - Event and Action Plan for Air Quality Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1102 ET	**IEC**	**ER**	**CONTRACTOR**
ACTION LEVEL				
1. Exceedance for one sample	1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing;	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
2.Exceedance for two or more consecutive samples	1. Inform the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease addtional monitoring	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise Implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

LIMIT LEVEL				
1.Exceedance for one sample	1. Inform the IEC, Contractor and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.
2.Exceedance for two or more consecutive samples	1. Notify IEC, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1102 ET	**IEC**	**ER**	**CONTRACTOR**
Action Level	1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness	1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. .	1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures	1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	1. Notify the IEC, Contractor and EPD 2. Repeat measurement to confirm findings 3. Increase monitoring frequency 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Identify source and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event and Action Plan for Landscape and Visual during Construction Phase

Action Level	Works Contract 1102 ET	IEC	ER	Contractor
Non-conformity on one occasion	1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures.	1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor 3. Supervise implementation of remedial measures	1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring	1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures.	1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

APPENDIX G
WASTE GENERATION IN THE REPORTING MONTH

Name of Contractor: Penta-Ocean Construction Co. Ltd.
Waste Flow Table for Year 2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete	Reused in the Contract	Reused in other Projects (See Note 2)	Disposed as Public Fill (See Note 1)	Disposed as Sorting Facility	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Year 2013	4.2424	0.0803	0	0.2980	3.8011	0.0631	0	0	0	0	0.1227
Jan-14	1.3004	0	0	0.1714	1.1265	0.0025	0	0	0	0	0.0442
Feb-14	0.1766	0	0	0.1483	0.0044	0.0238	0	0	0	0	0.0069
Mar-14	2.7538	0	0	0.3543	2.3748	0.0248	0	0	0	0	0.0479
Apr-14	1.0369	0	0	0.0806	0.9444	0.0120	0	0	0	0	0.0215
May-14	2.5399	0	0	0.8866	1.6390	0.0143	0	0	0	0	0.0360
Jun-14	6.6293	0	0	4.1629	2.4548	0.0117	0	0	0	0	0.0233
Sub-total	18.6793	0.0803	0	6.1021	12.3450	0.1522	0	0	0	0	0.3025
Jul-14 (See Note 3)	6.4539	0	0	0.2108	6.2431	0	0	0	0	0	0.0307
Aug-14											
Sep-14											
Oct-14											
Nov-14											
Dec-14											
Total	**25.1332**	**0.0803**	**0**	**6.3129**	**18.5881**	**0.1522**	**0**	**0**	**0**	**0**	**0.3332**

Note: (1) Inert C&D materials include excavated soil and rock, which were delivered to Tseung Kwan O Area 137 Fill Bank during the reporting month.
Note: (2) Excavated soil was disposed of at Contract 1108A Kai Tak Barging Point and would be reused in other Project.
Note: (3) The cut-off date of waste flow data in reporting month was 30 July 2014.

APPENDIX H
CUMULATIVE LOG FOR COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

Appendix H - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
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Cumulative Log for Notifications of Summons

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
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Cumulative Log for Successful Prosecutions

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
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