

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. 39

[Period from 1 to 30 November 2015]

(December 2015)

Verified by: Fredrick Leong



Position: Independent Environmental Checker

Date: 11 December 2015

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Certified by: Richard Kwan 

Position: Environmental Team Leader

Date: 11 December 2015

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. 39**

[Period from 1 to 30 November 2015]

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Table of Contents

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

List of Tables

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

List of Appendices

Appendix A	39 th Monthly EM&A Report for Works Contract 1108A – Kai Tak Barging Point Facilities
Appendix B	39 th Monthly EM&A Report for Works Contract 1109 – Stations and Tunnels of Kowloon City Section
Appendix C	36 th Monthly EM&A Report for Works Contract 1101 – Ma On Shan Line Modification Works
Appendix D	35 th Monthly EM&A Report for Works Contract 1111 – Hung Hom North Approach Tunnels
Appendix E	34 th Monthly EM&A Report for Works Contract 1103 – Hin Keng to Diamond Hill Tunnels
Appendix F	33 rd Monthly EM&A Report for Works Contract 1106 – Diamond Hill Station
Appendix G	31 st Monthly EM&A Report for Works Contract 1107 – Diamond Hill to Kai Tak Tunnels
Appendix H	30 th Monthly EM&A Report for Works Contract 1112 – Hung Hom Station and Stabling Sidings
Appendix I	30 th Monthly EM&A Report for Works Contract 1108 – Kai Tak Station and Associated Tunnels
Appendix J	26 th Monthly EM&A Report for Works Contract 1102 – Hin Keng Station and Approach Structures

1 INTRODUCTION

1.1 Background

- 1.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai to Hung Hom via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH) and Stabling Sidings at Hung Hom Freight Yard (HHS); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 1.1.2 Shatin to Central Link – Tai Wai to Hung Hom Section [SCL (TAW-HUH)] and Shatin to Central Link – Mong Kok East to Hung Hom Section [SCL (MKK-HUH) (hereafter referred to as “the Project”) are parts of the SCL. Shatin to Central Link – Stabling Sidings at Hung Hom Freight Yard [SCL (HHS)] is a proposed stabling sidings option for SCL (TAW – HUH) at the former freight yard in Hung Hom.
- 1.1.3 The Environmental Impact Assessment (EIA) Reports for SCL (TAW-HUH) (Register No.: AEIAR-167/2012), SCL (MKK-HUH) (Register No.: AEIAR-165/2012) and SCL (HHS) (Register No.: AEIAR-164/2012) were approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Reports, two Environmental Permits (EPs) were granted on 22 March 2012, one covers SCL (TAW-HUH) and SCL (HHS) (EP No: EP-438/2012) and the other covers SCL (MKK-HUH) and SCL (HHS) (EP No.: EP-437/2012), for their construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-438/2012 and the latest Environmental Permit (EP No: EP-438/2012/I) was issued by Director of Environmental Protection (DEP) on 14 October 2015.

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 2019 tentatively. **Table 1.1** summarises the information of the awarded Works Contracts.

Table 1.1 Summary of Awarded Works Contracts

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
1101	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. (Arup)
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 (SSHCVJ)	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 thirty-ninth 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 30 November 2015.

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

- 2.1.2 The EM&A Reports for Works Contracts 1108A, 1109, 1101, 1111, 1103, 1106, 1107, 1112, 1108 and 1102 prepared by the respective Contractor's ETs are provided in **Appendices A to J**, respectively. The EM&A Reports provide details of the project information, EM&A requirements, impact monitoring and audit results for the corresponding Contracts.
- 2.1.3 A summary of the major construction activities undertaken by the respective Contractors of various Works Contracts during the reporting period are presented in **Table 2.1**.

Table 2.1 Summary of Major Construction Activities in the Reporting Period

Works Contract	Site	Construction Activities
1101 ⁽¹⁾	Tai Wai Mei Tin Road	<ul style="list-style-type: none"> All construction activities were completed in September 2013.
1102	Hin Keng Station and Approach Structures	<ul style="list-style-type: none"> Slope improvement works ELS structure installation & superstructure works at at-grade box Pier construction of viaduct ABWF works at Hin Keng Station Modification of retaining wall
1103	Diamond Hill Area	<ul style="list-style-type: none"> Tunnel Boring Machine (TBM) tunneling and machinery site assembly
	Hin Keng Area	<ul style="list-style-type: none"> Pipe piling, grouting and tunnel blasting
	Fung Tak Area	<ul style="list-style-type: none"> Shaft excavation and ELS and sheet piling for retaining wall
	Ma Chai Hang Area	<ul style="list-style-type: none"> Shaft excavation and ELS
1106	Diamond Hill Station Area	<ul style="list-style-type: none"> Construction of slabs/beams, columns and walls at SCL-DIH station area Concreting works Backfilling works Excavation and cable connection for TTMS implementation at Lung Cheung Road Formwork removal and re-propping works at Interchange Adit Struts and waling cutting works at West Unpaid Link Adit Structural and ABWF installation works, and drainage construction at Entrance A1
1107	Tunnel section next to Kai Tak Station	<ul style="list-style-type: none"> Tunnel construction at cut and cover tunnels Backfilling works at cut and cover tunnels Reinstatement of box culvert
1108	Kai Tak Station	<ul style="list-style-type: none"> Open Cut Tunnel: Strut dismantling, SUA wall and roof concrete casting, shortcreting to cut slope, cast blinding, base slab steel fixing, wall and roof internal moulds erection. Cut and Cover Tunnel: roof and wall concrete casting, backfilling under reprop water proof spraying. Station structure: ebar fixing and formwork erection, roof parapet beam of wall concreting, first floor concreting, sheetpile extraction. Mined Tunnel: Receiving Shaft backfilling, mined tunnel steel mould installation, uptrack rebar fixing.
1108A	Kai Tak Barging Point Facilities	<ul style="list-style-type: none"> Daily operation and maintenance of the Barging Point Facilities to receive excavated spoil delivered by trucks from Designated and Interfacing Contracts Temporary stockpiling of received spoil in the Barging Point Facilities Marine transportation of received spoil to receptor sites for beneficial reuse
1109	Ma Tau Wai (MTW) Works Area	<ul style="list-style-type: none"> Along Ma Tau Wai Road and TKW/MTW Road Garden – EEP construction, trial pits for location of utilities, and station excavation and construction

Works Contract	Site	Construction Activities
	To Kwa Wan (TKW) Works Area	<ul style="list-style-type: none"> • Olympic Garden - Underpinning works, installation of pipe pile and TTMS preparation • TKW Station - Pump installation, open cut excavation, and tunnelling works • Tam Kung Road - Shaft construction • Nam Kok Road - Installation of pipe pile
1111	Mong Kok Freight Terminal ⁽¹⁾	<ul style="list-style-type: none"> • All construction activities were completed in May 2015.
	Hung Hom Area	<ul style="list-style-type: none"> • Excavation works, slope work, cable detection / hanger, excavation lateral support, form work erection, reinforcement fixing, concreting works, dismantling works • Construction of man hole, construction of noise enclosure footing • Trial trench, pilling works, grouting, pre-spilt, backfilling • Erection of hoarding, scaffolding platform, erection of utility temporary supports, erection of temporary working platform • Tie back installation, lifting works, decking installation, excavation of jacking pit and receiving pit, subway underpinnings, temporary support for subway, tunnel structure • Architectural Builders Works and Finishes (ABWF) & Electrical and Mechanical (E&M) works
1112	Hong Hom (HUH and HHS) Works Area	<ul style="list-style-type: none"> • Piling for foundation and noise enclosure at HUH and NAT • Slab construction at HUH • Initial excavation at HUH and HHS • Underpinning at HUH • Utilities diversion at SAT • Modification works at Concourse level • Drainage diversion at NAT • Operation of MBME at HUH • Reconstruction of 1875 drainage at HHS

Note:

(1) Construction works were completed.

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

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

2.1.6 Under Works Contract 1109, exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 18 and 19 Nov 2015. Investigation of exceedances had been completed. One event of construction noise Action Level exceedance was recorded for Works Contracts 1103 due to the receipt of a complaint during the reporting period.

- 2.1.7 Under Works Contract 1103, one complaint was received on 26 Nov 2015 concerning noise issues. The complaint is still under investigation and will be reported in the next EM&A report. Under Works Contract 1108, four complaints were received on 10 and 13 Nov 2015 concerning mud at the construction site. Investigations were conducted.
- 2.1.8 No notification of summons, and successful prosecutions were received in the reporting period. Log for environmental complaints, notification of summons and successful prosecutions are provided in **Table 2.5**.
- 2.1.9 Regular site inspections were conducted by the respective Contractor's ETs on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-conformance was identified in the reporting period.

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

Monitoring Station ID	Location	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Exceedance due to the Project Construction (Yes/No)
Works Contract 1101 ⁽⁵⁾					
Works Contract 1102 and 1103					
DMS-1	C.U.H.K.A.A. Thomas Cheung School	21.9 – 58.7	148.7	260	No
Works Contract 1103					
DMS-2	Price Memorial Catholic Primary School	35.1 – 62.6	167.4	260	No
Works Contracts 1103 and 1106					
DMS-3	Hong Kong S.K.H Nursing Home ⁽¹⁾	43.7 – 63.5	159.1	260	No
Works Contract 1106 and 1107					
DMS-4	Block 1, Rhythm Garden	42.9 – 66.3	160.4	260	No
Works Contract 1108 ⁽⁵⁾					
Works Contract 1108A ⁽⁵⁾					
Works Contract 1109					
DMS-6	Katherine Building ⁽²⁾	65 – 76	156.8	260	No
DMS-7	Parc 22 ⁽³⁾	63 – 77	166.7	260	No
DMS-8	SKH Good Shepherd Primary School	62 – 82	152.2	260	No
DMS-9	No. 12 Pau Chung Street ⁽⁴⁾⁽⁹⁾	66 – 72	160.9	260	No
DMS-10	Chat Ma Mansion	69 – 79	170.4	260	No
Works Contract 1111					
AM1 ⁽⁶⁾	No. 234 – 238 Chatham Road North ⁽⁷⁾	32.4 – 74.7	183.9	260	No
Works Contract 1112					
AM2	Site Boundary of Finger Pier Adjacent To Harbourfront Horizon ⁽⁸⁾	30.4 – 71.3	182	260	No

Notes:

- (1) Alternative monitoring location to Shek On House
- (2) Alternative monitoring location to Prosperity House
- (3) Alternative monitoring location to Skytower Tower 2
- (4) Alternative monitoring location to Lucky Building
- (5) No TSP monitoring is required under this contract
- (6) AM1 named as HUH-1-3 in SCL(TAW-HUH) and SCL(HHS) EIA Reports.
- (7) Alternative monitoring location to Wing Fung Building
- (8) Alternative monitoring location to Harbourfront Horizon
- (9) 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	52.4 – 56.0	57.0	< Baseline	70 (65 during examination period)	No
Works Contract 1103						
NMS-CA-2	Price Memorial Catholic Primary School	58.6 – 61.8	66.0	< Baseline	70 (65 during examination period)	No
Works Contracts 1103 and 1106						
NMS-CA-3	Hong Kong S.K.H Nursing Home ⁽¹⁾	67.7 – 68.4	73.0	< Baseline	70	No
Works Contract 1106 and 1107						
NMS-CA-4	Block 1, Rhythm Garden (north-eastern façade)	70.8 – 73.3	71.0	< Baseline – 69.4	75	No
NMS-CA-5	Block 1, Rhythm Garden (northern façade) ⁽²⁾	71.5 – 73.1	74.0	< Baseline	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⁾	63.7 – 65.0	76.1	< Baseline	75	No
NMS-CA-7	Skytower Tower 2	64.3 – 66.3	70.0	< Baseline	75	No
NMS-CA-8	SKH Good Shepherd Primary School	77.0 – 78.6	75.4	71.9 – 75.8	70 (65 during examination period) (79 during the period of conducting the continuous noise monitoring) ⁽⁸⁾	No
NMS-CA-9	Kong Yiu Mansion ⁽⁴⁾	69.2 – 70.7	69.2	= Baseline – 65.4	75	No
NMS-CA-10	Chat Ma Mansion	76.3 – 77.2	76.6	< Baseline – 68.3	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)	64.1 – 68.2	68.0	< Baseline – 54.7	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⁾	70.3 – 73.3	79.0	< Baseline	75 (77) ⁽¹⁰⁾	No
Works Contract 1112 ⁽⁶⁾						

Notes:

- (1) Alternative monitoring location to Shek On House.
- (2) Alternative monitoring location to Canossa Primary School (San Po Kong).
- (3) Alternative monitoring location to Prosperity House.
- (4) Alternative monitoring location to Lucky Building.
- (5) Alternative monitoring location to Wing Fung Building.
- (6) No construction noise monitoring is required under this contract.
- (7) The measured noise levels are corrected against the corresponding baseline noise levels.
- (8) The Limit Level of 79 dB(A) was updated on 22 Aug 2013 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) which were approved by EPD.
- (9) The Limit of 68 dB(A) was updated on 20 Jan 2014 as per the latest CNMMP and CNMP which were approved by EPD.
- (10) Daytime noise Limit Level of 77 dB(A) applies during the continuous noise monitoring period.

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

NSR ID	NSR Description	Continuous Noise Monitoring Location	Noise Level (L _{Aeq,30mins} , dB(A))			Action/Limit Level ⁽³⁾ dB(A)	Exceedance due to the Project Construction (Yes/No)
			Measured	Baseline	Corrected ⁽²⁾		
Works Contract 1101⁽¹⁾							
Works Contract 1102⁽¹⁾							
Works Contract 1103							
TAW-6-7	C.U.H.K.A.A. Thomas Cheung School	TAW-6-7 (C.U.H.K.A.A. Thomas Cheung School)	(4)	(4)	(4)	66 ⁽⁷⁾	(4)
Works Contract 1103 & 1106							
DIH-9-1 ⁽¹⁾	Shek On Building	N/A	N/A	N/A	N/A	N/A	N/A
DIH-13-1 ⁽¹⁾	Canossa Primary School	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1106 & 1107							
DIH-14-1 ⁽¹⁾	Rhythm Garden Block 2	N/A	N/A	N/A	N/A	N/A	N/A
DIH-14-5 ⁽¹⁾	Rhythm Garden Block 1	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1103, 1106 & 1107							
DIH-14-4 ⁽¹⁾	Canossa Primary School (San Po Kong)	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1108⁽¹⁾							
Works Contract 1108A⁽¹⁾							
Works Contract 1109							
TKW-1-1 ⁽¹⁾	Parc 22	N/A	N/A	N/A	N/A	N/A	N/A
TKW-2-2 ⁽¹⁾	Skytower Tower 2	N/A	N/A	N/A	N/A	N/A	N/A
TKW-3-2	Prosperity House	TKW-3-2(B) (Hing Fu Building)	(4)	(4)	(4)	80	(4)
MTW-12-3	Lucky Mansion	MTW-12-3(A) (SKH Good Shepherd Primary School)	(4)	(4)	(4)	80	(4)
MTW-12-4	352-354 Ma Tau Wai Rd (East Façade)	MTW-12-4(A) (Kong Yiu Mansion)	(4)	(4)	(4)	80	(4)
MTW-12-4-1	352-354 Ma Tau Wai Rd (North Facade)	MTW-12-4-1(A) (59 Maidstone Road)	(4)	(4)	(4)	82	(4)
MTW-12-10	Lucky Building	MTW-12-10 (Lucky Building)	69.1 – 76.1	69.2	< Baseline – 75.1	84	No

NSR ID	NSR Description	Continuous Noise Monitoring Location	Noise Level (L _{Aeq,30mins} , dB(A))			Action/Limit Level ⁽³⁾ dB(A)	Exceedance due to the Project Construction (Yes/No)
			Measured	Baseline	Corrected ⁽²⁾		
	(South Facade)	(South Façade))					
MTW-12-10-1	Lucky Building (East Facade)	MTW-12-10-1 (Lucky Building (East Façade))	69.1 – 76.9	69.2	< Baseline – 76.1	80	No
MTW-12-11	Jing Ming Building	MTW-12-11(A) (SKH Good Shepherd Primary School)	(4)	(4)	(4)	81	(4)
MTW-16-1	SKH Good Shepherd Primary School	MTW-16-1 (SKH Good Shepherd Primary School)	71.0 – 82.4	75.4	< Baseline – 81.4	79	Yes
MTW-18-2 ⁽⁸⁾	No. 2 Kowloon City Road	N/A	N/A	N/A	N/A	N/A	N/A
HOM-2-1--A ⁽¹⁾	Faerie Court (East Façade)	N/A	N/A	N/A	N/A	N/A	N/A
Works Contract 1111							
OM4a	Carmel Secondary School (South Block)	NM1 (Carmel Secondary School (South Block))	(4)	(4)	(4)	68 ⁽⁷⁾	(4)
HH2 ⁽⁶⁾	Wing Fung Building	NM2 (No. 234-238 Chatham Road North ⁽⁵⁾)	(4)	(4)	(4)	77	(4)
Works Contract 1112⁽¹⁾							

Notes:

- (1) No continuous noise monitoring is required under this contract.
- (2) Measured noise level (above the baseline noise level) was corrected against the corresponding baseline level.
- (3) Reference to the predicted maximum noise level as contained in the corresponding CNMMP.
- (4) According to the CNMMP and CNMP, continuous noise monitoring is not required during this reporting month.
- (5) Alternative monitoring location to Wing Fung Building.
- (6) HH2 named as HUH-1-3 in SCL (TAW-HUH) and SCL(HHS) EIA Reports.
- (7) Action/Limit level will only be applicable during the examination period.
- (8) The building at MTW-18-2 has been demolished. During the period of residual noise impact exceeding criteria predicted in the corresponding CNMMP, there will be no NSR occupied at this location. It is therefore not necessary carry out continuous noise monitoring at this location.

N/A Not applicable

Table 2.5 Log for Environmental Complaints, Notification of Summons and Successful Prosecutions for the Reporting Month

Works Contract	Environmental Complaints	Notification of Summons	Successful Prosecutions
1101	0	0	0
1102	0	0	0
1103	1	0	0
1106	0	0	0
1107	0	0	0
1108	4	0	0
1108A	0	0	0
1109	0	0	0
1111	0	0	0
1112	0	0	0

3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS

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

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

EP Condition (EP-438/2012/I)	Submission	Submission date
Condition 1.12	Notification of Commencement Date of Construction of the Project	1 Aug 2012
Condition 2.3	Notification of Information of Community Liaison Groups	13 Jul 2012 (1 st submission) 31 Aug 2012 (2 nd submission) 30 Nov 2012 (3 rd submission)
Condition 2.7	Management Organisation of Main Construction Companies	27 Jul 2012 (1 st submission) 21 Aug 2012 (2 nd submission) 19 Dec 2012 (3 rd submission) 22 Jan 2013 (4 th submission) 30 Apr 2013 (5 th submission) 21 May 2013 (6 th submission)
Condition 2.8	Construction Programme and EP Submission Schedule	27 Jul 2012
Condition 2.9	Construction Noise Mitigation Measures Plan (CNMMP)	1 Aug 2012 (1 st submission) 28 Sep 2012 (2 nd submission) 30 Nov 2012 (3 rd submission) 11 Jan 2013 (4 th submission) 8 Feb 2013 (Approved) 8 Feb 2013 (5 th submission) 26 Apr 2013 (6 th submission) 11 Jun 2013 (7 th submission) 12 July 2013 (Approved) 26 July 2013 (8 th submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9 th submission) 13 Sept 2013 (Approved) 20 Jan 2014 (10 th submission) 26 Feb 2014 (Approved) 31 Mar 2015 (Contract 1106 submission only) 13 Apr 2015 (Contract 1106 submission only) 15 Apr 2015 (Approved)
Condition 2.10	Continuous Noise Monitoring Plan (CNMP)	1 Aug 2012 (1 st submission) 28 Sep 2012 (2 nd submission) 30 Nov 2012 (3 rd submission) 11 Jan 2013 (4 th submission) 8 Feb 2013 (Approved) 8 Feb 2013 (5 th submission) 26 Apr 2013 (6 th submission) 11 Jun 2013 (7 th submission) 12 July 2013 (Approved) 26 July 2013 (8 th submission) 22 Aug 2013 (Approved) 23 Aug 2013 (9 th submission) 13 Sept 2013 (Approved) 20 Jan 2014 (10 th submission) 26 Feb 2014 (Approved) 7 Oct 2014 (11 th submission) 23 Oct 2014 (Approved)
Condition 2.11	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission) 10 Oct 2012 (Approved)
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1st submission)

EP Condition (EP-438/2012/I)	Submission	Submission date
		12 Sep 2012 (2 nd submission) 5 Oct 2012 (3 rd submission) 10 Oct 2012 (Approved) 4 Mar 2013 (4 th submission) 9 May 2013 (5 th submission) 24 July 2013 (6 th submission) 26 July 2013 (Approved)
Condition 2.13	Visual, Landscape, Tree Planting & Tree Protection Plan	6 Jul 2012 (1 st submission) 30 Aug 2012 (2 nd submission) 3 Oct 2012 (3 rd submission) 13 Nov 2013 (Approved for Contracts 1101, 1106 and 1109) 14 Nov 2012 (4 th submission) 8 Feb 2013 (5 th submission) 18 Mar 2013 (6 th submission) 18 June 2013 (7 th submission) 12 July 2013 (Approved)
Condition 2.14	Transplantation Proposal for Plant Species of Conservation Importance	22 Aug 2012 (1 st submission) 5 Oct 2012 (2 nd submission) 26 Nov 2012 (3 rd submission) 4 Dec 2012 (Approved)
Condition 2.15	Conservation Plan	31 Jan 2013 (1 st submission) 18 Mar 2013 (2 nd submission) 24 Apr 2013 (Approved)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1109	10 Aug 2012 (1 st submission) 3 Sep 2012 (2 nd submission) 21 Sep 2012 (Approved) 11 Oct 2013 (3 rd submission) 1 Nov 2013 (Approved)
Condition 2.16	Archaeological Action Plan(s) (AAP(s)) for Works Contract 1106	29 Jan 2013 (1 st submission) 19 Mar 2013 (2 nd submission) 8 Apr 2013 (Approved)
Condition 2.23	Supplementary Contamination Assessment Report for New Territories South Animal Centre	28 Sep 2012 25 Oct 2012 (Approved)
Condition 3.3	Baseline Monitoring Report (Works Contract 1109 - Stations and Tunnels of Kowloon City Section)	27 Jul 2012
Condition 3.3	Baseline Monitoring Report (Works Contract 1108A – Kai Tak Barging Point Facilities)	31 Jul 2012
Condition 3.3	Baseline Monitoring Report (Works Contracts 1103, 1106 and 1111 – Hin Keng to Diamond Hill Tunnels, Diamond Hill Station, and Hung Hom North Approach Tunnels)	19 Oct 2012
Condition 3.4	Monthly EM&A Reports No. 1 - 37 Monthly EM&A Report No. 38	Reported in previous Monthly EM&A Reports 13 Nov 2015

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

EP Condition (EP-437/2012)	Submission	Submission date
Condition 1.11	Notification of Commencement Date of Construction of the Project	30 Nov 2012
Condition 2.3	Notification of Information of Community Liaison Groups	30 Nov 2012
Condition 2.5	Management Organisation of Main Construction Companies	19 Dec 2012 (1 st submission) 30 Apr 2013 (2 nd submission)
Condition 2.6	Construction Programme and EP Submission Schedule	19 Dec 2012
Condition 2.7	Construction Noise Mitigation Measures Plan (CNMMP)	30 Nov 2012 (1 st submission) 8 Feb 2013 (Approved) 26 Apr 2013 (2 nd submission) 11 Jun 2013 (3 rd submission) 27 Aug 2013 (Approved) 20 Jan 2014 (4 th submission)
Condition 2.8	Continuous Noise Monitoring Plan (CNMP)	30 Nov 2012 (1 st submission) 11 Jan 2013 (2 nd submission) 8 Feb 2013 (Approved) 20 Jan 2014 (3 rd submission)
Condition 2.9	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission) 15 Oct 2012 (Approved)
Condition 2.10	Sediment Management Plan	6 Jul 2012 (1 st submission) 12 Sep 2012 (2 nd submission) 5 Oct 2012 (3 rd submission) 15 Oct 2012 (Approved)
Condition 2.11	Visual, Landscape, Tree Planting & Tree Protection Plan (VLTP)	14 Nov 2012 (1 st submission) 8 Feb 2013 (2 nd submission) 4 Feb 2015 (3 rd submission) 26 Jun 2015 (4 th submission)
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 - 36 Monthly EM&A Report No. 38	Reported in previous Monthly EM&A Reports 13 Nov 2015

Appendix A

**39th EM&A Report for Works Contract 1108A –
Kai Tak Barging Point Facilities**

MTR Corporation Limited

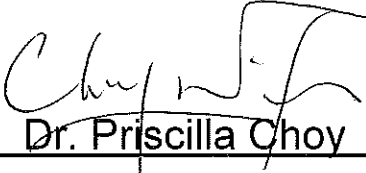
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No.39

[Period from 1 to 30 November 2015]

Works Contract 1108A – Kai Tak Barging Point
Facilities

(November 2015)

Certified by: 
_____ Dr. Priscilla Choy

Position: Environmental Team Leader

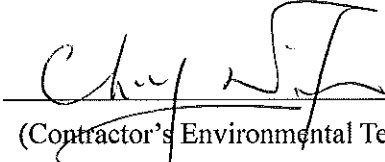
Date: 8th December 2015

Concentric – Hong Kong River Joint Venture

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

Monthly Environmental Monitoring and Audit Report for November 2015

(Version 1.0)

Certified By 
(Contractor's Environmental Team Leader)

REMARKS:

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

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

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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
Introduction	1
Summary of Site Activities undertaken during Reporting Month.....	1
Environmental Monitoring and Audit Progress.....	1
Water Quality	1
Waste Management	1
Environmental Site Inspection	1
Ecology/Landscape and Visual	1
Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution.....	1
Future Key Issues	2
1 INTRODUCTION	3
Purpose of the report	3
Structure of the report.....	3
2 PROJECT INFORMATION.....	4
Background	4
General Site Description.....	4
Construction Programme and Activities	4
Project Organisation	4
Status of Environmental Licences, Notification and Permits.....	6
3 ENVIRONMENTAL MONITORING REQUIREMENTS.....	8
Water Quality Monitoring	8
Cultural Heritage	10
Landscape and Visual.....	11
Ecology.....	11
4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS	12
5 MONITORING RESULTS.....	13
Water Quality	13
Waste Management	13
Landscape and Visual.....	13
Ecology.....	13
6 ENVIRONMENTAL SITE INSPECTION	14
Site Audits	14
Implementation Status of Environmental Mitigation Measures	14
7 ENVIRONMENTAL NON-CONFORMANCE	17
Summary of Exceedances.....	17
Summary of Environmental Non-Compliance	17
Summary of Environmental Complaint.....	17
Summary of Environmental Summon and Successful Prosecution	17
8 FUTURE KEY ISSUES	18
Key Issues in the Coming Month	18
Site Activities for the Next Month	18
9 CONCLUSIONS AND RECOMMENDATIONS.....	19
Conclusions	19
Recommendations	19

LIST OF TABLES

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

LIST OF FIGURES

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

LIST OF APPENDICES

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

EXECUTIVE SUMMARY

Introduction

1. This is the 39th 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 November 2015.

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 to receive excavated spoil delivered by trucks from Designated and Interfacing Contracts.
 - Temporary stockpiling of received spoil in the Barging Point Facilities.
 - Marine transportation of received spoil to receptor sites for beneficial reuse.

Environmental Monitoring and Audit Progress

3. A summary of the monitoring activities in this reporting period is listed below:
 - Water Quality Monitoring at each monitoring station.....Nil
 - Environmental Site Inspection.....4 times

Water Quality

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

Waste Management

5. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. No inert C&D materials were generated, and 5 m³ 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 to receive excavated spoil delivered by trucks from Designated and Interfacing Contracts.
- Temporary stockpiling of received spoil in the Barging Point Facilities.
- Marine transportation of received spoil to receptor sites for beneficial reuse.
- Decommissioning of floating jetty and ancillary facilities for reinstatement of Works Area 1108A.W3.

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 39th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 November to 30 November 2015.

Structure of the report

- 1.3 The structure of the report is as follows:

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

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

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

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

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

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

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

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

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts. In addition to the temporary work site in the vicinity of the tunnel and station structures, there are some off-site temporary works sites/areas to facilitate the construction process. This Works Contract 1108A is one of the off-site temporary works sites covers the construction and operation of barging facilities.

General Site Description

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

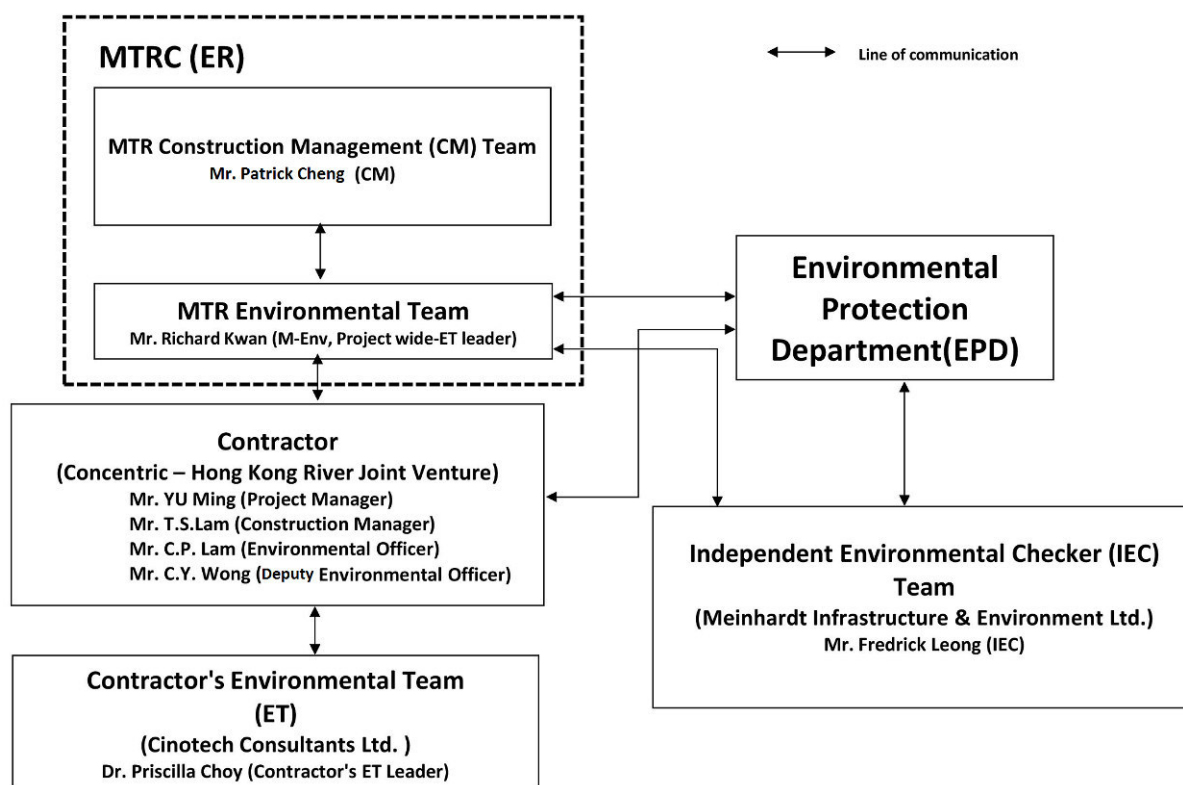
Construction Programme and Activities

- 2.4 A summary of the major site activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix H**.
- Daily operation and maintenance of the Barging Point Facilities to receive excavated spoil delivered by trucks from Designated and Interfacing Contracts.
 - Temporary stockpiling of received spoil in the Barging Point Facilities.
 - Marine transportation of received spoil to receptor sites for beneficial reuse.

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. Patrick CHENG	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	Deputy Environmental Officer	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 22nd March 2012 and it was updated throughout the Project. The latest Environmental Permit (EP No. EP-438/2012/I) was granted on 14th October 2015.
- 2.10 The summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.2**.

Table 2.2 Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-438/2012	22/3/2012	11/07/2012	Superseded by EP-438/2012/A
EP-438/2012/A	12/07/2012	25/10/2012	Superseded by EP-438/2012/B
EP-438/2012/B	26/10/2012	29/04/2013	Superseded by EP-438/2012/C
EP-438/2012/C	30/04/2013	12/09/2013	Superseded by EP-438/2012/D
EP-438/2012/D	13/09/2013	03/04/2014	Superseded by EP-438/2012/E
EP-438/2012/E	04/04/2014	14/07/2014	Superseded by EP-438/2012/F
EP-438/2012/F	15/07/2014	13/08/2014	Superseded by EP-438/2012/G
EP-438/2012/G	14/08/2014	09/09/2014	Superseded by EP-438/2012/H
EP-438/2012/H	10/09/2014	13/10/2015	Superseded by EP-438/2012/I
EP-438/2012/I	14/10/2015	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	Expired
GW-RE1017-14	29/09/2014	28/03/2015	Expired
GW-RE0246-15	29/03/2015	28/04/2015	Expired
GW-RE0407-15	01/05/2015	31/07/2015	Expired
GW-RE0718-15	01/08/2015	31/10/2015	Expired
GW-RE1063-15	01/11/2015	31/01/2016	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

Permit / License No.	Valid Period		Status
	From	To	
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	Expired
EP/MD/15-073	14/08/2014	13/09/2014	Expired
EP/MD/15-118	13/10/2014	12/11/2014	Expired
EP/MD/15-144	19/11/2014	18/12/2014	Expired
EP/MD/15-249	30/03/2015	30/06/2015	Expired
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
EPD reference no. 348913	22/08/2012	N/A	Receipt acknowledged by EPD
Billing Account for Construction Waste Disposal			
A/C# 7015860	29/08/2012	N/A	Valid
Registration of Chemical Waste Producer			
WPN5213-286-C3752-01	17/09/2012	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00014328-2012	07/11/2012	30/11/2017	Valid

Summary of EM&A Requirements

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

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Water Quality Monitoring

Monitoring Location

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

Table 3.1 Water Quality Monitoring Stations

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

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

Monitoring Parameters, Frequency and Programme

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

Table 3.2 Water Quality Impact Monitoring Programme

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

Monitoring Equipment and Methodology

Dissolved Oxygen and Temperature Measuring Equipment

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

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

Turbidity Measurement Instrument

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

Water Sampler

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

Water Depth Detector

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

Salinity Measuring Equipment

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

pH Measuring Equipment

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

Sample Containers and Storage

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

Position Equipment

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

Calibration of In-Situ Instruments

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

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

Back-up Equipment and Vessels

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

Laboratory Measurement / Analysis

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

Table 3.3 Laboratory analysis for SS

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

Action and Limit Levels

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

Event and Action Plan

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

Cultural Heritage

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

Landscape and Visual

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

Ecology

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

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submissions under EP

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Status of submissions under EP	1	Monthly EM&A Report (October 2015)	Submitted to EPD on 13 th November 2015 (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
November 2015	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 3, 12, 17 and 24 November 2015 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 12 November 2015. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

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

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	3 November 2015	<u>Reminder:</u> Clear the mud accumulated on the access roads within the site area.	This item was observed improved/rectified by Contractor during the site inspection on 12 November 2015.
	12 November 2015	<u>Reminder:</u> Soil was observed to accumulate on the platform under conveyor belt no.2 and the edge of the barge. The Contractor was reminded to clear it.	This item was the remarked item of item ref. No. 151103-R05 which was classified as an air quality impact. This item was observed improved/rectified by Contractor during the site inspection on 17 November 2015.
	24 November 2015	<u>Reminder:</u> Mitigation measures should be provided for the public channel near the site office to control the site runoff.	Follow up action will be reported in the next reporting month.
	24 November 2015	<u>Reminder:</u> Maintenance should be provided for wheel washing facility to ensure the facility function properly.	Follow up action will be reported in the next reporting month.
<i>Noise</i>	N/A	N/A	N/A
<i>Ecology/ Landscape and Visual</i>	N/A	N/A	N/A

<i>Air Quality</i>	20 October 2015	<u>Reminder:</u> Water spray should be provided for the haul road near the tipping hall no.2 to suppress dust generation.	This item was observed improved/rectified by Contractor during the site inspection on 3 November 2015.
	27 October 2015	<u>Observation:</u> Sufficient water spray should be provided for the haul road near the tipping halls to suppress dust generation.	
	27 October 2015	<u>Reminder:</u> The efficiency of water spraying for stockpile area should be improved to suppress dust generation.	This item was observed improved/rectified by Contractor during the site inspection on 12 November 2015.
	3 November 2015	<u>Reminder:</u> Stockpile of dusty materials stored on site should be properly covered to suppress dust generation.	
	27 October 2015	<u>Reminder:</u> Clear the soil accumulated on the platform under the conveyor belt no.2 to suppress dust generation.	This item was found outstanding and remarked as item ref. No. 151112-R02 during the site inspection on 12 November 2015. It was observed that soil was observed to accumulate on the platform under conveyor belt no.2 and the edge of the barge while the conveyor belt was in operation during the site inspection on 12 November 2015, this would cause potential water quality impact by splashing of material into the water. The remarked item (ref. No. 151112-R02) was classified as a water quality impact and included in the water quality section. This item was observed improved/rectified by Contractor during the site inspection on 17 November 2015.
	3 November 2015	<u>Reminder:</u> Clear the soil accumulated on the platform under conveyor belt no.2 and the access road to suppress dust generation.	
	27 October 2015	<u>Reminder:</u> Opening was observed at tipping hall of floating jetty no.3 while the jetty was not in operation. Contractor was reminded to repair it.	This item was observed improved/rectified by Contractor during the site inspection on 17 November 2015.
	3 November 2015	<u>Observation:</u> Opening was observed at tipping hall of floating jetty no.3 while the jetty was not in operation. Contractor was	

	12 November 2015	reminded to repair it. <u>Reminder:</u> A small gap was observed at tipping hall of floating jetty no.3. The Contractor was reminded to repair it.	
	3 November 2015	<u>Observation:</u> Opening was observed at the enclosure of conveyor belt no.2 while the conveyor belt was in operation. Contractor was reminded to repair it.	This item was observed improved/rectified by Contractor during the site inspection on 24 November 2015.
	12 and 17 November 2015	<u>Observation:</u> Opening was observed at the enclosure of conveyor belt no.2 while in operation. Contractor was reminded to repair it.	
Waste / Chemical Management	27 October 2015	<u>Observation:</u> Chemical waste label should be provided for the contaminated soil stored in the chemical waste storage area.	This item was observed improved/rectified by Contractor during the site inspection on 12 November 2015.
	3 November 2015	<u>Observation:</u> Chemical waste label should be provided for the chemical waste stored in the chemical waste storage area.	
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 There was no environmental complaint received in the reporting month. The Complaint Log is presented in **Appendix G**.

Summary of Environmental Summon and Successful Prosecution

- 7.4 No environmental 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 daily 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, including splashing of spoils into surrounding seawater at the discharge points.
- Potential dust emission and deposition of materials on haul road during delivery of C&D material by Designated and Interfacing Contracts to the Barging Point Facilities.

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 to receive excavated spoil delivered by trucks from Designated and Interfacing Contracts.
- Temporary stockpiling of received spoil in the Barging Point Facilities.
- Marine transportation of received spoil to receptor sites for beneficial reuse.
- Decommissioning of floating jetty and ancillary facilities for reinstatement of Works Area 1108A.W3.

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 November 2015 to 30 November 2015 in accordance with EM&A Manual and the requirement under EP-438/2012/I.
- 9.2 No impact monitoring was conducted in the reporting month.
- 9.3 There was no environmental complaint received in the reporting month.
- 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

- Accumulated mud on the access roads within the site area should be cleared to prevent muddy runoff generation.
- Accumulated sand under the platform of conveyor belt and edge of the barge should be cleared to prevent muddy runoff generation.
- Mitigation measures should be provided for the public channel to control the site runoff.
- Maintenance should be provided for the wheel washing facility to ensure the facility functioned properly.

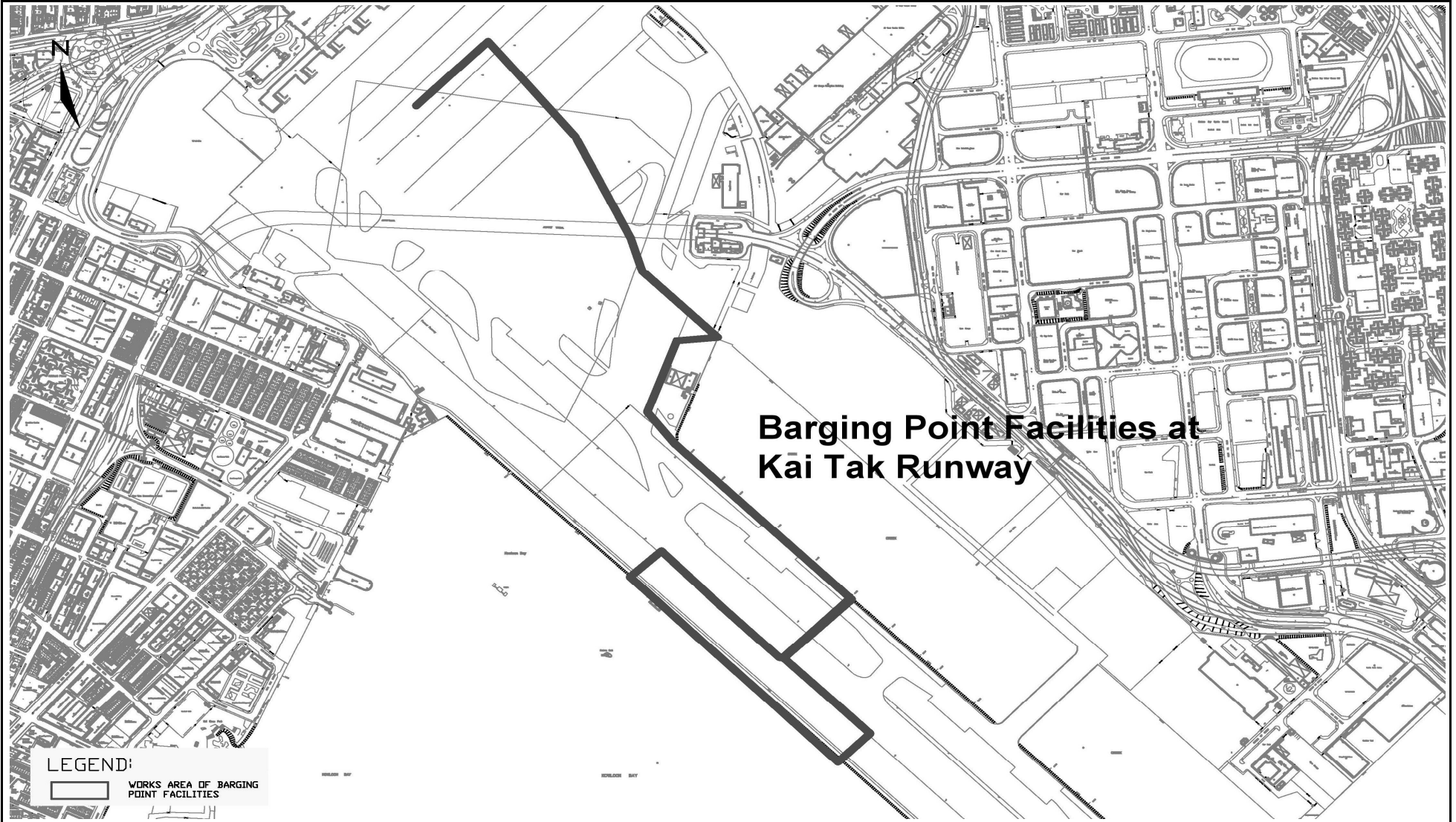
Air Quality

- Stockpile of dusty materials stored on site should be properly covered or provided with water spray to suppress dust generation.
- Accumulated dusty material on the platform under conveyor belt and access roads should be cleared to prevent dust generation.
- The tipping hall of floating jetty and enclosures of conveyor belts should be properly maintained for dust suppression.

Waste/Chemical Management

- Chemical waste label should be provided for the chemical waste stored in the chemical waste storage area.

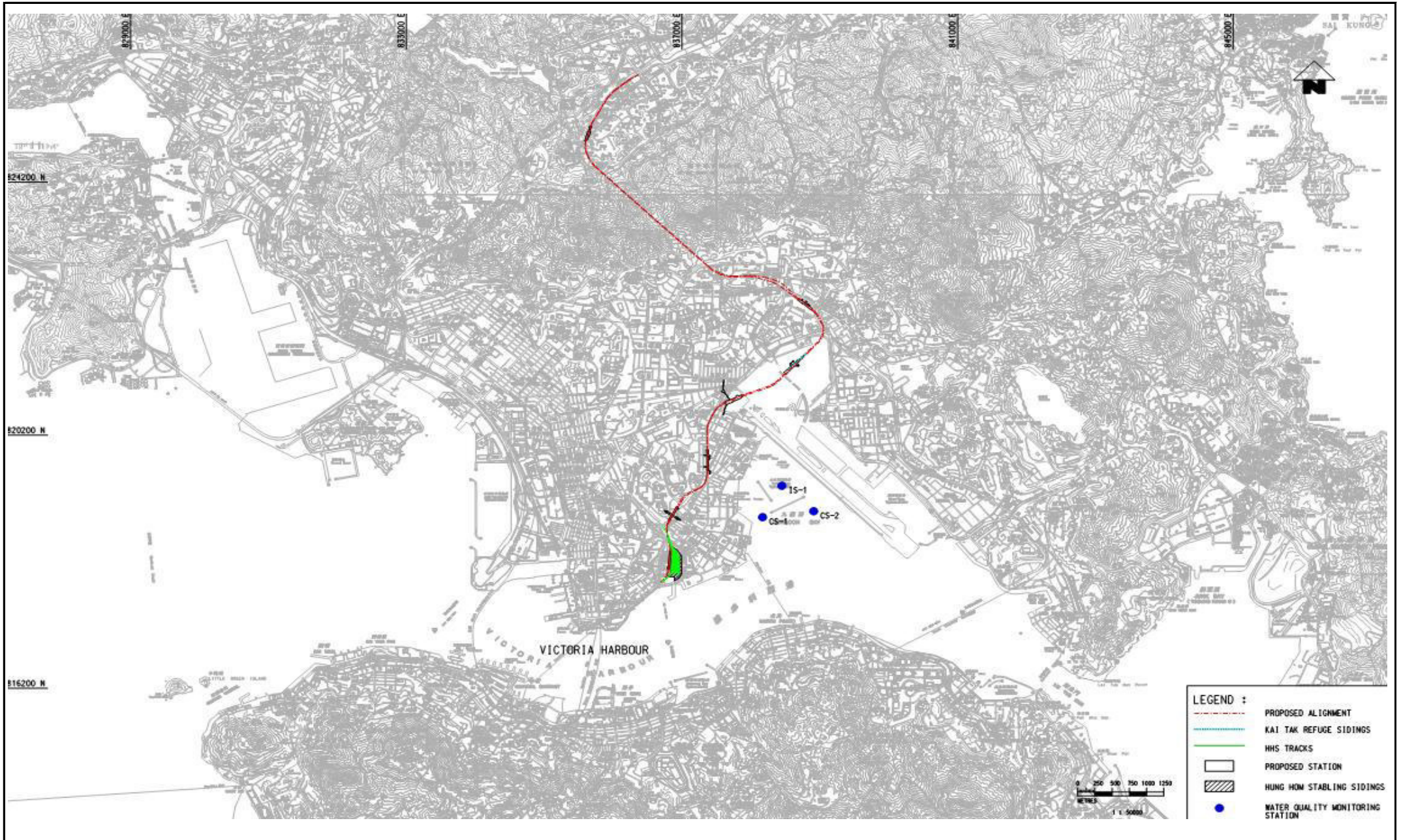
FIGURES



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

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





Title

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

Location of Water Monitoring Station and Control Stations

Scale	N.T.S	Propose No.	MA12028
Date	Oct-12	Figure	2



**APPENDIX A
ACTION AND LIMIT LEVELS**

APPENDIX A – Action and Limit Levels

Action and Limit Levels for Water Quality

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

APPENDIX B
SUMMARY OF EXCEEDANCE

APPENDIX B – SUMMARY OF EXCEEDANCE

Reporting Month: November 2015

a) Exceedance Report for Water Quality Monitoring (NIL)

**APPENDIX C
SITE AUDIT SUMMARY**

Shatin to Central Link -

Contract 1108A Kai Tak Barging Point Facilities

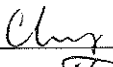

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151103
Date	3 November 2015 (Tuesday)
Time	14:00 - 15:15

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

Ref. No.	Remarks/Observations	Related Item No.
151103-R04	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> Clear the mud accumulated on the access roads within the site area. 	B 19
151103-O02	<p>Part C - Ecology/Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
151103-O03	<p>Part D -- Air Quality</p> <ul style="list-style-type: none"> Opening was observed at the enclosure of conveyor belt no.2 while the conveyor belt was in operation. Contractor was reminded to repair it. 	D 12
151103-O03	<ul style="list-style-type: none"> Opening was observed at tipping hall of floating jetty no.3 while the jetty was not in operation. Contractor was reminded to repair it. 	D 18
151103-R05	<ul style="list-style-type: none"> Clear the soil accumulated on the platform under conveyor belt no.2 and the access road to suppress dust generation. 	D 13
151103-R06	<ul style="list-style-type: none"> Stockpile of dusty materials stored on site should be properly covered to suppress dust generation. 	D 7
151103-O01	<p>Part E -- Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F -- Waste/Chemical Management</p> <ul style="list-style-type: none"> Chemical waste label should be provided for the chemical waste stored in the chemical waste storage area. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:151027), follow up action is required for item ref no. 151027-O01, 151027-R03, 151027-R04 and 151027-R05 which were remarked as 151103-O01, 151103-R05, 151103-R06 and 151103-O03. 	F 2 i

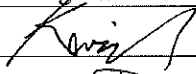
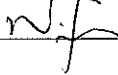
	Name	Signature	Date
Recorded by	KC Chung		3 November 2015
Checked by	Dr. Priscilla Choy		3 November 2015

Shatin to Central Link -**Contract 1108A Kai Tak Barging Point Facilities****Record Summary of Environmental Site Inspection****Inspection Information**

Checklist Reference Number	151112
Date	12 November 2015 (Thursday)
Time	14:30 - 15:30

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

Ref. No.	Remarks/Observations	Related Item No.
151112-R02	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> Soil was observed to accumulate on the platform under conveyor belt no.2 and the edge of the barge. The Contractor was reminded to clear it. 	B 22
151112-O01	<p>Part C - Ecology/Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none"> Opening was observed at the enclosure of conveyor belt no.2 while in operation. Contractor was reminded to repair it. 	D 12
151112-R03	<ul style="list-style-type: none"> A small gap was observed at tipping hall of floating jetty no.3. The Contractor was reminded to repair it. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:151103), follow up action is required for item ref no. 151103-O02, 151103-O03 and 151103-R05 which were remarked as 151112-O01, 151112-R03 and 151112-R02. 	D 18

	Name	Signature	Date
Recorded by	Kelvin Lam		12 November 2015
Checked by	Dr. Priscilla Choy		12 November 2015

Shatin to Central Link -

Contract 1108A Kai Tak Barging Point Facilities



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151117
Date	17 November 2015 (Tuesday)
Time	14:00 - 15:00

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

Ref. No.	Remarks/Observations	Related Item No.
151117-001	<p>Part B - Water Quality</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part C - Ecology/Others</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none">• Opening was observed at the enclosure of conveyor belt no.2 while in operation. Contractor was reminded to repair it. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none">• Follow-up on previous audit section (Ref. No.:151112), follow up action is required for item ref no. 151112-001 which was remarked as 151117-001.	D 12

	Name	Signature	Date
Recorded by	KC Chung		17 November 2015
Checked by	Dr. Priscilla Choy		17 November 2015

Shatin to Central Link -

Contract 1108A Kai Tak Barging Point Facilities



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151124
Date	24 November 2015 (Tuesday)
Time	14:00 - 15:00

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

Ref. No.	Remarks/Observations	Related Item No.
151124-R01	Part B - Water Quality <ul style="list-style-type: none">Mitigation measures should be provided for the public channel near the site office to control the site runoff.	B 11
151124-R02	<ul style="list-style-type: none">Maintenance should be provided for wheel washing facility to ensure the facility function properly.	B 13
	Part C - Ecology/Others <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection.	
	Part D - Air Quality <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection.	
	Part E - Construction Noise Impact <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection.	
	Part F - Waste/Chemical Management <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection.	
	Part G - Permit / Licenses <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection.	
	Others <ul style="list-style-type: none">Follow-up on previous audit section (Ref. No.:151117), all environmental deficiency was rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	KC Chung		24 November 2015
Checked by	Dr. Priscilla Choy		24 November 2015

**APPENDIX D
EVENT AND ACTION PLANS**

Event and Action Plan for Water Quality

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

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

Event and Action Plan for Landscape and Visual during Construction Stage

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

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer/Engineer’s Representative

**APPENDIX E
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

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

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		<ul style="list-style-type: none"> Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value. No on-site burning of waste; Waste and refuse in appropriate receptacles. 						^ ^ ^ ^
S5.7	E6	<u>Sediment Removal</u> <ul style="list-style-type: none"> Use closed grab in dredging works. Install silt curtain during the dredging. 	<ul style="list-style-type: none"> Reduce indirect impacts of suspended solids on sessile benthic and intertidal fauna Minimize marine water quality impacts 	Contractor	Dredging Area	During Dredging	•TM-Water	N/A ⁽²⁾ N/A ⁽²⁾
Landscape & Visual (Construction Phase)								
S6.9.3	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> <ul style="list-style-type: none"> For soil conservation, existing topsoil shall be re-used where 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	N/A ⁽²⁾

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

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

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

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

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

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

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S7.6.5	D4	The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point: <ul style="list-style-type: none"> • All road surface within the barging facilities will be paved; • Dust enclosures will be provided for the loading ramp; • Vehicles will be required to pass through designated wheels wash facilities; and • Continuous water spray at the loading points 	Control construction dust	Contractor	Kai Tak Barging Point	Construction stage	• Air Pollution Control (Construction Dust) Regulation	^ * ^ ^
S7.6.5	D5	<ul style="list-style-type: none"> • For the unloading of spoil from trucks at barging point, installation of 3-sided screen with top tipping hall and operating water spraying and flexible dust curtains at the discharge point for dust suppression. 	Minimize dust impact at the nearby sensitive receivers	Contractor	Barging Points	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria • EP Condition 2.18 (c)	*
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	N/A ⁽¹⁾

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

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

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

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

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

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

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

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

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

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		transportation; <ul style="list-style-type: none"> • All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water; and • Mitigation measures as outlined in W1 should be applied to minimise water quality impacts from site runoff and open stockpile spoils at the proposed barging facilities where appropriate. 						^ * ^
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following is recommended: <ul style="list-style-type: none"> • All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. • The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water 	^ ^ ^

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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.						
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; Carry out on-site sorting; Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No. 19/2005 	<p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation 						^
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimize the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW No.19/2005 	^ N/A ⁽²⁾

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

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

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

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

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 						^

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**

**APPENDIX G
COMPLAINT LOG**

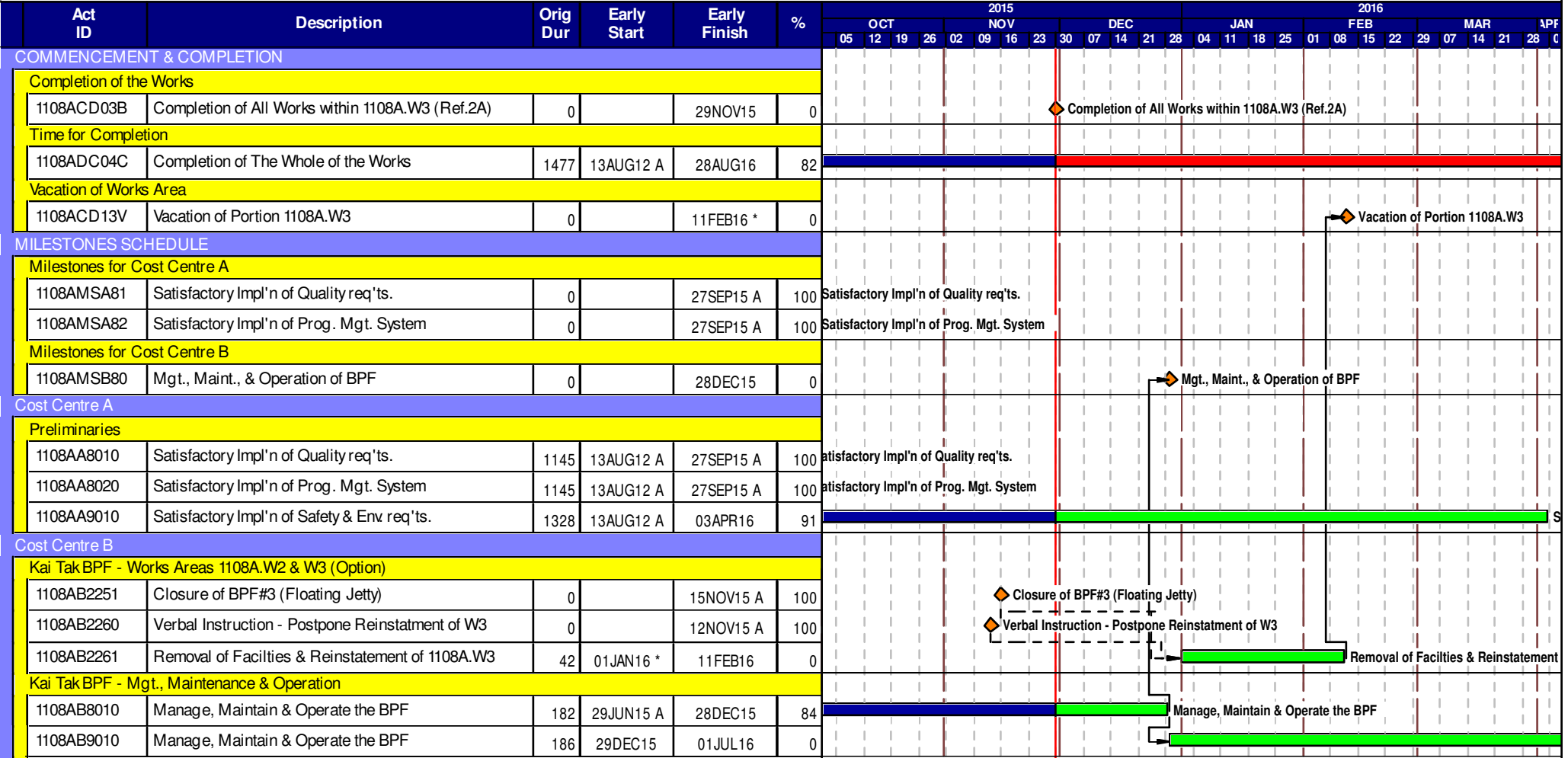
Appendix G - Complaint Log

Contractor Log Ref.	Complaint Location/ Nature	Incoming Complaint Reference no.	Complainant/ Date or Period of Complaint	Date of Complaint received	Details of Complaint	Investigation/ Mitigation Action	Status
6	Barging Point/ Construction Noise	15-05127	--/Night time after 11:00pm	12 March 2015	As per information from EPD, the complainant complained about the construction noise generated from the barge point at night after 11:00pm.	<p>According to the information provided by the Contractor, no construction activity in the site area, including barge operation has been carried out after 11:00 pm since the commencement of the project. All construction works carried out within the validity period of CNP were in compliance with the conditions stated in the valid CNP (Permit No.: GW-RE1017-14).</p> <p>It was observed that the Contractor has implemented appropriate noise mitigation measures to reduce noise nuisance generated from the work site. In addition, according to the EIA report and the EM&A Manual, it is anticipated that construction activities of this project would not cause any significant noise impact to the vicinity of the work site as there are no Noise Sensitive Receivers (NSRs) located within 300m from the barge point.</p> <p>The environmental conditions of the site and effectiveness of the implementation</p>	Closed

						of mitigation measures will be continuously reviewed and monitored by the Resident Site Staff and the Environmental Team.	
7	Barging Point / Dust and Disposal of Construction Waste	15-07297	-- / --	2 April 2015	As per the information from EPD, the complainant complained the dust generated from the discharge point at tipping halls and no water spraying was provided for the stockpile on vessel and land. In addition, the complainant complained that construction waste was disposed everywhere in Kai Tak Area.	<p>According to the information provided by the Contractor, all the construction waste generated from this Contract was disposed to the designated landfill (NENT) and no construction waste was disposed in Kai Tak Area. The construction waste disposal activities in Kai Tak Area outside the site boundary of this Contract were not related to this Contract.</p> <p>It was observed that the Contractor has implemented appropriate dust mitigation measures to reduce dust issue generated from the work site. In addition, according to the EIA Report and the EM&A Manual of the Project, it is anticipated that construction activities of this Contract would not cause any significant dust impact to the vicinity of the work site as there are no Air Sensitive Receivers (ASRs) located within 500m from the barging point.</p> <p>The environmental conditions of the site and effectiveness of the implementation of mitigation measures will be</p>	Closed

						continuously reviewed and monitored by the Resident Staff and the Environmental Team.	
8	Barging Point / Dust emission	15-10412	-- / --	4 May 2015	The complainant complained the dust generated from the transportation of sand and mud at the barge point and water spray was insufficient. In addition, no impervious sheeting for covering stockpiles was found.	<p>It was observed that the Contractor has implemented appropriate dust mitigation measures to reduce dust issue generated from the work site. In addition, according to the EIA Report and the EM&A Manual of the Project, it is anticipated that construction activities of this Contract would not cause any significant dust impact to the vicinity of the work site as there are no Air Sensitive Receivers (ASRs) located within 500m from the barging point.</p> <p>The environmental conditions of the site and effectiveness of the implementation of mitigation measures will be continuously reviewed and monitored by the Resident Site Staff and the Environmental Team.</p>	Closed

**APPENDIX H
TENTATIVE CONSTRUCTION
PROGRAMME**



Start date	10AUG12
Finish date	28AUG16
Data date	30NOV15
Run date	01DEC15
Page number	1A
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MTR SCL 1108A
KAI TAK BARGING POINT FACILITIES

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

Appendix B

**39th 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. 39

[Period from 1 to 30 November 2015]

Works Contract 1109 - Stations and Tunnels of
Kowloon City Section

(10 December 2015)

Certified by: *Mandy To* Mandy To

Position: Environmental Team Leader

Date: 10 December 2015

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.39

November 2015

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Shatin to Central Link (SCL) - Tai
Wai to Hung Hom Section:
Works Contract 1109 - Stations and
Tunnels of Kowloon City Section
Monthly EM&A Report No.39

November 2015

Reference 0171181

For and on behalf of
ERM-Hong Kong, Limited

Approved by: Frank Wan

Signed:



Position: Partner

Date: 10 December 2015

CONTENTS

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

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

LIST OF ANNEXES

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

EXECUTIVE SUMMARY

The construction works of **MTR Shatin to Central Link Works Contract 1109 – Stations and Tunnels of Kowloon City Section** commenced on 1 September 2012. This is the thirty-ninth monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 November 2015 to 30 November 2015 in accordance with the EM&A Manual.

Summary of the Construction Works undertaken during the Reporting Month

The major construction works undertaken during the reporting month include:

Construction Activities undertaken

Works in Ma Tau Wai (MTW)

- Along Ma Tau Wai Road and TKW/MTW Road Garden – EEP construction, trial pits for location of utilities, and station excavation and construction.

Works in To Kwa Wan (TKW)

- Olympic Garden – Underpinning works, installation of pipe pile and TTMS preparation;
 - TKW Station – Pump installation, open cut excavation, and tunnelling works;
 - Tam Kung Road – Shaft construction; and
 - Nam Kok Road – Installation of pipe pile.
-

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

Continuous noise monitoring is required at MTW-12-10, MTW-12-10-1 and MTW-16-1 during this reporting month, according to the schedule presented in the latest approved CNMP.

Cultural Heritage

A License to Excavate and Search for Antiquities under Antiquities and Monuments Ordinance has been obtained from Antiquities and Monuments Office (AMO) on 29 October 2012. The archaeological survey-cum-

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

Vibration monitoring was conducted at S.K.H. Holy Trinity Church 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 45,607 m³ of inert C&D materials were generated from the Project, which were sent to 1108A Kai Tai Barging Facilities during the reporting month. 4,719 kg of plastics was generated and sent to recyclers for recycling during the reporting period. About 344 m³ of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. No metal waste was generated during this reporting month. 85 kg of paper/cardboard packaging was generated and sent to recyclers for recycling during the reporting period. 1,760 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 9 and 23 November 2015. No audit findings were observed during the reporting month. The implementation status is presented in *Section 5*.

Environmental Site Inspection

Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 2, 9, 16, 23 and 30 November 2015. The representative of the IEC joined the site inspection on 9 November 2015. Details of the audit findings and implementation status are presented in *Section 6*.

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

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

Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 18 and 19 November 2015 and

investigation of exceedances had been completed. The investigation reports are presented in *Annex L*.

No complaint was received during the reporting period

No summon or prosecution was received in this reporting period.

Future Key Issues

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

Construction Activities to be undertaken

Work in Ma Tau Wai (MTW)

- Along Ma Tau Wai Road and TKW/MTW Road Garden – EEP construction, trial pits for location of utilities, and station excavation and construction.

Work in To Kwa Wan (TKW)

- Olympic Garden – Underpinning works, installation of pipe pile and TTMS preparation;
 - Tam Kung Road – Shaft construction;
 - TKW Station – Pump installation, open cut excavation, and tunnelling works; and
 - Nam Kok Road – Installation of pipe pile.
-

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 thirty-ninth EM&A report which summarises the monitoring results and audit findings during the reporting period from 1 November to 30 November 2015.

1.2 *STRUCTURE OF THE REPORT*

Section 1 : Introduction

It details the purpose and structure of the report.

Section 2 : Project Information

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

Section 3 : Environmental Monitoring Requirement

It summarises the monitoring parameters, programmes, methodologies, frequency, locations, Action and Limit Levels, Event /Action Plans.

Section 4 : Implementation Status of the Environmental Protection Requirements

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

Section 5 : Monitoring Results

It summarises the monitoring results obtained in the reporting period.

Section 6 : Environmental Site Inspection

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

Section 7 : Environmental Non-conformance

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

Section 8 : **Future Key Issues**

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

Section 9 : **Conclusions**

2 PROJECT INFORMATION

2.1 BACKGROUND

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

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

2.2 GENERAL SITE DESCRIPTION

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

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

2.3 CONSTRUCTION PROGRAMME AND ACTIVITIES

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

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

Construction Activities undertaken
<u><i>Works in Ma Tau Wai (MTW)</i></u>
<ul style="list-style-type: none">• Along Ma Tau Wai Road and TKW/MTW Road Garden – EEP construction, trial pits for location of utilities, and station excavation and construction.
<u><i>Works in To Kwa Wan (TKW)</i></u>
<ul style="list-style-type: none">• Olympic Garden – Underpinning works, installation of pipe pile and TTMS preparation;• TKW Station – Pump installation, open cut excavation, and tunnelling works;• Tam Kung Road – Shaft construction; and• Nam Kok Road – Installation of pipe pile.

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/I	Throughout the Contract	Permit granted on 14 October 2015
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)	348516	13 August 2012 – 30 April 2017	-
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation (Form NB)	351125	16 October 2012 – 30 April 2017	-
Wastewater Discharge Licence			
Site at TKW	WT00019555-2014	30-September-2017	-
Site at MTW	WT00019556-2014	30-September-2017	-
Chemical Waste Producer Registration			
Site at TKW	5213-286-S3682-01	Throughout the Contract	-
Site at MTW	5213-242-S3682-02	Throughout the Contract	-
Construction Noise Permit			
- PME at SUW works Area 1	GW-RE0920-15	8 September 2015 – 7 March 2016	-
- PME at TKW Garden	GW-RE0835-15	19 August 2015 - 12 February 2016	-
- PME at Kai Tak New Land 2	GW-RE0751-15	29 July 2015 – 28 January 2016	-
- PME at Tam Kung Road	GW-RE0745-15	8 August 2015 - 7 February 2016	-
- PME at MTW Road E1-E6	GW-RE0832-15	19 August 2015 - 12 February 2016	-
- PME at SUW works Area 2	GW-RE1046-15	26 October 2015 to 25 November 2015	Superseded by GW-RE1180-15
	GW-RE1180-15	25 November 2015 to 24 December 2015	-
- PME at Olympic Avenue	GW-RE0532-15	2 June 2015 to 20 Nov 2015	Expired
- PME at Nam Kok Road	GW-RE0529-15	1 June 2015 to 26 November 2015	Expired
- PME at Kai Tak New Land 1	GW-RE0646-15	30 June 2015 to 18 December 2015	-
- PME at Olympic	GW-RE1062-15	23 October 2015 to 18	-

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
<i>Garden</i>		<i>April 2016</i>	
- <i>PME at MTW Road (Opening 1-3)</i>	GW-RE0991-15	<i>1 October 2015 to 1 November 2015</i>	<i>Expired</i>
- <i>PME at MTW Road (Opening 1-8)</i>	GW-RE1047-15	<i>16 October 2015 to 15 November 2015</i>	<i>Cancelled</i>
- <i>PME at MTW Road TTMS</i>	GW-RE1104-15	<i>1 November 2015 to 8 November 2015</i>	-
- <i>PME at Olympic Garden TTMS</i>	GW-RE1138-15	<i>17 November 2015 to 26 November 2015</i>	<i>Supperceded by GW- RE1193-15</i>
	GW-RE1193-15	<i>27 November 2015 to 4 December 2015</i>	-
SP-Licence for TBM operation	L-3-249(1)	19 May 2015 – 18 May 2018	-
Billing Account for Disposal of Construction Waste	7015758	Throughout the Contract	-

3.1 REGULAR CONSTRUCTION NOISE MONITORING

3.1.1 Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was either rejected or unavailable; alternative locations were proposed and agreed by the ER (Engineer's Representative), IEC (Independent Environmental Checker) and EPD (Environmental Protection Department). The construction noise monitoring locations are listed in *Table 3.1* and shown in *Annex D*. The noise sensitive receivers (NSRs) related to this Works Contract are also shown in *Annex D*.

Table 3.1 Regular Construction Noise Monitoring Location

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

Notes:

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

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

3.1.2 Monitoring Parameter and Frequency

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

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

3.1.3 *Monitoring Equipment and Methodology*

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

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

Table 3.2 *Noise Monitoring Equipment*

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

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

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

3.1.4 *Action and Limit Levels*

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

Table 3.3 Action and Limit Levels for Noise Monitoring

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

Notes:

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

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

3.2 CONTINUOUS NOISE MONITORING

3.2.1 Monitoring Locations

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

Table 3.4 Proposed Continuous Noise Monitoring Locations

Continuous Noise Monitoring Location ^(a)	Description
TKW-3-2(B)	Hing Fu Building
MTW-12-3(A)	SKH Good Shepherd Primary School
MTW-12-4(A)	Kong Yiu Mansion
MTW-12-4-1(A)	59 Maidstone Road
MTW-12-10	Lucky Building (South Façade)
MTW-12-10-1	Lucky Building (East Façade)
MTW-12-11(A)	SKH Good Shepherd Primary School
MTW-16-1	SKH Good Shepherd Primary School

Note:

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

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

3.2.2 *Monitoring Parameter and Frequency*

Continuous monitoring of $L_{Aeq(30min)}$ noise levels are required to be carried out at the eight proposed continuous noise monitoring locations identified in **Table 3.4** during the normal construction working hours (0700 – 1900 Monday to Saturday) in the period that presented in the CNMP. The recommended measurement period for the continuous noise monitoring programme in the CNMP are presented in **Table 3.6**. If works are to be carried out during restricted hours (ie, outside 0700 – 1900 from Monday to Saturday), the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

3.2.3 *Monitoring Equipment and Methodology*

In accordance to the Technical Memorandum (TM) issued under the *Noise Control Ordinance* (NCO), sound level meters in compliance with the *International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1)* specifications will be used for carrying out the noise monitoring. The sound level meter and calibrator used for continuous noise measurement are listed in **Table 3.5**.

Table 3.5 *Continuous Noise Monitoring Equipment*

Monitoring Station	Monitoring Equipment (Sound Level Meter and Calibrator)
MTW-12-10	Calibrator: NC-73 (Serial No. 10997142) Sound Level Meter: NL-52 (Serial No. 00710259)
MTW-12-10-1	Calibrator: NC-73 (Serial No. 10997142) Sound Level Meter: NL-52 (Serial No. 00331806)
MTW-16-1	Calibrator: NC-73 (Serial No. 10997142) Sound Level Meter: NL-31 (Serial No. 00320533)

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

3.2.4 *Action and Limit Levels*

The Action/Limit Levels for the continuous noise monitoring programme recommended in the latest CNMP are presented in **Table 3.6**.

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

Proposed Continuous Noise Monitoring Stations	Description	Action/ Limit Level (a)	Measurement Period ^(a)
TKW-3-2(B)	Hing Fu Building	80	September 2014 – December 2014 ^(b)
MTW-12-3(A)	SKH Good Shepherd Primary School	80	August 2014 – January 2015 ^(b) , March 2015 – June 2015
MTW-12-4(A)	Kong Yiu Mansion	80	August 2014 – June 2015 ^(b)
MTW-12-4-1(A)	59 Maidstone Road	82	October 2014, December 2014 – June 2015
MTW-12-10	Lucky Building (South Façade)	84	March 2015 – April 2015, September 2015 – January 2016
MTW-12-10-1	Lucky Building (East Façade)	80	December 2014 – May 2015, September 2015 – January 2016
MTW-12-11(A)	SKH Good Shepherd Primary School	81	September 2014 – June 2015 ^(b)
MTW-16-1	SKH Good Shepherd Primary School	78	December 2012 – January 2013; April 2013 – 21 August 2013, 22 August 2013 – December 2013, August 2014 – March 2016

Notes:

- (a) The A/L Levels and Measurement Periods will be subject to the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP).
- (b) The latest CNMP was approved by EPD in October 2014. Continuous noise monitoring at TKW-3-2 (B), MTW-12-3(A), MTW-12-4(A) and MTW-12-11(A) commenced in October 2014.
- (c) The A/L Level of 79 dB(A) was updated on 22 August 2013 as per the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) which were approved by EPD.

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

3.3 CONSTRUCTION DUST MONITORING

3.3.1 Monitoring Location

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

Table 3.7 Construction Dust Monitoring Location

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

Notes:

- (a) Access to the monitoring location at Prosperity House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. Furthermore, the alternative location at No. 420 Prince Edward Road West, which was used in the baseline monitoring, was also not available as access permission was not granted by the owner of the building. An alternative location, Katherine Building, was proposed and had been approved by the ER and agreed by the IEC and EPD.
- (b) As the Incorporated Owners Association of the originally proposed monitoring location at Lucky Building did not reply to our request for access to their premise, an alternative location, No. 26 Kowloon City Road, was proposed and had been approved by the ER and agreed by the IEC and EPD. However, 24-hour averaged dust monitoring had been suspended at DMS-9 No. 26 Kowloon City Road since March 2014 due to denied access by the occupant of the premise. No. 12 Pau Chung Street, as an alternative monitoring location, was formally approved by EPD on 19 May 2014. Impact dust monitoring at No. 12 Pau Chung Street commenced on 12 June 2014.

3.3.2 Monitoring Parameter and Frequency

The construction dust monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. The 24-hour TSP levels were monitored at the frequency and duration stated in *Table 3.8*. The TSP monitoring was conducted as per the schedule presented in *Annex E*.

Table 3.8 Construction Dust Monitoring Parameters and Frequency

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

3.3.3 Monitoring Equipment

24-hour averaged TSP monitoring was performed at designated monitoring stations using High Volume Samplers (HVS) with the appropriate sampling inlets installed. The performance specification of HVS complied with the standard method “*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*” as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. *Table 3.9* summarises the equipment that was deployed for the 24-hour averaged monitoring.

Table 3.9 Construction Dust Monitoring Equipment

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

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

3.3.4 Monitoring Methodology

All HVSs were free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind needed to be provided at the monitoring stations;
- a minimum of 2m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues was nearby;
- airflow around the sampler was unrestricted; and
- permission could be obtained to set up the samplers and gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25°C and not varied by more than ± 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 m³min⁻¹, which was within the range specified in the EM&A Manual (i.e. 0.6 - 1.7 m³min⁻¹);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folded in half so that only surfaces with collected particulate matter were in contact;
- the filter paper was placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- the filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

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

Wind Data Monitoring

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

3.3.5 Action and Limit Levels

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

Table 3.10 Action and Limit Levels for Dust Monitoring

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

Notes:

- (a) Reference to the Baseline Monitoring Report submitted in July 2012.
- (b) Action and Limit Levels for 1-hour TSP will only be used when 1-hour TSP is required to be monitored when a valid complaint is received.
- (c) 24-hour averaged dust monitoring at DMS-9 No. 26 Kowloon City Road had been suspended since March 2014 due to denied access by the occupant of the premise. However, No. 12 Pau Chung Street, as an alternative monitoring location, was formally approved by EPD on 19 May 2014. Impact dust monitoring at No. 12 Pau Chung Street commenced on 12 June 2014.

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

3.4 CULTURAL HERITAGE

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

In accordance with the EM&A Manual, appropriate vibration monitoring on the identified built heritage will be agreed with the Building Department (BD)/Geotechnical Engineering Office (GEO) under the requirement of Buildings Ordinance and/or Blasting Permit as appropriate. Vibration levels will be controlled to appropriate levels. Vibration monitoring will be carried out by the Contractor. The structures requiring vibration monitoring during the relevant tunneling work for this Works Contract include S.K.H. Holy Trinity Church and Old Fast East Flying Training School.

3.5

LANDSCAPE AND VISUAL MITIGATION MEASURES

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

IMPLEMENTATION STATUS OF THE ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 *Status of Required Submission under Works Contract 1109*

EP Condition	Submission	Submission Date
Condition 3.4	Thirty-eighth Monthly EM&A Report	13 November 2015

5 MONITORING RESULTS

5.1 REGULAR CONSTRUCTION NOISE MONITORING

A total of 20 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period. The noise level recorded at all five monitoring locations during the whole reporting period are below baseline level or below limit level after baseline-level correction.

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

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

5.2 CONTINUOUS NOISE MONITORING

Continuous noise monitoring is required at MTW-12-10, MTW-12-10-1 and MTW-16-1 during the reporting month, according to the schedule presented in latest approved CNMP.

Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 18 and 19 November 2015.

Investigation of exceedances on 18 and 19 November 2015 had been completed and the investigation reports are presented in *Annex L*.

The monitoring results are presented in *Annex I-2*.

5.3 CONSTRUCTION DUST MONITORING

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

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

Monitoring Station	24-hour TSP Monitoring Results measured, μgm^{-3} (a)		Action Level, μgm^{-3}	Limit Level, μgm^{-3}
	Average	Range		
DMS-6	69	65 – 76	156.8	260
DMS-7	69	63 – 77	166.7	260
DMS-8	73	62 – 82	152.2	260
DMS-9 (a)	69	66 – 72	160.9	260
DMS-10	73	69 – 79	170.4	260

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

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

5.4 CULTURAL HERITAGE

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

Vibration monitoring was conducted at S.K.H. Holy Trinity Church 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 (c)	Non-inert C&D Materials			
			General Refuse/Vegetative Waste	Recycled materials		
				Paper/card board	Plastics	Metals
November 2015	45,607 m ³	1,760 kg	344 m ³	85 kg	4,719 kg	0 kg

Notes:

- (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil.
- (b) About 45,607 m³ 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 inspections of the implementation of landscape and visual mitigation measures were conducted on 9 and 23 November 2015. Most of the mitigation measures given in *Annex H* have been implemented. Required Actions that were found are listed below:

9 November 2015

- No observation was reported during the site inspection.

23 November 2015

- No observation was reported during the site inspection.

Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 2, 9, 16, 23 and 30 November 2015. The representative of the IEC joined the site inspection on 9 November 2015. No non-compliance was recorded during the site inspections.

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

2 November 2015

- There was no major observation during site inspection.

9 November 2015

- There was no major observation during site inspection.

16 November 2015

- There was no major observation during site inspection.

23 November 2015

- The Contractor was reminded to further improve the site runoff control measures at all MTW works areas.
- The Contractor was reminded to remove the oil leakage and treat the contaminated soil as chemical waste at TKW works area.

30 November 2015

- There was no major observation during site inspection.

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

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 SUMMARY OF MONITORING EXCEEDANCE

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

Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 18 and 19 November 2015.

Investigation of exceedances recorded on 18 and 19 November 2015 had been completed and the investigation reports are presented in *Annex L*.

7.2 SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE

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

7.3 SUMMARY OF ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting month. The cumulative environmental complaint log is shown in *Annex M*.

7.4 SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION

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

8.1 *KEY ISSUES FOR THE COMING MONTH*

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

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

Construction Activities to be undertaken
<i>Work in Ma Tau Wai (MTW)</i>
<ul style="list-style-type: none"> • Along Ma Tau Wai Road and TKW/MTW Road Garden – EEP construction, trial pits for location of utilities, and station excavation and construction.
<i>Work in To Kwa Wan (TKW)</i>
<ul style="list-style-type: none"> • Olympic Garden – Underpinning works, installation of pipe pile and TTMS preparation; • Tam Kung Road – Shaft construction; • TKW Station – Pump installation, open cut excavation, and tunnelling works; and • Nam Kok Road – Installation of pipe pile.

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

8.2 *MONITORING SCHEDULE FOR THE NEXT MONTH*

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

8.3 *CONSTRUCTION PROGRAMME FOR THE NEXT MONTH*

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

This 39th monthly Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 November 2015 to 30 November 2015 in accordance with the EM&A Manual and the requirement under EP-438/2012/I.

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

Exceedances of the Action and Limit Levels of the continuous noise monitoring were recorded at MTW-16-1 on 18 and 19 November 2015. Investigation of exceedances had been completed and the investigation reports are presented in *Annex L*.

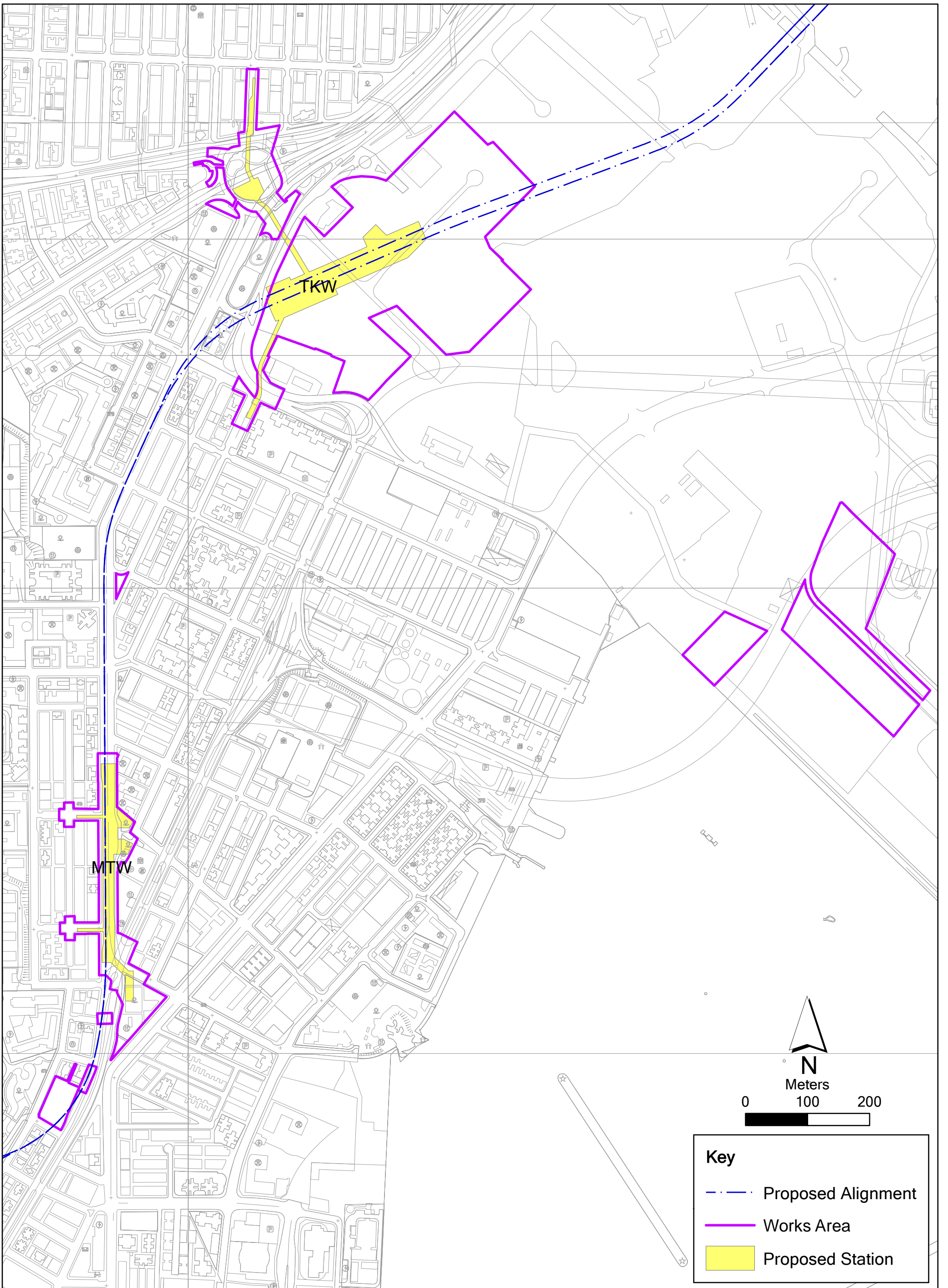
No complaint was received during the reporting period.

No summon or prosecution was received during the reporting period.

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

Annex A

The Alignment and Works Area for Works Contract



Annex A

Alignment, Stations and Works Area of SCL Works Contract 1109

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

Environmental
Resources
Management



Annex B

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

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

THREE MONTH ROLLING PROGRAMME - NOVEMBER 2015

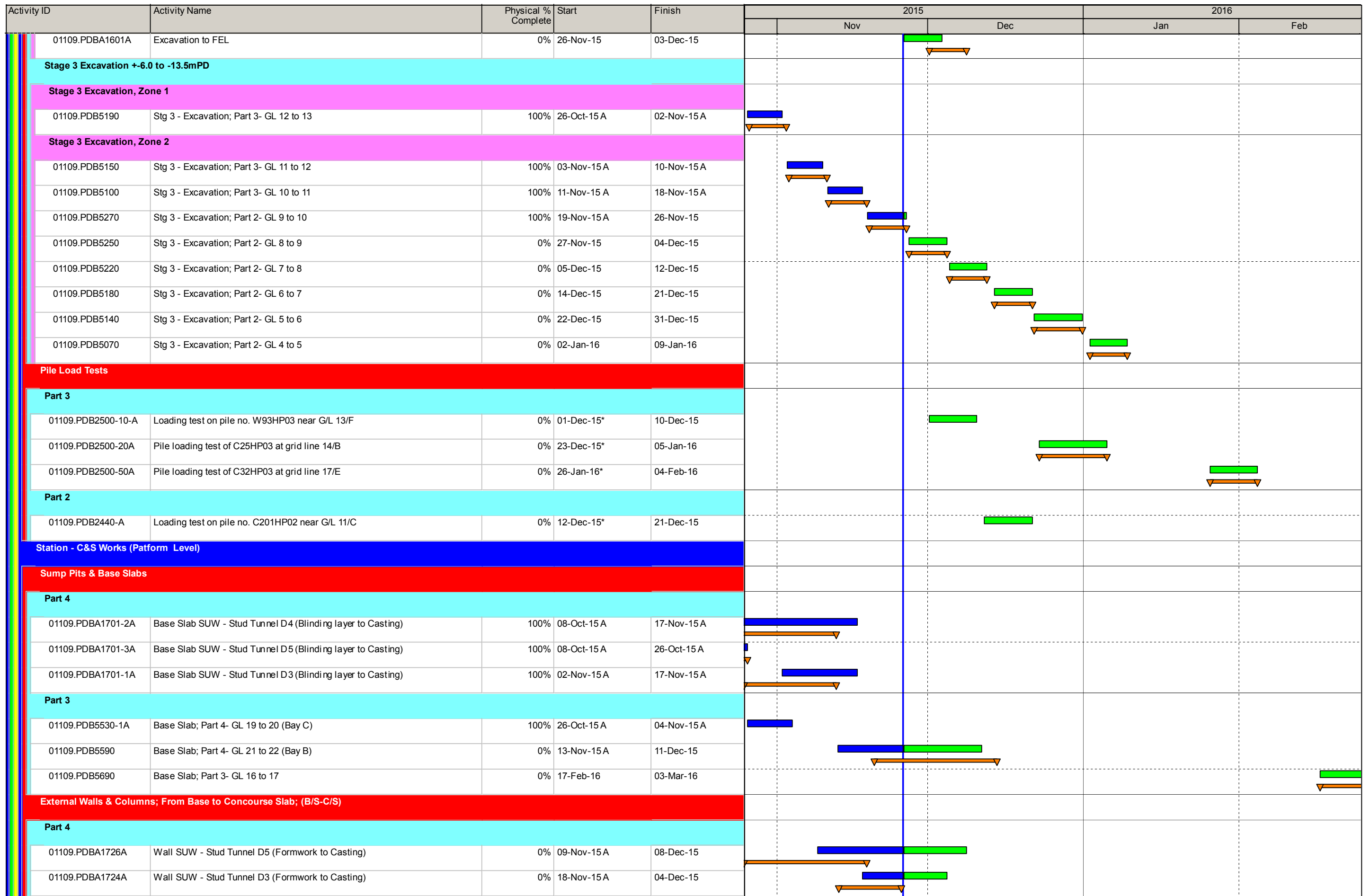
Activity ID	Activity Name	Physical % Complete	Start	Finish	2015		2016	
					Nov	Dec	Jan	Feb
1109 - SUW & TKW Stations and Tunnels November 2015 (UWP R5)								
PROJECT DATES								
Specified Milestone Dates								
CC-A Milestones								
01109.MSA11i	A11(i) - Concourse level slab of TKW between gridlines 1 to 28 complete.	100%		24-Nov-15 A		◆		
01109.MSA13	A13 - Engr's confirmation of satisfactory implementation of Programming Management System (1).(Wk46/15;15Nov15)	0%		26-Nov-15*	●	◆		
CC-B Milestones								
01109.MSB12iv	B12(iv)-Cut & cover tunnel structure at north of SUW complete, clean, dry and surveyed.	0%		31-Dec-15*			◆	
01109.MSB10ia	B10i-Open cut excavation 90% by volume at SUW complete.	0%		31-Dec-15*			◆	
CC-C Milestones								
01109.MSC11iia	C11(ii)-Excavation between gridlines 1 to 28 30% by volume complete.	100%		27-Oct-15 A	◆			
01109.MSC13ii	C13(ii)-All permanent diaphragm wall complete & pumping test for Top Down Excav to CCL results accepted by the Engineer	100%		31-Oct-15 A	◆			
01109.MSC11i	C11i-Concourse Level slab between gridlines 1 to 28 complete.	100%		24-Nov-15 A		◆		
01109.MSC12iii	C12(iii)-Shop dwgs for all suspended ceiling & metal wall panel systems approved.	0%		31-Dec-15*			◆	
01109.MSC12ii	C12(ii)-Design Data Appr for manuf. of all support framing for lvr, glazed walling & suspended ceiling	0%		31-Dec-15*			◆	
CC-D Milestones								
01109.MSD09ii	D9(ii)-Down Track TBM tunnel drive from SUW to TKW complete	0%		30-Nov-15*		◆		
CC-B - SUW STATION, ENTRANCES AND ADITS								
SUW Station Construction Works								
Station - Excavation and Foundation								
Earthworks								
Tie Back Anchor								
Row C and Below								
01109.PDBA1484A	Insert rebar, Grouting and Testing for Tie Back Anchor for 7th Layer	100%	12-Oct-15 A	25-Oct-15 A	▶			
01109.PDBA1492A	Tie Back Anchor for 8th Layer, Part 1 of 2	100%	23-Oct-15 A	30-Oct-15 A	▶			
01109.PDBA1493A	Tie Back Anchor for 8th Layer, Part 2 of 2	100%	31-Oct-15 A	07-Nov-15 A	▶			
01109.PDBA1494A	Insert rebar, Grouting and Testing for Tie Back Anchor for 8th Layer	100%	02-Nov-15 A	09-Nov-15 A	▶			
01109.PDBA1501A	Excavation for Tie Back Anchor for 9th Layer	100%	06-Nov-15 A	12-Nov-15 A	▶			
01109.PDBA1502A	Tie Back Anchor for 9th Layer, Part 1 of 2	100%	11-Nov-15 A	18-Nov-15 A	▶			
01109.PDBA1503A	Tie Back Anchor for 9th Layer, Part 2 of 2	100%	15-Nov-15 A	22-Nov-15 A	▶			
01109.PDBA1504A	Insert rebar, Grouting and Testing for Tie Back Anchor for 9th Layer	100%	17-Nov-15 A	24-Nov-15 A	▶			



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5ZE, Page 1 of 11
THREE MONTH ROLLING PROGRAMME - Nov 15 TASK filters: 3MRP
Dates, MTRC 1109 - 3MRP.
Printed:04-Dec-15

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MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5ZE, Page 2 of 11
 THREE MONTH ROLLING PROGRAMME - Nov 15 TASK filters: 3MRP
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Activity ID	Activity Name	Physical % Complete	Start	Finish	2015		2016	
					Nov	Dec	Jan	Feb
01109.PDBA1725A	Wall SUW - Stud Tunnel D4 (Formwork to Casting)	0%	18-Nov-15 A	04-Dec-15				
Station - C&S Works (Concourse Level and Above)								
Concourse Slab								
Part 4								
01109.PDB7670-17A	Roof Slab SUW - Stud Tunnel D5 (Formwork to Casting)	0%	26-Nov-15	08-Dec-15				
01109.PDB7670-15A	Roof Slab SUW - Stud Tunnel D3 (Formwork to Casting)	0%	05-Dec-15	17-Dec-15				
01109.PDB7670-16A	Roof Slab SUW - Stud Tunnel D4 (Formwork to Casting)	0%	05-Dec-15	17-Dec-15				
Entrance B and Associated Adits								
Entrance B - Olympic Avenue and SUW playground Works (GL B5 to B11)								
01109.PDB19840-1A	Mobilization of drilling rig	100%	29-Oct-15 A	04-Nov-15 A				
01109.PDB19840-2A	Dia. 406 & 508 Pipe piling	0%	05-Nov-15 A	05-Dec-15				
01109.PDB19840-3A	Grouting, OW, DW for Pumping Test	0%	06-Dec-15	25-Dec-15				
Entrance B - Kowloon City Interchange (GL B11 to B22)								
Olympic Garden (Area 1, 2, & 4)								
Area 1								
01109.PDB13300-1A	Excavation & Lateral Support Works, Area 1, GL to S1	100%	29-Jun-15 A	07-Nov-15 A				
01109.PDB13300-2A	Excavation & Lateral Support Works, Area 1, S1 to S2	100%	09-Nov-15 A	21-Nov-15 A				
01109.PDB13300-3A	Excavation & Lateral Support Works, Area 1, S2 to S3	0%	23-Nov-15 A	05-Dec-15				
01109.PDB13300-4A	Excavation & Lateral Support Works, Area 1, S3 to FEL	0%	07-Dec-15	19-Dec-15				
Area 2								
01109.PDB14860-1A	Excavation & Lateral Support Works, Area 2, GL to S1	100%	10-Aug-15 A	10-Nov-15 A				
01109.PDB14860-2A	Excavation & Lateral Support Works, Area 2, S1 to S2	100%	11-Nov-15 A	26-Nov-15				
01109.PDB14860-3A	Excavation & Lateral Support Works, Area 2, S2 to S3	0%	26-Nov-15	16-Dec-15				
01109.PDB13310-1A	Excavation & Lateral Support Works, Area 2 (next to Area 3), GL to S1	0%	07-Dec-15	19-Dec-15				
01109.PDB14860-4A	Excavation & Lateral Support Works, Area 2, S3 to FEL	0%	17-Dec-15	02-Jan-16				
01109.PDB13310-2A	Excavation & Lateral Support Works, Area 2 (next to Area 3), S1 to S2	0%	11-Feb-16	24-Feb-16				
Area 4								
01109.PDB14870-1A	Excavation & Lateral Support Works, Area 4, GL to S1	100%	26-Oct-15 A	07-Nov-15 A				
01109.PDB14870-2A	Excavation & Lateral Support Works, Area 4, S1 to S2	100%	09-Nov-15 A	21-Nov-15 A				
01109.PDB14870-3A	Excavation & Lateral Support Works, Area 4, S2 to S3	0%	26-Nov-15	09-Dec-15				
01109.PDB14870-4A	Excavation & Lateral Support Works, Area 4, S3 to FEL	0%	10-Dec-15	23-Dec-15				
Olympic Garden (Area 3 & Underpinning for Pier 46)								
01109.PDB12610-41A	Trimming Part of Existing Pile Cap for Pile Piling	0%	06-Dec-15	15-Dec-15				
01109.PDB12610-4A	Pipe piling at PB2-197 to 184 at Zone 3c (Next to Pier 46), Remaining 12 nos	0%	16-Dec-15	15-Jan-16				



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5ZE, Page 3 of 11
THREE MONTH ROLLING PROGRAMME - Nov 15 TASK filters: 3MRP
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Activity ID	Activity Name	Physical % Complete	Start	Finish	2015		2016	
					Nov	Dec	Jan	Feb
01109.PDB12610-5A	Remaining Grout Curtain Works, OW/DW at Area 3	0%	16-Jan-16	29-Jan-16				
Area 3								
01109.PDB14380	Pumping Test to Area 3	0%	30-Jan-16	10-Feb-16				
01109.PDB14880-1A	Excavation & Lateral Support Works, Area 3, GL to S1	0%	11-Feb-16	24-Feb-16				
Olympic Garden (Pier 46, Area 3)								
01109.PDBA1746A	Olympic Garden - Pier 46 - Installation of Temporary Supporting Frame (50% Completion)	100%	27-Oct-15 A	12-Nov-15 A				
01109.PDB-X11230A	Olympic Garden - Pier 46 - Installation of Temporary Supporting Frame (Remaining)	0%	12-Nov-15 A	01-Dec-15				
01109.PDB-X11240A	Olympic Garden - Pier 46 - Jack system installation	100%	24-Nov-15 A	01-Dec-15				
01109.PDB-X11250A	Olympic Garden - Pier 46 - Load Transfer Pier 46	0%	02-Dec-15	05-Dec-15				
Entrance B - Nam Kok Road Works - (GL B22 to B30)								
Pipe Piling Stage 3								
01109.PDBA1754-1A	BC grout, Part 1 (44nos) at GL B25-B29 (Nam Kok Road)	100%	06-Oct-15 A	16-Nov-15 A				
01109.PDBA1754-3A	Grout hole drilling (73 nos) at GL B25-B29 (Nam Kok Road)	100%	26-Oct-15 A	12-Dec-15				
01109.PDBA1754-2A	Chemical grout Part 1 (44nos) at GL B25-B29 (Nam Kok Road)	100%	31-Oct-15 A	23-Nov-15 A				
01109.PDBA1754-4A	BC grout Part 2 (73nos) at GL B25-B29 (Nam Kok Road)	100%	24-Nov-15 A	09-Jan-16				
01109.PDBA1754-5A	Chemical grout Part 2 (73nos) at GL B25-B29 (Nam Kok Road)	100%	25-Nov-15 A	19-Jan-16				
Entrance B - Nam Kok Road Works - (GL B19 to B23)								
01109.PDBA1759A	Pipe pile construction (GL 22-23) - 23PP & 10SP	0%	26-Oct-15 A	24-Dec-15				
01109.PDBA1760A	TTMS for remaining Pipe Piling	0%	25-Dec-15*	28-Dec-15				
01109.PDBA1761A	GL B19-B23 (PER) - Pipe piling (Low headroom drilling rig), 393 to 401 (9 nos)	0%	29-Dec-15	08-Jan-16				
KS33 & KS34								
KS33								
01109.PDBA1795A	Subway Base Slab, ~+3.515mPD	100%	13-Oct-15 A	02-Nov-15 A				
01109.PDBA1796A	3rd wall construction	0%	02-Nov-15 A	03-Dec-15				
01109.PDBA1798A	Ground Slab & Manhole, ~+6.540mPD	0%	04-Dec-15	18-Dec-15				
01109.PDBA1799A	5th wall construction & Up Stand	0%	19-Dec-15	02-Jan-16				
01109.PDBA1801A	Roof Slab, ~+13.445	0%	03-Jan-16	19-Jan-16				
KS34								
01109.PDBB10040A	Chemical grout (29 nos.)	100%	23-Oct-15 A	26-Oct-15 A				
01109.PDBB10050A	Site clearance & noise barrier	100%	27-Oct-15 A	28-Oct-15 A				
01109.PDBB10070A	Rock Breaking Works	100%	03-Nov-15 A	16-Nov-15 A				
01109.PDBB10080A	Demolition Works	100%	19-Nov-15 A	21-Nov-15 A				
01109.PDBB10090A	Mobilizing for ELS Installation	100%	22-Nov-15 A	24-Nov-15 A				
01109.PDBB10100A	ELS Installation (1st walling & struts installation)	100%	24-Nov-15 A	03-Dec-15				



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5ZE, Page 4 of 11

THREE MONTH ROLLING PROGRAMME - Nov 15 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.

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					Nov	Dec	Jan	Feb		
01109.PDBB10110A	Excavation to S2	0%	04-Dec-15	13-Dec-15						
01109.PDBB10120A	ELS Installation (2nd wailing & struts installation)	0%	14-Dec-15	25-Dec-15						
01109.PDBB10130A	Excavation to Formation	0%	26-Dec-15	04-Jan-16						
CC-C - TKW STATION, ENTRANCES AND ADITS										
TKW Station										
Entrance D Diaphragm Wall during EAST side Top Slab										
Area E1 (Ent D) - Post Concrete Works										
01109.PDC19110-1A	Earthwork; Excavation (A2-1, A2-3, A3)	100%	13-Oct-15 A	04-Nov-15 A						
01109.PDC19110-2A	Earthwork; Excavation (A2-2, A1)	100%	16-Oct-15 A	29-Oct-15 A						
01109.PDC19130-1A	Structure; Roof slab -1	100%	16-Oct-15 A	30-Oct-15 A						
01109.PDC19120	Steelwork; Installation of struts and walers	100%	19-Oct-15 A	05-Nov-15 A						
01109.PDC19130-2A	Structure; Roof slab -2	100%	31-Oct-15 A	17-Nov-15 A						
01109.PDC19140	Structure; Waterproofing for the roof slab	100%	18-Nov-15 A	24-Nov-15 A						
01109.PDC19160-1A	Earthwork; Backfill -1	5%	25-Nov-15 A	01-Dec-15						
01109.PDC19150	Utility Reinstatement	0%	26-Nov-15	09-Dec-15						
01109.PDC19160-2A	Earthwork; Backfill -2	0%	02-Dec-15	08-Dec-15						
01109.PDC19160-3A	Earthwork; Backfill -3	0%	09-Dec-15	15-Dec-15						
01109.PDC19170	Pavement	0%	09-Dec-15	15-Dec-15						
Station - C&S Works (Concourse Level and above)										
Concourse Slab Works (new)										
Span 5										
01109.PDC19490-2A	Span 5 - Concourse Concrete Slab -2	100%	14-Oct-15 A	31-Oct-15 A						
Span 6										
Span 6A										
01109.PDC19530-4A	Span 6A - Install S2	100%	09-Oct-15 A	26-Oct-15 A						
01109.PDC19530-5A	Span 6A - Excavation from S2 to C/S soffits	100%	19-Oct-15 A	06-Nov-15 A						
01109.PDC19550-1A	Span 6A - Concourse Concrete Slab -1	100%	04-Nov-15 A	17-Nov-15 A						
01109.PDC19550-2A	Span 6A - Concourse Concrete Slab -2	100%	18-Nov-15 A	21-Nov-15 A						
Span 6B										
01109.PDC19530-7A	Span 6B - Install S2	100%	10-Oct-15 A	26-Oct-15 A						
01109.PDC19550-3A	Span 6B - Concourse Concrete Slab -1	100%	27-Oct-15 A	31-Oct-15 A						
01109.PDC19550-4A	Span 6B - Concourse Concrete Slab -2	100%	12-Nov-15 A	24-Nov-15 A						
Span 7										
01109.PDC19610-1A	Span 7 - Concourse Concrete Slab -1	100%	14-Oct-15 A	30-Oct-15 A						



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5ZE, Page 5 of 11
 THREE MONTH ROLLING PROGRAMME - Nov 15 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
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					Nov	Dec	Jan	Feb		
01109.PDC19610-2A	Span 7 - Concourse Concrete Slab -2	100%	31-Oct-15 A	09-Nov-15 A						
Station - C&S Works (Upper Platform Level)										
Upper Track Slab Works (New)										
01109.PDC20890-1A	Downtrack TBM pass through TKW complete	0%		05-Dec-15*						
Span 1										
01109.PDC19740-1A	Span 1 - Excavation in soil/Install struts & walers C/S to S3	70%	24-Oct-15 A	21-Dec-15						
01109.PDC19740-2A	Span 1 - Excavation in soil/Install struts & walers S3 to S4	0%	22-Dec-15	20-Jan-16						
01109.PDC19740-3A	Span 1 - Excavation in soil/Install struts & walers S4 to UT/S	0%	21-Jan-16	29-Jan-16						
01109.PDC19760A	Span 1 - Upper Track Concrete Slab	0%	30-Jan-16	23-Feb-16						
Span 2										
01109.PDC19770-1A	Span 2 - Excavation in soil/Install struts & walers C/S to S3	100%	13-Oct-15 A	25-Nov-15 A						
01109.PDC19770-2A	Span 2 - Excavation in soil/Install struts & walers S3 to S4	0%	26-Nov-15	23-Dec-15						
01109.PDC19770-3A	Span 2 - Excavation in soil/Install struts & walers S4 to UT/S	0%	24-Dec-15	06-Jan-16						
01109.PDC19790A	Span 2 - Upper Track Concrete Slab	0%	07-Jan-16	28-Jan-16						
Span 3										
01109.PDC19800-1A	Span 3 - Excavation in soil/Install struts & walers C/S to S3	80%	13-Oct-15 A	07-Dec-15						
01109.PDC19800-2A	Span 3 - Excavation in soil/Install struts & walers S3 to S4	0%	08-Dec-15	13-Jan-16						
01109.PDC19800-3A	Span 3 - Excavation in soil/Install struts & walers S4 to UT/S	0%	14-Jan-16	28-Jan-16						
01109.PDC19820A	Span 3 - Upper Track Concrete Slab	0%	29-Jan-16	23-Feb-16						
Span 4										
01109.PDC19860-1A	Span 4 - Excavation in soil/Install struts & walers C/S to S3	75%	27-Oct-15 A	02-Dec-15						
01109.PDC19860-2A	Span 4 - Excavation in soil/Install struts & walers S3 to S4	0%	03-Dec-15	30-Dec-15						
01109.PDC19860-3A	Span 4 - Excavation in soil/Install struts & walers S4 to UT/S	0%	31-Dec-15	09-Jan-16						
01109.PDC19880A	Span 4 - Upper Track Concrete Slab	0%	11-Jan-16	12-Feb-16						
Span 5										
01109.PDC19920-1A	Span 5 - Excavation in soil/Install struts & walers C/S to S3	70%	03-Nov-15 A	09-Dec-15						
01109.PDC19920-2A	Span 5 - Excavation in soil/Install struts & walers S3 to S4	0%	10-Dec-15	13-Jan-16						
01109.PDC19920-3A	Span 5 - Excavation in soil/Install struts & walers S4 to UT/S	0%	14-Jan-16	26-Jan-16						
01109.PDC19930A	Span 5 - Upper Track Concrete Slab	0%	27-Jan-16	02-Mar-16						
Span 6										
01109.PDC19980-1A	Span 6 - Excavation in soil/Install struts & walers C/S to S3	0%	27-Nov-15	31-Dec-15						
01109.PDC19980-2A	Span 6 - Excavation in soil/Install struts & walers S3 to S4	0%	02-Jan-16	03-Feb-16						
01109.PDC19980-3A	Span 6 - Excavation in soil/Install struts & walers S4 to UT/S	0%	04-Feb-16	20-Feb-16						
01109.PDC20000A	Span 6 - Upper Track Concrete Slab	0%	22-Feb-16	30-Mar-16						



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5ZE, Page 6 of 11
 THREE MONTH ROLLING PROGRAMME - Nov 15 TASK filters: 3MRP
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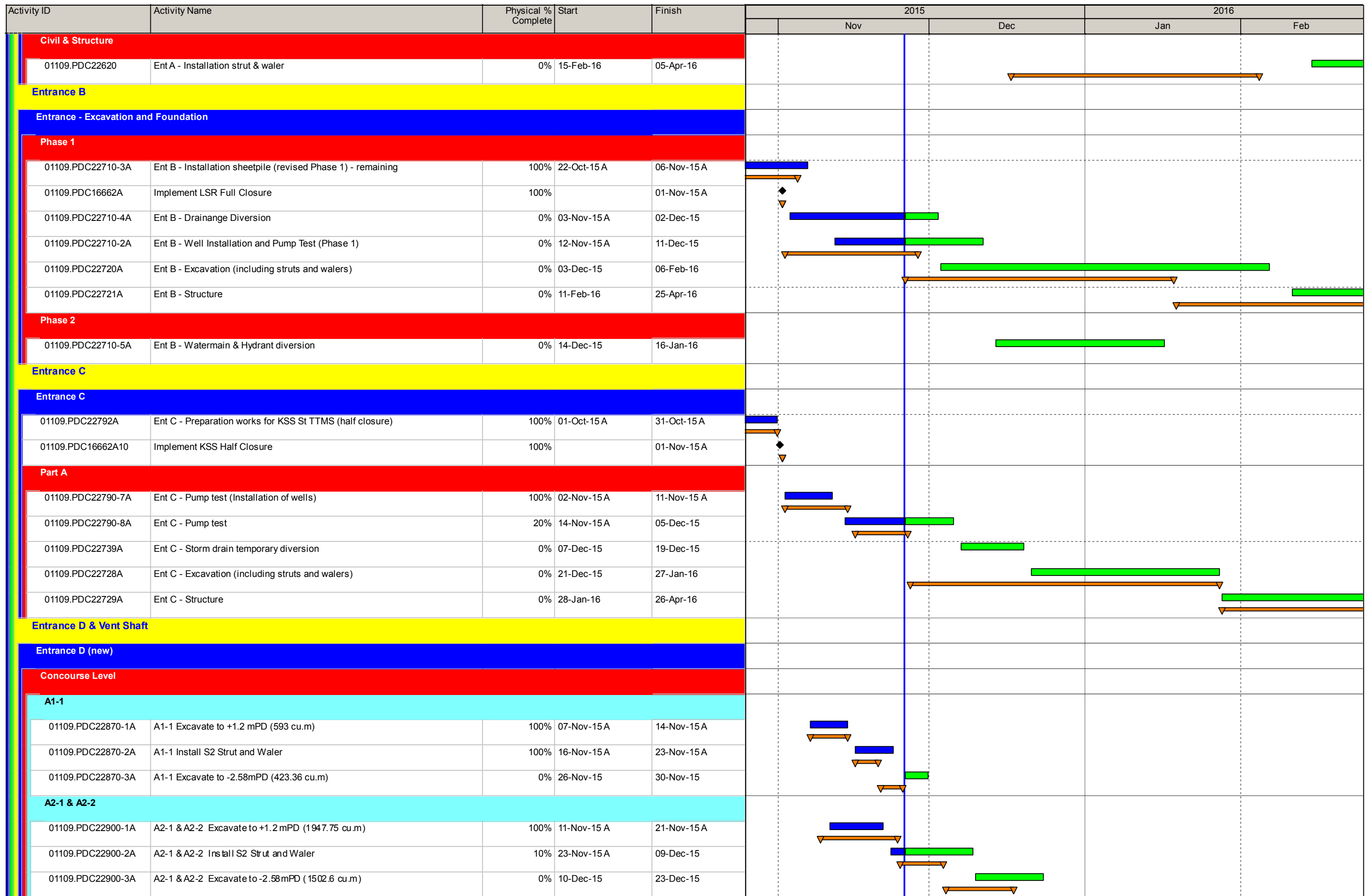
Activity ID	Activity Name	Physical % Complete	Start	Finish	2015		2016	
					Nov	Dec	Jan	Feb
Span 7								
01109.PDC20040-1A	Span 7 - Excavation in soil/Install struts & walers C/S to S3	70%	17-Nov-15 A	02-Dec-15				
01109.PDC20040-2A	Span 7 - Excavation in soil/Install struts & walers S3 to S4	0%	03-Dec-15	02-Jan-16				
01109.PDC20040-3A	Span 7 - Excavation in soil/Install struts & walers S4 to UT/S	0%	04-Jan-16	13-Jan-16				
01109.PDC20060A	Span 7 - Upper Track Concrete Slab	0%	14-Jan-16	12-Feb-16				
Span 8								
01109.PDC20100-11A	Span 8 - Excavation in soil to S3	100%	31-Oct-15 A	04-Nov-15 A				
01109.PDC20100-6A	Span 8 - Install S3	80%	05-Nov-15 A	09-Dec-15				
01109.PDC20100-7A	Span 8 - Excavation in soil to S4	0%	10-Dec-15	17-Dec-15				
01109.PDC20100-8A	Span 8 - Remedial tunnel eye grouting	0%	18-Dec-15	07-Jan-16				
01109.PDC20100-9A	Span 8 - Install S4	0%	08-Jan-16	21-Jan-16				
01109.PDC20100-3A	Span 8 - Excavation in soil/Install struts & walers S4 to UT/S	0%	22-Jan-16	30-Jan-16				
01109.PDC20120A	Span 8 - Upper Track Concrete Slab	0%	01-Feb-16	24-Feb-16				
Entrance A & Vent Shaft A								
Vent Shaft A								
Foundation								
01109.PDC27332-4A	VSA Part B - Pipe Pile (P1 to P30) (24/30 nos)	100%	19-Oct-15 A	17-Nov-15 A				
01109.PDC27330-1A	Vent Shaft A - Curtain Grouting to outside of pipepiles (12/84 nos)	66%	23-Oct-15 A	28-Nov-15				
01109.PDC27330-2A	Vent Shaft A - Curtain Grouting to outside of pipepiles (24/84 nos)	66%	31-Oct-15 A	02-Dec-15				
01109.PDC27339A	VSA Part C - Pipe Pile (P30 to P52) 6 nos	100%	02-Nov-15 A	19-Nov-15 A				
01109.PDC27330-3A	Vent Shaft A - Curtain Grouting to outside of pipepiles (36/84 nos)	66%	05-Nov-15 A	05-Dec-15				
01109.PDC27330-4A	Vent Shaft A - Curtain Grouting to outside of pipepiles (48/84 nos)	40%	12-Nov-15 A	12-Dec-15				
01109.PDC27338A	VSA Part C - Pipe Pile (P30 to P52) 6 nos	66%	19-Nov-15 A	30-Nov-15				
01109.PDC27332-5A	VSA Part B - Pipe Pile (P1 to P30) (30/30 nos)	0%	01-Dec-15	14-Dec-15				
01109.PDC27330-5A	Vent Shaft A - Curtain Grouting to outside of pipepiles (60/84 nos)	0%	14-Dec-15	23-Dec-15				
01109.PDC27341A	VSA Part C - Pipe Pile (P30 to P52) 6 nos	0%	15-Dec-15	04-Jan-16				
01109.PDC27330-6A	Vent Shaft A - Curtain Grouting to outside of pipepiles (72/84 nos)	0%	24-Dec-15	06-Jan-16				
01109.PDC27330-7A	Vent Shaft A - Curtain Grouting to outside of pipepiles (84/84 nos)	0%	09-Jan-16	21-Jan-16				
01109.PDC27381A	Temporary decking at Part C	0%	22-Jan-16	22-Feb-16				
01109.PDC27380	Vent Shaft A - Pumping test	0%	23-Feb-16	02-Apr-16				
Entrance A								
Foundation								
01109.PDC27360	Ent A - Corner Grouting	100%	14-Oct-15 A	23-Nov-15 A				
01109.PDC22600	Ent A - Pumping test	20%	16-Nov-15 A	09-Dec-15				



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5ZE, Page 7 of 11
THREE MONTH ROLLING PROGRAMME - Nov 15 TASK filters: 3MRP Dates, MTRC 1109 - 3MRP.
Printed:04-Dec-15

- Actual Work
- Remaining Work
- Master Programme Rev.1
- Last Month Update (Oct 2015)
- Milestone
- MP Rev.1 Milestone
- Oct 2015 Milestone



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5ZE, Page 8 of 11
THREE MONTH ROLLING PROGRAMME - Nov 15 TASK filters: 3MRP
Dates, MTRC 1109 - 3MRP.
Printed:04-Dec-15

- Actual Work
- Remaining Work
- Master Programme Rev.1
- ▶ Last Month Update (Oct 2015)
- ◆ Milestone
- MP Rev.1 Milestone
- ▼ Oct 2015 Milestone

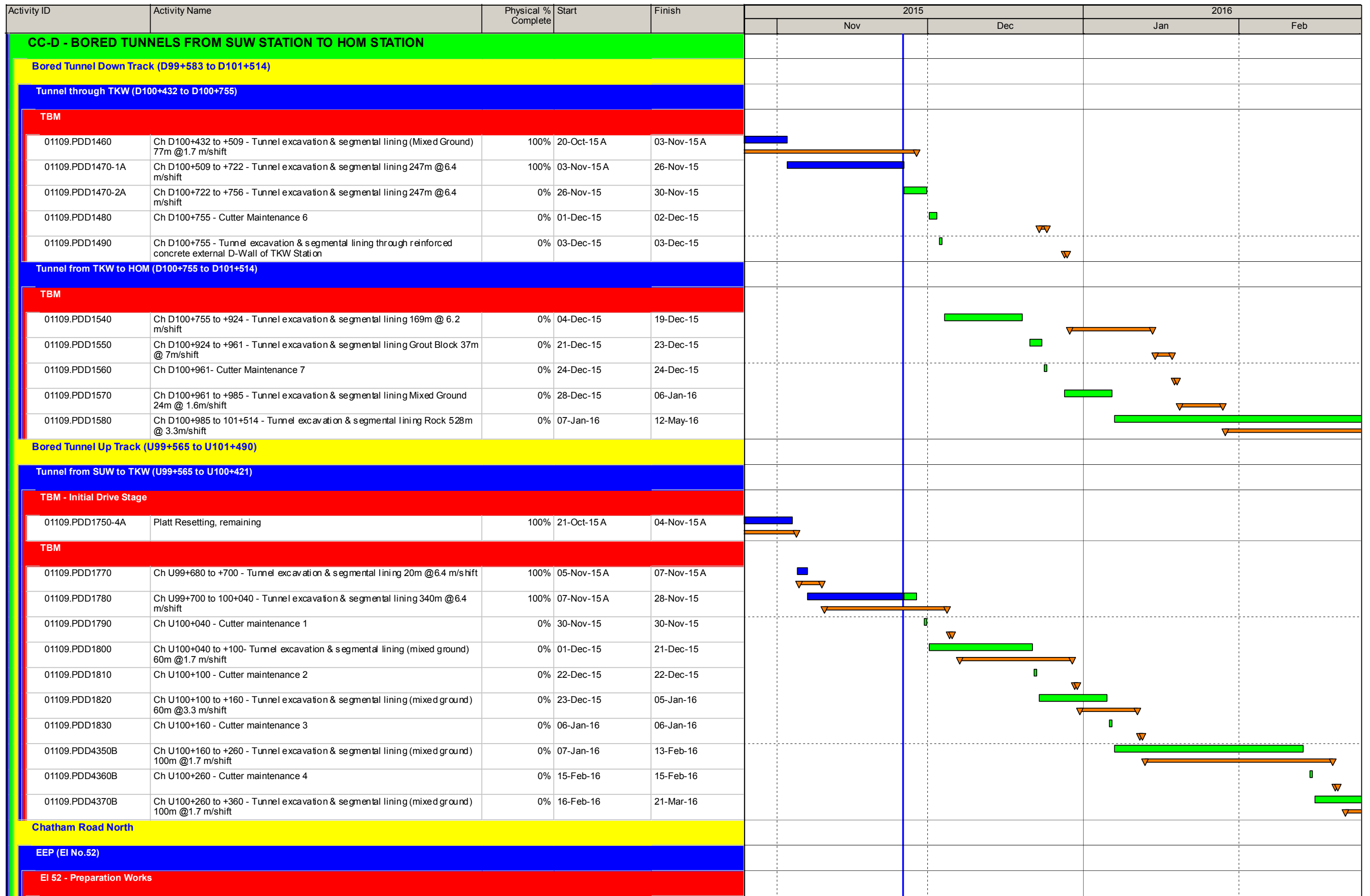
Activity ID	Activity Name	Physical % Complete	Start	Finish	2015				2016									
					Nov	Dec	Jan	Feb	Nov	Dec	Jan	Feb						
01109.PDC22940-1A	A2-1 & A2-2 Construct Concourse Slab	0%	24-Dec-15	16-Jan-16														
01109.PDC22940-2A	A2-1 & A2-2 Curing	0%	18-Jan-16	20-Jan-16														
A2-3																		
01109.PDC22900-4A	A2-3 Excavate to +1.2 mPD (740 cu.m)	5%	24-Nov-15 A	30-Nov-15														
01109.PDC22900-5A	A2-3 Install S2 Strut and Waler	0%	10-Dec-15	15-Dec-15														
01109.PDC22900-6A	A2-3 Excavate to -2.58mPD (699.3 cu.m)	0%	16-Dec-15	23-Dec-15														
01109.PDC22940-3A	A2-3 Construct Concourse Slab	0%	24-Dec-15	12-Jan-16														
01109.PDC22940-4A	A2-3 Curing	0%	13-Jan-16	15-Jan-16														
A3-3																		
01109.PDC22900-7A	A3-3 Excavate to +1.2 mPD (755.4 cu.m)	0%	01-Dec-15	08-Dec-15														
01109.PDC22900-8A	A3-3 Break End Wall	0%	09-Dec-15	14-Dec-15														
01109.PDC22900-9A	A3-3 Install S2 Strut and Waler	0%	15-Dec-15	23-Dec-15														
01109.PDC22900-10A	A3-3 Excavate to -2.58mPD (627.3 cu.m)	0%	24-Dec-15	02-Jan-16														
01109.PDC22900-11A	A3-3 Break End Wall	0%	04-Jan-16	08-Jan-16														
01109.PDC22940-5A	A3-3 Construct Concourse Slab	0%	09-Jan-16	29-Jan-16														
01109.PDC22940-6A	A3-3 Curing	0%	30-Jan-16	02-Feb-16														
Upper Track Level																		
A1-1																		
01109.PDC22910-1A	A1-1 Excavate to -6.3mPD (416.64 cu.m)	0%	21-Jan-16	26-Jan-16														
01109.PDC22910-2A	A1-1 Install Strut S4	0%	27-Jan-16	01-Feb-16														
01109.PDC22910-3A	A1-1 Excavate to -8.8mPD (280 cu.m)	0%	02-Feb-16	05-Feb-16														
01109.PDC22910-4A	A1-1 Install Strut S5	0%	06-Feb-16	15-Feb-16														
01109.PDC22910-5A	A1-1 Excavate to -11.93 mPD (351 cu.m)	0%	16-Feb-16	20-Feb-16														
A2-1 & A2-2																		
01109.PDC22920-1A	A2-1 & A2-2 Excavate to -6.3mPD (1478.7 cu.m)	0%	27-Jan-16	12-Feb-16														
01109.PDC22920-2A	A2-1 & A2-2 Install Strut S4	0%	13-Feb-16	23-Feb-16														
01109.PDC22920-3A	A2-1 & A2-2 Excavate to -8.8mPD (994 cu.m)	0%	24-Feb-16	04-Mar-16														
A2-3																		
01109.PDC22920-6A	A2-3 Excavate to -6.3mPD (688 cu.m)	0%	19-Feb-16	27-Feb-16														
A3-3																		
01109.PDC22920-11A	A3-3 Excavate to -6.3mPD (807 cu.m)	0%	03-Feb-16	15-Feb-16														
01109.PDC22920-12A	A3-3 Break End Wall	0%	16-Feb-16	20-Feb-16														
01109.PDC22920-13A	A3-3 Install Strut S4	0%	22-Feb-16	01-Mar-16														



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-SZE, Page 9 of 11
 THREE MONTH ROLLING PROGRAMME - Nov 15 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
 Printed:04-Dec-15

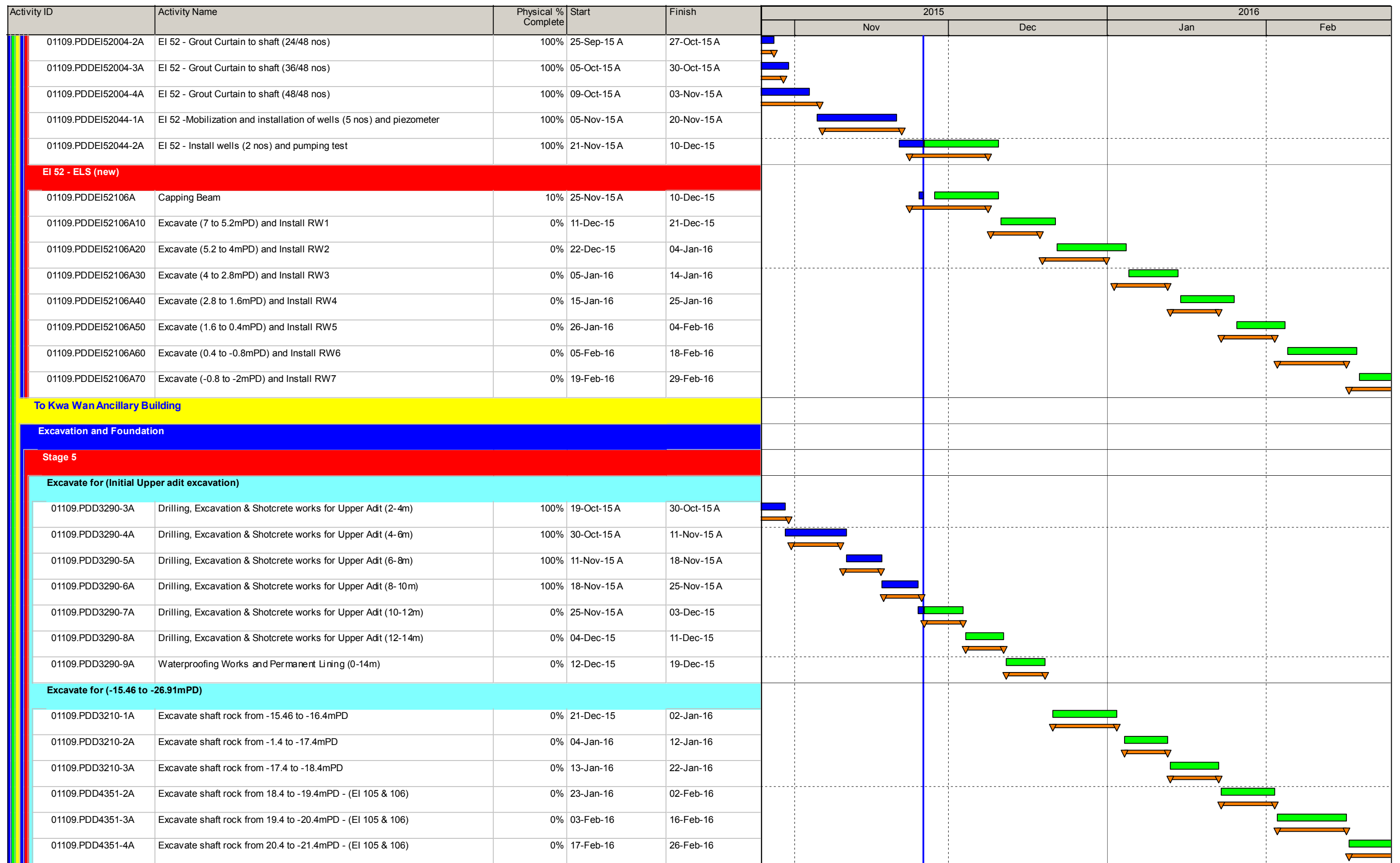
- Actual Work
- Remaining Work
- Master Programme Rev.1
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- Milestone
- MP Rev.1 Milestone
- Oct 2015 Milestone



MTR Corporation Limited
Shatin to Central Link Contract 1109

1109-UWP-5ZE, Page 10 of 11
 THREE MONTH ROLLING PROGRAMME - Nov 15 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
 Printed:04-Dec-15

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MTR Corporation Limited
Shatin to Central Link Contract 1109

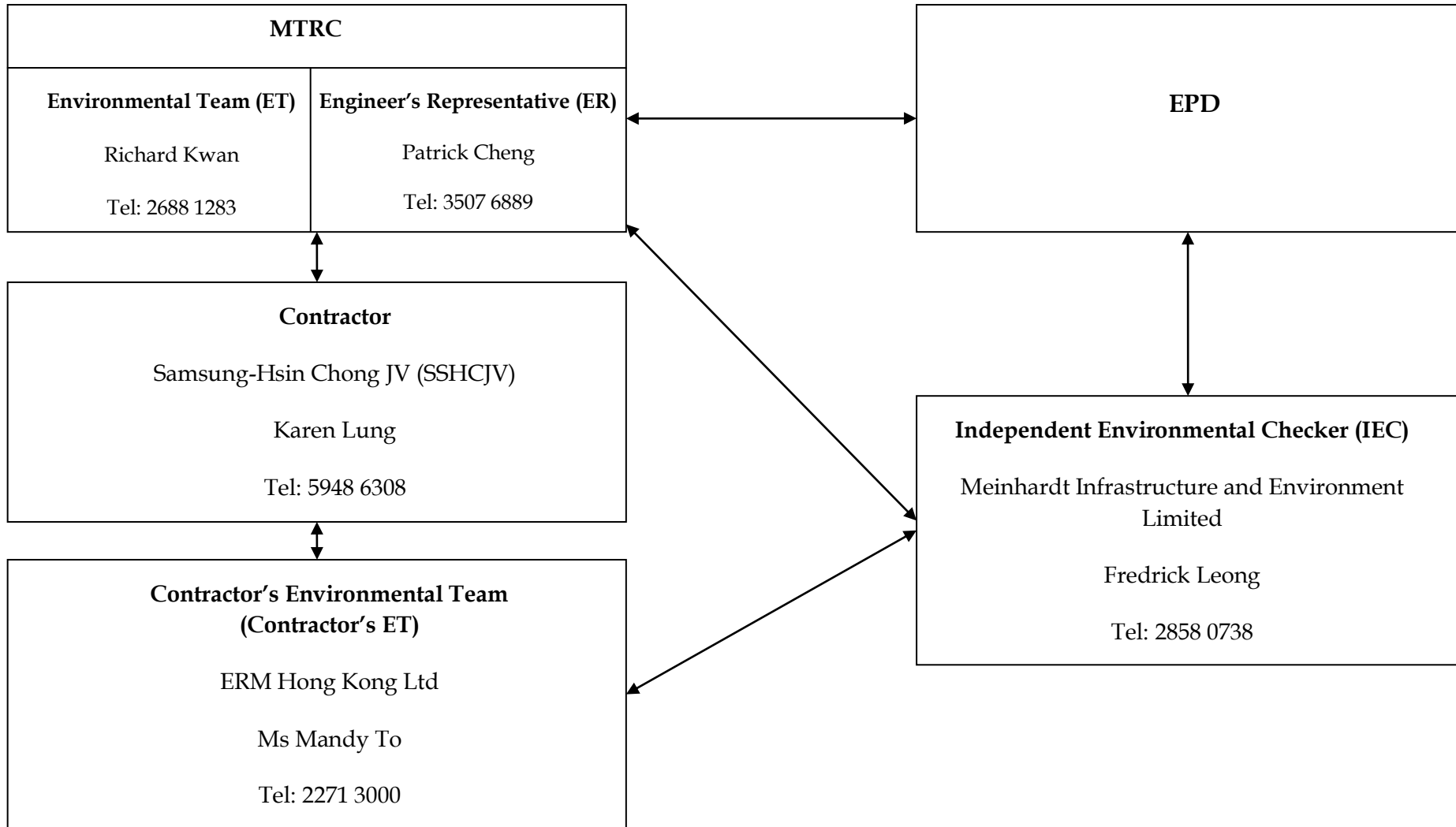
1109-UWP-5ZE, Page 11 of 11
 THREE MONTH ROLLING PROGRAMME - Nov 15 TASK filters: 3MRP
 Dates, MTRC 1109 - 3MRP.
 Printed:04-Dec-15

- Actual Work
- Remaining Work
- Master Programme Rev.1
- Last Month Update (Oct 2015)
- Milestone
- MP Rev.1 Milestone
- Oct 2015 Milestone

Annex C

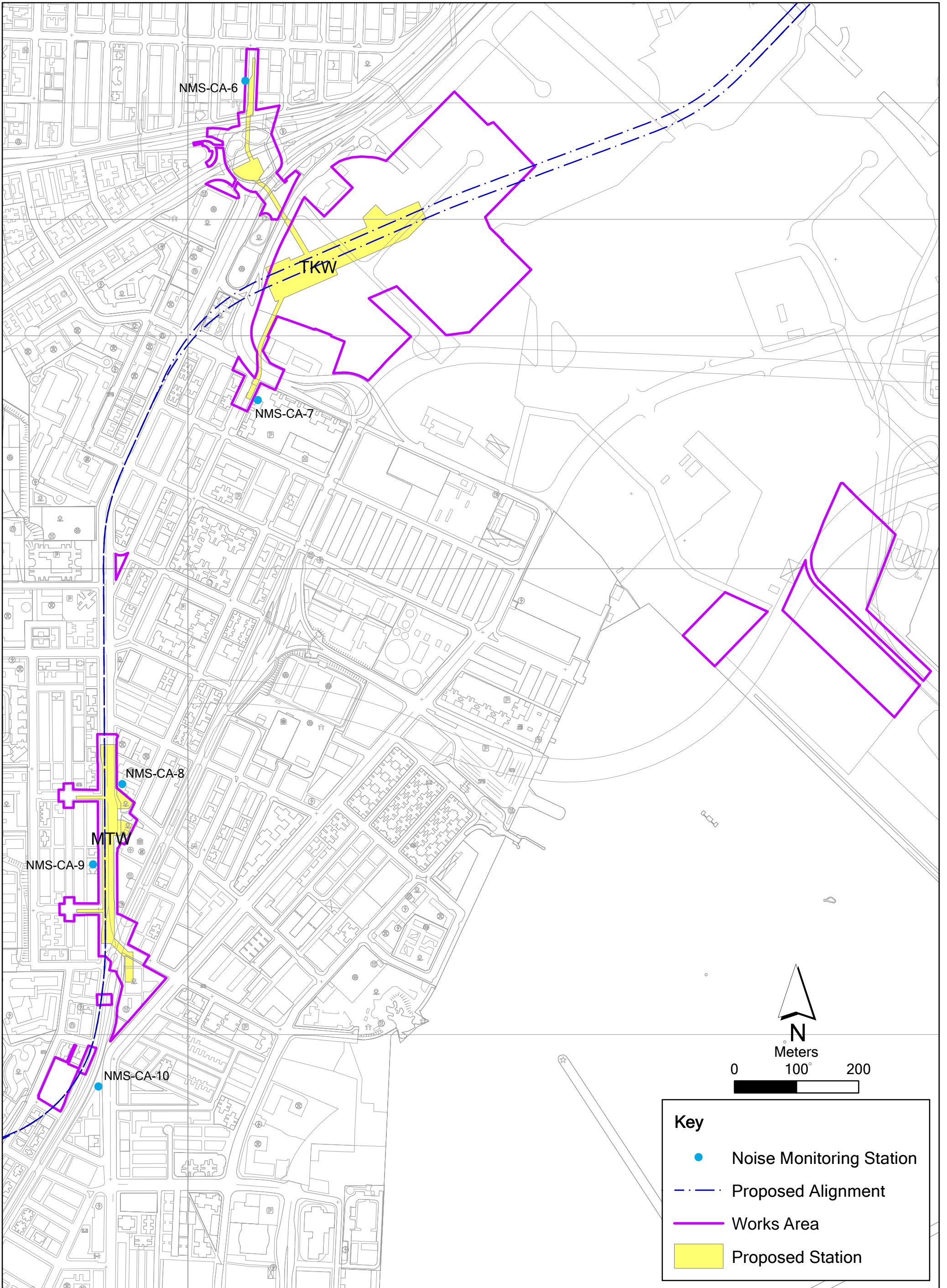
Project Organization Chart and Contact Detail

Annex C Project Organization of SCL Works Contract 1109



Annex D

Locations of Noise and Dust Monitoring Stations



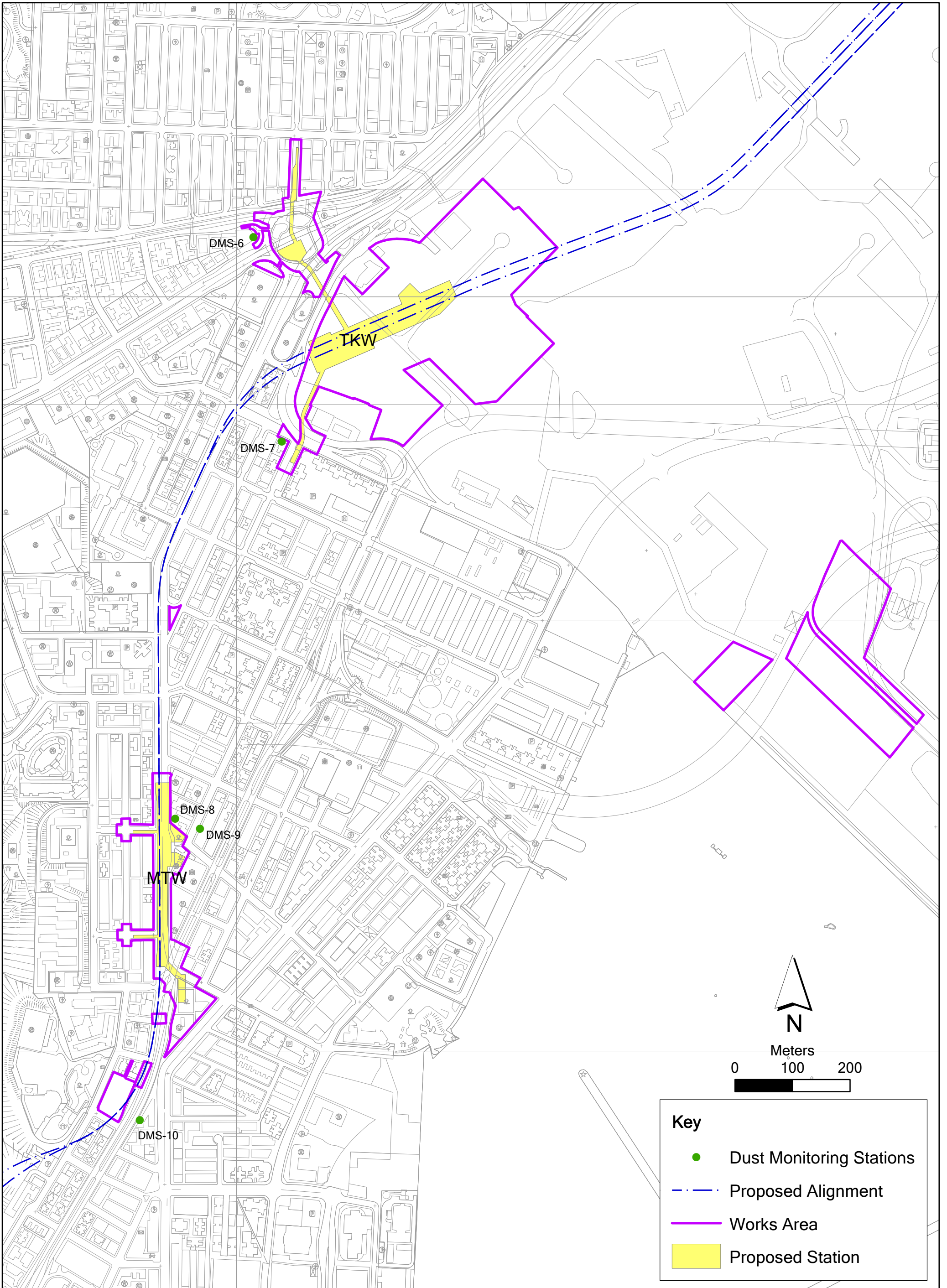
Annex D1

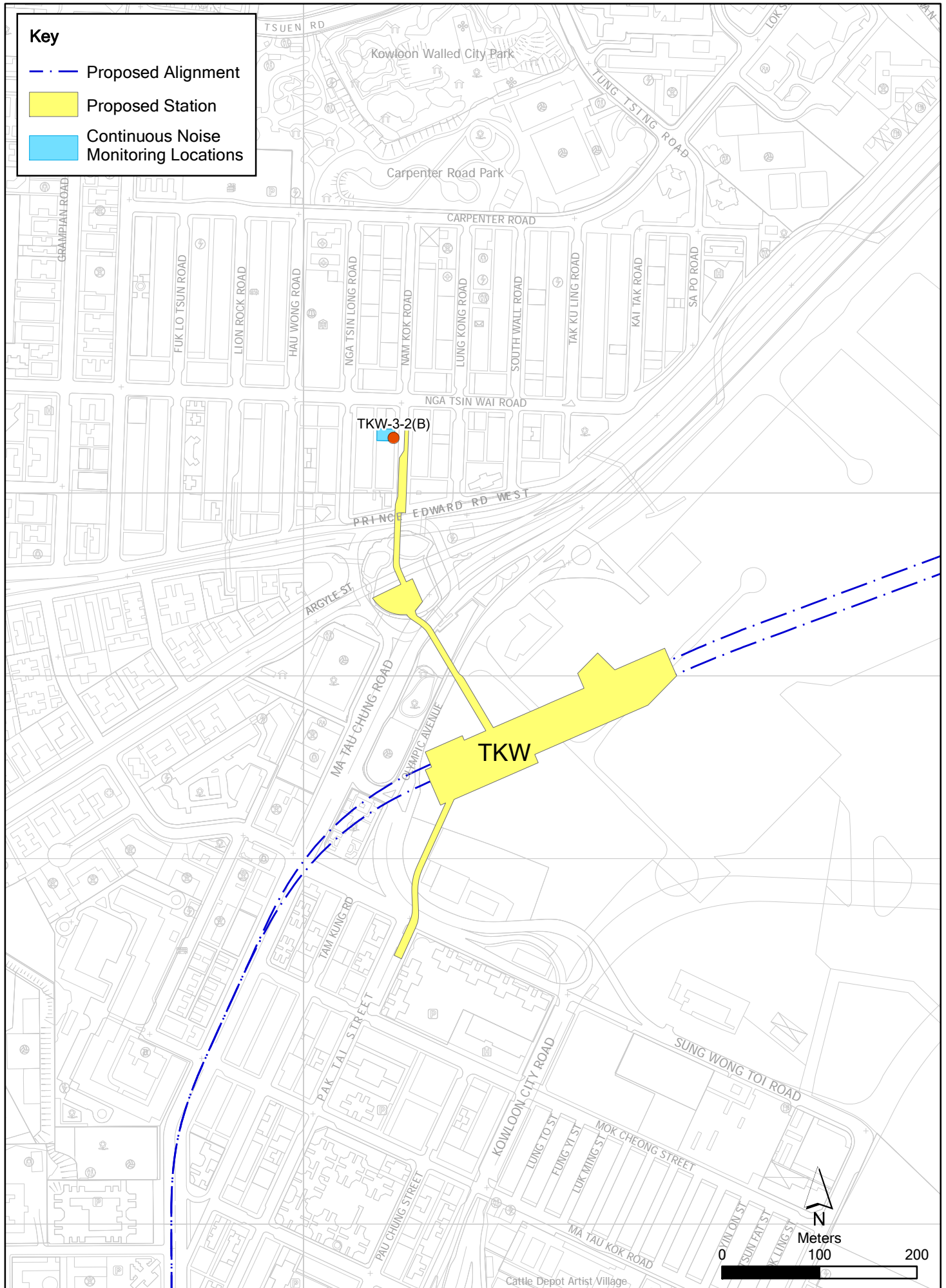
Location of Regular Construction Noise Monitoring Stations

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

Environmental
Resources
Management







Key


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

Figure 2.2a

Continuous Noise Monitoring Locations

File: T:\GIS\CONTRACT\0171181\Wxd\0171181_Continuous_Noise_Monitoring_Locations_TKW.mxd
 Date: 5/11/2014

Environmental Resources Management



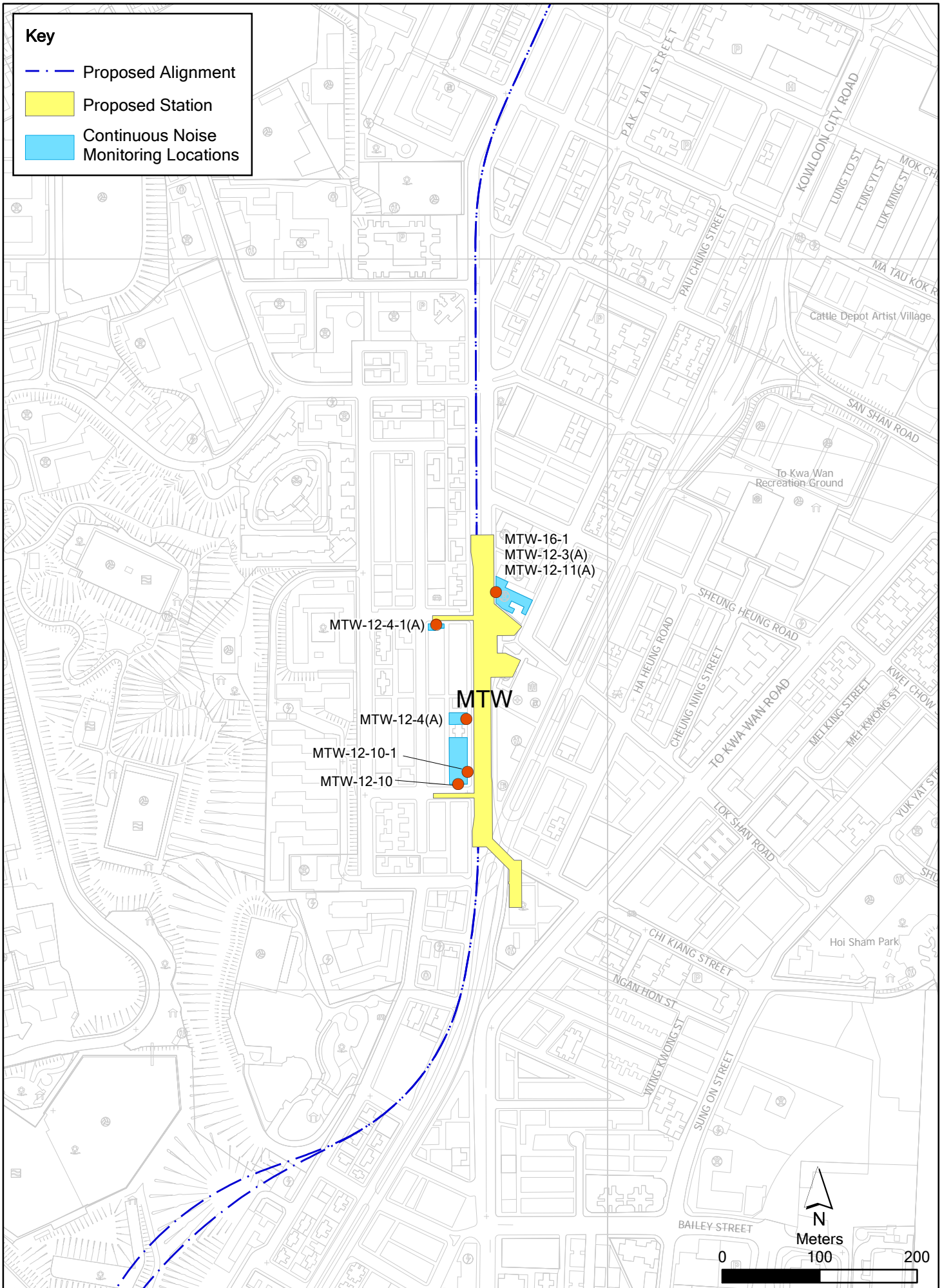


Figure 2.2b

Continuous Noise Monitoring Locations

Annex E

Monitoring Schedule of the Reporting Period and the Next Month

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

**24-hr TSP Monitoring Stations:
DMS-6, DMS-7, DMS-8, DMS-9 and DMS-10
Monitoring Month: November 2015**

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

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

**24-hr TSP Monitoring Stations:
DMS-6, DMS-7, DMS-8, DMS-9 and DMS-10
Monitoring Month: December 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		01-Dec	02-Dec	03-Dec	04-Dec	05-Dec
		24-hr TSP Monitoring				
06-Dec	07-Dec	08-Dec	09-Dec	10-Dec	11-Dec	12-Dec
	24-hr TSP Monitoring				24-hr TSP Monitoring	
13-Dec	14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec
				24-hr TSP Monitoring		
20-Dec	21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec
			24-hr TSP Monitoring			
27-Dec	28-Dec	29-Dec	30-Dec	31-Dec		
		24-hr TSP 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 : November 2015**

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

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

**Noise Monitoring Stations:
NMS-CA-6, NMS-CA-7, NMS-CA-8, NMS-CA-9 and NMS-CA-10
Monitoring Month : December 2015**

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

Annex F

Calibration Reports

Annex F Calibration Reports

Dust Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
<i>24-hr TSP</i>		HVS	Calibrator		
DMS-6	Katherine Building	TE-5170 (S/N 0107)	CM-AIR-43 (Orifice I.D. 2454)	5 September 2015	5 March 2016
DMS-7	Parc 22	TE-5170 (S/N 3574)	CM-AIR-43 (Orifice I.D. 2454)	5 September 2015	5 March 2016
DMS-8	SHK Good Shepherd Primary School	TE-5170 (S/N 3572)	CM-AIR-43 (Orifice I.D. 2454)	5 September 2015	5 March 2016
DMS-9	No. 12 Pau Chung Street	TE-5170 (S/N 0814)	CM-AIR-43 (Orifice I.D. 2454)	5 September 2015	5 March 2016
DMS-10	Chat Ma Mansion	TE-5170 (S/N 3573)	CM-AIR-43 (Orifice I.D. 2454)	5 September 2015	5 March 2016

Noise Monitoring Equipment

Monitoring Station ID	Monitoring Equipment	Model & Serial No.	Last Calibration Date	Next Calibration Date
NMS-CA-6, NMS-CA-7, NMS-CA-9 and NMS-CA-10	Calibrator	Rion NC-73 (S/N 10997142)	14 June 2015	14 June 2016
	Sound Level Meter	Rion NL-18 (S/N 00360030)	20 July 2015	20 July 2016
NMS-CA-8, and MTW-16-1	Calibrator	Rion NC-73 (S/N 10997142)	14 June 2015	14 June 2016
	Sound Level Meter	Rion NL-31 (S/N 00320533)	14 June 2015	14 June 2016
MTW-12-10	Calibrator	Rion NC-73 (S/N 10997142)	14 June 2015	14 June 2016
	Sound Level Meter	Rion NL-52 (S/N 00710259)	6 August 2015	6 August 2016
MTW-12-10-1	Calibrator	Rion NC-73 (S/N 10997142)	14 June 2015	14 June 2016
	Sound Level Meter	Rion NL-52 (S/N 00331806)	20 July 2015	20 July 2016

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-6(Katherine Building)
Calibrated by : K.T.Ho
Date : 05/09/2015

Sampler

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

Calibration Office and Standard Calibration Relationship

Serial Number : 2454
Service Date : 14 Mar 2015
Slope (m) : 2.09532
Intercept (b) : -0.03812
Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1012
Ta(K) : 302

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1 18 holes	12.2	3.468	1.672	52	51.63
2 13 holes	9.2	3.012	1.454	44	43.69
3 10 holes	7.0	2.627	1.270	38	37.73
4 7 holes	4.0	1.986	0.963	28	27.80
5 5 holes	2.4	1.538	0.749	20	19.86

Sampler Calibration Relationship (Linear Regression)

Slope(m): 33.971 Intercept(b): -5.358 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan

Date: 10/09/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-7(Parc 22)
 Calibrated by : K.T.Ho
 Date : 05/09/2015

Sampler

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

Calibration Office and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 14 Mar 2015
 Slope (m) : 2.09532
 Intercept (b) : -0.03812
 Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1012
 Ta(K) : 302

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1 18 holes	12.0	3.439	1.658	62	61.56
2 13 holes	9.2	3.012	1.454	54	53.61
3 10 holes	7.0	2.627	1.270	48	47.66
4 7 holes	4.2	2.035	0.987	38	37.73
5 5 holes	2.6	1.601	0.779	30	29.79

Sampler Calibration Relationship (Linear Regression)

Slope(m):35.684 Intercept(b):2.193 Correlation Coefficient(r):0.9996

Checked by: Magnum Fan

Date: 10/09/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-8(SHK Good Shepherd Primary School)
 Calibrated by : K.T.Ho
 Date : 05/09/2015

Sampler

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

Calibration Office and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 14 Mar 2015
 Slope (m) : 2.09532
 Intercept (b) : -0.03812
 Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1012
 Ta(K) : 302

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1 18 holes	11.8	3.411	1.645	60	59.57
2 13 holes	9.4	3.044	1.469	54	53.61
3 10 holes	7.0	2.627	1.270	47	46.66
4 7 holes	4.4	2.083	1.010	38	37.73
5 5 holes	2.8	1.661	0.808	30	29.79

Sampler Calibration Relationship (Linear Regression)

Slope(m): 35.389 Intercept(b): 1.581 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan

Date: 10/09/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-9(No. 12 Pau Chung Street)
 Calibrated by : K.T.Ho
 Date : 05/09/2015

Sampler

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

Calibration Office and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 14 Mar 2015
 Slope (m) : 2.09532
 Intercept (b) : -0.03812
 Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1012
 Ta(K) : 302

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1 18 holes	12.2	3.468	1.672	66	65.53
2 13 holes	9.4	3.044	1.469	56	55.60
3 10 holes	6.8	2.589	1.252	48	47.66
4 7 holes	4.2	2.035	0.987	36	35.74
5 5 holes	2.6	1.601	0.779	26	25.81

Sampler Calibration Relationship (Linear Regression)

Slope(m):43.760 Intercept(b):-7.834 Correlation Coefficient(r):0.9991

Checked by: Magnum Fan

Date: 10/09/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location : DMS-10(Chat Ma Mansion)
 Calibrated by : K.T.Ho
 Date : 05/09/2015

Sampler

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

Calibration Office and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 14 Mar 2015
 Slope (m) : 2.09532
 Intercept (b) : -0.03812
 Correlation Coefficient(r) : 0.99994

Standard Condition

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

Calibration Condition

Pa (hpa) : 1012
 Ta(K) : 302

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1 18 holes	11.2	3.323	1.603	58	57.59
2 13 holes	9.0	2.979	1.438	52	51.63
3 10 holes	7.0	2.627	1.270	46	45.67
4 7 holes	4.6	2.129	1.032	37	36.74
5 5 holes	2.3	1.506	0.734	28	27.80

Sampler Calibration Relationship (Linear Regression)

Slope(m):34.574 Intercept(b): 1.871 Correlation Coefficient(r): 0.9990

Checked by: Magnum Fan

Date: 10/09/2015



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 24, 2015 Rootmeter S/N 0438320 Ta (K) - 292
 Operator Tisch Orifice I.D. - 2454 Pa (mm) - 756.92

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	1.4460	3.2	2.00
2	NA	NA	1.00	1.0300	6.4	4.00
3	NA	NA	1.00	0.9180	7.9	5.00
4	NA	NA	1.00	0.8780	8.7	5.50
5	NA	NA	1.00	0.7240	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0121	0.6999	1.4258	0.9958	0.6886	0.8784
1.0078	0.9785	2.0163	0.9916	0.9627	1.2422
1.0057	1.0955	2.2543	0.9895	1.0779	1.3888
1.0047	1.1443	2.3644	0.9885	1.1258	1.4566
0.9994	1.3805	2.8515	0.9833	1.3582	1.7568
Qstd slope (m) = 2.09532			Qa slope (m) = 1.31205		
intercept (b) = -0.03812			intercept (b) = -0.02349		
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 }



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. : C153241

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-1330)

Date of Receipt / 收件日期 : 10 June 2015

Description / 儀器名稱 : Sound Level Calibrator

Manufacturer / 製造商 : Rion

Model No. / 型號 : NC-73

Serial No. / 編號 : 10997142

Supplied By / 委託者 : Envirotech Services Co.

Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$

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

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 14 June 2015

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
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

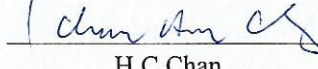
Tested By

測試


K C Lee
Project Engineer

Certified By

核證


H C Chan
Engineer

Date of Issue

簽發日期

16 June 2015

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Sun Creation Engineering Limited - Calibration & Testing Laboratory

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

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Website/網址: www.suncreation.com

Page 1 of 2

Certificate of Calibration

校正證書

Certificate No. : C153241

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

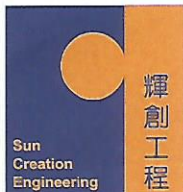
5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.986	1 kHz $\pm 2\%$	± 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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Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No. : C153242

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-1330)

Date of Receipt / 收件日期 : 10 June 2015

Description / 儀器名稱 : Sound Level Meter

Manufacturer / 製造商 : Rion

Model No. / 型號 : NL-31

Serial No. / 編號 : 00320533

Supplied By / 委託者 : Envirotech Services Co.

Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C

Relative Humidity / 相對濕度 : (55 ± 20)%

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 14 June 2015

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).

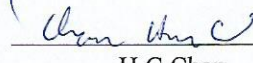
The test equipment used for calibration are traceable to National Standards via :

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

Tested By :
測試


K C Lee
Project Engineer

Certified By :
核證


H C Chan
Engineer

Date of Issue :
簽發日期

16 June 2015

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

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Sun Creation Engineering Limited - Calibration & Testing Laboratory

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輝創工程有限公司 - 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

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E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Page 1 of 4

Certificate of Calibration

校正證書

Certificate No. : C153242

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 form 6.1.1.2 to 6.4.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C150014
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)		
30 - 120	L _A	A	Fast	94.00	1	93.4	± 0.7

- 6.1.1.2 After Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L _A	A	Fast	94.00	1	94.0	± 0.7

- 6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L _A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

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

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

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Certificate of Calibration

校正證書

Certificate No. : C153242

證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L _A	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
20 -110	L _A	A	Fast	106.00	Continuous	106.0	Ref.
	L _{Amax}				200 ms	105.0	-1.0 ± 1.0
	L _A	Slow	Continuous		106.0	Ref.	
	L _{Amax}		500 ms		102.0	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _A	A	Fast	94.00	31.5 Hz	54.3	-39.4 ± 1.5
					63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.0	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	90.1	-4.3 (+3.0; -6.0)

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Certificate of Calibration

校正證書

Certificate No. : C153242
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _C	C	Fast	94.00	31.5 Hz	90.6	-3.0 ± 1.5
					63 Hz	93.0	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.4	-0.8 ± 1.0
					8 kHz	91.1	-3.0 (+1.5; -3.0)
					12.5 kHz	88.2	-6.2 (+3.0; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)	
Range (dB)	Mode	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)			
20 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5	
			60 sec.					1/10 ²	90	90.0	± 0.5
								1/10 ³	80	80.0	± 1.0
								5 min.	1/10 ⁴	70	70.0

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

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

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.35 dB
 250 Hz - 500 Hz : ± 0.30 dB
 1 kHz : ± 0.20 dB
 2 kHz - 4 kHz : ± 0.35 dB
 8 kHz : ± 0.45 dB
 12.5 kHz : ± 0.70 dB
 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 Burst equivalent level : ± 0.2 dB (Ref. 110 dB continuous sound level)

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

Note :

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

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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. : C153930

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-1508)

Date of Receipt / 收件日期 : 6 July 2015

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 : 20 July 2015


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
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By
測試



H T Wong
Assistant Technical Officer

Certified By
核證



K C Lee
Project Engineer

Date of Issue
簽發日期

22 July 2015

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Website/網址: www.suncreation.com

Page 1 of 4

Certificate of Calibration

校正證書

Certificate No. : C153930

證書編號

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

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C150014
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	93.6	± 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	93.6 (Ref.)
				104.00		103.6
				114.00		113.6

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	93.6	Ref.
			Slow				

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Certificate of Calibration

校正證書

Certificate No. : C153930

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	105.0	-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	53.9	-39.4 ± 1.5
					63 Hz	67.2	-26.2 ± 1.5
					125 Hz	77.2	-16.1 ± 1.0
					250 Hz	84.8	-8.6 ± 1.0
					500 Hz	90.3	-3.2 ± 1.0
					1 kHz	93.6	Ref.
					2 kHz	94.9	+1.2 ± 1.0
					4 kHz	94.7	+1.0 ± 1.0
					8 kHz	92.5	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.3	-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	90.5	-3.0 ± 1.5
					63 Hz	92.8	-0.8 ± 1.5
					125 Hz	93.5	-0.2 ± 1.0
					250 Hz	93.6	0.0 ± 1.0
					500 Hz	93.6	0.0 ± 1.0
					1 kHz	93.6	Ref.
					2 kHz	93.5	-0.2 ± 1.0
					4 kHz	92.8	-0.8 ± 1.0
					8 kHz	90.6	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.3	-6.2 (+3.0 ; -6.0)

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

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Certificate of Calibration

校正證書

Certificate No. : C153930

證書編號

6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Mode	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
50 - 110	LAeq	A	10 sec.	4	1	1/10	110	100	100.1	± 0.5
			60 sec.					90	90.1	± 0.5
			60 sec.					80	79.6	± 1.0
			5 min.					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.

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

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Certificate of Calibration

校正證書

Certificate No. : C154218

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-1720)

Date of Receipt / 收件日期 : 31 July 2015

Description / 儀器名稱 : Sound Level Meter

Manufacturer / 製造商 : Rion

Model No. / 型號 : NL-52

Serial No. / 編號 : 00710259

Supplied By / 委託者 : Envirotech Services Co.

Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$

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

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 6 August 2015

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).

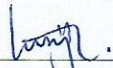
The test equipment used for calibration are traceable to National Standards via :

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

Tested By

測試


:


H T Wong
Technical Officer

Certified By

核證

:


K C Lee
Project Engineer

Date of Issue

簽發日期

:

7 August 2015

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

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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. : C154218
證書編號

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

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C150014
CL281	Multifunction Acoustic Calibrator	DC130171

- Test procedure : MA101N.
- Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 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	* 91.9	± 1.1

* Out of IEC 61672 Class 1 Spec.

6.1.1.2 After Adjustment

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

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L _A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.2
				114.00		114.3

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

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6.2 Time Weighting

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

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L _A	A	Fast	94.00	63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.5
					250 Hz	85.3	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.6	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L _C	C	Fast	94.00	63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.7	-0.2 ± 1.5
					250 Hz	93.9	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.1	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.6	-6.2 (+3.0 ; -6.0)

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Certificate No. : C154218

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- Remarks :
- UUT Microphone Model No. : UC-59 & S/N : 02695
 - Mfr's Spec. : IEC 61672 Class 1
 - Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
 - The uncertainties are for a confidence probability of not less than 95 %.

Note :

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

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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. : C153925

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-1508)

Date of Receipt / 收件日期 : 6 July 2015

Description / 儀器名稱 : Sound Level Meter

Manufacturer / 製造商 : Rion

Model No. / 型號 : NL-52

Serial No. / 編號 : 00331806

Supplied By / 委託者 : Envirotech Services Co.

Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$

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

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 20 July 2015

TEST RESULTS / 測試結果

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

All results are within manufacturer's specification.

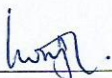
The results are detailed in the subsequent page(s).

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

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

Tested By

測試


H T Wong
Assistant Technical Officer

Certified By

核證


K C Lee
Project Engineer

Date of Issue

簽發日期

22 July 2015

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

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Page 1 of 3

Certificate of Calibration

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Certificate No. : C153925
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- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration was performed before the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C150014
CL281	Multifunction Acoustic Calibrator	DC130171

- Test procedure : MA101N.

- Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L _A	A	Fast	94.00	1	93.9	± 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	93.9 (Ref.)
				104.00		103.9
				114.00		113.9

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

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L _A	A	Fast	94.00	1	93.9	Ref.
			Slow			93.9	± 0.3

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

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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	67.6	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.5
					250 Hz	85.2	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	95.1	+1.2 ± 1.6
					4 kHz	94.9	+1.0 ± 1.6
					8 kHz	92.9	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.5	-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	93.0	-0.8 ± 1.5
					125 Hz	93.7	-0.2 ± 1.5
					250 Hz	93.9	0.0 ± 1.4
					500 Hz	93.9	0.0 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	93.7	-0.2 ± 1.6
					4 kHz	93.1	-0.8 ± 1.6
					8 kHz	91.0	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.5	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 04871

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

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

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

Note :

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

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Annex G

Summary of Event/ Action Plans

Annex G1 Event and Action Plan for Regular Construction Noise Monitoring

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

Annex G2 Event and Action Plan for Continuous Noise Monitoring

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

Annex G3 Event and Action Plan for Construction Dust Monitoring

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

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

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

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

Annex H

Summary of Implementation Status of Environmental Mitigation

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

Note:

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

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
Cultural Heritage Impact							
S4.9	CH3	<u>Submit an Archaeological Action Plan</u> Conduct survey-cum-excavation and additional boreholes/trenches investigation at the Sacred Hill (North) Study Area prior to construction.	Salvage cultural remains at the Sacred Hill (North) Study Area	Contractor	Sacred Hill (North) Area	Prior to the Construction Phase of TKW and associated tunnels	✓
Ecology (Construction Phase)							
S5.7	E5	<u>Good Site Practices</u> Impact on any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.	Minimise ecological impacts	Contractor	All construction sites	Construction Stage	✓

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> • Erection of temporary geotextile silt or sediment fences/oil traps around earth-moving works to trap sediments and prevent them from entering watercourses; • Avoidance of soil storage against trees or close to water bodies; • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. tunnel on hill at top of slope stabilisation works; • No on-site burning of waste; • Store waste and refuse in appropriate receptacles. 					
Landscape & Visual (Construction Phase)							
S6.9.3	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		ground may be set up on-site as necessary.					
		<p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and associated understorey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing. The contractor should closely monitor and restrict the site working staff from entering the "no-intrusion zone", even for indirect construction activities and storage of equipment. 					
		<p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees including trees in contractor's works sites should be recorded and photographed at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifies the tree protection requirement, submission and approval system, and the tree monitoring system. The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including 					

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S6.12	LV2	<p>trees in Contractor's works sites.</p> <p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> Erection of decorative screen in visual and landscape sensitive areas during the construction stage to screen off undesirable views of the construction site. Hoarding should be designed to be compatible with the existing urban context. <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the on-site facilities, control the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent Visual Sensitive Receivers (VSRs). <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> Trees of high to medium survival rates that would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including the final locations for the transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006. 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction Stage	√
Construction Dust							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	√

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S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul roads in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 l/m ² to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	√
S7.6.5	D3	<ul style="list-style-type: none"> • Proper watering of exposed spoil should be undertaken throughout the construction phase; • Any excavated or stockpile of dusty material should be covered entirely by an impervious sheeting or sprayed with water to maintain an entirely wet surface and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile has been removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty materials should not be extended beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by an impervious 	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	√

EIA Ref.	EM&A Log Ref*	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the implementation of measures	When to implement the measures?	Implementation Status
		<p>sheeting to ensure that the dusty materials do not leak from the vehicle;</p> <ul style="list-style-type: none"> • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road which leads only to construction site and is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operations take place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or 					

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		<p>a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain an entirely wet surface</p> <ul style="list-style-type: none"> • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building upward, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by an impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by an impervious sheeting or placed in an area sheltered on the top and 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; 					

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		and <ul style="list-style-type: none"> Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 					
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	✓
EP Condition 2.18(a)	D7	Watering once every working hour for active works areas, exposed areas and paved haul roads shall be provided in Kowloon area to keep these active works areas, exposed areas and paved haul roads wet.	Minimize construction dust impact	Contractor	All construction sites	Construction stage	✓
EP Condition 2.19	D8	All diesel fuelled construction plant, including marine vessels if possible, used by the contractors within the works areas of the Project shall be powered by ultra low sulphur diesel fuel.	Minimize aerial emissions of sulphur dioxide from construction plant	Contractor	All construction sites	Construction stage	✓
Construction Noise (Airborne)							
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work 	Control construction airborne noise	Contractor	All construction sites	Construction stage	✓

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		<p>periods or should be throttled down to a minimum;</p> <ul style="list-style-type: none"> • plant known to emit noise strongly in one direction, where possible, should be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the period of construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 					
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	✓
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	✓
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	✓
S8.3.6	N5	Sequencing operation of construction plants	Operate sequentially within	Contractor	Contractor All	Construction stage	✓

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		where practicable.	the same work site to reduce the construction airborne noise		construction sites where practicable		
S8.3.6	N6	Implement noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	√
Water Quality							
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoffs and Site Drainage</u> <ul style="list-style-type: none"> At the start of the site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the Contractor prior to the commencement of construction. The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to 	To minimise water quality impact from construction site runoffs and general construction activities	Contractor	All construction sites where practicable	Construction stage	<>

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

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

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

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

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		<p>of suspended solids should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove oil, lubricants and grease from the wastewater.</p> <ul style="list-style-type: none"> Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. The slurry should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities have been completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 					
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <p>Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for their appropriate disposal and maintenance.</p>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	✓
S10.7.1	W4	<p><u>Groundwater from Contaminated Area in case contamination is found:</u></p> <ul style="list-style-type: none"> No direct discharge of groundwater from 	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	N/A

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

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S10.7.1	W7	<ul style="list-style-type: none"> If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells. It is necessary to submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than the pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor. The Contractor should apply for a discharge licence under the Water Pollution Control Ordinance (WPCO) through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater. 	To minimize water quality impact from accidental	Contractor	All construction sites where practicable	Construction stage	<>

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		<p>All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains.</p> <ul style="list-style-type: none"> The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	spillage				
Waste Management (Construction Waste)							
S11.4.1.1	WM1	<p><u>On-site sorting of C&D (Construction and Demolition) material</u></p> <ul style="list-style-type: none"> Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored in the designated stockpile areas avoiding delivering them to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from 	Separation of unsuitable rock from ending up at Concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	√

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		being ended up at concrete batching plants and turned into concrete for structural use. Details regarding control measures at source sites and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated. The traceability of delivery will be ensured via the implementation of Trip Ticket System and enforcement by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.					
S11.5.1	WM2	<p><u>Construction and Demolition (C&D) Material</u></p> <ul style="list-style-type: none"> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; 	Good site practice to minimize waste generation and recycle C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	√

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		<ul style="list-style-type: none"> Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; Implement an enhanced Waste management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and minimize waste generation during the course of construction. Disposal of the C&D materials to any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get his approval before implementation 					
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used. Metal hoarding should be used to enhance the possibility of recycling. The purchase of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. 	Good site practice to minimize waste generation and recycle C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	√

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S11.5.1	WM4	<p>Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</p> <p><u>General Refuse</u></p> <ul style="list-style-type: none"> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. <p>Participation in a local collection scheme</p>	Minimize the production of general refuse and minimise odour, pest and litter impacts	Contractor	All construction sites	Construction stage	√

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S11.5.1	WM7	<p>should be considered by the Contractor.</p> <p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> Chemical waste as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, that is produced should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed. They should have a capacity of less than 450 litres unless the specification has been approved by the EPD. A label in English and Chinese should be displayed in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides. It should also have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest. It should have adequate ventilation and be covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	√

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		<ul style="list-style-type: none"> Disposal of chemical waste should be via a licensed waste collector; to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre (which also offers a chemical waste collection service and can supply the necessary storage containers); or to a reuser of the waste, under the approval from the EPD. 					

Annex I - 1

Regular Noise Monitoring Results

Annex I-1 Regular Noise Monitoring Results

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

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
03-Nov-15	10:55	11:25	Fine	64.2	76.1	-(b)	-	Traffic noise	25	0.5	NL-18 00360030	NC-73 10997142
09-Nov-15	10:57	11:27	Fine	65.0	76.1	-(b)	-	Traffic noise	26	0.5	NL-18 00360030	NC-73 10786708
19-Nov-15	10:45	11:15	Sunny	63.7	76.1	-(b)	-	Traffic noise	25	0.5	NL-18 00360030	NC-73 10786708
25-Nov-15	10:50	11:20	Fine	63.7	76.1	-(b)	-	Traffic noise	25	0.5	NL-18 00360030	NC-73 10786708

Station NMS-CA-7 Skytower Tower 2

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
03-Nov-15	9:55	10:25	Fine	64.3	70.0	-(b)	-	Traffic noise	25	0.5	NL-18 00360030	NC-73 10997142
09-Nov-15	9:57	10:27	Fine	65.1	70.0	-(b)	-	Traffic noise	26	0.5	NL-18 00360030	NC-73 10997142
19-Nov-15	9:52	10:22	Sunny	64.7	70.0	-(b)	-	Traffic noise	25	0.5	NL-18 00360030	NC-73 10997142
25-Nov-15	9:52	10:22	Fine	66.3	70.0	-(b)	-	Traffic noise	25	0.5	NL-18 00360030	NC-73 10997142

Station NMS-CA-8 SKH Good Shepherd Primary School

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
03-Nov-15	12:48	13:18	Fine	77.0	75.4	71.9	-	Traffic noise	25	0.5	NL-31 00320533	NC-73 10997142
09-Nov-15	11:43	12:13	Fine	77.3	75.4	72.8	-	Traffic noise	26	0.5	NL-31 00320533	NC-73 10997142
19-Nov-15	15:41	16:11	Sunny	78.6	75.4	75.8	-	Traffic noise	25	0.5	NL-31 00320533	NC-73 10997142
25-Nov-15	13:52	14:22	Fine	78.5	75.4	75.6	-	Traffic noise	25	0.5	NL-31 00320533	NC-73 10997142

Station NMS-CA-9 Kong Yiu Mansion

Date	Start Time	End Time	Weather	Measured Noise level (dB(A)), L _{Aeq} (30 min)	Baseline (dB(A)), L _{Aeq} (30 min)	Corrected LAeq(dBA) ^(a)	Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
03-Nov-15	8:00	8:30	Fine	69.2	69.2	-(b)	Backhoe	Traffic noise	25	0.5	NL-18 00360030	NC-73 10997142
09-Nov-15	8:00	8:30	Fine	70.6	69.2	65.0	Backhoe	Traffic noise	26	0.5	NL-18 00360030	NC-73 10997142
19-Nov-15	8:00	8:30	Sunny	70.3	69.2	63.8	Backhoe	Traffic noise	25	0.5	NL-18 00360030	NC-73 10997142
25-Nov-15	8:00	8:30	Fine	70.7	69.2	65.4	Backhoe	Traffic noise	25	0.5	NL-18 00360030	NC-73 10997142

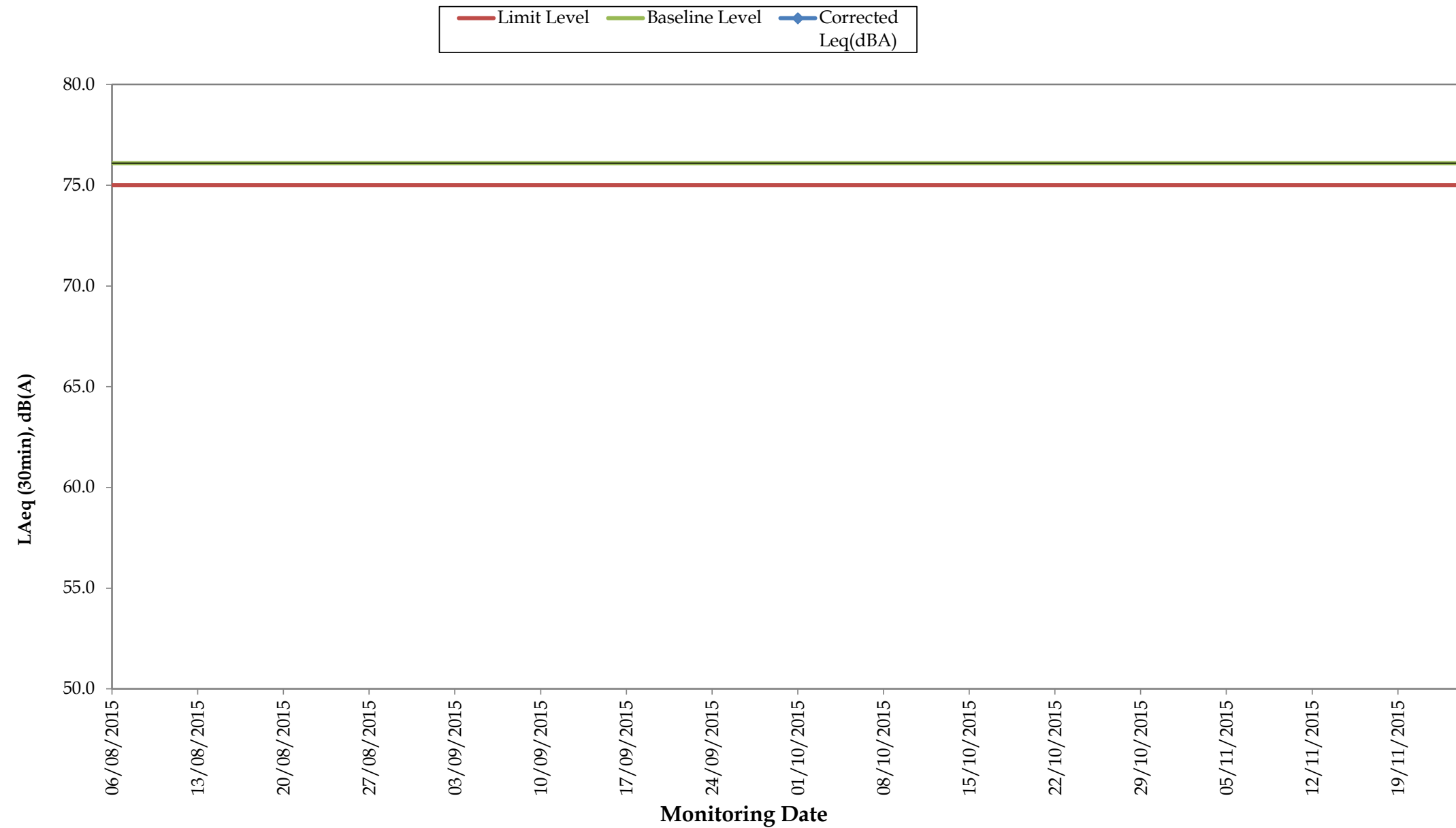
Station NMS-CA-10 Chat Ma Mansion

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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
03-Nov-15	8:40	9:10	Fine	76.3	76.6	-(b)	Backhoe	Traffic noise	25	0.5	NL-18 00360030	NC-73 10997142
09-Nov-15	8:40	9:10	Fine	76.3	76.6	-(b)	Backhoe	Traffic noise	26	0.5	NL-18 00360030	NC-73 10997142
19-Nov-15	8:40	9:10	Sunny	77.2	76.6	68.3	Backhoe	Traffic noise	25	0.5	NL-18 00360030	NC-73 10997142
25-Nov-15	8:40	9:10	Fine	76.7	76.6	60.3	Backhoe	Traffic noise	25	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 carried out at NMS-CA-10 on 3, 9, 19 and 25 November 2015 are higher than the daytime construction noise criterion. However, those results are not considered as exceedances as they are below the limit level after deducting the baseline noise level.

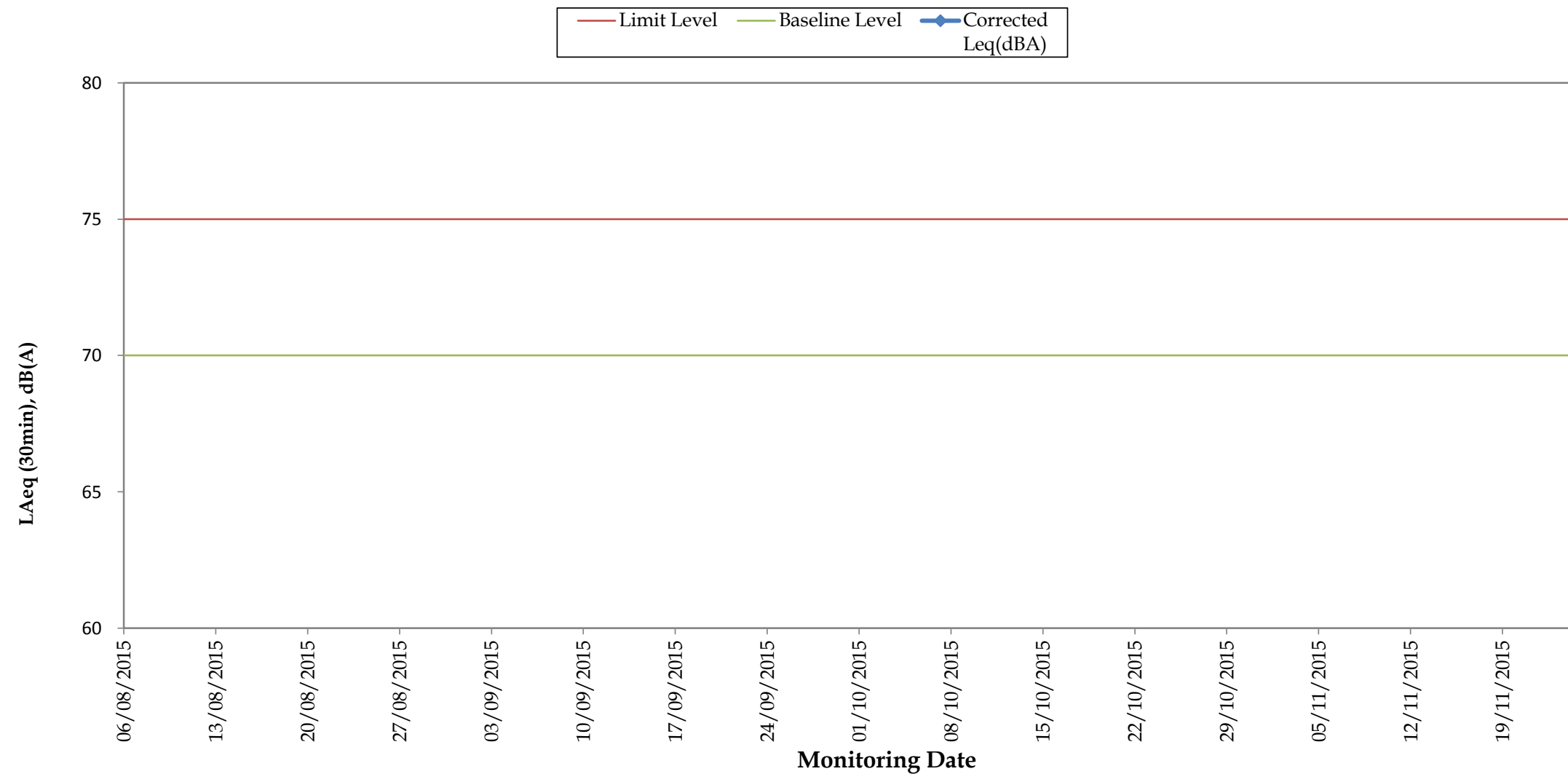
Regular Noise Monitoring Results at NMS-CA-6 (No. 16-23 Nam Kok Road) (LAeq, 30min) for the Past 4 Months



Remarks:

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

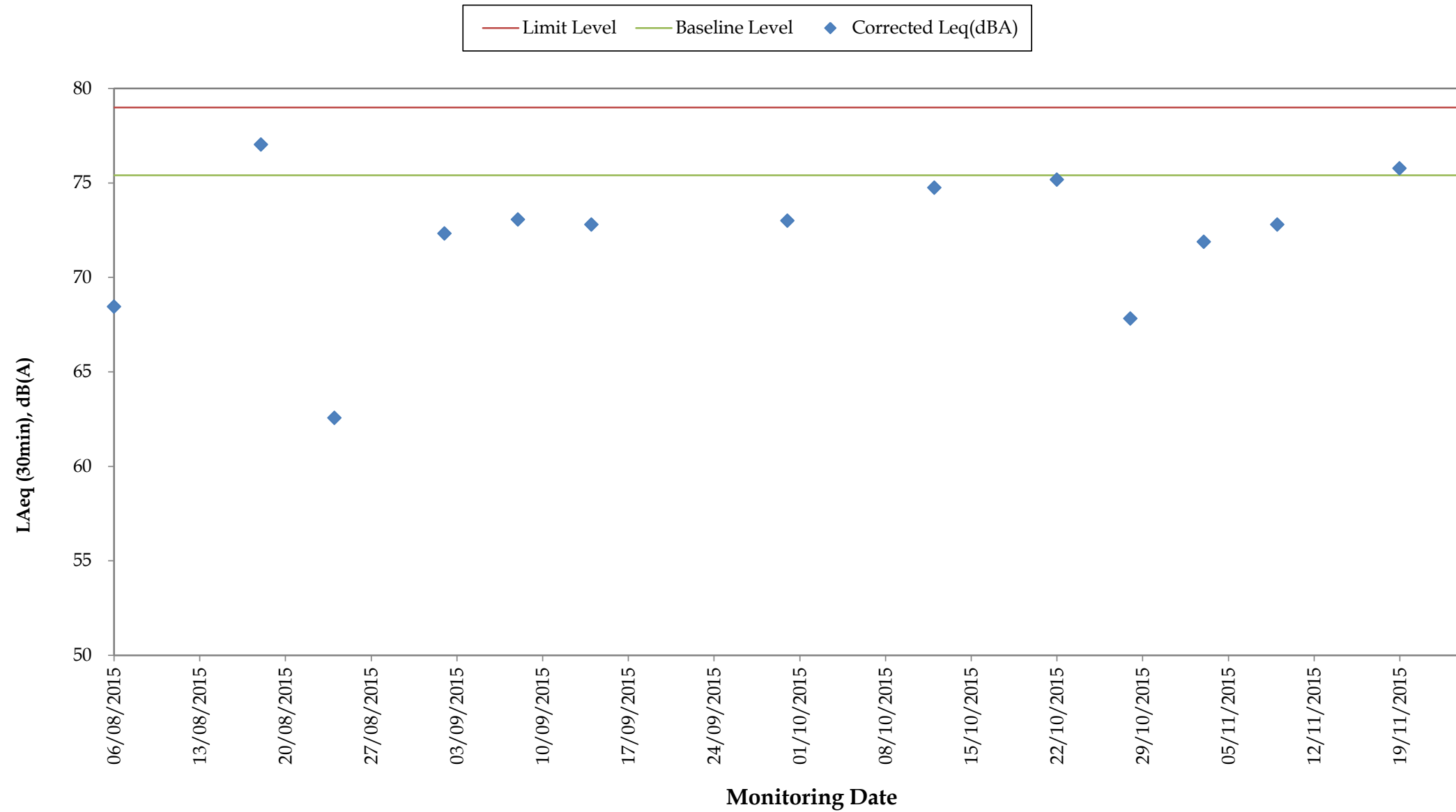
Regular Noise Monitoring Results at NMS-CA-7 (Skytower Tower 2) (LAeq, 30min) for the Past 4 Months



Remarks:

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

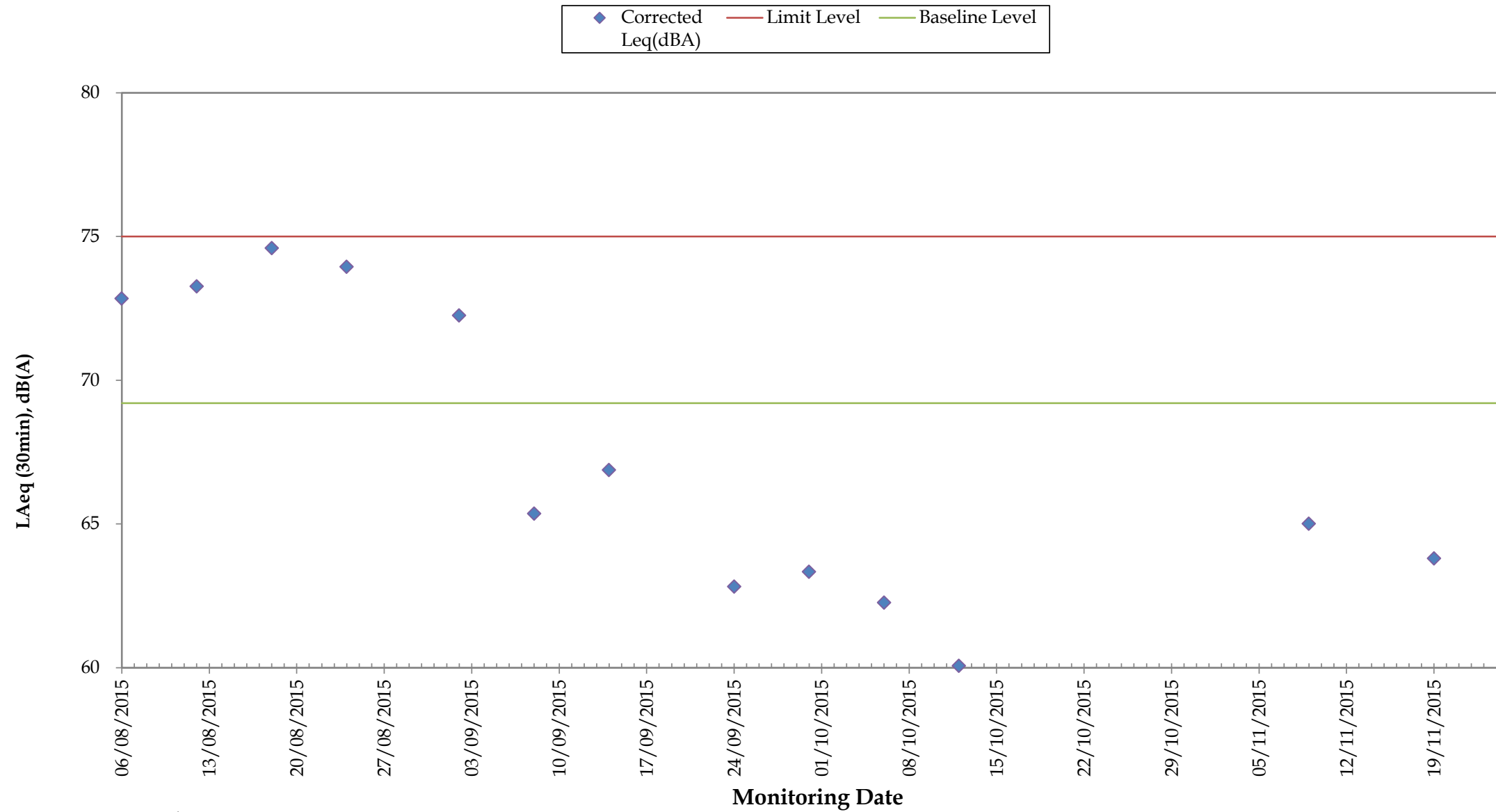
Regular Noise Monitoring Results at NMS-CA- 8 (SKH Good Shepherd Primary School) (LAeq, 30min) for the Past 4 Months



Remarks:

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

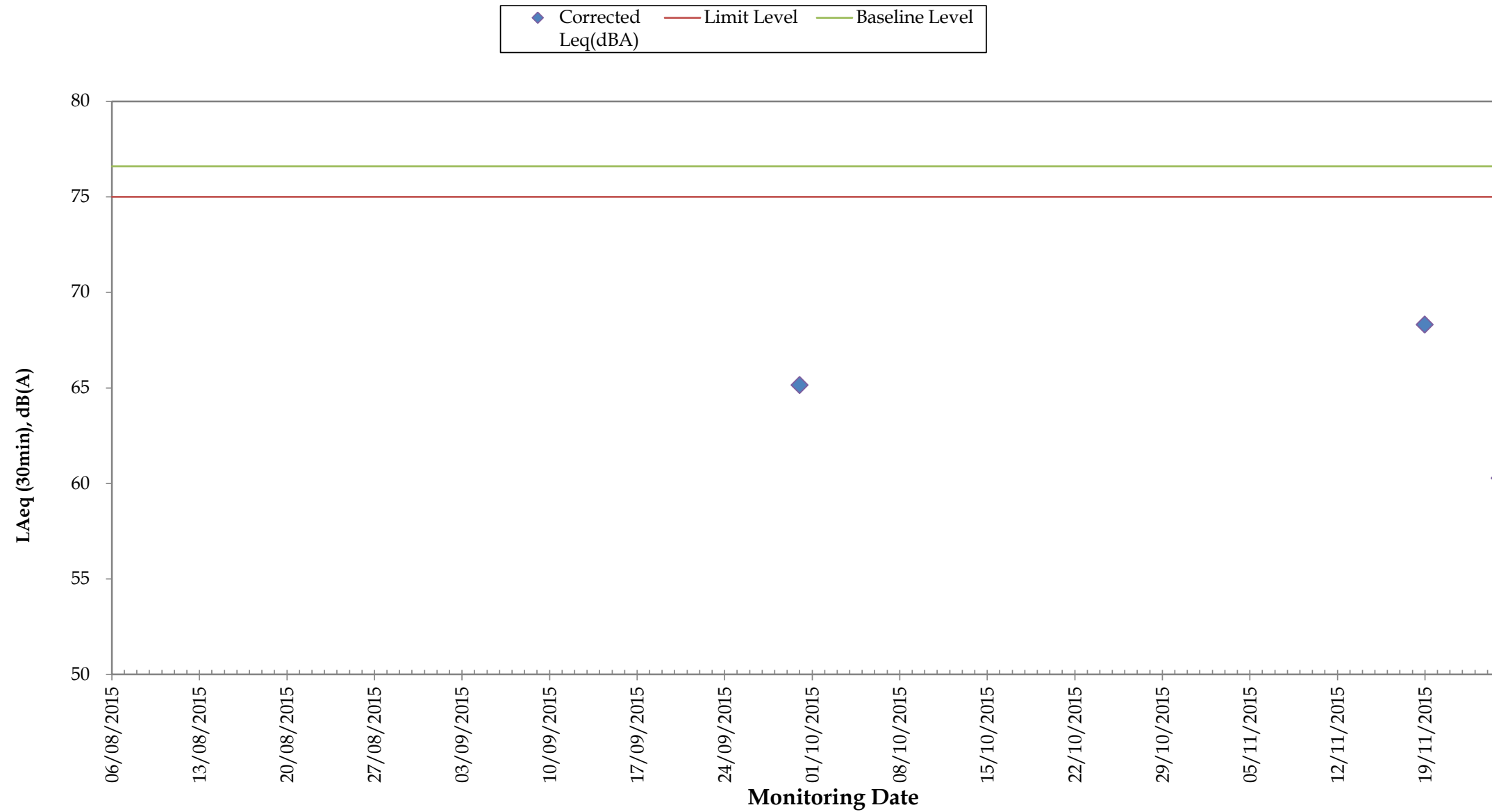
Regular Noise Monitoring Results at NMS-CA-9 (Kong Yiu Mansion) (LAeq, 30min)) for the Past 4 Months



Remarks:

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

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



Remarks:

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

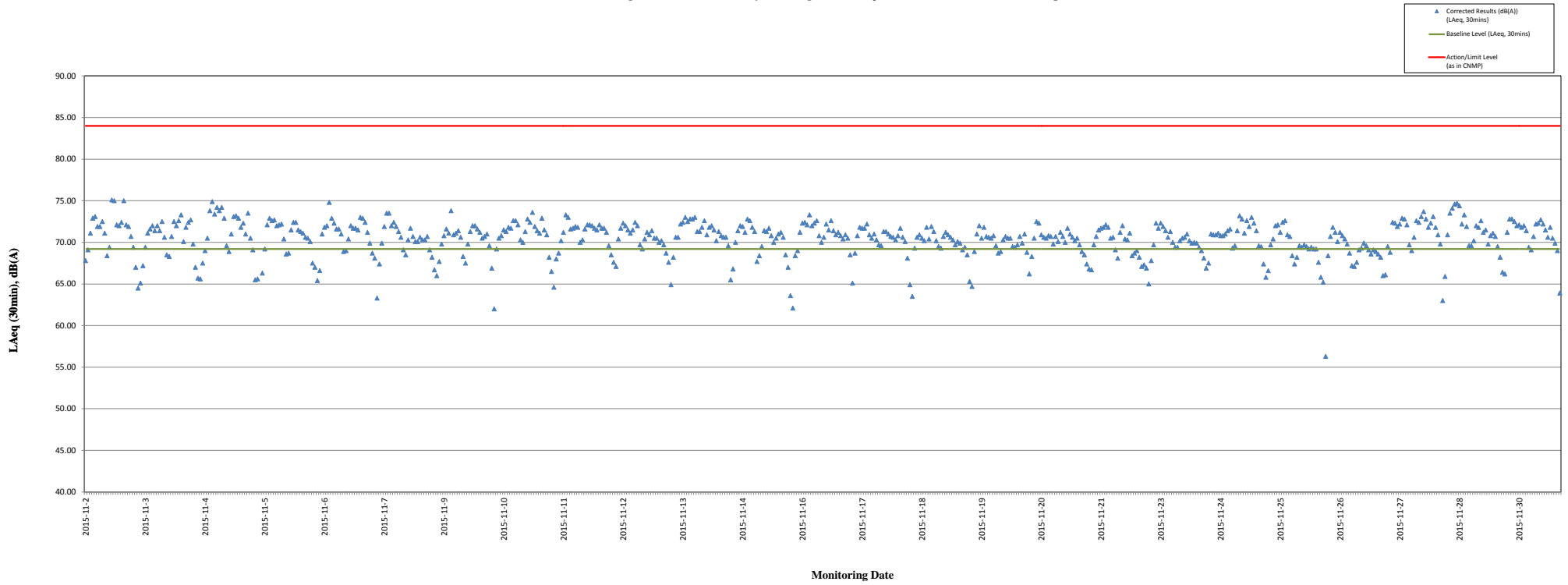
Annex I - 2

Continuous Noise Monitoring Results

Location ID	Name	Date	Hour (HH)	Minutes(MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-12-10	Lucky Building (South Façade)	2015 11 2 6	56	71.6	69.2	67.8	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 7	26	72.2	69.2	69.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 7	56	73.3	69.2	71.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 8	26	74.5	69.2	72.9	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 8	56	74.6	69.2	73.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 9	52	73.7	69.2	71.9	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 10	22	73.8	69.2	71.9	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 10	52	74.2	69.2	72.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 11	22	73.2	69.2	71.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 11	52	71.8	69.2	68.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 12	22	72.3	69.2	69.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 12	52	76.1	69.2	75.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 13	22	76.1	69.2	75	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 13	52	73.9	69.2	72.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 14	22	73.8	69.2	72	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 14	52	74.1	69.2	72.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 15	22	76.0	69.2	75	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 15	52	73.9	69.2	72.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 16	22	73.8	69.2	71.9	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 16	52	73.0	69.2	70.7	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 17	22	72.3	69.2	69.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 17	52	71.3	69.2	67	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 18	22	70.5	69.2	64.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 2 18	52	70.6	69.2	65.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 6	52	71.3	69.2	67.2	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 7	22	72.3	69.2	69.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 7	52	73.3	69.2	71.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 8	22	73.6	69.2	71.6	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 8	52	73.9	69.2	72	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 9	22	73.4	69.2	71.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 9	52	73.8	69.2	72	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 10	22	73.4	69.2	71.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 10	52	74.2	69.2	72.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 11	22	73.0	69.2	70.6	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 11	52	71.9	69.2	68.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 12	22	71.8	69.2	68.3	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 12	52	73.0	69.2	70.7	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 13	22	74.2	69.2	72.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 13	52	73.8	69.2	72	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 14	22	74.2	69.2	72.6	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 14	52	74.7	69.2	73.3	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 15	22	72.7	69.2	70.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 15	52	73.7	69.2	71.8	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 16	22	74.1	69.2	72.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 16	52	74.3	69.2	72.7	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 17	22	72.5	69.2	69.8	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 17	52	71.2	69.2	67	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 18	22	70.8	69.2	65.7	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 3 18	52	70.8	69.2	65.6	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 6	52	71.4	69.2	67.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 7	22	72.1	69.2	69	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 7	52	72.9	69.2	70.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 8	22	75.1	69.2	73.8	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 8	52	75.9	69.2	74.9	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 9	22	74.8	69.2	73.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 9	52	75.4	69.2	74.2	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 10	22	75.1	69.2	73.8	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 10	52	75.4	69.2	74.2	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 11	22	74.4	69.2	72.9	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 11	52	72.4	69.2	69.6	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 12	22	72.1	69.2	68.9	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 12	52	73.2	69.2	71	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 13	22	74.6	69.2	73.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 13	52	74.7	69.2	73.2	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 14	22	74.4	69.2	72.9	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 14	52	73.7	69.2	71.8	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 15	22	74.0	69.2	72.3	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 15	52	73.2	69.2	71	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 16	22	74.9	69.2	73.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 16	52	72.9	69.2	70.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 17	22	72.2	69.2	69.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 17	52	70.8	69.2	65.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 18	22	70.8	69.2	65.6	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 4 18	52	69.1	69.2	<Baseline Level	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 6	52	71.0	69.2	66.3	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 7	22	72.2	69.2	69.2	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 7	52	73.9	69.2	72.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 8	22	74.5	69.2	72.9	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 8	52	74.2	69.2	72.6	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 9	22	74.3	69.2	72.7	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 9	52	73.8	69.2	72	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 10	22	73.9	69.2	72.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 10	52	74.0	69.2	72.2	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 11	22	72.8	69.2	70.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 11	52	71.9	69.2	68.6	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 12	22	72.0	69.2	68.7	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 12	52	73.5	69.2	71.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 13	22	74.1	69.2	72.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 13	52	74.1	69.2	72.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 14	48	73.5	69.2	71.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 15	18	73.4	69.2	71.3	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 15	48	73.2	69.2	71.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 16	18	73.0	69.2	70.6	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 16	48	72.9	69.2	70.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 17	18	72.7	69.2	70.1	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 17	48	71.4	69.2	67.5	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 18	18	71.2	69.2	67	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 5 18	48	70.7	69.2	65.4	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 6 6	48	71.1	69.2	66.6	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 6 7	18	73.2	69.2	71	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 6 7	48	73.7	69.2	71.8	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 6 8	18	73.8	69.2	72	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 6 8	48	75.8	69.2	74.8	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 6 9	18	74.4	69.2	72.9	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 6 9	48	74.0	69.2	72.3	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 6 10	18	73.6	69.2	71.6	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 6 10	48	73.6	69.2	71.6	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 6 11	18	73.2	69.2	71	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 6 11	48	72.0	69.2	68.9	84	N	
MTW-12-10	Lucky Building (South Façade)	2015 11 6 12	18	72.1	69.2	69	84	N	

Location ID	Name	Date	Hour (HH)	Minutes(MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-12-10	Lucky Building (South Façade)	2015 11 27 9		43	74.0	69.2	72.2	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 10		13	74.4	69.2	72.9	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 10		43	74.4	69.2	72.8	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 11		13	73.9	69.2	72.1	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 11		43	72.5	69.2	69.7	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 12		13	72.1	69.2	69	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 12		43	73.0	69.2	70.6	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 13		13	74.2	69.2	72.6	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 13		43	74.1	69.2	72.4	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 14		13	74.6	69.2	73.1	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 14		43	75.0	69.2	73.7	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 15		13	74.3	69.2	72.8	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 15		43	73.7	69.2	71.8	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 16		13	74.1	69.2	72.3	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 16		43	74.6	69.2	73.1	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 17		13	73.7	69.2	71.8	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 17		43	73.2	69.2	70.9	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 18		13	72.5	69.2	69.8	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 27 18		43	70.1	69.2	63	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 6		43	70.9	69.2	65.9	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 7		13	73.1	69.2	70.9	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 7		43	74.9	69.2	73.5	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 8		13	75.3	69.2	74.1	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 8		43	75.7	69.2	74.6	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 9		13	75.8	69.2	74.7	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 9		43	75.6	69.2	74.4	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 10		13	73.9	69.2	72.2	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 10		43	74.7	69.2	73.3	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 11		13	73.7	69.2	71.9	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 11		43	72.4	69.2	69.6	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 12		13	72.4	69.2	69.6	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 12		43	72.7	69.2	70.2	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 13		13	73.8	69.2	72	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 13		43	73.7	69.2	71.8	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 14		13	74.2	69.2	72.6	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 14		43	73.3	69.2	71.2	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 15		13	73.5	69.2	71.5	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 15		43	72.5	69.2	69.8	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 16		13	73.1	69.2	70.8	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 16		43	73.3	69.2	71.1	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 17		13	73.0	69.2	70.7	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 17		43	72.3	69.2	69.5	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 18		13	71.7	69.2	68.2	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 28 18		43	71.0	69.2	66.4	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 6		43	71.0	69.2	66.2	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 7		13	73.4	69.2	71.2	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 7		43	74.3	69.2	72.8	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 8		13	74.4	69.2	72.8	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 8		43	74.2	69.2	72.5	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 9		13	73.8	69.2	72	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 9		43	73.9	69.2	72.1	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 10		13	73.7	69.2	71.8	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 10		43	73.8	69.2	72	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 11		13	73.5	69.2	71.4	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 11		43	72.3	69.2	69.4	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 12		13	72.1	69.2	69.1	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 12		43	73.0	69.2	70.7	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 13		13	74.0	69.2	72.2	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 13		43	74.0	69.2	72.3	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 14		13	74.3	69.2	72.7	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 14		43	74.0	69.2	72.2	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 15		13	73.5	69.2	71.5	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 15		43	73.0	69.2	70.6	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 16		13	73.7	69.2	71.8	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 17		11	72.9	69.2	70.5	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 17		41	72.6	69.2	69.9	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 18		11	72.1	69.2	69	84	N
MTW-12-10	Lucky Building (South Façade)	2015 11 30 18		41	70.3	69.2	63.9	84	N

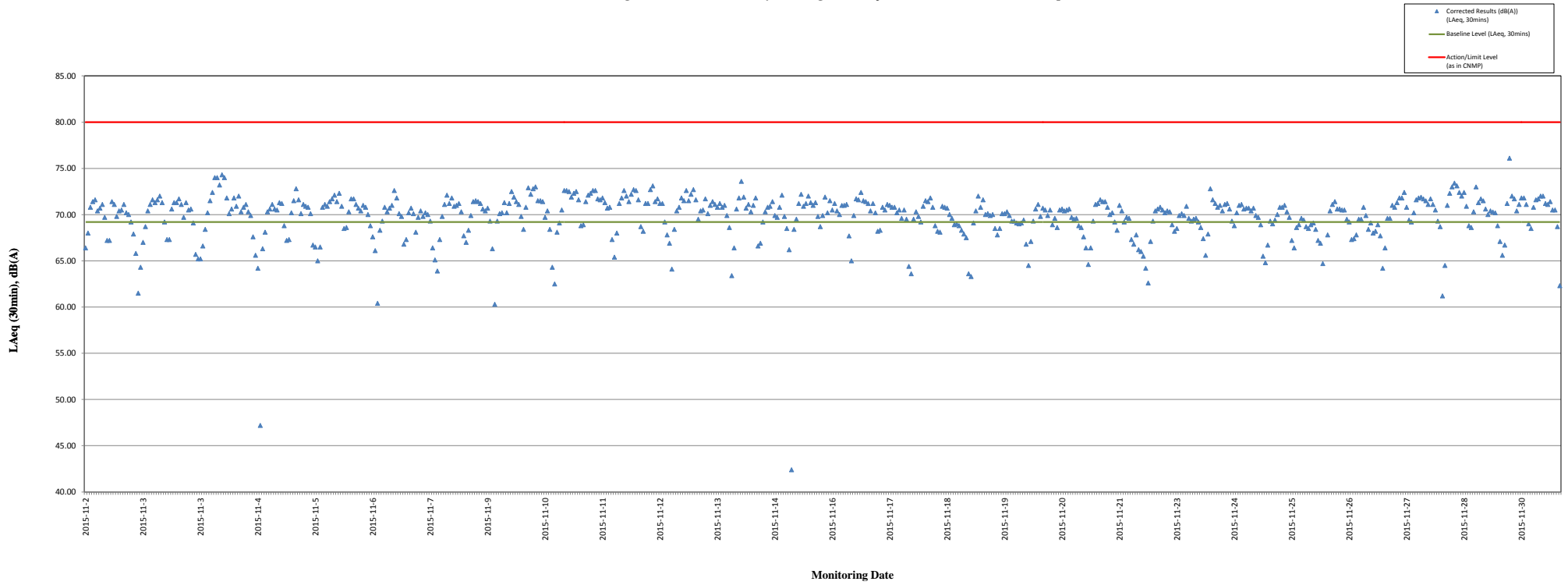
Continuous Noise Monitoring at MTW-12-10-Lucky Building (South Façade) in November 2015 - (LAeq, 30min)



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

Location ID	Name	Date	Hour (HH)	Minutes(MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	10	15	73.7	69.2	71.8	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	10	45	74.1	69.2	72.4	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	11	15	73.1	69.2	70.8	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	11	45	72.3	69.2	69.4	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	12	15	72.2	69.2	69.2	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	12	45	72.7	69.2	70.2	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	13	15	73.6	69.2	71.6	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	13	45	73.7	69.2	71.8	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	14	15	73.8	69.2	71.9	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	14	45	73.6	69.2	71.7	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	15	15	73.5	69.2	71.5	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	15	45	73.3	69.2	71.1	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	16	15	73.7	69.2	71.7	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	16	45	73.3	69.2	71.1	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	17	15	72.9	69.2	70.5	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	17	45	72.3	69.2	69.3	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	18	15	72.0	69.2	68.7	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 27	18	45	69.8	69.2	61.2	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	6	45	70.5	69.2	64.5	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	7	15	73.2	69.2	71	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	7	45	74.0	69.2	72.3	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	8	15	74.5	69.2	73	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	8	45	74.8	69.2	73.4	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	9	15	74.6	69.2	73.1	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	9	45	74.1	69.2	72.4	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	10	15	73.8	69.2	72	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	10	45	74.1	69.2	72.4	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	11	15	73.2	69.2	70.9	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	11	45	72.0	69.2	68.8	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	12	15	71.9	69.2	68.6	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	12	45	72.8	69.2	70.3	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	13	15	74.5	69.2	73	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	13	45	73.4	69.2	71.3	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	14	15	73.6	69.2	71.7	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	14	45	73.5	69.2	71.5	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	15	15	73.0	69.2	70.6	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	15	45	72.6	69.2	70	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	16	15	72.9	69.2	70.4	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	16	45	72.8	69.2	70.3	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	17	15	72.7	69.2	70.2	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	17	45	72.0	69.2	68.8	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	18	15	71.3	69.2	67.1	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 28	18	45	70.8	69.2	65.6	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	6	45	71.1	69.2	66.7	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	7	15	73.3	69.2	71.2	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	7	45	76.9	69.2	76.1	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	8	15	73.8	69.2	72	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	8	45	73.6	69.2	71.7	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	9	15	72.8	69.2	70.4	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	9	45	73.3	69.2	71.1	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	10	15	73.7	69.2	71.8	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	10	45	73.7	69.2	71.8	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	11	15	73.3	69.2	71.1	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	11	45	72.1	69.2	69	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	12	15	71.9	69.2	68.5	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	12	45	73.1	69.2	70.8	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	13	15	73.6	69.2	71.6	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	13	45	73.7	69.2	71.7	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	14	15	73.9	69.2	72	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	14	45	73.8	69.2	72	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	15	15	73.3	69.2	71.2	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	15	45	73.3	69.2	71.1	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	16	15	73.5	69.2	71.4	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	17	12	72.9	69.2	70.5	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	17	42	72.9	69.2	70.5	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	18	12	72.0	69.2	68.7	80	N
MTW-12-10-1	Lucky Building (East Façade)	2015 11 30	18	42	70.0	69.2	62.3	80	N

Continuous Noise Monitoring at MTW-12-10-1 (Lucky Building (East Façade) in November 2015 - (LAeq, 30min)



Remarks:

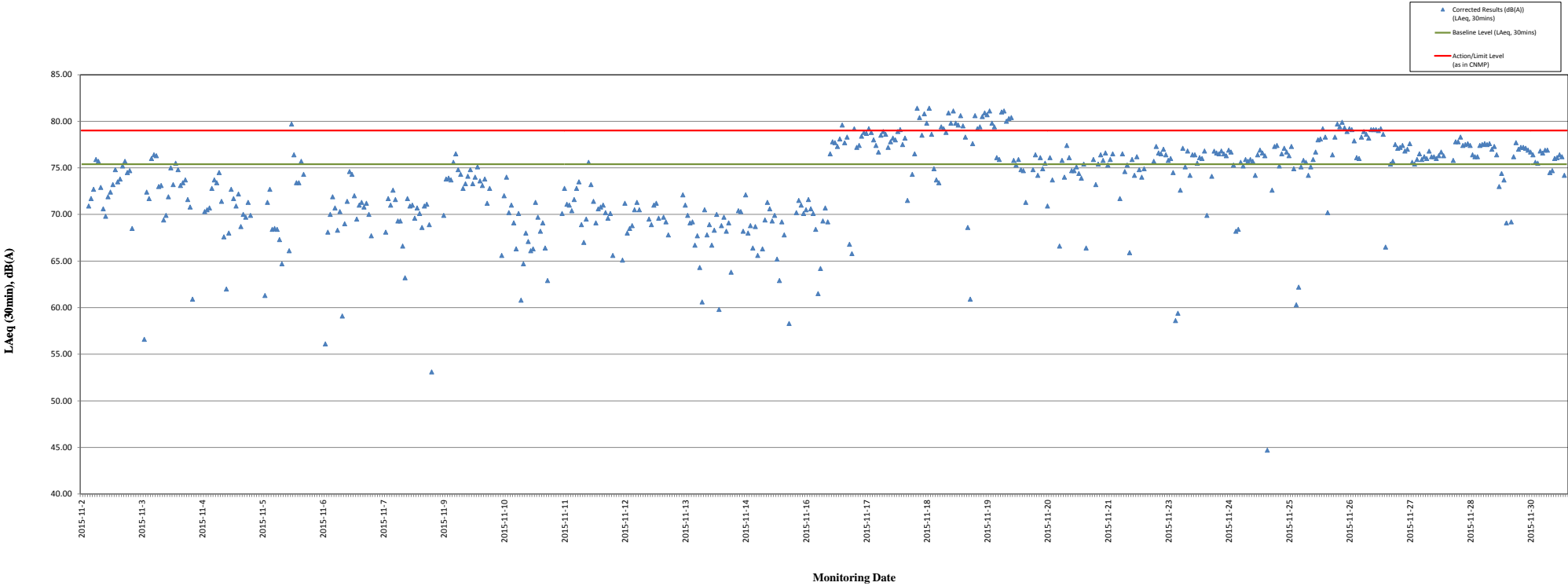
- For those corrected noise levels that are not shown in this graph, the measured noise levels are below baseline level.

Location ID	Name	Date	Hour (HH)	Minutes (MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance		
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	12	43	76.8	75.4	71.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	13	13	78.0	75.4	74.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	13	43	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	14	13	77.0	75.4	72	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	14	43	76.4	75.4	69.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	15	13	76.8	75.4	71	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	15	43	76.8	75.4	71.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	16	13	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	16	43	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	17	13	76.5	75.4	70	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	17	43	76.1	75.4	67.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	18	13	73.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	6	18	43	72.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	6	43	71.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	7	13	72.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	7	43	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	8	13	76.1	75.4	68.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	8	43	76.9	75.4	71.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	9	13	76.7	75.4	71	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	9	43	77.2	75.4	72.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	10	13	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	10	43	76.4	75.4	69.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	11	13	76.4	75.4	69.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	11	43	75.9	75.4	66.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	12	13	75.7	75.4	63.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	12	43	76.9	75.4	71.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	13	13	76.7	75.4	70.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	13	43	76.8	75.4	71	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	14	13	76.4	75.4	69.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	14	43	76.7	75.4	70.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	15	13	76.5	75.4	70.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	15	43	76.2	75.4	68.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	16	13	76.7	75.4	70.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	16	43	76.8	75.4	71.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	17	13	76.3	75.4	68.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	17	43	75.4	75.4	53.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	18	13	72.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	7	18	43	73.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	6	43	72.6	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	7	13	74.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	7	43	76.5	75.4	69.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	8	13	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	8	43	77.7	75.4	73.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	9	13	77.7	75.4	73.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	9	43	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	10	13	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	10	43	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	11	13	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	11	43	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	12	13	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	12	43	77.8	75.4	74.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	13	35	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	14	5	77.5	75.4	73.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	14	35	77.8	75.4	74	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	15	5	78.2	75.4	75.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	15	35	77.6	75.4	73.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	16	5	77.4	75.4	73.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	16	35	77.7	75.4	73.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	17	5	76.8	75.4	71.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	17	35	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	18	5	74.3	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	9	18	35	72.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	6	35	71.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	7	5	72.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	7	35	75.8	75.4	65.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	8	5	77.0	75.4	72	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	8	35	77.8	75.4	74	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	9	5	76.5	75.4	70.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	9	35	76.7	75.4	71	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	10	5	76.3	75.4	69.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	10	35	75.9	75.4	66.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	11	5	76.5	75.4	70.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	11	35	75.5	75.4	60.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	12	5	75.8	75.4	64.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	12	35	76.1	75.4	68	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	13	5	76.0	75.4	67.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	13	35	75.9	75.4	66.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	14	5	75.9	75.4	66.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	14	35	76.8	75.4	71.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	15	5	76.4	75.4	69.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	15	35	76.2	75.4	68.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	16	5	76.3	75.4	69.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	16	35	75.9	75.4	66.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	17	5	75.6	75.4	62.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	17	35	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	18	5	72.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	10	18	35	72.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	6	35	71.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	7	5	72.8	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	7	35	76.5	75.4	70.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	8	5	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	8	35	76.8	75.4	71.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	9	5	76.7	75.4	71	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	9	35	76.6	75.4	70.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	10	5	76.9	75.4	71.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	10	35	77.3	75.4	72.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	11	5	77.6	75.4	73.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	11	35	76.3	75.4	68.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	12	5	76.0	75.4	67	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	12	35	76.4	75.4	69.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	13	5	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	13	35	77.4	75.4	73.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	14	5	76.9	75.4	71.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	14	35	76.3	75.4	69.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	15	5	76.6	75.4	70.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	15	35	76.7	75.4	70.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	16	5	76.8	75.4	71	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	16	35	76.5	75.4	70.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	17	5	76.4	75.4	69.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	11	17	35	76.5	75.4	70.1	79	N

Location ID	Name	Date	Hour (HH)	Minutes(MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance		
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	12	23	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	12	53	80.2	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	13	23	80.5	75.4	78.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	13	53	80.3	75.4	78.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	14	23	79.4	75.4	77.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	14	53	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	15	23	80.0	75.4	78.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	15	53	79.9	75.4	78	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	16	23	80.5	75.4	78.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	16	53	80.7	75.4	79.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	17	23	79.6	75.4	77.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	17	53	80.1	75.4	78.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	18	23	76.9	75.4	71.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	17	18	53	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	6	53	77.9	75.4	74.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	7	23	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	7	53	82.4	75.4	81.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	8	23	81.6	75.4	80.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	8	53	80.2	75.4	78.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	9	23	81.9	75.4	80.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	9	53	81.1	75.4	79.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	10	23	82.4	75.4	81.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	10	53	80.3	75.4	78.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	11	23	78.2	75.4	74.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	11	53	77.6	75.4	73.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	12	23	77.5	75.4	73.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	12	53	80.9	75.4	79.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	13	23	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	13	53	80.4	75.4	78.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	14	23	82.0	75.4	80.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	14	53	81.2	75.4	79.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	15	23	82.1	75.4	81.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	15	53	81.2	75.4	79.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	16	23	81.0	75.4	79.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	16	53	81.8	75.4	80.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	17	23	80.9	75.4	79.5	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	17	53	80.1	75.4	78.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	18	23	76.2	75.4	68.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	18	18	53	75.6	75.4	60.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	6	53	79.6	75.4	77.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	7	23	81.8	75.4	80.6	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	7	53	80.7	75.4	79.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	8	23	80.8	75.4	79.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	8	53	81.7	75.4	80.5	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	9	23	82.0	75.4	80.9	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	9	53	81.8	75.4	80.7	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	10	23	82.1	75.4	81.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	10	53	81.2	75.4	79.8	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	11	23	80.8	75.4	79.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	11	53	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	12	23	78.6	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	12	53	82.0	75.4	81	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	13	23	82.1	75.4	81.1	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	13	53	81.3	75.4	80	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	14	23	81.5	75.4	80.3	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	14	53	81.6	75.4	80.4	79	Y
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	15	41	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	16	11	78.4	75.4	75.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	16	41	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	17	11	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	17	41	78.1	75.4	74.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	18	11	76.8	75.4	71.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	19	18	41	72.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	6	41	72.9	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	7	11	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	7	41	78.9	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	8	11	77.9	75.4	74.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	8	41	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	9	11	78.2	75.4	74.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	9	41	78.4	75.4	75.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	10	11	76.7	75.4	70.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	10	41	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	11	11	77.6	75.4	73.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	11	41	74.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	12	11	73.7	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	12	41	75.9	75.4	66.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	13	11	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	13	41	77.8	75.4	74	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	14	11	79.5	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	14	41	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	15	11	78.1	75.4	74.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	15	41	78.1	75.4	74.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	16	11	78.3	75.4	75.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	16	41	77.9	75.4	74.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	17	11	77.7	75.4	73.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	17	41	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	18	11	75.9	75.4	66.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	20	18	41	72.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	6	41	73.0	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	7	11	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	7	41	77.5	75.4	73.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	8	11	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	8	41	79.0	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	9	11	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	9	41	79.1	75.4	76.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	10	11	78.3	75.4	75.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	10	41	78.6	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	11	11	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	11	41	75.2	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	12	11	74.5	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	12	41	76.9	75.4	71.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	13	11	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	13	41	78.0	75.4	74.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	14	11	78.4	75.4	75.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	14	41	75.9	75.4	65.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	15	11	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	15	41	77.9	75.4	74.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	16	11	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	16	41	78.1	75.4	74.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	21	17	11	77.8	75.4	74	79	N

Location ID	Name	Date	Hour (HH)	Minutes(MM)	Measured LAeq,30mins	Baseline Level (LAeq, 30mins)	Corrected Results (dB(A)) (LAeq, 30mins)	Action/Limit Level (as in CNMP)	Exceedance		
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	10	57	79.6	75.4	77.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	11	27	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	11	57	78.4	75.4	75.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	12	27	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	12	57	79.0	75.4	76.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	13	27	78.7	75.4	75.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	13	57	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	14	27	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	14	57	79.2	75.4	76.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	15	27	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	15	57	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	16	27	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	16	57	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	17	27	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	17	57	78.9	75.4	76.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	18	27	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	27	18	57	71.4	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	6	57	75.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	7	27	78.6	75.4	75.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	7	57	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	8	27	79.8	75.4	77.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	8	57	80.1	75.4	78.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	9	27	79.5	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	9	57	79.6	75.4	77.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	10	27	79.7	75.4	77.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	10	57	79.6	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	11	27	79.0	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	11	57	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	12	27	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	12	57	79.5	75.4	77.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	13	27	79.6	75.4	77.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	13	57	79.6	75.4	77.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	14	27	79.6	75.4	77.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	14	57	79.7	75.4	77.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	15	27	79.3	75.4	77	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	15	57	79.5	75.4	77.3	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	16	27	78.9	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	16	57	77.4	75.4	73	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	17	27	77.9	75.4	74.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	17	57	77.7	75.4	73.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	18	27	76.3	75.4	69.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	28	18	57	72.1	75.4	<Baseline Level	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	6	57	76.3	75.4	69.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	7	27	78.9	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	7	57	79.7	75.4	77.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	8	27	79.3	75.4	77	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	8	57	79.4	75.4	77.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	9	27	79.4	75.4	77.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	9	57	79.3	75.4	77.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	10	27	79.3	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	10	57	79.1	75.4	76.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	11	27	79.0	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	11	57	78.5	75.4	75.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	12	27	78.5	75.4	75.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	12	57	79.2	75.4	76.8	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	13	27	79.1	75.4	76.6	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	13	57	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	14	27	79.2	75.4	76.9	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	14	57	78.0	75.4	74.5	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	15	27	78.1	75.4	74.7	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	15	57	78.7	75.4	76	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	16	44	78.8	75.4	76.1	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	17	14	78.9	75.4	76.4	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	17	44	78.8	75.4	76.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	18	14	77.8	75.4	74.2	79	N
MTW-16-1	SKH Good Shepherd Primary School	2015	11	30	18	44	73.2	75.4	<Baseline Level	79	N

Continuous Noise Monitoring at MTW-16-1(SKH Good Shepherd Primary School) in November 2015- (LAeq, 30min)



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

Annex J

Construction Dust
Monitoring Results and
Wind Data Monitoring
Results

Annex J Construction Dust Monitoring Results

Station DMS-6 Katherine Building

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m ³ /min)			TSP Conc.	Action Level	Limit Level	Observations /	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(µg/m ³)	(µg/m ³)	(µg/m ³)	Remarks	ID	ID
03-Nov-15	10:38	04-Nov-15	10:38	Fine	2.8308	2.9779	14984.30	15008.30	24.00	1.34	1.34	1.34	76	156.8	260	-	0107	7204
09-Nov-15	10:42	10-Nov-15	10:42	Fine	2.8420	2.9717	15008.30	15032.30	24.00	1.32	1.32	1.32	68	156.8	260	-	0107	7211
13-Nov-15	8:48	14-Nov-15	8:48	Cloudy	2.8441	2.9724	15032.30	15056.30	24.00	1.32	1.32	1.32	67	156.8	260	-	0107	7220
19-Nov-15	10:34	20-Nov-15	10:34	Sunny	2.8475	2.9704	15056.30	15080.30	24.00	1.32	1.32	1.32	65	156.8	260	-	0107	7227
25-Nov-15	10:35	26-Nov-15	10:35	Fine	2.8429	2.9702	15080.30	15104.30	24.00	1.32	1.32	1.32	67	156.8	260	-	0107	7234
													Minimum	65				
													Average	69				
													Maximum	76				

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 /	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	(µg/m ³)	(µg/m ³)	(µg/m ³)	Remarks	ID	ID
03-Nov-15	9:45	04-Nov-15	9:45	Fine	2.8101	2.9461	5000.17	5024.17	24.00	1.23	1.23	1.23	77	166.7	260	-	3574	7203
09-Nov-15	9:45	10-Nov-15	9:45	Fine	2.8292	2.9410	5024.17	5048.17	24.00	1.23	1.23	1.23	63	166.7	260	-	3574	7210
13-Nov-15	8:35	14-Nov-15	8:35	Cloudy	2.8280	2.9460	5048.17	5072.17	24.00	1.23	1.23	1.23	67	166.7	260	-	3574	7219
19-Nov-15	9:42	20-Nov-15	9:42	Sunny	2.8441	2.9700	5072.17	5096.17	24.00	1.23	1.23	1.23	71	166.7	260	-	3574	7226
25-Nov-15	9:42	26-Nov-15	9:42	Fine	2.8452	2.9610	5096.17	5120.17	24.00	1.23	1.23	1.23	65	166.7	260	-	3574	7233
													Minimum	63				
													Average	69				
													Maximum	77				

Station DMS-8 SKH Good Shepherd Primary School

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
03-Nov-15	9:30	04-Nov-15	9:30	Fine	2.8102	2.9442	5117.11	5141.11	24.00	1.26	1.26	1.26	74	152.2	260	-	3572	7202
09-Nov-15	9:30	10-Nov-15	9:30	Fine	2.8202	2.9512	5141.11	5165.11	24.00	1.23	1.23	1.23	74	152.2	260	-	3572	7209
13-Nov-15	8:20	14-Nov-15	8:20	Cloudy	2.8124	2.9411	5165.11	5189.11	24.00	1.23	1.23	1.23	73	152.2	260	-	3572	7712
19-Nov-15	9:28	20-Nov-15	9:28	Sunny	2.8586	2.9690	5189.11	5213.11	24.00	1.23	1.23	1.23	62	152.2	260	-	3572	7225
25-Nov-15	9:30	26-Nov-15	9:30	Fine	2.8511	2.9960	5213.11	5237.11	24.00	1.23	1.23	1.23	82	152.2	260	-	3572	7232
													Minimum	62				
													Average	73				
													Maximum	82				

Station DMS-9 No. 12 Pau Chung Street

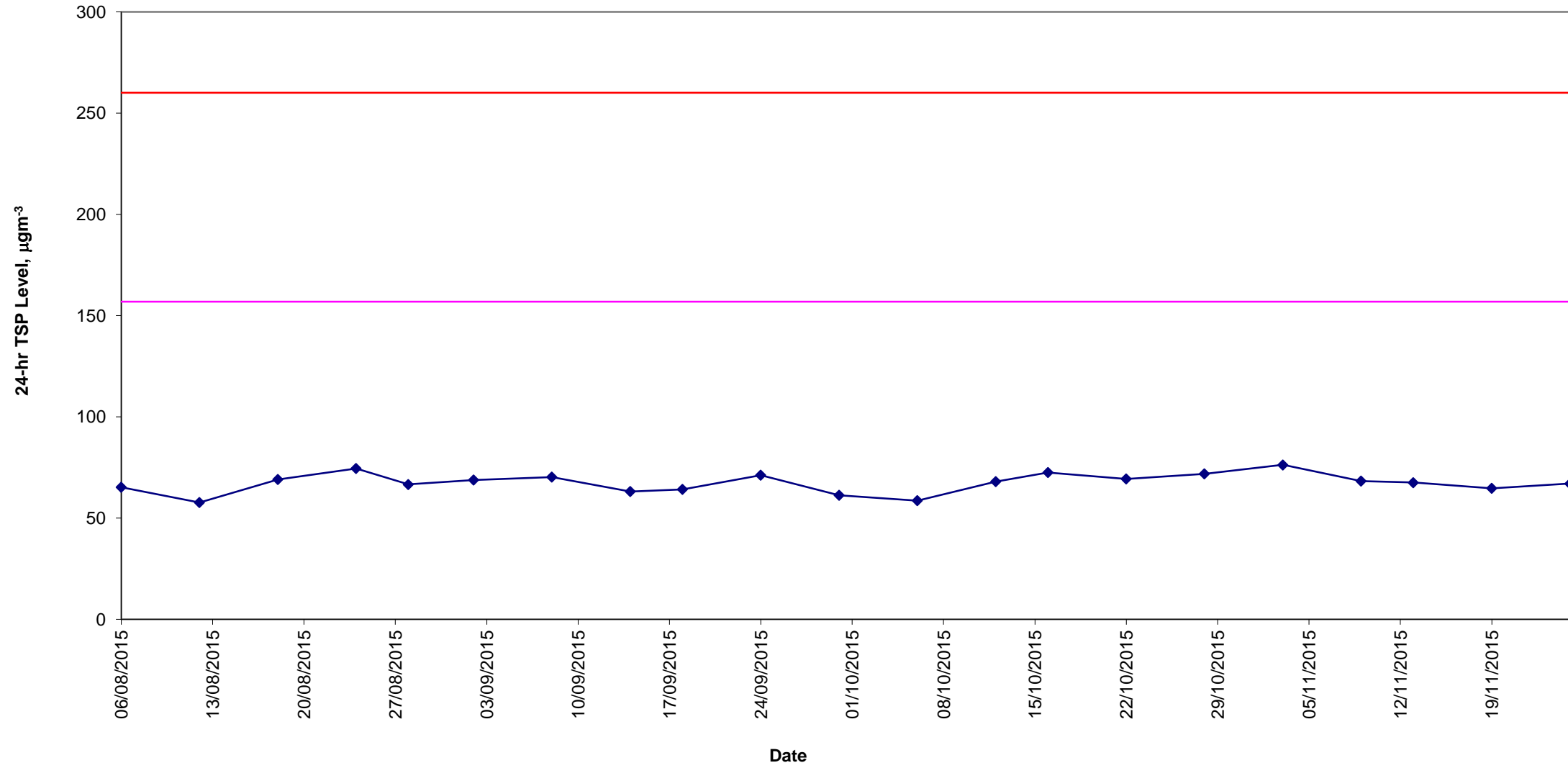
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
03-Nov-15	9:20	04-Nov-15	9:20	Fine	2.8296	2.9552	15417.40	15441.40	24.00	1.23	1.23	1.23	71	160.9	260	-	0814	7201
09-Nov-15	9:20	10-Nov-15	9:20	Fine	2.8131	2.9307	15441.40	15465.40	24.00	1.22	1.22	1.22	67	160.9	260	-	0814	7208
13-Nov-15	8:10	14-Nov-15	8:10	Cloudy	2.8285	2.9449	15465.40	15489.40	24.00	1.22	1.22	1.22	66	160.9	260	-	0814	7217
19-Nov-15	9:20	20-Nov-15	9:20	Sunny	2.8419	2.9691	15489.40	15513.40	24.00	1.22	1.22	1.22	72	160.9	260	-	0814	7224
25-Nov-15	9:20	26-Nov-15	9:20	Fine	2.8348	2.9595	15513.40	15537.40	24.00	1.22	1.22	1.22	71	160.9	260	-	0814	7231
													Minimum	66				
													Average	69				
													Maximum	72				

Station DMS-10 Chat Ma Mansion

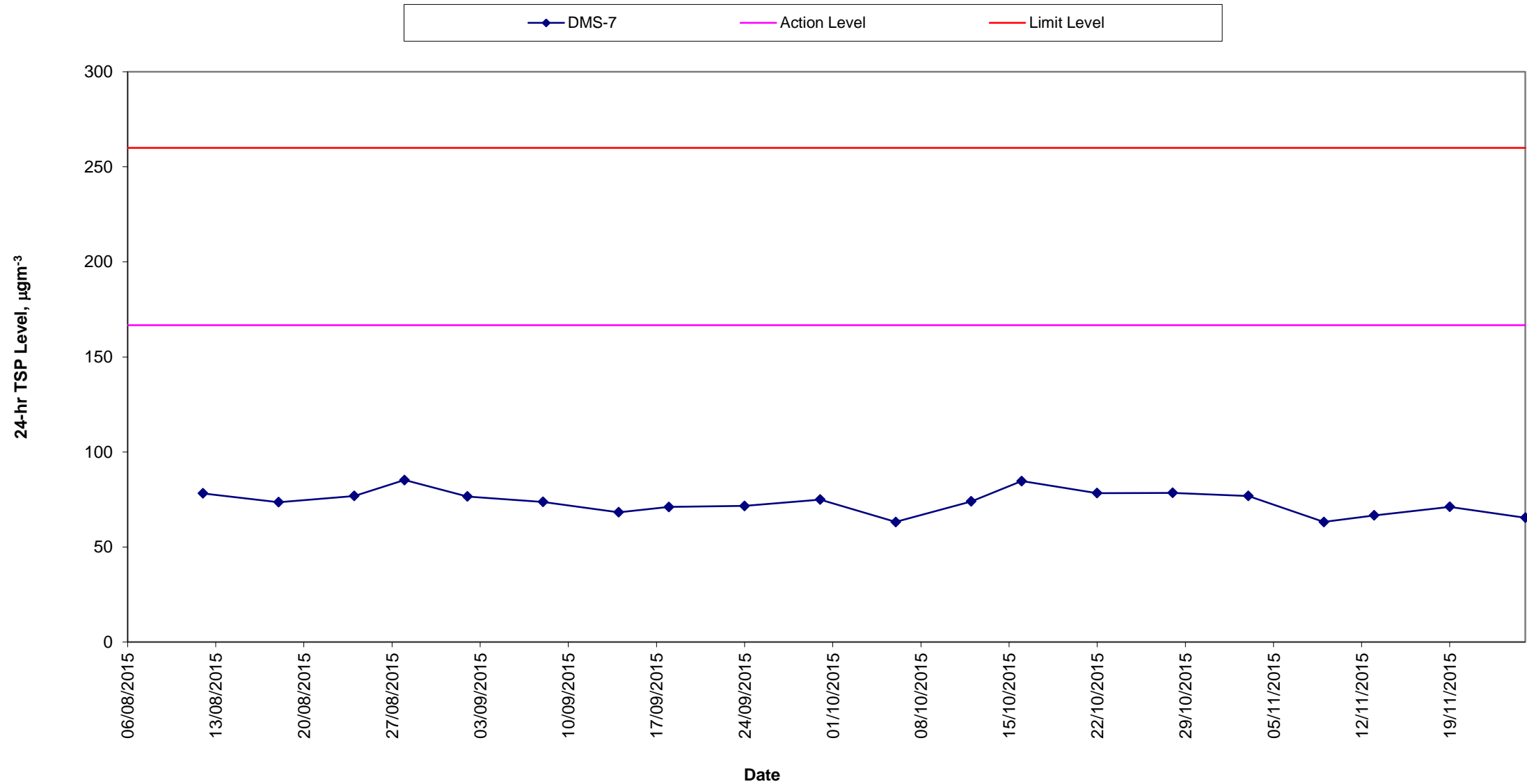
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)		Average	TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final							
03-Nov-15	8:43	04-Nov-15	8:43	Fine	2.8747	3.0124	5749.20	5773.20	24.00	1.28	1.28	1.28	75	170.4	260	-	3573	7161
09-Nov-15	8:45	10-Nov-15	8:45	Fine	2.8090	2.9300	5773.20	5797.20	24.00	1.21	1.21	1.21	69	170.4	260	-	3573	7207
13-Nov-15	8:00	14-Nov-15	8:00	Cloudy	2.8140	2.9520	5797.20	5821.20	24.00	1.21	1.21	1.21	79	170.4	260	-	3573	7216
19-Nov-15	8:43	20-Nov-15	8:43	Sunny	2.8405	2.9609	5821.20	5845.20	24.00	1.21	1.21	1.21	69	170.4	260	-	3573	7223
25-Nov-15	8:43	26-Nov-15	8:43	Fine	2.8484	2.9733	5845.20	5869.20	24.00	1.21	1.21	1.21	72	170.4	260	-	3573	7230
													Minimum	69				
													Average	73				
													Maximum	79				

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

◆ DMS-6 ◆ Action Level ◆ Limit Level

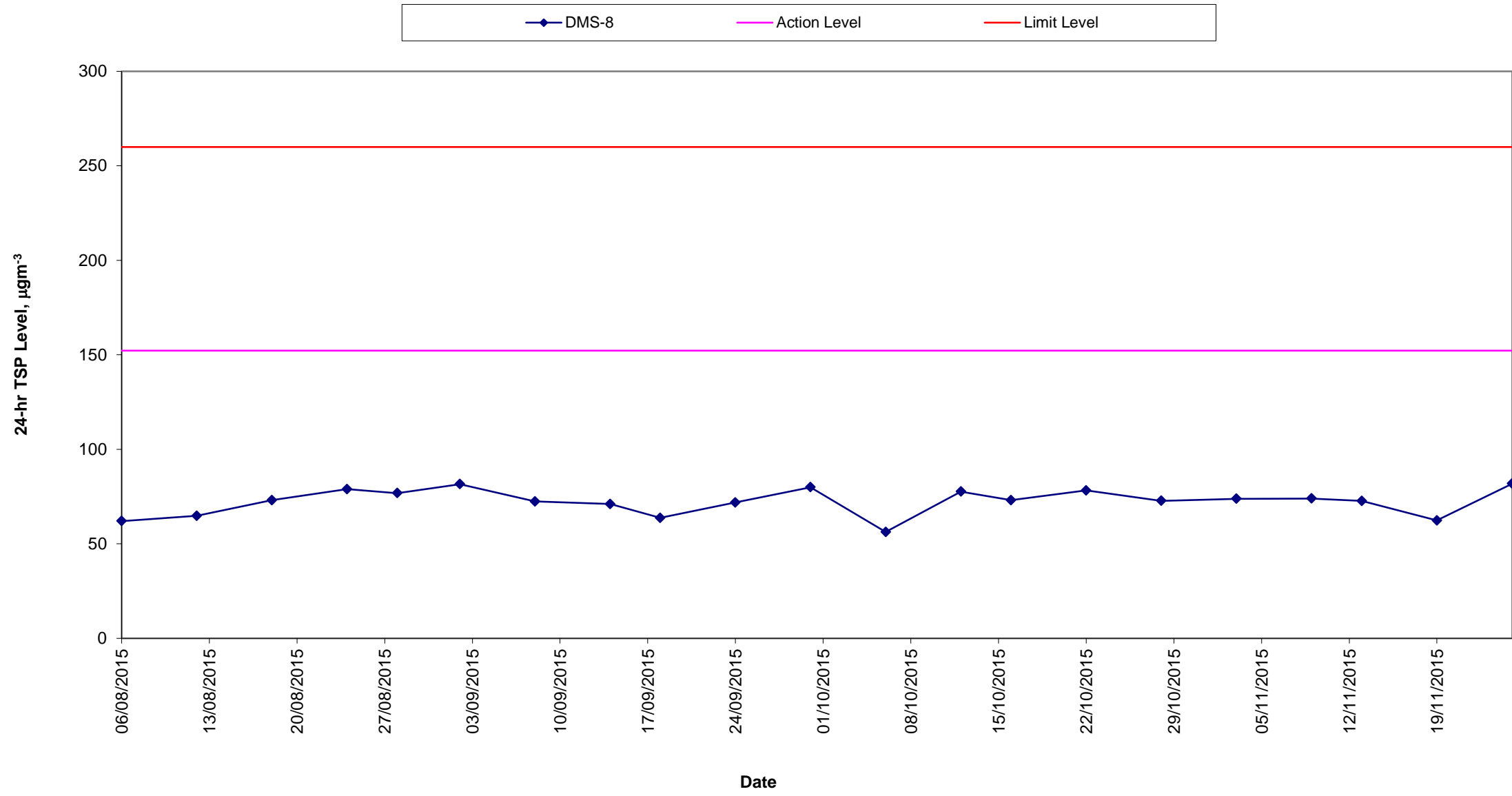


Construction Dust Monitoring Results for the Past 4 Months DMS- 7 (Parc 22)

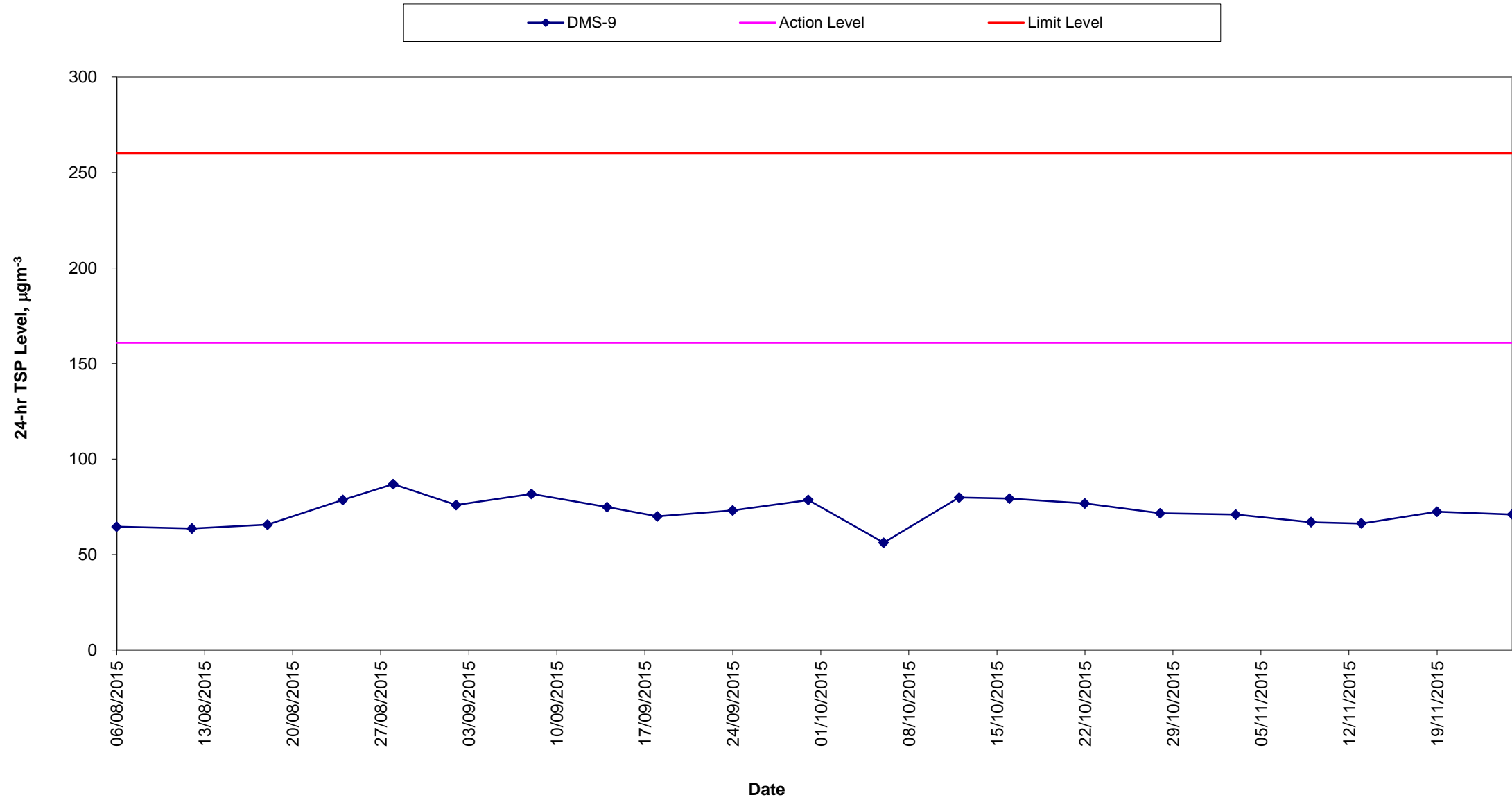


Remark: 24-hour averaged dust monitoring at DMS-7 (Parc-22) was temporary suspended due to request from the Management Office on July. Dust monitoring resumed on 12 August 2015

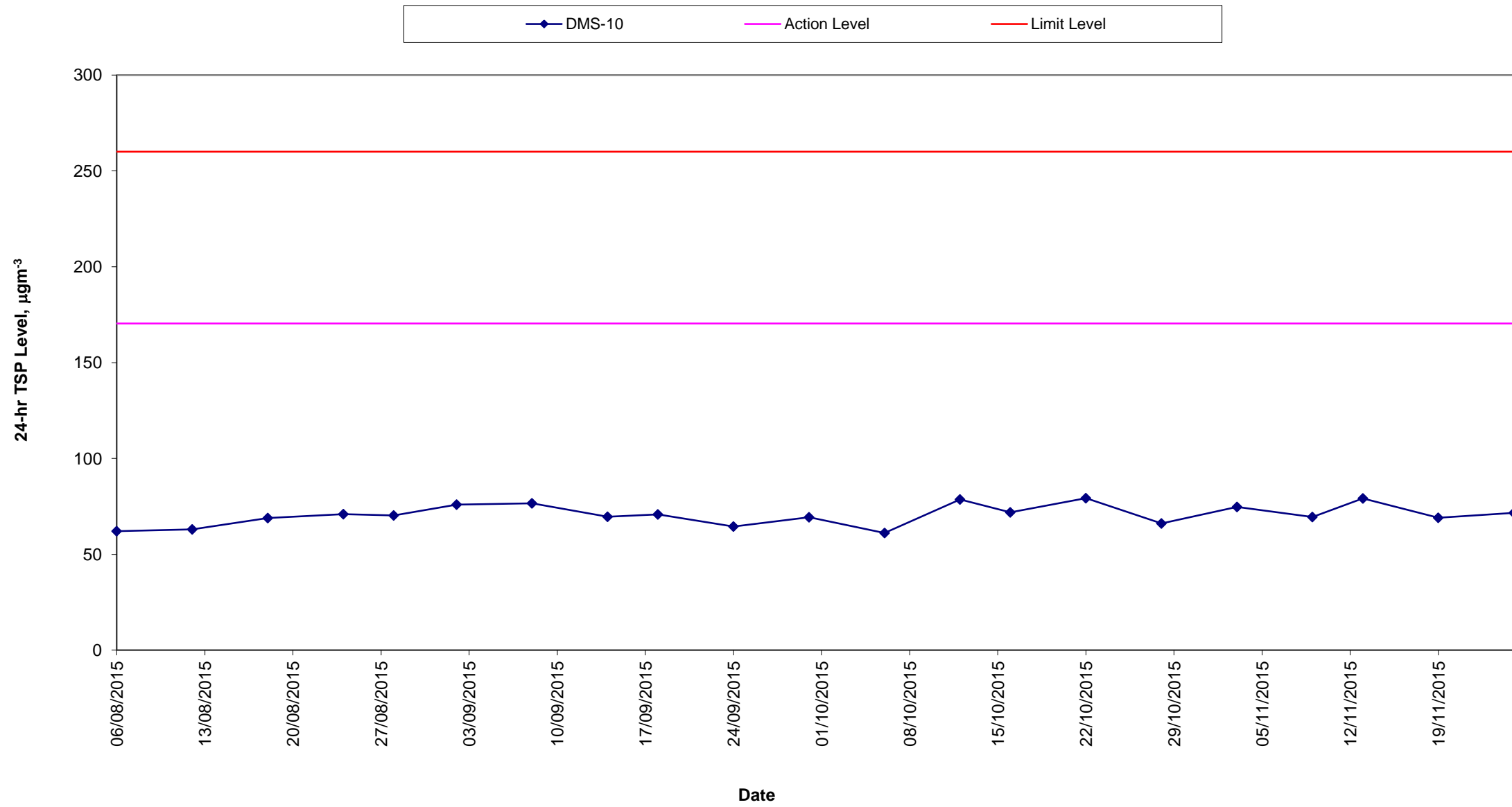
**Construction Dust Monitoring Results for the Past 4 Months
DMS-8 (SKH Good Shepherd Primary School)**



**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)

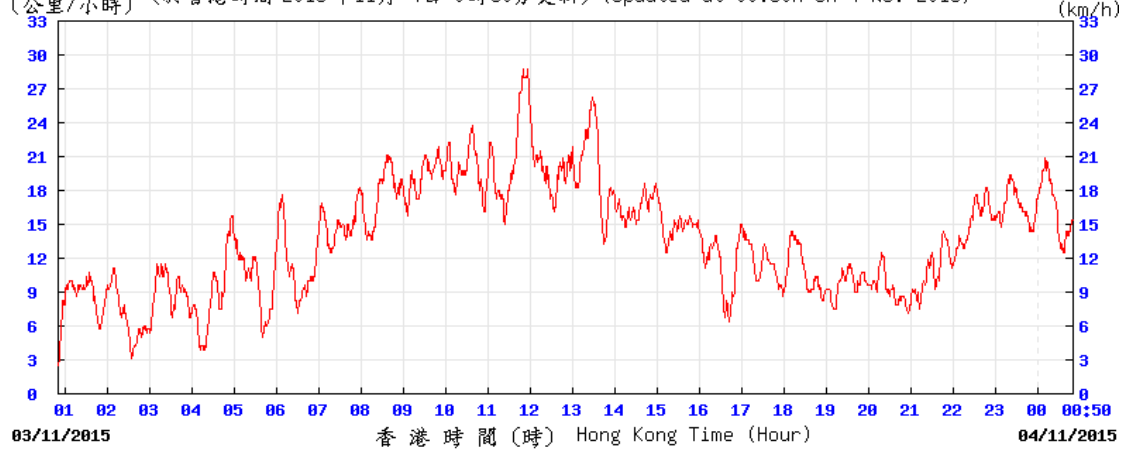


Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

3-4 November 2015

Wind Speed:

(公里/小時) (於香港時間 2015 年11月 4日 0時50分更新) (Updated at 00:50H on 4 Nov 2015)

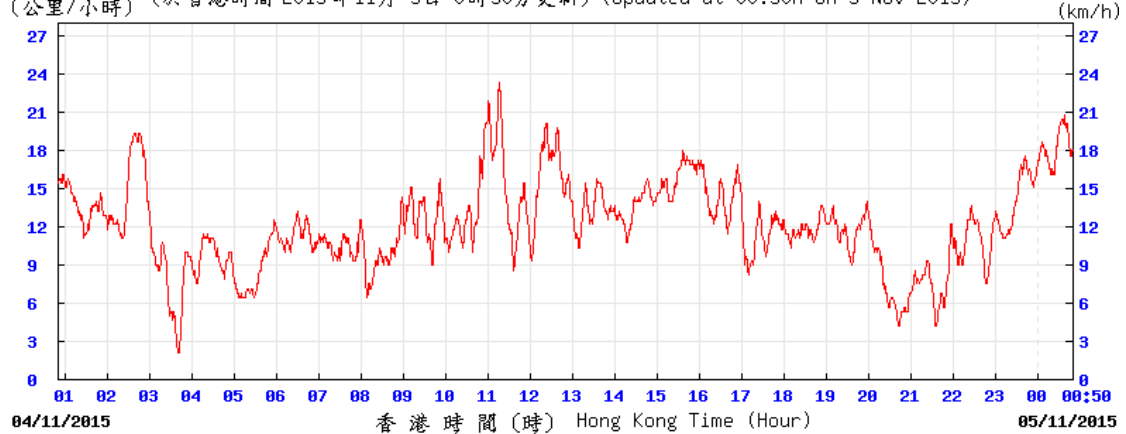


SEC

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Wind Speed:

(公里/小時) (於香港時間 2015 年11月 5日 0時50分更新) (Updated at 00:50H on 5 Nov 2015)



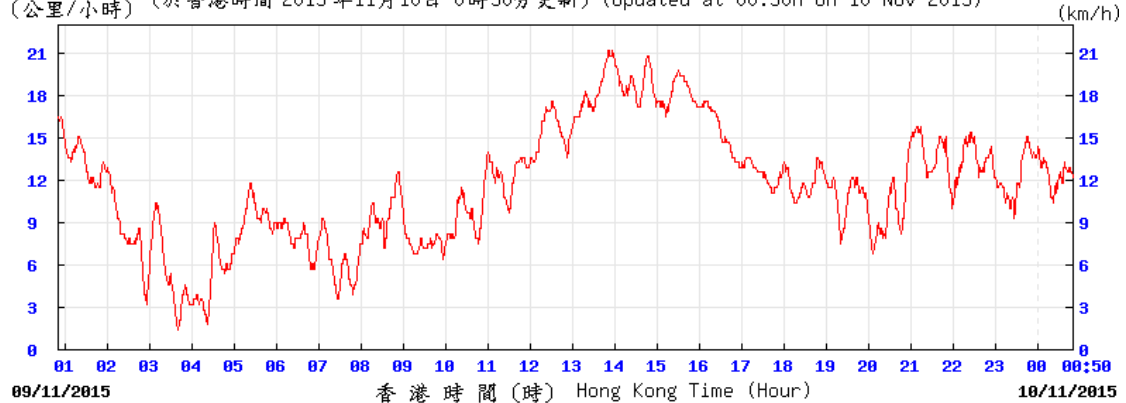
SEC

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9-10 November 2015

Wind Speed:

(公里/小時) (於香港時間 2015 年11月10日 0時50分更新) (Updated at 00:50H on 10 Nov 2015)

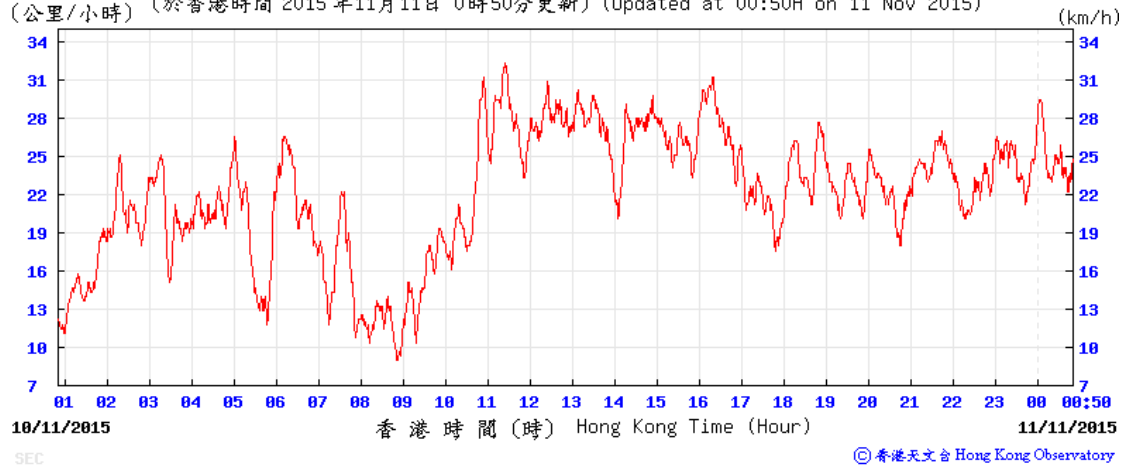


SEC

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Wind Speed:

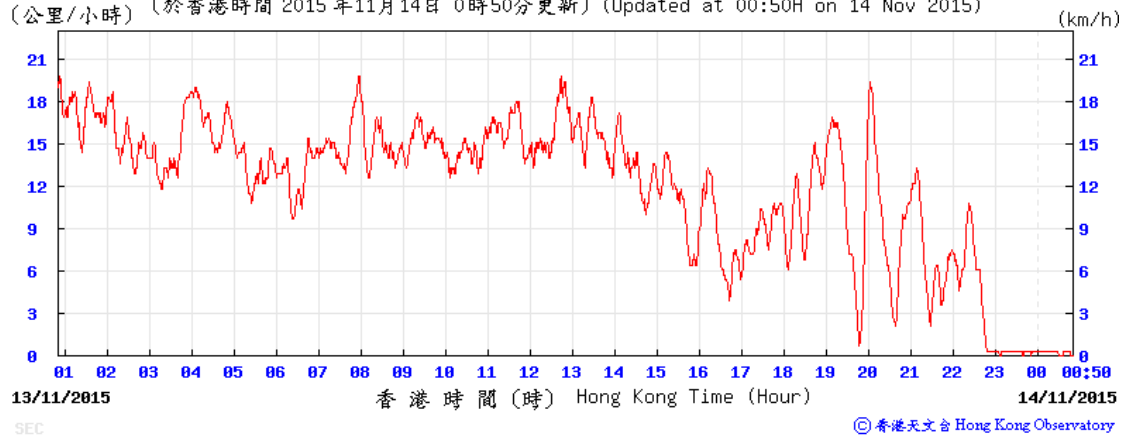
(公里/小時) (於香港時間 2015 年11月11日 0時50分更新) (Updated at 00:50H on 11 Nov 2015)



13-14 November 2015

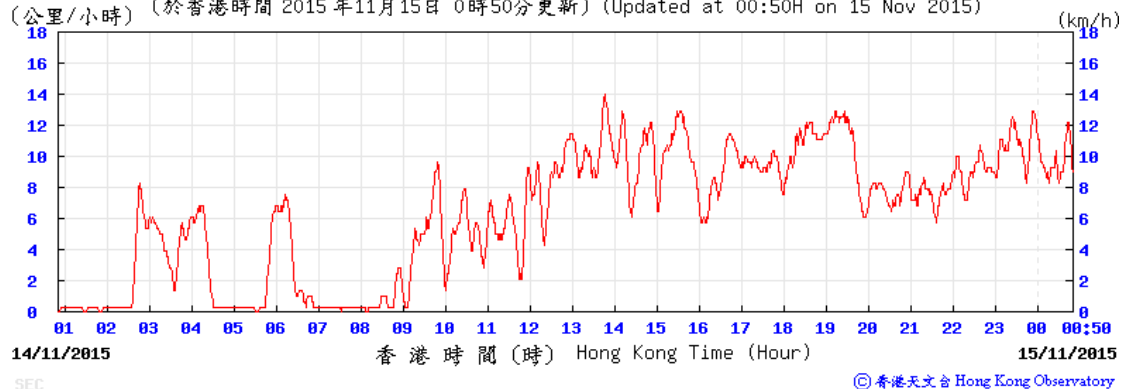
Wind Speed:

(公里/小時) (於香港時間 2015 年11月14日 0時50分更新) (Updated at 00:50H on 14 Nov 2015)



Wind Speed:

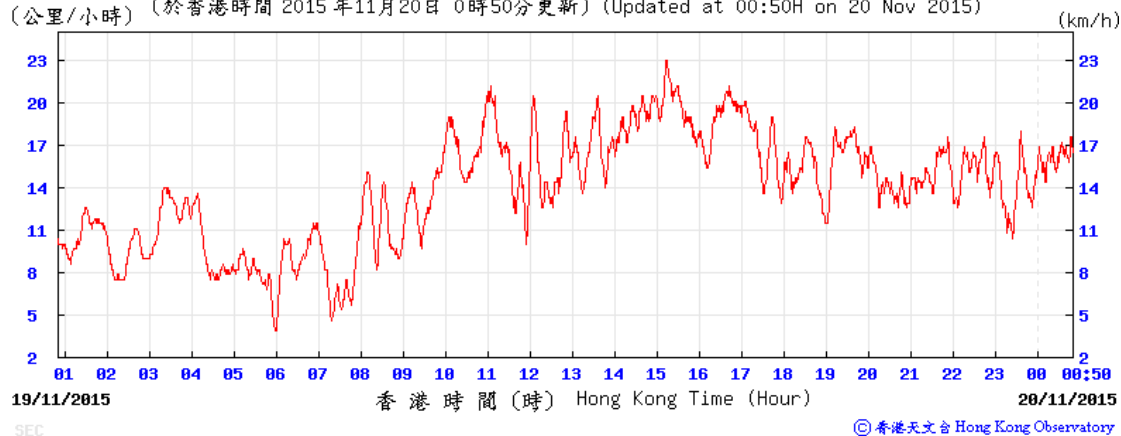
(公里/小時) (於香港時間 2015 年11月15日 0時50分更新) (Updated at 00:50H on 15 Nov 2015)



19-20 November 2015

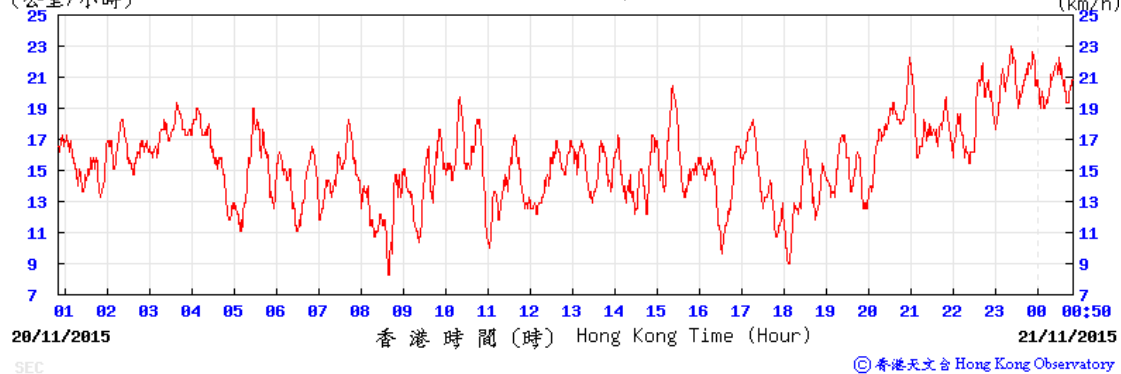
Wind Speed:

(公里/小時) (於香港時間 2015 年11月20日 0時50分更新) (Updated at 00:50H on 20 Nov 2015)



Wind Speed:

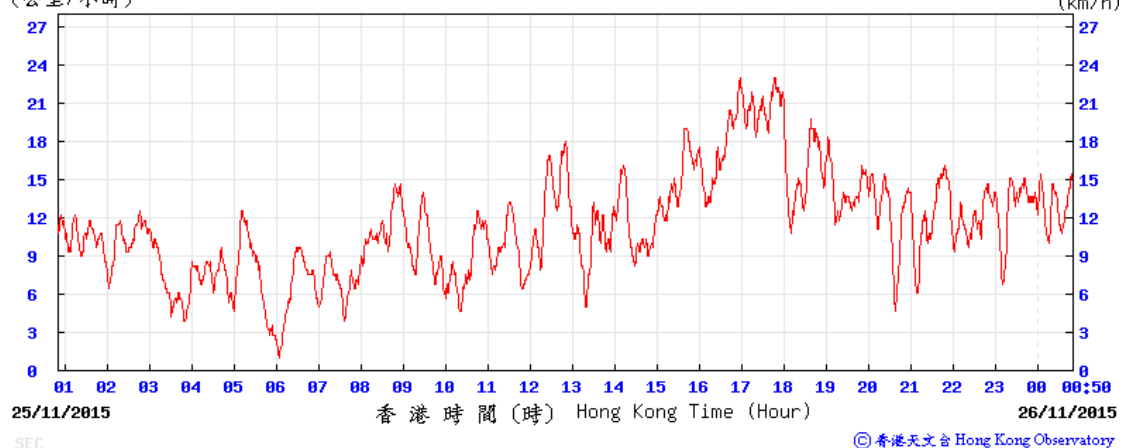
(公里/小時) (於香港時間 2015 年11月21日 0時50分更新) (Updated at 00:50H on 21 Nov 2015)



25-26 November 2015

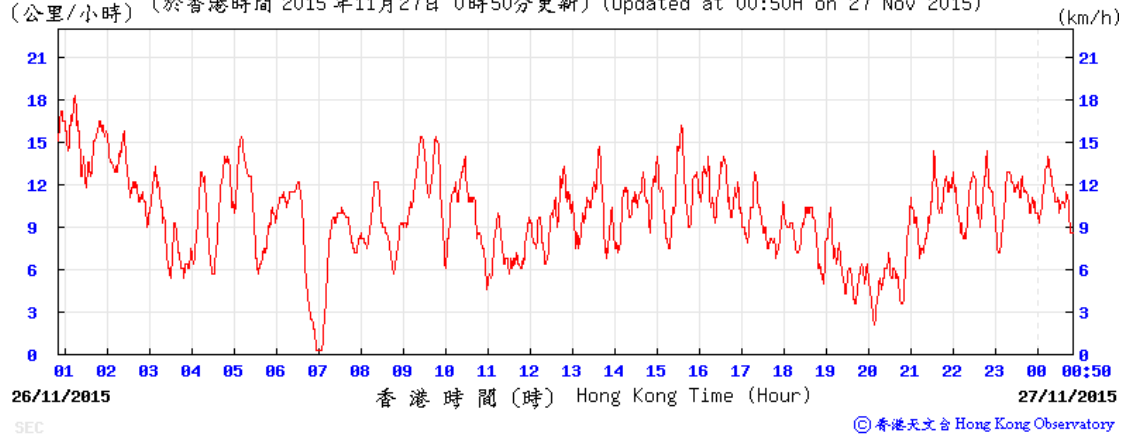
Wind Speed:

(公里/小時) (於香港時間 2015 年11月26日 0時50分更新) (Updated at 00:50H on 26 Nov 2015)



Wind Speed:

(公里/小時) (於香港時間 2015 年11月27日 0時50分更新) (Updated at 00:50H on 27 Nov 2015)

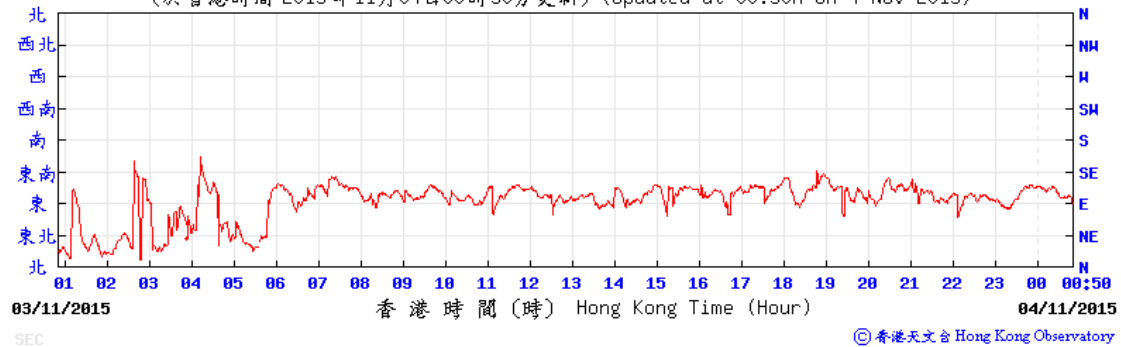


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

3-4 November 2015

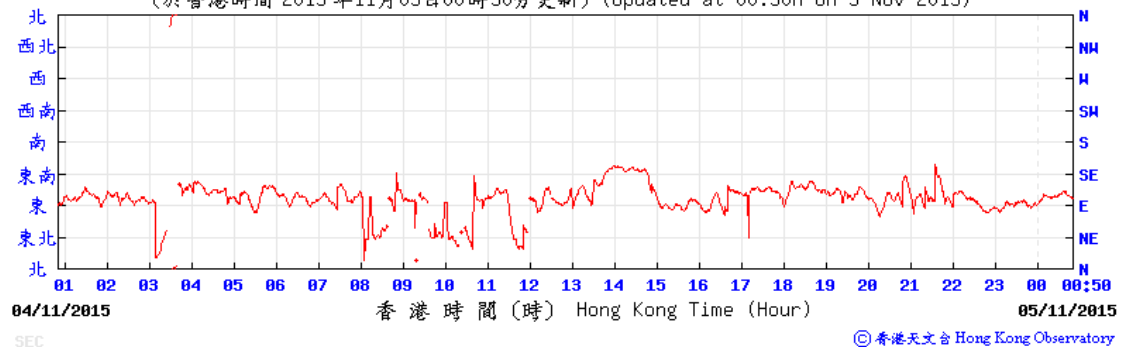
Wind Direction:

(於香港時間 2015 年11月04日00時50分更新) (Updated at 00:50H on 4 Nov 2015)



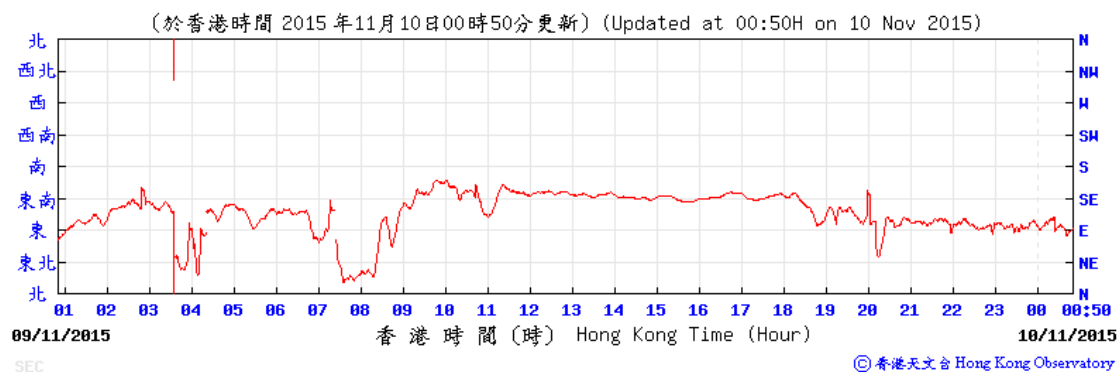
Wind Direction:

(於香港時間 2015 年11月05日00時50分更新) (Updated at 00:50H on 5 Nov 2015)

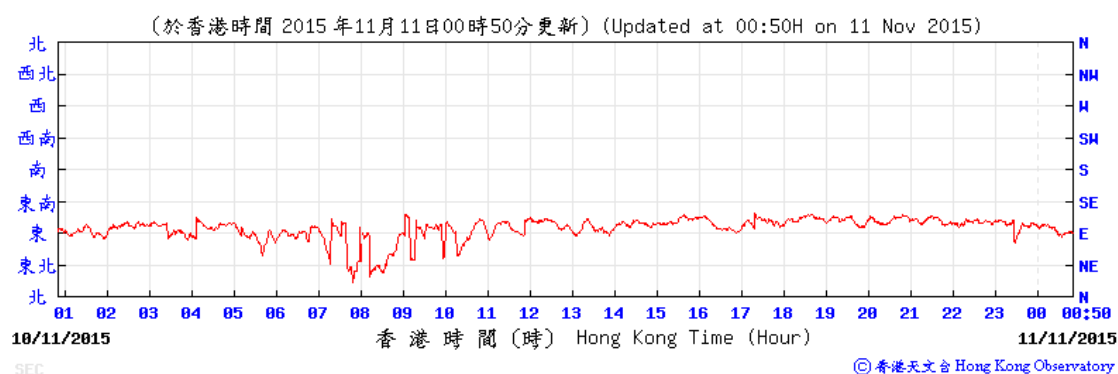


9-10 November 2015

Wind Direction:

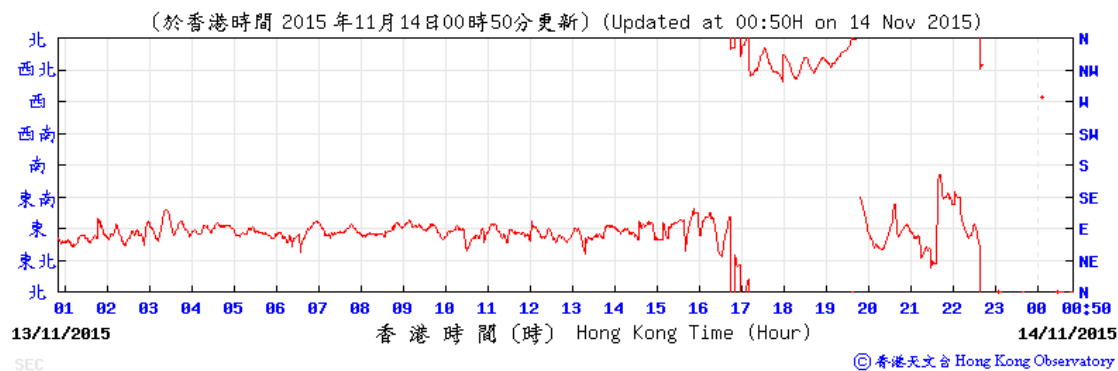


Wind Direction:

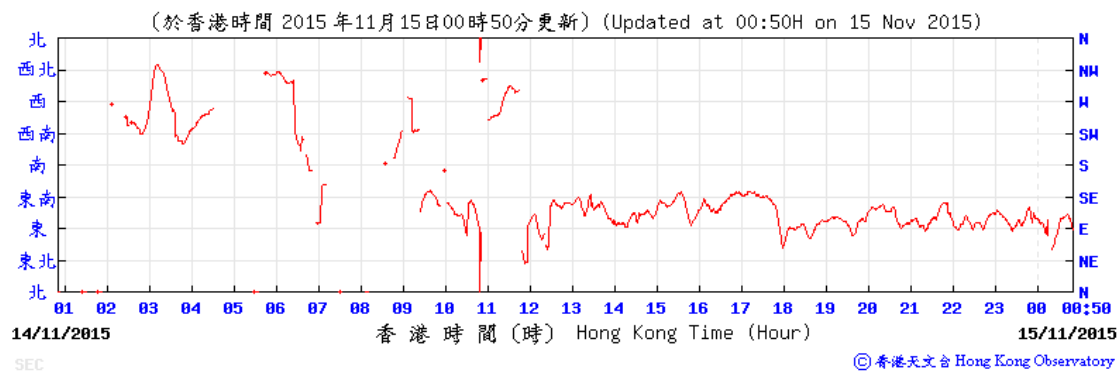


13-14 November 2015

Wind Direction:

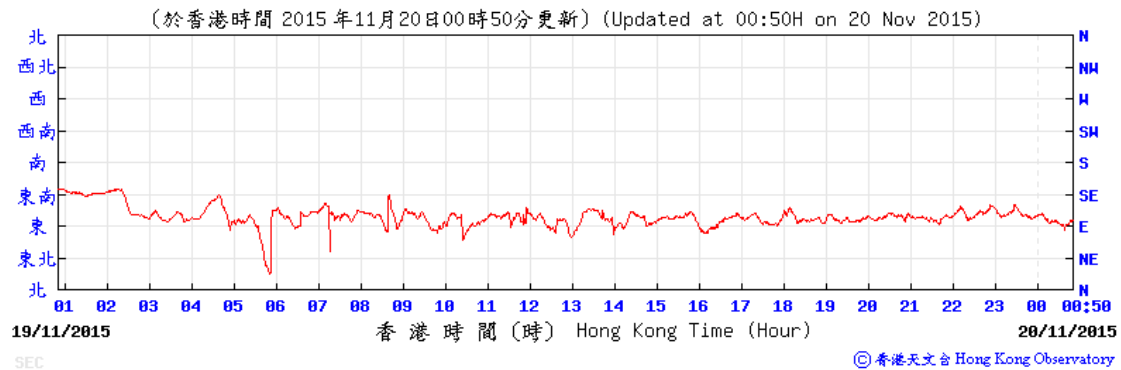


Wind Direction:

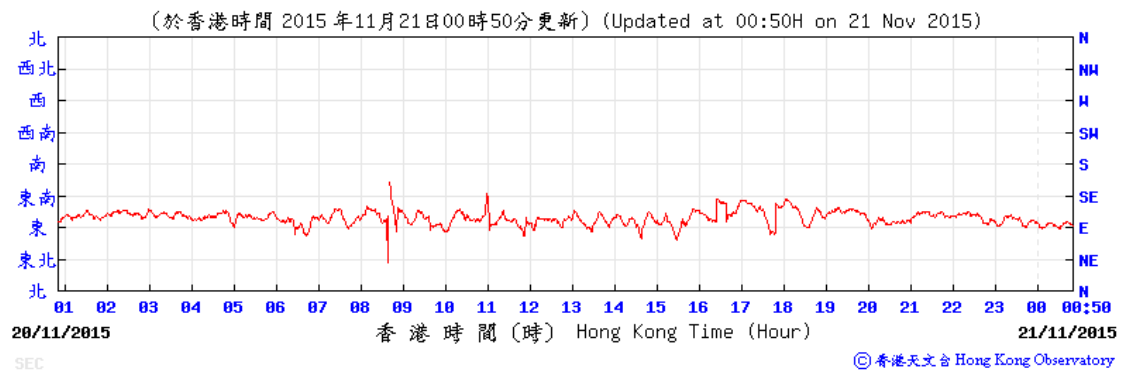


19-20 November 2015

Wind Direction:

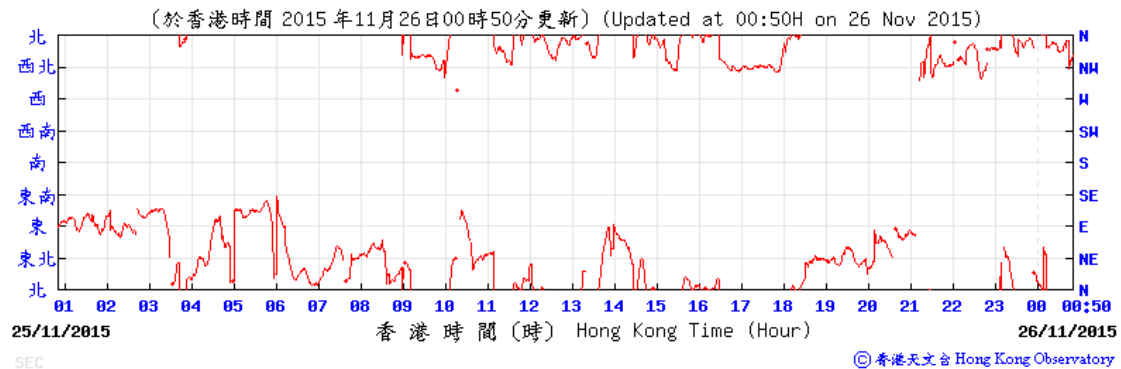


Wind Direction:

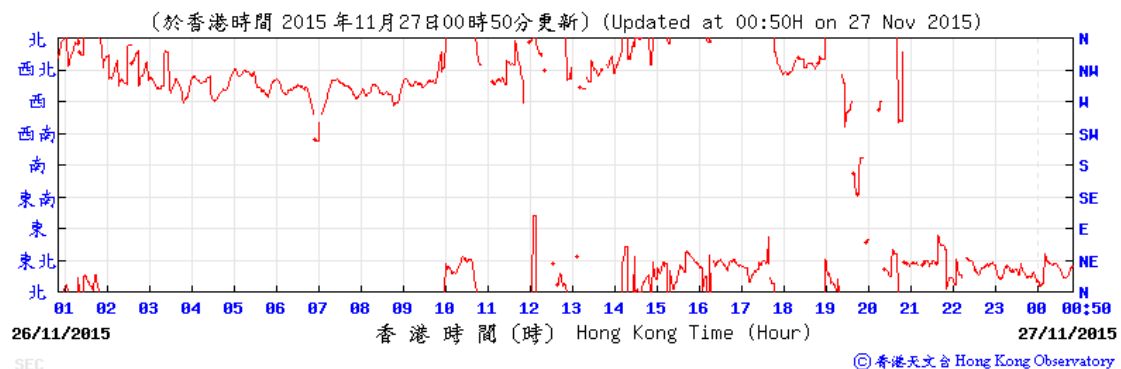


25-26 November 2015

Wind Direction:



Wind Direction:



Annex K – Waste Flow Table

Monthly Summary Waste Flow Table for the year 2012-2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Imported Fill
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Inert C&D Materials Delivered to 1108A Kai Tai Barging Facilities (See Note 6)	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse	
	(in '000m ³)	(in '000m ³) (See Note 3)	(in '000m ³)	(in '000m ³)	(in '000m ³) (See Note 5)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg) (See Note 2)	(in '000kg) (See Note 10)	(in '000m ³) (See Note 5)	
Sep 2012	0.004	0.000	0.000	0.000	0.004	-	0.000	0.000	5.300	0.000	0.144	0.000
Oct 2012	0.000	0.000	0.000	0.000	0.000	-	12.800	0.242	0.013	0.000	0.514	0.000
Nov 2012	0.624	0.000	0.605	0.000	0.019	-	0.000	0.154	0.002	0.000	0.172	6.804
Dec 2012	16.844	0.000	0.000	0.000	0.005	16.839	0.000	0.000	0.000	0.000	0.057	0.000
Sub-total	17.472	0.000	0.605	0.000	0.028	16.839	12.800	0.396	5.315	0.000	0.887	6.804
Jan 2013	19.828	0.000	0.000	0.000	0.006	19.822	0.000	0.036 (See Note 7)	0.416	0.000	0.081 (See Note 8)	0.000
Feb 2013	8.372	0.000	0.000	0.000	0.005	8.366	0.000	0.036	0.443	0.000	0.021	0.000
Mar 2013	14.673	0.000	0.000	0.000	0.000	14.673	0.000	0.036	0.463	0.000	0.064 (See Note 9)	0.000
Apr 2013	13.557	0.000	0.000	0.000	0.025	13.533	0.000	0.036	0.148	0.000	0.086	0.000
May 2013	9.969	0.000	0.000	0.000	0.000	9.969	0.000	0.000	0.481	0.000	0.065	0.000
Jun 2013	5.538	0.000	0.000	0.000	0.000	5.538	0.000	0.045	0.784	0.32 (See Note 11)	0.065	0.000
Jul 2013	6.116	0.000	0.000	0.000	0.000	6.116	0.000	0.063	0.868	0.400	0.058	0.000
Aug 2013	11.537	0.000	0.000	0.000	0.000	11.537	0.000	0.068	0.464	0.000	0.071	0.000
Sep 2013	4.641	0.000	0.000	0.000	0.000	4.641	0.000	0.027	0.522	0.000	0.110	0.000
Oct 2013	9.708	0.000	0.000	0.000	0.000	9.708	0.000	0.036	0.348	0.000	0.086	0.000
Nov 2013	7.199	0.000	0.000	0.000	0.000	7.199	0.000	0.068	0.506	0.000	0.678	0.000
Dec 2013	6.973	0.000	0.000	0.000	0.000	6.973	0.000	0.090	0.383	0.000	1.344	0.000
Sub-total	118.111	0.000	0.000	0.000	0.036	118.075	0.000	0.541	5.826	0.720	2.729	0.000
Jan 2014	11.870	0.000	0.000	0.000	0.000	11.870	0.000	0.121	0.270	0.400	0.100	0.000
Feb 2014	15.316	0.000	0.000	0.000	0.000	15.316	0.000	0.067	0.396	0.000	0.095	0.000
Mar 2014	18.734	0.000	0.000	0.000	0.000	18.734	0.000	0.067	0.320	0.200	0.107	0.000
Apr 2014	23.539	0.000	0.000	0.000	0.000	23.539	0.000	0.000	0.344	0.415	0.064	0.000
May 2014	11.327	0.000	0.000	0.000	0.000	11.327	0.000	0.000	0.371	0.000	0.130	0.000
Jun 2014	10.440	0.000	0.000	0.000	0.000	10.440	0.000	0.090	0.332	0.000	0.164	0.000
Jul 2014	2.103	0.000	0.000	0.000	0.000	2.103	0.000	0.099	0.544	0.200	0.131	0.000
Aug 2014	1.446	0.000	0.000	0.000	0.000	1.446	0.000	0.189	0.584	0.000	0.129	0.000
Sep 2014	1.980	0.000	0.000	0.000	0.000	1.980	0.000	0.225	0.284	0.000	0.099	0.000
Oct 2014	16.902	0.000	0.000	0.000	0.000	16.902	0.000	0.050	0.492	1.120	0.109	0.000
Nov 2014	27.687	0.000	0.000	0.000	0.000	27.687	0.000	0.140	0.352	0.000	0.083	0.000
Dec 2014	44.771	0.000	0.000	0.000	0.000	44.771	0.000	0.090	0.284	0.400	0.103	0.000
Sub-total	186.115	0.000	0.000	0.000	0.000	186.115	0.000	1.048	4.573	2.335	1.314	0.000

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Imported Fill
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill (See Note 5)	Inert C&D Materials Delivered to 1108A Kai Tai Barging Facilities (See Note 6)	Metals	Paper/ cardboard packaging	Plastics (See Note 2)	Chemical Waste (See Note 10)	Others, e.g. general refuse (See Note 5)	
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)	
Jan 2015	64.165	0.000	0.000	0.266	0.000	63.899	0.000	0.077	0.328	0.180	0.150	0.000
Feb 2015	46.884	0.000	0.000	2.599	0.000	44.285	0.000	0.090	3.102	0.000	0.106	0.000
Mar 2015	41.498	0.000	0.000	0.000	0.000	41.498	0.000	0.072	2.321	0.600	0.126	0.000
Apr 2015	13.049	0.000	0.000	0.000	0.000	13.049	0.000	0.081	1.598	0.000	0.119	0.000
May 2015	54.559	0.000	0.000	0.000	0.000	54.559	0.000	0.063	0.548	0.000	0.099	0.000
Jun 2015	48.857	0.000	0.000	0.000	0.000	48.857	0.000	0.041	0.880	0.000	0.144	0.000
Jul 2015	34.471	0.000	0.000	0.000	0.000	34.471	0.000	0.090	4.972	0.720	0.218	0.000
Aug 2015	28.330	0.000	0.000	0.000	0.000	28.330	0.000	0.077	1.027	1.240	0.244	0.000
Sep 2015	25.376	0.000	0.000	0.000	0.000	25.376	0.000	0.068	0.845	2.080	0.224	0.000
Oct 2015	45.061	0.000	0.000	0.000	0.000	45.061	0.000	0.072	0.743	0.000	0.336	0.000
Nov 2015	45.607	0.000	0.000	0.000	0.000	45.607	0.000	0.085	4.719	1.760	0.344	0.000
Sub-total	447.857	0.000	0.000	2.865	0.000	444.992	0.000	0.816	21.083	6.580	2.110	0.000
Total	769.556	0.000	0.605	2.865	0.064	766.021	12.800	2.801	36.797	9.635	7.040	6.804

Notes:

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

Annex L

Investigation Reports

Investigation Report of Environmental Quality Limit Exceedance

Date	18 November 2015
Time	07:53-08:23; 08:23-08:53; 09:23-09:53; 09:53-10:23; 10:23-10:53; 14:23-14:53; 14:53-15:23; 15:23-15:53; 15:53-16:23; 16:23-16:53; 16:53-17:23; and 17:23-17:53.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, L_{Aeq} (30mins)
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	81.4 dB(A) (07:53-08:23); 80.4 dB(A) (08:23-08:53); 80.8 dB(A) (09:23-09:53); 79.8 dB(A) (09:53-10:23); 81.4 dB(A) (10:23-10:53); 80.9 dB(A) (14:23-14:53); 79.8 dB(A) (14:53-15:23); 81.1 dB(A) (15:23-15:53); 79.8 dB(A) (15:53-16:23); 79.6 dB(A) (16:23-16:53); 80.6 dB(A) (16:53-17:23); 79.5 dB(A) (17:23-17:53).
Possible reason	<p>Based on the site record on 18 November 2015, the potential noise sources from the Project works included excavation for decking installation, preparation works for cable diversion, MTW station construction and excavation, and drilling works in E3 works area; MTW station construction and excavation in E6 works area; drainage diversion and toe grouting works in Lok Shan Road works area.</p> <p>The construction equipment used during the exceedance period included 12 backhoes (9 backhoes worked underground and 3 backhoes worked above ground), 3 mobile cranes, 3 drilling rigs and 3 telescopic.</p> <p>The above-mentioned construction works were continuously operating on 18 November 2015 (before and after the exceedance period).</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	1. Noise fabrics as barrier had been erected on the site hoarding.

	<p>2. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed.</p> <p>3. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level.</p> <p>4. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures.</p> <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Mandy To, 1109 ET Leader
 Date 25-November-2015

Investigation Report of Environmental Quality Limit Exceedance

Date	19 November 2015
Time	08:53-09:23; 09:23-09:53; 09:53-10:23; 10:23-10:53; 10:53-11:23; 12:53-13:23; 13:23-13:53; 13:53-14:23; 14:23-14:53; and 14:53-15:23.
Monitoring Location	MTW-16-1 SKH Good Shepherd Primary School
Parameter	Noise, L_{Aeq} (30mins)
Action / Limit Levels	Limit level 79 dB(A) (according to the latest Continuous Noise Monitoring Plan (CNMP))
Measured Level (With baseline level adjustment)	80.5 dB(A) (08:53-09:23); 80.9 dB(A) (09:23-09:53); 80.7 dB(A) (09:53-10:23); 81.1 dB(A) (10:23-10:53); 79.8 dB(A) (10:53-11:23); 81 dB(A) (12:53-13:23); 81.1 dB(A) (13:23-13:53); 80 dB(A) (13:53-14:23); 80.3 dB(A) (14:23-14:53); 80.4 dB(A) (14:53-15:23).
Possible reason	<p>Based on the site record on 19 November 2015, the potential noise sources from the Project works included excavation for decking installation, preparation works for cable diversion, MTW station construction and excavation, and drilling works in E3 works area; MTW station construction and excavation in E6 works area; drainage diversion and toe grouting works in Lok Shan Road works area.</p> <p>The construction equipment used during the exceedance period included 12 backhoes (9 backhoes worked underground and 3 backhoes worked above ground), 3 mobile cranes, 2 drilling rigs and 3 telescopic.</p> <p>The above-mentioned construction works were continuously operating on 19 November 2015 (before and after the exceedance period). However, the noise levels were all below the Action/Limit Levels before and after the exceedance period.</p> <p>Having considered the above, construction works of 1109 may have contributed to the exceedances recorded.</p>
Action Taken / Action to be Taken	1. Noise fabrics as barrier had been erected on the site hoarding.

	<ol style="list-style-type: none"> 2. The Contractor has conducted site inspections twice a day since the issue of this NOE, to collect details regarding the site activities in vicinity to the concerned works area and to check if any further mitigation measure is needed. 3. The Contractor will continue to provide sufficient and necessary mitigation measures to mitigate the noise to avoid any exceedance of the Action/Limit Level. 4. Briefing on environmental issues before works has been provided to frontline workers and keeps reminding the workers to implement noise mitigation measures. <p>The Contractor will strictly implement relevant and appropriate noise mitigation measures to minimise the noise generation as far as possible and avoid exceedance of the Action/ Limit Level or causing noise disturbance where practicable.</p>
Remarks	-

Prepared by: Mandy To, 1109 ET Leader
 Date 25-November-2015

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

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
July 2014	0	0
August 2014	0	0
September 2014	1	0
October 2014	0	0
November 2014	0	0
December 2014	0	0
January 2015	3	0
February 2015	0	0
March 2015	0	0
April 2015	3	0
May 2015	2	0
June 2015	7	0
July 2015	0	0
August 2015	1	0
September 2015	2	0
October 2015	2	0
November 2015	0	0
Overall Total	21	0

Appendix C

**36th 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**

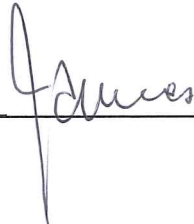
Monthly EM&A Report

[Period from 1 to 30 November 2015]

Works Contract 1101

Ma On Shan Modification Works

(December 2015)

Certified by: James Choi 

Position: Environmental Team Leader

Date: 7 December 2015

SCL Contract No. 1101

Ma On Shan Line Modification Works

Monthly EM&A Report (SCL) (November 2015)

for

Sun Fook Kong Joint Venture



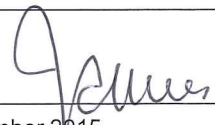
Prepared By	Checked By	Approved for Issue	
D Lee 	A Lee 	J Choi 	
Version	0	Date	3 December 2015
<p>The information contained in this report is, to the best of our knowledge, correct at the time of printing. The interpretation and recommendations in the report are based on our experience, using reasonable professional skill and judgment, and based upon the information that was available to us. These interpretations and recommendations are not necessarily relevant to any aspect outside the restricted requirements of the brief. This report has been prepared for the sole and specific use of our client and ANewR Consulting Limited accepts no responsibility for its use by others.</p> <p>This report is copyright and may not be reproduced in whole or in part without prior written permission. All rights reserved.</p>			

Table of Contents

EXECUTIVE SUMMARY	1
1. INTRODUCTION.....	2
1.1 Background	2
1.2 Description of the Construction Works.....	2
1.3 Purpose of this Report	2
2. PROJECT INFORMATION	3
2.1 Project Organization and Management Structure.....	3
2.2 Construction Activities.....	3
2.3 Status of License, Permit and Submissions under Environmental Protection Requirements..	3
3. WASTE MANAGEMENT	4
4. SITE INSPECTION	5
5. ENVIRONMENTAL COMPLAINT	6
6. SUMMARY OF NOTIFICATION OF SUMMONS, SUCCESSFUL PROSECUTIONS AND CORRECTIVE ACTIONS.....	7
7. FUTURE KEY ISSUES	8
8. CONCLUSION	9

List of Tables

Table 3.1	Waste Generated in the Reporting Month
Table 5.1	Cumulative Statistic of Environmental Complaint

List of Appendices

Appendix A	Location Plan of Works Area and Storage Yard
Appendix B	Organisation Chart of Environmental Management
Appendix C	Status of License, Permit and Submissions under Environmental Protection Requirements
Appendix D	Waste Flow Table
Appendix E	Mitigation Measures Implementation Schedule for Construction Stage
Appendix F	Environmental Complaint Log

EXECUTIVE SUMMARY

Sun Fook Kong Joint Venture (SFKJV) was awarded the Shatin to Central Link (SCL) Contract No. 1101 Ma On Shan Line (MOL) Modification Works (this Project). ANewR Consulting Limited (ANewR) was commissioned by SFKJV as the Environmental Team (ET) for undertaking the Environmental Monitoring and Audit (EM&A) works during the construction period. The works areas under this Project covered by Environmental Permit (EP-438/2012/I) 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

To Shek Storage Yard was only used for storage of construction materials. Shek Mun Storage Yard had been handed-over to Lands Department on 12 Oct 2015.

Air Quality and Noise Monitoring

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

Environmental Auditing

Weekly site inspections were carried out by ET to ensure proper implementation of environmental mitigation measures and compliance with environmental legislation. During the reporting month, a total of 4 site inspections were conducted and the joint site inspection with IEC was conducted on 17 November 2015. 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

13.00 m³ of general refuse was disposed of to NENT Landfill in the reporting month. No inert C&D materials was disposed 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 (SFJKV), 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*.

1.3 Purpose of this Report

This is the 37th 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 November 2015.

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 B*

2.2 Construction Activities

To Shek Storage Yard was only used for storage of construction materials. Shek Mun Storage Yard had been handed-over to Lands Department on 12 Oct 2015.

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/I for contract no. 1101 is given in *Table 1* and *Table 2* in *Appendix C*

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 D*

Table 3.1 Waste Generated in the Reporting Month

Waste Type	Quantity this month	Cumulative-to-Date
Inert C&D materials disposed	0	598.00 m ³
Inert C&D materials recycled	0	0
Non-inert C&D materials disposed	0	0
Non-inert C&D materials recycled	0	68.00 m ³
General waste disposed of to NENT Landfill	13.00 m ³	500.75 m ³
Chemical waste disposed of to CWTC or collected by licenced collector	0	1552.10 kg

4. SITE INSPECTION

Weekly site inspections were carried out at the sites on 4, 11, 17 and 25 November 2015. The joint site inspection with IEC was carried out on 17 November 2015. No observation was recorded on the weekly site walk at To Shek Storage Yard on 25 November 2015. No major environmental deficiencies was observed during the site inspection.

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 E***

5. ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting month.

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

Nil

8. CONCLUSION

To Shek Storage Yard was only used for storage of construction materials. Shek Mun Storage Yard had been handed-over to Lands Department on 12 Oct 2015.

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.

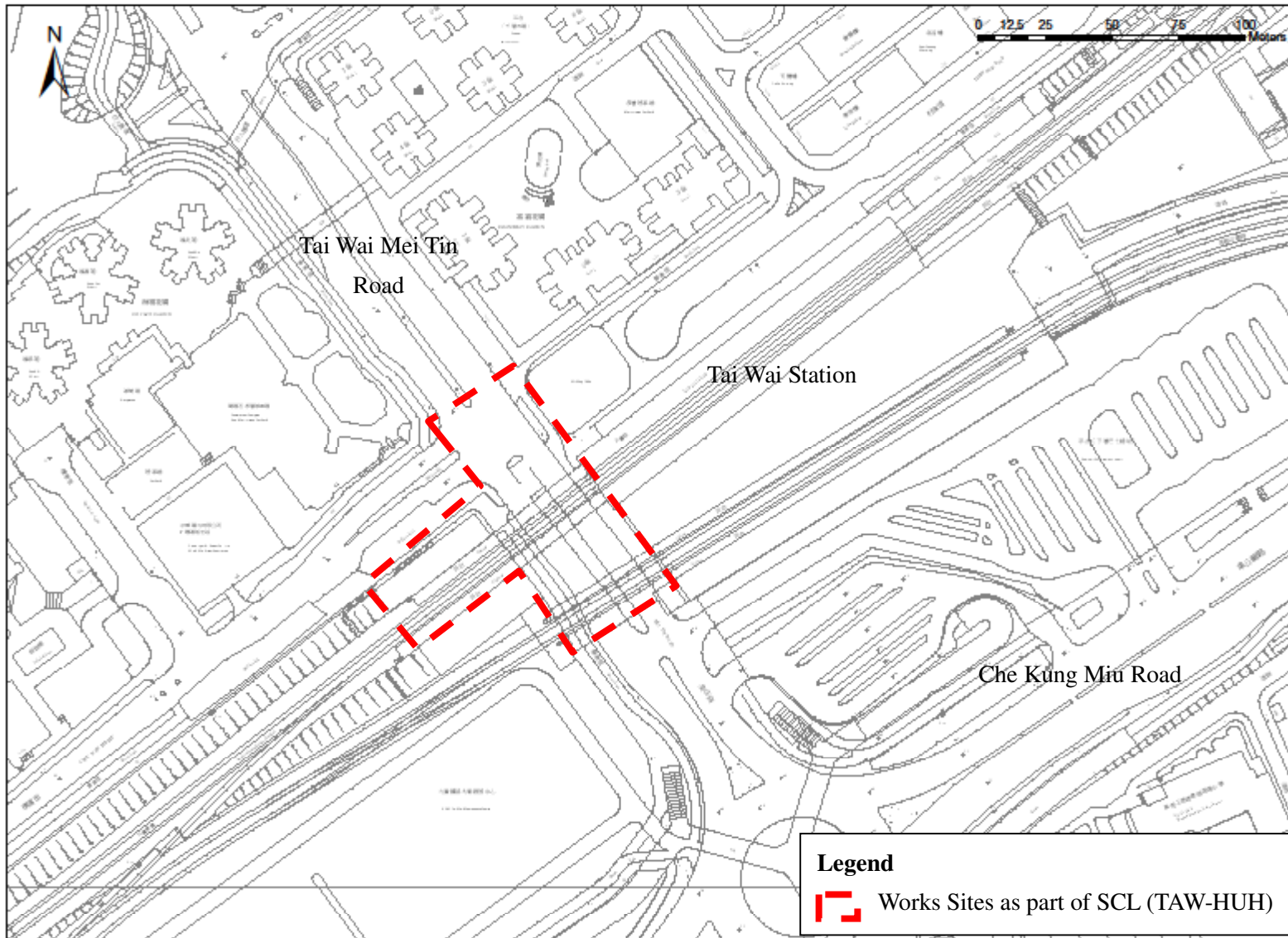
No environmental complaint was recorded in the reporting month.

No notification of summons and successful prosecution was received in the reporting month.

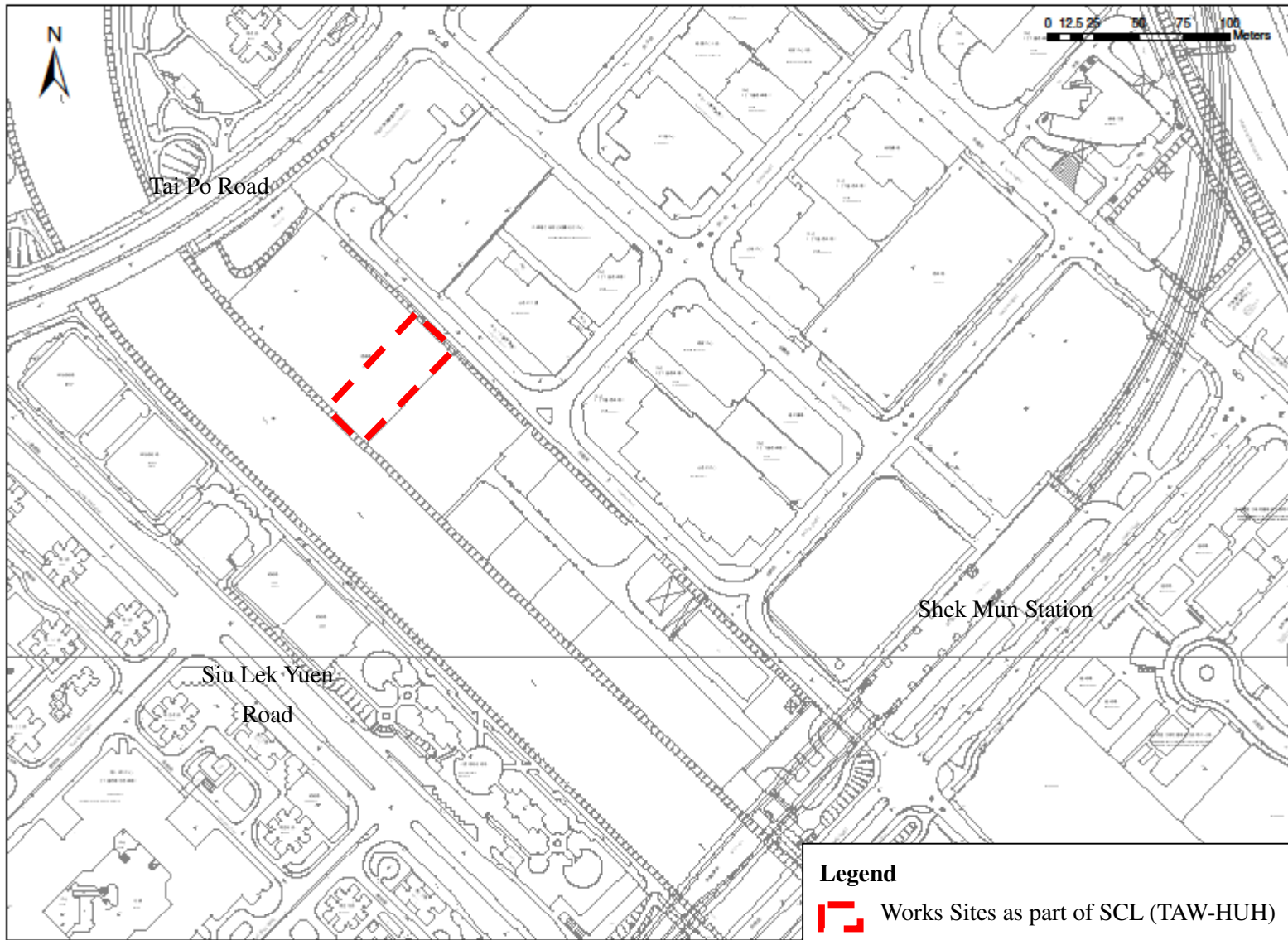
4 numbers of environmental site inspections were carried out in November 2015.

APPENDIX A

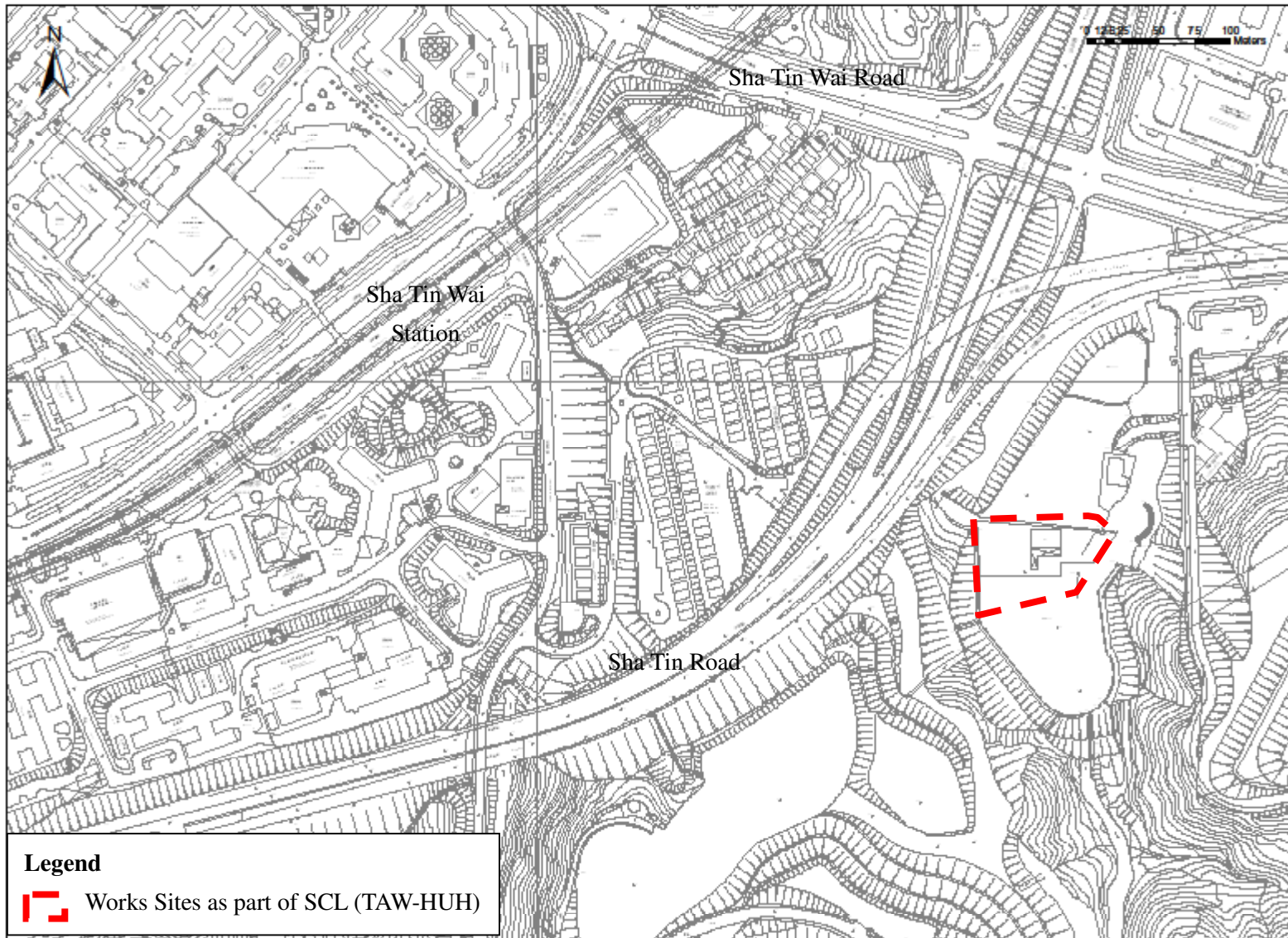
LOCATION PLAN OF WORKS AREA AND STORAGE YARD




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



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



Legend

 Works Sites as part of SCL (TAW-HUH)

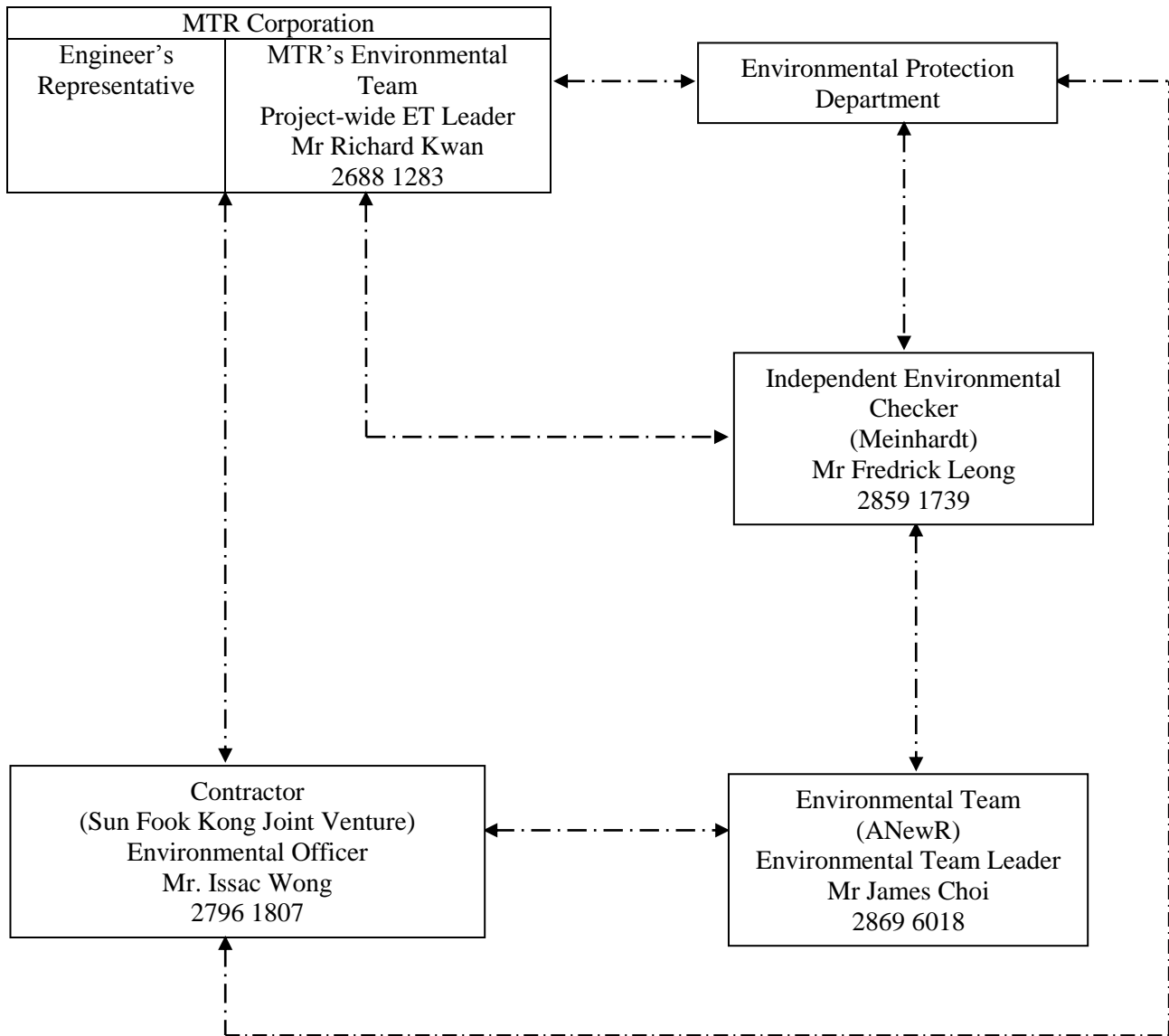
SCALE	N.T.S.	DATE	4 June 2013
CHECK	LYMA	DRAWN	YSWE
Ref.	FIGURE NO.		REV
SCL Contract No.1101	App A (Sheet 3 of 3)		1

APPENDIX B

ORGANISATION CHART OF ENVIRONMENTAL MANAGEMENT

Appendix B Organisation Chart of Environmental Management

Project Organization Chart



----- Line of communication

APPENDIX C

STATUS OF LICENSE, PERMIT AND SUBMISSIONS UNDER ENVIRONMENTAL PROTECTION REQUIREMENTS

Appendix C 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/I	18 September 2015	14 October 2015	14 October 2015	N/A
Construction Noise Permit					
Tai Wai Station (At Tai Wai Mei Tin Road)	GW-RN0615-15	17 September 2015	5 October 2015	20 October 2015	19 April 2016
Chemical Waste Producer					
Tai Wai Station (At Tai Wai Mei Tin Road)	5213-757-S3683-02	6 September 2012	8 October 2012	8 October 2012	N/A
To Shek Storage Yard	5213-759-S3683-08	10 January 2013	14 February 2013	14 February 2013	N/A
Wastewater Discharge Licence					
Tai Wai Station (At Tai Wai Mei Tin Road)	WT00014550-2012	5 November 2012	19 November 2012	19 November 2012	30 November 2017
To Shek Storage Yard	WT00014628-2012	12 November 2012	12 December 2012	12 December 2012	31 December 2017

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

Table 2 Summary of Submission Status under EP-438/2012/I

EP Condition	Submission	Date of Submission
Condition 3.4	Monthly EM&A Report (October 2015)	13 November 2015

APPENDIX D

WASTE FLOW TABLE

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

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
		Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste (in kg)
January								
February								
March								
April								
May								
June								
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
Sub-total for 2012	13.00	0.00	0.00	0.00	13.00	0.00	26.00	0.00
Cumulative Total	13.00	0.00	0.00	0.00	13.00	0.00	26.00	0.00

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

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

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
		Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste (in kg)
January	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
February	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.00
March	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.00
April	0.00	0.00	0.00	0.00	0.00	3.00	16.25	0.00
May	0.00	0.00	0.00	0.00	0.00	0.00	35.75	0.00
June	0.00	0.00	0.00	0.00	0.00	0.00	22.75	0.00
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
Sub-total for 2013	19.50	0.00	0.00	0.00	19.50	3.00	198.50	0.00
Cumulative Total	32.50	0.00	0.00	0.00	32.50	3.00	224.50	0.00

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

Waste Flow Table for 2014 (year) (in cu. meter) for SCL

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
		Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste (in kg)
January	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
February	0.00	0.00	0.00	0.00	0.00	0.00	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
July	19.50	0.00	0.00	0.00	19.50	0.00	19.50	0.00
August	71.50	0.00	0.00	0.00	71.50	26.00	6.50	500.00
September	6.50	0.00	0.00	0.00	6.50	19.50	0.00	345.00
October	6.50	0.00	0.00	0.00	6.50	0.00	29.25	45.00
November	13.00	0.00	0.00	0.00	13.00	6.50	0.00	0.00
December	0.00	0.00	0.00	0.00	0.00	13.00	0.00	0.00
Sub-total for 2014	117.00	0.00	0.00	0.00	117.00	65.00	61.75	1400.00
Cumulative Total	149.50	0.00	0.00	0.00	149.50	68.00	286.25	1400.00

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

Waste Flow Table for 2015 (year) (in cu. meter) for SCL

Month	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of Other C&D Wastes Generated Monthly		
		Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Recyclable Metals	Non-inert Waste / General Refuse	Chemical Waste (in kg)
January	0.00	0.00	0.00	0.00	0.00	0.00	13.00	0.00
February	0.00	0.00	0.00	0.00	0.00	0.00	3.25	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	0.00	6.50	0.00
May	224.25	0.00	0.00	0.00	224.25	0.00	35.75	152.10
June	42.25	0.00	0.00	0.00	42.25	0.00	42.25	0.00
July	0.00	0.00	0.00	0.00	0.00	0.00	13.00	0.00
August	0.00	0.00	0.00	0.00	0.00	0.00	19.50	0.00
September	136.50	0.00	0.00	0.00	136.50	0.00	39.00	0.00
October	45.50	0.00	0.00	0.00	45.50	0.00	26.00	0.00
November	0.00	0.00	0.00	0.00	0.00	0.00	13.00	0.00
December								
Sub-total for 2015	448.50	0.00	0.00	0.00	448.50	0.00	214.50	152.10
Cumulative Total	598.00	0.00	0.00	0.00	598.00	68.00	500.75	1552.10

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

APPENDIX E

MITIGATION MEASURES IMPLEMENTATION SCHEDULE FOR CONSTRUCTION STAGE

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

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> No on-site burning of waste; Waste and refuse in appropriate receptacles. 						<p>^</p> <p>^</p>
Landscape & Visual (Construction Phase)								
S6.9.3	LV1	<p>The following good site practices and measures for minimization and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. <p><u>Protection of Retained Trees</u></p>	Minimize visual & landscape impact	Contractor	Within Project Site	Contraction stage	TM-EIAO	<p>N/A</p> <p>^</p>

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites. 						^
S6.12	LV2	<ul style="list-style-type: none"> <u>Decorative Hoarding</u> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context. <u>Management of facilities on work sites</u> To provide proper management of the facilities on the sites, give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. <u>Tree Transplanting</u> Trees of high to medium survival rate would be affected 	Minimize visual & landscape impact	Contractor	Within Project Site	Detailed design and construction stage	EIAO-TM ETWB TCW 2/2004 ETWB TCW 3/2006	^ ^ N/A

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	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	^
S7.6.5	D2	<ul style="list-style-type: none"> • Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area and once per 1.5 hour at those in the Tai Wai area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m² to achieve the dust removal efficiency 	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	^

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

* Not satisfactory but rectified by the contractor

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

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; Surface where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; Any skip hoist for material transport should be totally 						^
								^
								N/A
								N/A
								N/A
								N/A

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

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

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
S8.3.6	N1	<p>Implement the following good site practices:</p> <ul style="list-style-type: none"> Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; Plant 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. 	Control construction airborne noise	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	<p>^</p> <p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>^</p>
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	^

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
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	N/A
S8.3.6	N4	Use “Quiet plants”	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N5	Sequencing operation of construction plants where practicable	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
Water Quality (Construction Phase)								
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoff and Site Drainage</u> <ul style="list-style-type: none"> At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal 	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	^

Remarks:

^ 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
		<p>drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilities the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediments/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5m³/s the basin would be 150m³. The detailed design of the sand/silt traps shall be undertaken by the constructor prior to the commencement of construction. 						<p>^</p> <p>^</p>

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> All 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 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 						<p>^</p> <p>^</p> <p>^</p> <p>^</p>

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>silt removal facilities.</p> <ul style="list-style-type: none"> Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are 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 						<p>^</p> <p>^</p> <p>^</p> <p>^</p>

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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.</p> <ul style="list-style-type: none"> Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season 						<p>^</p> <p>^</p> <p>^</p> <p>^</p>

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
		(April to September) as far as practicable. <ul style="list-style-type: none"> Adopt best management practices. 						^
S10.7.1	W3	<u>Sewage Effluent</u> <ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. 	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance TM-water 	^
S10.7.1	W7	In order to prevent accidental spillage of chemicals, the following is recommended: <ul style="list-style-type: none"> All the tanks, containers, storage area should be bunded and the location should be locked as far as possible from the sensitive watercourse and stormwater drains. The Contractor should register as a chemical waste produce if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical waste should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance ProPECC PN1/94 TM-EIAO TM-Water 	^ ^ ^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<u>On-site sorting of C&D material</u>	Separation of	Contractor	All	Construction	<ul style="list-style-type: none"> DEVB TC(W) 	

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke roke should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up 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. 	unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use		construction sites	stage	No.6/2010	^
S11.5.1	WM2	<u>Construction and Demolition Material</u> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; 	Good site practice to minimize the waste generation and recycle	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) 	N/A

Remarks:

^ Implement mitigation measure in the reporting month

N/A Not Applicable in the reporting month

x Non-compliance of mitigation measure

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> 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 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. 	the C&D materials as far as practicable so as to reduce the amount for final disposal				Ordinance <ul style="list-style-type: none"> Waste Disposal Ordinance ETWB TCW No.19/2005 	N/A N/A N/A ^ ^ ^
S11.5.1	WM3	<u>C&D Waste</u> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or 	Good site practice to minimize the waste generation and recycle the C&D materials as	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance 	N/A

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

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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.</p> <ul style="list-style-type: none"> The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	far as practicable so as to reduce the amount for final disposal				<ul style="list-style-type: none"> Waste Disposal Ordinance ETWB TCW No.19/2005 	N/A
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Waste Disposal Ordinance 	<p>^</p> <p>^</p>

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

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

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated;</p> <ul style="list-style-type: none"> Disposal of chemical waste should be via a licensed waste collector, be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 						^
EM&A Project								
S14.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	MTR Corporation	All construction sites	Construction Stage	<ul style="list-style-type: none"> EIAO Guidance Note No.4/2010 TM-EIAO 	^
S14.2-14.4	EM2	<ol style="list-style-type: none"> An Environmental Team needs to be employed as per the EM&A Manual. Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all 	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> EIAO Guidance Note No. 4/2010 TM-EIAO 	^

Remarks:

^ Implement mitigation measure in the reporting month

x Non-compliance of mitigation measure

N/A Not Applicable in the reporting month

* Not satisfactory but rectified by the contractor

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	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 requirements given in the EM&A Manual are fully complied with.						

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 F

ENVIRONMENTAL COMPLAINT LOG

Appendix F 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

**35th EM&A Report for Works Contract 1111 –
Hung Hom North Approach Tunnel**

Gammon-Kaden SCL 1111 Joint Venture**Shatin to Central Link -
Tai Wai to Hung Hom Section and
Mong Kok East to Hung Hom Section****Works Contract 1111 -
Hung Hom North Approach Tunnels****Monthly EM&A Report for
November 2015**

[December 2015]

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

Version: 0

Date: 10 December 2015

Disclaimer

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

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Table of Contents

	Page
EXECUTIVE SUMMARY	1
1 INTRODUCTION.....	3
1.1 Purpose of the Report	3
1.2 Report Structure.....	3
2 PROJECT INFORMATION.....	4
2.1 Background	4
2.2 Site Description	4
2.3 Construction Programme and Activities	4
2.4 Project Organisation.....	4
2.5 Status of Environmental Licences, Notification and Permits	6
3 ENVIRONMENTAL MONITORING REQUIREMENTS.....	8
3.1 Construction Dust Monitoring.....	8
3.2 Regular Construction Noise Monitoring	10
3.3 Continuous noise monitoring	12
3.4 Landscape and Visual.....	13
4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES.....	14
5 MONITORING RESULTS	15
5.1 Construction Dust Monitoring.....	15
5.2 Regular Construction Noise Monitoring	15
5.3 Continuous Noise Monitoring.....	15
5.4 Waste Management.....	16
5.5 Landscape and Visual.....	16
6 ENVIRONMENTAL SITE INSPECTION AND AUDIT.....	17
7 ENVIRONMENTAL NON-CONFORMANCE.....	17
7.1 Summary of Monitoring Exceedances	18
7.2 Summary of Environmental Non-Compliance.....	18
7.3 Summary of Environmental Complaints.....	18
7.4 Summary of Environmental Summon and Successful Prosecutions.....	18
8 FUTURE KEY ISSUES.....	19
8.1 Construction Programme for the Next Month	19
8.2 Key Issues for the Coming Month.....	19
8.3 Monitoring Schedule for the Next Month.....	19
9 CONCLUSIONS AND RECOMMENDATIONS.....	20
9.1 Conclusions.....	20
9.2 Recommendations	20

List of Tables

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

List of Figures

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

List of Appendices

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

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 30 November 2015. As informed by the Contractor, major activities in the reporting period were:

Hung Hom Area

- Excavation works, slope work, cable detection/ hanger, excavation lateral support, form work erection, reinforcement fixing, concreting works, dismantling works,
- Construction of man hole, construction of noise enclosure footing,
- Trial trench, pilling works, grouting, pre-spilt, backfilling,
- Erection of hoarding, scaffolding platform, erection of utility temporary supports, erection of temporary working platform,
- Tie back installation, lifting works, decking installation, excavation of jacking pit and receiving pit, subway underpinnings, temporary support for subway, tunnel structure,
- 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 during 0700 to 1900 hours on normal weekdays was received in the reporting month.

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

Continuous Noise Monitoring

As the construction works identified by the Construction Noise Mitigation Measures Plan (CNMMP) to be potentially causing exceedance of noise criteria have been completed, no continuous noise monitoring was carried out during this reporting month.

Complaint, Notification of Summons and Successful Prosecution

No 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, slope work, cable detection/ hanger, excavation lateral support, form work erection, reinforcement fixing, concreting works, dismantling works,
- Construction of man hole, construction of noise enclosure footing,
- Trial trench, pilling works, grouting, pre-spilt, backfilling, pipe jacking,
- Erection of hoarding, scaffolding platform, erection of utility temporary supports, erection of temporary working platform,
- Tie back installation, lifting works, decking installation, excavation of jacking pit and receiving pit, subway underpinnings, temporary support for subway, tunnel structure,
- 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 thirty fifth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 to 30 November 2015.

1.2 Report Structure

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

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendation

2 PROJECT INFORMATION

2.1 Background

- 2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).
- 2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Tai Wai to Hung Hom Section [SCL (TAW-HUH)] (Register No.: AEIAR-167/2012), SCL – Mong Kok East to Hung Hom Section [SCL (MKK-HUH)] (Register No.: AEIAR-165/2012) and SCL - Stabling Sidings at Hung Hom Freight Yard [SCL (HHS)] (Register No.: AEIAR-164/2012) were approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Reports, two Environmental Permits (EPs) were granted on 22 March 2012, one covers SCL (TAW-HUH) and SCL (HHS)(EP No: EP-438/2012) and the other covers SCL (MKK-HUH) and SCL (HHS) (EP No.: EP-437/2012), for their construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-438/2012 and the latest Environmental Permit (EP No: EP-438/2012/I) was issued by Director of Environmental Protection (DEP) on 14 October 2015.
- 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 works, slope work, cable detection/ hanger, excavation lateral support, form work erection, reinforcement fixing, concreting works, dismantling works,
- Construction of man hole, construction of noise enclosure footing,
- Trial trench, pilling works, grouting, pre-spilt, backfilling,
- Erection of hoarding, scaffolding platform, erection of utility temporary supports, erection of temporary working platform,
- Tie back installation, lifting works, decking installation, excavation of jacking pit and receiving pit, subway underpinnings, temporary support for subway, tunnel structure,
- 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	Ms. Michelle Tang	3904 9663	
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/I	14 Oct 2015	-	Valid	-
Construction Noise Permit				
GW-RE0637-15	25 Jun 15	23 Dec 15	Valid	For Pumping Test / System and General Work at NSL 9
GW-RE0634-15	26 Jun 15	23 Dec 15	Valid	For Pumping Test / System and General Work at NSL 7- 8
GW-RE0691-15	15 Jul 15	7 Jan 16	Valid	For Pumping Test / System and General Work at EWL 9
GW-RE0713-15	15 Jul 15	14 Jan 16	Valid	For Pumping Test / System at EWL 7
GW-RE0719-15	20 Jul 15	19 Jan 16	Valid	For dewatering and welding at NSL6
GW-RE0687-15	30 Jul 15	29 Jan 16	Valid	For General and Re provisioning Works at Hung Hom Station
GW-RE0802-15	14 Aug 15	13 Feb 16	Valid	For General Work at Oi Sen Path and Ho Man Tin Sidings
GW-RE0837-15	18 Aug 15	9 Feb 16	Valid	For General works for steel decking at EWL8
GW-RE0860-15	10 Sep 15	9 Mar 16	Valid	For Grouting Station and Desandar at EWL8
GW-RE0917-15	15 Sep 15	6 Dec 15	Valid	For Scaffolding and 2.4m Hoarding Erection at Ho Man Tin and Oi Sen Path
GW-RE0938-15	19 Sep 15	18 Nov 15	Valid	For 6m Hoarding Erection in NSL 6
GW-RE0977-15	9-Oct-15	31-Dec-15	Valid until superseded by GW-RS1100-15 on 1-Nov-15	For Noise Enclosure and Steel Platform Erection Work at Oi Sen Path
GW-RE1029-15	14 Oct 15	31 Jan 16	Valid	For TB1 & TB2 Maintenance Work at Chatham Rd North
GW-RE1038-15	20 Oct 15	19 Jan 16	Valid	For 6m Hoarding and Demolition of Scaffolding Platform at NSL 9 & Oi Sen Path
GW-RE1022-15	30 Oct 15	29 Apr 16	Valid	For General Work at NSL 3-5
GW-RE1083-15	1 Nov 15	31 Mar 16	Valid	For Hoarding Erection at NSL 3-5
GW-RE1090-15	3 Nov 15	30 Jan 16	Valid	For Bar Fencing Erection near Railway Tracks Area at Ho Man Tin Sidings
GW-RE1100-15	1 Nov 15	15 Feb 16	Valid	For Noise Enclosure and Steel Platform Erection Work at Oi Sen Path
GW-RE1161-15	19 Nov 15	17 Jan 16	Valid	For 6m Hoarding Erection in NSL 6
GW-RE1188-15	23 Nov 15	15 Jan 16	Valid	For TBM Operation from HMT to NSL 6
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

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
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
WT00019895-2014	24 Sep 2014	30 Sep 2019	Valid	For near Hong Chong Road, Hung Hom at MTRC Ho Man Tin Sidings
WT00020525-2014	30 Dec 2014	31 Dec 2019	Valid	For Chatham Road North
WT00020727-2015	6 Feb 2015	28 Feb 2020	Valid	For Chatham Road North above the railway
WT00020759-2015	9 Feb 2015	31 May 2018	Valid	For near Chatham Road North
WT00022080-2015	13 Aug 2015	31 Aug 2020	Valid	For near Chatham Road North, EWL 9
WT00022793-2015	23 Nov 2015	31 Jul 2018	Valid	For Winslow Street Slope (near Wa Fung Street)
WT00022802-2015	23 Nov 2015	28 Feb 2018	Valid	For near Winslow Street
Chemical Waste Producer Registration				
5213 213 G2618 01	22 Mar 2013		Valid	For Winslow Street Works
5213 213 G2618 03	08 Apr 2013		Valid	For Hung Hom Station Re provisioning Works
5213 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
5213 236 G2618 15	9 Feb 2015		Valid	For NSL7 & EWL7
5213 236 G2618 16	3 Aug 2015		Valid	For EWL9
Billing Account for Construction Waste Disposal				
7016658	24 Jan 2013		Account Active	
Notification Under Air Pollution Control (Construction Dust) Regulation				
353991	02 Jan 2013	18 Apr 2018	Notified	
Clinical Waste Producer Premises Code				
PC01/RE/00362644	30 Jan 2014		Valid	For Hung Hom Freight Yard Works

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Construction Dust Monitoring

Monitoring Requirements

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

Monitoring Equipment

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

Table 3.1 Air Quality Monitoring Equipment

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

Monitoring Locations

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

Table 3.2 Locations of Construction Dust Monitoring Stations

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

Note:

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

Monitoring Methodology

3.1.4 24-hour TSP Monitoring

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

- (i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
- (ii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
- (iii) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
- (iv) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
- (v) No furnace or incinerator flues nearby.
- (vi) Airflow around the sampler was unrestricted.
- (vii) Permission was obtained to set up the samplers and access to the monitoring stations.
- (viii) A secured supply of electricity was obtained to operate the samplers.
- (ix) The sampler was located more than 20 meters from any dripline.

- (x) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
 - (xi) Flow control accuracy was kept within $\pm 2.5\%$ deviation over 24-hour sampling period.
- (b) Preparation of Filter Papers
- (i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
 - (ii) All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was < 50% and not variable by more than $\pm 5\%$. A convenient working RH was 40%.
 - (iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.
- (c) Field Monitoring
- (i) The power supply was checked to ensure the HVS works properly.
 - (ii) The filter holder and the area surrounding the filter were cleaned.
 - (iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
 - (iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
 - (v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
 - (vi) Then the shelter lid was closed and was secured with the aluminium strip.
 - (vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
 - (viii) A new flow rate record sheet was set into the flow recorder.
 - (ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m³/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m³/min).
 - (x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
 - (xi) The initial elapsed time was recorded.
 - (xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
 - (xiii) The final elapsed time was recorded.
 - (xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
 - (xv) It was then placed in a clean 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 November 2015 is provided in **Appendix F**.

3.2 Regular Construction Noise Monitoring

Monitoring Requirements

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

Table 3.4 Noise Monitoring Parameters, Frequency and Duration

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

Monitoring Equipment

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

Table 3.5 Noise Monitoring Equipment for Regular Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	B&K (Model No. 2238 (S/N: 2285692), (S/N: 2800927), (S/N: 2800930))
Acoustic Calibrator	Rion (Model No. NC 74 (S/N: 34246490))

Monitoring Locations

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

Table 3.6 Locations of Regular Construction Noise Monitoring Stations

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

Note:

- (1) Permission of access could not be obtained from Wing Fung Building (originally proposed in the approved EM&A Manuals) and hence the monitoring location was relocated to No. 234-248 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 November 2015 is provided in **Appendix F**.

3.3 Continuous noise monitoring

Monitoring Requirements

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

Monitoring Locations

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

Table 3.7 Summary of Proposed Continuous Noise Monitoring Location

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

Note:

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

Monitoring Equipment

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

Table 3.8 Noise Monitoring Equipment for Continuous Noise Monitoring

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

Monitoring Parameters, Frequency and Duration

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

Monitoring Methodology

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

Event and Action Plan

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

Table 3.9 Summary of Proposed Continuous Noise Monitoring Programme

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

Note:

- (1) Action/Limit level will only be applicable during the examination period.
 (2) Permission of access could not be obtained from Wing Fung Building (originally proposed in the approved EM&A Manuals) and hence the monitoring location was relocated to No. 234-248 Chatham Road North. The alternative monitoring location is considered as an appropriate alternative noise monitoring station in the CNMP.
 (3) Based on 2014-2015 Calendar of Carmel Secondary School, the examination periods are scheduled in January and February 2015. The continuous noise monitoring was conducted in January and February 2015.
 (4) Additional continuous noise monitoring was conducted in March 2015 according to the latest 2014-2015 Calendar of Carmel Secondary School.

3.4 Landscape and Visual

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

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

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

Table 4.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.4 (EP-437/2012) & Condition 3.4 (EP-438/2012/I)	Monthly EM&A Report for October 2015	13 November 2015

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

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

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

ID	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM1	52.2	32.4 – 74.7	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 – 54.7	70 (65) ⁽¹⁾
NM 2 ⁽²⁾	<Baseline	75

Note:

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

(2) Baseline correction will be made to the measured L_{eq} when the measured noise level exceeded the corresponding baseline noise level and presented in the table. No correction was made to NM2 as all measured noise levels were below the baseline noise level.

5.2.2 No noise complaint was received in the reporting month during 0700 to 1900 hours on normal weekdays; hence, no Action Level exceedance was recorded.

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

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

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

5.3 Continuous Noise Monitoring

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

5.4 Waste Management

- 5.4.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 5.4.2 As advised by the Contractor, 10,965m³ of inert C&D material was generated. 4,591m³ and 165m³ were disposed as public fills at TKO137 and TM38 respectively. 6,210m³ of public fills was delivered to Hung Hom Barging Point and handled by other project. No public fills was used in the Contract. While 65,150kg of general refuse was disposed at NENT landfill in the reporting month. 1,020kg of paper/cardboard packaging material, no metals and no plastic was collected by recycling contractor in the reporting month. 3,984m³ of Type 1 marine dumping was delivered to Hung Hom Barging Point. 595kg 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 12 and 26 November 2015. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.
- 5.5.2 The event and action plan is annexed in **Appendix I**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

- 6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the site inspection is provided in **Appendix C**.
- 6.1.2 In the reporting month, 4 site inspections were carried out on 5, 12, 19 and 26 November 2015. The one held on 19 November 2015 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	N/A	N/A	N/A
Air Quality	5 Nov 15	<ul style="list-style-type: none"> Site area at NSL7 was observed dry. The Contractor should water the exposed area timely and cover the slope surface properly for dust suppression. 	The item was rectified by the Contractor on 6 Nov 15.
Noise	N/A	N/A	N/A
Waste/ Chemical Management	19 Nov 15	<ul style="list-style-type: none"> Chemical container placed on ground without drip tray was observed at EWL7. The Contractor should store the chemical container with drip tray to retain leakage, if any. 	The item was rectified by the Contractor on 25 Nov 15.
	26 Nov 15	<ul style="list-style-type: none"> Oil stain was observed on paved ground at EWL7. The Contractor should implement proper measures to avoid oil leakage and remove the oil stain as chemical waste. 	The item was rectified by the Contractor on 30 Nov 15.
Landscape & Visual	N/A	N/A	N/A
Permits/ Licenses	12 Nov 15	<ul style="list-style-type: none"> No display of EP's copy was observed at the entrance of NSL7 and NSL3-5. The Contractor should display the latest EPs at every site entrance for public information. 	The item was rectified by the Contractor on 13 Nov 15.

- 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.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

- 7.1.1 All 24-hour TSP results were below the Action and Limit level at all monitoring locations in the reporting month.
- 7.1.2 No noise complaint during 0700 to 1900 hours on normal weekdays was received in the reporting month; hence, no Action Level exceedance was recorded.
- 7.1.3 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.
- 7.1.4 As the construction works that have been identified by the CNMMP to be potentially causing exceedance of noise criteria have not commenced during this reporting month, no continuous noise monitoring was carried out.

7.2 Summary of Environmental Non-Compliance

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

7.3 Summary of Environmental Complaints

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

7.4 Summary of Environmental Summon and Successful Prosecutions

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

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Project

Construction Programme for the Next Two Month

8.1.1 The major construction works in December 2015 and January 2016 will be:

Hung Hom Area

- Excavation works, slope work, cable detection/ hanger, excavation lateral support, form work erection, reinforcement fixing, concreting works, dismantling works,
- Construction of man hole, construction of noise enclosure footing,
- Trial trench, pilling works, grouting, pre-spilt, backfilling, pipe jacking,
- Erection of hoarding, scaffolding platform, erection of utility temporary supports, erection of temporary working platform,
- Tie back installation, lifting works, decking installation, excavation of jacking pit and receiving pit, subway underpinnings, temporary support for subway, tunnel structure,
- 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 December 2015 and January 2016 is provided in **Appendix F**.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

- 9.1.1 24-hour TSP and noise monitoring were carried out in the reporting month.
- 9.1.2 All 24-hour TSP monitoring results complied with the Action / Limit Level at in the reporting month.
- 9.1.3 No noise complaint during 0700 to 1900 hours on normal weekdays was received in the reporting month; hence, no Action Level exceedance was recorded.
- 9.1.4 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.
- 9.1.5 As the construction works that have been identified by the CNMMP to be potentially causing exceedance of noise criteria have not commenced during this reporting month, no continuous noise monitoring was carried out.
- 9.1.6 4 nos. of environmental site inspections were carried out in November 2015. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.
- 9.1.7 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

9.2 Recommendations

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

Air Quality Impact

- Implement effective measures to avoid dust impact.

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- No specific observation was identified in the reporting month.

Chemical/ Waste Management

- Provide proper chemical and waste management.

Landscape and Visual Impact

- No specific observation was identified in the reporting month.

Permits/Licenses

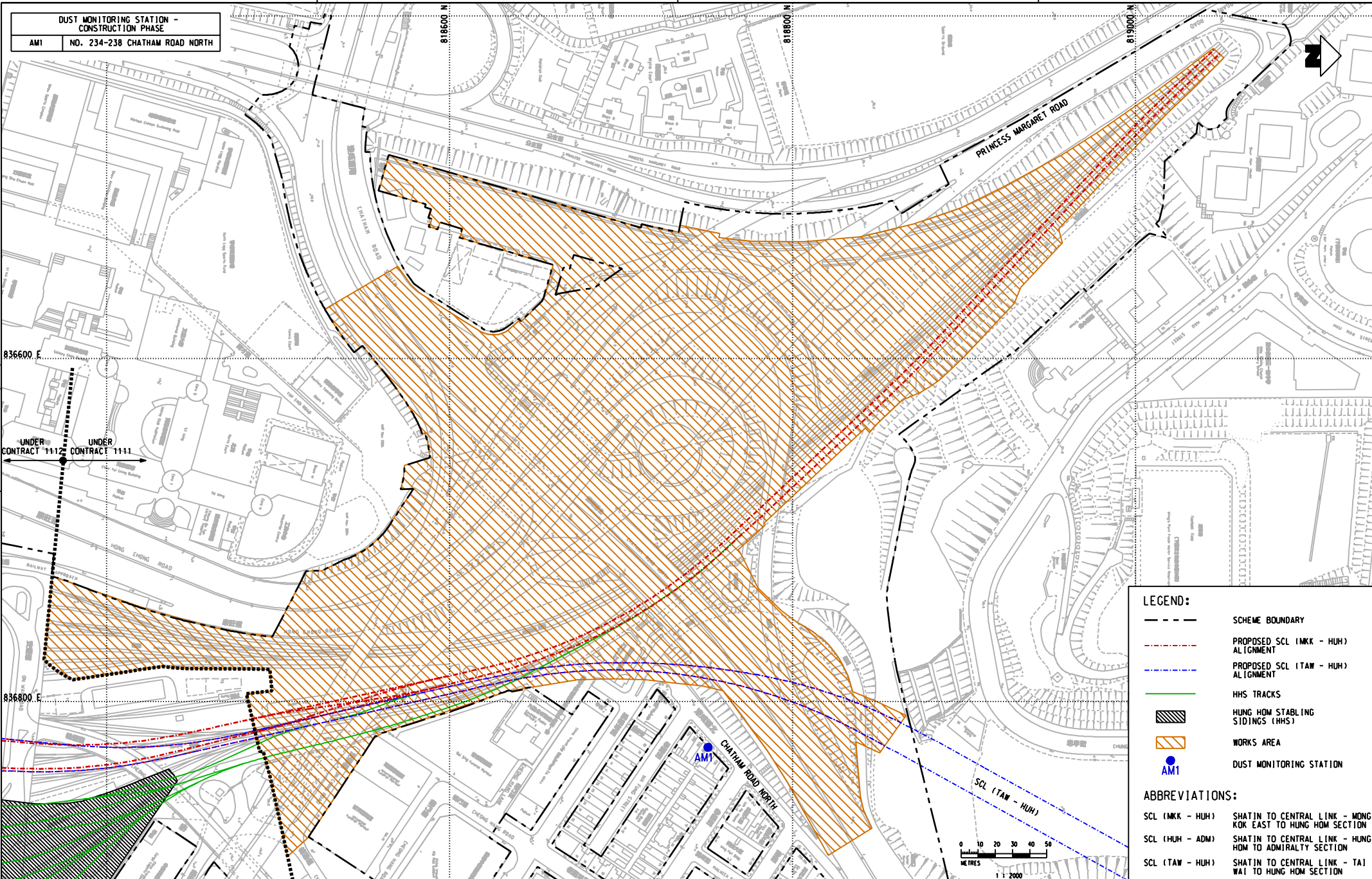
- Display relevant/update permit at every site entrances /exits for public information.

FIGURES

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

Map reproduced with permission of the Director of Lands, © Hong Kong Government

PLANNING AND DESIGN SERVICES LIMITED
PLOT DATE: 14/6
FILE NAME: M40-48

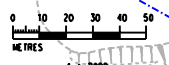


LEGEND:

- 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

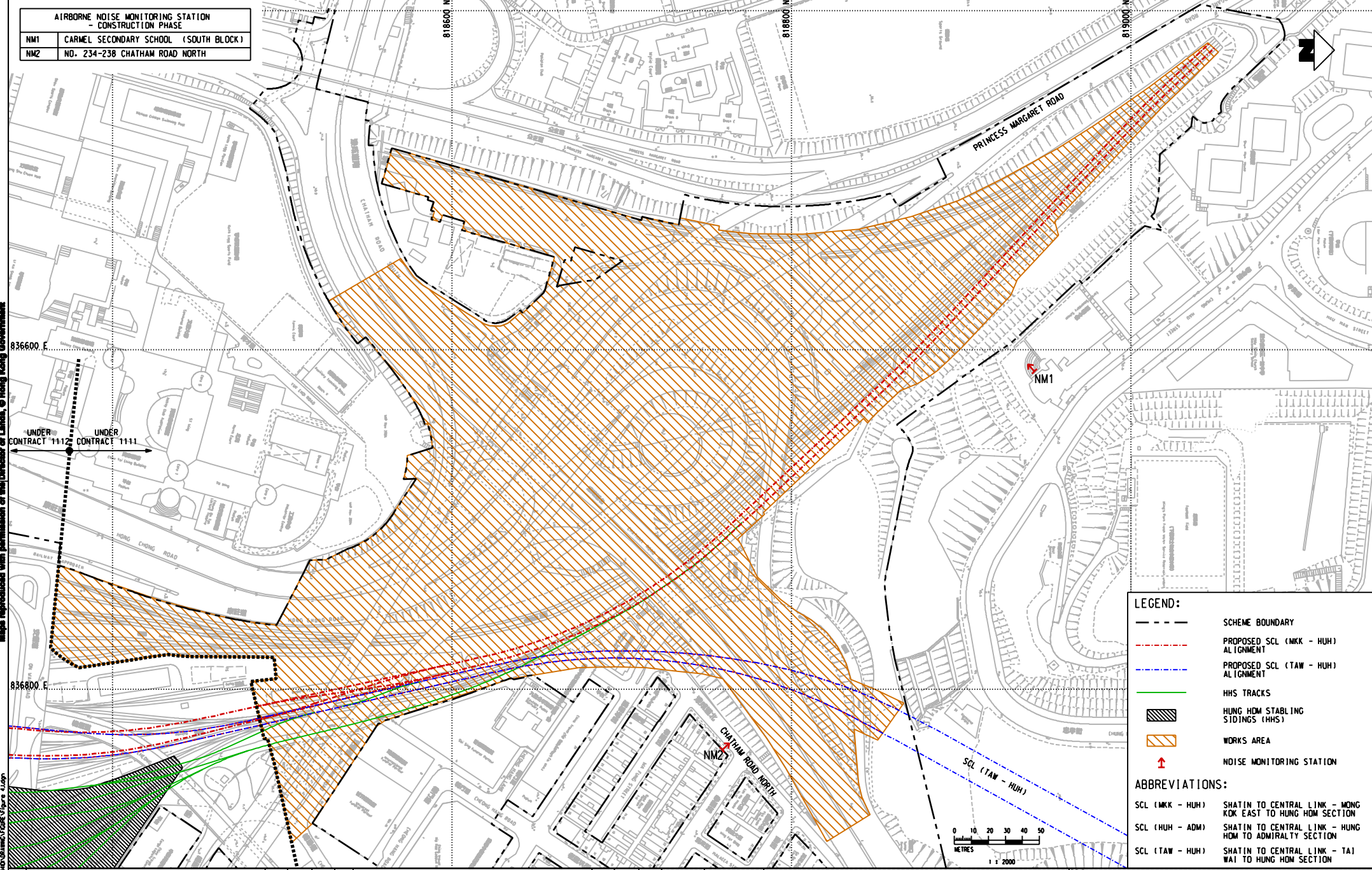


REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN: HD DESIGNED: L.C.L.L. CHECKED: L.C.L.L. APPROVED: (MNV) DATE: 08/JAN/2013		SHATIN TO CENTRAL LINK CONTRACTOR: Gammon Kaden ORIGINATOR: AECOM
<small>NO PART SHALL BE REPRODUCED, EITHER WHOLLY OR PARTIALLY, WITHOUT THE WRITTEN PERMISSION OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. THE CONTRACTOR SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THE INFORMATION CONTAINED HEREIN. THE CONTRACTOR SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES OR LOSSES OF ANY KIND, INCLUDING BUT NOT LIMITED TO, DIRECT, INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES, ARISING OUT OF OR IN CONNECTION WITH THE PERFORMANCE OF THE CONTRACT.</small>	CADD REF. Figure 2.1.dgn	TITLE CONTRACT 1111 HUNG HOM NORTH APPROACH TUNNELS LOCATION OF AIR QUALITY MONITORING STATION

SCALE: 1 : 2000 (A3)	FIGURE NO.: FIGURE 2.1	REV.:
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AIRBORNE NOISE MONITORING STATION - CONSTRUCTION PHASE	
NM1	CARMEL SECONDARY SCHOOL (SOUTH BLOCK)
NM2	NO. 234-238 CHATHAM ROAD NORTH

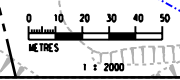


LEGEND:

- 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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 CHECKED: MTR
 APPROVED: MTR
 DATE: 08/JAN/2013

DATE	08/JAN/2013
APPROVED	(MTR)
CHECKED	(LCLL)
DESIGNED	(LCLL)
DRAWN	(HD)

MTR

SHATIN TO CENTRAL LINK

CONTRACTOR: Gammon Kaden Joint Venture




ORIGINATOR: **AECOM**

TITLE		CONTRACT 1111	
		HUNG HOM NORTH APPROACH TUNNELS	
		LOCATION OF NOISE MONITORING STATION (CONSTRUCTION PHASE)	
SCALE	1 : 2000 (A3)	FIGURE NO.	FIGURE 3.1
REV.		REV.	

APPENDIX A

Construction Programme

Activity Description	Start	Finish	2013												2014												2015												2016												2017																
			D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D	D	J	F	M	A	M	J	J	A	S	O	N	D
REPROVISIONING WORKS																																																																			
Commencement of Works	17/12/12																																																																		
Existing HUH Station Platform Level Works	14/01/13	26/01/14																																																																	
Mong Kok Freight Terminal Podium Level	14/01/13	25/08/13																																																																	
Poly U Railway Reserve & New Maintenance Sidings	01/04/13	26/01/14																																																																	
Inter City Crew Accomodation on HUH EWL Platform	14/01/13	24/08/14																																																																	
NSL/EWL TUNNEL																																																																			
NSL/EWL Area 3 Tunnel (early handover)	03/06/14*	04/09/15																																																																	
NSL/EWL Area 4 Tunnel	03/06/14*	22/02/16																																																																	
NSL/EWL Area 5 Tunnel	03/03/14*	20/01/16																																																																	
NSL/EWL Area 6 Tunnel	03/03/14*	07/03/16																																																																	
NSL TUNNEL																																																																			
NSL Area 7 Tunnel (inc CRN1 & Traffic Diversion)	30/05/14*	26/05/17																																																																	
NSL Area 8A Tunnel	04/06/13*	07/01/17																																																																	
TB1	13/05/13*	17/10/14																																																																	
TB2	04/06/13*	05/03/14																																																																	
NSL Area 8B Tunnel	13/06/14*	05/03/16																																																																	
NSL Area 9 Tunnel	01/12/14*	06/04/16																																																																	
Oi Sen Path Slope Works and Tunnel	14/02/13*	13/10/16																																																																	
Oi Sen Path Noise Enclosure	14/12/13*	09/03/16																																																																	
EWL TUNNEL																																																																			
EWL Area 6A Tunnel	15/02/13*	22/07/14																																																																	
EWL Areas 7&8 Tunnel	22/02/13*	27/02/16																																																																	
EWL Area 9 Tunnel (late possession)	15/06/15*	02/04/16																																																																	

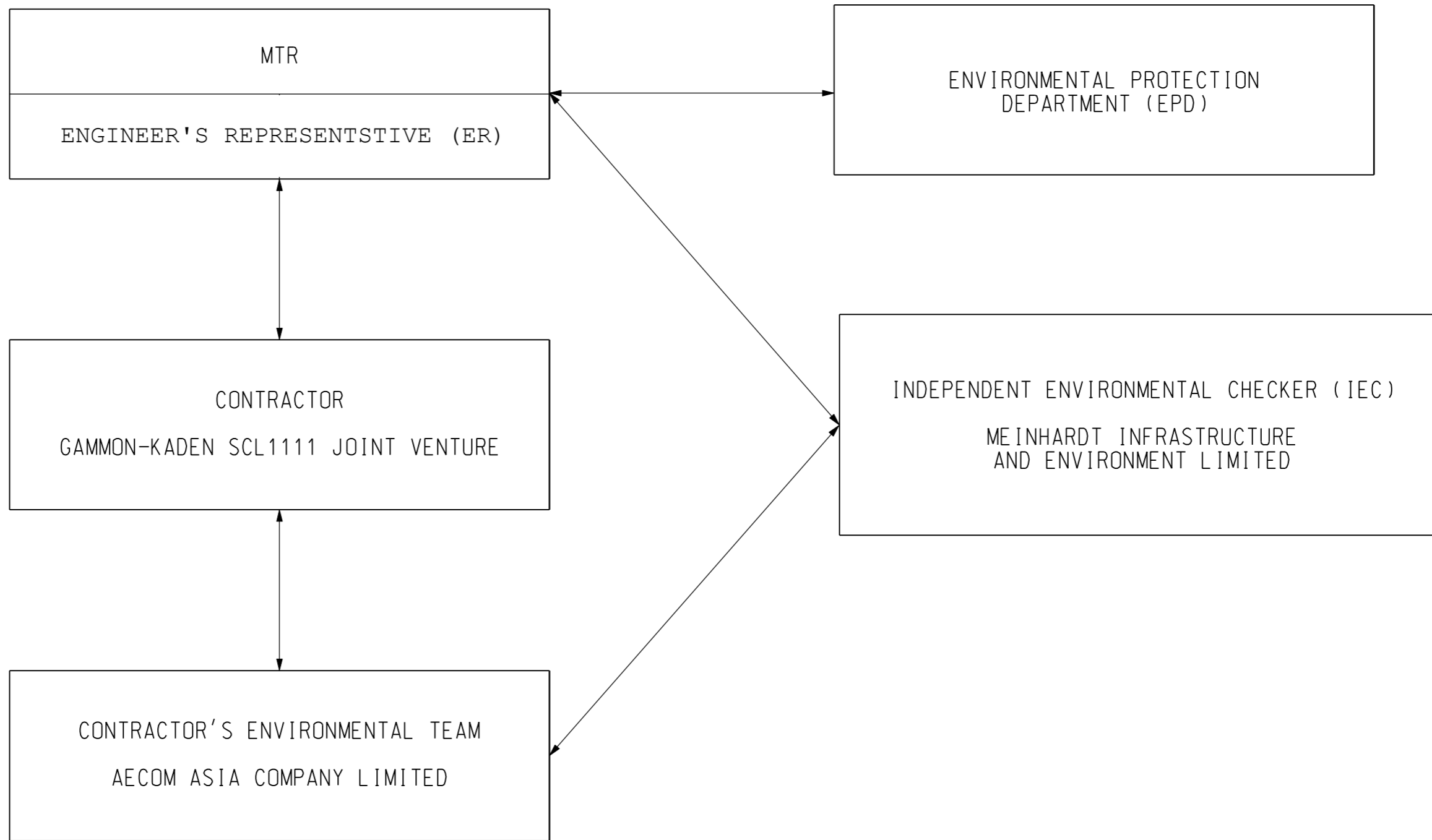
 Early Bar
 Progress Bar
 Critical Activity

**SCL 1111
SUMMARY PROGRAMME**

Date	Revision	Checked	Approved
19/09/12			

APPENDIX B

Project Organization Structure



PLOT DIR: V:\us\mset\MTR\PLTDRI\EN\WINDOWS\13 COL\016.dgn
 MODELNAME: P:\projects\13\028\40\DRAWING\Figure 12.dgn
 FILENAME: 17/2/10

DRAWN		HD			CONTRACTOR		ORIGINATOR		TITLE		
DESIGNED		LCLL			 Gammon - Kaden SCL 1111 Joint Venture				CONTRACT 1111		
CHECKED		LCLL			Appendix B				HUNG HOM NORTH APPROACH TUNNELS		
APPROVED		IMW							PROJECT ORGANISATION		
DATE		08/JAN/2013		CADD REF.		Appendix B		SCALE		FIGURE NO.	
								N.T.S.		Appendix B	
DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHALL BE VERIFIED ON SITE. <small>© MTR CORPORATION LIMITED 2008. COPYRIGHT IN RESPECT OF THIS DRAWING / DOCUMENT IS OWNED BY THE MTR CORPORATION LIMITED OF HONG KONG. NO REPRODUCTION OF THE DRAWING / DOCUMENT OR ANY PART BY WHATEVER MEANS IS PERMITTED WITHOUT THE PRIOR WRITTEN CONSENT OF THE MTR CORPORATION LIMITED.</small>										REV. -	
REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED		

APPENDIX C

**Implementation Schedule of Environmental Mitigation
Measures**

Appendix C - Implementation Schedule of Environmental Mitigation Measures

EIA Ref.	Environmental Mitigation Measures	Location	Implementation Status	
Landscape and Visual Impact				
S6.9.3 (TAW-HUH) , S6.12 (HHS), S6.12 (TAW-HUH), Table 6.9 (HHS) & Table 4.9 (MKK-HUH)	Minimize visual & landscape impact	<ul style="list-style-type: none"> Existing topsoil shall be re-used where possible for new planting areas within the Project. 	All construction sites	N/A
		<ul style="list-style-type: none"> Ground vegetation and the associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. 	All construction sites	N/A
		<ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. 	All construction sites	V
		<ul style="list-style-type: none"> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. 	All construction sites	V
		<ul style="list-style-type: none"> Giving control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. 	All construction sites	V
		<ul style="list-style-type: none"> Trees of medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable. 	All construction sites	N/A
		<ul style="list-style-type: none"> Compensatory tree & shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas. 	All construction sites	N/A
		<ul style="list-style-type: none"> Control of night-time lighting glare. 	All construction sites	N/A
		<ul style="list-style-type: none"> All hard and soft landscape areas disturbed temporarily during construction shall be reinstated to equal or better quality, to the satisfaction of the relevant Government Departments. 	All construction sites	N/A

Construction Noise Impact				
8.3.6 (TAW-HUH) , S8.5.6 (HHS) & S6 (MKK-HUH)	To control construction airborne noise	<ul style="list-style-type: none"> Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme. 	All construction sites	V
		<ul style="list-style-type: none"> Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. 	All construction sites	V
		<ul style="list-style-type: none"> Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs. 	All construction sites	V
		<ul style="list-style-type: none"> Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works. 	All construction sites	V
		<ul style="list-style-type: none"> Mobile plant should be sited as far away from NSRs as possible and practicable. 	All construction sites	V
		<ul style="list-style-type: none"> Material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	All construction sites	V
		<p>The following quiet PME should be used:</p> <ul style="list-style-type: none"> Asphalt Paver (SWL=101dB(A)) Backhoe (SWL=106dB(A)) Backhoe with Hydraulic Breaker (SWL=110dB(A)) Concrete lorry mixer (SWL=96dB(A)) Concrete mixer truck (SWL=96dB(A)) Concrete Pump (SWL=106dB(A)) Concrete Pump Truck (SWL=106dB(A)) Crane, mobile (SWL=94dB(A)) Crawler Crane (SWL=102dB(A)) Drill, hand-held (SWL=98dB(A)) Dump truck (SWL=104dB(A)) Excavator (SWL=106dB(A)) Flat Bed Lorry (SWL=102dB(A)) Generator (SWL=95dB(A)) Giken Piler and Power-pack (SWL=94dB(A)) Hydraulic breaker (SWL=110dB(A)) 	Works areas where required	N/A

Construction Noise Impact				
		<ul style="list-style-type: none"> • Hydraulic excavator (SWL=106dB(A)) • Lorry (SWL=102dB(A)) • Lorry with crane/ grab (SWL=94dB(A)) • Mini Piling Rig (SWL=112dB(A)) • Piling Rig (SWL=112dB(A)) • Poker, vibrator, hand-held (SWL=98dB(A)) • Road Roller (SWL=101dB(A)) • Rock Drill (SWL = 108dB(A)) • Roller (SWL = 101dB(A)) • Truck (SWL=103dB(A)) • Vibratory Hammer (SWL=118dB(A)) 		
		• Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs.	All construction sites	√
		• Install movable noise barriers, acoustic mat or full enclosure, screen the noisy plants	All construction sites	√
		• Sequencing operation of construction plants where practicable.	All construction sites	√
		• Particularly noisy construction activities will be scheduled to avoid school examination period as far as practicable.	Works areas near the Carmel Secondary School	√

Construction Air Quality Impact				
S7.6.5 (TAW-HUH) , S7.6.6 (HHS), S5.50, 5.51 &5.57 (MKK-HUH)	Minimize dust impact at nearby sensitive receivers	<ul style="list-style-type: none"> Watering once per hour on exposed worksites and haul road should be conducted to achieve dust removal efficiencies of 91.7%. 	All construction sites	@
		<ul style="list-style-type: none"> Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet. 	All construction sites	V
		<ul style="list-style-type: none"> Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads 	All construction sites	V
		<ul style="list-style-type: none"> A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones. 	All construction sites	V
		<ul style="list-style-type: none"> The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle 	All construction sites	N/A
		<ul style="list-style-type: none"> Vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. 	All construction sites	V
		<ul style="list-style-type: none"> The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores. 	All construction sites	V
		<ul style="list-style-type: none"> When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided. 	All construction sites	V
		<ul style="list-style-type: none"> The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials. 	All construction sites	V
		<ul style="list-style-type: none"> Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously. 	All construction sites	V
		<ul style="list-style-type: none"> Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet. 	All construction sites	N/A
		<ul style="list-style-type: none"> Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building. 	All construction sites	V

Construction Air Quality Impact				
		<ul style="list-style-type: none"> Any skip hoist for material transport should be totally enclosed by impervious sheeting. 	All construction sites	N/A
		<ul style="list-style-type: none"> Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs. 	All construction sites	N/A
/	Minimize dust impact at nearby sensitive receivers	<ul style="list-style-type: none"> Every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. 	All construction sites	V
		<ul style="list-style-type: none"> Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed. 	All construction sites	N/A
		<ul style="list-style-type: none"> Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system. 	All construction sites	V
		<ul style="list-style-type: none"> Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site. 	All construction sites	N/A
		<ul style="list-style-type: none"> Imposition of speed controls for vehicles on site haul roads. 	All construction sites	N/A
		<ul style="list-style-type: none"> Open burning shall be prohibited. 	All construction sites	V
/	Emission from Vehicles and Plants	<ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. 	All construction sites	V
		<ul style="list-style-type: none"> Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. 	All construction sites	V
		<ul style="list-style-type: none"> All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD). 	All construction sites	V

Construction Water Quality Impact				
S10.7.1 (TAW-HUH) , S10.7.1 (HHS) & S8 (MKK-HUH)	To minimize construction water quality impactt	<ul style="list-style-type: none"> Construction Site Drainage should be implemented to control site run-off and drainage as well as any site effluents generated from the works areas, and to prevent run-off and construction wastes from entering nearby water environment. 	Site drainage system	V
		<ul style="list-style-type: none"> Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. 	Site drainage system	V
		<ul style="list-style-type: none"> Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. 	All works area	V
		<ul style="list-style-type: none"> Perimeter channels at site boundaries should be provided on site boundaries where necessary to intercept storm run-off from outside the site so that it will not wash across the site. 	All works area	V
		<ul style="list-style-type: none"> Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly. 	All construction sites	V
		<ul style="list-style-type: none"> Construction works should be programmed to minimize soil excavation works in rainy seasons. 	All construction sites	N/A
		<ul style="list-style-type: none"> Temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. 	All construction sites	V
		<ul style="list-style-type: none"> Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. 	All construction sites	N/A
		<ul style="list-style-type: none"> Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms. 	All construction sites	V
		<ul style="list-style-type: none"> Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. 	All construction sites	V

Construction Water Quality Impact				
		<ul style="list-style-type: none"> Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. 	All construction sites	V
		<ul style="list-style-type: none"> Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. 	All construction sites	V
		<ul style="list-style-type: none"> All vehicles and plant should be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. 	All construction sites	V
		<ul style="list-style-type: none"> Bentonite slurries used in diaphragm wall construction should be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry should either be dewatered or mixed with inert fill material for disposal to a public filling area. 	All construction sites	V
		<ul style="list-style-type: none"> A cofferdam wall should be built as necessary to limit groundwater inflow to the excavation works areas. 	Excavation works areas	N/A
		<ul style="list-style-type: none"> Wastewater generated should not be discharged into the stormwater drainage system. 	All construction sites	V
		<ul style="list-style-type: none"> Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. 	All construction sites	N/A
		<ul style="list-style-type: none"> Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site. 	All construction sites	V
		<ul style="list-style-type: none"> The Contractor should apply for a discharge license under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater. 	All construction sites where practicable	N/A
		<ul style="list-style-type: none"> Appropriate measures will be deployed to minimize the intrusion of groundwater into excavation works areas. 	All construction sites	N/A
		<ul style="list-style-type: none"> Measures should be put in place in order to mitigate any drawdown effects to the groundwater table during the operation of the temporary dewatering works. 	All construction sites	N/A

Waste Management				
S11.5.1 (TAW-HUH), S11.5.1(HHS) & S9 (MKK-HUH)	Good site practice to minimize the generation and impact of the waste.	<ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement. 	All construction sites	N/A
		<ul style="list-style-type: none"> Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions. 	All construction sites	V
		<ul style="list-style-type: none"> Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. 	All construction sites	V
		<ul style="list-style-type: none"> Proper storage and site practices to minimize the potential for damage or contamination of construction materials. 	All construction sites	@
		<ul style="list-style-type: none"> Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste. 	All construction sites	N/A
		<ul style="list-style-type: none"> Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution. 	All construction sites	V
		<ul style="list-style-type: none"> Maintain and clean storage areas routinely. 	All construction sites	V
		<ul style="list-style-type: none"> Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away. 	All construction sites	V
		<ul style="list-style-type: none"> Waste should be removed in timely manner. 	All construction sites	V
		<ul style="list-style-type: none"> Waste collectors should only collect wastes prescribed by their permits. 	All construction sites	V
		<ul style="list-style-type: none"> Waste should be disposed of at licensed waste disposal facilities. 	All construction sites	V
		<ul style="list-style-type: none"> Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified. 	All construction sites	V
		<ul style="list-style-type: none"> Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed. 	All construction sites	V
		<ul style="list-style-type: none"> The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides. 	All construction sites	V
		<ul style="list-style-type: none"> The Contractor should register as a chemical waste producer if chemical wastes would be generated. 	All construction sites	V
<ul style="list-style-type: none"> Disposal of chemical waste should be via a licensed waste collector. 	All construction sites	V		

Waste Management				
		<ul style="list-style-type: none"> Stockpiling of contaminated sediments should be avoided as far as possible. 	All construction sites	N/A
		<ul style="list-style-type: none"> All storage of asbestos waste should be carried out properly in a secure place isolated from other substances so as to prevent any possible release of asbestos fibres into the atmosphere and contamination of other substances. The storage area should bear warning panels to alert people of the presence of asbestos waste. Collection, transportation and disposal of asbestos waste should follow the trip-ticket system. Licensed asbestos waste collectors should be appointed to collect the asbestos waste and deliver to the designated landfill for disposal. 	All construction sites	N/A

Contaminated Land				
S10.24– 10.34 (MKK-HUH)	To act as a general precautionary measure to screen soils for the presence of contamination during construction.	<ul style="list-style-type: none"> Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. 	Within Project Boundary where signs of contamination is identified	N/A
		<ul style="list-style-type: none"> If soil discolouration or the presence of oil/unnatural odour is noted during visual inspection, sampling and testing should also be undertaken to verify the presence of contamination. 		N/A
	To remediate contaminated soil	<ul style="list-style-type: none"> If land contamination is identified, CAR and RAP detailing the proposed remediation works should be prepared. RR should then be prepared and submitted to EPD to demonstrate that the decontamination work is adequate and has been carried out in accordance with the endorsed CAR and RAP. 		N/A

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

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels**Table 1 Action and Limit Levels for 24-hour TSP**

ID	Location	Action Level	Limit Level
AM1	No. 234 – 238 Chatham Road North	183.9 $\mu\text{g}/\text{m}^3$	260.0 $\mu\text{g}/\text{m}^3$

Table 2 Action and Limit Levels for Regular Construction Noise (0700 – 1900 hrs of normal weekdays)

ID	Location	Action Level	Limit Level
NM1	Carmel Secondary School (South Block)	When one documented complaint, related to 0700 – 1900 hours on normal weekdays, is received from any one of the sensitive receivers.	65 / 70 dB(A) ⁽¹⁾
NM2	No. 234 – 238 Chatham Road North		75 dB(A)

Note:

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

Table 3 Action and Limit Levels for Continuous Noise

ID	Location	Action/Limit Level
NM1	Carmel Secondary School (South Block)	68 dB(A) ⁽¹⁾
NM2	No. 234-238 Chatham Road North	77 dB(A)

Note:

(1) Action/Limit level will only be applicable during the examination period.

APPENDIX E

Calibration Certificates of Equipments

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: 26-Oct-15 Next Due Date: 26-Dec-15
 Equipment No.: --- Serial No.: 8259

Ambient Condition			
Temperature, Ta (K)	299	Pressure, Pa (mmHg)	761.3

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99924	Intercept, bc	-0.01238
Last Calibration Date:	9-Dec-14	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	9-Dec-15				

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (m ³ /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	7.4	2.72	1.37	43.0	42.96
13	5.8	2.41	1.21	35.0	34.97
10	4.9	2.21	1.11	30.0	29.98
7	4.0	2.00	1.01	25.0	24.98
5	3.1	1.76	0.89	18.0	17.99

By Linear Regression of Y on X

Slope, mw = 51.5483 Intercept, bw = -27.3523

Correlation Coefficient* = 0.9990

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]^{1/2} = 39.69

Remarks: _____

QC Reviewer: WIS CHAN

Signature: 

Date: 26/10/15



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 09, 2014 Rootmeter S/N 0438320 Ta (K) - 293
 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	ORIFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4010	3.2	2.00
2	NA	NA	1.00	0.9950	6.4	4.00
3	NA	NA	1.00	0.8830	7.9	5.00
4	NA	NA	1.00	0.8420	8.8	5.50
5	NA	NA	1.00	0.6960	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0069	0.7187	1.4221	0.9957	0.7107	0.8806
1.0027	1.0077	2.0112	0.9915	0.9965	1.2454
1.0006	1.1332	2.2486	0.9894	1.1206	1.3924
0.9994	1.1870	2.3584	0.9883	1.1738	1.4603
0.9942	1.4285	2.8443	0.9831	1.4126	1.7612
Qstd slope (m) = 1.99924			Qa slope (m) = 1.25189		
intercept (b) = -0.01238			intercept (b) = -0.00766		
coefficient (r) = 0.99990			coefficient (r) = 0.99990		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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



CERTIFICATE OF CALIBRATION

Certificate No.: 15CA0317 03 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	,	2791211
Adaptors used:	-	,	-

Item submitted by

Customer Name: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 17-Mar-2015

Date of test: 18-Mar-2015

Reference equipment used in the calibration

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

Ambient conditions

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

Test specifications

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

Test results

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

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

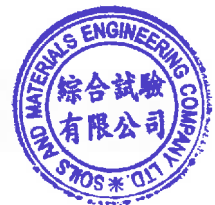
Actual Measurement data are documented on worksheets.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 19-Mar-2015

Company Chop:



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



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA0317 03 Page 2 of 2

1, Electrical Tests

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

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

2, Acoustic tests

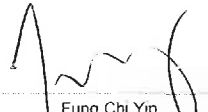
The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

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

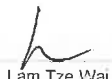
3, Response to associated sound calibrator

N/A

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

Calibrated by: 
Date: 18-Mar-2015

- End -

Checked by: 
Date: 19-Mar-2015

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



CERTIFICATE OF CALIBRATION

Certificate No.: 15CA0703 02-02 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2800927	,	2791214
Adaptors used:	-	,	-

Item submitted by

N-009 06
Customer Name: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 03-Jul-2015

Date of test: 04-Jul-2015

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	19-Jun-2016	CIGISMEC
Signal generator	DS 360	33873	16-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1000 ± 5 hPa

Test specifications

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

Test results

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

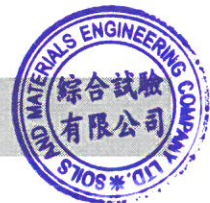
Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

Date: 06-Jul-2015

Company Chop:



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



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA0703 02-02 Page 2 of 2

1, Electrical Tests

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

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

2, Acoustic tests

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

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

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by:

Date: 04-Jul-2015

Fung Chi Yip

Checked by:

Date: 06-Jul-2015

Lam Tze Wai

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



CERTIFICATE OF CALIBRATION

Certificate No.: 15CA0703 02-01 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.:	2800930	,	2250455
Adaptors used:	-	,	-

Item submitted by

Customer Name: AECOM ASIA CO., LTD. *N:009.07*
Address of Customer: -
Request No.: -
Date of receipt: 03-Jul-2015

Date of test: 04-Jul-2015

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	19-Jun-2016	CIGISMEC
Signal generator	DS 360	33873	16-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1000 ± 5 hPa

Test specifications

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


Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 06-Jul-2015

Company Chop:



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



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA0703 02-01 Page 2 of 2

1, Electrical Tests

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

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

2, Acoustic tests

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

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

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by:

Fung Chi Yip
Date: 04-Jul-2015

Checked by:

Lam Tze Wai
Date: 06-Jul-2015

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



CERTIFICATE OF CALIBRATION

Certificate No.: 15CA0422 02

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Rion Co., Ltd.
Type/Model No.: NC-74
Serial/Equipment No.: 34246490
Adaptors used: Yes (N-004.10)

Item submitted by

Customer: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 22-Apr-2015

Date of test: 28-Apr-2015

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	15-Apr-2016	SCL
Preamplifier	B&K 2673	2239857	22-Apr-2016	CEPREI
Measuring amplifier	B&K 2610	2346941	22-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI
Digital multi-meter	34401A	US36087050	17-Apr-2016	CEPREI
Audio analyzer	8903B	GB41300350	17-Apr-2016	CEPREI
Universal counter	53132A	MY40003662	16-Apr-2016	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1005 ± 5 hPa

Test specifications

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

Test results

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

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

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 29-Apr-2015

Company Chop:



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



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA0422 02

Page: 2 of 2

1, Measured Sound Pressure Level

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

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	(Output level in dB re 20 μ Pa)
			Estimated Expanded Uncertainty dB
1000	94.00	94.27	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz **STF = 0.002 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz **Actual Frequency = 1001.9 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz **TND = 1.3 %**

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by:

Fung Chi Yip

Date: 28-Apr-2015

Checked by:

Lam Tze Wai

Date: 29-Apr-2015

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

APPENDIX F

EM&A Monitoring Schedules

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels
Impact Monitoring Schedule for November 2015**

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

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels
Tentative Impact Monitoring Schedule for December 2015**

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

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

**Shatin to Central Link Contract 1111 - Hung Hom North Approach Tunnels
Tentative Impact Monitoring Schedule for January 2016**

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

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

APPENDIX G

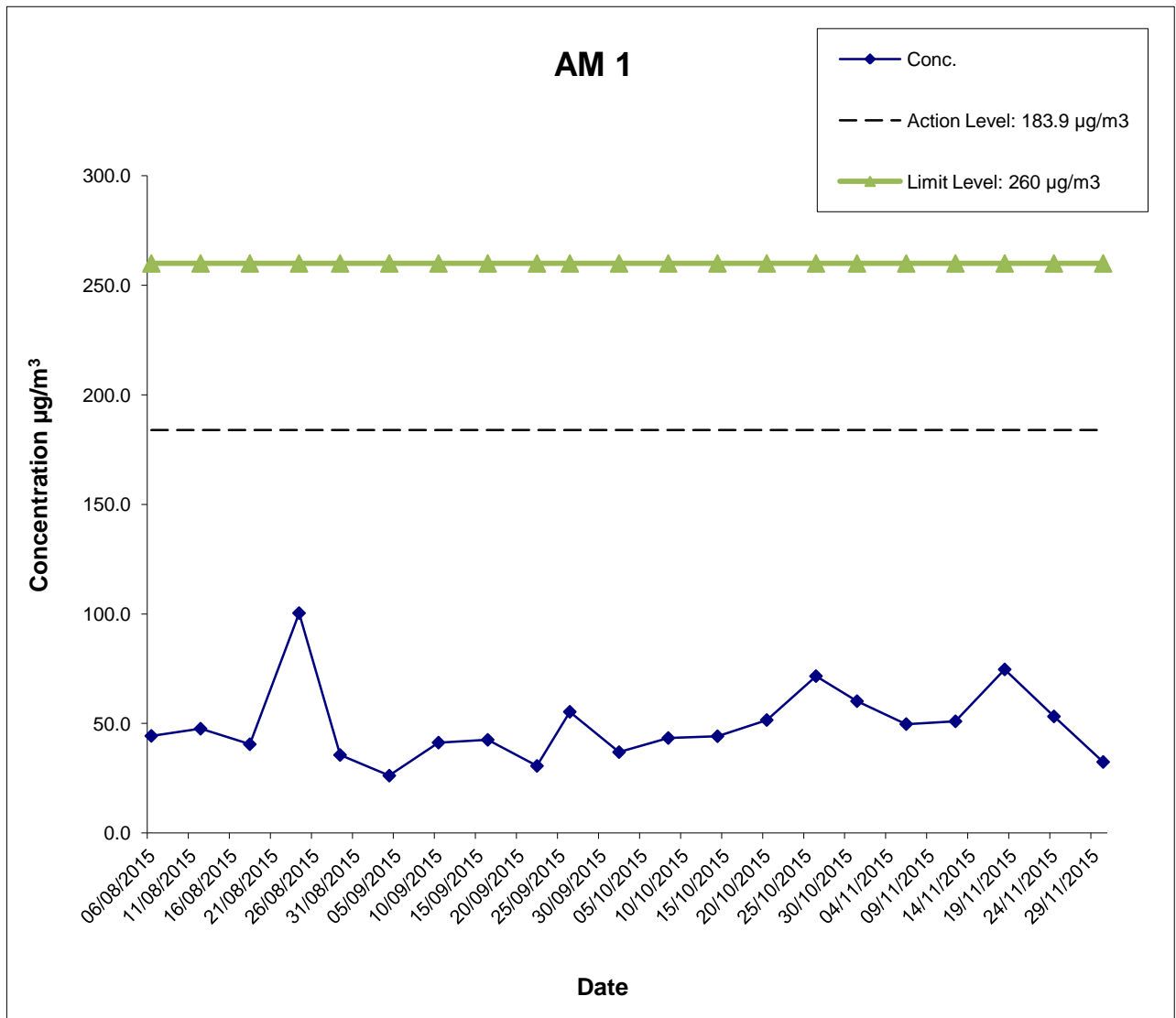
**Air Quality Monitoring Results and
their Graphical Presentations**

**Appendix G
Air Quality Monitoring Results**

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

Start		End		Weather Condition	Air Temp. (°C)	Atmospheric Pressure (hPa)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)
Date	Time	Date	Time				Initial	Final			Initial	Final		Initial	Final		
6-Nov-15	0:00	7-Nov-15	0:00	Cloudy	25.5	1015.6	1.31	1.31	1.31	1890.7	2.8237	2.9177	0.0940	11084.04	11108.04	24.00	49.7
12-Nov-15	0:00	13-Nov-15	0:00	Fine	23.9	1017.3	1.31	1.31	1.31	1890.7	2.8250	2.9214	0.0964	11108.04	11132.04	24.00	51.0
18-Nov-15	0:00	19-Nov-15	0:00	Sunny	26.1	1016.0	1.31	1.31	1.31	1890.7	2.8287	2.9699	0.1412	11132.04	11156.04	24.00	74.7
24-Nov-15	0:00	25-Nov-15	0:00	Sunny	24.5	1016.7	1.31	1.31	1.31	1890.7	2.7930	2.8936	0.1006	11156.04	11180.04	24.00	53.2
30-Nov-15	0:00	1-Dec-15	0:00	Sunny	22.4	1018.9	1.31	1.31	1.31	1890.7	2.8485	2.9098	0.0613	11180.04	11204.04	24.00	32.4
																Average	52.2
																Minimum	32.4
																Maximum	74.7

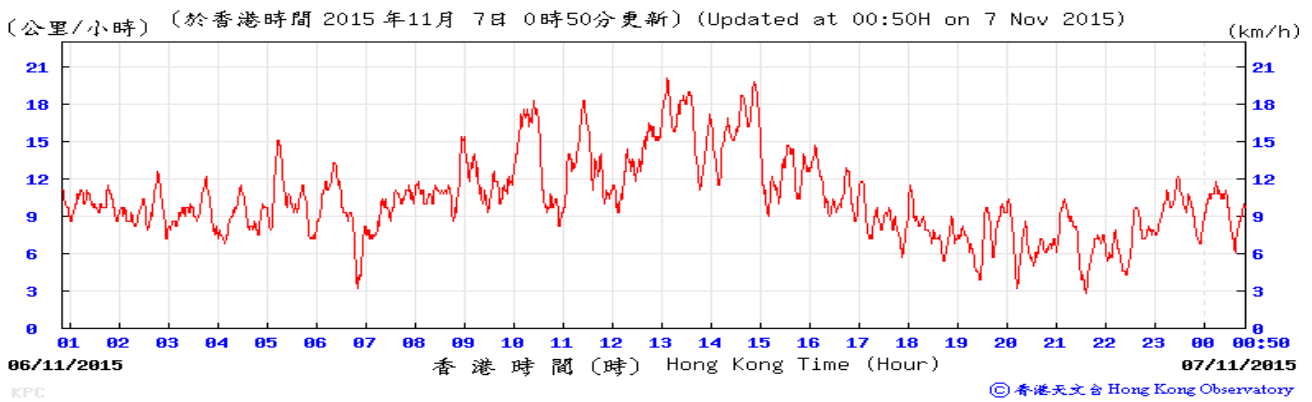
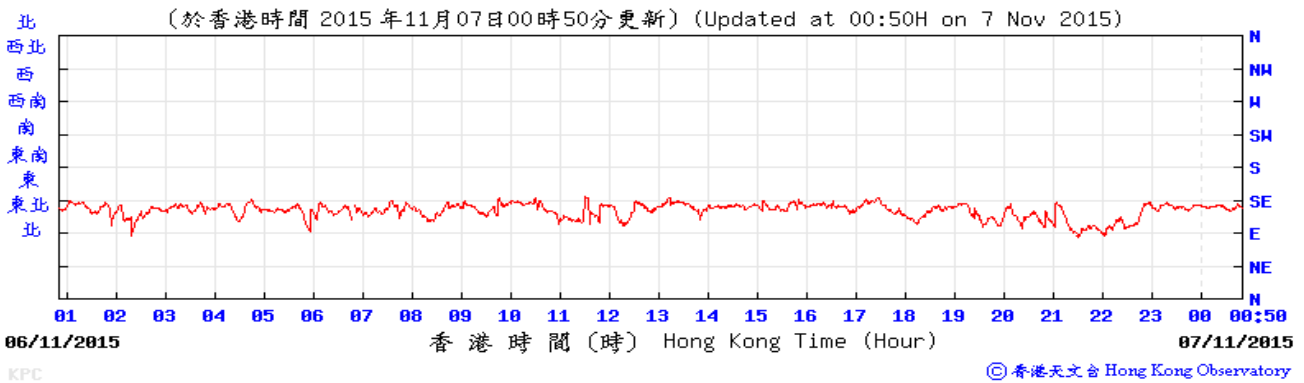
Appendix G Air Quality Monitoring Results



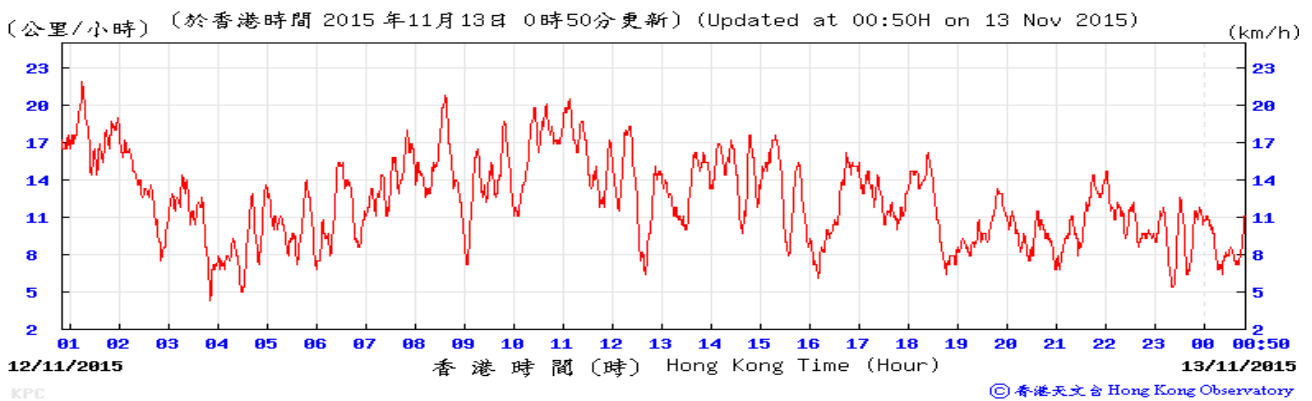
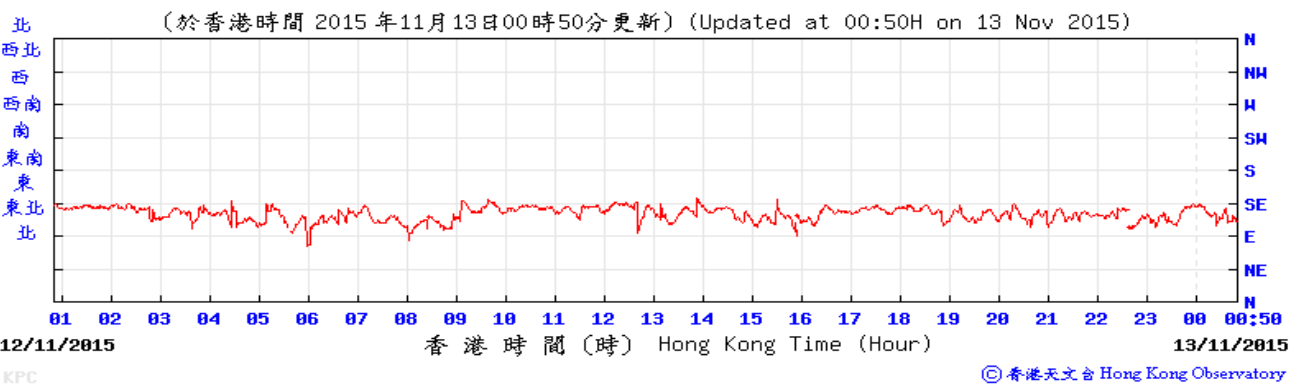
	Shatin to Central Link Works Contract 1111- Hung Hom North Approach Tunnels	SCALE	N.T.S.	DATE	Dec-15
	Graphical Presentations of Impact 24-hour TSP Monitoring Results	CHECK	TYUT	DRAWN	LLMC
		JOB NO.	60284101	APPENDIX No. G	Rev. -

Appendix G – Extract of Meteorological Observations for King's Park Automatic Weather Station, November 2015

6-Nov-15

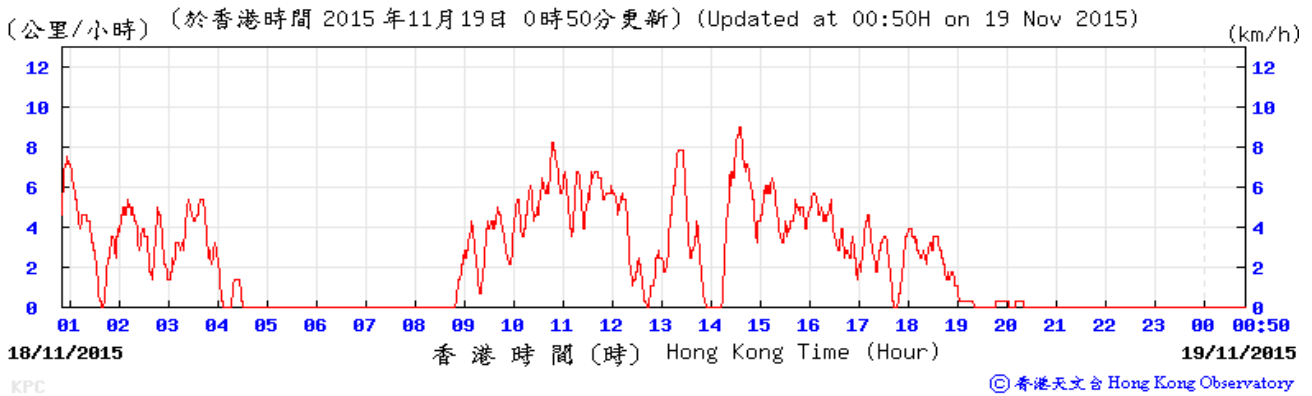
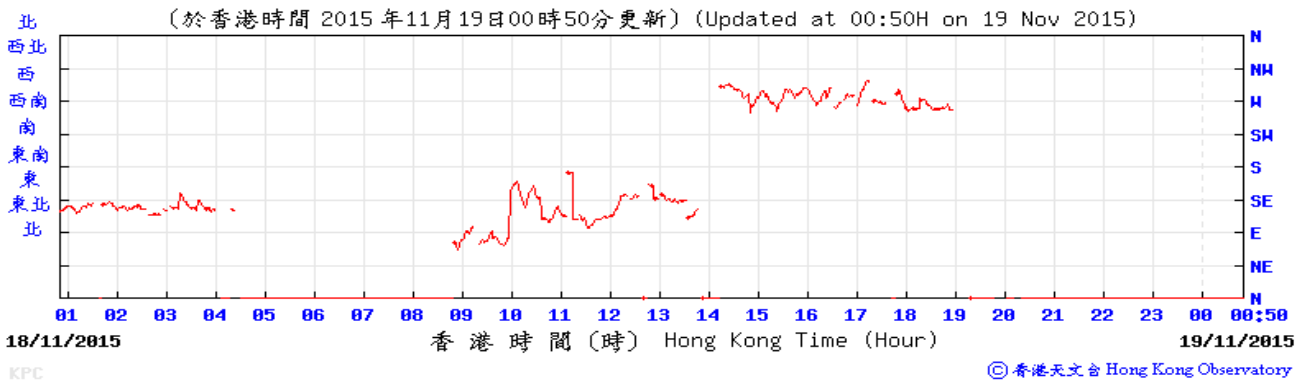


12-Nov-15

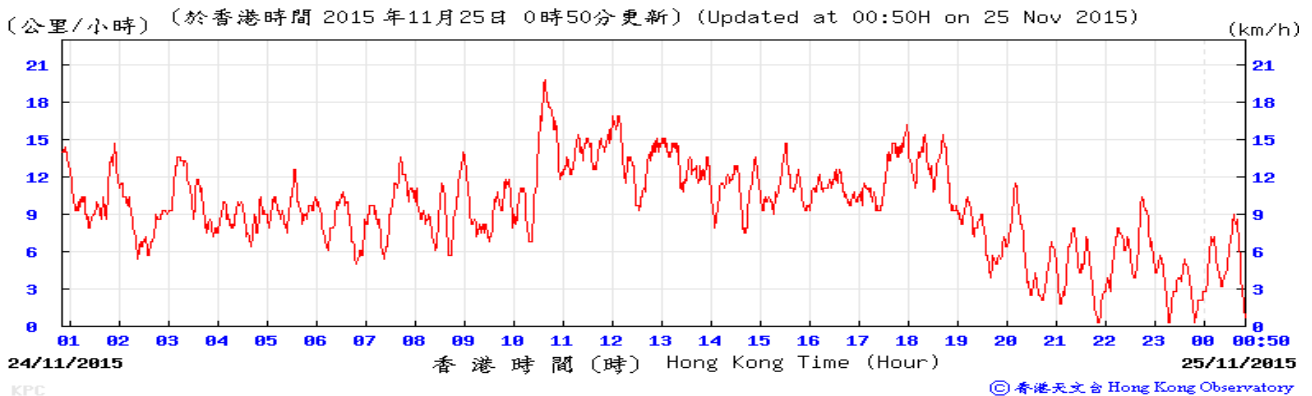
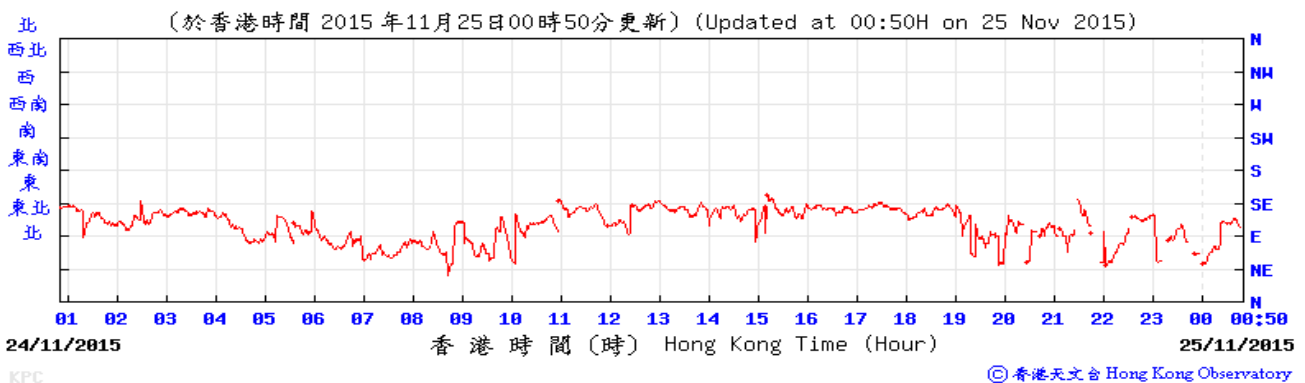


Appendix G – Extract of Meteorological Observations for King's Park Automatic Weather Station, November 2015

18-Nov-15



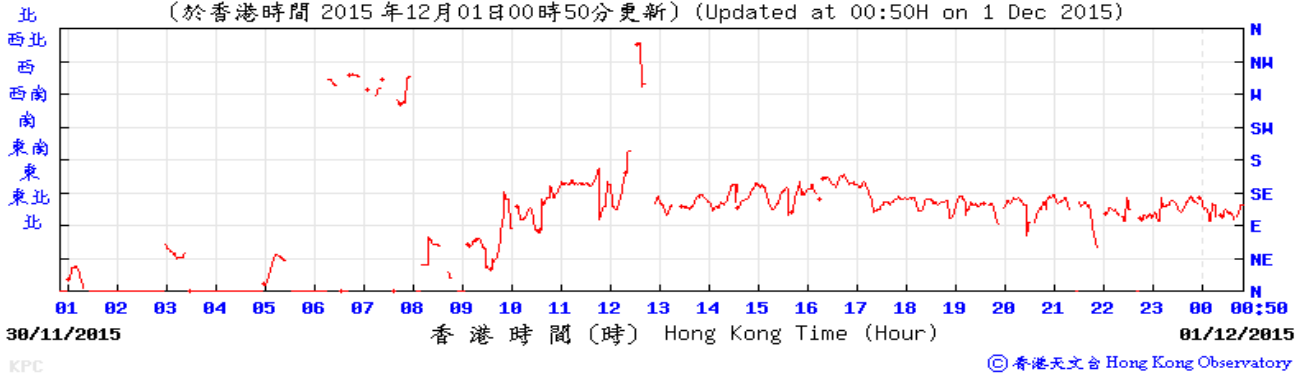
24-Nov-15



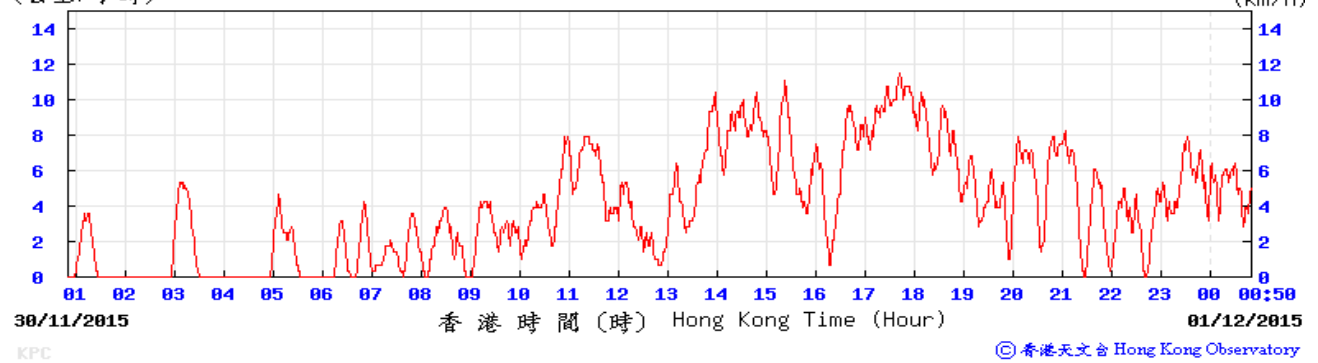
Appendix G – Extract of Meteorological Observations for King's Park Automatic Weather Station, November 2015

30-Nov-15

(於香港時間 2015 年12月01日00時50分更新) (Updated at 00:50H on 1 Dec 2015)



(公里/小時) (於香港時間 2015 年12月 1日 0時50分更新) (Updated at 00:50H on 1 Dec 2015) (km/h)



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				
2-Nov-15	Sunny	14:00	61.2	67.9	64.1	<Baseline	68.0	70	N
13-Nov-15	Sunny	10:25	63.5	68.5	66.8	<Baseline	68.0	70	N
19-Nov-15	Sunny	9:58	65.6	70.0	68.2	54.7	68.0	70	N
25-Nov-15	Sunny	10:00	65.5	69.0	66.9	<Baseline	68.0	70	N

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

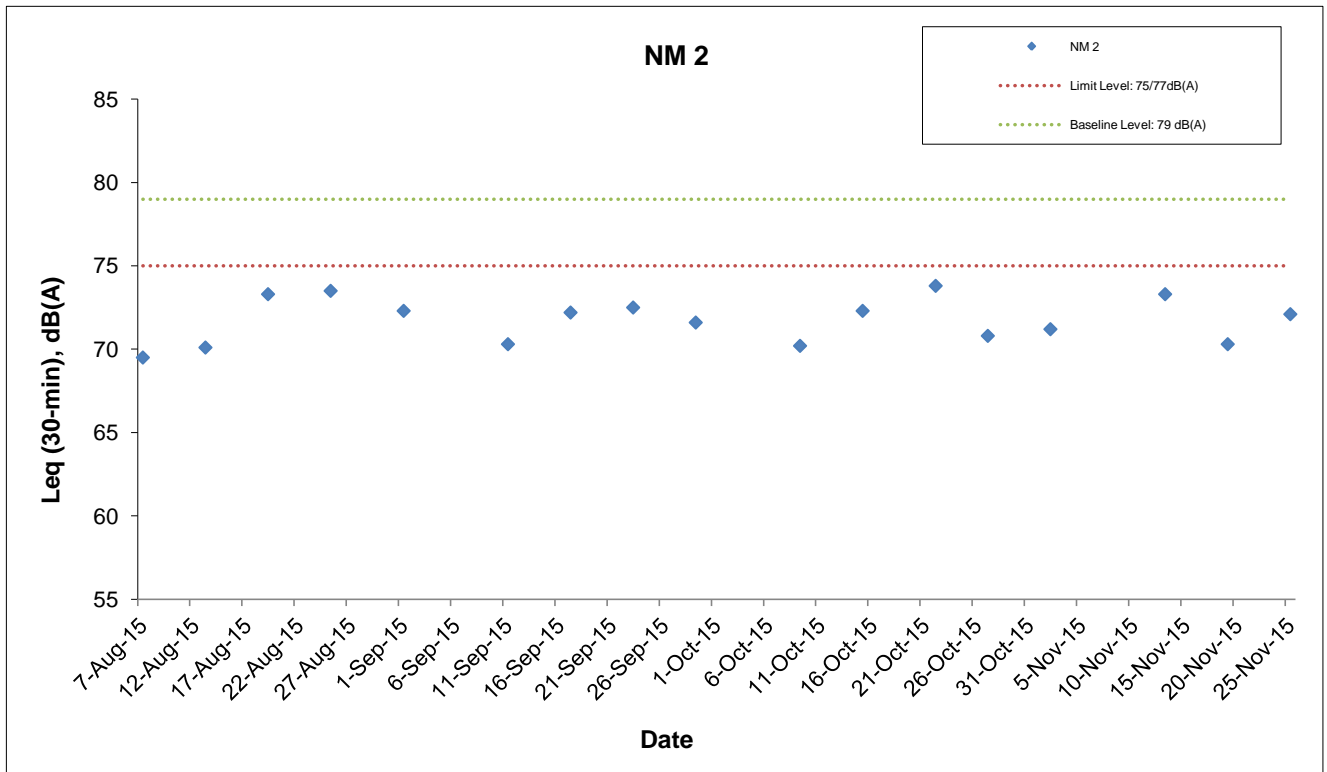
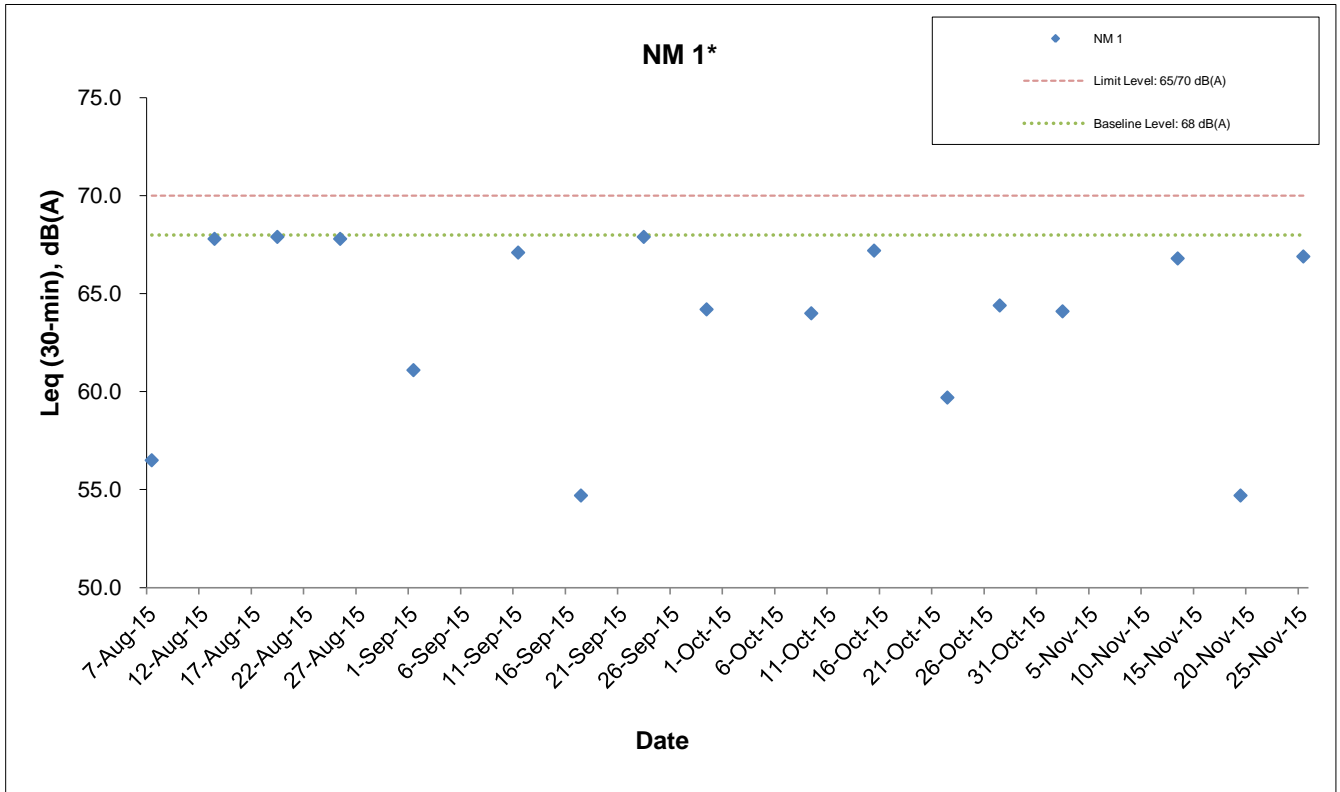
Date	Weather Condition	Noise Level for 30-min, dB(A) ⁺⁺				Baseline Corrected Level, dB(A)	Baseline Noise Level, dB(A)	Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
2-Nov-15	Sunny	14:50	68.4	74.9	71.2	<Baseline	79.0	75	N
13-Nov-15	Sunny	11:15	70.0	75.0	73.3	<Baseline	79.0	75	N
19-Nov-15	Sunny	10:49	68.8	72.9	70.3	<Baseline	79.0	75	N
25-Nov-15	Sunny	11:00	70.5	73.5	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	Dec-15
	Graphical Presentations of Noise Monitoring Results	CHECK	TYUT	DRAWN	LLMC
		JOB NO.	60284101	APPENDIX	H

APPENDIX I

Event Action Plan

Appendix I – Event and Action Plan

Event / Action Plan for Construction Dust

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

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

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

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

Event / Action Plan for Regular Construction Noise

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

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

Event / Action Plan for Continuous Construction Noise

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

Event / Action Plan for Landscape and Visual during Construction Stage

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

APPENDIX J

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

Appendix J

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. received in this month	Total no. received since project commencement
Environmental complaints	-	-	-	0	1
Notification of summons	-	-	-	0	0
Successful Prosecutions	-	-	-	0	0

APPENDIX K

Waste Flow Table

Appendix K Monthly Summary Waste Flow Table

Month	Actual Quantities of Inert C&D Materials Generated Monthly (Note 1)													Actual Quantities of Non-inert C&D Materials (i.e. C&D Wastes) Generated Monthly					Actual Quantities of Marine Dumping Monthly		
	Generated					Disposed				Reused				Recycled			Disposed		Disposed		
	Fill Material	Artificial Material			Total Quantity Generated	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Disposed as Public Fills at CWPFBP	Total Quantity Disposal	Reused in the Contract	Reused in other Projects		Delivered to HH Barging Point (Note 5)	Total Quantity Reused	Metals	Paper/ cardboard packaging (Note 3)	Plastics	Chemical Waste	General Refuse (Note 2)	Disposed as MD at HH Barging Point	
		Soil and Rock	Broken Concrete	Asphalt							Building Debris	Tolo								WIL 705	Type 1
Unit	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000m ³)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000Kg)	('000m ³)	('000m ³)	
Jan	6.832	0.008	0.004	0.000	6.843	3.102	0.002	0.000	3.104	0.010	0.010	0.000	3.719	3.739	0.000	0.084	0.000	0.000	50.820	0.000	2.216
Feb	4.779	0.096	0.000	0.005	4.880	1.848	0.000	0.000	1.848	0.000	0.000	0.000	3.032	3.032	0.000	0.112	0.000	0.000	37.630	1.292	0.000
Mar	8.652	0.035	0.000	0.004	8.691	3.009	0.004	0.000	3.013	0.000	0.000	0.000	5.678	5.678	0.000	0.112	0.000	0.400	49.940	3.168	0.000
Apr	6.370	0.031	0.009	0.015	6.426	1.715	0.000	0.000	1.715	0.000	0.000	0.000	4.711	4.711	2.750	0.063	0.000	0.000	33.930	3.970	0.000
May	6.218	0.080	0.020	0.000	6.319	1.658	0.039	0.000	1.697	0.000	0.000	0.000	4.622	4.622	0.000	0.063	0.000	0.000	46.740	8.255	0.000
Jun	6.534	0.076	0.022	0.008	6.640	1.502	0.095	0.000	1.598	0.000	0.000	0.000	5.043	5.043	0.000	0.056	0.000	1.387	63.680	9.711	0.000
SUB-TOTAL	39.386	0.326	0.055	0.032	39.800	12.834	0.140	0.000	12.975	0.010	0.010	0.000	26.805	26.825	2.750	0.490	0.000	1.787	282.740	26.397	2.216
Jul	9.616	0.097	0.055	0.004	9.771	3.193	0.260	0.000	3.453	0.113	0.000	0.000	6.206	6.318	0.000	0.056	0.000	0.595	41.170	5.292	0.000
Aug	7.640	0.025	0.010	0.000	7.675	1.906	0.075	0.000	1.981	0.000	0.000	0.000	5.695	5.695	0.000	0.000	0.000	0.000	43.330	6.941	0.000
Sep	7.861	0.093	0.000	0.000	7.954	1.979	0.226	0.000	2.206	0.000	0.000	0.000	5.748	5.748	0.000	0.000	0.000	0.000	44.170	5.542	0.000
Oct	11.070	0.255	0.021	0.000	11.346	3.712	0.167	0.000	3.879	0.360	0.000	0.000	7.106	7.466	0.000	0.000	0.000	0.991	99.290	5.675	0.000
Nov	10.944	0.021	0.000	0.000	10.965	4.591	0.165	0.000	4.755	0.000	0.000	0.000	6.210	6.210	0.000	1.020	0.000	0.595	65.150	3.984	0.000
Dec																					
2015 TOTAL	86.517	0.817	0.142	0.036	87.512	28.216	1.033	0.000	29.250	0.483	0.010	0.000	57.770	58.262	2.750	1.566	0.000	3.968	575.850	53.830	2.216

Note:

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

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

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

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

5. Public fills was delivered to Hung Hom Barging Point and handled by the Contractor of SCL1112 in the period of 1 January 2015 to 1 August 2015 and handled by the Contractor of SCL1121 started from 3 August 2015.

Appendix E

**34th 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. 34

[Period from 1 to 30 November 2015]

Works Contract 1103 – Hin Keng to Diamond Hill Tunnels

(November 2015)

Certified by: Jonathan Pyke *JPP*

Position: Environmental Team Leader

Date: 9 December 2015

MTR Corporation Limited

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

**Monthly Environmental Monitoring
and Audit Report – November 2015**

228105-27

December 2015

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 228105-27

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ARUP

Contents

	Page
1 Environmental Status	6
1.1 Project Background	6
1.2 Construction Programme	6
1.3 Work Undertaken During the Reporting Month	6
1.4 Project Organization	7
1.5 Project Area and Environmental Monitoring locations	7
1.6 Impact Monitoring Schedule	7
1.7 Status of Environmental Licensing and Permitting	8
1.8 Purpose of the Report	9
2 Implementation Status	10
2.1 Implementation Status of Mitigation Measures	10
2.2 Updated Implementation Schedule	10
3 Air Quality Monitoring	11
3.1 Air Quality Monitoring Requirements	11
3.2 Air Quality Monitoring Methodology	12
3.3 Monitoring Results and Observations	14
4 Noise Monitoring	15
4.1 Noise Monitoring Requirements	15
4.2 Noise Monitoring Methodology	16
4.3 Monitoring Results and Observations	17
5 Landscape and Visual Monitoring	20
5.1 Introduction	20
5.2 Mitigation Measures	20
6 Waste Disposal	21
7 Cultural Heritage	22
8 Environmental Performance	23
8.1 Environmental Site Inspection	23
8.2 Summary of Environmental Complaint	24
8.3 Summary of Environmental Non-Compliance	24
8.4 Summary of Environmental Summon and Successful Prosecution	25
9 Future Key Issues	26
9.1 Key Issues for the Coming Month	26

9.2	Environmental Monitoring Program for the Coming Month	26
9.3	Construction Program for the Coming Month	26
10	Conclusions and Recommendations	27
10.1	Conclusions	27
10.2	Recommendations	27
11	Reference	29

Figures

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

Appendices

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

Executive Summary

This is the thirty-fourth 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 November 2015 (1 to 30 November 2015).

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

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

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

Impact monitoring was carried out at 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

There was one Action Level exceedence due to the receipt of a complaint in November 2015.

No exceedence 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 20,098m³ were generated and disposed of at public fill in TKO137FB and Kai Tak Barging Point Facility

(Contract 1108A). 303m³ of general refuse was generated and disposed of at NENT landfill. 600kg of chemical waste was generated.

Environmental Auditing

A total of 4 environmental site audits were conducted on a weekly basis in the reporting month. The first site inspection was on 4 November 2015 and the final was undertaken on 30 November 2015. An IEC joint site audit was undertaken on 11 November 2015. No non-conformance to the environmental requirements was identified during the reporting period.

Complaint Log

One complaint in relation to noise issues was received during the reporting month.

Notifications of Summons and Successful Prosecutions

No summons or prosecution related to the environmental issues were made against the Project in the reporting period.

Reporting Changes

There were no reporting changes during the reporting month.

Future Key Issues

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

Water Quality impact is also a key environmental issue. The drainage system should be well maintained. All wastewater generated within the site shall be collected and treated prior to discharge.

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

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

1 Environmental Status

1.1 Project Background

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

The construction of the SCL (TAW-HUH) has been divided into a series of civil construction Works Contracts and this Works Contract 1103 covers the construction of the tunnels between Diamond Hill (DIH) and Hin Keng (HIK).

1.2 Construction Programme

An up-to-date rolling construction programme is attached in **Appendix A**.

1.3 Work Undertaken During the Reporting Month

The major construction activities carried out by the Contractor in the reporting month are summarized in **Table 1.1**. Location of the works area is indicated in **Figures 1.1** to **1.6**. The structure of the project organisation in relation to the environmental management is shown in **Figure 1.7**. Contacts of key environmental staff of the Project are shown in **Table 1.2**.

Table 1.1 Construction Activities in the Reporting Month

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

1.4 Project Organization

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

Table 1.2 Contacts of Key Environmental Staff

Organisation	Name	Telephone
Project Proponent: MTRC		
Engineer's Representative	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	Superseded
	EP-438/2012/G	All	14 Aug 2014	Superseded
	EP-438/2012/H	All	10 Sept 2014	Superseded
	EP-438/2012/I	All	14 Oct 2015	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-RE1001-15	Ma Chai Hang	12 Oct 2015	Superseded
	GW-RE1111-15	Ma Chai Hang	4 Nov 2015	28 Apr 2016
	GW-RE1093-15	Ma Chai Hang	30 Oct 2015	21 Apr 2016
	GW-RE0747-15	Ma Chai Hang	5 Aug 2015	4 Feb 2016
	GW-RE0882-15	Fung Tak	3 Sept 2015	2 Feb 2016

Types of Permits / Licenses	Reference No.	Site	Valid from	Valid to
	GW-RN0517-15	Hin Keng	17 Sep 2015	16 Mar 2016
	GW-RN0396-15	Hin Keng	8 July 2015	7 Jan 2016
	GW-RN0689-15	Hin Keng	5 Nov 2015	4 May 2016
	GW-RE0979-15	Diamond Hill	18 Oct 2015	18 Dec 2015
	GW-RE0698-15	Diamond Hill	9 Aug 2015	10 Jan 2016
	GW-RE0759-15	Diamond Hill	3 Aug 2015	2 Feb 2016
	GW-RE0905-15	Diamond Hill	10 Sep 2015	Superseded
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 thirty-fourth 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 30 November 2015.

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 (October 2015)	13 November 2015

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)

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).

Wind Monitoring

Wind monitoring data including wind speed and wind directions shall be collected from Hong Kong Observatory – Kai Tak and Sha Tin Meteorological Stations and shown in **Appendix F**.

Environmental /Quality Performance Limits

The monitoring results will be checked against the Action and Limit levels described in the Baseline Monitoring Report, of which they are excerpted and summarised in **Tables 3.3** and **3.4**.

Table 3.3 Action and Limit Level for Air Quality Monitoring of 24-hour TSP level

Level	Air Monitoring Stations		
	DMS-1	DMS-2	DMS-3 / DMS-4
Action Level, $\mu\text{g}/\text{m}^3$	148.7	167.4	159.1
Limit Level, $\mu\text{g}/\text{m}^3$	260		

Table 3.4 Action and Limit Level for Air Quality Monitoring of 1-hour TSP level

Level	Air Monitoring Stations		
	DMS-1	DMS-2	DMS-3 / DMS-4
Action Level, $\mu\text{g}/\text{m}^3$	283.9	276.2	278.4
Limit Level, $\mu\text{g}/\text{m}^3$	500		

Note:

Note 1: 1-hr TSP monitoring would be required in case of receiving complaints.

3.2 Air Quality Monitoring Methodology

3.2.1 Monitoring Equipment

High Volume Sampler (HVS) was used to monitor the 24-hour TSP. **Table 3.5** shows the equipment used for the air quality monitoring.

Table 3.5 Air Quality Equipment List for Impact Air Quality Monitoring

Equipment	Manufacturer & Model No	Measurement Parameter	Serial No.
High Volume Sampler	TE-5170	24-hour TSP	3761, 3762, 3763
Fibreglass Filter	G810		-
HVS Calibration Kit	TE-5025A		2421

3.2.2 Maintenance and Calibration

High Volume Sampler

The HVSs and their accessories were frequently checked and maintained in accordance with the manufacturer's operation and maintenance manual. The maintenance included checking of supporting screen and gasket, as well as routine replacement of motor carbon brushes for the blower motor. The power cords and power supply were checked each time before sampling to ensure proper operation.

The HVSs were calibrated at 2-month intervals using 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 m³/min (20 – 60SCFM);
- Equipped with a timing/control device with +/- 5 minutes accuracy for 24 hour operation;
- Installed with elapsed time meter with +/- 2 minutes accuracy for 24 hour operation;
- Capable of providing a minimum exposed area of 406 cm² (63in²);
- Flow control accuracy: +/-2.5% deviation over 24-hour sampling period;
- Equipped with a shelter to protect the filter and sampler;
- Incorporated with an electronic mass flow rate controller or other equivalent devices;
- Equipped with a flow recorder for continuous monitoring;
- Provided with a peaked roof inlet;
- Incorporated with a manometer;
- Able to hold and seal the filter paper to the sampler housing at horizontal position;
- Easy to change the filter; and
- Capable of operating continuously for 24-hour period.

The HVSs were equipped with an electronic mass flow controller and calibrated against a traceable standard at regular intervals. All equipment, calibration kit and filter papers were clearly labelled.

The relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and other special phenomena observed and work progress of the concerned site were recorded.

A HOKLAS accredited laboratory (ALS Technichem (HK) Pty Ltd (HOKLAS no.: 066)), in accordance with their standard QA/QC procedures, with constant temperature and humidity control as well as equipped with necessary measuring and conditioning instruments to handle the 24-hour TSP samples was employed for sample analysis, and equipment calibration and maintenance. Filter papers of size 8"x10" were labelled before sampling. They were inspected clean with no pin holes and conditioned in a humidity controlled chamber for over 24-hour and be pre-weighed before use for the sampling.

The 24-hour TSP levels were measured by following the standard High Volume Method for Total Suspended Particulates as set out in the Title 40 of the United States Code of Federal Regulations, Chapter 1 (Part 50), Appendix B. TSP was sampled by drawing air through a conditioned, pre-weighted filter paper inside the HVS at a controlled air flow rate. After 24-hour sampling, the filter papers loaded with dust were kept in a clean and tightly sealed plastic bag, and then returned to the laboratory for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with a readout down to 0.1 mg. All the collected samples shall be kept in a good condition for 6 months before disposal.

3.3 Monitoring Results and Observations

3.3.1 Weather Condition

November 2015 was characterised at times by sunny and cloudy conditions associated with an easterly airstream.

Mild and dry conditions associated with a surge of the north east monsoon were also present in the month of November.

3.3.2 Air Quality Monitoring Results

Monitoring of 24-hour TSP was conducted on 3, 9, 14, 20 and 26 November 2015. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix E** and are summarised in **Table 3.6**. The graphical presentations of the monitoring results are provided in **Appendix E**. Wind data obtained from the Hong Kong Observatory – Kai Tak and Sha Tin stations during the reporting period are presented in **Appendix F**.

Table 3.6 Summary of Impact Air Quality Monitoring Results

Monitoring Station	24- hour TSP Monitoring Results ($\mu\text{g}/\text{m}^3$)		Action Level	Limit Level
	Average	Range ^(Note 1)		
DMS-1	37.2	36.8	148.7	260
DMS-2	50.1	27.5	167.4	260
DMS-3 / DMS-4	52.6	19.8	159.1	260

Note:

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

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

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

3.3.3 General Observations

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

4 Noise Monitoring

4.1 Noise Monitoring Requirements

4.1.1 Impact Monitoring

Monitoring Parameters

Construction noise shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). L_{10} and L_{90} shall also be recorded as supplementary reference information for data auditing.

Monitoring Frequency

Noise measurements shall be conducted on a weekly basis. The monitoring time periods, monitoring parameters and frequency are summarised in **Table 4.1**.

Table 4.1 Construction Noise Monitoring Parameters and Frequency

Time Period (when construction activity is found)	Parameters	Monitoring Frequency
Between 0700-1900 hours on normal weekdays	$L_{eq(30\text{ min})}$	Once per week

Monitoring Location

In accordance with the EM&A Manual and the subsequent Baseline Monitoring Report, three noise monitoring locations during the construction stage are required, namely:

Table 4.2 Noise Monitoring Locations

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

Notes:

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

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

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

Environmental /Quality Performance Limits

The monitoring results will be checked against the Action and Limit levels described in the Baseline Monitoring Report, of which they are excerpted and summarised in **Tables 4.3**.

Table 4.3 Action and Limit Levels of construction noise

Location ^(Note 1)	Time Period ^(note 3)	Action Level	Limit Level dB(A)
NMS-CA-1 & NMS-CA-2	0700 - 1900 hours on normal weekdays	When one documented complaint is received	70/65 ^(Note 2)
NMS-CA-3 / NMS-CA-4			70

Notes:

1. The detail of monitoring locations was presented in Table 1.3.
2. For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods respectively.
3. If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

4.1.2 Continuous Noise Monitoring

With reference to the latest Continuous Noise Monitoring Plan (CNMP) and Construction Noise Mitigation Measures Plan (CNMMP) prepared and submitted under EP Condition 2.10, continuous noise monitoring was conducted in April 2013 at C.U.H.K.A.A. Thomas Cheung School only due to the prediction of residual airborne construction noise impacts exceeding the relevant noise criteria. No continuous noise monitoring is required during the reporting month as per the CNMP.

4.2 Noise Monitoring Methodology

4.2.1 Monitoring Equipment

Noise level was measured by a Sound Level Meter (SLM) in terms of A-weighted equivalent continuous sound pressure level. L_{eq} , L_{10} and L_{90} were recorded as supplementary information for data auditing. **Table 4.4** shows the equipment list of the noise monitoring.

Table 4.4 Noise Equipment List for Impact Noise Monitoring

Equipment	Manufacturer & Model No.	Serial No.	Precision Grade
Integrated SLM	Brüel & Kjær 2238	2320696	IEC 651 Type 1 IEC 804 Type 1
Sound level calibrator	Brüel & Kjær 4231	2713427	IEC 942 Type 1

4.2.2 Maintenance and Calibration

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

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

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

4.2.3 Monitoring Procedures

- The SLM and battery were checked to ensure that they are in proper condition. The SLM was set on a tripod at 1.2m above ground and at least 1m from the exterior of the building façade;
- Before conducting the measurement, the SLM was calibrated by an acoustical calibrator;
- Measurement parameter was set to A-weighted sound pressure level. The time weighting was set in fast response and the time period of measurement at 30 minutes;
- Wind speed was checked during noise monitoring to ensure the steady wind speed does not exceed 5m/s, or wind with gusts does not exceed 10m/s;
- Any abnormal conditions that generated intrusive noise during the measurement was recorded on the field record sheet;
- After each measurement, the equivalent continuous sound pressure level (L_{eq}), L_{10} and L_{90} were recorded on the field record sheet;
- After conducting the measurement, the SLM was calibrated by a 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

November 2015 was characterised at times by sunny and cloudy conditions associated with an easterly airstream.

Mild and dry conditions associated with a surge of the north east monsoon were also present in the month of November.

4.3.2 Noise Monitoring Results

Impact Monitoring

Monitoring of the construction noise level was conducted on 5, 10, 18 and 27 November 2015. 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)
5 Nov 15	12:00-12:30	52.4	57.0	< Baseline Level	70/65
10 Nov 15	16:00-16:30	56.0		< Baseline Level	
18 Nov 15	17:00-17:30	54.2		< Baseline Level	
27 Nov 15	16:30-17:00	54.6		< Baseline Level	

Notes:

1. Construction Noise Level = Measured Noise Level – Baseline Noise Level.
2. For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching periods and examination periods respectively.

Table 4.6 Summary of Impact Noise Monitoring at Location NMS-CA-2

Date	Time	Measured Noise Level, dB(A)	Baseline Noise Level, dB(A)	Construction Noise Level(Note1), dB(A)	Limit Level (Note 2)
		Leq (30min)	Leq (30min)	Leq (30min)	dB(A)
5 Nov 15	9:30-10:00	61.8	66.0	< Baseline Level	70/65
10 Nov 15	14:00-14:30	61.6		< Baseline Level	
18 Nov 15	14:15-14:45	58.6		< Baseline Level	
27 Nov 15	14:15-14:45	59.4		< 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.

Table 4.7 Summary of Impact Noise Monitoring at Location NMS-CA-3

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)
5 Nov 15	10:30-11:00	68.1	73.0	< Baseline Level	70/65
10 Nov 15	15:00-15:30	67.9		< Baseline Level	
18 Nov 15	15:30-16:00	68.4		< Baseline Level	
27 Nov 15	15:15-15:45	67.7		< 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

There was one Action Level exceedance recorded due to the receipt of a complaint in November 2015.

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 4 and 18 November 2015. No adverse impacts were identified with regards to landscape and visual.

6 Waste Disposal

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

Table 6.1 Amount of Waste Generated

Waste Type	Amount	Disposal Locations
Inert C&D Materials	20,098m ³	TKO137FB and Kai Tak Barging Point Facility (1108A)
Chemical Waste	600kg	Disposed of by a licensed collector
Paper / cardboard packaging	0kg	-
Plastic	0kg	
Metal	0kg	
General Refuse	303m ³	NENT Landfill

7 Cultural Heritage

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

8 Environmental Performance

8.1 Environmental Site Inspection

Environmental site inspections were carried out on a weekly basis, with the IEC joint site inspection being carried out on 11 November 2015, 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 8.1**.

Table 8.1 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
Waste				
4 November 2015	Fung Tak	The contractor is reminded to regularly clear drip trays and dispose of any waste in accordance with WDO.	Agreed with ET's Advice.	The contractor rectified the issue ensured that drip trays were cleared. Closed 11 November 2015.
28 October 2015	Hin Keng	The contractor is reminded to ensure that oil drums have the provision of a drip tray directly after unloading.	Agreed with ET's Advice.	The contractor rectified the issue ensured that drip trays were provided. Closed 4 November 2015.
18 November 2015	Hin Keng	The contractor is reminded to ensure that oil drums have the provision of a drip tray directly after unloading.	Agreed with ET's Advice.	The contractor rectified the issue ensured that drip trays were provided. Closed 25 November 2015.
28 October 2015	Fung Tak	The contractor is reminded to ensure that chemical containers are put back in the designated storage area directly after use.		The contractor rectified the issue ensured that chemical containers were put back in the designated storage area directly after use. Closed 4 November 2015.
Water				

Inspection Date	Works Area	Key Observations and Recommendations	Contractor's Response / Environmental Outcome	Closed Date / Follow up Status
11 November 2015	Diamond Hill	The contractor is reminded to re-circulate water from the sedimentation tank before discharge.	Agreed with ET's Advice.	The contractor rectified the issue re-circulated the water. Closed 18 November 2015.
18 November 2015	Diamond Hill	The contractor is reminded to ensure that the sedimentation tank of the WWTP has sufficient capacity.	Agreed with ET's Advice.	The contractor rectified the issue and ensured that the sedimentation tank of the WWTP had sufficient capacity. Closed 25 November 2015.
Air				
25 November 2015	Fung Tak	The contractor is reminded to enhance water spraying during dry conditions.	Agreed with ET's Advice.	The contractor noted this issue and the status will be reported in the next reporting month.

8.2 Summary of Environmental Complaint

There was an environmental complaint regarding noise issues recorded in the reporting month. The updated statistical summary of complaint is presented in **Table 8.2**. The updated complaint logs for the Project in the reporting month is shown in **Appendix L**.

Table 8.2 Summary of Complaints

Reporting Period	Complaint Statistics		Area of Concern	Status
	Number	Cumulative		
01/11/15–30/11/15	1	12	-	-

8.3 Summary of Environmental Non-Compliance

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

8.4 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.

9 Future Key Issues

9.1 Key Issues for the Coming Month

Works to be undertaken in the coming reporting month are summarised in **Table 9.1** below.

Table 9.1 Tentative Programme of Construction Works for the Coming Month

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

9.2 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**.

9.3 Construction Program for the Coming Month

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

10 Conclusions and Recommendations

10.1 Conclusions

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

There was one Action Level exceedence recorded due to the receipt of a noise complaint in November 2015.

No exceedence of Limit Level of Regular Construction Noise was recorded during the reporting month.

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

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

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

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

10.2 Recommendations

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

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

Water Quality impact is also a key environmental issue. The drainage system should be well maintained. All wastewater generated within the site shall be collected and treated prior to discharge.

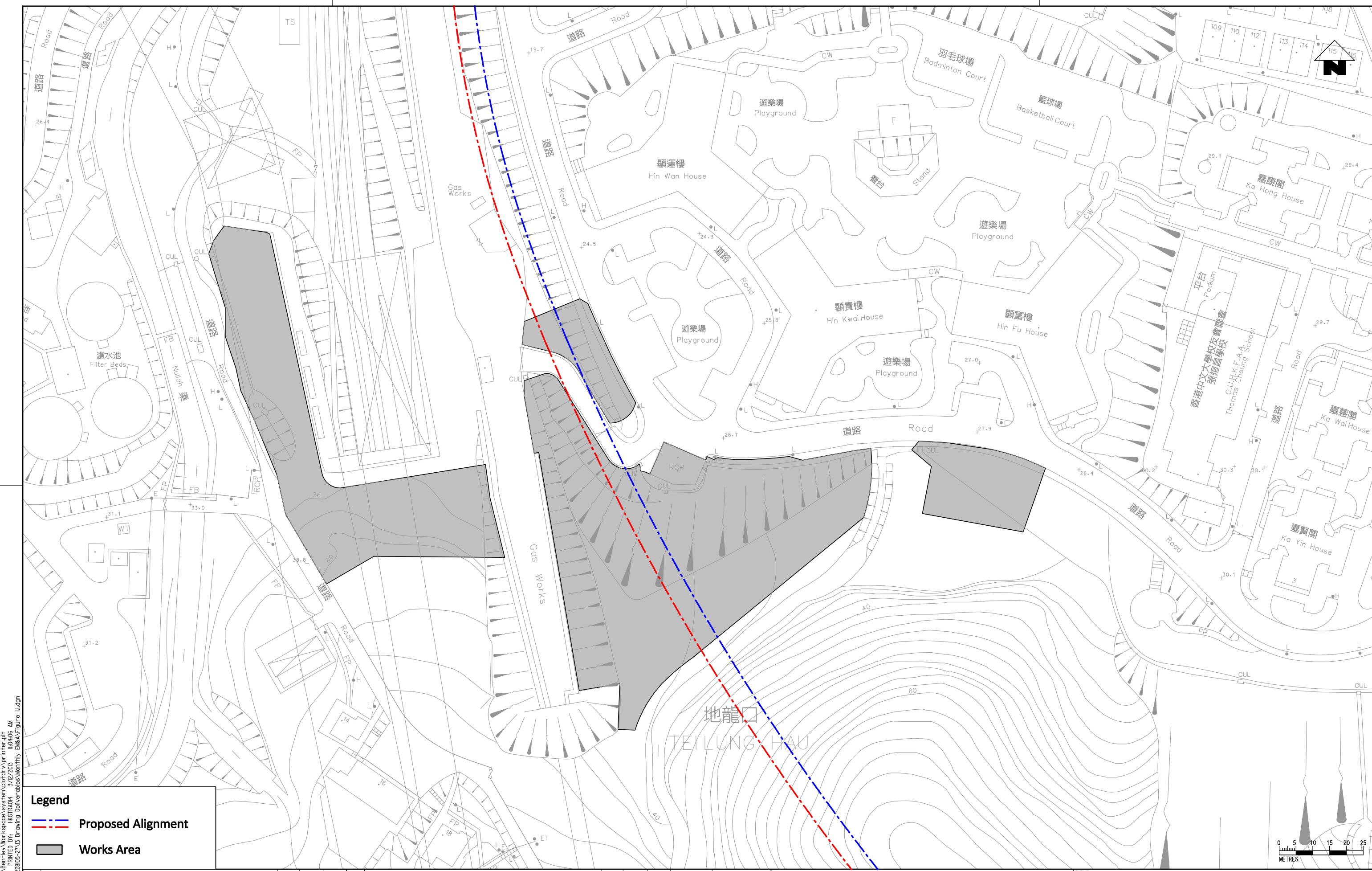
Construction noise is also a key environmental issue. The implemented construction noise mitigation measures should also be maintained and improved as necessary. Especially in restricted hours, the conditions stipulated in the CNPs should be strictly followed when the construction works were carried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

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

11 Reference

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

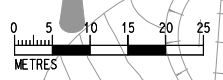
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Legend

- - - Proposed Alignment
- Works Area



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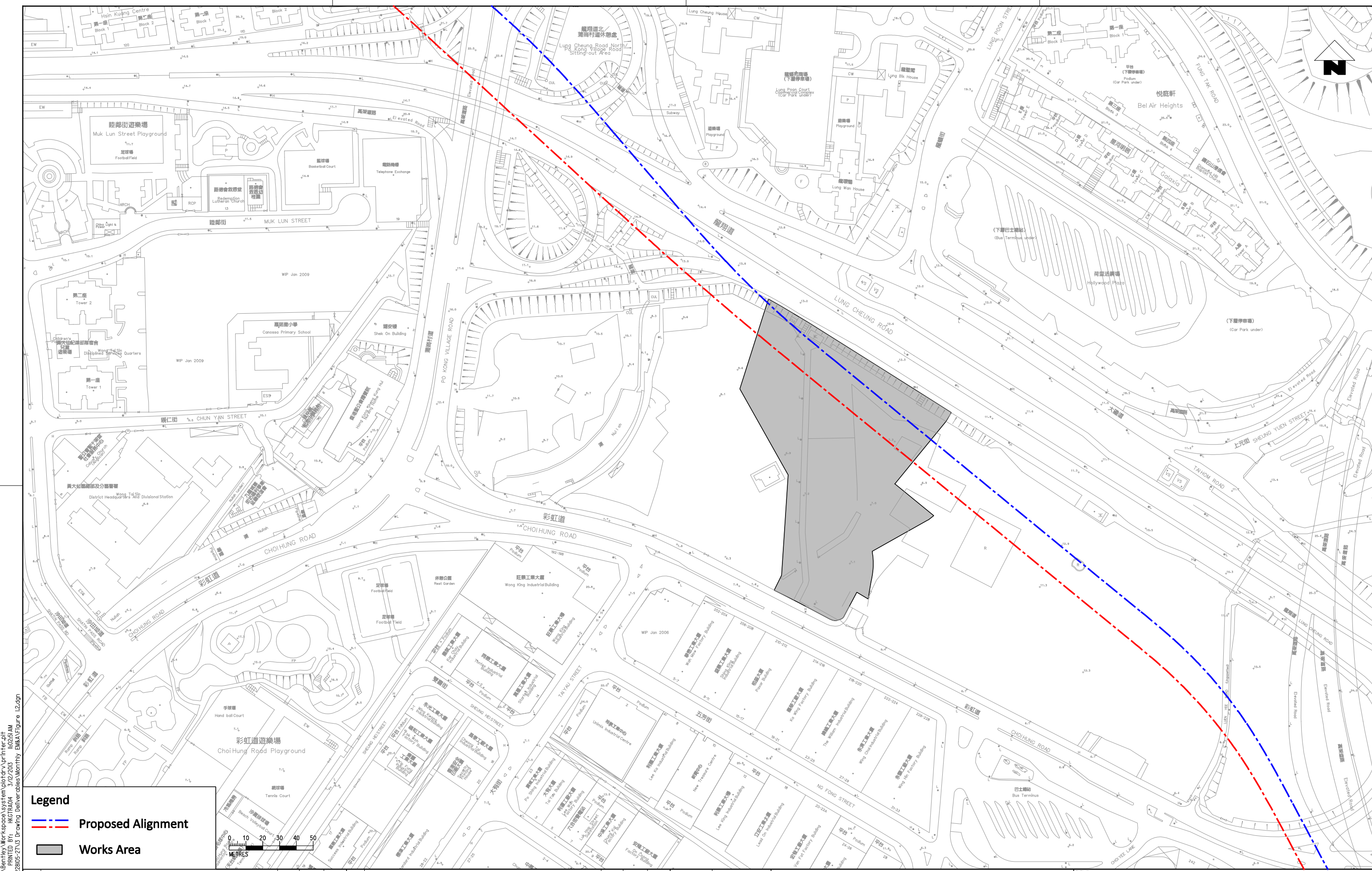
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TITLE



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


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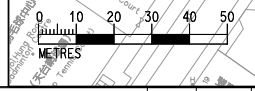
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Legend

  **Proposed Alignment**

 **Works Area**



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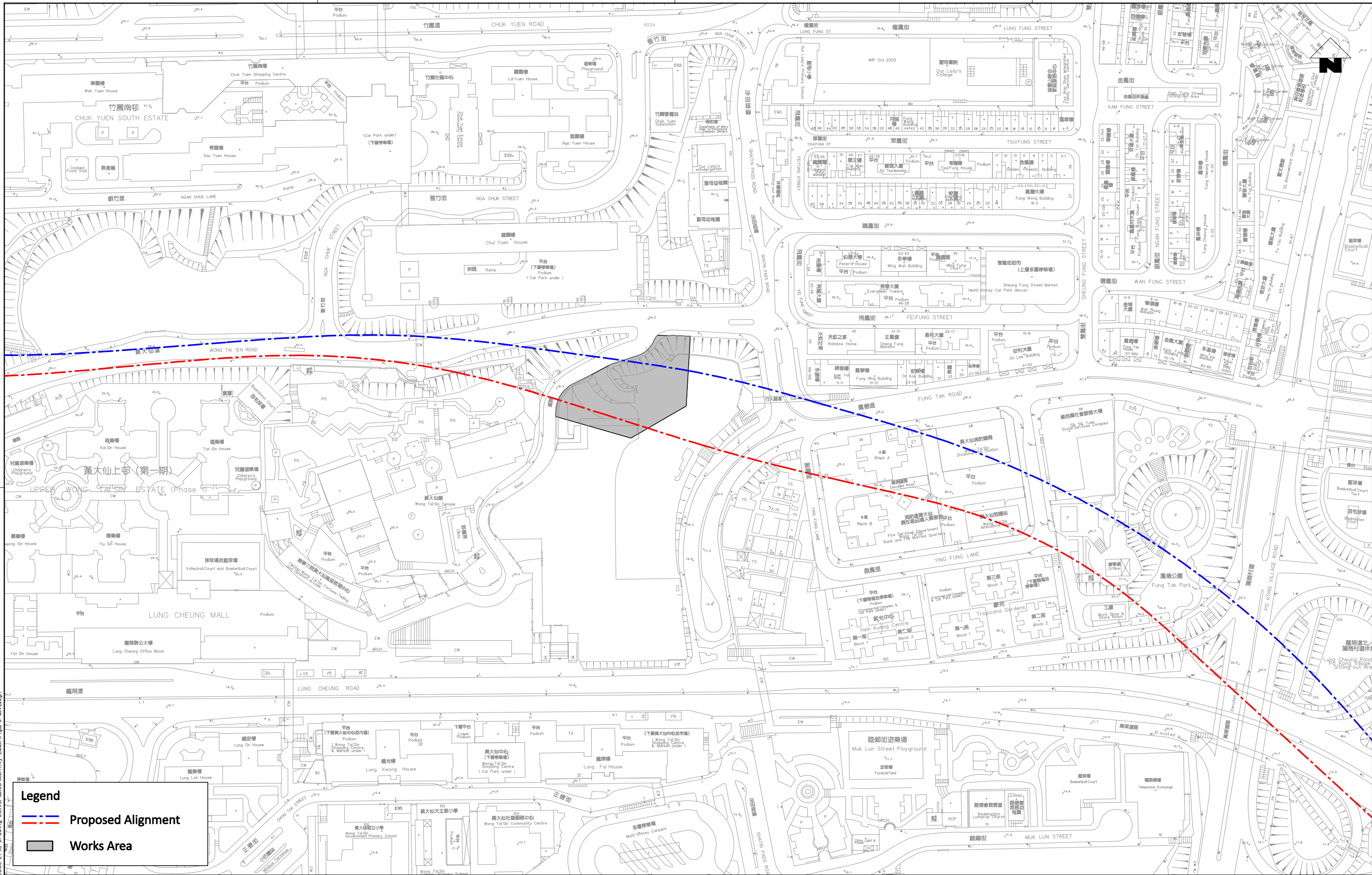
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TITLE		CONTRACT 1103	
		HIN KENG TO DIAMOND HILL TUNNELS	
		Locations of Project Works Areas	
		- General Site Layout of Diamond Hill Works Area	
		(Sheet 2 of 6)	
SCALE	DRAWING NO.	REV.	
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Legend

- Proposed Alignment
- Works Area

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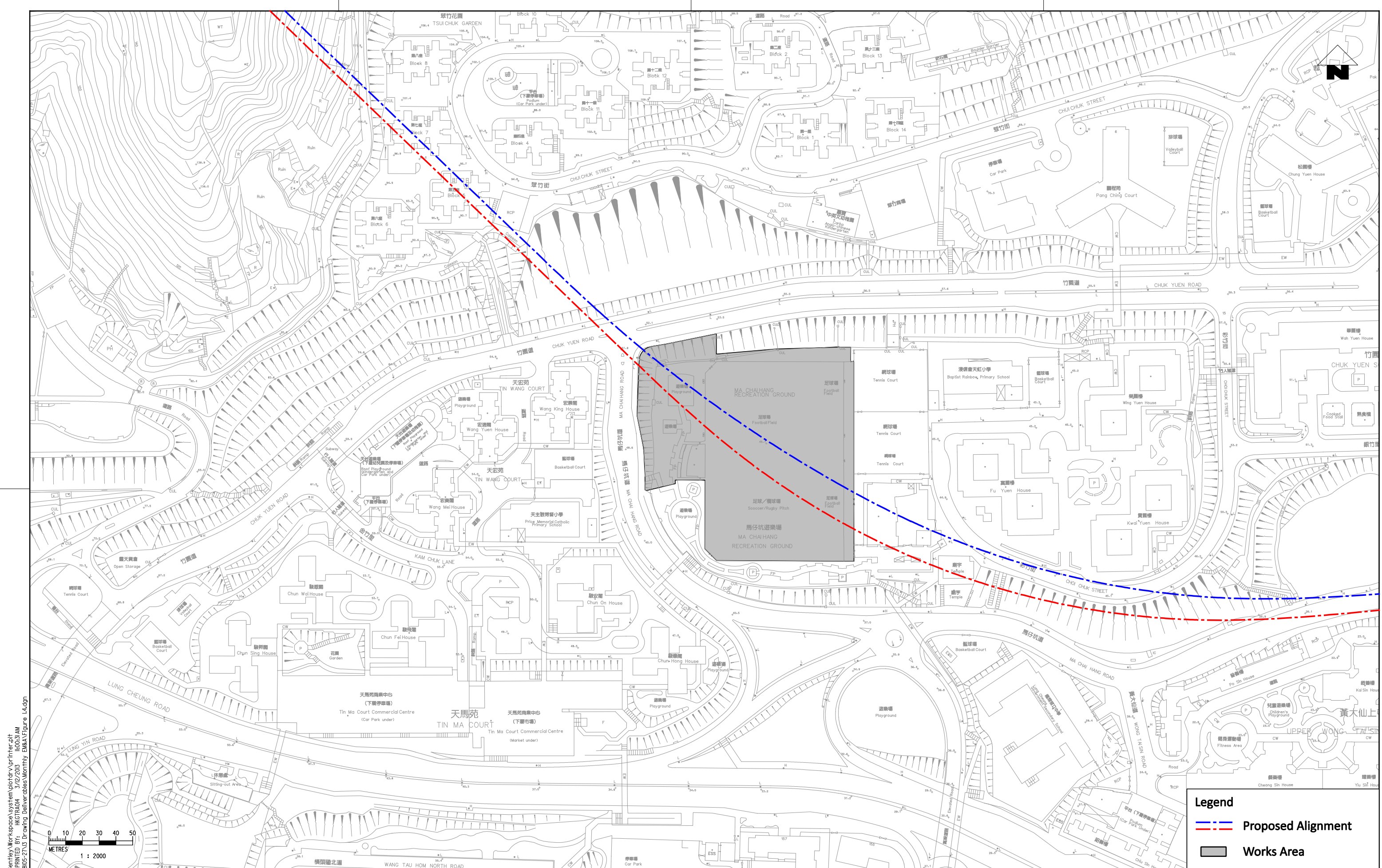
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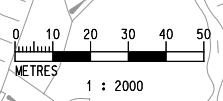
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TITLE		CONTRACT 1103		REV.	
		HIN KENG TO DIAMOND HILL TUNNELS		A	
		Locations of Project Works Areas - Site Layout Plan of Fung Tak EAP/EEP Building (Sheet 3 of 6)			
SCALE	DRAWING NO.				
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- --- Proposed Alignment
- Works Area

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TITLE
 CONTRACT 1103
 HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Project Works Areas
 - Site Layout Plan of Ma Chai Hang Shaft
 (Sheet 4 of 6)

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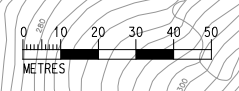
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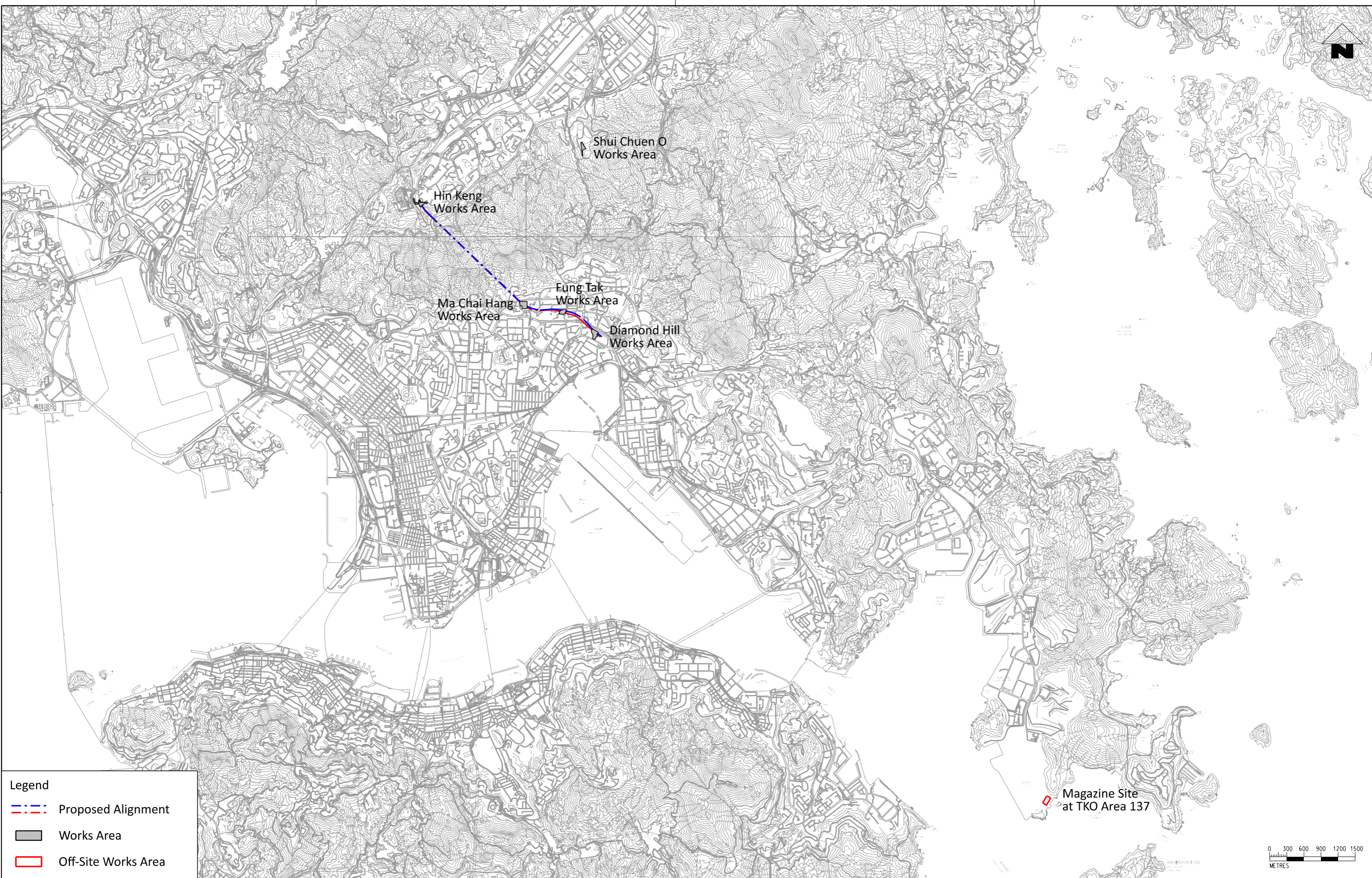
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Works Area



				DRAWN GL DESIGNED EL CHECKED FC APPROVED ST DATE 02/13			 SHATIN TO CENTRAL LINK		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)		
				<small>DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHALL BE VERIFIED ON SITE. © MTR CORPORATION LIMITED 2008. COPYRIGHT IN RESPECT OF THIS DRAWING / DOCUMENT IS OWNED BY THE MTR CORPORATION LIMITED OF HONG KONG. NO REPRODUCTION OF THE DRAWING / DOCUMENT OR ANY PART BY WHATEVER MEANS IS PERMITTED WITHOUT THE PRIOR WRITTEN CONSENT OF THE MTR CORPORATION LIMITED.</small>			ARUP Ove Arup & Partners Hong Kong Limited				SCALE 1 : 2000 (A3)
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Legend

- - - Proposed Alignment
- Works Area
- Off-Site Works Area

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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)

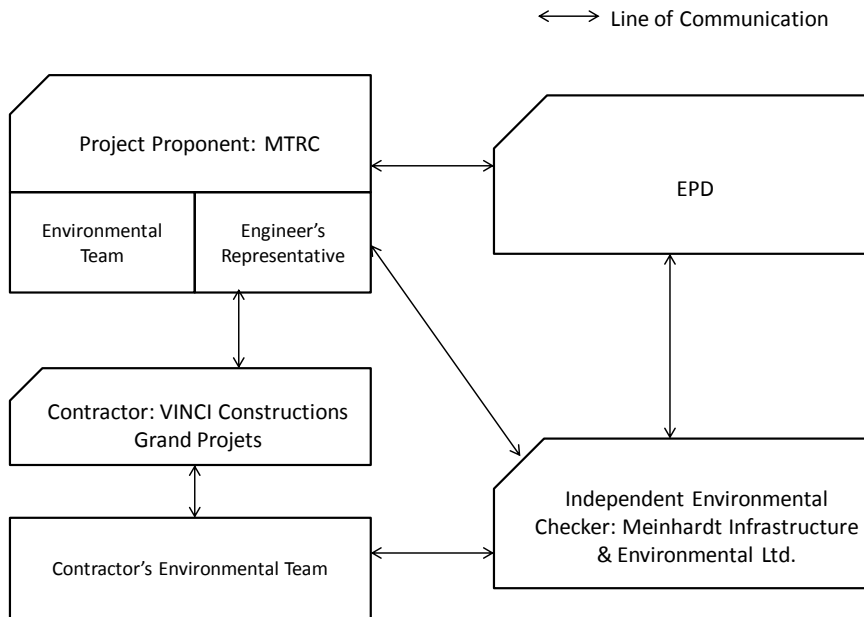
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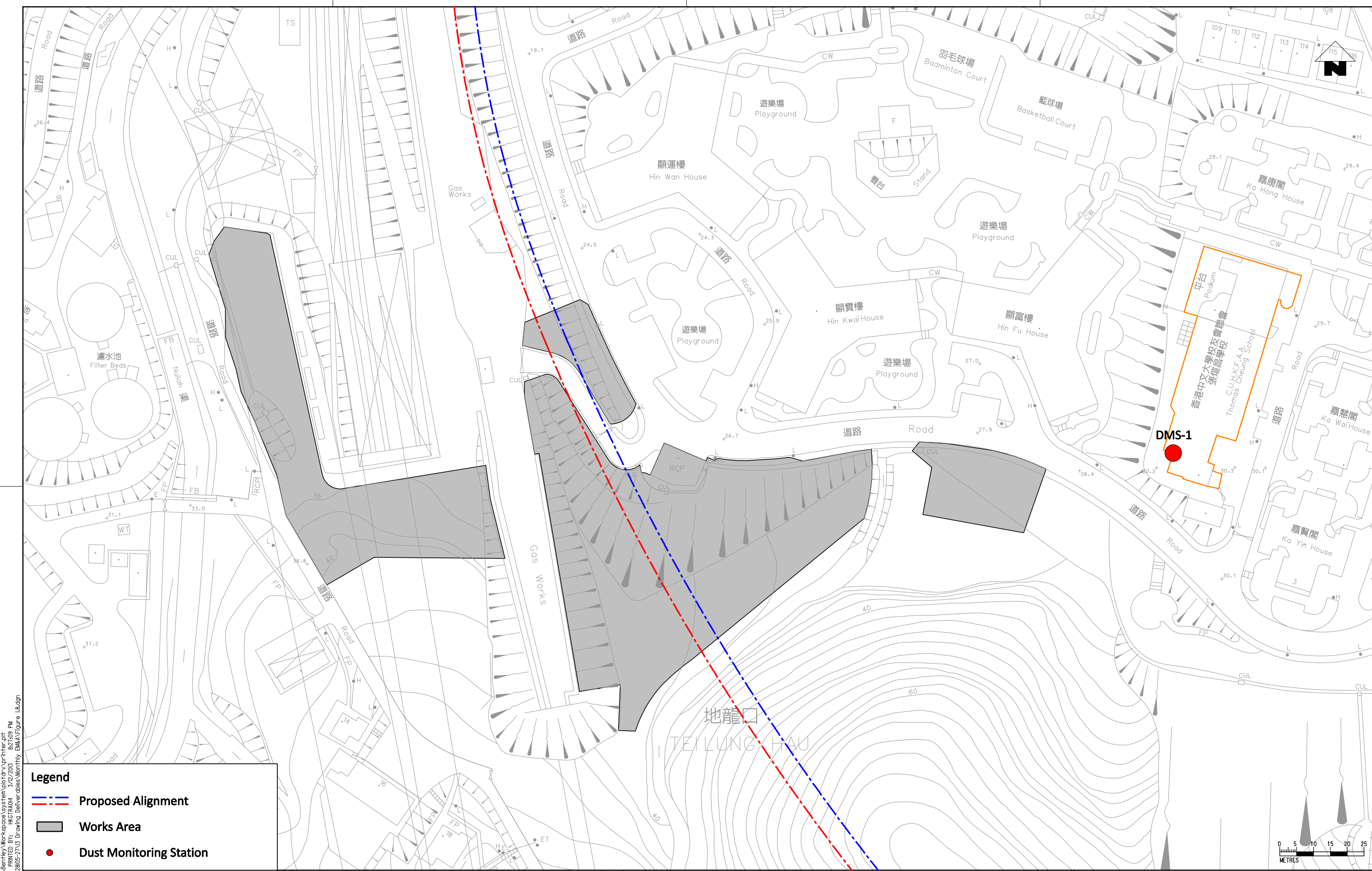
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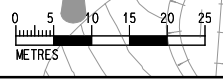
Figure 1.7 - Project Organisation for Environmental Works





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



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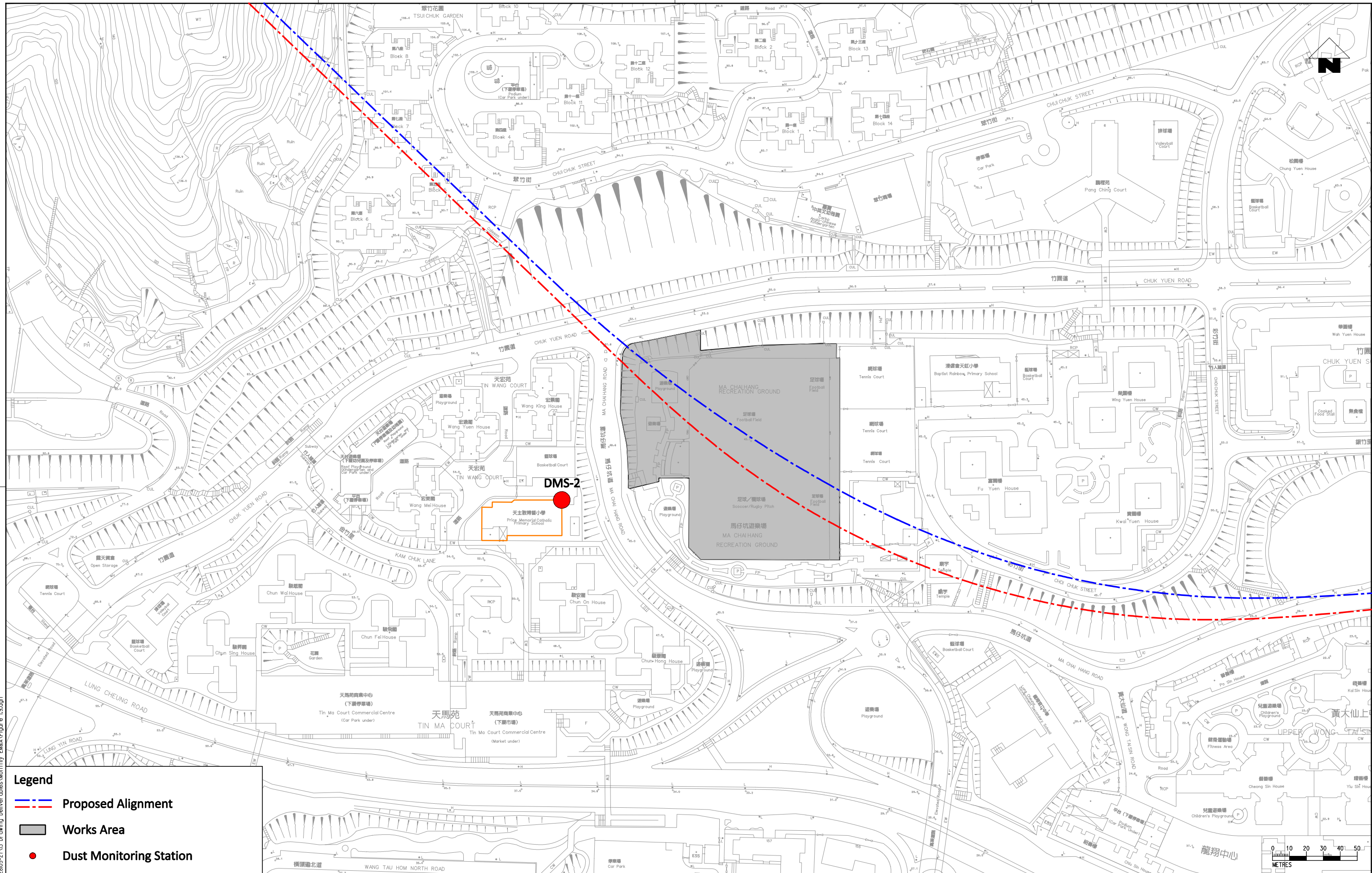
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TITLE		CONTRACT 1103 HIN KENG TO DIAMOND HILL TUNNELS Locations of Proposed Dust Monitoring Stations (Sheet 1 of 3)	
SCALE	DRAWING NO.	REV.	
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- Legend**
- - - - - - Proposed Alignment
 - Works Area
 - Dust Monitoring Station

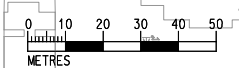
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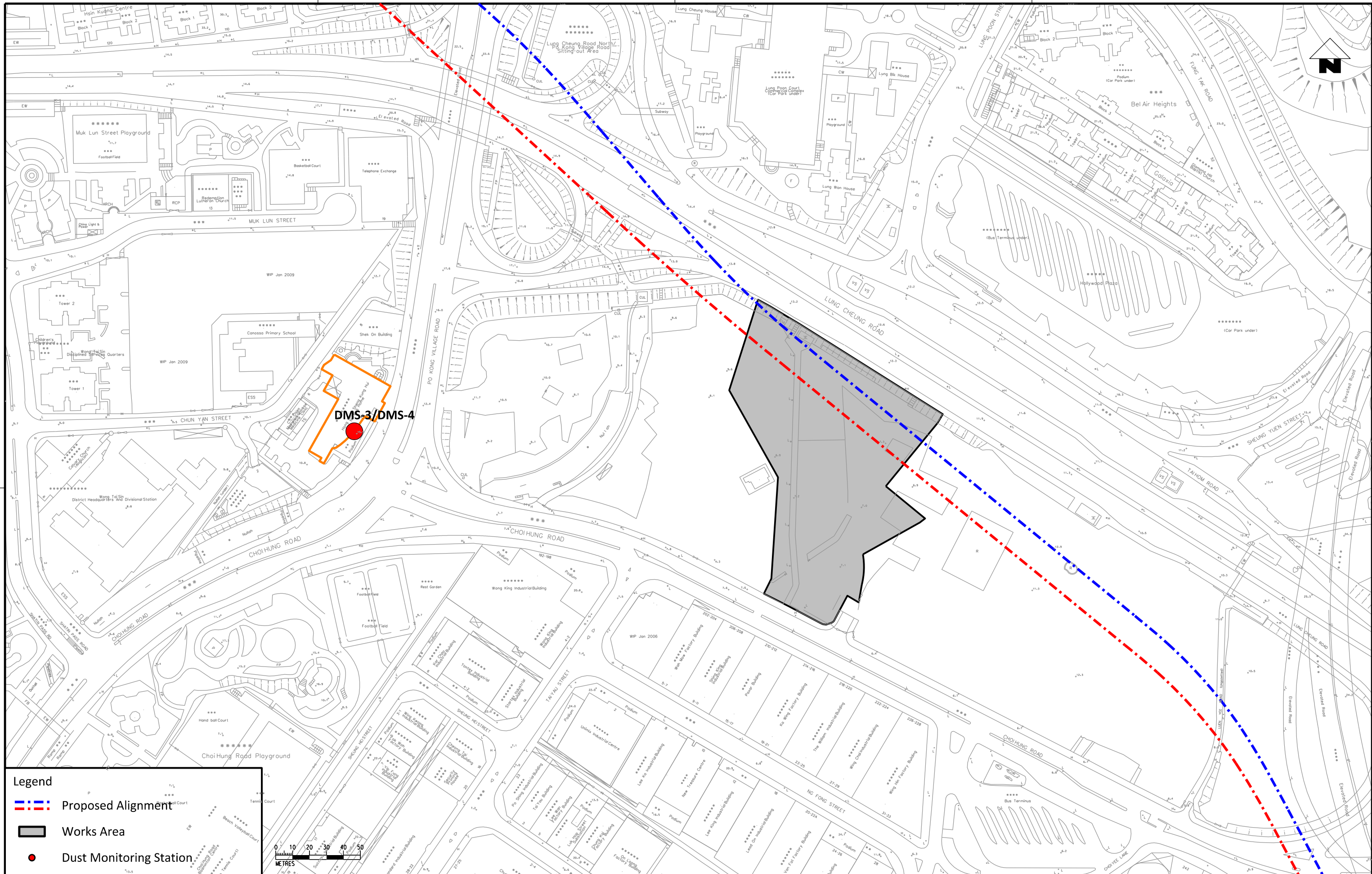
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TITLE CONTRACT 1103 HIN KENG TO DIAMOND HILL TUNNELS Locations of Proposed Dust Monitoring Stations (Sheet 2 of 3)		SCALE 1:2000 (A3)	DRAWING NO. Figure 1.9	REV. A
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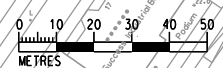




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Legend

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



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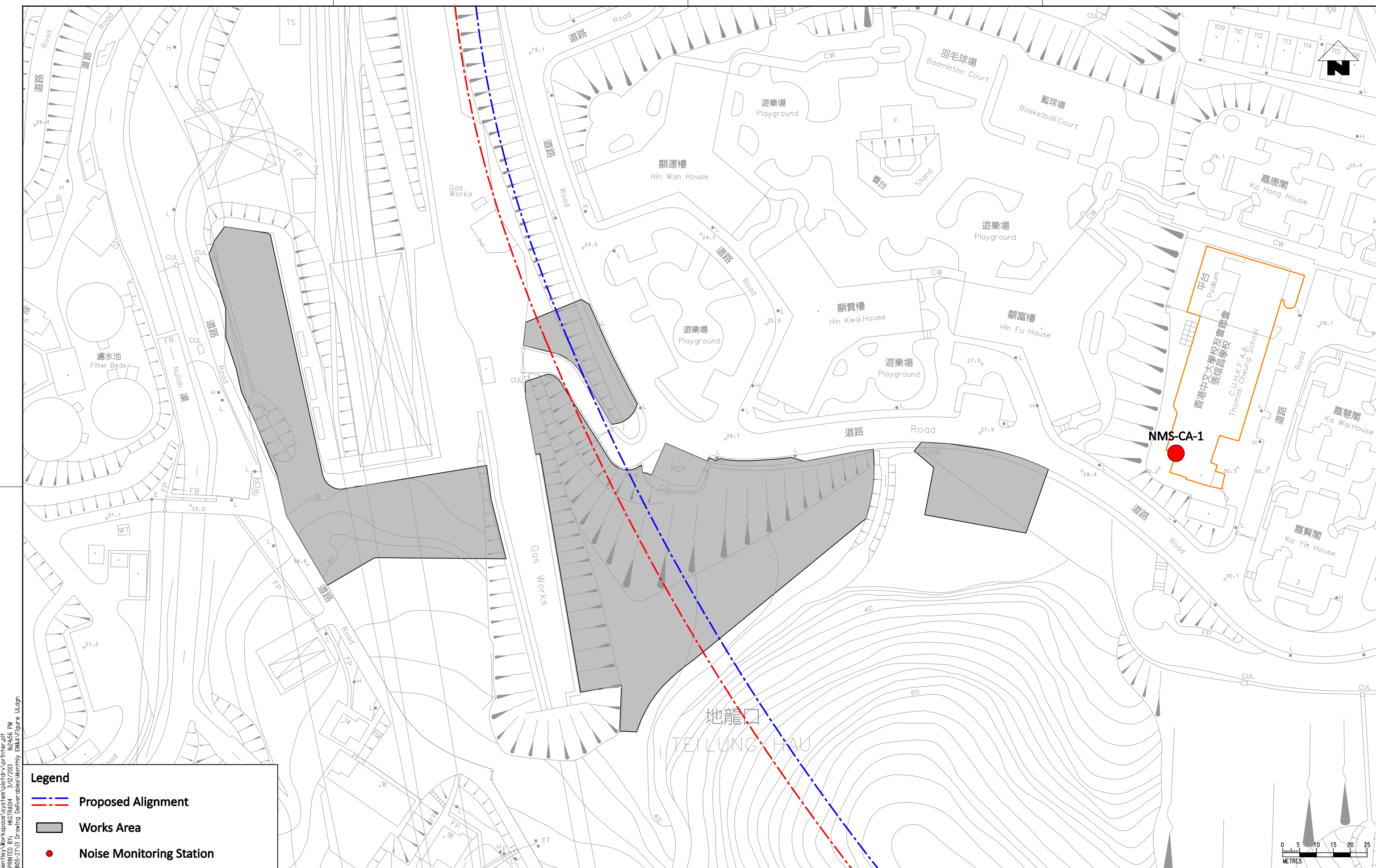
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CONTRACT 1103 HIN KENG TO DIAMOND HILL TUNNELS Locations of Proposed Dust Monitoring Stations (Sheet 3 of 3)	
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- --- **Proposed Alignment**
- Works Area**
- **Noise Monitoring Station**

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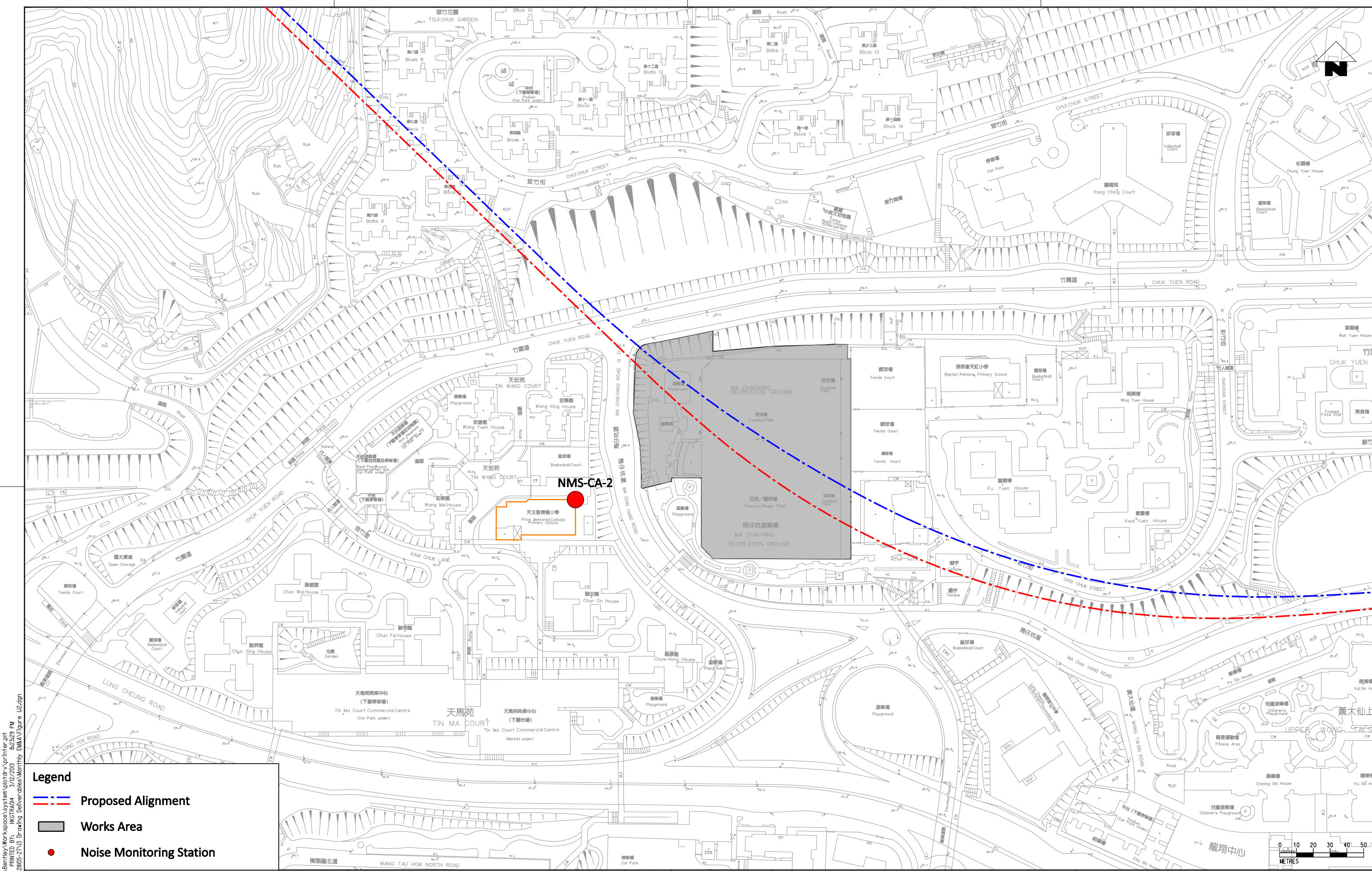
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TITLE

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

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

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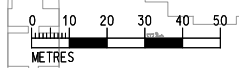
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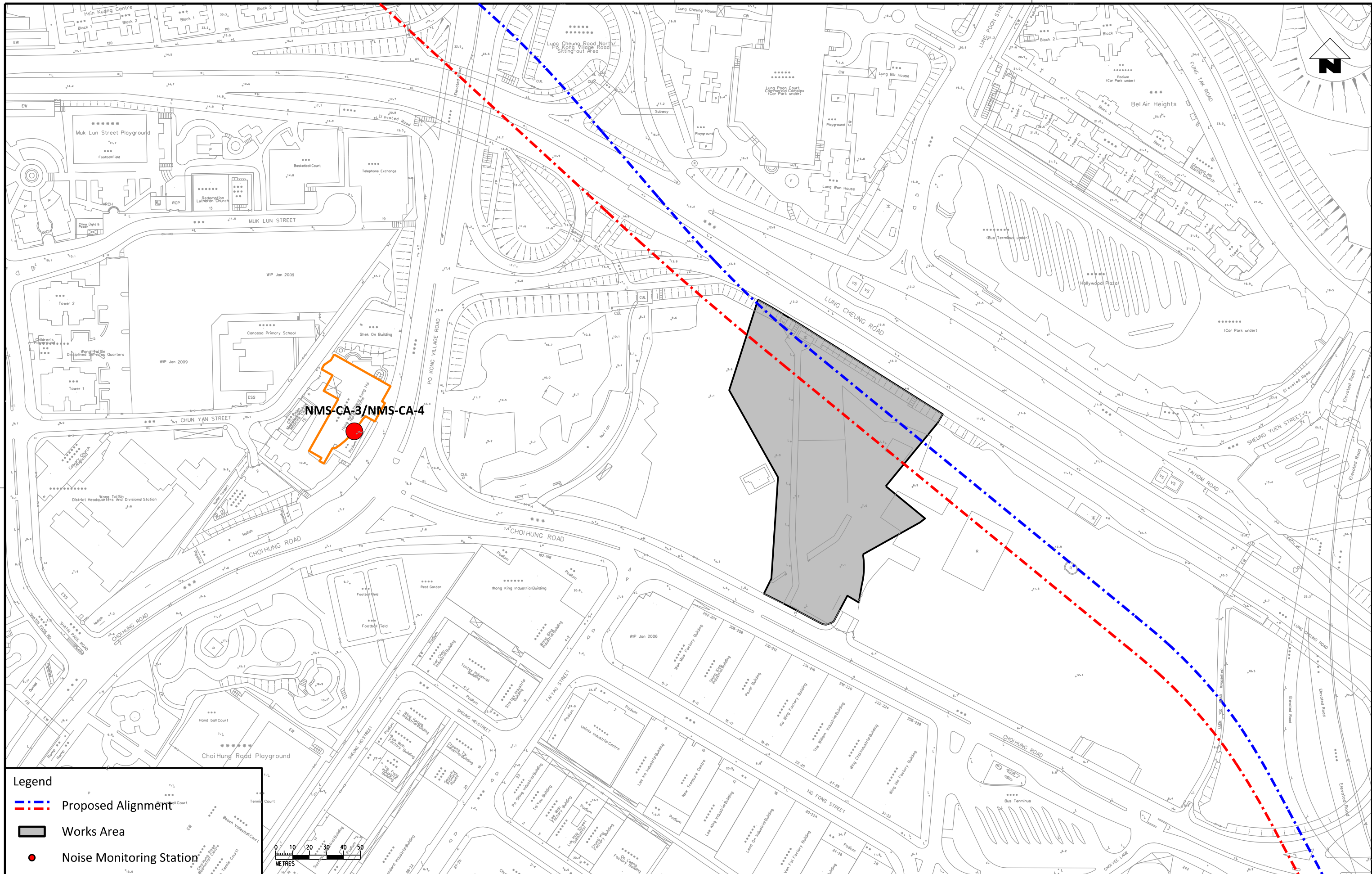
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CONTRACT 1103
 HIN KENG TO DIAMOND HILL TUNNELS
 Locations of Noise Monitoring Stations
 (Construction Airborne Noise)
 (Sheet 2 of 3)

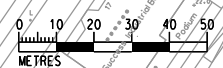
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Legend

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



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

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Appendix A

Construction Programme

Activity ID	Activity Name	Original Duration	Start	Finish	Physical % Complete	Total Float	2015												2016											
							November				December				January				February				March							
							01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21	28	06	13	20	27		
CONTRACT 1103:- HIN KENG TO DIAMOND HILL TUNNELS																														
COST CENTER C - TBM TUNNELS BETWEEN DIH and D Ch 95+357																														
Milestone Schedule - TBM Tunnels between DIH and D Ch95+357																														
TBM Tunnel Up Track - DIH U97+064 to U95+376																														
TBM Tunnel Down Track - DIH D97+054 to D95+357																														
Tunnels Sumps																														
Specialized Construction Machinery Site Assembly and Related Establishment																														
COST CENTER F - MA CHAI HANG VENTILATION BUILDING (MCV)																														
COST CENTER F - Milestone Schedule - MCV																														
MCV - Central Core																														
MCV - Connection Tunnels																														
MCV - C&S Works																														
Ventilation Duct (Ch V 000 to V 250)																														
COST CENTER G - FUNG TAK EAP/EEP BUILDING (FTA)																														
COST CENTER G - Milestone Schedule - FTA																														
FTA - C&S Works																														
FTA - Connection Tunnels																														
PTT - RC Concrete and ELS Work																														
PTT - ABWF																														
COST CENTER H - HIN KENG WORKING SHAFT																														
COST CENTER H - Milestone Schedule - HIK Shaft																														
HIK - Excavation and ELS																														
HIK - C&S for HIK Cut & Cover Tunnel																														
Excavation and Temporary Support from HIK (Ch D93+300 to D95+357) 2057m																														
D&B - Tunnel Lining																														
D&B - Partition Walls, Dividing Slabs, Drains and Walkways																														
Mined Tunnel - Partition Walls, Dividing Slabs, Drains and Walkways																														



GRANDS PROJETS

**Three Month Rolling Programme
As of 1-Dec-2015**

Date	Revision	Checked	Approved
01-Dec-15	Submission for MTR Information	QT	EC

Appendix B

Environmental
Monitoring
Programme in
Reporting Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Impact Monitoring Schedule - November 2015**

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

	Public Holiday
	Monitoring Day

Monitoring Details

Monitoring	Locations	Parameters
Air Quality	DMS-1 - C.U.H.K.A.A Thomas Cheung School, DMS-2 - Price Memorial Catholic Primary School and DMS-3 / DMS-4 - Hong Kong Sheng Kung Hui Nursing Home	24-hour TSP
Noise	NMS-CA-1 - C.U.H.K.A.A Thomas Cheung School, NMS-CA-2 - Price Memorial Catholic Primary School and NMS-CA-3 /NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home	L _{Aeq} (30 min), L ₁₀ , L ₉₀

Appendix C

Environmental
Mitigation
Implementation
Schedule (EMIS)

Environmental Mitigation Implementation Schedule – Works Contract 1103

Note: Chapters 1 to 3 of the EIA report present the background information of the Project, identified concurrent projects, objectives and scope for various environmental aspects, and description on alternative options and construction description. Chapters 4 to 14 of the EIA report present the EIA findings and mitigation measures are described below with cross-reference to the EIA report for the reporting month. Chapters 15 & 16 describe the environmental monitoring requirements and conclusion.

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Ecology (Pre-Construction Phase)							
S5.4	E1	Engineering works should not encroach into country park boundary, Tei Lung Hau Stream and secondary woodland near the portal at Hin Keng	Minimize ecological impacts	Lion Rock Country Park, Tei Lung Hau Stream	Detailed design and construction stage	<ul style="list-style-type: none"> •AFCD's requirements •EIAO •Country Parks Ordinance 	✓
	E2	<p><u>Habitat Loss</u></p> <p>A detailed vegetation survey should be conducted in the Hin Keng Portal area to locate and enumerate individuals of <i>Aquilaria sinensis</i> which will potentially be affected by construction and operation of the Portal.</p> <p>A suitable site for transplanting all affected individuals within the footprint area should be identified and assessed for its suitability. A transplantation plan should then be drawn up and details of the transplantation methodologies and programme along with post-transplantation monitoring should be included.</p>	Minimize ecological impacts on important species	Hin Keng Portal areas	Prior to site clearance	<ul style="list-style-type: none"> •AFCD's requirements 	✓
S5.7	E3	<p><u>Tree felling and vegetation removal</u></p> <p>Precautionary checks of the vegetation for the presence of nesting bird species of conservation interest should be carried out before vegetation clearance by an ecologist.</p>	Minimize ecological impacts to breeding bird species of conservation interest	Works sites for DIH	Prior to site clearance	<ul style="list-style-type: none"> •AFCD's requirements 	N/A

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Ecology (Construction Phase)							
S5.7	E5	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> • Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses in particular the Tei Lung Hau stream; • Avoidance of soil storage against trees or close to waterbodies in particular the Tei Lung Hau stream; • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. Tei Lung Hau Stream and the adjoining secondary woodland, tunnel on hill at top of slope stabilisation works; • No on-site burning of waste; • Waste and refuse in appropriate receptacles. 	Minimize ecological impacts	All construction sites	Construction stage		<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

Environmental Mitigation Implementation Schedule – Works Contract 1103

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S5.7	E7	<p><u>Water Quality and Hydrology</u></p> <ul style="list-style-type: none"> Implement water control measures (ETWB TCW No. 5/2005, Protection of natural streams/ rivers from adverse impacts arising from construction works to avoid direct or indirect impacts on the Tei Lung Hau Stream) and good site practices. Canopy tubes should be installed from the shaft structure and extend the full width of the stream. These canopy tubes with sieves along its length should be grouted and form a stable and low permeable 'umbrella' for further mining works to be carried out in stages. The canopy tubes beneath the stream area are within Completely Decomposed Granite (CDG) stratum. 	<ul style="list-style-type: none"> Avoid indirect water impact to any wetland habitats or wetland fauna Minimize the drawdown of water table 	Works area in Hin Keng	Construction stage	<ul style="list-style-type: none"> TCW No. 5/2005 	<p align="center">✓</p> <p align="center">✓</p>

Environmental Mitigation Implementation Schedule – Works Contract 1103

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites.					✓
S6.12	LV2	<ul style="list-style-type: none"> <li data-bbox="353 464 1037 635">• <u>Decorative Hoarding</u> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context. <li data-bbox="353 659 1037 826">• <u>Management of facilities on work sites</u> To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. <li data-bbox="353 850 1037 1082">• <u>Tree Transplanting</u> Trees of high to medium survival rate would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006. 	Minimize visual & landscape impact	Within Project Site	Detailed design and construction stage	EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

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EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Air Quality (Construction Phase)							
-	A1	Emission from Vehicles and Plants <ul style="list-style-type: none"> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and • plant should be serviced regularly to avoid emission of • black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD) 	Reduce air pollution emission from construction vehicles and plants	All construction sites	Construction stage	• APCO	✓
		Open burning shall be prohibited	Reduce air pollution emission from work site	All construction sites	Construction stage	• APCO	✓
Construction Dust Impact							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	✓
S7.6.5	D2	<ul style="list-style-type: none"> • Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area and once per 1.5 hour at those in the Tai Wai area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to 	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	Rdr

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		maintain an equivalent intensity of no less than 1.8 L/m ² to achieve the dust removal efficiency					
S7.6.5	D3	<ul style="list-style-type: none"> • Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction 	Minimize dust impact at the nearby sensitive receivers	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	<p align="center">Rdr</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		<p>period;</p> <ul style="list-style-type: none"> • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; 					<p align="center">✓</p> <p align="center">✓</p> <p align="center">N/A</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		<ul style="list-style-type: none"> • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turving, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 					<p align="center">✓</p> <p align="center">✓</p> <p align="center">N/A</p>
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Selected representative dust monitoring station	Construction stage	• TM-EIA	<p align="center">✓</p>

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Construction Noise (Airborne)							
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	Control construction airborne noise	All construction sites	Construction stage	• Annex 5, TM-EIA	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	All construction sites	Construction stage	• Annex 5, TM-EIA	<p align="center">✓</p>
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and	Screen the noisy plant items to be used at all construction sites	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	<p align="center">✓</p>

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

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

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

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

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		<p>and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.</p> <ul style="list-style-type: none"> • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. • Adopt best management practices 					<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S10.7.1	W2	<p><u>Tunnelling Works</u></p> <ul style="list-style-type: none"> • Cut-&-cover/ open cut tunnelling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. • Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge • The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. • Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 	To minimize construction water quality impact from tunneling works	All tunneling portion	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • ProPECC PN 1/94 • TM-water • TM-EIAO 	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S10.7.1	W3	<u>Sewage Effluent</u>	To minimize water quality	All construction sites	Construction	• Water Pollution	

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		<ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. 	from sewage effluent	where practicable	stage	Control Ordinance • TM-water	✓
S10.7.1	W4	<p><u>Groundwater from Contaminated Area:</u></p> <ul style="list-style-type: none"> No direct discharge of groundwater from contaminated areas should be adopted. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in this EIA report for compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water) and the existence of prohibited substance should be confirmed. The review results should be submitted to EPD for examination. If the review results indicated that the groundwater to be generated from the excavation works would be contaminated, the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground. If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers. If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality 	To minimize groundwater quality impact from contaminated area	Excavation areas where contamination is found.	Construction stage	<ul style="list-style-type: none"> Water Pollution Control Ordinance TM-water TM-EIAO 	N/A N/A N/A

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
Waste Management (Construction Phase)							
S11.4.1.1	WM1	<p><u>On-site sorting of C&D material</u></p> <ul style="list-style-type: none"> Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored. 	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	All construction sites	Construction stage	<ul style="list-style-type: none"> DEVB TC(W) No. 6/2010 	✓
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; Carry out on-site sorting; Make provisions in the Contract documents to allow and 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	All construction sites	Construction stage	<ul style="list-style-type: none"> Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance 	✓ ✓

Environmental Mitigation Implementation Schedule – Works Contract 1103

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	Implementation Status
		<p>promote the use of recycled aggregates where appropriate;</p> <ul style="list-style-type: none"> • Adopt ‘Selective Demolition’ technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation 				<ul style="list-style-type: none"> • ETWB TCW No. 19/2005 	<p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p> <p align="center">✓</p>
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005 	<p align="center">✓</p> <p align="center">✓</p>

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

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

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Environmental Mitigation Implementation Schedule – Works Contract 1103

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

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

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

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Environmental Mitigation Implementation Schedule – Works Contract 1103

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

Environmental Mitigation Implementation Schedule – Works Contract 1103

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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

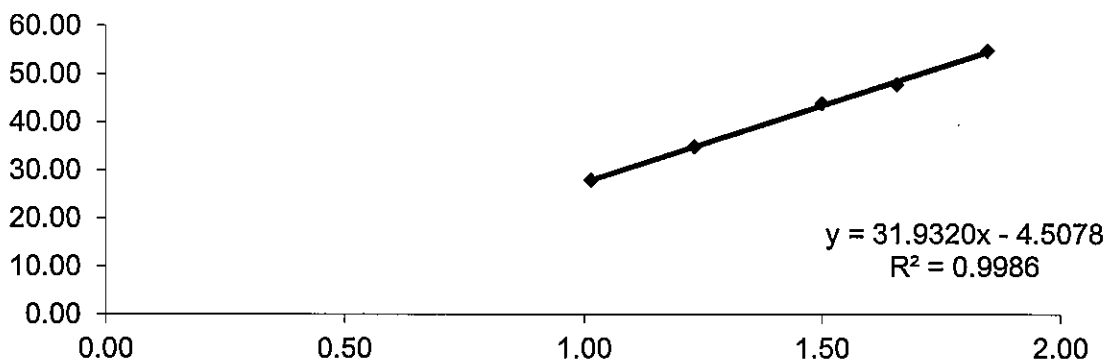
High Volume Air Sampler Calibration Worksheet

Calibration date	25-Sep-15	Barometric pressure	758 mm Hg
Next Calibration date	24-Nov-15	Temperature (°C)	27 °C
Sampler location	DMS1 - Thomas Cheung School	Temperature (K)	300 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	2.07308
Intercept of the standard curve, b _s	-0.2415

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.50	28.00	1.01	27.87
7	5.40	35.00	1.23	34.84
10	8.30	44.00	1.50	43.80
13	10.30	48.00	1.66	47.78
18	13.00	55.00	1.85	54.74

Calibration Curve



Linear Regression

Sampler slope (m) : **31.9320**
 Sampler intercept (b) : **-4.5078**
 Correlation coefficient (R²) : **0.9986**

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

Performed by: 

Date: 25-9-2015

Checked by: 

Date: 25-9-2015

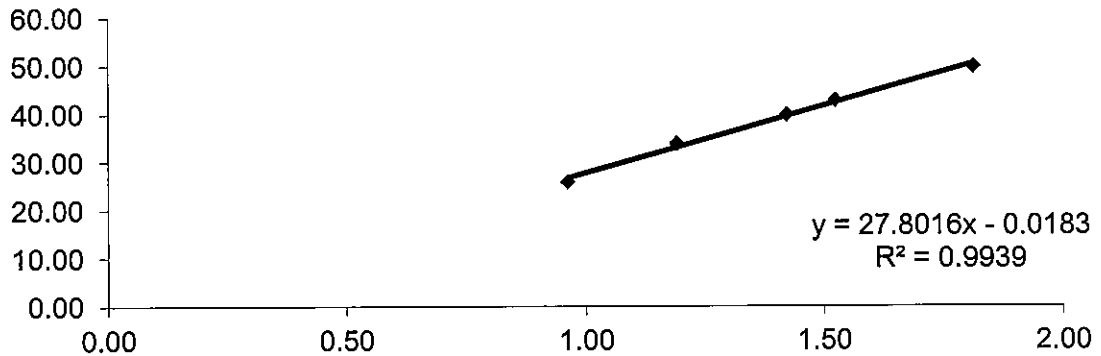
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	25-Sep-15	Barometric pressure	758 mm Hg
Next Calibration date	24-Nov-15	Temperature (°C)	27 °C
Sampler location	DMS2 - Price Memorial Catholic Pri	Temperature (K)	300 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	2.07308		
Intercept of the standard curve, b _s	-0.2415		

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.10	26.00	0.96	25.88
7	5.00	34.00	1.19	33.84
10	7.40	40.00	1.42	39.81
13	8.60	43.00	1.52	42.80
18	12.50	50.00	1.81	49.77


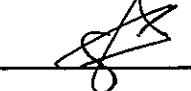
Calibration Curve



Linear Regression

Sampler slope (m) : **27.8016**
 Sampler intercept (b) : **-0.0183**
 Correlation coefficient (R²) : **0.9939**

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

Performed by: 
 Checked by: 

Date: 25-September-2015
 Date: 25-9-2015

Ove Arup Partners (Hong Kong) Limited

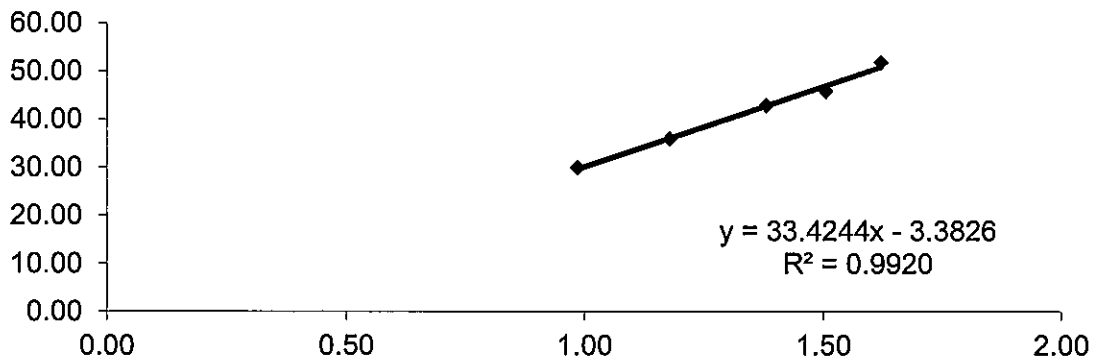
High Volume Air Sampler Calibration Worksheet

Calibration date	25-Sep-15	Barometric pressure	758 mm Hg
Next Calibration date	24-Nov-15	Tempature (°C)	27 °C
Sampler location	DMS3 - Sheng Kung Hui Nursing H	Tempature (K)	300 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	1.96531
Intercept of the standard curve, b _s	-0.02294

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.70	30.00	0.99	29.86
7	5.30	36.00	1.18	35.83
10	7.30	43.00	1.38	42.80
13	8.70	46.00	1.51	45.79
18	10.10	52.00	1.62	51.76


Calibration Curve




Linear Regression

Sampler slope (m) : **33.4244**
 Sampler intercept (b) : **-3.3826**
 Correlation coefficient (R²) : **0.9920**

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

Performed by: 

Date: 25-9-2015

Checked by: 

Date: 25-9-2015

Ove Arup Partners (Hong Kong) Limited

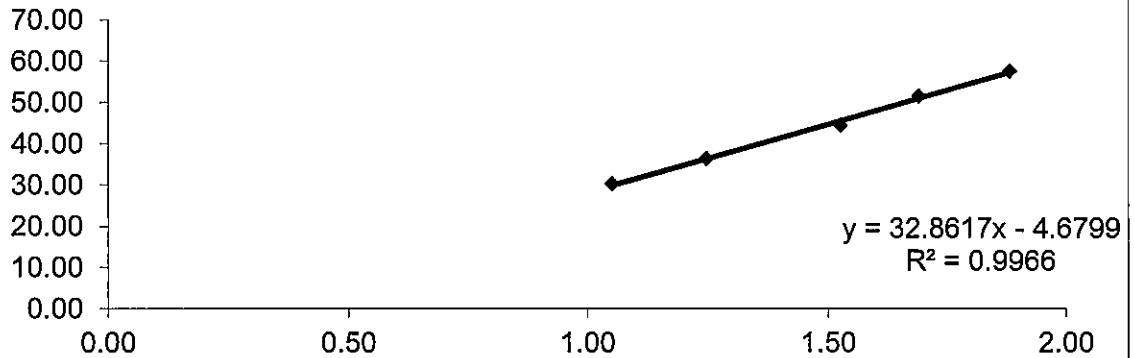
High Volume Air Sampler Calibration Worksheet

Calibration date	24-Nov-15	Barometric pressure	764 mm Hg
Next Calibration date	23-Jan-16	Temperature (°C)	22 °C
Sampler location	DMS1 - Thomas Cheung School	Temperature (K)	295 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	2.07308
Intercept of the standard curve, b _s	-0.2415

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.70	30.00	1.05	30.23
7	5.40	36.00	1.25	36.28
10	8.40	44.00	1.53	44.34
13	10.50	51.00	1.69	51.39
18	13.20	57.00	1.88	57.44

Calibration Curve



Linear Regression

Sampler slope (m) :	32.8617
Sampler intercept (b) :	-4.6799
Correlation coefficient (R ²) :	0.9966

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

Performed by: Gabriel Cheung

Date: 24-11-2015

Checked by: [Signature]

Date: 24-11-2015

Ove Arup Partners (Hong Kong) Limited

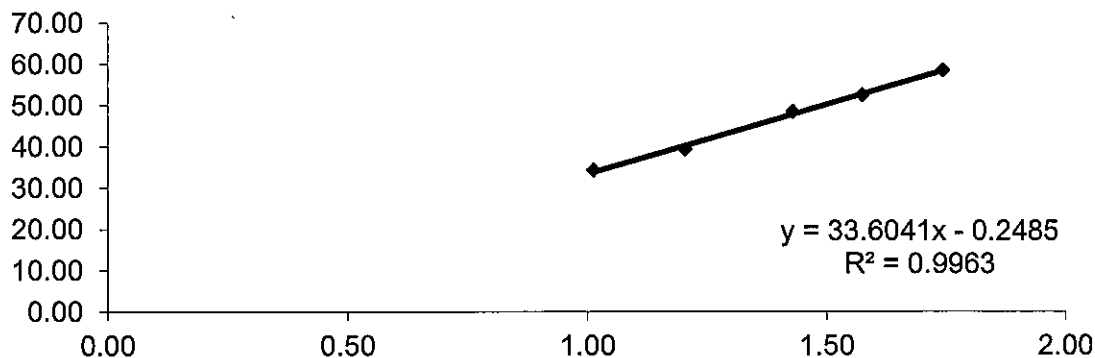
High Volume Air Sampler Calibration Worksheet

Calibration date	24-Nov-15	Barometric pressure	764 mm Hg
Next Calibration date	23-Jan-16	Temperature (°C)	22 °C
Sampler location	DMS2 - Price Memorial Catholic Pri	Temperature (K)	295 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	2.07308
Intercept of the standard curve, b _s	-0.2415

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.40	34.00	1.01	34.26
7	5.00	39.00	1.20	39.30
10	7.30	48.00	1.43	48.37
13	9.00	52.00	1.57	52.40
18	11.20	58.00	1.74	58.45

Calibration Curve



Linear Regression

Sampler slope (m) :	33.6041
Sampler intercept (b) :	-0.2485
Correlation coefficient (R ²) :	0.9963

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

Performed by: Gabriel Cheng

Date: 24-11-2015

Checked by: [Signature]

Date: 24-11-2015

Ove Arup Partners (Hong Kong) Limited

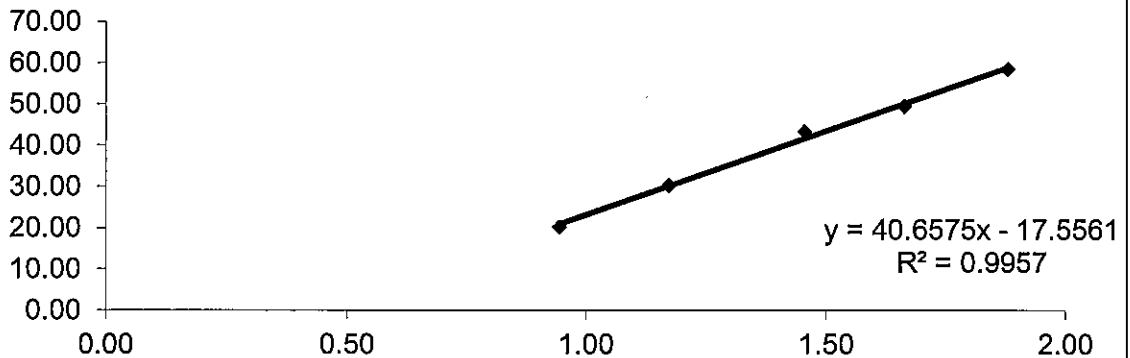
High Volume Air Sampler Calibration Worksheet

Calibration date	24-Nov-15	Barometric pressure	764 mm Hg
Next Calibration date	23-Jan-16	Temperature (°C)	22 °C
Sampler location	DMS3 - Sheng Kung Hui Nursing H	Temperature (K)	295 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	2.07308
Intercept of the standard curve, b _s	-0.04607

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.60	20.00	0.94	20.15
7	5.60	30.00	1.17	30.23
10	8.70	43.00	1.46	43.33
13	11.40	49.00	1.66	49.38
18	14.60	58.00	1.88	58.45

Calibration Curve



Linear Regression

Sampler slope (m) : **40.6575**
 Sampler intercept (b) : **-17.5561**
 Correlation coefficient (R²) : **0.9957**

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

Performed by: Gabriel Cheung

Date: 24-11-2015

Checked by: [Signature]

Date: 29-11-2015



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jan 20, 2015 Rootmeter S/N 0438320 Ta (K) - 293
 Operator Tisch Orifice I.D. - 2421 Pa (mm) - 749.3

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	1.4130	3.2	2.00
2	NA	NA	1.00	1.0060	6.3	4.00
3	NA	NA	1.00	0.9020	7.8	5.00
4	NA	NA	1.00	0.8590	8.7	5.50
5	NA	NA	1.00	0.7090	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9984	0.7066	1.4162	0.9957	0.7047	0.8843
0.9943	0.9884	2.0027	0.9916	0.9857	1.2507
0.9922	1.1000	2.2391	0.9895	1.0970	1.3983
0.9911	1.1538	2.3484	0.9884	1.1506	1.4665
0.9858	1.3905	2.8323	0.9831	1.3867	1.7687

Qstd slope (m) = 2.07308
 intercept (b) = -0.04607
 coefficient (r) = 0.99995

Qa slope (m) = 1.29813
 intercept (b) = -0.02877
 coefficient (r) = 0.99995

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

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

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

Appendix E

Dust Results

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

Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m ³ /min)		Average Flow Rate (m ³ /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m ³)	24-hour TSP Level (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
131443	Nov-15	3-Nov-15	0:00	0:00	DMS1	Fine	Normal Operation	763.0	762.8	23.2	23.2	34.0	40.0	2.8036	2.9059	0.1023	1.1242	1.2975	1.2109	3997.54	4021.54	1440.00	1743.62	58.7	148.7	260.0
131447	Nov-15	9-Nov-15	0:00	0:00	DMS1	Fine	Normal Operation	762.5	762.7	22.7	22.4	36.0	38.0	2.8045	2.8484	0.0439	1.1826	1.2411	1.2119	4021.55	4045.55	1440.00	1745.06	25.2	148.7	260.0
131450	Nov-15	14-Nov-15	0:00	0:00	DMS1	Fine	Normal Operation	763.0	763.1	22.2	22.0	36.0	38.0	2.8097	2.8536	0.0439	1.1838	1.2421	1.2130	4045.56	4069.56	1440.00	1746.65	25.1	148.7	260.0
131453	Nov-15	20-Nov-15	0:00	0:00	DMS1	Fine	Normal Operation	764.1	763.9	20.7	20.9	34.0	34.0	2.8042	2.8398	0.0356	1.1291	1.1287	1.1289	4069.57	4093.57	1440.00	1625.62	21.9	148.7	260.0
131456	Nov-15	26-Nov-15	0:00	0:00	DMS1	Fine	Normal Operation	763.9	764.1	20.8	20.4	42.0	42.0	2.8182	2.9266	0.1084	1.3610	1.3620	1.3615	4093.58	4117.58	1440.00	1960.56	55.3	148.7	260.0

Average (µg/m3)	37.2
Max (µg/m3)	58.7
Min (µg/m3)	21.9

Location: DMS-2 Price Memorial Catholic Primary School

Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m ³ /min)		Average Flow Rate (m ³ /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m ³)	24-hour TSP Level (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
131441	Nov-15	3-Nov-15	0:00	0:00	DMS2	Fine	Normal Operation	763.0	762.8	23.2	23.2	40.0	40.0	2.8242	2.9360	0.1118	1.3415	1.3414	1.3415	3384.6	3408.6	1440.00	1931.7	57.9	167.4	260.0
131444	Nov-15	9-Nov-15	0:00	0:00	DMS2	Fine	Normal Operation	762.5	762.7	22.7	22.4	40.0	40.0	2.7900	2.8579	0.0679	1.3422	1.3430	1.3426	3408.6	3432.6	1440.00	1933.3	35.1	167.4	260.0
131448	Nov-15	14-Nov-15	0:00	0:00	DMS2	Fine	Normal Operation	763.0	763.1	22.2	22.0	40.0	40.0	2.7999	2.8872	0.0873	1.3436	1.3441	1.3439	3432.59	3456.59	1440.00	1935.14	45.1	167.4	260.0
131451	Nov-15	20-Nov-15	0:00	0:00	DMS2	Fine	Normal Operation	764.1	763.9	20.7	20.9	40.0	40.0	2.8190	2.9156	0.0966	1.3475	1.3470	1.3473	3456.60	3480.60	1440.00	1940.04	49.8	167.4	260.0
131454	Nov-15	26-Nov-15	0:00	0:00	DMS2	Fine	Normal Operation	763.9	764.1	20.8	20.4	40.0	40.0	2.8186	2.9401	0.1215	1.3472	1.3482	1.3477	3480.61	3504.61	1440.00	1940.69	62.6	167.4	260.0

Average (µg/m3)	50.1
Max (µg/m3)	62.6
Min (µg/m3)	35.1

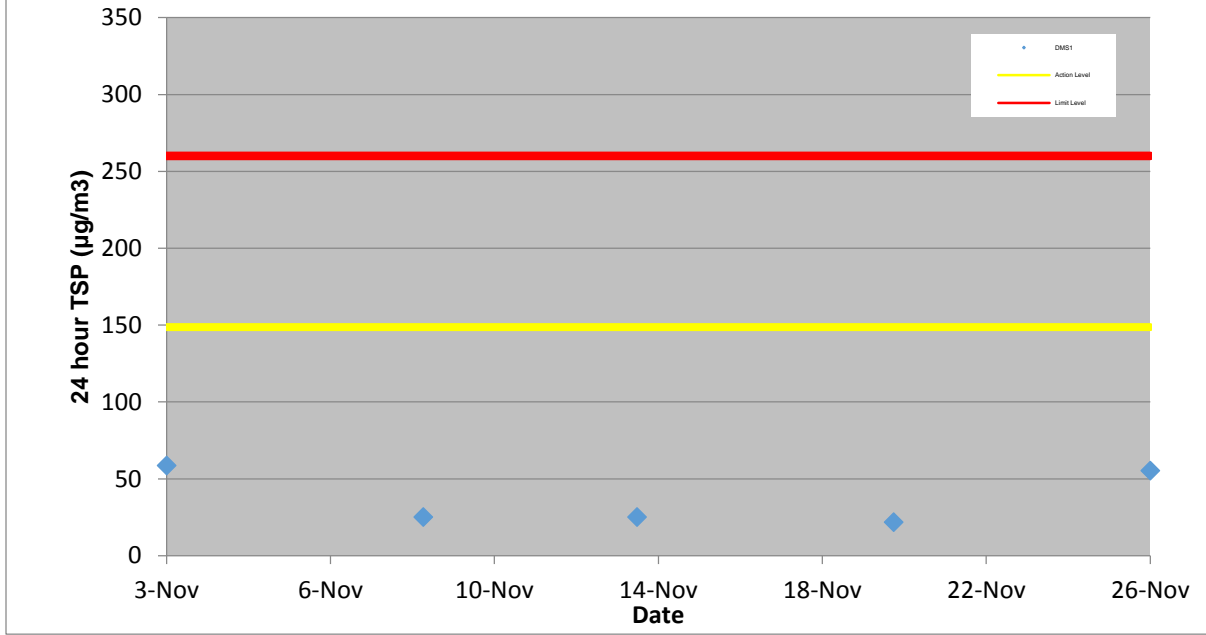
Location: DMS-3/DMS-4 - Hong Kong Sheng Kung Hui Nursing Home

Details of 24-Hour TSP Monitoring

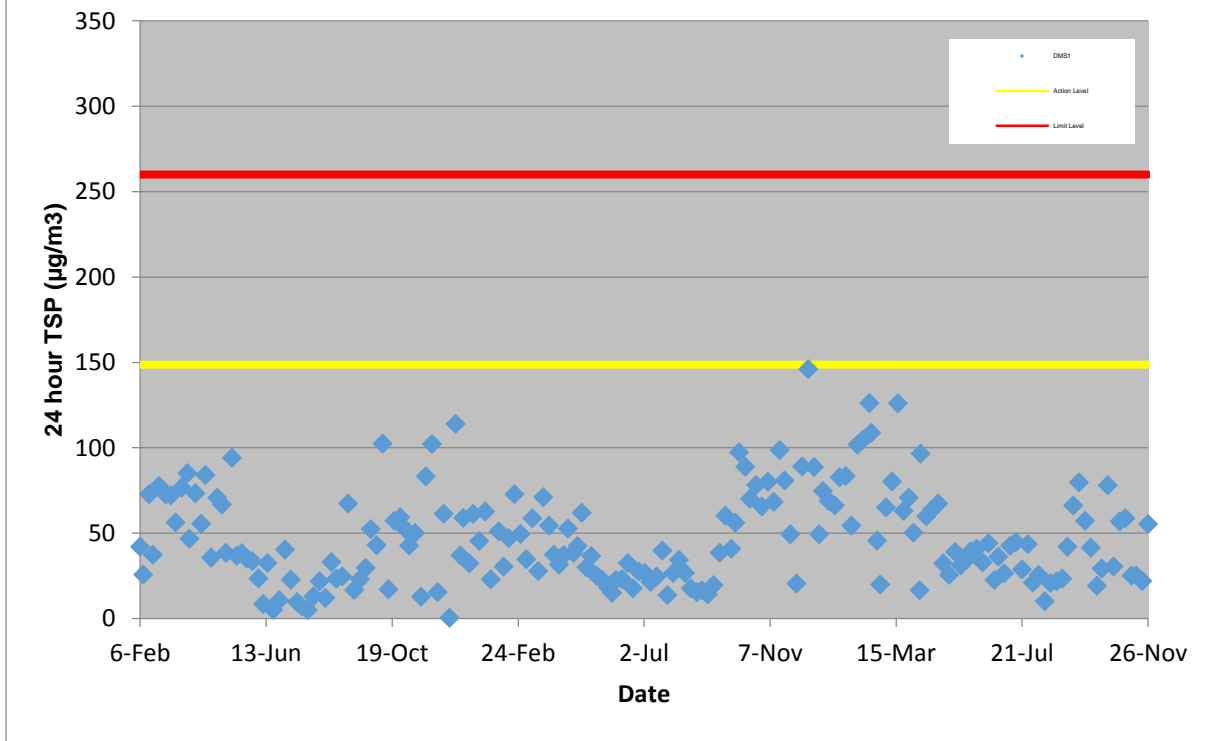
Filter No.	Month	Date	Time periods		Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m ³ /min)		Average Flow Rate (m ³ /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m ³)	24-hour TSP Level (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
			Start	Finish				Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish					
131442	Nov-15	3-Nov-15	0:00	0:00	DMS3	Fine	Normal Operation	763.0	762.8	23.2	23.2	36.0	41.0	2.8146	2.9016	0.0870	1.1314	1.3501	1.2408	3513.04	3537.04	1440.00	1786.68	48.7	159.1	260.0
131445	Nov-15	9-Nov-15	0:00	0:00	DMS3	Fine	Normal Operation	762.5	762.7	22.7	22.4	39.0	39.0	2.8128	2.9087	0.0959	1.2636	1.2647	1.2642	3537.05	3561.05	1440.00	1820.38	52.7	159.1	260.0
131449	Nov-15	14-Nov-15	0:00	0:00	DMS3	Fine	Normal Operation	763.0	763.1	22.2	22.0	40.0	40.0	2.8088	2.8913	0.0825	1.3094	1.3102	1.3098	3561.06	3585.06	1440.00	1886.11	43.7	159.1	260.0
131452	Nov-15	20-Nov-15	0:00	0:00	DMS3	Fine	Normal Operation	764.1	763.9	20.7	20.9	40.0	40.0	2.8284	2.9314	0.1030	1.3152	1.3144	1.3148	3585.07	3609.07	1440.00	1893.31	54.4	159.1	260.0
131455	Nov-15	26-Nov-15	0:00	0:00	DMS3	Fine	Normal Operation	763.9	764.1	20.8	20.4	40.0	40.0	2.8077	2.9279	0.1202	1.3146	1.3161	1.3154	3609.08	3633.08	1440.00	1894.10	63.5	159.1	260.0

Average (µg/m3)	52.6
Max (µg/m3)	63.5
Min (µg/m3)	43.7

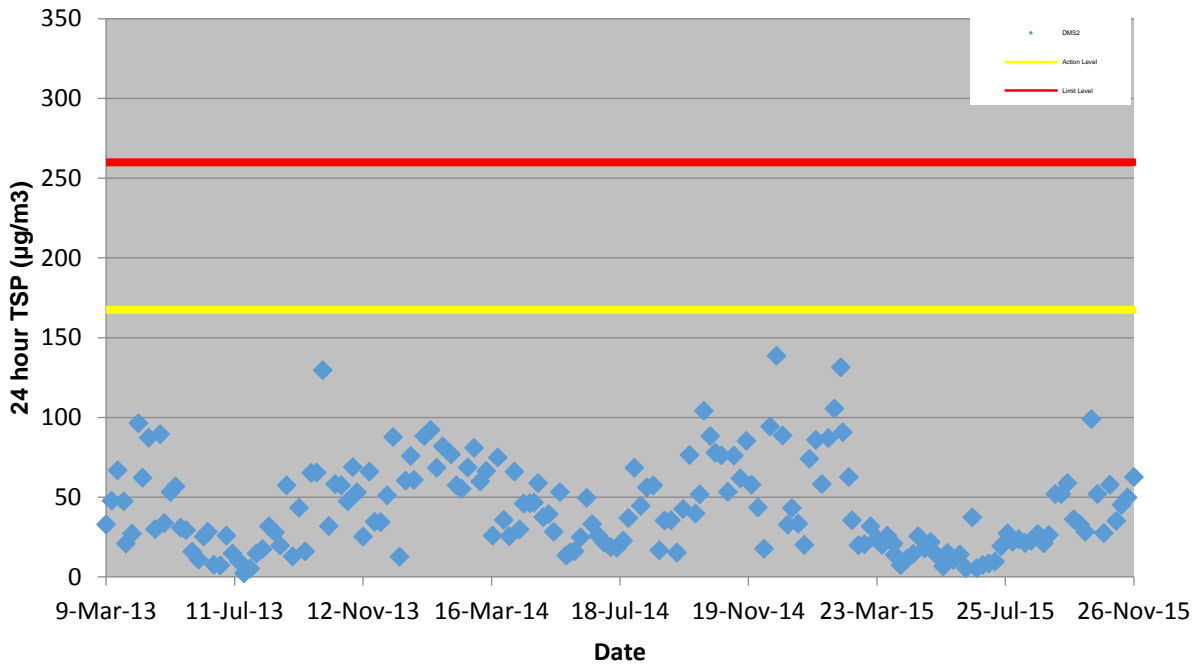
Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-1



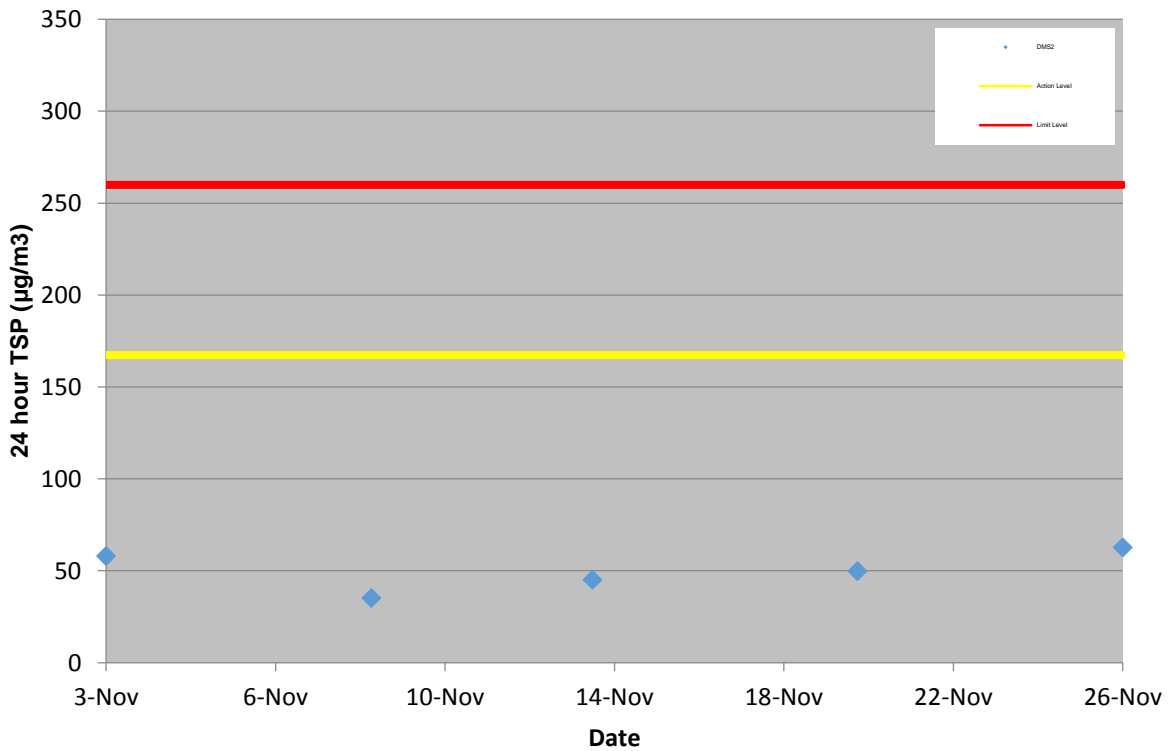
Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-1
From February 2013 to November 2015

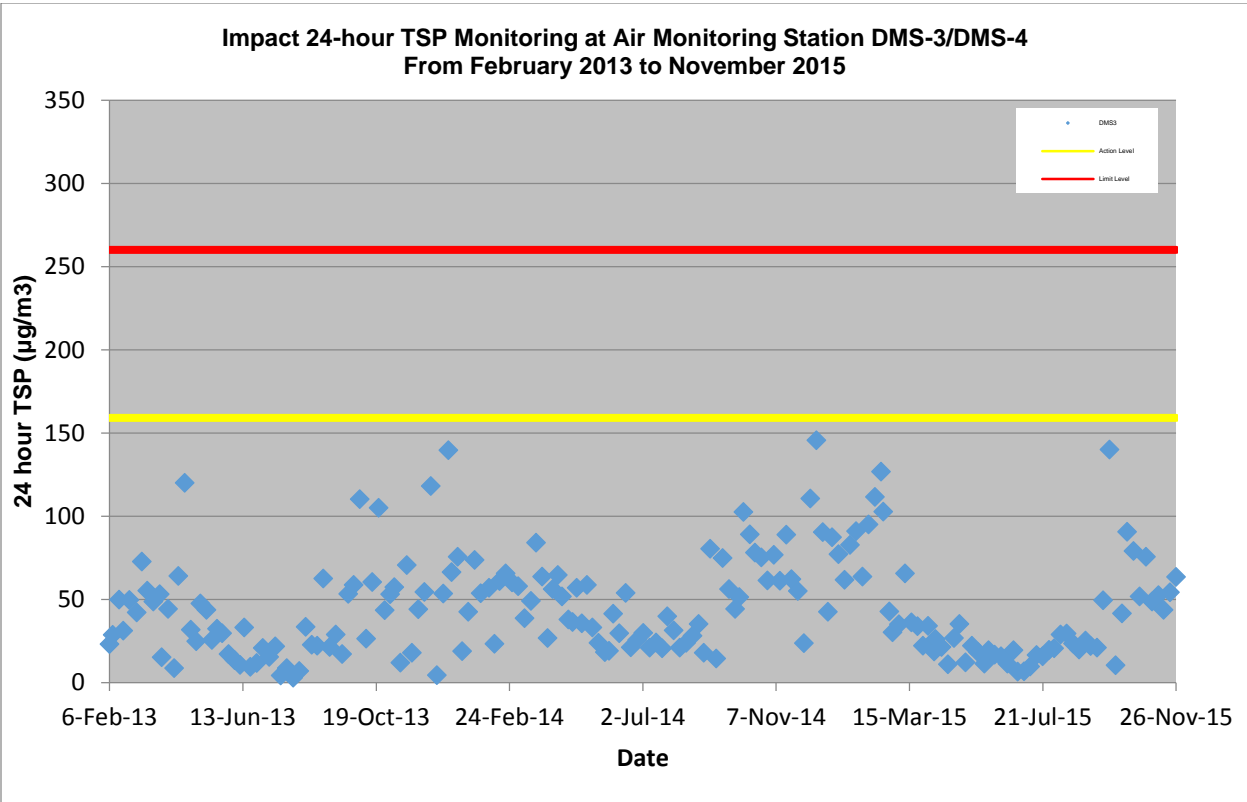
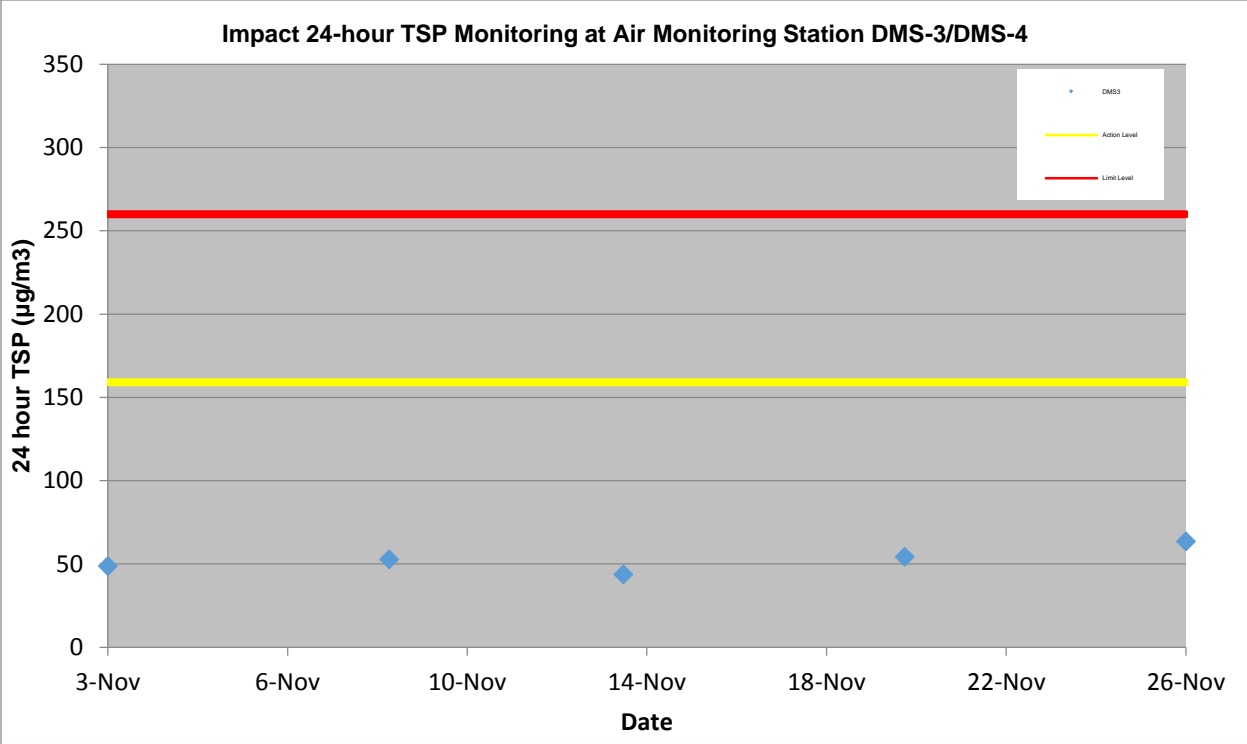


**Impact 24-hour TSP Monitoring at Air Monitoring Station DMS-2
From March 2013 to November 2015**



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



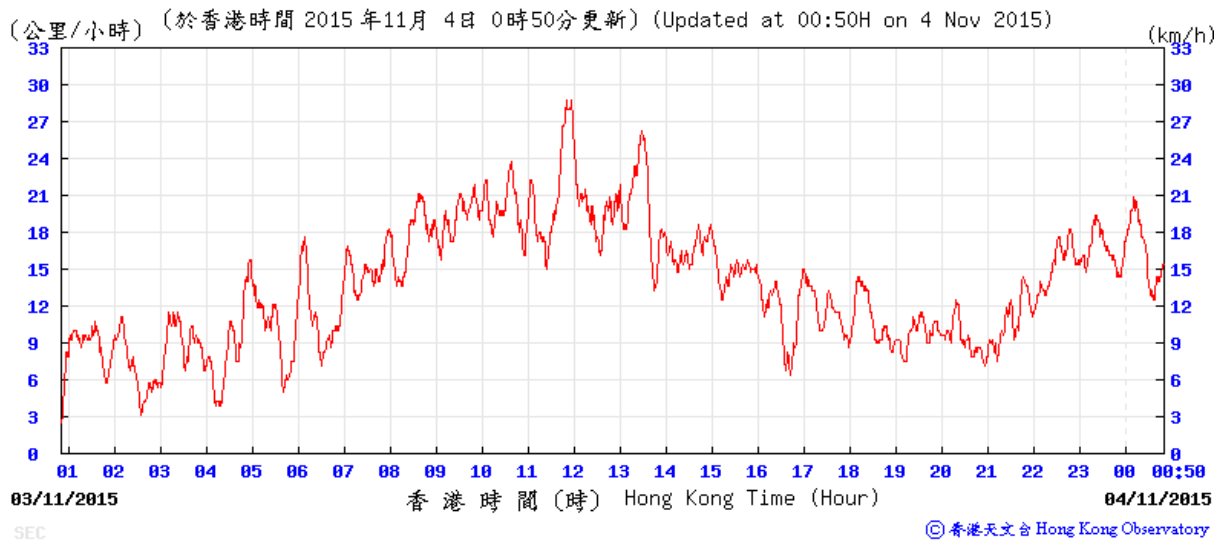


Appendix F

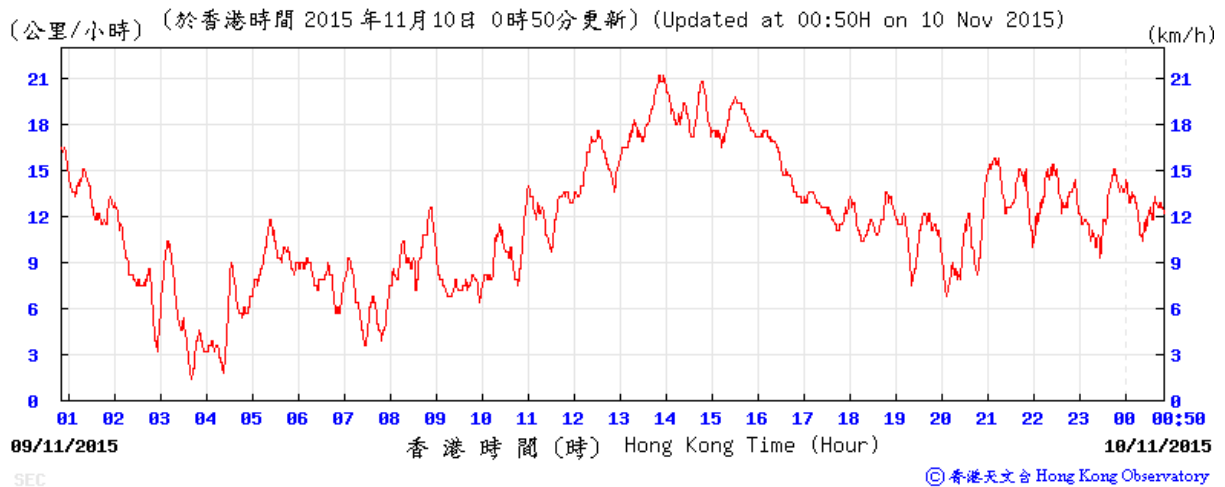
Wind data

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

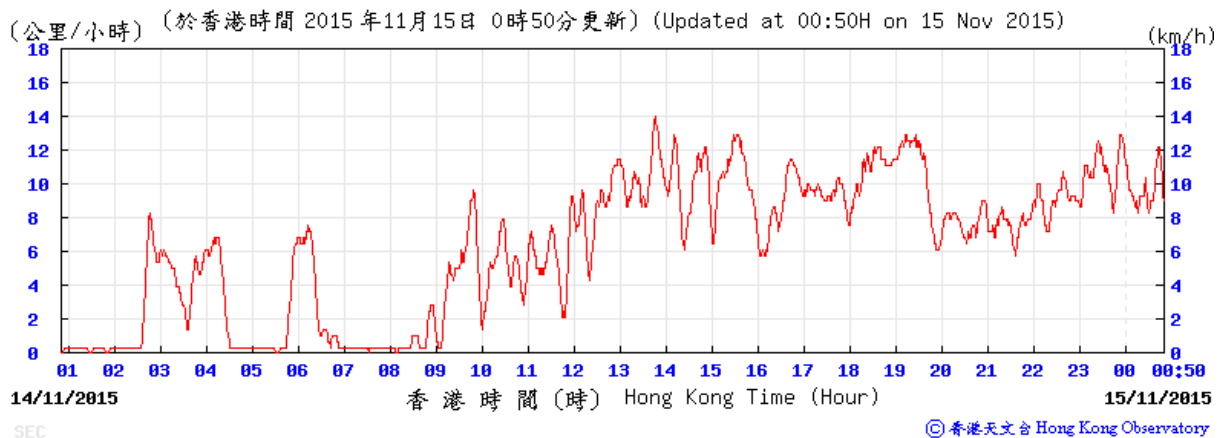
3 November 2015



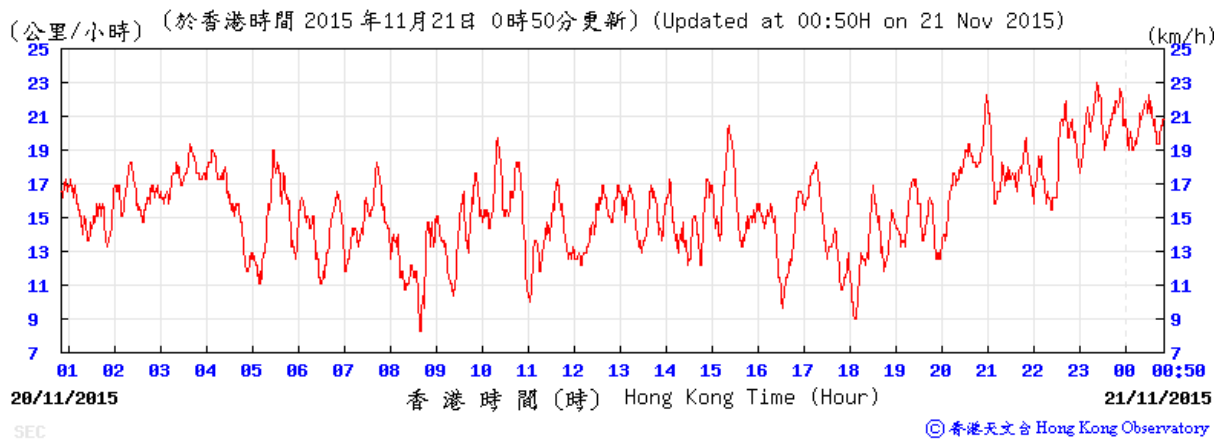
9 November 2015



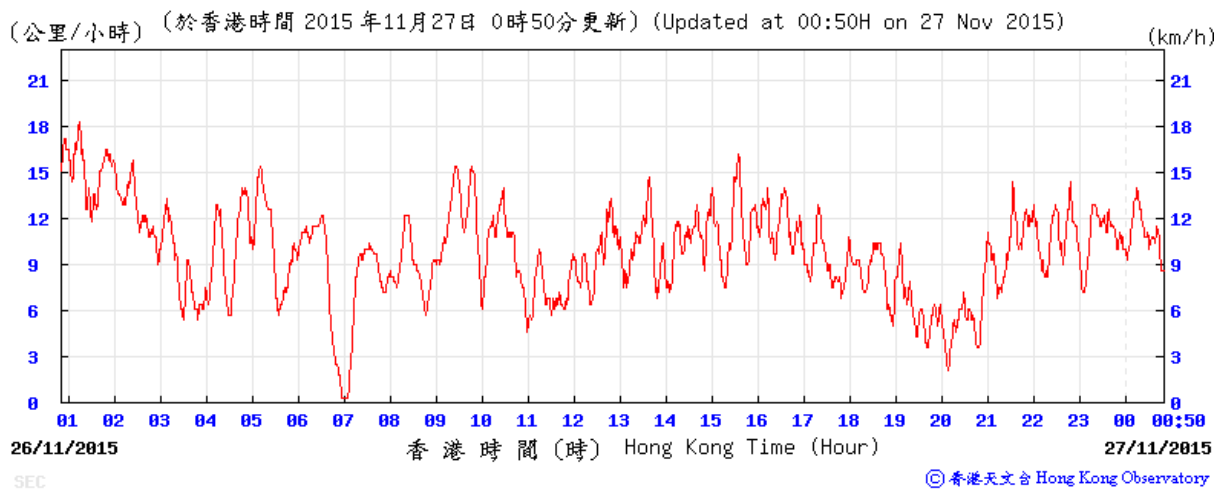
14 November 2015



20 November 2015

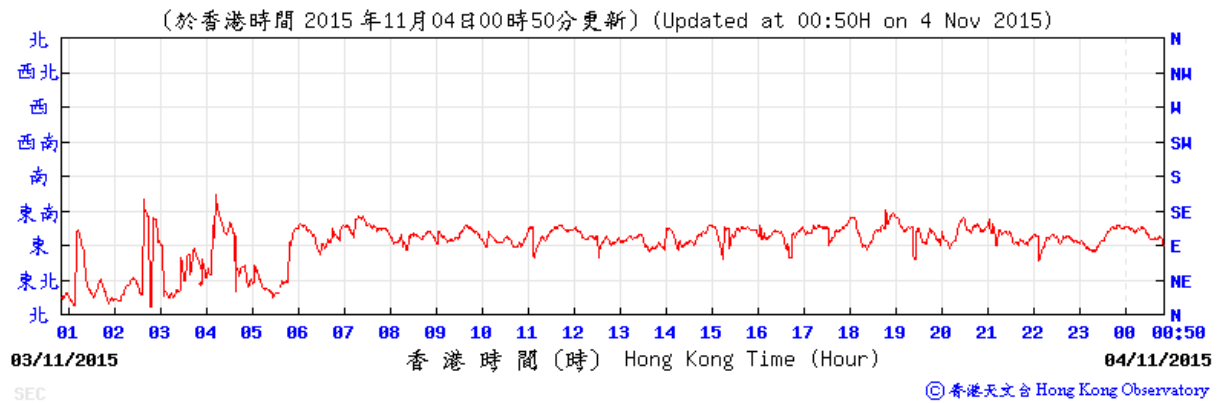


26 November 2015

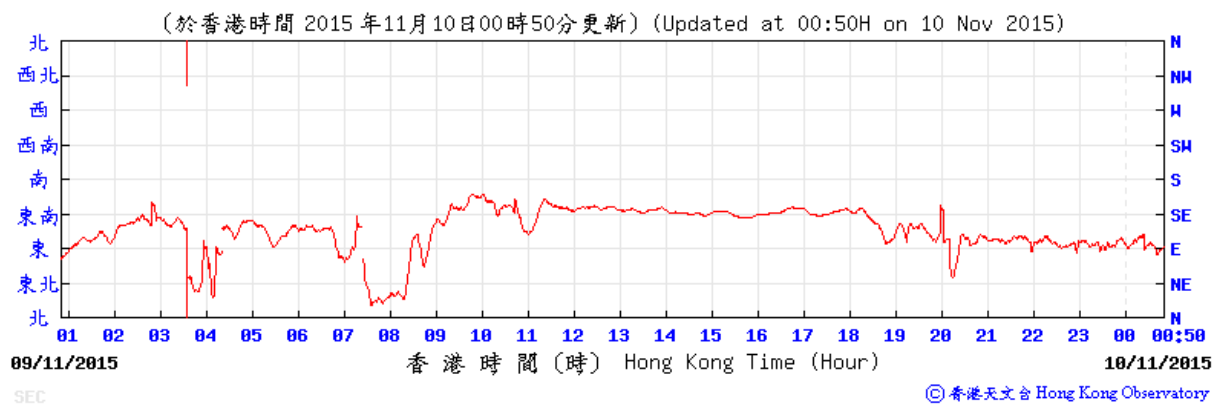


Average wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

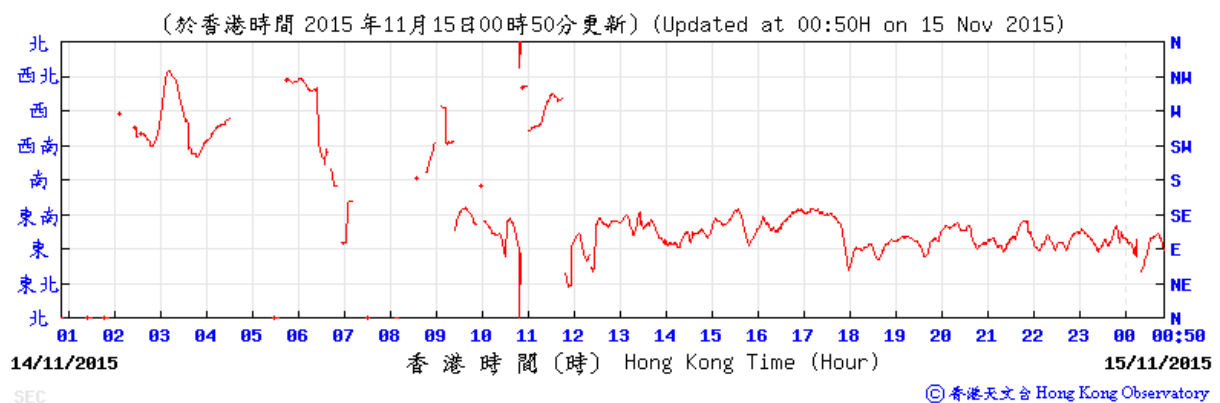
3 November 2015



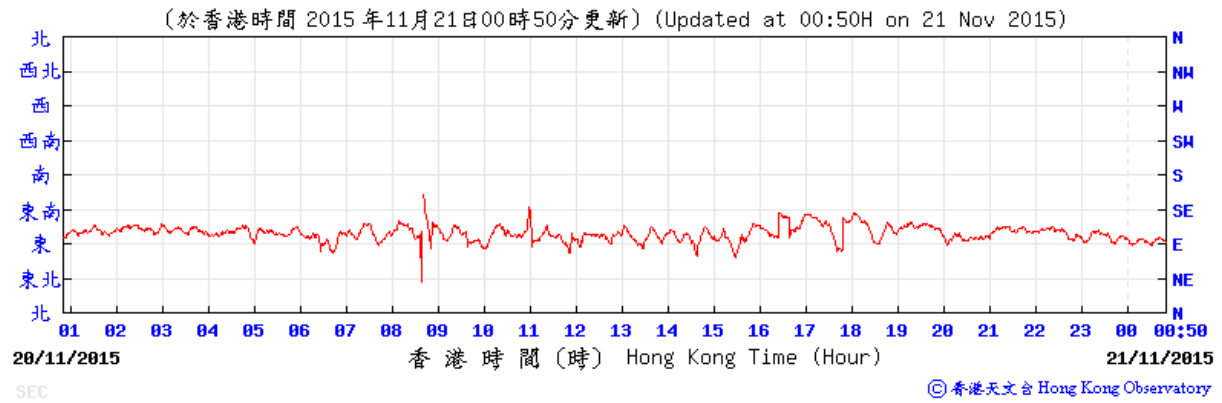
9 November 2015



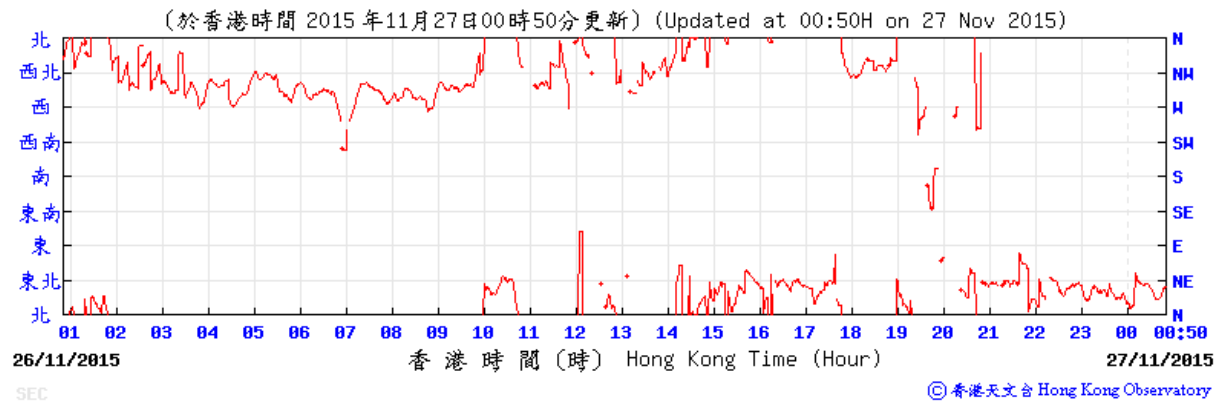
14 November 2015



20 November 2015

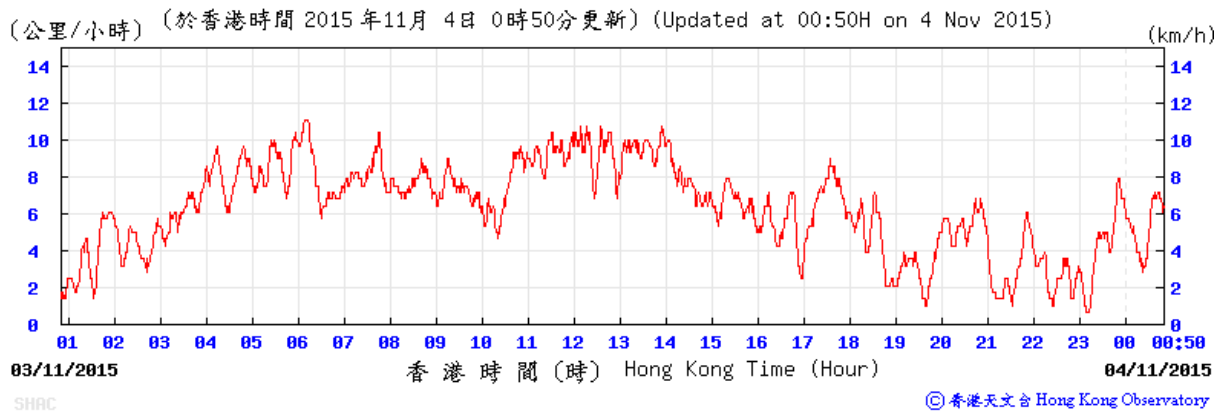


26 November 2015

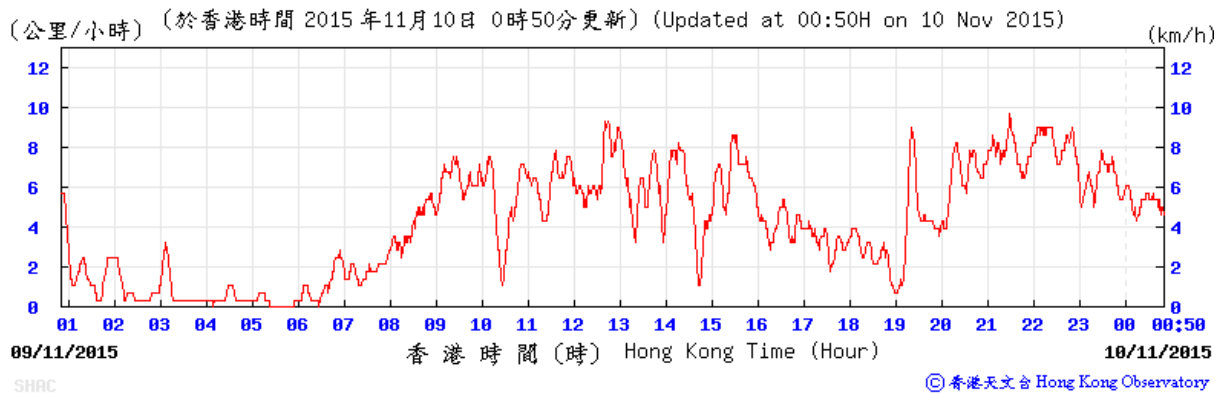


Average wind speed obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

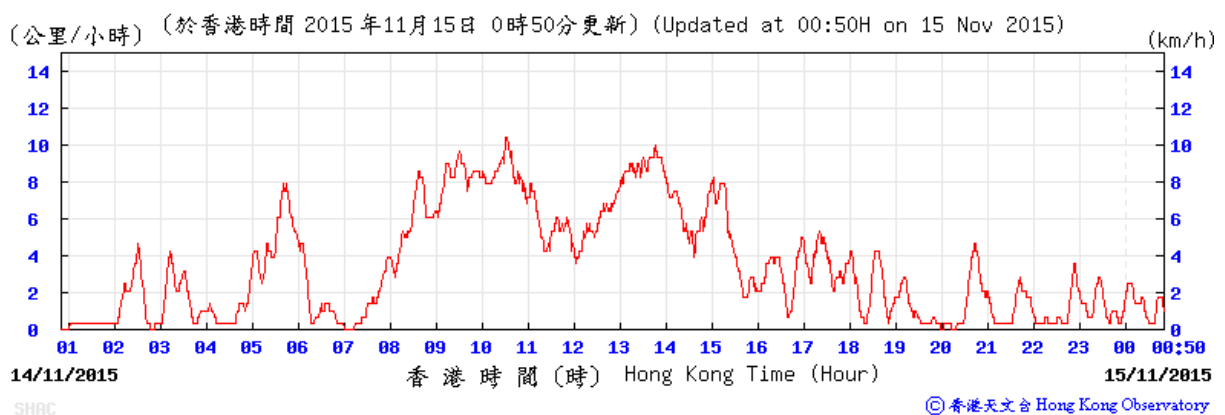
3 November 2015



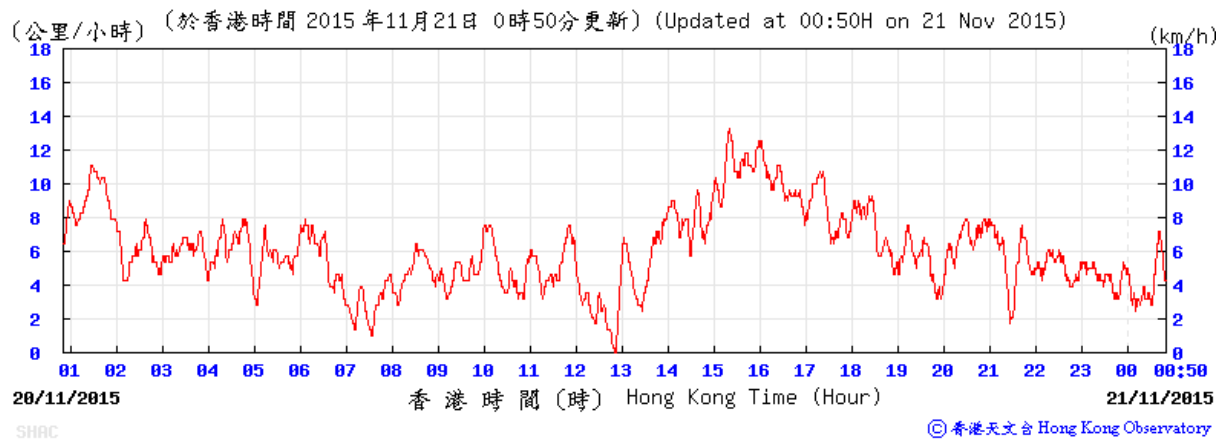
9 November 2015



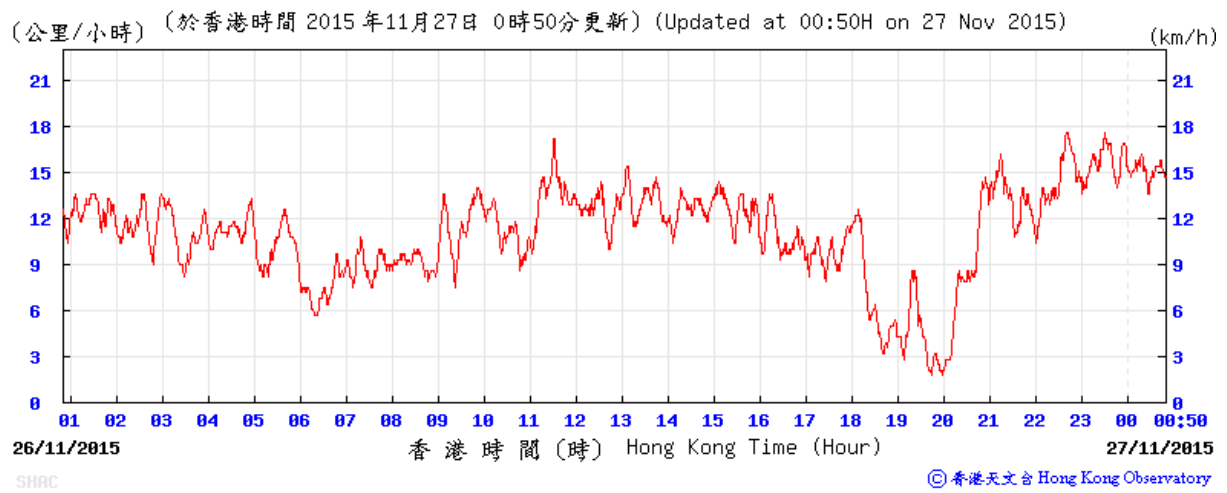
14 November 2015



20 November 2015

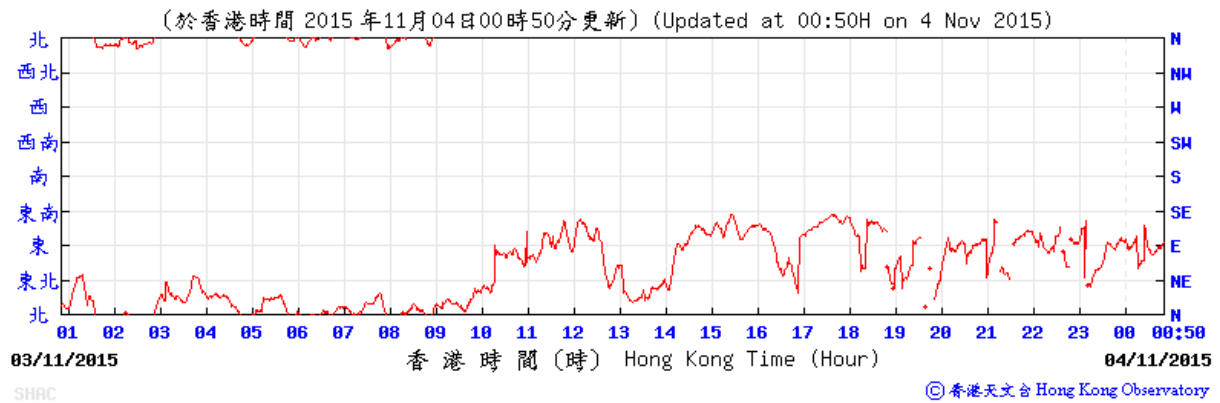


26 November 2015

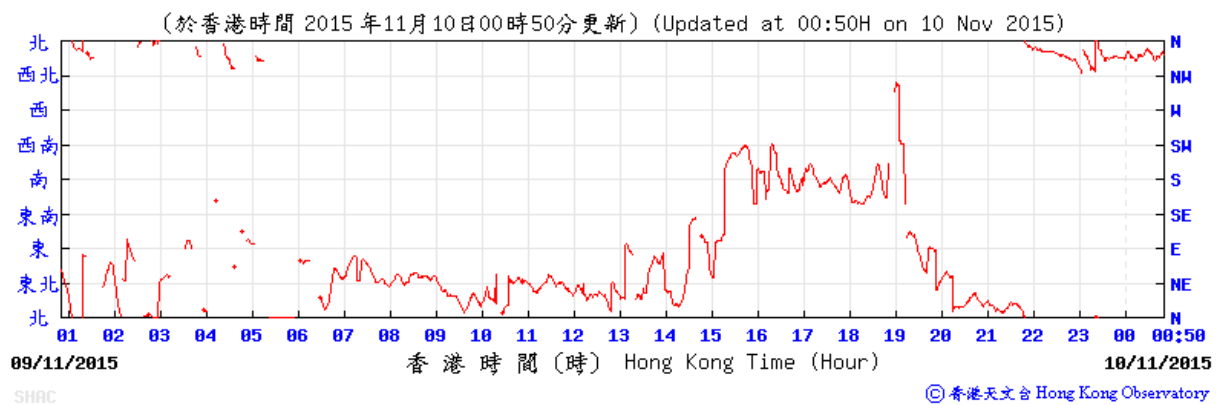


Average wind direction obtained from the meteorological station at Sha Tin from the Hong Kong Observatory (HKO)

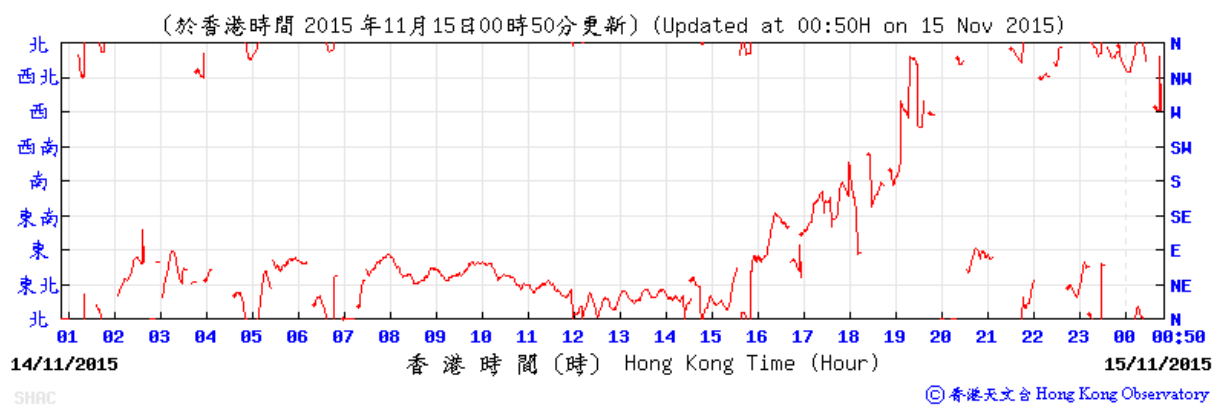
3 November 2015



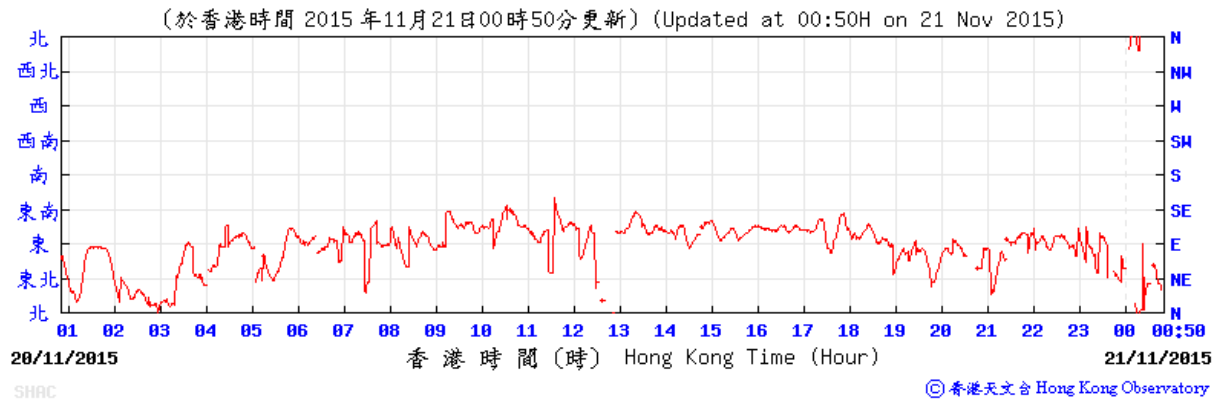
9 November 2015



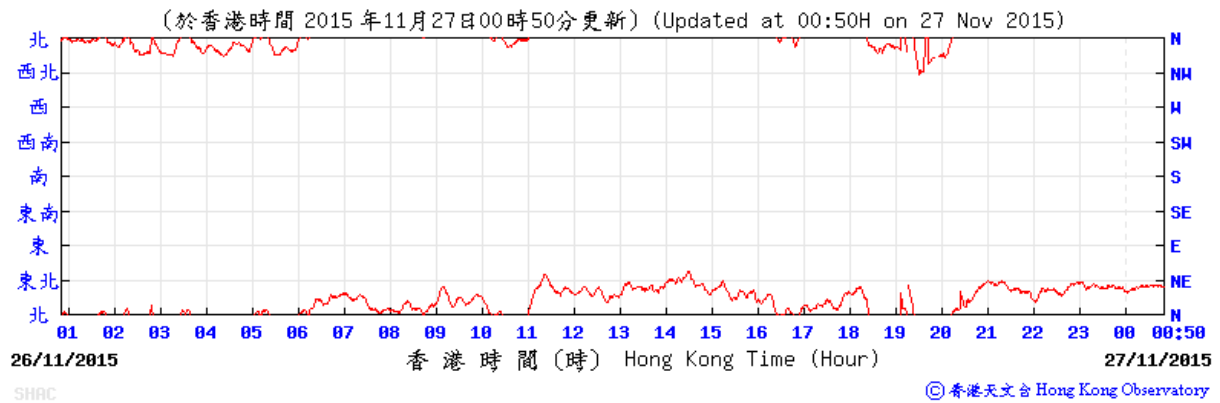
14 November 2015



20 November 2015



26 November 2015



Appendix G

Calibration
Certificates of Noise
Monitoring
Equipment



Certificate of Calibration 校正證書

Certificate No. : C155484
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-2252) Date of Receipt / 收件日期 : 30 September 2015

Description / 儀器名稱 : Integrating Sound Level Meter
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2320696
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
Line Voltage / 電壓 : ---
Relative Humidity / 相對濕度 : (55 ± 20)%

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 5 October 2015

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
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested By : 
測試 : H T Wong
Technical Officer

Certified By : 
核證 : K/C Lee
Project Engineer

Date of Issue : 6 October 2015
簽發日期

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

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

Certificate of Calibration

校正證書

Certificate No. : C155484
證書編號

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

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C150014
CL281	Multifunction Acoustic Calibrator	DC130171

- Test procedure : MA101N.

- Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

- 6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFP}	A	F	94.00	1	93.8

- 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		104.0
				114.00		114.0

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

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

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Certificate of Calibration

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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	55.1	-39.4 ± 1.5
					63 Hz	68.1	-26.2 ± 1.5
					125 Hz	78.0	-16.1 ± 1.0
					250 Hz	85.5	-8.6 ± 1.0
					500 Hz	90.9	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	93.0	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

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Certificate of Calibration

校正證書

Certificate No. : C155484
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	91.2	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.1	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
					8 kHz	91.1	-3.0 (+1.5 ; -3.0)
					12.5 kHz	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
			60 sec.					90	90.1	± 0.5
			5 min.					80	79.3	± 1.0
								70	69.2	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2630747

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

- Uncertainties of Applied Value :

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

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

Note :

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

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

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Calibration Certificate

Certificate No. **507599**

Page 1 of 2 Pages

Customer : Ove Arup & Partners HK Ltd

Address : Level 5, Festival Walk, 80 Tat Chi Avenue, Kowloon, Hong Kong

Order No. : Q52959

Date of receipt : 2-Sep-15

Item Tested

Description : Sound Level Calibrator

Manufacturer : B&K

Model : Type 4231

Serial No. : 2713427

Test Conditions

Date of Test : 7-Sep-15

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure : F21, Z02, IEC942.

Test Results

All results were within the manufacturer's and IEC942 class 1 specification .

The results are shown in the attached page(s).

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	505317	NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	500563	NIM-PRC & SCL-HKSAR
S041	Universal Counter	506951	SCL-HKSAR
S206	Sound Level Meter	506958	SCL-HKSAR

The values given in this Calibration 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 environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : 
Dorothy Cheuk

Approved by : 
Steve Kwan

Date: 7-Sep-15

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646



Calibration Certificate

Certificate No. 507599

Page 2 of 2 Pages

Results :

1. Level Accuracy

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	94.1	± 0.3 dB
114	114.1	

Uncertainty : ± 0.1 dB

2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1.000 kHz	1.0000 kHz	± 2 %

Uncertainty : ± 3.6 x 10⁻⁶

3. **Level Stability** : 0.0 dB
IEC 942 Class 1 Spec. : ± 0.1 dB
Uncertainty : ± 0.01 dB

4. **Total Harmonic Distortion** : < 0.3 %
IEC 942 Class 1 Spec. : < 3 %
Uncertainty : ± 2.3 % of reading

- Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1002 hPa.

----- END -----

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}
5-Nov-15	12:00-12:30	52.4	65.0	53.8	51.3	57.0	< Baseline Level
10-Nov-15	16:00-16:30	56.0	70.0	57.8	53.9	57.0	< Baseline Level
18-Nov-15	17:00-17:30	54.2	70.0	56.7	52.7	57.0	< Baseline Level
27-Nov-15	16:30-17:00	54.6	70.0	56.0	52.0	57.0	< Baseline Level

Notes: (*) : Façade correction is included

Average L _{Aeq,30min}	54.3
Max L _{Aeq,30min}	56.0
Min L _{Aeq,30min}	52.4

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

Daytime Noise Monitoring Results

Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L _{Aeq,30min}	Limit	L _{10,30min}	L _{90,30min}	L _{Aeq,30min}	L _{Aeq,30min}
5-Nov-15	9:30-10:00	61.8	70.0	65.0	58.1	66.0	< Baseline Level
10-Nov-15	14:00-14:30	61.6	70.0	63.2	59.6	66.0	< Baseline Level
18-Nov-15	14:15-14:45	58.6	70.0	60.7	57.8	66.0	< Baseline Level
27-Nov-15	14:15-14:45	59.4	70.0	60.4	58.2	66.0	< Baseline Level

Notes: (*) : Façade correction is included

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

Average L _{Aeq,30min}	60.4
Max L _{Aeq,30min}	61.8
Min L _{Aeq,30min}	58.6

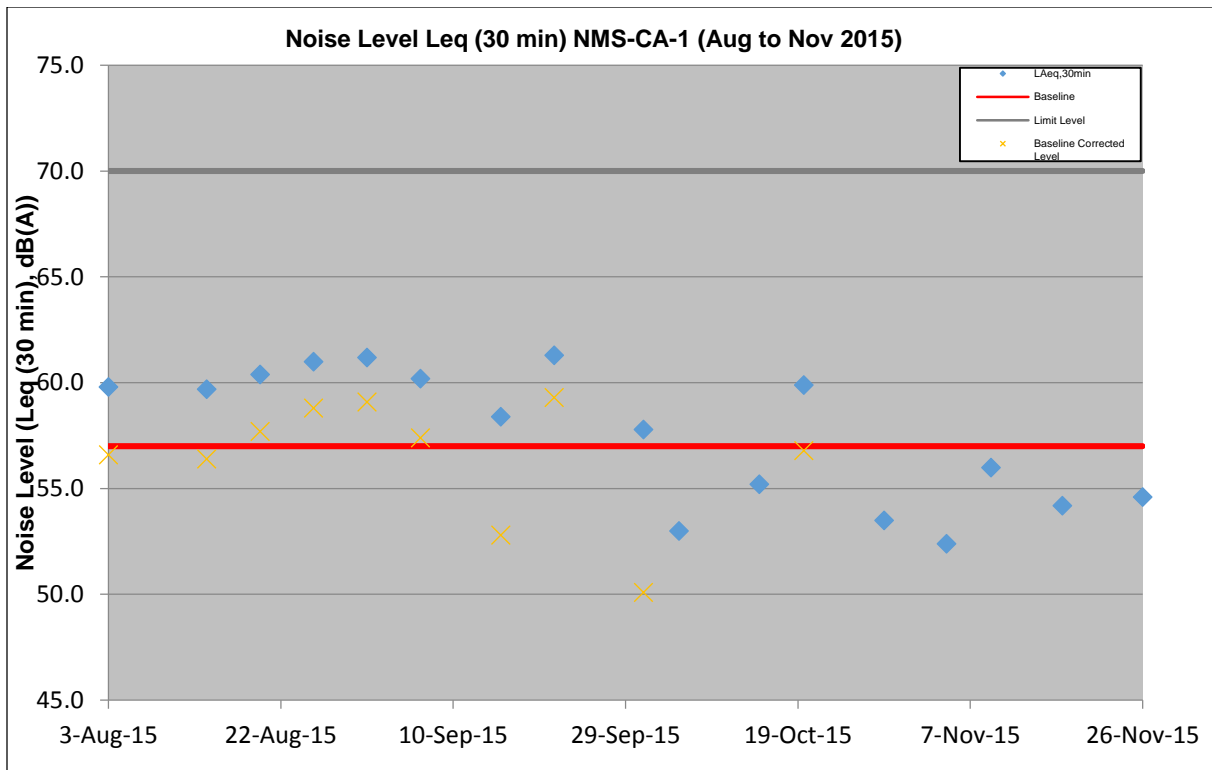
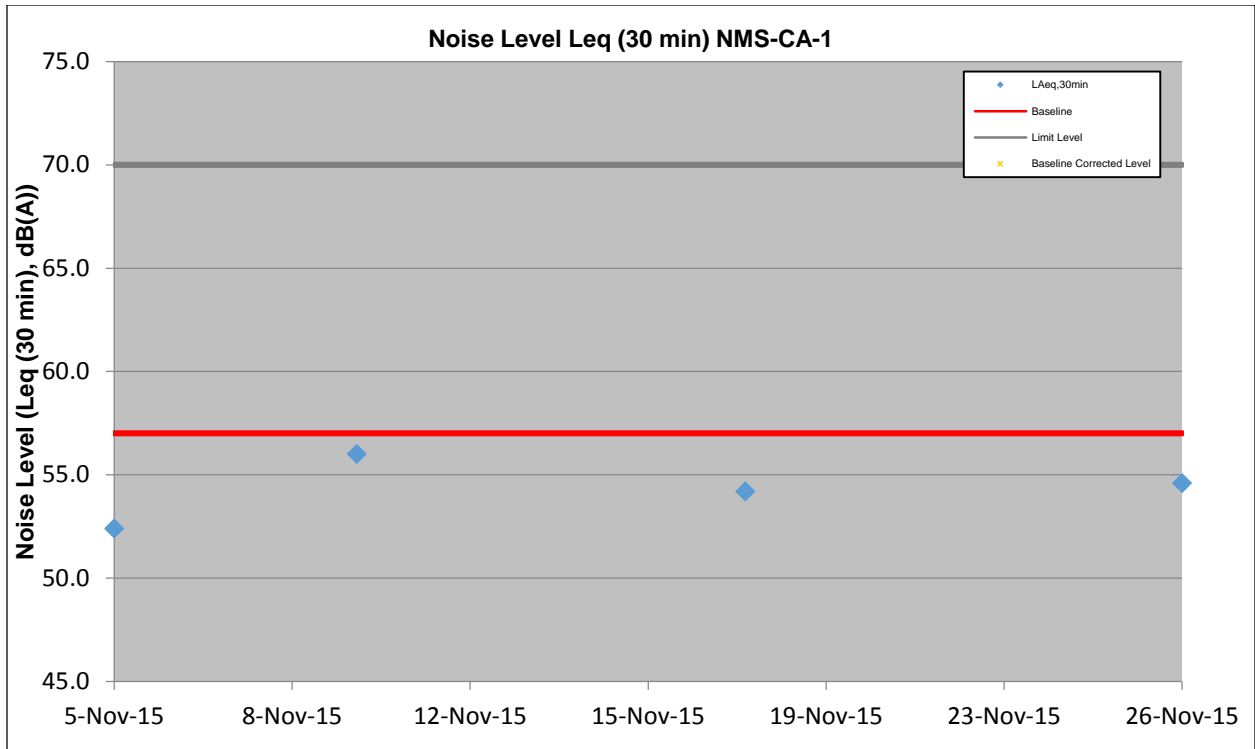
Location: NMS-CA-3 / NMS-CA-4 - Hong Kong Sheng Kung Hui Nursing Home

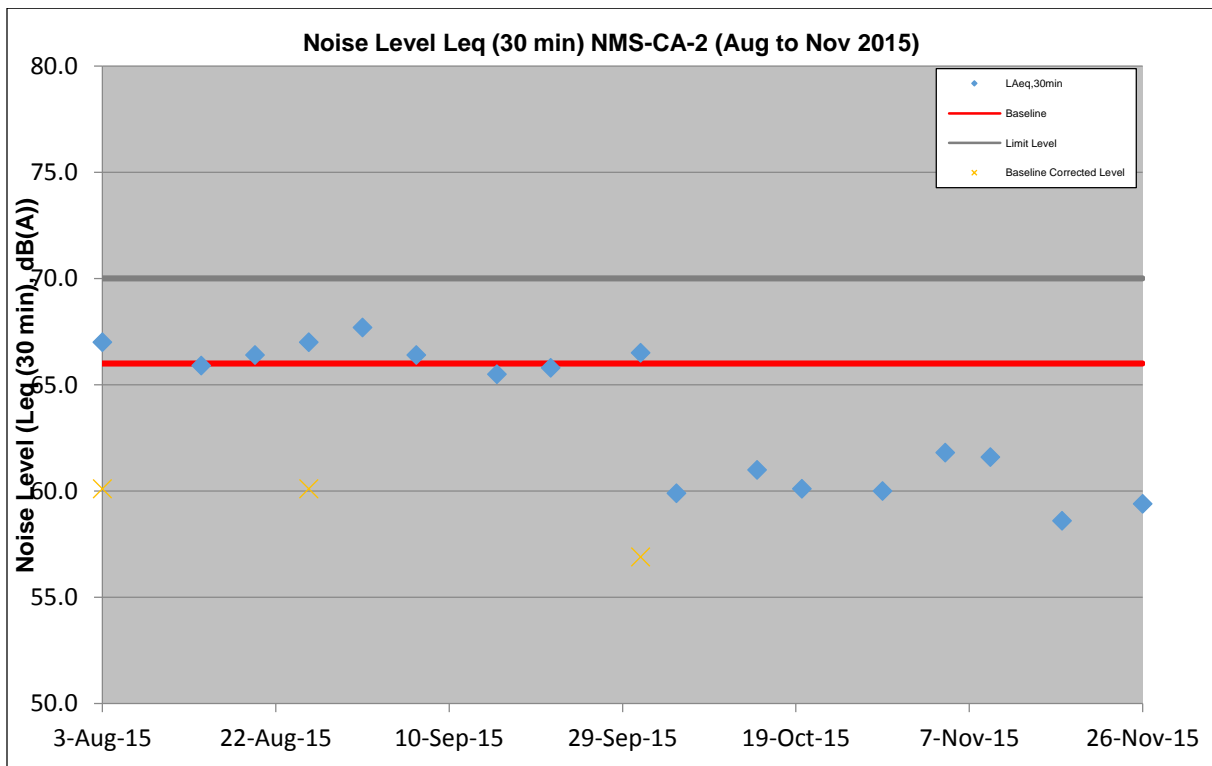
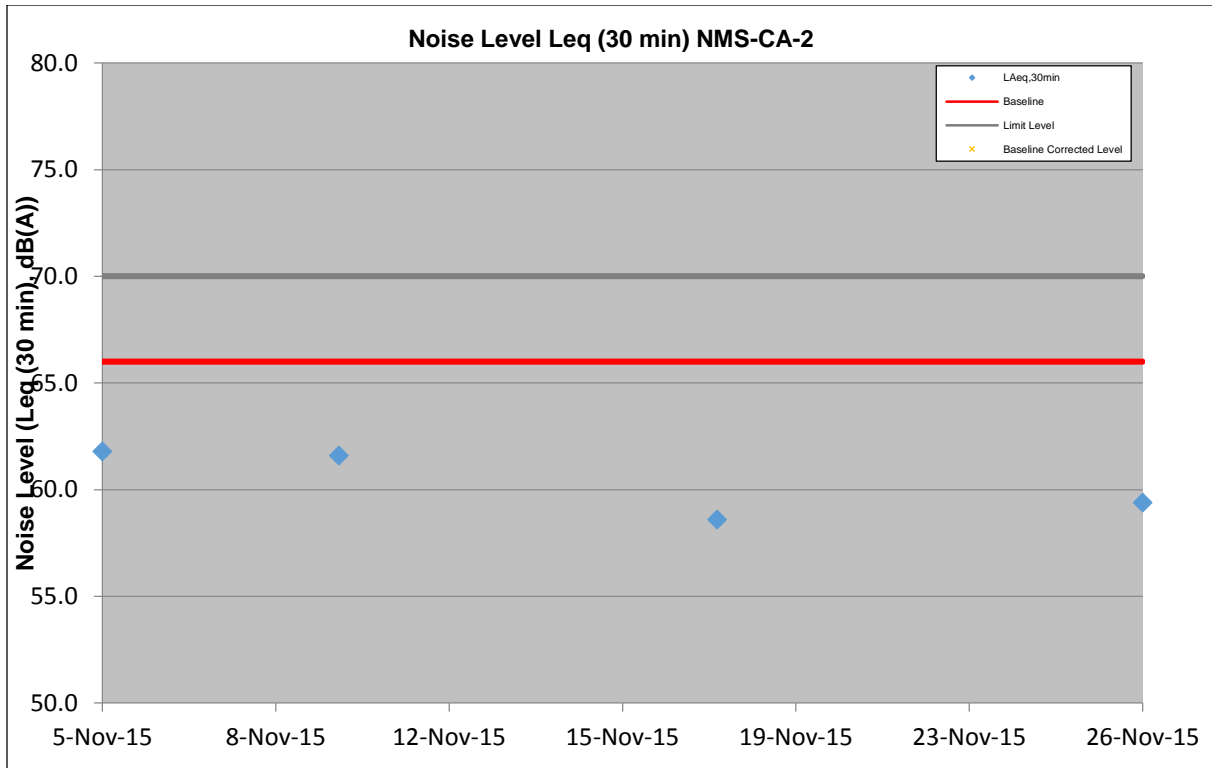
Daytime Noise Monitoring Results

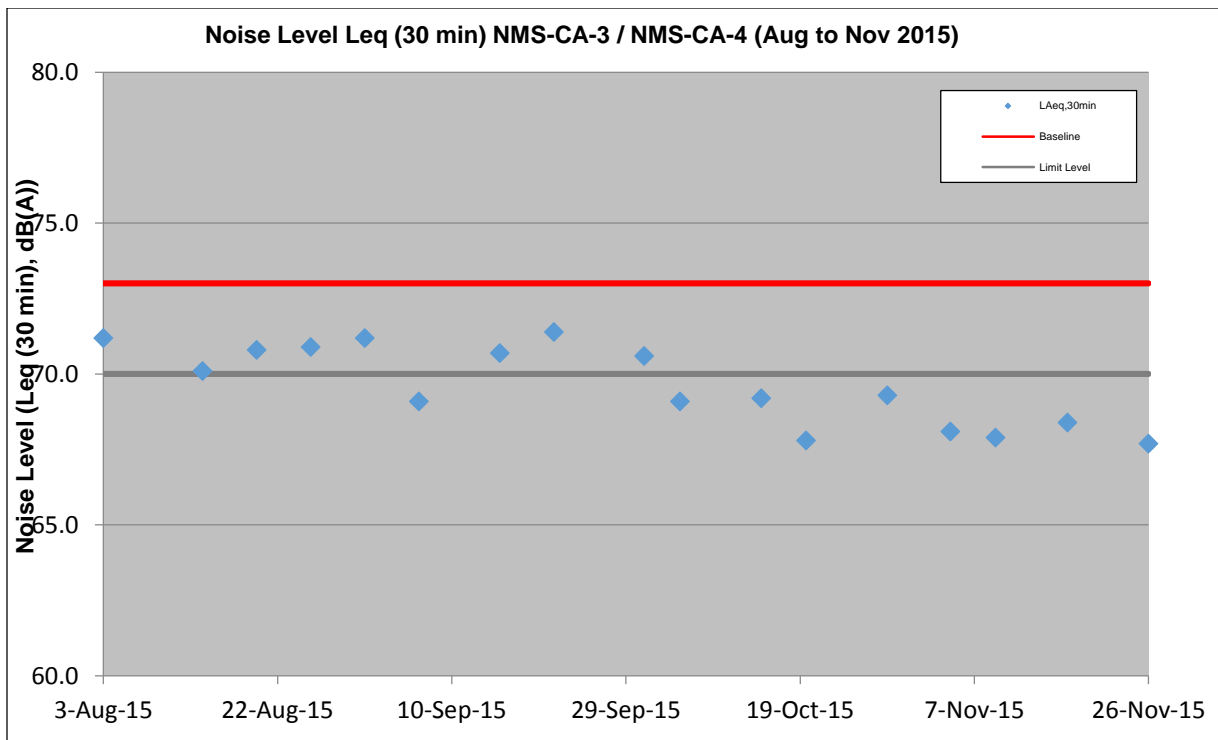
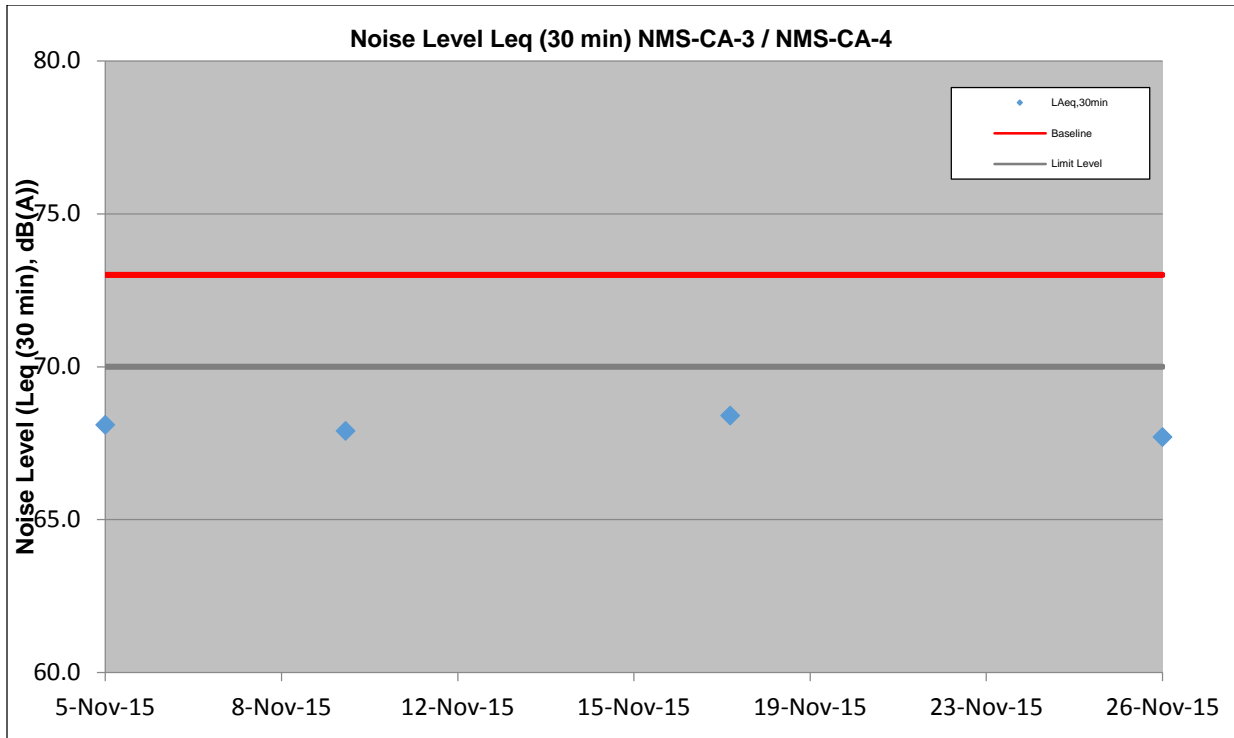
Date	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Baseline Corrected Level
		L _{Aeq,30min}	Limit	L _{10,30min}	L _{90,30min}	L _{Aeq,30min}	L _{Aeq,30min}
5-Nov-15	10:30-11:00	68.1	70.0	69.8	65.7	73.0	< Baseline Level
10-Nov-15	15:00-15:30	67.9	70.0	69.5	66.0	73.0	< Baseline Level
18-Nov-15	15:30-16:00	68.4	70.0	70.1	66.7	73.0	< Baseline Level
27-Nov-15	15:15-15:45	67.7	70.0	69.8	64.6	73.0	< Baseline Level

Notes: (*) : Façade correction is included

Average L _{Aeq,30min}	68.0
Max L _{Aeq,30min}	68.4
Min L _{Aeq,30min}	67.7







Appendix I

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

Event and Action Plan for Air Quality

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

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

Event and Action Plan for Airborne Noise

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

Event / Action Plan for Landscape and Visual

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

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer’s Representative

Appendix J

Waste Flow Table

Monthly Summary Waste Flow Table for 2015

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	36.897	0.000	0.000	31.770	5.127	0.000	0.000	0.086	0.000	1.400	0.194
Feb	34.994	0.000	0.000	28.434	6.559	0.000	0.000	0.138	0.000	0.800	0.153
Mar	51.076	0.000	0.788	41.125	9.164	0.000	0.000	0.000	0.000	1.260	0.151
Apr	47.056	0.000	3.593	38.123	5.340	0.000	0.000	0.000	0.000	0.000	0.114
May	45.841	0.000	0.023	44.351	1.468	0.000	0.000	0.000	0.000	1.500	0.166
Jun	41.083	0.000	0.000	37.969	3.114	0.000	0.000	0.000	0.000	9.190	0.170
Sub-total	256.947	0.000	4.403	221.772	30.772	0.000	0.000	0.224	0.000	14.150	0.948
July	29.374	0.000	0.000	25.820	3.554	0.000	0.000	0.214	0.000	5.200	0.124
August	34.182	0.000	0.000	32.391	1.791	0.000	0.000	0.000	0.000	1.000	0.094
September	38.739	0.000	0.000	36.600	2.139	0.000	0.000	0.000	0.000	0.100	0.201
October	37.222	0.000	0.000	34.961	2.262	0.000	0.000	0.113	0.000	1.600	0.220
November	20.098	0.000	0.000	14.937	5.161	0.000	0.000	0.000	0.000	0.600	0.303
December											
Total	416.562	0.000	4.403	366.481	45.679	0.000	0.000	0.551	0.000	22.650	1.889

Comments:

- 1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m³; the density of general refuse is 1.0 ton/m³; the density of waste oil is 1.0 ton/m³.
- 2) The cut-off date of waste amount in Nov is 30/11/2015 for TKO137FB/TM38FB, NENT landfill, Kai Tak 1108A, Nam Cheong 820 and KWP Quarry.
- 3) The amounts of waste in Nov are 303.35 tons for NENT Landfill, 10321.7 tons for TKO137FB/TM38FB, 0 tons for Kai Tak Contract 1108A, 0 tons for Contract 820 and 29874.1 tons for KWP Quarry.
- 4) The amount of C&D waste reused in the Contract in Nov is 0 trucks, approximately 0 tons, for cut-off date as 30/11/2015.
- 5) The amount of chemical waste in Nov is 600kg for cut-off date as 30/11/2015.

Appendix K

Environmental
Monitoring
Programme for
Coming Month

**SCL Works Contract 1103 - Hin Keng to Diamond Hill Tunnels
Tentative Impact Monitoring Schedule - December 2015**

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

Cumulative Log for
Complaints,
Notifications of
Summons and
Successful
Prosecutions

Ove Arup and Partners HK Ltd.

SCL 1103 Hin Keng to Diamond Hill Tunnels Construction Stage Environmental Complaint Log (November 2015)

ET's Complaint Log Ref. no.	Incoming Complaint Ref no.	Name of Complainant	Date Complaint Received from EPD	Complaint Date/Period	Complaint Location	Area of Concern	Details of Complaint	Date Complaint Received by ET	ET's Investigation Date	Investigation/Mitigation Measures	Status
EP3/K08/RE/00030193-2015	-	-	26 Nov 2015	Night-time 26 Nov 2015	SCL Site in Ma Chai Hang	Ma Chai Hang (Contract 1103)	26 Nov 2015	26 Nov 2015	26 Nov 2015	The investigation is still ongoing and has not been concluded in this reporting month. The investigation findings and subsequent mitigation measures, if any, will be reported in the next reporting month.	On-going

Ove Arup and Partners HK Ltd.

Environmental Complaint Log (Cumulative)

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
February 2013	0	0	0
March 2013	0	0	0
April 2013	0	0	0
May 2013	0	0	0
June 2013	0	0	0
July 2013	0	0	0
August 2013	0	0	0
September 2013	0	0	0
October 2013	0	0	0
November 2013	0	0	0
December 2013	0	0	0
January 2014	0	0	0
February 2014	0	0	0
March 2014	0	0	0
April 2014	0	0	0
May 2014	0	0	0
June 2014	0	0	0
July 2014	0	0	0
August 2014	0	0	0
September 2014	0	0	0
October 2014	0	0	0
November 2014	1	0	0
December 2014	2	0	0
January 2015	0	0	0
February 2015	3	0	0
March 2015	3	0	0
April 2015	0	0	0
May 2015	0	0	0
June 2015	0	0	0
July 2015	1	0	0
August 2015	0	0	0
September 2015	0	0	0
October 2015	1	0	0
November 2015	1	0	0
Total	12	0	0

Appendix F

**33rd 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. 33

[Period from 1 to 30 November 2015]

Works Contract 1106 – Diamond Hill Station

(December 2015)

Certified by: 
_____ Dr. Priscilla Choy

Position: Environmental Team Leader


Date: 8th December 2015

Sembawang – Leader Joint Venture

Shatin to Central Link – Contract 1106 Diamond Hill Station

Monthly Environmental Monitoring and Audit Report For November 2015

(Version 2.0)

Certified By 

Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

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

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

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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
Introduction	1
Summary of Construction Works undertaken during the Reporting Month	1
Environmental Monitoring and Audit Progress	1
Regular Construction Noise and Construction Dust Monitoring	1
Cultural Heritage	1
Waste Management	2
Landscape and Visual.....	2
Environmental Site Inspection	2
Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution	2
Future Key Issues	3
1 INTRODUCTION.....	3
Purpose of the Report	4
Structure of the Report	4
2 PROJECT INFORMATION.....	5
Background	5
General Site Description	5
Construction Programme and Activities	5
Project Organisation	5
Status of Environmental Licences, Notification and Permits.....	5
Summary of EM&A Requirements	6
3 ENVIRONMENTAL MONITORING REQUIREMENTS.....	7
Regular Construction Noise Monitoring	7
Monitoring Parameter and Frequency	7
Monitoring Equipment and Methodology	8
Field Monitoring.....	8
Monitoring Equipment	8
Maintenance and Calibration.....	9
Action & Limit Level for Construction Noise Monitoring	9
Continuous Noise Monitoring	9
Regular Construction Dust Monitoring	9
Monitoring Parameter and Frequency	10
Monitoring Equipment	10
Instrumentation.....	10
HVS Installation	10
Filters Preparation	11
Operating/Analytical Procedures	11
Maintenance/Calibration	12
Action and Limit Levels for Dust Monitoring	12
Cultural Heritage	12
Landscape and Visual.....	12
4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS.....	13
5 MONITORING RESULTS	14

Regular Construction Noise Monitoring	14
Regular Dust Monitoring.....	14
Cultural Heritage	15
Waste Management	15
Landscape and Visual.....	16
6 ENVIRONMENTAL SITE INSPECTION.....	17
Site Audits	17
Implementation Status of Environmental Mitigation Measures.....	17
7 ENVIRONMENTAL NON-CONFORMANCE.....	19
Summary of Exceedances	19
Summary of Environmental Non-Compliance.....	19
Summary of Environmental Complaint	19
Summary of Environmental Summon and Successful Prosecution	19
8 FUTURE KEY ISSUES	20
Construction Programme for the Next Month.....	20
Key Issues in the Next Month	20
Monitoring Schedule in the Next Month.....	20
9 CONCLUSIONS AND RECOMMENDATIONS	21
Conclusions	21
Recommendations	21

LIST OF TABLES

Table 2.1	Status of Environmental Licences, Notification and Permits
Table 3.1	Regular Construction Noise Monitoring Location
Table 3.2	Noise Monitoring Equipment
Table 3.3	Dust Monitoring Location
Table 3.4	Dust Monitoring Parameters and Frequency
Table 3.5	Dust Monitoring Equipment
Table 4.1	Status of Required Submissions under EP
Table 5.1	Summary Table of Dust Monitoring Results during the reporting month
Table 5.2	Quantities of Waste Generated from the Project
Table 6.1	Observations and Recommendations of Site Audit

LIST OF FIGURES

Figure 1	The Alignment and Works Area for Works Contract 1106
Figure 2	Locations of Construction Noise Monitoring
Figure 3	Locations of Dust Monitoring
Figure 4	Organisation Chart and Key Contact of the Project

LIST OF APPENDICES

Appendix A	Tentative Construction Programme
Appendix B	Action and Limit Levels
Appendix C	Calibration Certificates for Monitoring Equipment
Appendix D	Impact Monitoring Schedule
Appendix E	24-hour TSP Monitoring Results and Graphical Presentations
Appendix F	Noise Monitoring Results and Graphical Presentations
Appendix G	Summary of Exceedance
Appendix H	Site Audit Summary
Appendix I	Event and Action Plans
Appendix J	Updated Environmental Mitigation Implementation Schedule
Appendix K	Waste Generation in the Reporting Month
Appendix L	Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

EXECUTIVE SUMMARY

Introduction

1. This is the 33rd 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 30 November 2015.

Summary of Construction Works undertaken during the Reporting Month

2. The major site activities undertaken in the reporting month include:
 - Construction of slabs/beams, columns and walls at SCL-DIH station area;
 - Concreting works;
 - Backfilling works;
 - Excavation and cable connection for TTMS implementation at Lung Cheung Road;
 - Formwork removal and re-propping works at Interchange Adit;
 - Struts and waling cutting works at West Unpaid Link Adit; and
 - Structural and ABWF installation works, and drainage construction at Entrance A1.

Environmental Monitoring and Audit Progress

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

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours

Noise Monitoring Station ID

- | | |
|--|---------|
| • NMS-CA-3 ⁽¹⁾⁽³⁾ /NMS-CA-4 ⁽²⁾⁽³⁾ (H.K. Sheng Kung Hui Nursing Home) | 4 times |
| • NMS-CA-4 ⁽¹⁾ /NMS-CA-3 ⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade)) | 5 times |
| • NMS-CA-5 ⁽¹⁾ /NMS-CA-2 ⁽²⁾ (Block 1, Rhythm Garden (northern façade)) | 5 times |

- Construction Dust (24-hour TSP) Monitoring

Dust Monitoring Station ID

- | | |
|---|---------|
| • DMS-3 ⁽¹⁾⁽⁴⁾ /DMS-4 ⁽²⁾⁽⁴⁾ (H.K. Sheng Kung Hui Nursing Home) | 5 times |
| • DMS-4 ⁽¹⁾ /DMS-3 ⁽²⁾ (Block 1, Rhythm Garden) | 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. Comments from AMO were received in September 2014. A revised draft report was submitted to AMO in April 2015 for their further review.

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 157 m³ of inert C&D materials were generated from the Project and were sent to Tseung Kwan O Area 137 Fill Bank and Tuen Mun Area 38 Fill Bank during the reporting month. 208 m³ of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at NENT Landfill. No chemical waste was collected by licensed collector during the reporting month. 291 kg of paper/ cardboard packaging was generated but no plastics and metal were generated in this reporting month.

Landscape and Visual

7. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 5 and 19 November 2015. 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 5, 13, 19 and 26 November 2015. The representative of the IEC joined the site inspection on 26 November 2015. 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:
- Construction of slabs/beams, columns and walls at SCL-DIH station area;
 - Concreting works;
 - Backfilling works;
 - Excavation and cable connection, construction of temporary footpath and existing footpath removal for TTMS implementation at Lung Cheung Road;
 - Struts and waling cutting works at West Unpaid Link Adit; and
 - Structural and ABWF installation works, and drainage construction at Entrance A1.

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 33rd EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 30 November 2015.

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**.
- Construction of slabs/beams, columns and walls at SCL-DIH station area;
 - Concreting works;
 - Backfilling works;
 - Excavation and cable connection for TTMS implementation at Lung Cheung Road;
 - Formwork removal and re-propping works at Interchange Adit;
 - Struts and waling cutting works at West Unpaid Link Adit; and
 - Structural and ABWF installation works, and drainage construction at Entrance A1.

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/I	14/10/2015	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
No.: 378656	28/08/2014	N/A	Valid
Billing Account for Construction Waste Disposal			
Account No.: 7016601	27/12/2012	N/A	Valid
Registration of Chemical Waste Producer			
5213-281-S3711-02	28/01/2015	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00014959-2012	14/01/2013	31/01/2018	Valid
WT00016920-2013	06/09/2013	30/09/2018	Valid
Construction Noise Permit (CNP)			
GW-RE0449-15	26/05/2015	25/11/2015	Expired in reporting month
GW-RE1126-15	26/11/2015	25/05/2016	Valid

Summary of EM&A Requirements

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

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

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

Table 3.1 Regular Construction Noise Monitoring Location

Regular Construction Noise Monitoring Location	Description	Type of Measurement
NMS-CA-3 ⁽¹⁾⁽³⁾⁽⁴⁾ / NMS-CA-4 ⁽²⁾⁽³⁾⁽⁴⁾	Hong Kong Sheng Kung Hui Nursing Home	Façade
NMS-CA-4 ⁽¹⁾ / NMS-CA-3 ⁽²⁾	Block 1, Rhythm Garden (north-eastern façade)	Façade
NMS-CA-5 ⁽¹⁾⁽⁵⁾ / NMS-CA-2 ⁽²⁾⁽⁵⁾	Block 1, Rhythm Garden (northern façade)	Façade

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Noise monitoring on NMS-CA-3⁽¹⁾/NMS-CA-4⁽²⁾ (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103.
- (5) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.

Monitoring Parameter and Frequency

- 3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period of monitoring stations at Rhythm Garden is shown in **Appendix D**.
- 3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). L_{Aeq} (30min) (as six consecutive $L_{eq, 5-min}$ readings) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays.

Monitoring Equipment and Methodology

Field Monitoring

3.4 The monitoring procedures are as follows:

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building’s external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - frequency weighting : A
 - time weighting : Fast
 - measurement time : 5 minutes (obtaining six consecutive $L_{eq,5min}$ readings for a $L_{eq,30 min}$.reading)
- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- At the end of the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB(A) shall be made to the noise parameter obtained by free field measurement.

Monitoring Equipment

3.5 The sound level meters and calibrator used for the noise measurement, as listed in **Table 3.2**, 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.: 14303) SVAN 957 (Serial no.: 21455, 21459)
Calibrator	SV30A (Serial no.: 10929, 24791) B&K4231 (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 CNMMP prepared and submitted under EP Condition 2.9 and 2.10, it is predicted that no residual air-borne construction noise impacts exceeding the relevant noise criteria will be anticipated. Therefore, no continuous noise monitoring is required during the construction of the SCL (TAW-HUH) under Works Contract 1106.

Regular Construction Dust Monitoring

3.9 The proposed dust monitoring stations for the construction phase of the Project, as recommended in the approved EM&A Manual, are listed in **Table 3.3** and shown in **Figure 3**. The proposed locations have been agreed with the ER, EPD and IEC.

Table 3.3 Dust Monitoring Location

Regular Dust Monitoring Location	Description
DMS-3 ⁽¹⁾⁽³⁾⁽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: 2896	1

Instrumentation

- 3.12 High Volume Samplers (HVS) connected with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 Appendix B (Part 50).

HVS Installation

- 3.13 The following guidelines were adopted during the installation of HVS:
- Sufficient support was provided to secure the samplers against gusty wind.
 - No two samplers were placed less than 2 meters apart.
 - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
 - A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
 - A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
 - No furnaces or incineration flues were nearby.
 - Airflow around the sampler was unrestricted.
 - The samplers were more than 20 meters from the drip line.
 - Any wire fence and gate, to protect the sampler, should not cause any obstruction

during monitoring.

Filters Preparation

- 3.14 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3 μm diameter. A HOKLAS accredited laboratory, Wellab Ltd. (HOKLAS Registration No. 083), was responsible for the preparation of pre-weighed filter papers for Cinotech's monitoring team.
- 3.15 All filters, which were prepared by Wellab Ltd., were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was < 50% and not variable by more than $\pm 5\%$. A convenient working RH was 40%.
- 3.16 Wellab Ltd. has a comprehensive quality assurance and quality control programmes.

Operating/Analytical Procedures

- 3.17 Operating/analytical procedures for the TSP monitoring were highlighted as follows:
 - Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 and 1.4 $\text{m}^3/\text{min}.$) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard.
 - The power supply was checked to ensure the sampler worked properly.
 - The filter holding frame and the area surrounding the filter were cleaned.
 - On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the air quality monitoring station.
 - The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
 - The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts to avoid air leakage at the edges.
 - The shelter lid was closed and secured with the aluminum strip.
 - A new flow rate record chart was set into the flow recorder.
 - The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
 - The flow rate of the HVS sampler would be verified to be constant and recorded on the data sheet before and after sampling.
 - The elapsed time and other relevant information was recorded. After sampling, the sampled filter was removed carefully and folded in half-length so that only surfaces with collected particulate matter were in contact.
 - It was then placed in a clean plastic envelope and sealed and sent to the Wellab Ltd. for weighing.
 - Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment should be between 25°C and 30°C and not vary by more than ± 3 °C; the relative humidity (RH) should be < 50% and not vary by more than $\pm 5\%$. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations.

Maintenance/Calibration

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

Action and Limit Levels for Dust Monitoring

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

Cultural Heritage

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

Landscape and Visual

- 3.22 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period. The implementation status is given in **Appendix J**. The Event / Action Plan (EAP) for landscape and visual are presented in **Appendix I**.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report (October 2015)	13 th November 2015

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 10 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. No exceedance of the limit level was recorded at designated monitoring stations.
- 5.2 The noise monitoring results recorded at NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) in November 2015 exceeded the daytime construction noise criterion. However, the results are not considered as exceedance since the results were below the baseline noise level. The noise monitoring results recorded at NMS-CA-4⁽¹⁾/NMS-CA-3⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade)) in November 2015 did not exceed the daytime construction noise criterion.
- 5.3 Based on observation during the on-site monitoring, road traffic nearby, bored piling works in other construction site at 210-212 Choi Hung Road in November 2015 are considered as potential noise source other than construction works of the Project that affects the monitoring results in 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. The summary of exceedance in this reporting month is provided in **Appendix G**.

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⁾)	43.7	63.5	52.6	159.1	260
24-hr TSP (DMS-4 ⁽¹⁾ / DMS-3 ⁽²⁾)	42.9	66.3	55.2	160.4	260

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
 (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
 (3) The monitoring results and graphical presentation for H.K. Sheng Kung Hui Nursing Home are presented in Monthly EM&A Report for Contract 1103.
 (4) Dust monitoring on DMS-3⁽¹⁾/DMS-4⁽²⁾ (Hong Kong Sheng Kung Hui Nursing Home) is carried out by Environmental Team of SCL Works Contract 1103

- 5.7 Based on observation during the on-site monitoring, road traffic emission nearby, bored

piling works in other construction site at 210-212 Choi Hung Road in November 2015 are considered as potential dust source other than construction works of the Project that affects the monitoring results in 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. The summary of exceedance in this reporting month is provided in **Appendix G**.

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. Comments from AMO were received in September 2014. A revised draft report was submitted to AMO in April 2015 for their further review.
- 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**. 157 m³ of C&D materials and 208 m³ of general refuse were generated. No chemical waste was collected by licensed collector during the reporting month. 291 kg of paper/ cardboard packaging was generated but no plastics and metal were generated in this reporting month. Detail of waste management data is presented in **Appendix K**.

Table 5.2 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)				
		General Refuse	Chemical Waste	Recycled materials		
Paper/ cardboard	Plastics			Metals		
November 2015	157m ³	208m ³	0kg	291kg	0kg	0kg
Notes: (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil, which were delivered to Tseung Kwan O Area 137 Fill Bank 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 5 and 19 November 2015. 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 5, 13, 19 and 26 November 2015. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 26 November 2015. No EPD site inspection was conducted in reporting month. The details of observations during site audits carried out by ET can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

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

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	29 Oct 2015	<u>Reminder:</u> Sandbag bunding in A1 work area should be improved to retain potential runoff.	As observed on 5 Nov 2015, More sand bags were provided and the bunding was maintained.
	26 Nov 2015	<u>Reminder:</u> Sedimentation process should be enhanced to improve the quality of effluent discharged near site exit.	The follow up action will be reported in the next reporting month.
<i>Noise</i>	---	---	---
<i>Landscape and Visual</i>	5 Nov 2015	<u>Observation:</u> Construction materials in tree protection zone near site exit should be removed as soon as possible to prevent damage to trees and vegetation.	As observed on 13 Nov 2015, this item was outstanding and remarked.
	13 Nov 2015	<u>Observation:</u> Construction materials in tree protection zone near site exit should be removed as soon as possible to prevent damage to trees and vegetation.	As observed on 19 Nov 2015, this item was outstanding and remarked.
	13 Nov 2015	<u>Observation:</u> Materials on planter in A1 work area should be removed to prevent damage to retained trees.	As observed on 19 Nov 2015, this item was outstanding and remarked.
	19 Nov 2015	<u>Observation:</u> Construction materials in tree protection zone near site exit should be removed as soon as possible to prevent damage to trees and vegetation.	As observed on 26 Nov 2015, this item was outstanding and remarked.

Parameters	Date	Observations and Recommendations	Follow-up
	19 Nov 2015	<u>Observation:</u> Materials on planter in A1 work area should be removed to prevent damage to retained trees.	As observed on 26 Nov 2015, this item was outstanding and remarked.
	26 Nov 2015	<u>Observation:</u> Construction materials in tree protection zone near W8 should be removed as soon as possible to prevent damage to trees and vegetation. Materials on planter in A1 work area should be removed to prevent damage to retained trees.	The follow up action will be reported in the next reporting month.
Cultural Heritage	---	---	---
Air Quality	29 Oct 2015	<u>Reminder:</u> Coverage for dusty stockpile in Interchange Adit area should be enhanced for dust suppression.	As observed on 5 Nov 2015, the stockpile in Interchange Adit was covered by tarpaulin
	29 Oct 2015	<u>Reminder:</u> Water spraying should be provided more frequently for exposed area in Interchange Adit and West Unpaid Link Adit.	As observed on 5 Nov 2015, this item was outstanding and remarked.
	5 Nov 2015	<u>Reminder:</u> Water spraying should be provided more frequently for exposed area in West Unpaid Link Adit and Interchange Adit.	As observed on 13 Nov 2015, the exposed areas in West Unpaid Link Adit and Interchange Adit were observed wet during site inspection.
	19 Nov 2015	<u>Reminder:</u> Water spraying should be provided more frequently to stockpile in MBME plant to keep surface wet.	As observed on 26 Nov 2015, water spraying was provided to the stockpile in MBME plant during site inspection.
Waste/ Chemical Management	5 Nov 2015	<u>Reminder:</u> Material and waste in West Unpaid Link Adit should be properly sorted and disposed of.	As observed on 13 Nov 2015, the material in West Unpaid Link Adit was sorted and waste was removed.
	13 Nov 2015	<u>Reminder:</u> Drip tray should be provided to chemical containers near ramp.	As observed on 19 Nov 2015, this item was outstanding and remarked.
	19 Nov 2015	<u>Observation:</u> Drip tray should be provided to chemical containers near ramp.	As observed on 26 Nov 2015, the chemical containers near ramp were removed.
Permits/ Licenses	---	---	---

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

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

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

- 7.3 No environmental Project-related 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:

- Construction of slabs/beams, columns and walls at SCL-DIH station area;
- Concreting works;
- Backfilling works;
- Excavation and cable connection, construction of temporary footpath and existing footpath removal for TTMS implementation at Lung Cheung Road;
- Struts and waling cutting works at West Unpaid Link Adit; and
- Structural and ABWF installation works, and drainage construction at Entrance A1.

Key Issues in the Next Month

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

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

Monitoring Schedule in the Next Month

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

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 30 November 2015 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. The quality of the effluent discharged should be ensured to comply with the valid discharge license.

Landscape and Visual

- “No-intrusion zone” should be established and maintained for existing trees as far as practicable. The Contractor is reminded to closely monitor and restrict the site working staff and construction plants from entering the erected “no-intrusion zone” for existing trees and avoid placing construction materials within the tree protection zone for maximizing the protection. No construction works should be carried out in the “no-intrusion zone” for existing trees.

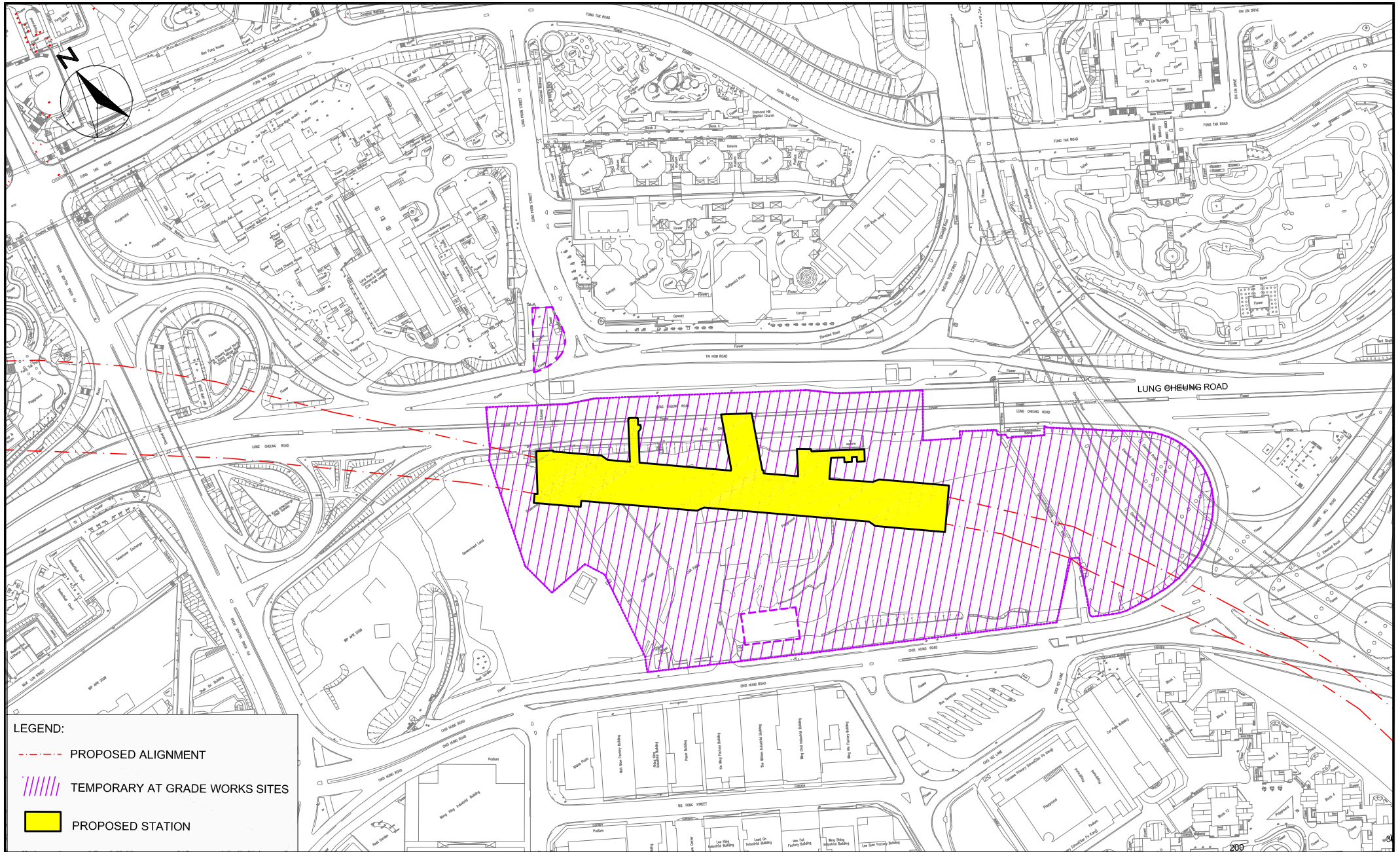
Air Quality

- Regular water spraying should be provided to unpaved and exposed work area to reduce dust generation.
- Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet.

Waste/Chemical Management

- General refuse and construction waste should be sorted and regularly removed to prevent accumulation.
- Chemical containers should be provided with drip tray to prevent leakage.

FIGURES



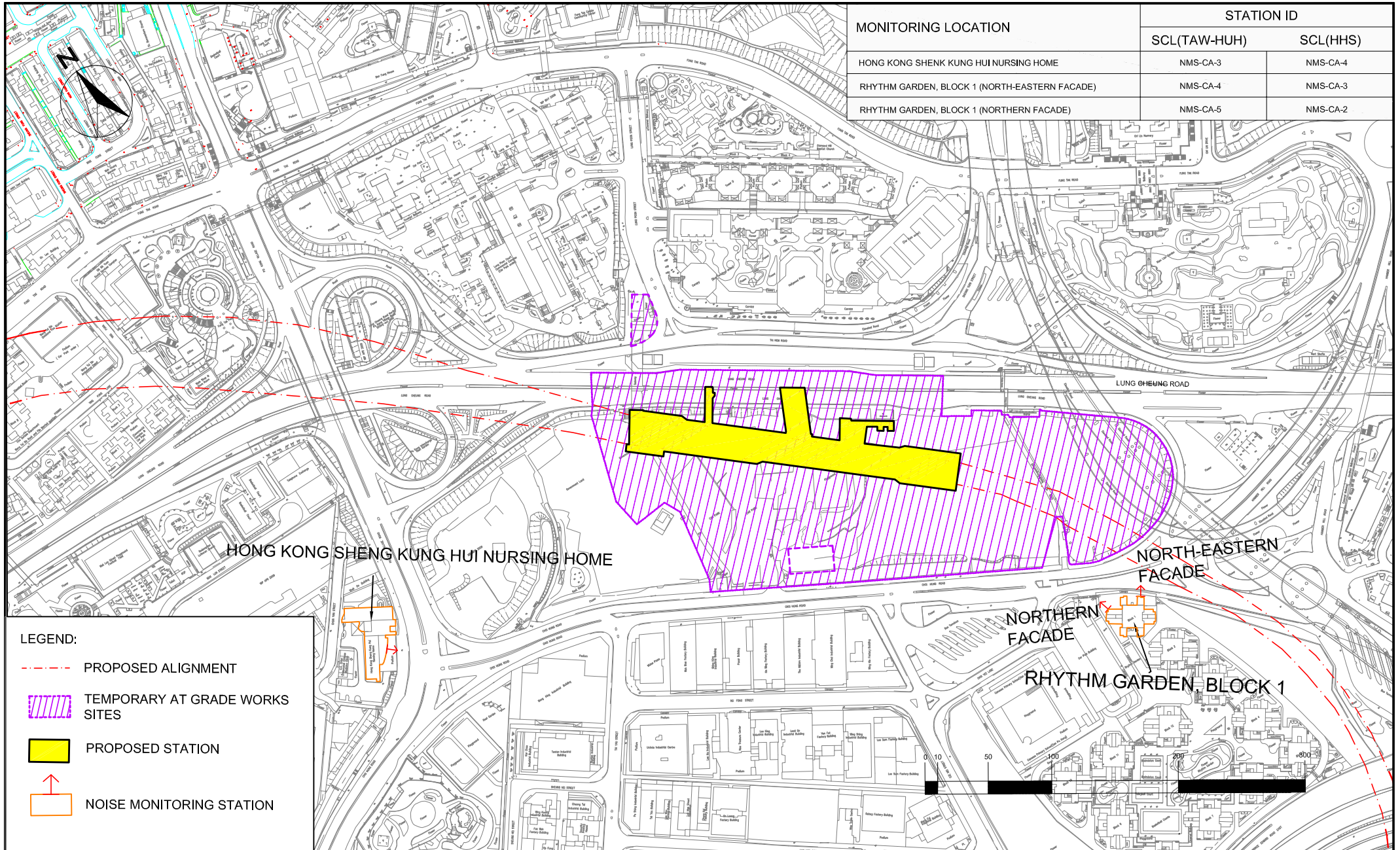
- LEGEND:**
- - - PROPOSED ALIGNMENT
 - ||||| TEMPORARY AT GRADE WORKS SITES
 - PROPOSED STATION

SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION





SITE LAYOUT PLAN



SCALE	1:80	DATE	MAY 2013	
CHECK	KC	DRAWN	JW	
JOB No.	MA12051	FIGURE NO.	1	REV
				-



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

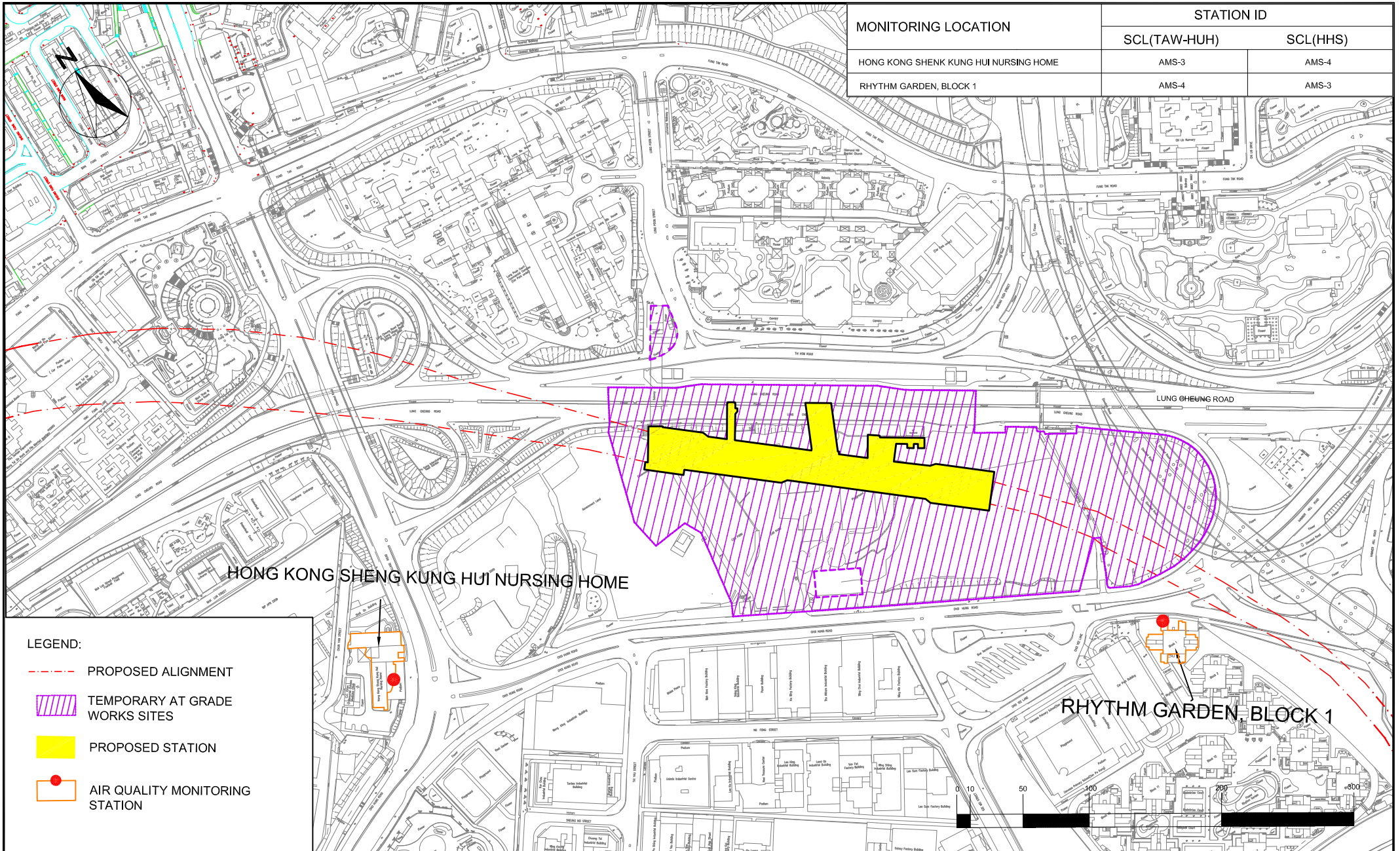
- LEGEND:**
-  PROPOSED ALIGNMENT
 -  TEMPORARY AT GRADE WORKS SITES
 -  PROPOSED STATION
 -  NOISE MONITORING STATION

SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION

LOCATION OF NOISE MONITORING STATIONS(CONSTRUCTION AIRBORNE NOISE)

CINOTECH
Cinotech Consultants Limited

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

HONG KONG SHENG KUNG HUI NURSING HOME

RHYTHM GARDEN, BLOCK 1

LEGEND:

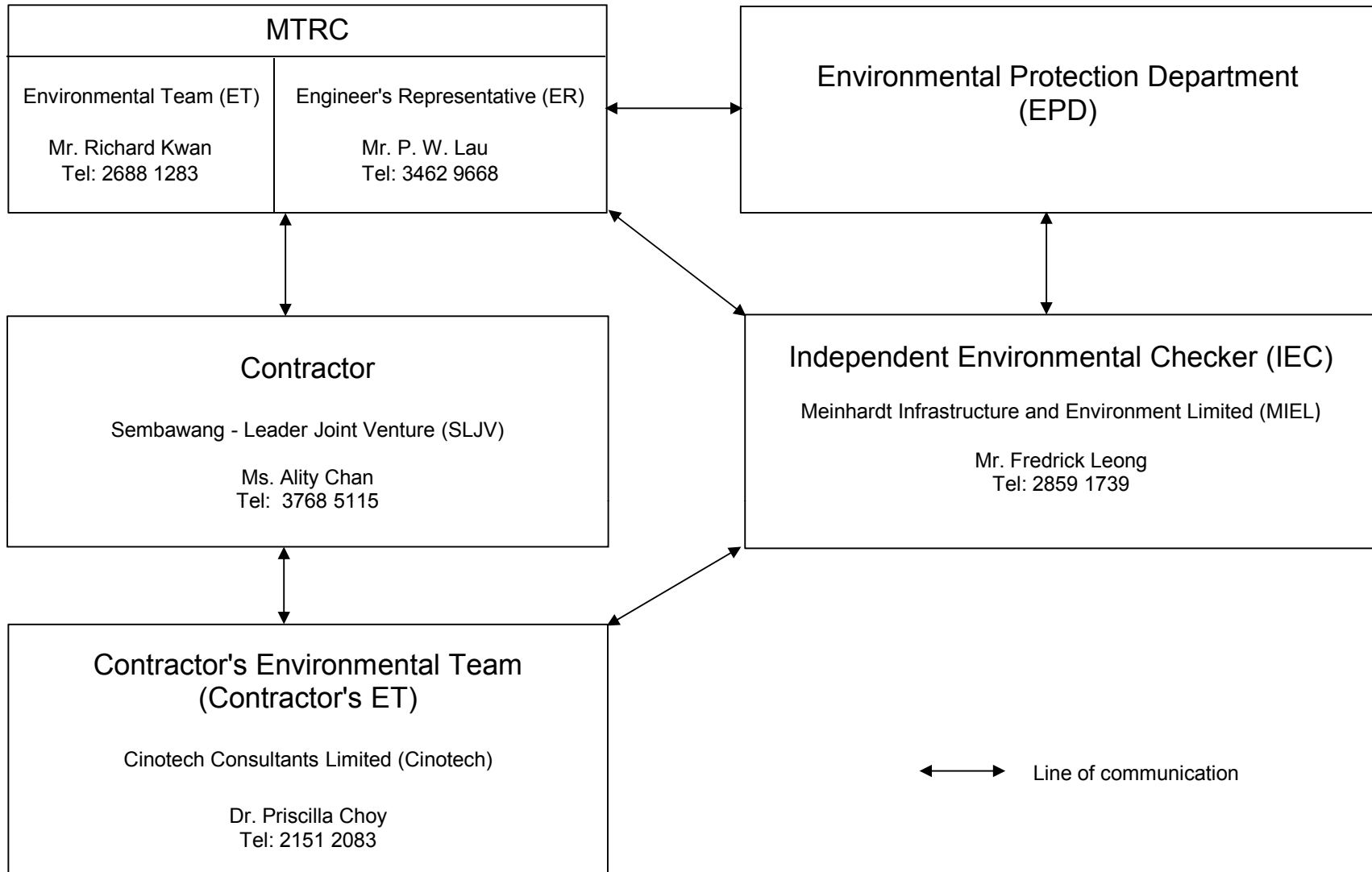
- - - PROPOSED ALIGNMENT
- TEMPORARY AT GRADE WORKS SITES
- PROPOSED STATION
- AIR QUALITY MONITORING STATION

SHATIN TO CENTRAL LINK CONTRACT 1106
DIAMOND HILL STATION

LOCATION OF AIR QUALITY MONITORING STATIONS



SCALE	1:100	DATE	MAY 2013
CHECK	KC	DRAWN	JW
JOB No.	MA12051	FIGURE NO.	3
		REV	-



←→ Line of communication

Title	MTR SCL Works Contract 1106 Diamond Hill Station	Scale	N.T.S	Proposal No.	MA12051	CINOTECH
	Organisation Chart and Key Contact of the Project	Date	Sep-14	Figure	4	

**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**

Contract 1106 - Diamond Hill Station

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	November					December					January					February				
						02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29		
C1106.BM24747	GL 49.5-51.7 Construct Column Mezzanine to L2 Concourse Level	14	1-Dec-15	16-Dec-15	0%																				
C1106.BM24749	GL 49.5-51.7 Construct Wall & Scaffold Erection to L3 E&M Zone Level	10	9-Dec-15	19-Dec-15	0%																				
C1106.BM24755	GL 51.7-53 Construct Wall & Column Mezzanine to L2 Concourse Level	11	19-Feb-16	2-Mar-16	0%																				
C1106.BM24760	GL 51.7-53 Scaffold Erection to L2 Concourse Level	6	23-Feb-16	29-Feb-16	0%																				
Mezzanine Level (Level L3)																									
Beam & Slab																									
C1106.BM24762	GL 43.4-46 Construct Mezzanine Beam & Slab L3 E&M Zone Level (North)	5	29-Oct-15 A	2-Nov-15 A	100%																				
C1106.BM24764	GL 40.7-43.4 Construct Mezzanine Beam & Slab L3 E&M Zone Level	7	30-Oct-15 A	3-Nov-15 A	100%																				
C1106.BM24766	GL 39.5-40.7 Construct Mezzanine Beam & Slab L3 E&M Zone Level	3	2-Nov-15 A	3-Nov-15 A	100%																				
C1106.BM24769	GL 43.4-46 Concrete Curing and Formwork Removal (North)	7	3-Nov-15 A	9-Nov-15 A	100%																				
C1106.BM24768	GL 40.7-43.4 Concrete Curing and Formwork Removal	7	4-Nov-15 A	10-Nov-15 A	100%																				
C1106.BM24771	GL 39.5-40.7 Concrete Curing and Formwork Removal	7	4-Nov-15 A	10-Nov-15 A	100%																				
C1106.BM24772	GL 40.7-46 Construct Mezzanine Beam & Slab L3 E&M Zone Level (South)	7	11-Nov-15 A	1-Dec-15	90%																				
C1106.BM24781	GL 46-49.4 Construct Mezzanine Beam & Slab L3 E&M Zone Level	7	27-Nov-15 A	22-Dec-15	10%																				
C1106.BM24779	GL 40.7-46 Concrete Curing and Formwork Removal (South)	7	2-Dec-15	9-Dec-15	0%																				
C1106.BM24782	GL 46-49.4 Concrete Curing and Formwork Removal	7	23-Dec-15	29-Dec-15	0%																				
C1106.BM24784	GL 49.4-50.1 Construct Mezzanine Beam & Slab L3 E&M Zone Level	3	23-Dec-15	28-Dec-15	0%																				
C1106.BM24798	GL 49.4-50.1 Concrete Curing and Formwork Removal	7	29-Dec-15	4-Jan-16	0%																				
Wall & Column																									
C1106.BM24773	GL 36.7-38.2 E&M Zone Wall and Scaffold Erection	14	10-Oct-15 A	2-Nov-15 A	100%																				
C1106.BM24777	GL 38.2-39.5 Scaffold Erection to L2 Concourse Level	7	20-Oct-15 A	13-Nov-15 A	100%																				
C1106.BM24778	GL 35.7-36.7 Construct Mezz Wall and Scaffold Erection to Concourse L2	6	27-Oct-15 A	3-Nov-15 A	100%																				
C1106.BM24783	GL 38.2-39.5 Construct Mezzanine Wall L3 to Concourse Level L2	6	3-Nov-15 A	19-Nov-15 A	100%																				
C1106.BM24776	GL 40.7-43.3 Scaffold Erection to L2 Concourse Level	7	5-Nov-15 A	4-Dec-15	85%																				
C1106.BM24780	GL 43.3-46.7 Scaffold Erection to L2 Concourse Level	8	5-Nov-15 A	4-Dec-15	65%																				
C1106.BM24800	GL 39.5-40.7 Scaffold Erection to L2 Concourse Level	6	6-Nov-15 A	1-Dec-15	90%																				
C1106.BM24774	GL 40.7-43.3 Construct Wall Mezzanine to Concourse Level L2	8	11-Nov-15 A	8-Dec-15	75%																				
C1106.BM24806	GL 39.5-40.7 Construct Mezzanine Wall L3 to Concourse Level L2	6	13-Nov-15 A	3-Dec-15	75%																				
C1106.BM24804	GL 43.3-46.6 Construct Mezzanine Wall L3 to Concourse Level L2	7	4-Dec-15	11-Dec-15	0%																				
C1106.BM24788	GL 46.7-49.4 Scaffold Erection to L2 Concourse Level	7	28-Dec-15	5-Jan-16	0%																				
C1106.BM24790	GL 46.7-49.4 Construct Mezzanine Wall L3 to Concourse Level L2	7	31-Dec-15	8-Jan-16	0%																				
C1106.BM24808	GL 49.4-50.1 Scaffold Erection to L2 Concourse Level	6	2-Jan-16*	8-Jan-16	0%																				
C1106.BM24810	GL 49.4-50.1 Construct Mezzanine Wall L3 to Concourse Level L2	6	6-Jan-16	12-Jan-16	0%																				
Concourse Level (Level L2)																									
Beam & Slab																									
C1106.BCS4302	GL 35.7-37.7 Construct Concourse Beam & Slab	9	5-Nov-15 A	18-Nov-15 A	100%																				
C1106.BCS4310	GL 37.7-39.3 Construct Concourse Beam & Slab	10	19-Nov-15 A	28-Nov-15 A	100%																				
C1106.BCS4306	GL 35.7-37.7 Concrete Curing & Remove Temp Strut S1 & S2	10	19-Nov-15 A	4-Dec-15	50%																				
C1106.BCS4320	GL 37.7-39.3 Concrete Curing & Remove Temp Strut S1 & S2	12	29-Nov-15 A	10-Dec-15	10%																				
C1106.BCS4311	GL 39.3-40.7 Construct Concourse Beam & Slab	10	1-Dec-15	11-Dec-15	0%																				
C1106.BCS4309	GL 43.6-46.3 Construct Concourse Beam & Slab	9	9-Dec-15	18-Dec-15	0%																				
C1106.BCS4322	GL 39.3-40.7 Concrete Curing & Remove Temp Strut S1 & S2	12	12-Dec-15	28-Dec-15	0%																				
C1106.BCS4324	GL 43.6-46.3 Concrete Curing, Formwork Removal & Remove Temp Strut S	10	19-Dec-15	2-Jan-16	0%																				
C1106.BCS4325	GL 40.7-43.6 Construct Concourse Beam & Slab	13	19-Dec-15	6-Jan-16	0%																				
C1106.BCS4362	GL 40.7-43.6 Concrete Curing, Formwork Removal & Remove S1 & S2	15	7-Jan-16	23-Jan-16	0%																				
C1106.BCS4366	GL 50.3-51.3 Construct Concourse Beam & Slab	8	11-Jan-16	19-Jan-16	0%																				
C1106.BCS4368	GL 48.6-50.4 Construct Concourse Beam & Slab	10	19-Jan-16	29-Jan-16	0%																				
C1106.BCS4372	GL 50.3-51.3 Concrete Curing, Formwork Removal & remove S1 & S2	14	20-Jan-16	4-Feb-16	0%																				
C1106.BCS4326	GL 46.3-48.6 Construct Concourse Beam & Slab	11	25-Jan-16	5-Feb-16	0%																				
C1106.BCS4370	GL 48.6-50.4 Concrete Curing, Formwork Removal & remove S1 & S2	10	30-Jan-16	13-Feb-16	0%																				
C1106.BCS4364	GL 46.3-48.6 Concrete Curing, Formwork Removal & Remove S1 & S2	15	6-Feb-16	26-Feb-16	0%																				
Wall & Column																									
C1106.BCW4402	GL 35.7-37.7 Construct Wall & Column to Public Access Level & Scaffold Ere	14	5-Dec-15	21-Dec-15	0%																				
C1106.BCW4407	GL 37.7-39.3 Construct Wall & Column to Public Access Level & Scaffold Ere	13	11-Dec-15	28-Dec-15	0%																				
C1106.BCW4411	GL 39.3-40.7 Construct Wall & Column to Public Access Level & Scaffold Ere	15	29-Dec-15	15-Jan-16	0%																				
C1106.BCW4405	GL 43.6-46.3 Construct Column to Public Access Level	12	31-Dec-15	14-Jan-16	0%																				
C1106.BCW4413	GL 39.3-40.7 Scaffold Erection to L1 Public Access Level	6	2-Jan-16	8-Jan-16	0%																				
C1106.BCW4409	GL 43.6-46.3 Scaffold Erection to L1 Public Access Level	8	11-Jan-16	19-Jan-16	0%																				
C1106.BCW4425	GL 40.7-43.6 Construct Column to Public Access Level	15	25-Jan-16	13-Feb-16	0%																				
C1106.BCW4440	GL 50.3-51.3 Construct Wall & Column to Public Access Level	12	5-Feb-16	22-Feb-16	0%																				
C1106.BCW4445	GL 40.7-43.6 Scaffold Erection to L1 Public Access Level	8	6-Feb-16	18-Feb-16	0%																				
C1106.BCW4450	GL 50.3-51.3 Scaffold Erection to L1 Public Access Level	8	13-Feb-16	22-Feb-16	0%																				
C1106.BCW4442	GL 48.6-50.4 Construct Wall & Column to Public Access Level	18	15-Feb-16	5-Mar-16	0%																				
C1106.BCW4452	GL 48.6-50.4 Scaffold Erection to L1 Public Access Level	9	19-Feb-16	29-Feb-16	0%																				
C1106.BCW4415	GL 46.3-48.6 Construct Wall & Column to Public Access Level & Scaffold Ere	14	27-Feb-16	14-Mar-16	0%																				
Public Access Level (Level L1)																									
Beam & Slab																									

MTR Contract 1106 - Diamond Hill Station Three Month Rolling Programme As of 30 November 2015

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

3 Month Rolling Programme			
Date	Revision	Checked	Approved
1-Dec-15	C-1106-3MRP/ 35		

Contract 1106 - Diamond Hill Station

Activity ID	Activity Name	Orig Dur	Forecast Start	Forecast Finish	% Complete	November				December				January				February					
						02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29
C1106.PLS5004	GL 35.7-37.7 Construct Public Access Level Beam/Slab	7	22-Dec-15	31-Dec-15	0%																		
C1106.PLS6025	GL 35.7-37.7 Concrete Curing Public Access Beam/Slab & Formwork Remov	14	1-Jan-16	14-Jan-16	0%																		
C1106.PLS5033	GL 37.7-40.3 Construct Public Access Level Beam/Slab	8	4-Jan-16	12-Jan-16	0%																		
C1106.PLS6030	GL 37.7-40.3 Concrete Curing Public Access Level Beam/Slab	14	13-Jan-16	26-Jan-16	0%																		
C1106.PLS5006	GL 43.6-46.3 Construct Public Access Level Beam/Slab	10	20-Jan-16	30-Jan-16	0%																		
C1106.PLS6020	GL 43.3-46.3 Concrete Curing Public Access Beam/Slab & Formwork Remov	28	31-Jan-16	27-Feb-16	0%																		
C1106.PLS5037	GL 44.9-46.4 Construct Public Access Level Beam/Slab	10	19-Feb-16*	1-Mar-16	0%																		
Wall & Column																							
C1106.PLW6330	GL 35.7-37.7 Construct Wall & Column to Ground Level GL	15	4-Jan-16	20-Jan-16	0%																		
C1106.PLW6332	GL 35.7-37.7 Scaffold Erection to GL Ground Level GL	7	8-Jan-16	15-Jan-16	0%																		
Ground Level (Level GL)																							
Beam & Slab																							
C1106.BGS7210	GL 35.7-37.7 Construct Ground Beam & Slab	9	21-Jan-16	30-Jan-16	0%																		
Multi-Level																							
Opening at GL 51-53 N-P (10m x 10m)																							
C1106.BML5960	2nd Retrieval of TBM from KAT - Access on Down track (1107)	0		31-Jan-16*	0%																		
ABWF & Miscellaneous Works																							
Track and Trackside Areas																							
Platform Level (Track and Trackside Areas)																							
C1106.PTA5290	GL 31-53 ABWF Deg.1 Platform Up Track and Trackside Areas	25	19-Dec-15	20-Jan-16	0%																		
Platform Level (Level L5)																							
Passenger Areas																							
C1106.BAF1127	GL 49-51 Platform Construct Blockwork Walls Passenger Areas	16	6-Jan-16	23-Jan-16	0%																		
C1106.BAF1110	GL 36-49 ABWF Deg. 1 Works Platform Passenger Areas	42	6-Jan-16	26-Feb-16	0%																		
C1106.BAF1112	GL 36-49 Allow E&M Contractor for First Fix	38	22-Jan-16	9-Mar-16	0%																		
C1106.BAF1132	GL 49-51 ABWF Deg.1 Works Platform Passenger Areas	18	25-Jan-16	17-Feb-16	0%																		
C1106.BAF1114	GL 36-49 ABWF Deg.2 Works Platform Passenger Areas	70	5-Feb-16	5-May-16	0%																		
Back of House & Plant Rooms																							
C1106.BAF1130	GL 36-40 ABWF Deg.1 Works Platform Plant BOH Areas & Plant Rooms	33	6-Jan-16	16-Feb-16	0%																		
C1106.BAF1140	GL 36-40 Allow E&M Contractor for First Fix	33	15-Jan-16	25-Feb-16	0%																		
C1106.BAF1165	GL 39-49 ABWF Deg. 3 Platform Install (8) Doors & Ironmongery	45	5-Feb-16	5-Apr-16	0%																		
C1106.BAF1162	GL 42-49 ABWF Deg. 2 Works Platform BOH Areas & Plant Rooms	50	5-Feb-16	11-Apr-16	0%																		
C1106.BAF1155	GL 36-40 ABWF Deg. 2 Works Platform BOH Areas & Plant Rooms	48	5-Feb-16	8-Apr-16	0%																		
Construction of Interchange Adit																							
Construction of Interchange Adit																							
Gridline U-V																							
C1106.BIA7070	IA - Formwork Removal and Waterproofing Membrane Application to +9.47m	12	27-Oct-15 A	10-Nov-15 A	100%																		
C1106.BIA7072	IA - Re-propping, Screeding Application & Backfill above the Completed Struct	8	11-Nov-15 A	17-Nov-15 A	100%																		
Construction of West Unpaid Link Adit																							
West Adit Link - South Section																							
Civil & Structural Works																							
C1106.BWA8347	WUL - Cutting Struts & Waling, Backfill to Formation Level of LCR Road	18	14-Oct-15 A	7-Dec-15	85%																		
Construction of East MOE (Entrance B)																							
Submissions																							
General																							
C1106.BEB8700	Prepare Cofferdam Design, ICE Check & Submit (Resubmission)	25	15-Aug-15 A	16-Dec-15	89%																		
C1106.BEB8710	Review & Approve Cofferdam Design	30	17-Dec-15	15-Jan-16	0%																		
East MOE																							
Piling Works																							
C1106.BEB8735	East MOE - Sheetpiling & Grouting Works	18	16-Jan-16	5-Feb-16	0%																		
C1106.BEB8745	East MOE - Install Instrumentation & Wells	12	6-Feb-16	23-Feb-16	0%																		
Cost Centre C: KTL - DIH Entrance A1 Works																							
Entrance A1 (24 hr Walkway and New Lift)																							
Structural Works																							
ABWF Works																							
C1106.CEA4220	Lift Installation by Others (1159)	75	26-Sep-15 A	15-Jan-16	58%																		
C1106.CEA4210	Lobby Area: Install ABWF Works - Degree 1	24	7-Oct-15 A	20-Nov-15 A	100%																		
C1106.CEA4240	Lift & Lobby Area: Install ABWF Works - Degree 3	60	22-Dec-15	7-Mar-16	0%																		
T&C, External Works, Inspections & Handover																							
C1106.CEA4245	Drainage, Manhole & Ramp Construction	66	28-Oct-15 A	11-Jan-16	45%																		

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

3 of 3

MTR Contract 1106 - Diamond Hill Station Three Month Rolling Programme As of 30 November 2015

3 Month Rolling Programme			
Date	Revision	Checked	Approved
1-Dec-15	C-1106-3MRP/ 35		

**APPENDIX B
ACTION AND LIMIT LEVELS**

APPENDIX B – Action and Limit Levels

24-Hour TSP

Regular Dust Monitoring Location	Description	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
DMS-3 ⁽¹⁾⁽³⁾⁽⁴⁾ / DMS-4 ⁽²⁾⁽³⁾⁽⁴⁾	Hong Kong Sheng Kung Hui Nursing Home	159.1	260
DMS-4 ⁽¹⁾ / DMS-3 ⁽²⁾	Block 1, Rhythm Garden	160.4	

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Dust monitoring on DMS-3⁽¹⁾/DMS-4⁽²⁾ is carried out by Environmental Team of SCL Works Contract 1103.

Construction Noise

Regular Construction Noise Monitoring Location ⁽¹⁾	Description	Time Period	Action Level	Limit Level (Leq (30-min))
NMS-CA-3 ⁽¹⁾⁽³⁾⁽⁴⁾ / NMS-CA-4 ⁽²⁾⁽³⁾⁽⁴⁾	Hong Kong Sheng Kung Hui Nursing Home	0700-1900 hrs on normal weekdays	When one documented complaint is received	70 dB(A)
NMS-CA-4 ⁽¹⁾ / NMS-CA-3 ⁽²⁾	Block 1, Rhythm Garden (north-eastern façade)			75 dB(A)
NMS-CA-5 ⁽¹⁾⁽⁵⁾ / NMS-CA-2 ⁽²⁾⁽⁵⁾	Block 1, Rhythm Garden (northern façade)			65 / 70 dB(A) ⁽⁶⁾

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Shek On House (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Hong Kong S.K.H Nursing Home) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Noise monitoring on NMS-CA-3⁽¹⁾/ NMS-CA-4⁽²⁾ is carried out by Environmental Team of SCL Works Contract 1103.
- (5) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.
- (6) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.

**APPENDIX C
CALIBRATION CERTIFICATES FOR
MONITORING EQUIPEMENT**

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0016

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 2-Oct-15 Next Due Date: 1-Dec-15
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	300.3	Pressure, Pa (mmHg)	763

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc (CFM)	0.0593	Intercept, bc	-0.02195
Last Calibration Date:	4-Feb-15	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Feb-16	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.6	3.40	57.73	7.9	2.81
2	9.7	3.11	52.83	6.4	2.53
3	7.5	2.73	46.49	5.0	2.23
4	5.2	2.28	38.78	3.3	1.81
5	3.4	1.84	31.43	2.1	1.45

By Linear Regression of Y on X

Slope, mw = 0.0514 Intercept, bw : -0.1730
 Correlation coefficient* = 0.9997

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.17

Remarks: _____

Conducted by: WK Signature: _____ Date: 2/10/15
 Checked by: [Signature] Signature: _____ Date: 2 October 2015



Equipment No A-04-06

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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 04, 2015 Rootsmeter S/N 0438320 Ta (K) - 293
 Operator Tisch Orifice I.D. - 2896 Pa (mm) - 756.92

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4590	3.2	2.00
2	NA	NA	1.00	1.0330	6.4	4.00
3	NA	NA	1.00	0.9250	7.9	5.00
4	NA	NA	1.00	0.8800	8.8	5.50
5	NA	NA	1.00	0.7260	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0086	0.6913	1.4233	0.9958	0.6825	0.8799
1.0044	0.9723	2.0129	0.9916	0.9599	1.2443
1.0023	1.0835	2.2505	0.9895	1.0697	1.3912
1.0011	1.1377	2.3603	0.9884	1.1231	1.4591
0.9959	1.3718	2.8467	0.9832	1.3542	1.7598

Qstd slope (m) = 2.09317
 intercept (b) = -0.02195
 coefficient (r) = 0.99997

Qa slope (m) = 1.31071
 intercept (b) = -0.01357
 coefficient (r) = 0.99997

y axis = $\sqrt{H_2O(Pa/760)(298/Ta)}$ y axis = $\sqrt{H_2O(Ta/Pa)}$

CALCULATIONS

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

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

For subsequent flow rate calculations:

$Qstd = 1/m \{ [\sqrt{H_2O(Pa/760)(298/Ta)}] - b \}$
 $Qa = 1/m \{ [\sqrt{H_2O(Ta/Pa)}] - b \}$

TEST REPORT

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

Test Report No.:	C/N/150103
Date of Issue:	2015-01-05
Date Received:	2015-01-03
Date Tested:	2015-01-03
Date Completed:	2015-01-05
Next Due Date:	2016-01-04

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 54%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/150828/1
Date of Issue:	2015-08-31
Date Received:	2015-08-28
Date Tested:	2015-08-28
Date Completed:	2015-08-31
Next Due Date:	2016-08-30

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21455
Microphone No.	: 43730
Equipment No.	: N-08-07

Test conditions:

Room Temperature	: 24 degree Celsius
Relative Humidity	: 58%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/150821/3
Date of Issue:	2015-08-24
Date Received:	2015-08-21
Date Tested:	2015-08-21
Date Completed:	2015-08-24
Next Due Date:	2016-08-23

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 54%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/150918/3
Date of Issue:	2015-09-21
Date Received:	2015-09-18
Date Tested:	2015-09-18
Date Completed:	2015-09-21
Next Due Date:	2016-09-20

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 10929
Equipment No.	: N-09-01

Test conditions:

Room Temperature	: 25 degree Celsius
Relative Humidity	: 58%

Methodology:

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

Results:

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

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/151003/3
Date of Issue:	2015-10-04
Date Received:	2015-10-03
Date Tested:	2015-10-03
Date Completed:	2015-10-04
Next Due Date:	2016-10-03

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

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

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE

Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/150821/4
Date of Issue:	2015-08-24
Date Received:	2015-08-21
Date Tested:	2015-08-21
Date Completed:	2015-08-24
Next Due Date:	2016-08-23

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 54%

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 November 2015**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Nov	2-Nov	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov
			24 hr TSP		Noise	
8-Nov	9-Nov	10-Nov	11-Nov	12-Nov	13-Nov	14-Nov
		24 hr TSP		Noise		
15-Nov	16-Nov	17-Nov	18-Nov	19-Nov	20-Nov	21-Nov
	24 hr TSP		Noise			24 hr TSP
22-Nov	23-Nov	24-Nov	25-Nov	26-Nov	27-Nov	28-Nov
	Noise				24 hr TSP	
29-Nov	30-Nov					
	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 December 2015**

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

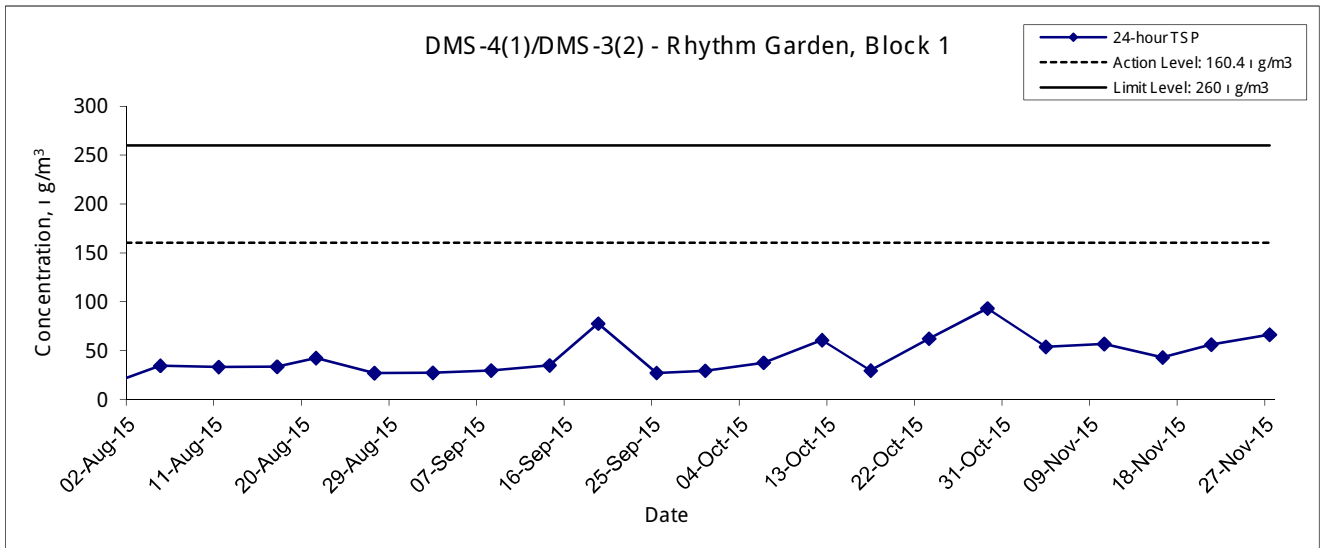
Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

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. (g/m ³)
					Initial	Final		Initial	Final		Initial	Final			
4-Nov-15	9:00	Cloudy	296.9	767.5	3.2565	3.3520	0.0955	4918.0	4942.0	24.0	1.23	1.23	1.23	1773.0	53.9
10-Nov-15	9:00	Cloudy	296.2	766.5	3.2245	3.3252	0.1007	4942.0	4966.0	24.0	1.23	1.23	1.23	1773.9	56.8
16-Nov-15	9:00	Cloudy	297.4	763.7	3.2563	3.3322	0.0759	4966.0	4990.0	24.0	1.23	1.23	1.23	1767.6	42.9
21-Nov-15	9:00	Cloudy	297.4	766.3	3.2509	3.3503	0.0994	4990.0	5014.0	24.0	1.23	1.23	1.23	1770.4	56.1
27-Nov-15	9:00	Cloudy	289.8	770.9	3.2946	3.4138	0.1192	5014.0	5038.0	24.0	1.25	1.25	1.25	1796.7	66.3
														Min	42.9
														Max	66.3
														Average	55.2

Remarks:

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

24-hour TSP Concentration Levels



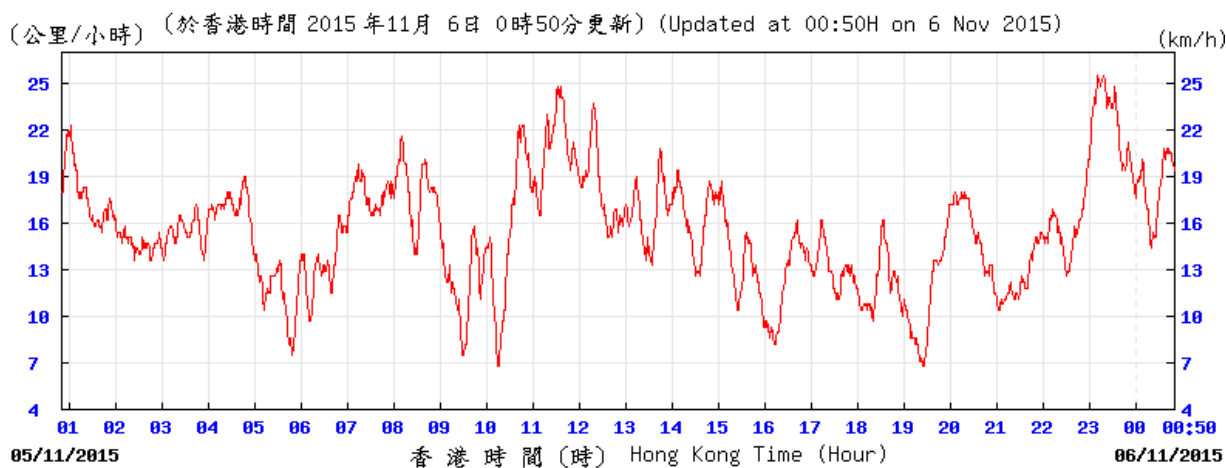
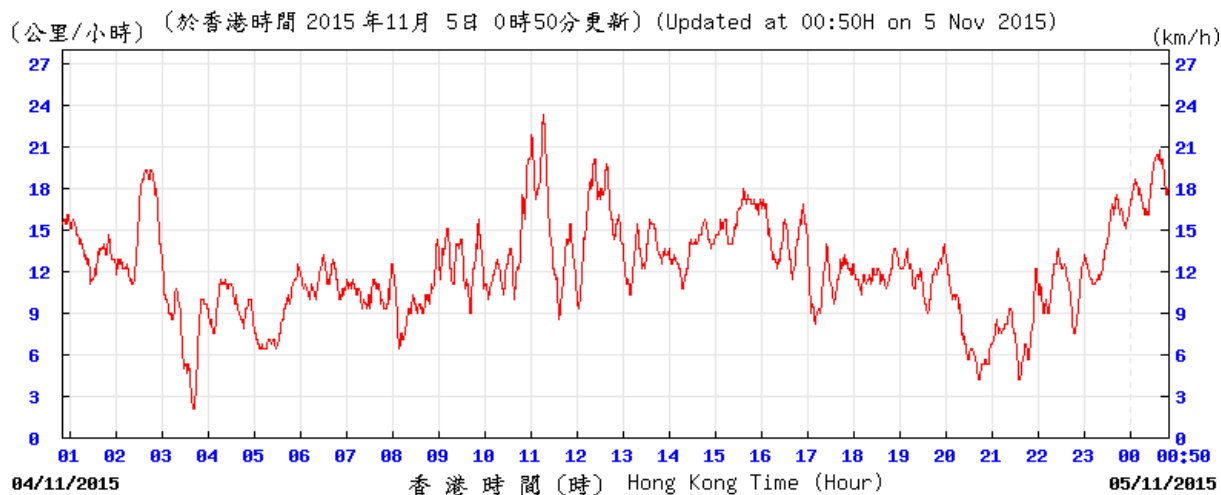
Remarks:

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

Title Shatin to Central Link - Contract 1106 Diamond Hill Station Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA12051	CINOTECH
	Date Nov 15	Appendix E	

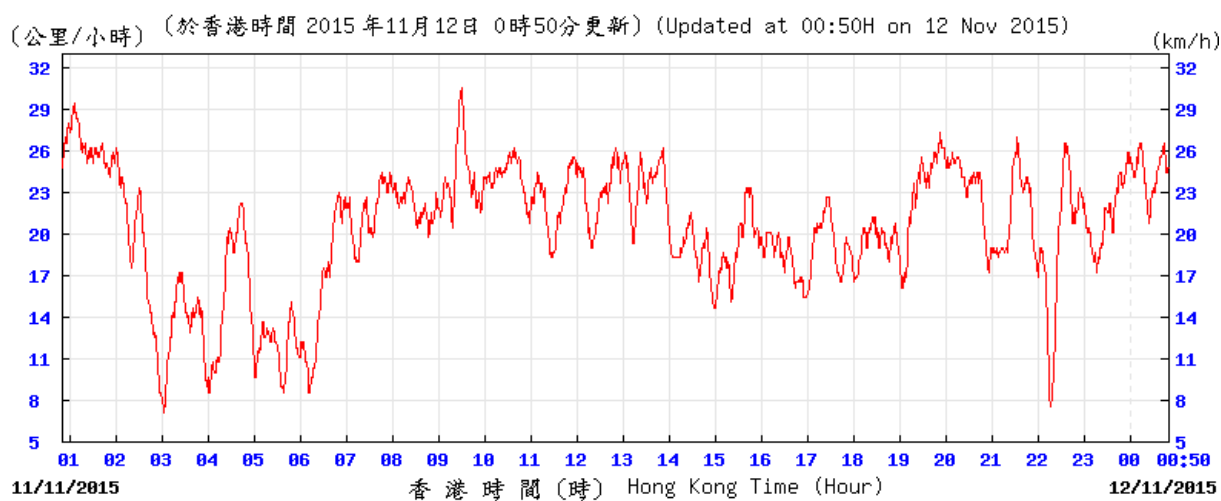
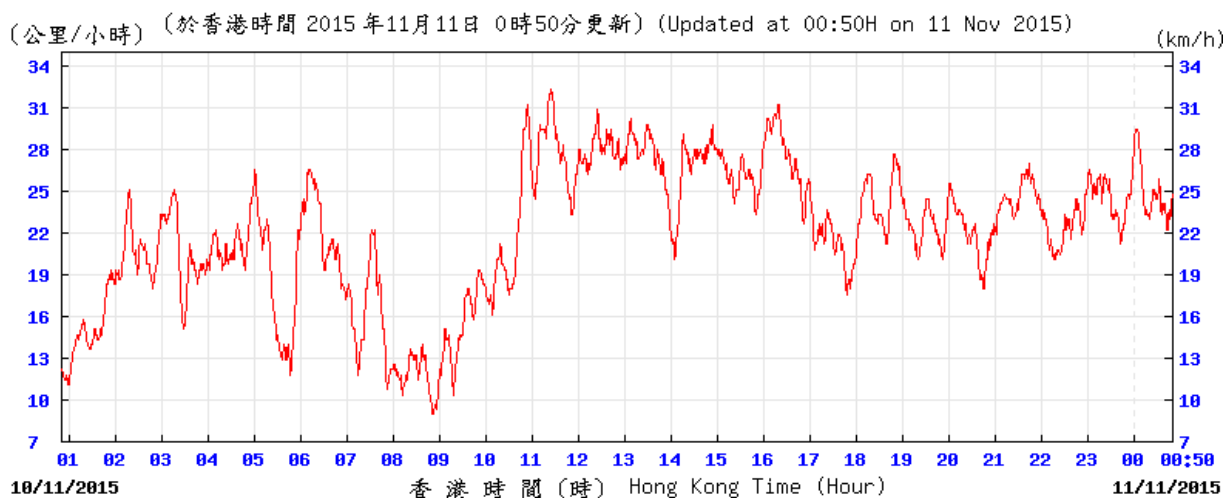
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

4-5 November 2015



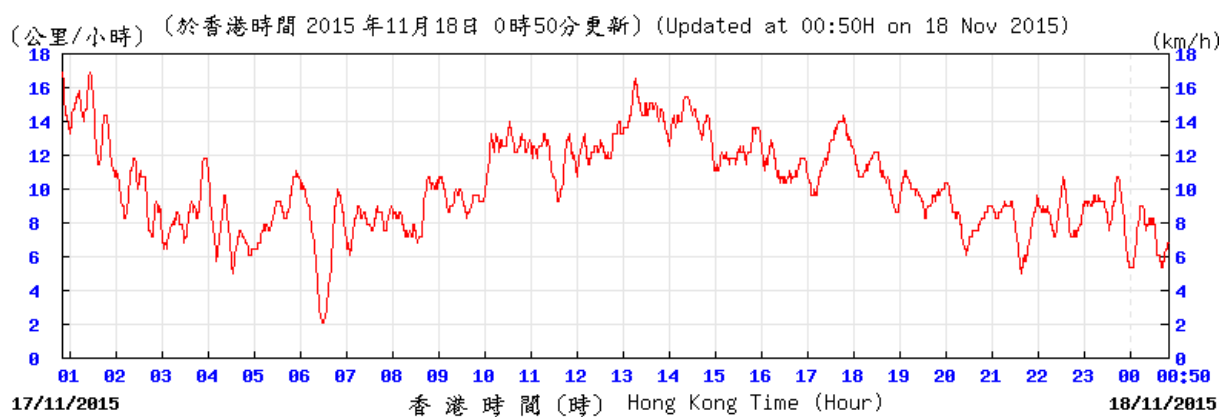
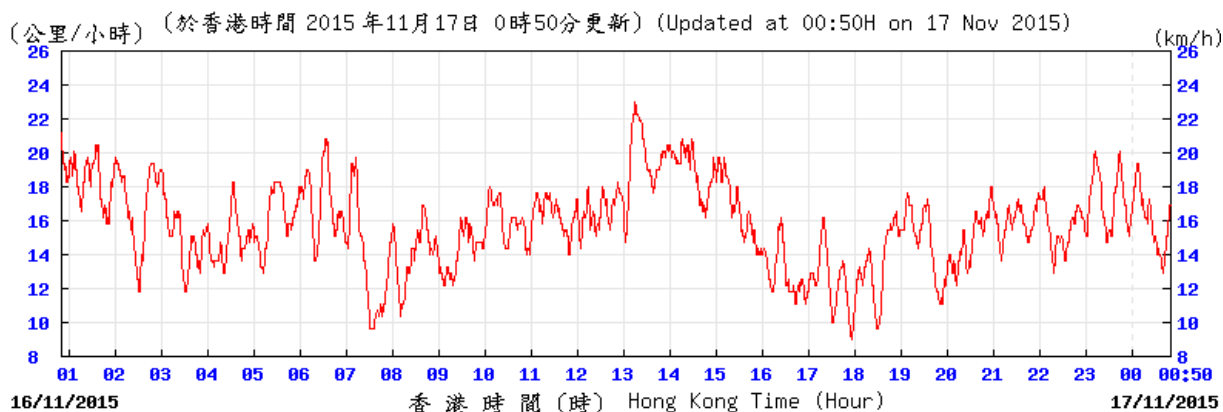
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

10-11 November 2015



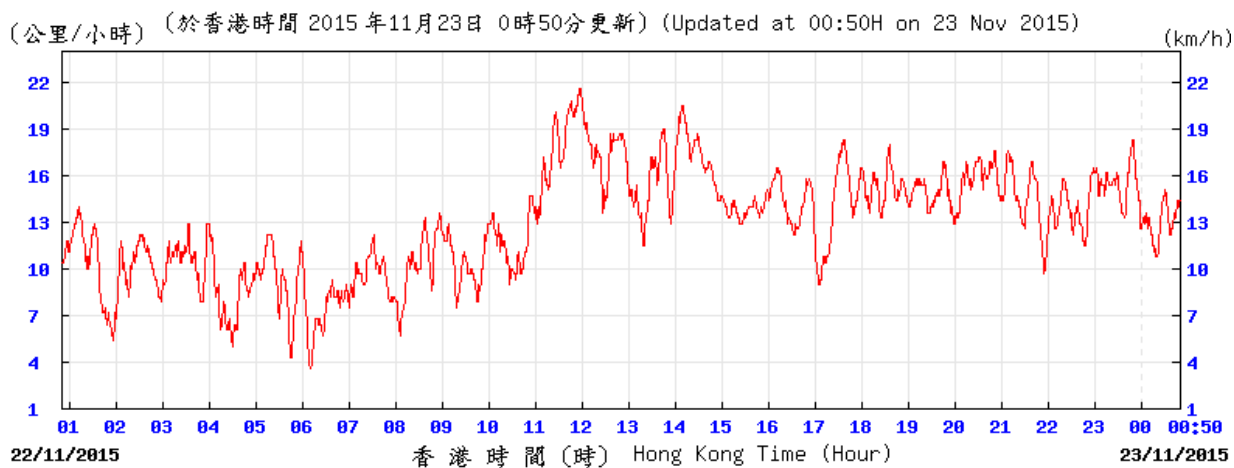
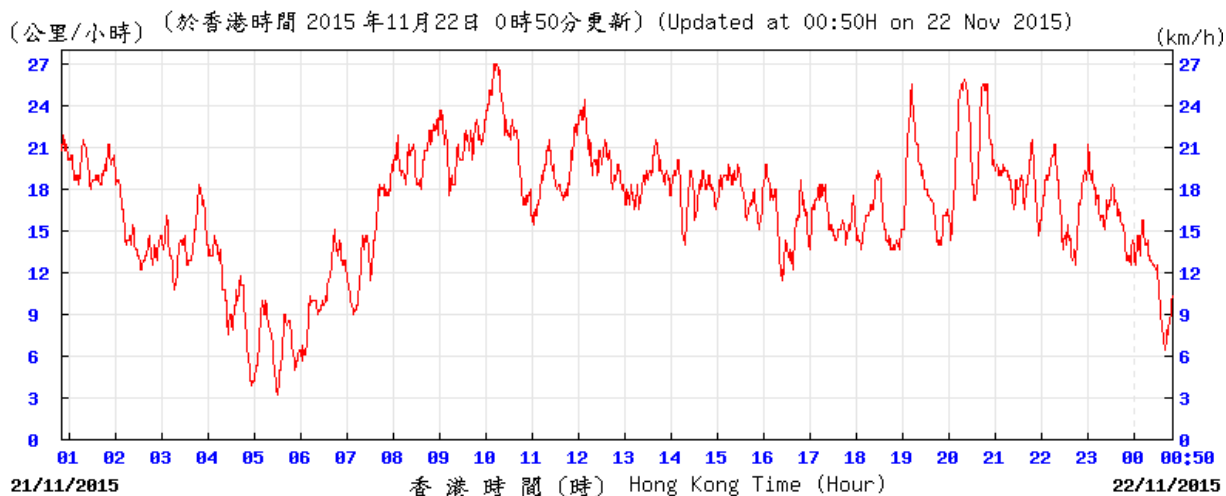
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

16-17 November 2015



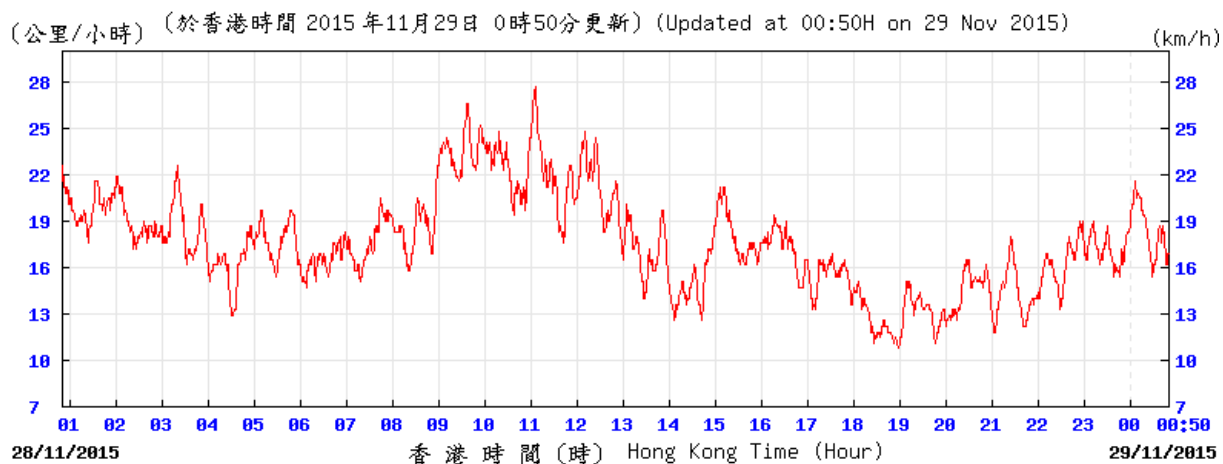
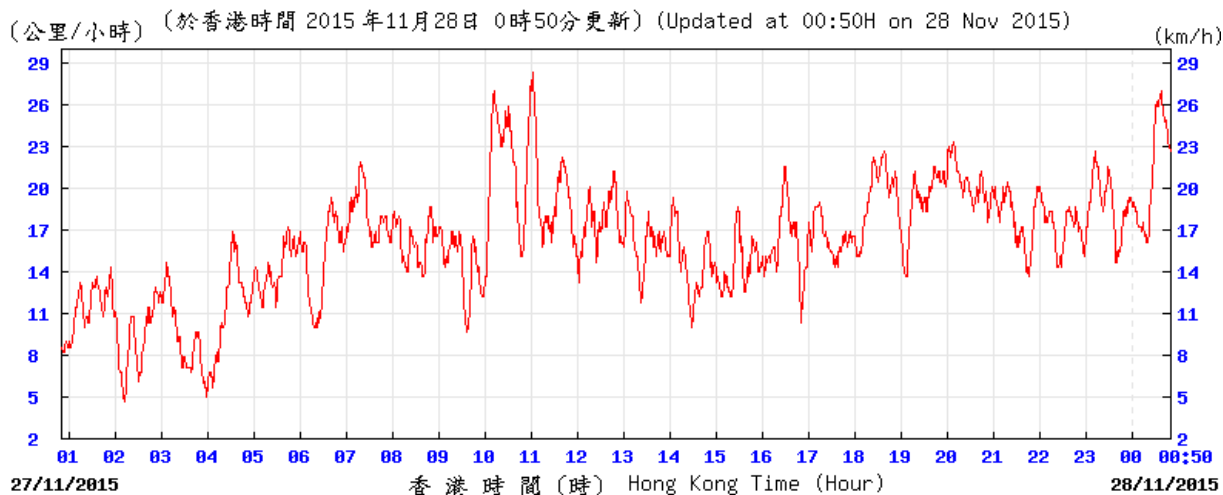
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

21-22 November 2015



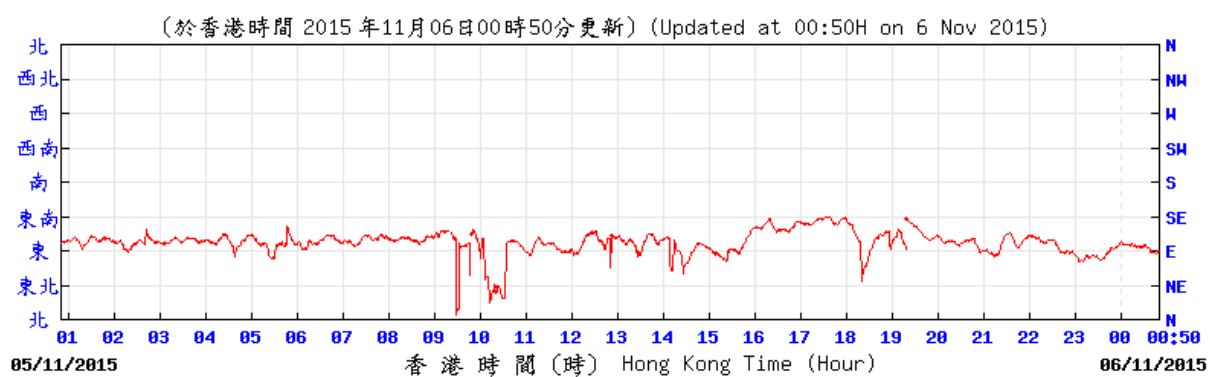
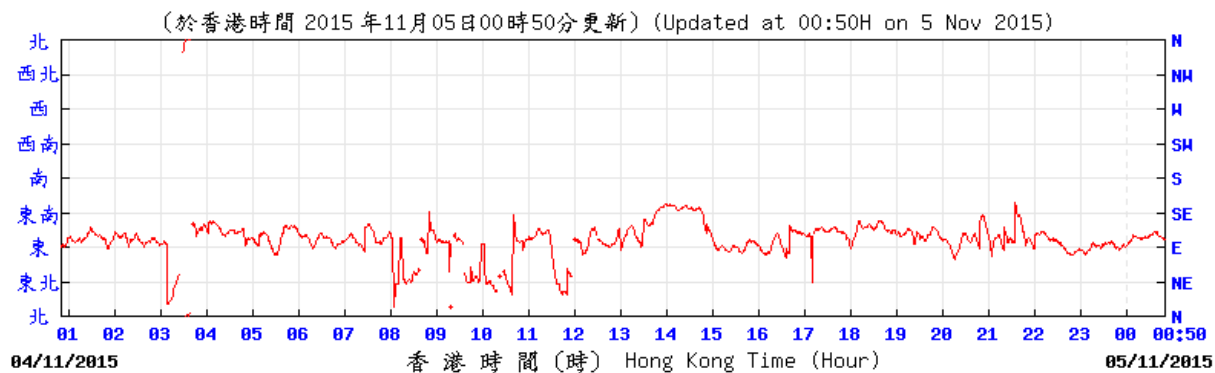
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

27-28 November 2015



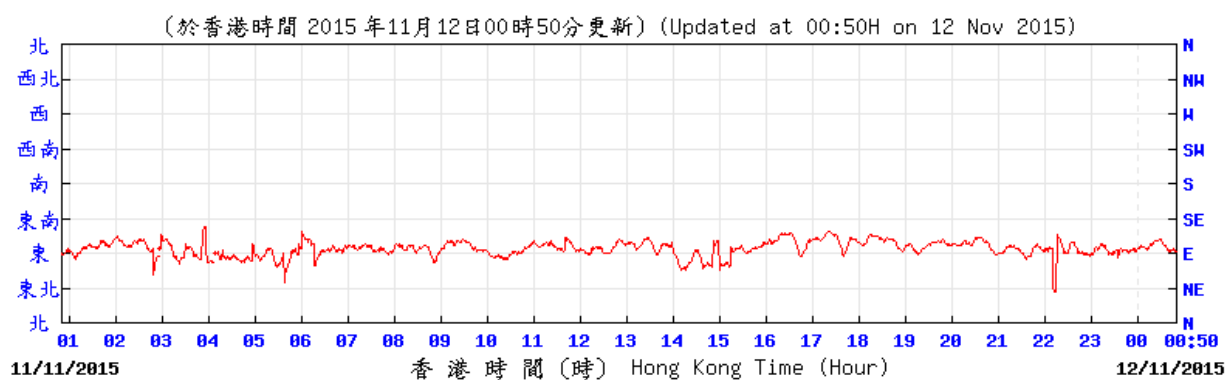
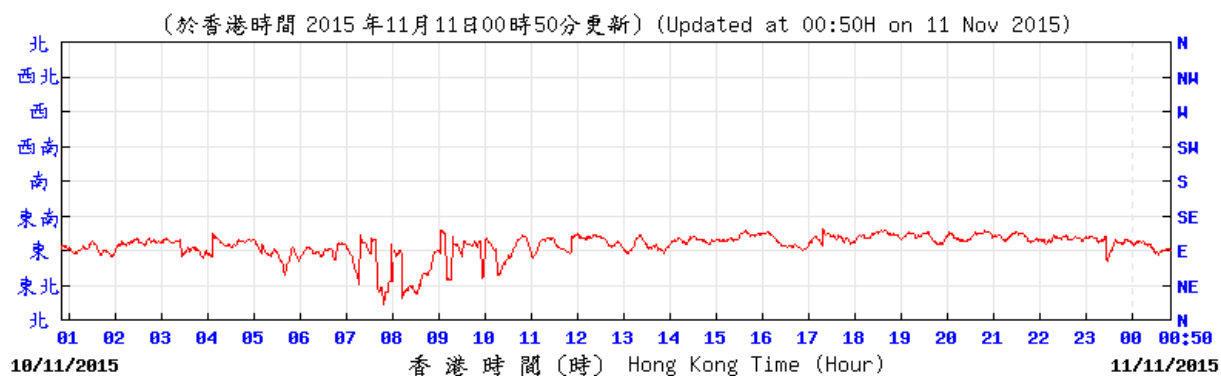
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

4-5 November 2015



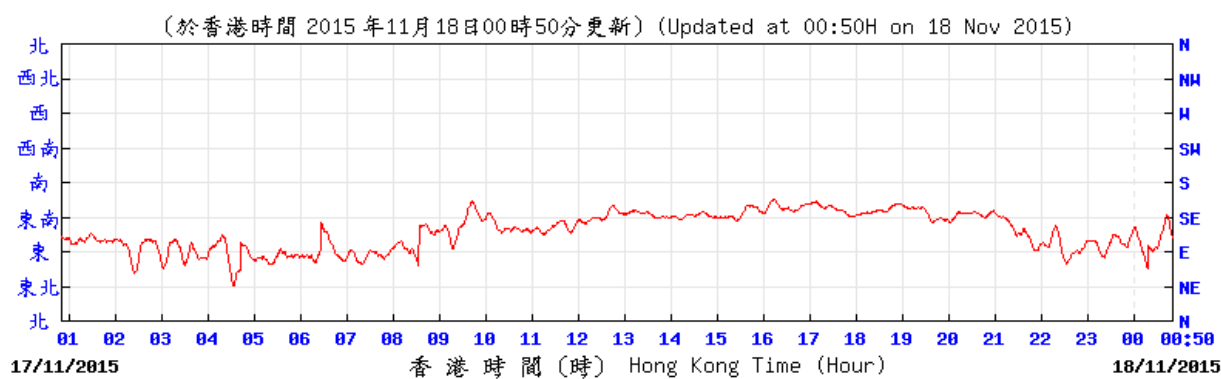
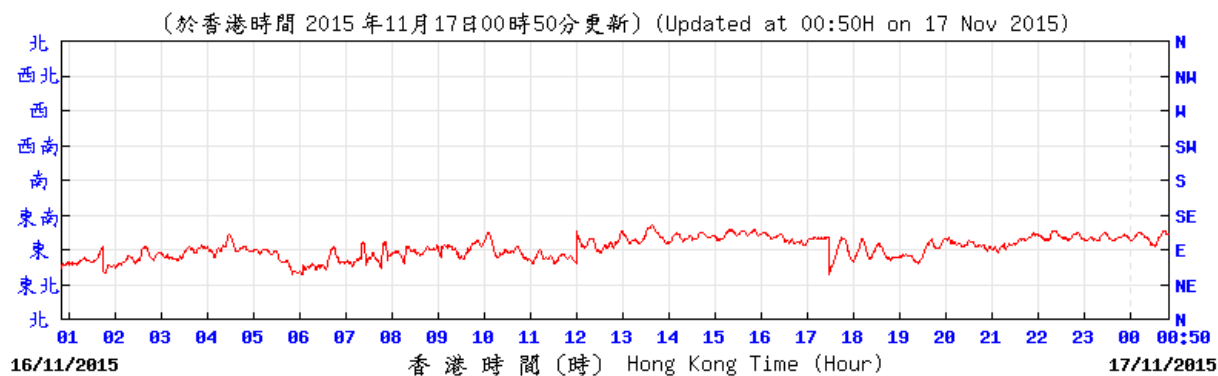
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

10-11 November 2015



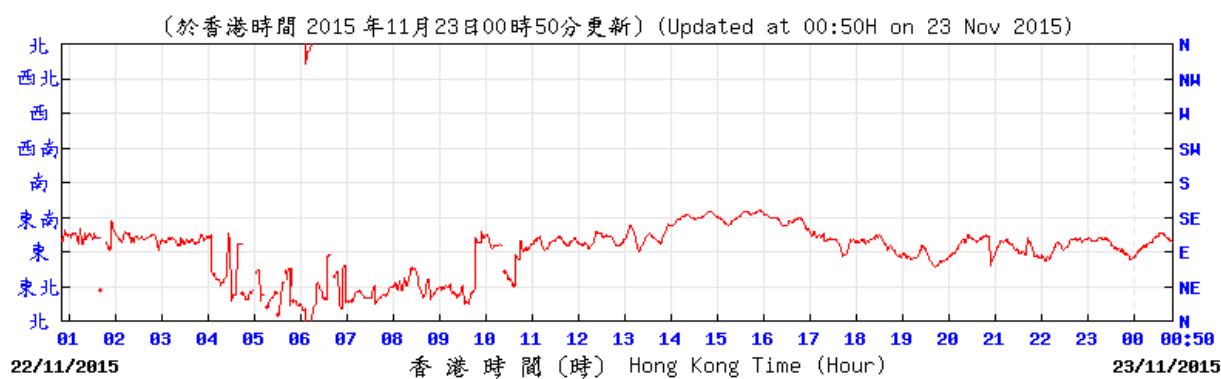
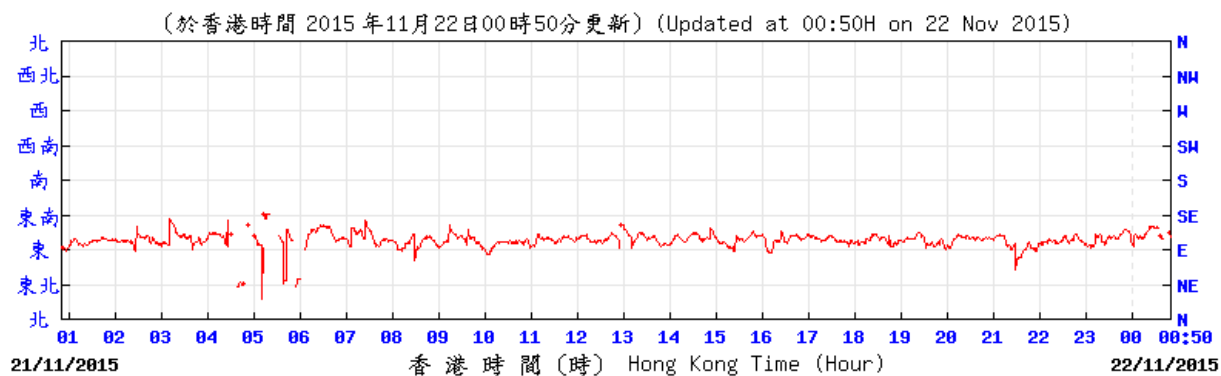
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

16-17 November 2015



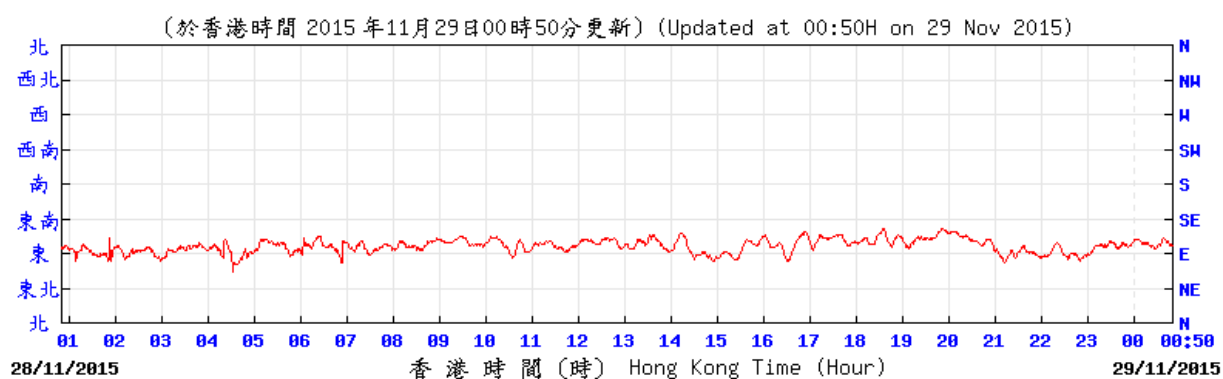
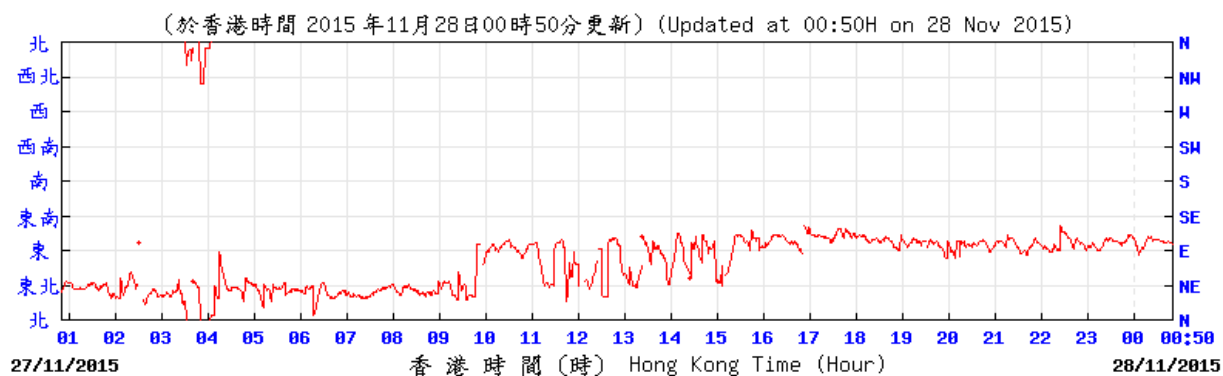
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

21-22 November 2015



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

27-28 November 2015



**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}
6-Nov-15	Cloudy	10:50	72.6	73.7	71.3	72.9	71	68.4
		10:55	73.8	75.4	72.0			
		11:00	73.4	74.8	71.5			
		11:05	71.6	72.8	70.2			
		11:10	72.9	73.1	71.9			
		11:15	73.0	74.2	72.0			
12-Nov-15	Cloudy	11:15	71.0	72.1	68.9	70.8	71	70.8 Measured ≤ Baseline Level
		11:20	71.2	72.2	69.1			
		11:25	70.0	72.3	68.7			
		11:30	70.5	71.9	69.4			
		11:35	71.0	71.9	68.7			
		11:40	71.2	72.4	69.5			
18-Nov-15	Sunny	11:30	72.9	73.4	70.9	72.1	71	65.6
		11:35	71.9	72.9	70.4			
		11:40	71.2	72.6	69.7			
		11:45	71.9	73.4	70.2			
		11:50	72.5	73.8	70.8			
		11:55	72.0	72.9	70.6			
23-Nov-15	Cloudy	15:10	73.2	74.8	71.5	73.1	71	68.9
		15:15	72.9	73.8	71.9			
		15:20	72.9	73.9	72.2			
		15:25	72.4	73.6	71.0			
		15:30	73.6	73.2	72.0			
		15:35	73.4	74.6	72.1			
30-Nov-15	Cloudy	11:05	73.6	74.8	72.2	73.3	71	69.4
		11:10	73.6	74.2	72.1			
		11:15	73.8	74.8	72.4			
		11:20	72.8	74.0	71.3			
		11:25	73.0	74.2	71.6			
		11:30	72.9	74.3	71.3			

Remarks:

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

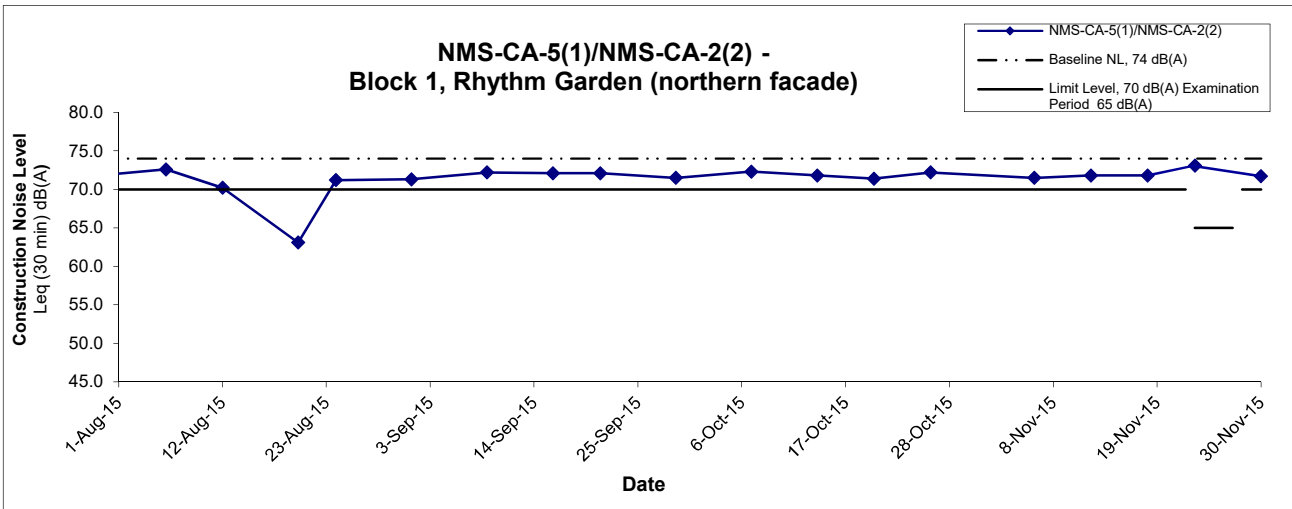
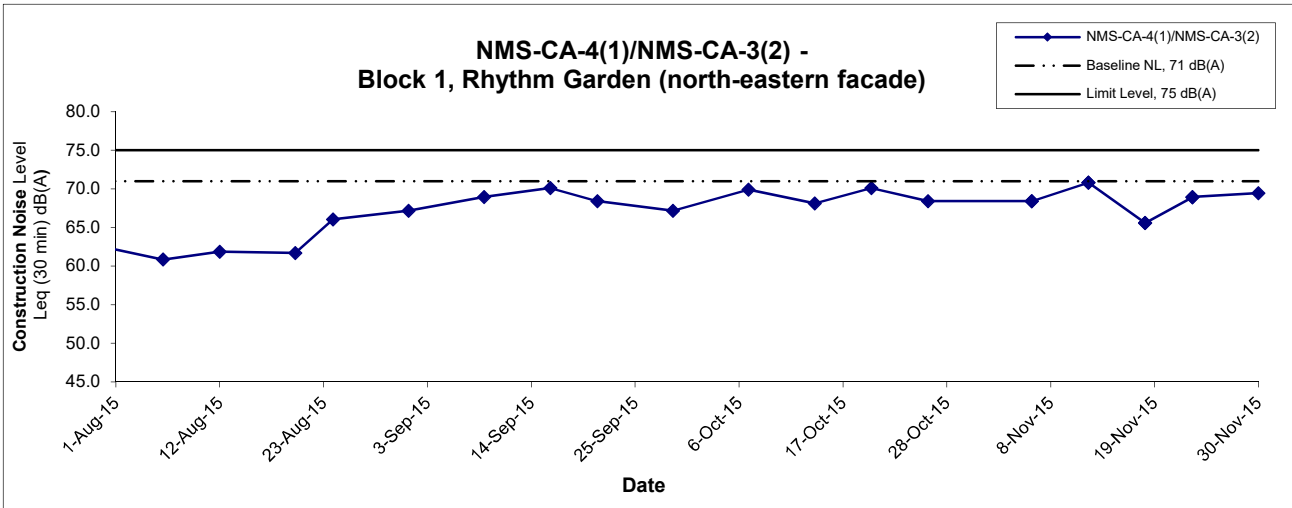
Appendix F - Noise Monitoring Results

Location NMS-CA-5(1)/NMS-CA-2(2) - Block 1, Rhythm Garden (northern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}
6-Nov-15	Cloudy	10:15	71.4	72.7	69.9	71.5	74	71.5 Measured ≤ Baseline Level
		10:20	71.5	72.7	70.0			
		10:25	71.4	72.7	70.0			
		10:30	71.5	72.6	70.2			
		10:35	71.4	72.5	70.2			
		10:40	71.5	72.5	70.2			
12-Nov-15	Cloudy	11:15	71.5	73.0	70.0	71.8	74	71.8 Measured ≤ Baseline Level
		11:20	72.1	73.3	69.6			
		11:25	72.0	74.1	69.8			
		11:30	71.7	73.0	70.1			
		11:35	71.8	73.2	69.7			
		11:40	71.6	72.9	69.8			
18-Nov-15	Sunny	10:55	71.3	72.5	70.0	71.8	74	71.8 Measured ≤ Baseline Level
		11:00	71.2	72.4	70.0			
		11:05	71.0	72.0	70.0			
		11:10	71.5	72.6	70.1			
		11:15	72.4	73.8	70.4			
		11:20	72.8	74.0	71.1			
23-Nov-15	Cloudy	14:30	73.8	75.3	71.5	73.1	74	73.1 Measured ≤ Baseline Level
		14:35	73.6	74.8	71.7			
		14:40	71.4	72.9	69.9			
		14:45	73.2	74.5	71.4			
		14:50	72.8	74.2	70.9			
		14:55	73.2	74.5	71.3			
30-Nov-15	Cloudy	10:30	71.5	72.6	70.2	71.7	74	71.7 Measured ≤ Baseline Level
		10:35	71.8	73.0	70.2			
		10:40	71.5	72.7	70.2			
		10:45	71.9	73.7	70.2			
		10:50	71.8	72.9	70.4			
		10:55	71.9	72.8	70.9			

Remarks:

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

Noise Levels



Remarks:

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

Title	Shatin to Central Link - Contract 1106 - Diamond Hill Station	Scale	Project No.	CINOTECH
	Graphical Presentation of Construction Noise Monitoring Results	N.T.S	MA12051	
		Date	Appendix	
		Nov 15	F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: November 2015

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

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



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151105
Date	5 November 2015 (Thursday)
Time	13:30 – 15:00

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

Ref. No.	Remarks/Observations	Related Item No.
151105-001	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> Construction materials in tree protection zone near site exit should be removed as soon as possible to prevent damage to trees and vegetation. 	D 3
151105-R03	<p>Part E – Air Quality</p> <ul style="list-style-type: none"> Water spraying should be provided more frequently for exposed area in West Unpaid Link Adit and Interchange Adit. <p>Part F – Cultural Heritage</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	E 5
151105-R02	<p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> Material and waste in West Unpaid Link Adit should be properly sorted and disposed of. <p>Part I – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part J – Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.: 151029), item 151029-R02 was remarked as 151105-R03 and follow up action is needed to be reviewed.. 	H 1i

	Name	Signature	Date
Recorded by	Jason Lai		5 November 2015
Checked by	Dr. Priscilla Choy		5 November 2015

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

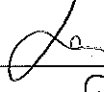

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151113
Date	13 November 2015 (Friday)
Time	16:30 – 17:15

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

Ref. No.	Remarks/Observations	Related Item No.
151113-001	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
151113-002	<p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> Construction materials in tree protection zone near site exit should be removed as soon as possible to prevent damage to trees and vegetation. Materials on planter in A1 work area should be removed to prevent damage to retained trees. 	D 3 D 3
151113-R03	<p>Part E – Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F – Cultural Heritage</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> Drip tray should be provided to chemical containers near ramp. <p>Part I – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part J – Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.: 151105), item 151105-001 was remarked as 151113-001 and follow up action is needed to be reviewed. 	H 10

	Name	Signature	Date
Recorded by	Jason Lai		13 November 2015
Checked by	Dr. Priscilla Choy		13 November 2015

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



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151119
Date	19 November 2015 (Thursday)
Time	09:30 – 10:15

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

Ref. No.	Remarks/Observations	Related Item No.
151119-001	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	D 3
151119-002	<p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> Construction materials in tree protection zone near site exit should be removed as soon as possible to prevent damage to trees and vegetation. Materials on planter in A1 work area should be removed to prevent damage to retained trees. 	D 3
151119-R04	<p>Part E – Air Quality</p> <ul style="list-style-type: none"> Water spraying should be provided more frequently to stockpile in MBME plant to keep surface wet. 	E 6
151119-003	<p>Part F – Cultural Heritage</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> Drip tray should be provided to chemical containers near ramp. <p>Part I – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part J – Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.: 151113), items 151113-001, 151113-002 and 151113-R03 were remarked as 151119-001, 151119-002 and 151119-003 respectively, and follow up action is needed to be reviewed. 	H 10

	Name	Signature	Date
Recorded by	Jason Lai		19 November 2015
Checked by	Dr. Priscilla Choy		19 November 2015

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

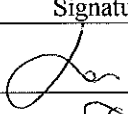

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151126
Date	26 November 2015 (Thursday)
Time	13:30 – 14:30

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

Ref. No.	Remarks/Observations	Related Item No.
151126-R02	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> Sedimentation process should be enhanced to improve the quality of effluent discharged near site exit. 	B 6iii
151126-001	<p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> Construction materials in tree protection zone near W8 should be removed as soon as possible to prevent damage to trees and vegetation. Materials on planter in A1 work area should be removed to prevent damage to retained trees. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F – Cultural Heritage</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part J – Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.: 151119), items 151119-001 and 151119-002 were remarked as 151126-001 and follow up action is needed to be reviewed. 	D 3

	Name	Signature	Date
Recorded by	Jason Lai		26 November 2015
Checked by	Dr. Priscilla Choy		26 November 2015

**APPENDIX I
EVENT AND ACTION PLANS**

Event and Action Plan for Air Quality Monitoring during Construction Phase

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

LIMIT LEVEL

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

Event and Action Plan for Noise Monitoring during Construction Phase

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

Event and Action Plan for Landscape and Visual during Construction Phase

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

**APPENDIX J
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

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

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal. The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> • No on-site burning of waste; • Waste and refuse in appropriate receptacles. 						^ *
<i>Landscape & Visual (Construction Phase)</i>								
S6.12	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> • To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	•TM-EIAO	^ *

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment.</p> <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor’s works sites. 						<p style="text-align: center;">*</p> <p style="text-align: center;">^</p>
Table 6.9	LV2	<p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context. <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the facilities on the sites, give 	Minimize the visual and landscape impact of the Project during construction phase	Contractor	Within Project Site	Detailed design and construction stage	<ul style="list-style-type: none"> EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006 	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.</p> <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> Trees of medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable. <p>Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.</p>						^
<i>Air Quality (Construction Phase)</i>								
/	A1	<p>Emission from Vehicles and Plants</p> <ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD) 	<p>Reduce air pollution emission from construction vehicles and plants</p>	Contractor	All construction sites	Construction stage	• APCO	^ ^ ^
/	A2	Open burning shall be prohibited	<p>Reduce air pollution emission from work site</p>	Contractor	All construction sites	Construction stage	APCO	^
<i>Construction Dust Impact</i>								
S7.6.6	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	<p>Minimize dust impact at the nearby sensitive receivers</p>	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust 	*

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
							impact to meet HKAQO and TM-EIA criteria	
S7.6.6	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m ² to achieve the dust removal efficiency	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	*
S7.6.6	D3	<ul style="list-style-type: none"> • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that 	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	* ^ ^ ^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>the dusty materials do not leak from the vehicle;</p> <ul style="list-style-type: none"> • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; 						<p>^</p> <p>^</p> <p>^</p> <p>^</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and 						<p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 						N/A
S7.6.6	D4	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
Construction Airborne Noise								
S8.5.6	AN1	Implement the following good site practices: <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; mobile plant should be sited as far away from NSRs as possible 	Control construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^ ^ ^ ^ ^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>and practicable;</p> <ul style="list-style-type: none"> material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 						^
S8.5.6	AN2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN4	Use "Quiet" plant	Reduce the noise levels of plant items	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
			noise					
S8.5.6	AN6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	•TM-EIA	^
Water Quality (Construction Phase)								
S10.7.1	W1	<p>In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:</p> <p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> • At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct site runoff and stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. • The dikes or embankments for flood protection should be 	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water 	^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.</p> <ul style="list-style-type: none"> • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to 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 						* ^ ^ ^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

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

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

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

SCL Works Contract 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
		appropriate disposal and maintenance.						
S10.7.1	W5	<p><u>Accidental Spillage</u></p> <p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> • Proper storage and handling facilities should be provided; • All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains; • The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings; and • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water 	<p>^</p> <p>*</p> <p>^</p> <p>^</p>
<i>Waste Management (Construction Waste)</i>								
S11.4.1.1	WM1	<p><u>On-site sorting of C&D material</u></p> <ul style="list-style-type: none"> • Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc.). Volcanic rock and Aplite dyke rock 	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • DEVB TC(W) No. 6/2010 	N/A

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc. should also be explored.</p>						
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance 	<p>^</p> <p>*</p> <p>^</p>

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and EPD and get their approval before implementation 	disposal				<ul style="list-style-type: none"> • ETWB TCW No. 19/2005 	N/A ^ ^ ^
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW 	^

SCL Works Contract 1106 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>materials will be carefully planned in order to avoid over ordering and wastage.</p> <ul style="list-style-type: none"> The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 					No.19/2005	^
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	* ^ ^

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

Contract No: MTR SCL 1106 - Diamond Hill Station
Date of Report: November,2015

Monthly Summary Waste Flow Table for 2015

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	26.502	0.000	0.000	25.020	1.482	0.000	0.000	0.389	0.000	0.000	0.062	
Feb	17.022	0.000	0.000	14.903	2.119	0.000	0.000	0.000	0.000	0.000	0.085	
Mar	17.378	0.000	0.000	14.941	2.437	0.000	0.000	0.300	0.000	0.000	0.133	
Apr	4.879	0.000	0.000	4.129	0.750	0.000	0.000	0.400	0.000	0.000	0.041	
May	2.802	0.000	0.000	1.613	1.189	0.000	0.000	0.200	0.000	0.000	0.067	
Jun	0.336	0.000	0.000	0.000	0.336	0.000	0.000	0.420	0.000	0.000	0.069	
Sub-total	68.919	0.000	0.000	60.606	8.313	0.000	0.000	1.709	0.000	0.000	0.457	
Jul	0.239	0.000	0.000	0.000	0.239	0.000	0.000	0.240	0.000	0.000	0.114	
Aug	0.310	0.000	0.000	0.000	0.310	0.000	0.000	0.420	0.000	0.000	0.102	
Sept	0.231	0.000	0.000	0.000	0.231	0.000	0.000	0.000	0.000	0.000	0.117	
Oct	0.277	0.000	0.000	0.000	0.277	0.000	0.000	0.334	0.000	0.000	0.228	
Nov	0.157	0.000	0.000	0.000	0.157	0.000	0.000	0.291	0.000	0.000	0.208	
Dec												
Total	70.133	0.000	0.000	60.606	9.527	0.000	0.000	2.994	0.000	0.000	1.226	

Notes:

- 1) Assume the densities of Rock, Soil, Mix Rock and Soil, are Regular Spoil to be 2.0 tonnes/m³. Assumption the densities of general refuse is 1.0 tonnes/m³
- 2) Inert C&D material was delivered to Kai Tak Barging Point Facility (Contract 1108A) & Contract 1108.
- 3) Chemical waste includes waste diesel oil. It is assumed density of diesel oil to be 0.8kg/L.
- 4) figures are rounded up to 3 decimal places

Remarks: Data of October 2015 has been updated

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

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

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
March 2013	0	0	0
April 2013	0	0	0
May 2013	0	0	0
June 2013	0	0	0
July 2013	0	0	0
August 2013	0	0	0
September 2013	0	0	0
October 2013	0	0	0
November 2013	0	0	0
December 2013	0	0	0
January 2014	0	0	0
February 2014	0	0	0
March 2014	0	0	0
April 2014	0	0	0
May 2014	0	0	0
June 2014	0	0	0
July 2014	0	0	0
August 2014	0	0	0
September 2014	0	0	0
October 2014	0	0	0
November 2014	0	0	0
December 2014	0	0	0
January 2015	0	0	0
February 2015	3	0	0
March 2015	0	0	0
April 2015	0	0	0
May 2015	0	0	0
June 2015	0	0	0
July 2015	1	0	0
August 2015	0	0	0
September 2015	0	0	0
October 2015	0	0	0
November 2015	0	0	0
Total	4	0	0

Environmental Complaint Log (November 2015)

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

Log for Notifications of Summons (November 2015)

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

Log for Successful Prosecutions (November 2015)

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

Appendix G

**31st EM&A Report for Works Contract 1107 –
Diamond Hill to Kai Tak Tunnels**

MTR Corporation Limited

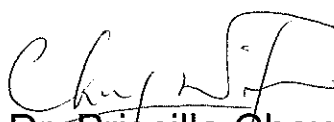
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No.31

[Period from 1 to 30 November 2015]

Works Contract 1107 – Diamond Hill to Kai Tak
Tunnels

(December 2015)

Certified by: 
Dr. Priscilla Choy

Position: Environmental Team Leader

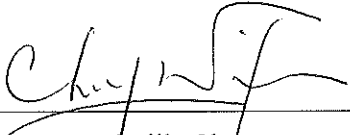
Date: 8th December 2015

Chun Wo – SELI Joint Venture

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

**Monthly Environmental
Monitoring and Audit Report
For November 2015**

(Version 2.0)

Certified By 

Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

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

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

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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
Introduction.....	1
Summary of Construction Works undertaken during Reporting Month	1
Variation in Construction Method.....	1
Environmental Monitoring and Audit Progress:	1
Regular Construction Noise and Construction Dust Monitoring	1
Waste Management	2
Landscape and Visual	2
Environmental Site Inspection	2
Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution.....	2
Future Key Issues	2
1 INTRODUCTION	3
Purpose of the Report	3
Structure of the Report.....	3
2 PROJECT INFORMATION	4
Background	4
General Site Description	4
Construction Programme and Activities	4
Project Organisation	4
Status of Environmental Licences, Notification and Permits	4
Summary of EM&A Requirements	5
3 ENVIRONMENTAL MONITORING REQUIREMENTS	6
<i>Regular Construction Noise Monitoring</i>	6
Monitoring Parameter and Frequency	6
Monitoring Equipment and Methodology	7
Field Monitoring.....	7
Monitoring Equipment.....	7
Maintenance and Calibration	8
Action & Limit Level for Construction Noise Monitoring.....	8
<i>Continuous Noise Monitoring</i>	8
<i>Regular Construction Dust Monitoring</i>	8
Monitoring Parameter and Frequency	8
Monitoring Equipment.....	9
Instrumentation.....	9
HVS Installation	9
Filters Preparation	9
Operating/Analytical Procedures	10
Maintenance/Calibration.....	11
Action and Limit Levels for Dust Monitoring	11
<i>Landscape and Visual</i>	11
4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS	12
5 MONITORING RESULTS	13
Regular Construction Noise Monitoring.....	13

Regular Dust Monitoring	13
Waste Management	14
Landscape and Visual	14
6 ENVIRONMENTAL SITE INSPECTION.....	15
Site Audit	15
Implementation Status of Environmental Mitigation Measures	15
7 ENVIRONMENTAL NON-CONFORMANCE	16
Summary of Exceedances	16
Summary of Environmental Non-Compliance.....	16
Summary of Environmental Complaint	16
Summary of Environmental Summon and Successful Prosecution	16
8 FUTURE KEY ISSUES.....	17
Construction Programme for the Next Month	17
Key Issues in the Next Month.....	17
Monitoring Schedule in the Next Month	17
9 CONCLUSIONS AND RECOMMENDATIONS.....	18
Conclusions	18
Recommendations	18

LIST OF TABLES

Table 2.1	Status of Environmental Licences, Notification and Permits
Table 3.1	Regular Construction Noise Monitoring Location
Table 3.2	Noise Monitoring Equipment
Table 3.3	Dust Monitoring Location
Table 3.4	Dust Monitoring Parameters and Frequency
Table 3.5	Dust Monitoring Equipment
Table 4.1	Status of Required Submissions under EP
Table 5.1	Summary Table of Dust Monitoring Results during the reporting month
Table 5.2	Quantities of Waste Generated from the Project
Table 6.1	Observations and Recommendations of Site Audit

LIST OF FIGURES

Figure 1	The Alignment and Works Area for Works Contract 1107
Figure 2	Locations of Construction Noise Monitoring
Figure 3	Location of Dust Monitoring
Figure 4	Organisation Chart and Key Contact of the Project

LIST OF APPENDICES

Appendix A	Tentative Construction Programme
Appendix B	Action and Limit Levels
Appendix C	Calibration Certificates for Monitoring Equipment
Appendix D	Impact Monitoring Schedule
Appendix E	24-hour TSP Monitoring Results and Graphical Presentations
Appendix F	Noise Monitoring Results and Graphical Presentations
Appendix G	Summary of Exceedance
Appendix H	Site Audit Summary
Appendix I	Event and Action Plans
Appendix J	Updated Environmental Mitigation Implementation Schedule
Appendix K	Waste Generation in the Reporting Month
Appendix L	Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

EXECUTIVE SUMMARY

Introduction

1. This is the 31st monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1107 – Diamond Hill to Kai Tak Tunnels**. This report documents the findings of EM&A Works conducted from 1st to 30th November 2015.

Summary of Construction Works undertaken during Reporting Month

2. The major site activities undertaken in the reporting month include:
 - Tunnel construction at cut and cover tunnels;
 - Backfilling works at cut and cover tunnels; and
 - Reinstatement of Box Culvert.

Variation in Construction Method

3. Environmental Monitoring and Audit Progress:

As of the reporting month, an alignment section of approximately 90m long between DIH and KAT under this Works Contract 1107 will be constructed by the cut-and-cover method, instead of bored tunnelling method as assessed in the approved Environmental Impact Assessment (EIA) Report of Shatin to Central Link - Stabling Sidings at Hung Hom Freight Yard (hereafter referred to as SCL (HHS)) [Register No.: AEIAR-164/2012] due to increased construction risk caused by potential left-in piles. Also, pile removal works would be conducted if reinforced bored piles are identified along the bored tunnelling section. Application for variation of Environmental Permit (VEP) was approved by the EPD for the varied construction method. The updated EP (EP No.: EP-438/2012/F) was issued by EPD on 15 July 2014. Application for variation of Environmental Permit (VEP) was approved by the EPD for including the installation and operation of a Mobile Batching Machinery Equipment at Diamond Hill during the construction of SCL (TAW-HUH). The updated EP (EP No.: EP-438/2012/G) was issued by EPD on 14 August 2014. Application for variation of Environmental Permit (VEP) was approved by the EPD for varying Figure 11 of the previous Environment Permit. The variation of EP (EP No.: EP-438/2012/H) was issued by EPD on 10 September 2014, and superseded by an updated EP (EP No.: EP-438/2012/I) issued by EPD on 14 October 2015.

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

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours
Noise Monitoring Station ID
- NMS-CA-4⁽¹⁾⁽³⁾/NMS-CA-3⁽²⁾⁽³⁾ (Block 1, Rhythm Garden (north-eastern façade)) 5 times
- NMS-CA-5⁽¹⁾⁽⁴⁾/NMS-CA-2⁽²⁾⁽⁴⁾ (Block 1, Rhythm Garden (northern façade)) 5 times
- Construction Dust (24-hour TSP) Monitoring
Dust Monitoring Station ID
- DMS-4⁽¹⁾⁽⁵⁾/ DMS-3⁽²⁾⁽⁵⁾ (Block 1, Rhythm Garden) 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 5th and 19th November 2015. 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 5th, 12th, 19th and 26th November 2015. The representative of the IEC joined the site inspection on 12th November 2015. Details of the audit findings and implementation status are presented in Section 6.

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

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

Future Key Issues

11. Major site activities for the coming reporting month will include:
 - Tunnel construction at cut and cover tunnels;
 - Backfilling works at cut and cover tunnels; and
 - Reinstatement of Box Culvert

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 31st EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1st to 30th November 2015. The major construction works for Contract 1107 commenced on 27th May 2013.

Structure of the Report

- 1.3 The structure of the report is as follows:

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

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

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

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

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

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

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

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

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 The Shatin to Central Link – Tai Wai to Hung Hom Section (hereafter referred to as SCL (TAW-HUH)) is an approximately 11 km long extension of the Ma On Shan Line and links up with the West Rail Line at Hung Hom forming a strategic east-west rail corridor. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).
- 2.2 The construction of the SCL (TAW-HUH) and SCL (HHS) have been divided into a series of civil construction works contracts. This Works Contract 1107 covers the construction of running tunnel from Kai Tak (KAT) North to SCL Diamond Hill (DIH) Station which is under the approved SCL (HHS) EIA Report. This construction contract was awarded to Chun Wo - SELI Joint Venture (CSJV) in March 2013.

General Site Description

- 2.3 The construction of tunnel from KAT to DIH will employ either cut-and-cover method or bored tunneling. The alignment and works area for the Works Contract 1107 are shown in **Figure 1**.

Construction Programme and Activities

- 2.4 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.
 - Tunnel construction at cut and cover tunnels;
 - Backfilling works at cut and cover tunnels; and
 - Reinstatement of Box Culvert

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**. One Construction Noise Permits (CNP): GW-RE1082-15 expired in the reporting month. Two CNP: GW-RE1160-15 and GW-RE1206-15 was granted in the reporting month for construction works in restricted hours.

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/H	10/09/2014	13/10/2015	Superseded by EP-438/2012/I
EP-438/2012/I	14/10/2015	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-RE0750-15	31/07/2015	30/01/2016	Valid
GW-RE1036-15	16/10/2015	13/01/2016	Valid
GW-RE1082-15	01/11/2015	29/11/2015	Expired
GW-RE1160-15	20/11/2015	17/02/2016	Valid
GW-RE1206-15	01/12/2015	15/01/2016	Valid

Summary of EM&A Requirements

- 2.7 The EM&A programme under Works Contract 1107 require regular dust and noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- All monitoring parameters;
 - Action and Limit levels for all environmental parameters;
 - Event / Action Plans;
 - Environmental mitigation measures, as recommended in the Project EIA study final report; and
 - Environmental requirements in contract documents.
- 2.8 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.9 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely construction noise & dust monitoring as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Regular Construction Noise Monitoring

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

Table 3.1 Regular Construction Noise Monitoring Location

Regular Construction Noise Monitoring Location ⁽⁴⁾⁽⁵⁾	Description	Type of Measurement
NMS-CA-4 ⁽¹⁾ / NMS-CA-3 ⁽²⁾	Block 1, Rhythm Garden (north-eastern façade)	Façade
NMS-CA-5 ⁽¹⁾⁽³⁾ / NMS-CA-2 ⁽²⁾⁽³⁾	Block 1, Rhythm Garden (northern façade)	Façade

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Access to the monitoring location at Canossa Primary School (San Po Kong) (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (Block 1, Rhythm Garden (northern façade)) was proposed and approved by the ER and agreed by the IEC and EPD.
- (4) Noise monitoring on NMS-CA-4⁽¹⁾/ NMS-CA-3⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade) is carried out by Environmental Team of SCL Works Contract 1106.
- (5) Noise monitoring on NMS-CA-5⁽¹⁾/ NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade) is carried out by Environmental Team of SCL Works Contract 1106.

Monitoring Parameter and Frequency

- 3.2 Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed. The monitoring schedule for this reporting period of monitoring stations at Rhythm Garden is shown in **Appendix D**.
- 3.3 The construction noise levels were measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). L_{Aeq} (30min) (as six consecutive $L_{eq, 5-min}$ readings) was used as the monitoring metric for the time period between 0700 – 1900 hours on normal weekdays.

Monitoring Equipment and Methodology

Field Monitoring

3.4 The monitoring procedures are as follows:

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - frequency weighting : A
 - time weighting : Fast
 - measurement time : 5 minutes (obtaining six consecutive $L_{eq,5min}$ readings for a $L_{eq,30 min}$ reading)
- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- At the end of the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB(A) shall be made to the noise parameter obtained by free field measurement.

Monitoring Equipment

3.5 The sound level meters and calibrator used for the noise measurement, as listed in **Table 3.2**, 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.: 14303) and SVAN 957 (Serial no.: 21455 and 21459)
Calibrator	SV30A (Serial no.: 10929 and 24791) Bruel & Kjaer 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: 2896	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 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard.
 - The power supply was checked to ensure the sampler worked properly.
 - The filter holding frame and the area surrounding the filter were cleaned.
 - On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the air quality monitoring station.
 - The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
 - The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts to avoid air leakage at the edges.
 - The shelter lid was closed and secured with the aluminum strip.
 - A new flow rate record chart was set into the flow recorder.
 - The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
 - The flow rate of the HVS sampler would be verified to be constant and recorded on the data sheet before and after sampling.
 - The elapsed time and other relevant information was recorded. After sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
 - It was then placed in a clean plastic envelope and sealed and sent to the Wellab Ltd. for weighing.
 - Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment should be between 25°C and 30°C and not vary by more than ± 3 °C; the relative humidity (RH) should be < 50% and not vary by more than ± 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 (October 2015)	13 th November 2015

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 10 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1106. No exceedance of the limit level was recorded at designated monitoring stations.
- 5.2 All noise monitoring results recorded at NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ (Block 1, Rhythm Garden (northern façade)) in November 2015 exceeded the daytime construction noise criterion. However, the results are not considered as exceedance since the results were below the baseline noise level. The noise monitoring results recorded at NMS-CA-4⁽¹⁾/NMS-CA-3⁽²⁾ (Block 1, Rhythm Garden (north-eastern façade)) in November 2015 did not exceed the daytime construction noise criterion.
- 5.3 The noise monitoring results together with their graphical presentations are presented in **Appendix F**.
- 5.4 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the reporting period.

Regular Dust Monitoring

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

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

Parameter	Minimum $\mu\text{g}/\text{m}^3$	Maximum $\mu\text{g}/\text{m}^3$	Average $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
24-hr TSP (DMS-4 ⁽¹⁾⁽³⁾ / DMS-3 ⁽²⁾⁽³⁾)	42.9	66.3	55.2	160.4	260

Remarks:

- (1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
- (2) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HHS).
- (3) Dust monitoring on DMS-4⁽¹⁾/DMS-3⁽²⁾ (Block 1, Rhythm Garden) is carried out by Environmental Team of SCL Works Contract 1106.
- 5.6 Based on observation during the on-site monitoring, road traffic emission nearby is considered as a potential dust source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.7 Wind monitoring data were obtained from Kai Tak Meteorological Station of Hong Kong Observatory and shown on **Appendix E**.
- 5.8 No exceedance of the Action and Limit Levels of the 24-hour TSP was recorded during the reporting period.

Waste Management

- 5.9 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes like plastics and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in **Table 5.2**. 75m³ of C&D materials, 50m³ of general refuse, and 5,500kg chemical waste were generated and disposed; 120kg of paper/cardboard packaging and no metals and plastics were generated and recycled during this reporting month. Details of waste management data is presented in **Appendix K**.

Table 5.2 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/cardboard	Plastics	Metals
November 2015	75 m ³	50 m ³	5,500 kg	120 kg	0 kg	0 kg
Notes:						
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil,						
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.						

Landscape and Visual

- 5.10 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 5th and 19th November 2015. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION

Site Audit

- 6.1 Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audit are attached in **Appendix H**.
- 6.2 Site audits were conducted on 5th, 12th, 19th and 26th November 2015 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 12th November 2015. No site inspection was conducted by EPD in the reporting month. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

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

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	5 th November 2015	<u>Reminder:</u> Site water pumped to the Kai Tak nullah was observed not treated in prior. The Contractor was reminded to treat the water by de-silting facility prior to discharge.	As observed on 19 th November 2015, muddy water was pumped into the sedimentation tank and flown through the wastewater treatment facility before discharging out to the nullah.
	12 th November 2015	<u>Observation:</u> Muddy water was observed pumped to the Kai Tak Nullah without prior treatment. The Contractor was reminded to direct the muddy water to de-silting facilities before pumping it into the nullah.	As observed on 19 th November 2015, muddy water was pumped into the sedimentation tank and flown through the wastewater treatment facility before discharging out to the nullah.
<i>Noise</i>	---	---	---
<i>Landscape and Visual</i>	---	---	---
<i>Air Quality</i>	5 th November 2015	<u>Reminder:</u> Dust generation was observed at exposed areas of the site. The Contractor was reminded to provide water spray more frequently to exposed site area.	As observed on 12 th November 2015, exposed site area was observed wet and no dust generation was anticipated.
<i>Waste / Chemical Management</i>	---	---	---
<i>Permits/Licenses</i>	---	---	---

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

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

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

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

Summary of Environmental Summon and Successful Prosecution

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

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

- 8.1 A tentative construction programme is provided in **Appendix A**. The major construction activities in the coming month will include:
- Tunnel construction at cut and cover tunnels;
 - Backfilling works at cut and cover tunnels; and
 - Reinstatement of Box Culvert.

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 1st to 30th November 2015 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

- Muddy runoff should be directed to desilting facilities prior to disposal. Drainage system and sediment control measures shall be inspected and maintained after rain storms.

Landscape and Visual

- N/A

Noise

- N/A

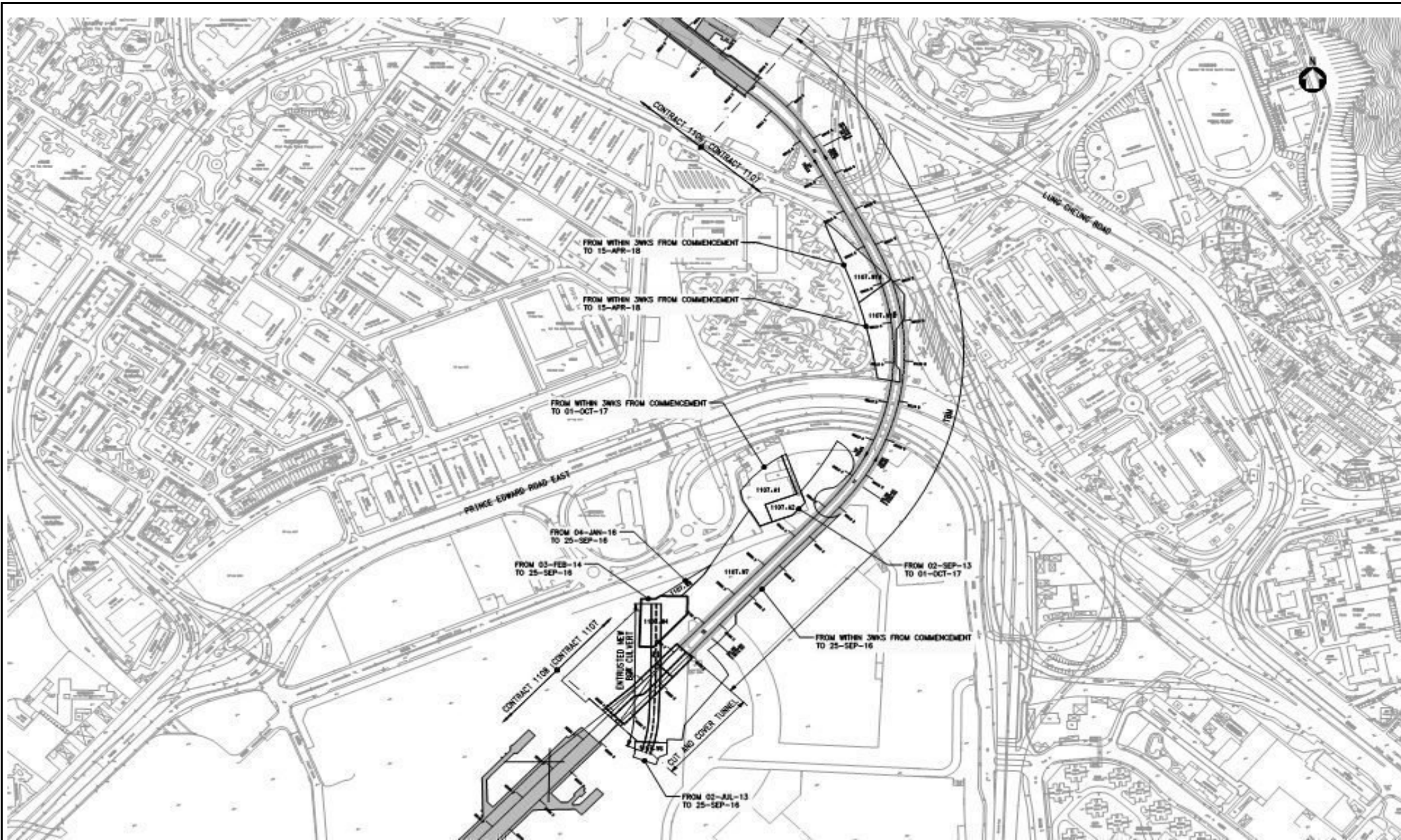
Air Quality

- Any excavated or stockpile of dusty material should be covered entirely by dust protective screen or sprayed with water to maintain the entire surface wet.

Waste/Chemical Management

- N/A

FIGURES



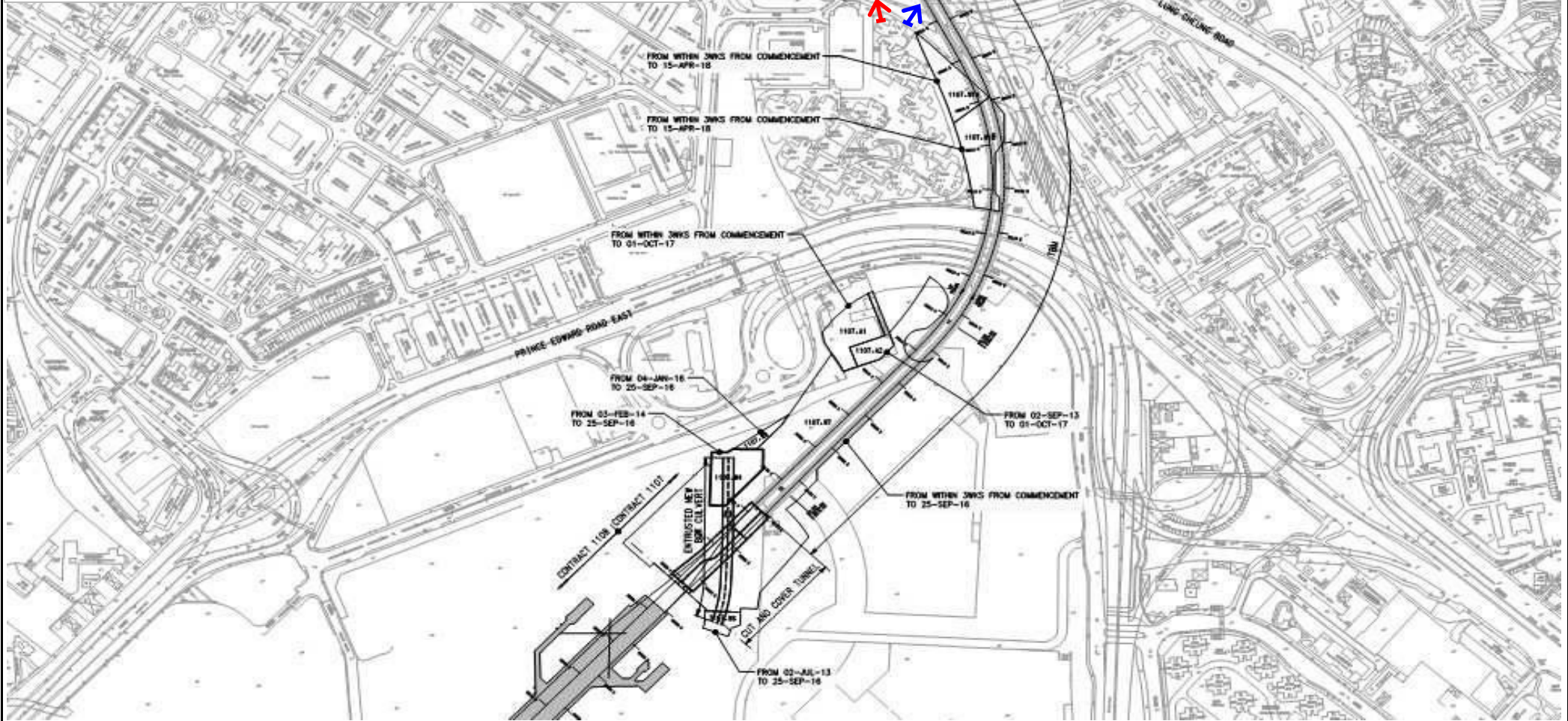
Title	MTR SCL Works Contract 1107 Diamond Hill to Kai Tak Tunnels Site Layout Plan	Scale	N.T.S	Project No.	MA13018	CINOTECH
		Date	May-13	Figure	1	

Legend:

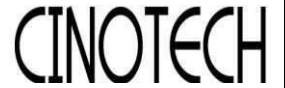
- ➔ NMS-CA-4⁽¹⁾/NMS-CA-3⁽²⁾ Block 1, Rhythm Garden (north-eastern façade)
- ➔ NMS-CA-5⁽¹⁾/NMS-CA-2⁽²⁾ Block 1, Rhythm Garden (northern façade)

Note:

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



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

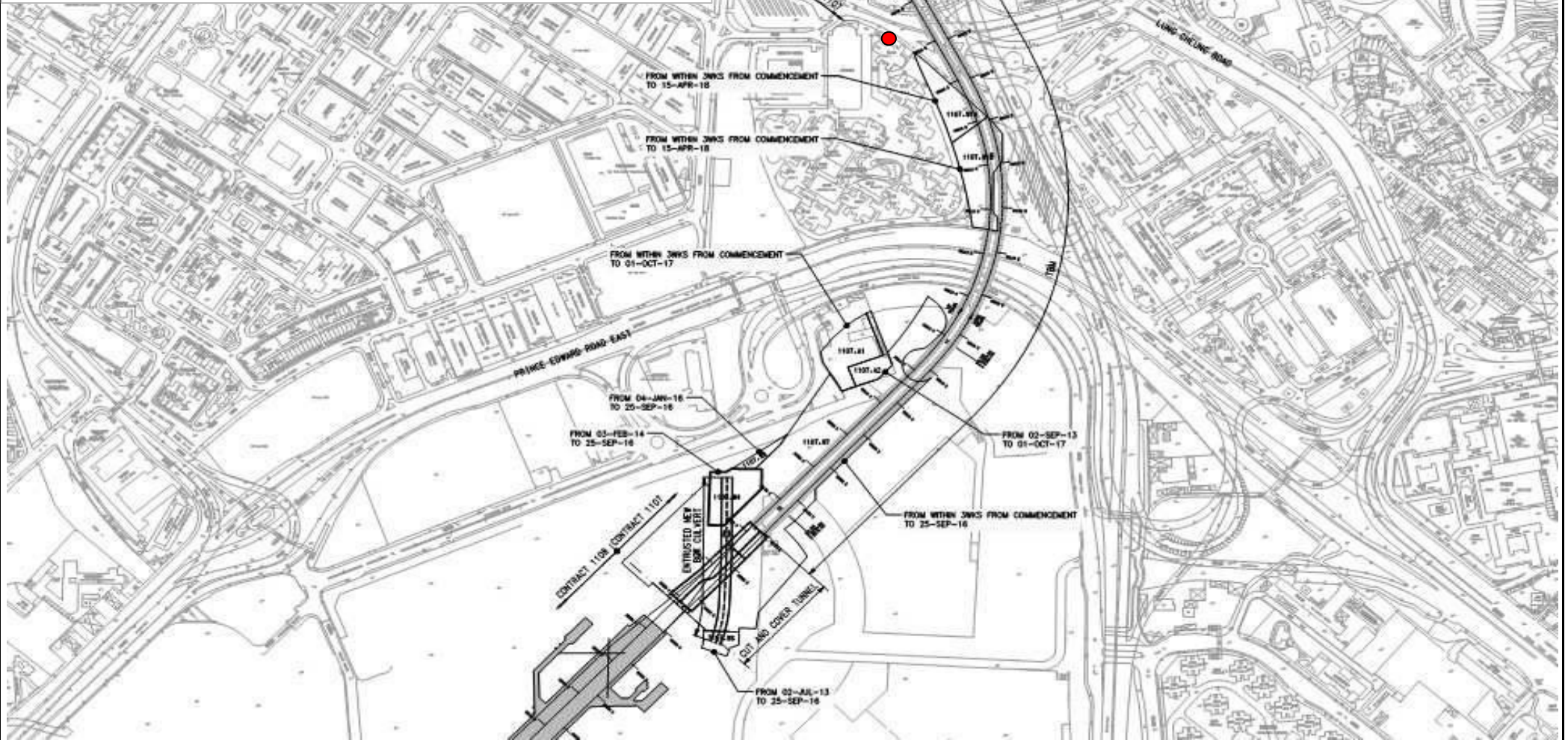


Legend:

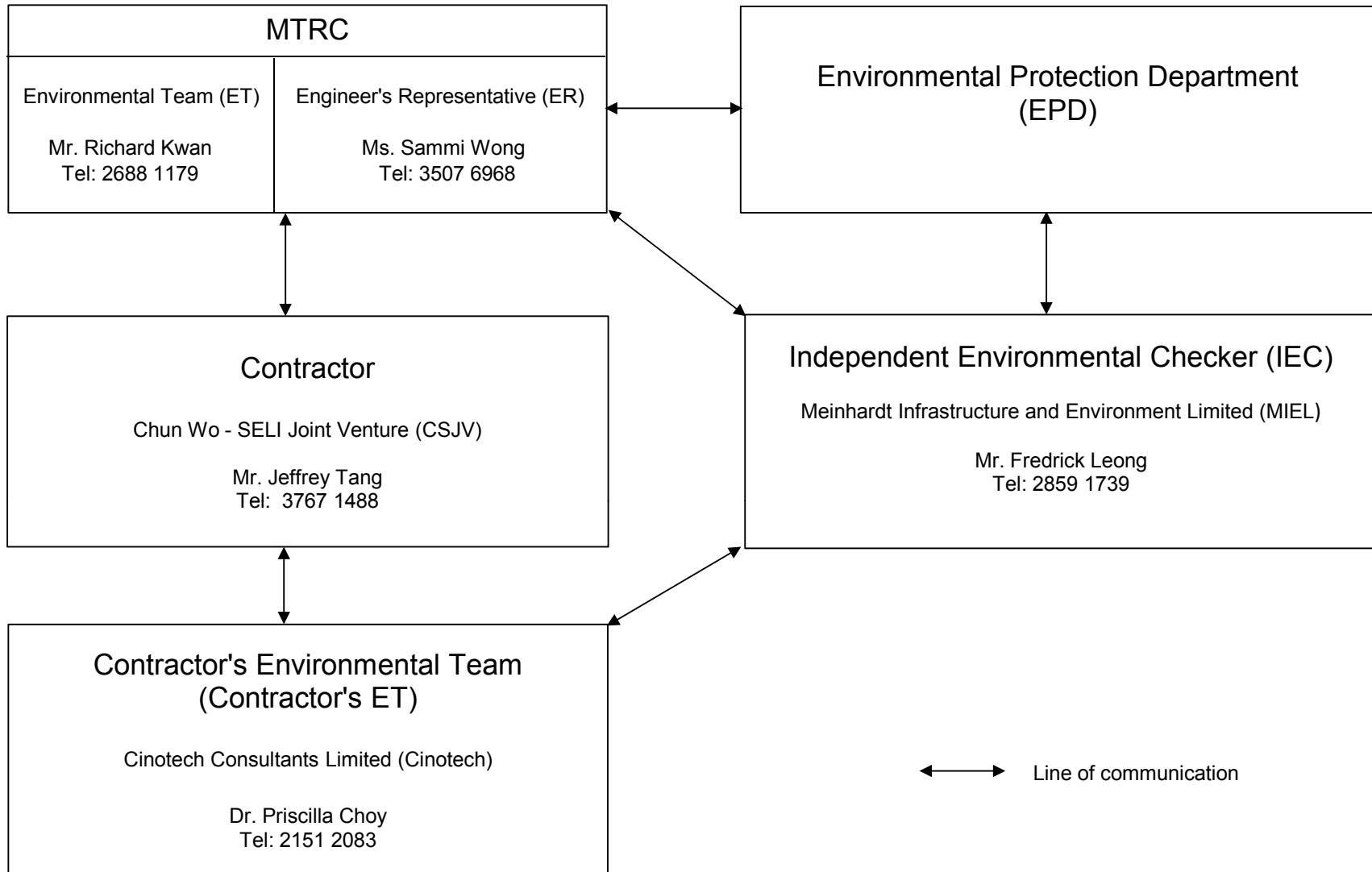
- DMS-4⁽¹⁾/DMS-3⁽²⁾ Block 1, Rhythm Garden

Note:

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



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



Title

MTR SCL Works Contract 1107
Diamond Hill to Kai Tak Tunnels

Organisation Chart and Key Contact of the Project

Scale

N.T.S

Date

Jul 2014

Proposal

No.

MA13018

Figure

4

CINOTECH

**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2015					2016				
									Oct	Nov	Dec	Jan	Feb	Jan	Feb			
MTRC SCL 1107 DIH to KAT Tunnels 3 M																		
Schedule of Completion Obligation & Otl																		
Table 3 Completion of Specified Parts of the V																		
1107.CD10080	3E Complete 2nd tunnel drive (DN) retrieval and vacated from DIH East relevant works area 31JAN16	0		14-Jul-15		15-Dec-15		26-Jan-16*										27-Jan
Schedule of Milestone Dates - Cost Centre A																		
1107.MS10260	A11 Engr confirm satisfactory implementation of quality requirements in accordance with Approved Specified Plans	0	27-Dec-15	27-Dec-15	27-Dec-15	27-Dec-15	27-Dec-15	27-Dec-15										27-Dec-15, Schedule of Milestone Date
Schedule of Milestone Dates - Cost Centre C																		
1107.MS10510	C9 DN track TBM tunnel drive from Kai Tak to DIH complete 30AUG15	0	08-May-15	08-May-15	12-Oct-15	08-Jan-16	12-Oct-15 A	08-Jan-16										08-Jan-16, Schedule of Milestone Date
1107.MS10520	C10 Tunnel invert and walkway of DN Track tunnel from Kai Tak to DIH 50% by plan length complete 27DEC15	0		10-Jul-15		11-Dec-15		11-Dec-15*										08-Jan-16, Schedule of Milestone Date
1107.MS10530	C11 Tunnel invert and walkway of DN Track tunnel from Kai Tak to DIH complete 27MAR16	0		04-Aug-15		08-Jan-16		08-Jan-16*										08-Jan-16, Schedule of Milestone Date
Schedule of Milestone Dates - Cost Centre I (f																		
1107.MS10880	I9 DN track TBM tunnel drive from Kai Tak to DIH complete 30AUG15	0	08-May-15	08-May-15	12-Oct-15	08-Jan-16	12-Oct-15 A	08-Jan-16										08-Jan-16, Schedule of Milestone Date
1107.MS10890	I10 Tunnel invert and walkway of DN Track tunnel from Kai Tak to DIH 50% by plan length complete 27DEC15	0		10-Jul-15		11-Dec-15		11-Dec-15*										08-Jan-16, Schedule of Milestone Date
1107.MS10900	I11 Tunnel invert and walkway of DN Track tunnel from Kai Tak to DIH complete 27MAR16	0		04-Aug-15		08-Jan-16		08-Jan-16*										08-Jan-16, Schedule of Milestone Date
Programme Data																		
1107.ID10970	3.0c 1106 Start closing access opening at platform roof after TBM removal at DIH (Down track)	0	15-Jul-15	15-Jul-15	16-Dec-15	16-Dec-15	27-Jan-16	27-Jan-16										27-Jan
Schedule of Access Dates for Works Areas																		
1107.AD11050	Access for 1107.W8	0	24-Jan-16	24-Jan-16	24-Jan-16	24-Jan-16	24-Jan-16	24-Jan-16										24-Jan-16
Cost Centre A - Preliminaries																		
Project Audit																		
1107.12500	2nd Audit of quality plan	12	23-Nov-15	19-Dec-15	07-Dec-15	18-Mar-16	07-Dec-15	18-Mar-16										
1107.12530	3rd Audit of programming management system	48	20-Jan-16	18-Mar-16	20-Jan-16	18-Mar-16	20-Jan-16*	18-Mar-16										
Site Enabling Works																		
Site Setup																		
Misc Items																		
1107.19050	Provision of Site General Staff (Drivers, Amahs, etc) - 2-Oct-15 to 19-Oct-15	15	02-Oct-15	31-Dec-15	02-Oct-15	19-Oct-15	02-Oct-15 A	19-Oct-15 A										
1107.19051	Provision of Site General Staff (Drivers, Amahs, etc) - 20-Oct-15 to 6-Nov-15	15			20-Oct-15	06-Nov-15	20-Oct-15 A	06-Nov-15										
1107.19052	Provision of Site General Staff (Drivers, Amahs, etc) - 7-Nov-15-15 to 24-Nov-15	15			07-Nov-15	24-Nov-15	07-Nov-15	24-Nov-15										
1107.19053	Provision of Site General Staff (Drivers, Amahs, etc) - 25-Nov-15 to 11-Dec-15	15			25-Nov-15	11-Dec-15	25-Nov-15	11-Dec-15										
1107.19054	Provision of Site General Staff (Drivers, Amahs, etc) - 12-Dec-15 to 31-Dec-15	15			12-Dec-15	31-Dec-15	12-Dec-15	31-Dec-15										
1107.19060	Provision of Site General Staff (Drivers, Amahs, etc) - 2Jan16 to 19Jan16	15	02-Jan-16	31-Mar-16	02-Jan-16	31-Mar-16	02-Jan-16	19-Jan-16										
1107.19061	Provision of Site General Staff (Drivers, Amahs, etc) - 20Jan16 to 4Feb16	14					20-Jan-16	04-Feb-16										
1107.19240	Provision of Site General Labour for Temporary Works - Fourth Quarter of 2015	15	02-Oct-15	31-Dec-15	02-Oct-15	19-Oct-15	02-Oct-15 A	19-Oct-15 A										
1107.19241	Provision of Site General Labour for Temporary Works - 20-Oct-15 to 6-Nov-15	15			20-Oct-15	06-Nov-15	20-Oct-15 A	06-Nov-15										
1107.19242	Provision of Site General Labour for Temporary Works - 7-Nov-15-15 to 24-Nov-15	15			07-Nov-15	24-Nov-15	07-Nov-15	24-Nov-15										



Data Date 01-Nov-15
Page 1 of 4
SCL1107 M-3MR-032
Printed 04-Nov-1509:12

MTRC SCL 1107 DIH to KAT Tunnels 3
Month Rolling Programme 032 with Phase 1
DRM
Data Date 01-Nov-15

Date See 2nd Col
Revision 0
Checked KCL
Approved KCL

- Master Prog Baseline Bar
- Last Month Forecast Bar
- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- Summary

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2015				2016		
									Oct	Nov	Dec	Jan	Feb		
1107.19243	Provision of Site General Labour for Temporary Works - 25-Nov-15 to 11-Dec-15	15			25-Nov-15	11-Dec-15	25-Nov-15	11-Dec-15							
1107.19244	Provision of Site General Labour for Temporary Works - 12-Dec-15 to 31-Dec-15	15			12-Dec-15	31-Dec-15	12-Dec-15	31-Dec-15							
1107.19250	Provision of Site General Labour for Temporary Works - 2Jan16 to 19Jan19	15	02-Jan-16	31-Mar-16	02-Jan-16	31-Mar-16	02-Jan-16	19-Jan-16							
1107.19251	Provision of Site General Labour for Temporary Works - 20Jan16 to 4Feb16	14					20-Jan-16	04-Feb-16							
Cost Centre C - Tunnel Construction by Tunnel Boring Construction - DN Track		115	07-Oct-14	31-Jan-16	06-Oct-15	24-Feb-16	06-Oct-15 A	24-Feb-16							
Tunnel Boring Construction - DN Track		93	31-Mar-15	31-Jan-16	06-Oct-15	08-Jan-16	06-Oct-15 A	26-Jan-16							
1107.14250	TBM Boring Remaining 308m / B (100% complete) - TBM Break Through (Ring 644)	15	31-Mar-15	08-May-15	06-Oct-15	23-Oct-15	06-Oct-15 A	12-Oct-15 A	TBM Boring Remaining 308m / B (100% complete) - TBM Break Through (Ring 644)						
1107.14270	C9 DN track TBM tunnel drive from Kai Tak to DIH complete	0		30-Aug-15		12-Oct-15		12-Oct-15 A	◆ C9 DN track TBM tunnel drive from Kai Tak to DIH complete						
1107.14280	TBM Shield Retrieval at 1106/DIH (Ring 655)	30	09-May-15	13-Jun-15	13-Oct-15	17-Nov-15	13-Oct-15 A	28-Dec-15	TBM Shield Retrieval at 1106/DIH (Ring 655)						
1107.14290	TBM Back up Pull out Kai Tak Shaft	30	09-May-15	13-Jun-15	13-Oct-15	17-Nov-15	13-Oct-15 A	17-Nov-15	TBM Back up Pull out Kai Tak Shaft						
1107.14291	RC Stitch Joint between Tunnel Lining & 1106 D-Wall	24	15-Jun-15	14-Jul-15	18-Nov-15	15-Dec-15	29-Dec-15	26-Jan-16	RC Stitch Joint between Tunnel Lining & 1106 D-Wall						
1107.14292	Float Indicator against Key Date 3E	0		14-Jul-15		15-Dec-15		26-Jan-16	◆ Float Indicator against Key Date 3E						
1107.14293	3E Complete 2nd tunnel drive (DN) retrieval and vacated from DIH East relevant works area	0		31-Jan-16		15-Dec-15		26-Jan-16*	◆ 3E Complete 2nd tunnel drive (DN) retrieval and vacated from DIH East relevant works area						
1107.14300	DN Track Tunnel Invert & Walkway (50% Complete)	21	15-Jun-15	10-Jul-15	18-Nov-15	11-Dec-15	18-Nov-15	11-Dec-15	DN Track Tunnel Invert & Walkway (50% Complete)						
1107.14320	C10 Tunnel invert and walkway of DN Track tunnel from Kai Tak to DIH 50% by plan length complete	0		27-Dec-15		11-Dec-15		11-Dec-15*	◆ C10 Tunnel invert and walkway of DN Track tunnel from Kai Tak to DIH 50% by plan length complete						
1107.14330	DN Track Tunnel Invert & Walkway (100% Complete)	21	11-Jul-15	04-Aug-15	12-Dec-15	08-Jan-16	12-Dec-15	08-Jan-16	DN Track Tunnel Invert & Walkway (100% Complete)						
Cross Passages		58	07-Oct-14	25-Jul-15	12-Dec-15	24-Feb-16	12-Dec-15	24-Feb-16							
Phase 2 - From DN Track		58	07-Oct-14	25-Jul-15	12-Dec-15	24-Feb-16	12-Dec-15	24-Feb-16							
DIH 001		49	07-Oct-14	17-Jul-15	12-Dec-15	13-Feb-16	12-Dec-15	13-Feb-16							
1107.14350	Drainage	4	07-Oct-14	10-Oct-14	12-Dec-15	16-Dec-15	12-Dec-15	16-Dec-15	Drainage						
1107.14520	Frame Installation & Rings Cutting	3	15-Jun-15	17-Jun-15	17-Dec-15	19-Dec-15	17-Dec-15	19-Dec-15	Frame Installation & Rings Cutting						
1107.14530	Excavation	16	18-Jun-15	03-Jul-15	21-Dec-15	11-Jan-16	21-Dec-15	11-Jan-16	Excavation						
1107.14540	Lining	16	04-Jul-15	17-Jul-15	12-Jan-16	29-Jan-16	12-Jan-16	29-Jan-16	Lining						
1107.14545	Cut UP Track Rings & Complete Lining	10			30-Jan-16	13-Feb-16	30-Jan-16	13-Feb-16	Cut UP Track Rings & Complete Lining						
DIH 002		51	07-Oct-14	17-Jul-15	21-Dec-15	24-Feb-16	21-Dec-15	24-Feb-16							
1107.14400	Drainage	4	07-Oct-14	10-Oct-14	21-Dec-15	24-Dec-15	21-Dec-15	24-Dec-15	Drainage						
1107.14560	Frame Installation & Rings Cutting	3	15-Jun-15	17-Jun-15	12-Jan-16	14-Jan-16	12-Jan-16	14-Jan-16	Frame Installation & Rings Cutting						
1107.14570	Excavation	16	18-Jun-15	03-Jul-15	15-Jan-16	02-Feb-16	15-Jan-16	02-Feb-16	Excavation						
1107.14580	Lining	16	04-Jul-15	17-Jul-15	03-Feb-16	24-Feb-16	03-Feb-16	24-Feb-16	Lining						
DIH 003		19	29-Oct-14	25-Jul-15	15-Jan-16	05-Feb-16	15-Jan-16	05-Feb-16							
1107.14450	Drainage	4	29-Oct-14	01-Nov-14	15-Jan-16	19-Jan-16	15-Jan-16	19-Jan-16	Drainage						
1107.14600	Frame Installation & Rings Cutting	3	23-Jul-15	25-Jul-15	03-Feb-16	05-Feb-16	03-Feb-16	05-Feb-16	Frame Installation & Rings Cutting						
Demobilisation of TBM		40	15-Jun-15	31-Jul-15	18-Nov-15	06-Jan-16	29-Dec-15	17-Feb-16							
1107.14830	Pack TBM 30%	12	15-Jun-15	28-Jul-15	18-Nov-15	01-Dec-15	29-Dec-15	12-Jan-16	Pack TBM 30%						
1107.14832	Pack TBM 70%	12			02-Dec-15	15-Dec-15	13-Jan-16	26-Jan-16	Pack TBM 70%						
1107.14834	Pack TBM 100%	12			16-Dec-15	31-Dec-15	27-Jan-16	12-Feb-16	Pack TBM 100%						
1107.14840	Site Plant Removal 30%	14	15-Jun-15	31-Jul-15	18-Nov-15	03-Dec-15	29-Dec-15	14-Jan-16	Site Plant Removal 30%						
1107.14842	Site Plant Removal 70%	14			04-Dec-15	19-Dec-15	15-Jan-16	30-Jan-16	Site Plant Removal 70%						
1107.14844	Site Plant Removal 100%	12			21-Dec-15	06-Jan-16	01-Feb-16	17-Feb-16	Site Plant Removal 100%						
Cost Centre D - KAT Cut & Cover Tunnel		61	15-Jan-15	24-May-15	21-Sep-15	24-Nov-15	21-Sep-15 A	03-Dec-15	03-Dec-15, Cost Centre D - KAT Cut & Cover Tunnels						



Data Date 01-Nov-15
Page 2 of 4
SCL1107 M-3MR-032
Printed 04-Nov-15 09:12

MTRC SCL 1107 DIH to KAT Tunnels 3
Month Rolling Programme 032 with Phase 1
DRM
Data Date 01-Nov-15

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	2015				2016	
									Oct	Nov	Dec	Jan	Feb	
Excavation & C&C Tunnel Structure		61	15-Jan-15	24-May-15	21-Sep-15	24-Nov-15	21-Sep-15 A	03-Dec-15						
C&C Tunnel Structure (Previously Boxes 2B & 1B)		61	15-Jan-15	24-May-15	21-Sep-15	24-Nov-15	21-Sep-15 A	03-Dec-15	03-Dec-15, Excavation & C&C Tunnel Structure					
Tunnel Structure		61	15-Jan-15	24-May-15	21-Sep-15	24-Nov-15	21-Sep-15 A	03-Dec-15	03-Dec-15, C&C Tunnel Structure (Previously Boxes 2B & 1B)					
1107.16230	4C Deg 1 KAT cut and cover tunnel (UP Track) Box 2B (With P-Way Opening)	0		22-Mar-15		17-Oct-15		17-Oct-15 A	◆ 4C Deg 1 KAT cut and cover tunnel (UP Track) Box 2B (With P-Way Opening)					
1107.17230	Waterproofing, Backfill & Remove Strut S2 Section 4 (Bays 5,6)	12	15-Jan-15	22-Jan-15	23-Oct-15	05-Nov-15	02-Nov-15	14-Nov-15	Waterproofing, Backfill & Remove Strut S2 Section 4 (Bays 5,6)					
1107.17232	Backfill to S1 Level & Remove Strut S1 Section 4 (Bays 5,6)	8			06-Nov-15	14-Nov-15	16-Nov-15	24-Nov-15	Backfill to S1 Level & Remove Strut S1 Section 4 (Bays 5,6)					
1107.17391	Backfill to S1 Level & Remove Strut S1 Section 5 - 7	12	24-Feb-15	09-Mar-15	21-Sep-15	06-Oct-15	21-Sep-15 A	06-Oct-15 A	Backfill to S1 Level & Remove Strut S1 Section 5 - 7					
1107.17410	Backfill to Original Ground Level Section 4 (Bays 5,6)	8	10-Mar-15	18-Mar-15	16-Nov-15	24-Nov-15	25-Nov-15	03-Dec-15	Backfill to Original Ground Level Section 4 (Bays 5,6)					
1107.17440	4D Deg 1 KAT cut and cover tunnel (DN Track) Box 1B	0		24-May-15		24-Nov-15		03-Dec-15*	◆ 4D Deg 1 KAT cut and cover tunnel (DN Track) Box 1B					
1107.21150	Construct Walls & Roof of Bay D5 after TBM DN track Initial Drive & Shaft A C&C tunnel completion	14			06-Oct-15	22-Oct-15	05-Oct-15 A	14-Oct-15 A	Construct Walls & Roof of Bay D5 after TBM DN track Initial Drive & Shaft A C&C tunnel completion					
Cost Centre G CEDD Entrusted Works		85	16-May-14	04-Nov-15	02-Nov-15	15-Mar-16	02-Nov-15	15-Feb-16						
New Reprovisioned Culvert		85	16-May-14	04-Nov-15	02-Nov-15	15-Mar-16	02-Nov-15	15-Feb-16						
Mid Section of Culvert (Over C&C Tunnel)		50	19-Mar-15	19-Sep-15	25-Nov-15	25-Jan-16	04-Dec-15	03-Feb-16						
1107.18129	Excavation for Mid Section of New Culvert	8	19-Mar-15	27-Mar-15	25-Nov-15	03-Dec-15	04-Dec-15	12-Dec-15	Excavation for Mid Section of New Culvert					
1107.18160	Bay 6 Sub base, Blinding & Base Slab	4	14-May-15	26-May-15	04-Dec-15	08-Dec-15	14-Dec-15	17-Dec-15	Bay 6 Sub base, Blinding & Base Slab					
1107.18170	Bay 6 Walls	4	27-May-15	09-Jun-15	09-Dec-15	12-Dec-15	18-Dec-15	22-Dec-15	Bay 6 Walls					
1107.18180	Bay 6 Roof Slab	6	10-Jun-15	26-Jun-15	14-Dec-15	19-Dec-15	23-Dec-15	31-Dec-15	Bay 6 Roof Slab					
1107.18190	Bay 7 Sub base, Blinding & Base Slab	4	27-Jun-15	09-Jul-15	21-Dec-15	24-Dec-15	02-Jan-16	06-Jan-16	Bay 7 Sub base, Blinding & Base Slab					
1107.18200	Bay 7 Walls	4	10-Jul-15	23-Jul-15	28-Dec-15	31-Dec-15	07-Jan-16	11-Jan-16	Bay 7 Walls					
1107.18210	Bay 7 Roof Slab	6	24-Jul-15	08-Aug-15	02-Jan-16	08-Jan-16	12-Jan-16	18-Jan-16	Bay 7 Roof Slab					
1107.18220	Bay 8 Sub base, Blinding & Base Slab	4	10-Aug-15	20-Aug-15	09-Jan-16	13-Jan-16	19-Jan-16	22-Jan-16	Bay 8 Sub base, Blinding & Base Slab					
1107.18230	Bay 8 Walls	4	21-Aug-15	03-Sep-15	14-Jan-16	18-Jan-16	23-Jan-16	27-Jan-16	Bay 8 Walls					
1107.18240	Bay 8 Roof Slab	6	04-Sep-15	19-Sep-15	19-Jan-16	25-Jan-16	28-Jan-16	03-Feb-16	Bay 8 Roof Slab					
North Section of Culvert		49	16-May-14	13-May-15	02-Jan-16	19-Feb-16	14-Dec-15	15-Feb-16						
1107.18130	Bay 5 Sub base, Blinding & Base Slab	4	28-Mar-15	11-Apr-15	12-Jan-16	15-Jan-16	07-Jan-16	11-Jan-16	Bay 5 Sub base, Blinding & Base Slab					
1107.18140	Bay 5 Walls	4	13-Apr-15	25-Apr-15	16-Jan-16	20-Jan-16	12-Jan-16	15-Jan-16	Bay 5 Walls					
1107.18150	Bay 5 Roof Slab	6	27-Apr-15	13-May-15	21-Jan-16	27-Jan-16	16-Jan-16	22-Jan-16	Bay 5 Roof Slab					
1107.18290	Excavation for North Section of New Culvert	8	16-May-14	24-May-14	02-Jan-16	11-Jan-16	14-Dec-15*	22-Dec-15	Excavation for North Section of New Culvert					
1107.18330	Erect Silt/Flood Barrier (facing Bay 5)	3	09-Jul-14	11-Jul-14	28-Jan-16	30-Jan-16	23-Jan-16	26-Jan-16	Erect Silt/Flood Barrier (facing Bay 5)					
1107.18370	Erect Silt/Flood Barrier (facing Bay 2b) & Demolish Upstream Chamber (a side)	14	20-Aug-14	22-Aug-14	01-Feb-16	19-Feb-16	27-Jan-16	15-Feb-16	Erect Silt/Flood Barrier (facing Bay 2b) & Demolish Upstream Chamber (a side)					
South Section of Culvert		68	23-Aug-14	04-Nov-15	25-Nov-15	15-Mar-16	02-Nov-15	22-Jan-16						
1107.18250	Bay 9 Sub base, Blinding & Base Slab	4	21-Sep-15	03-Oct-15	04-Dec-15	08-Dec-15	04-Dec-15	08-Dec-15	Bay 9 Sub base, Blinding & Base Slab					
1107.18260	Bay 9 Walls	4	05-Oct-15	17-Oct-15	09-Dec-15	12-Dec-15	09-Dec-15	12-Dec-15	Bay 9 Walls					
1107.18270	Bay 9 Roof Slab	6	19-Oct-15	04-Nov-15	14-Dec-15	19-Dec-15	14-Dec-15	19-Dec-15	Bay 9 Roof Slab					
1107.18440	Excavation for South Section of New Culvert	8	23-Aug-14	01-Sep-14	25-Nov-15	03-Dec-15	02-Nov-15	10-Nov-15	Excavation for South Section of New Culvert					
1107.18450	Bay 10 Sub base, Blinding & Base Slab	4	02-Sep-14	13-Sep-14	21-Dec-15	24-Dec-15	02-Nov-15	05-Nov-15	Bay 10 Sub base, Blinding & Base Slab					
1107.18460	Bay 10 Walls	4	15-Sep-14	27-Sep-14	28-Dec-15	31-Dec-15	06-Nov-15	10-Nov-15	Bay 10 Walls					
1107.18470	Bay 10 Roof Slab	6	29-Sep-14	16-Oct-14	02-Jan-16	08-Jan-16	11-Nov-15	17-Nov-15	Bay 10 Roof Slab					
1107.18480	Erect Silt/Flood Barrier (facing Bay 9)	3	17-Oct-14	20-Oct-14	09-Jan-16	12-Jan-16	18-Nov-15	20-Nov-15	Erect Silt/Flood Barrier (facing Bay 9)					
1107.18490	Bay 11 Sub base, Blinding & Base Slab	4	17-Oct-14	28-Oct-14	09-Jan-16	13-Jan-16	18-Nov-15	21-Nov-15	Bay 11 Sub base, Blinding & Base Slab					
1107.18500	Bay 11 Walls	4	29-Oct-14	11-Nov-14	14-Jan-16	18-Jan-16	23-Nov-15	26-Nov-15	Bay 11 Walls					
1107.18510	Bay 11 Roof Slab	6	12-Nov-14	27-Nov-14	19-Jan-16	25-Jan-16	27-Nov-15	03-Dec-15	Bay 11 Roof Slab					
1107.18520	Erect Silt/Flood Barrier (facing Bay 12b) & Demolish DnStream Chamber (b side)	12	28-Nov-14	01-Dec-14	26-Jan-16	11-Feb-16	04-Dec-15	17-Dec-15	Erect Silt/Flood Barrier (facing Bay 12b) & Demolish DnStream Chamber (b side)					

Activity ID	Activity Name	O Dur	MP Start	MP Finish	Last Mth Start	Last Mth Finish	Start	Finish	2015				2016	
									Oct	Nov	Dec	Jan	Feb	
1107.18530	Bay 12a Sub base, Blinding & Base Slab	4	15-Jan-15	23-Jan-15	12-Feb-16	16-Feb-16	18-Dec-15	22-Dec-15						
1107.18540	Bay 12a Walls	4	24-Jan-15	04-Feb-15	17-Feb-16	20-Feb-16	23-Dec-15	29-Dec-15						
1107.18550	Bay 12a Roof Slab	6	05-Feb-15	18-Feb-15	22-Feb-16	27-Feb-16	30-Dec-15	06-Jan-16						
1107.18560	Bay 13a Sub base, Blinding & Base Slab	4	23-Feb-15	03-Mar-15	29-Feb-16	03-Mar-16	07-Jan-16	11-Jan-16						
1107.18570	Bay 13a Walls	4	04-Mar-15	14-Mar-15	04-Mar-16	08-Mar-16	12-Jan-16	15-Jan-16						
1107.18580	Bay 13a Roof Slab	6	16-Mar-15	28-Mar-15	09-Mar-16	15-Mar-16	16-Jan-16	22-Jan-16						
Final Connection		0	02-Nov-15	02-Nov-15	02-Nov-15	02-Nov-15	02-Nov-15	02-Nov-15						
1107.18590	(Predicted) Commencement of 2015/2016 Dry Season	0	02-Nov-15		02-Nov-15		02-Nov-15*							

▼ 02-Nov-15, Final Connection
◆ (Predicted) Commencement of 2015/2016 Dry Season

**APPENDIX B
ACTION AND LIMIT LEVELS**

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

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

Note:

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

Construction Noise

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

Note:

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

**APPENDIX C
CALIBRATION CERTIFICATES FOR
MONITORING EQUIPEMENT**

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

File No. MA12051/57/0016

Station DMS-4 - Rhythm Garden, Block 1 Operator: WK
 Date: 2-Oct-15 Next Due Date: 1-Dec-15
 Equipment No.: A-01-57 Serial No. 2352

Ambient Condition			
Temperature, Ta (K)	300.3	Pressure, Pa (mmHg)	763

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc (CFM)	0.0593	Intercept, bc	-0.02195
Last Calibration Date:	4-Feb-15	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Feb-16	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.6	3.40	57.73	7.9	2.81
2	9.7	3.11	52.83	6.4	2.53
3	7.5	2.73	46.49	5.0	2.23
4	5.2	2.28	38.78	3.3	1.81
5	3.4	1.84	31.43	2.1	1.45

By Linear Regression of Y on X

Slope, mw = 0.0514 Intercept, bw : -0.1730
 Correlation coefficient* = 0.9997

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.17

Remarks: _____

Conducted by: WK Signature: _____ Date: 2/10/15
 Checked by: [Signature] Signature: _____ Date: 2 October 2015



Equipment No A-04-06

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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 04, 2015 Rootsmeter S/N 0438320 Ta (K) - 293
 Operator Tisch Orifice I.D. - 2896 Pa (mm) - 756.92

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4590	3.2	2.00
2	NA	NA	1.00	1.0330	6.4	4.00
3	NA	NA	1.00	0.9250	7.9	5.00
4	NA	NA	1.00	0.8800	8.8	5.50
5	NA	NA	1.00	0.7260	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0086	0.6913	1.4233	0.9958	0.6825	0.8799
1.0044	0.9723	2.0129	0.9916	0.9599	1.2443
1.0023	1.0835	2.2505	0.9895	1.0697	1.3912
1.0011	1.1377	2.3603	0.9884	1.1231	1.4591
0.9959	1.3718	2.8467	0.9832	1.3542	1.7598

Qstd slope (m) = 2.09317
 intercept (b) = -0.02195
 coefficient (r) = 0.99997

Qa slope (m) = 1.31071
 intercept (b) = -0.01357
 coefficient (r) = 0.99997

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

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

TEST REPORT

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

Test Report No.:	C/N/150103
Date of Issue:	2015-01-05
Date Received:	2015-01-03
Date Tested:	2015-01-03
Date Completed:	2015-01-05
Next Due Date:	2016-01-04

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 54%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/150828/1
Date of Issue:	2015-08-31
Date Received:	2015-08-28
Date Tested:	2015-08-28
Date Completed:	2015-08-31
Next Due Date:	2016-08-30

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21455
Microphone No.	: 43730
Equipment No.	: N-08-07

Test conditions:

Room Temperature	: 24 degree Celsius
Relative Humidity	: 58%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/150821/3
Date of Issue:	2015-08-24
Date Received:	2015-08-21
Date Tested:	2015-08-21
Date Completed:	2015-08-24
Next Due Date:	2016-08-23

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 54%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/150918/3
Date of Issue:	2015-09-21
Date Received:	2015-09-18
Date Tested:	2015-09-18
Date Completed:	2015-09-21
Next Due Date:	2016-09-20

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 10929
Equipment No.	: N-09-01

Test conditions:

Room Temperature	: 25 degree Celsius
Relative Humidity	: 58%

Methodology:

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

Results:

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

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


PATRICK TSE
Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/151003/3
Date of Issue:	2015-10-04
Date Received:	2015-10-03
Date Tested:	2015-10-03
Date Completed:	2015-10-04
Next Due Date:	2016-10-03

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

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

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 57%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE

Laboratory Manager

TEST REPORT

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

Test Report No.:	C/N/150821/4
Date of Issue:	2015-08-24
Date Received:	2015-08-21
Date Tested:	2015-08-21
Date Completed:	2015-08-24
Next Due Date:	2016-08-23

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 54%

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
Laboratory Manager

APPENDIX D
IMPACT MONITORING SCHEDULE

**Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tak Tunnels
Impact Air Quality and Noise Monitoring Schedule for November 2015**

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

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

Air Quality Monitoring Station

DMS-4: - Rhythm Garden, Block 1

Noise Monitoring Station

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

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

**Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tak Tunnels
Tentative Impact Air Quality and Noise Monitoring Schedule for December 2015**

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

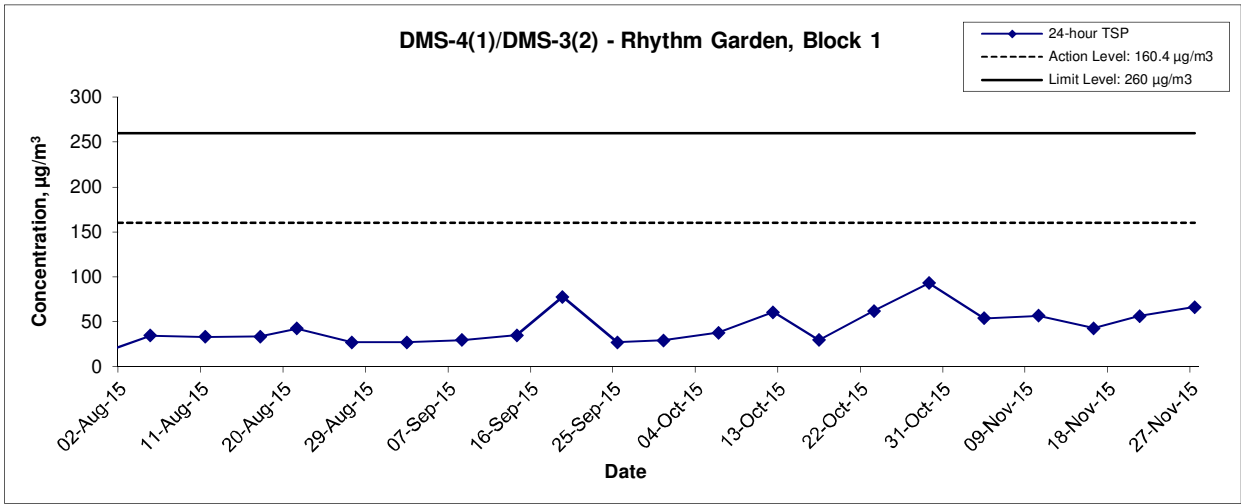
Location DMS-4(1)/DMS-3(2) - Rhythm Garden, Block 1

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. (g/m ³)
					Initial	Final		Initial	Final		Initial	Final			
4-Nov-15	9:00	Cloudy	296.9	767.5	3.2565	3.3520	0.0955	4918.0	4942.0	24.0	1.23	1.23	1.23	1773.0	53.9
10-Nov-15	9:00	Cloudy	296.2	766.5	3.2245	3.3252	0.1007	4942.0	4966.0	24.0	1.23	1.23	1.23	1773.9	56.8
16-Nov-15	9:00	Cloudy	297.4	763.7	3.2563	3.3322	0.0759	4966.0	4990.0	24.0	1.23	1.23	1.23	1767.6	42.9
21-Nov-15	9:00	Cloudy	297.4	766.3	3.2509	3.3503	0.0994	4990.0	5014.0	24.0	1.23	1.23	1.23	1770.4	56.1
27-Nov-15	9:00	Cloudy	289.8	770.9	3.2946	3.4138	0.1192	5014.0	5038.0	24.0	1.25	1.25	1.25	1796.7	66.3
														Min	42.9
														Max	66.3
														Average	55.2

Remarks:

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

24-hour TSP Concentration Levels



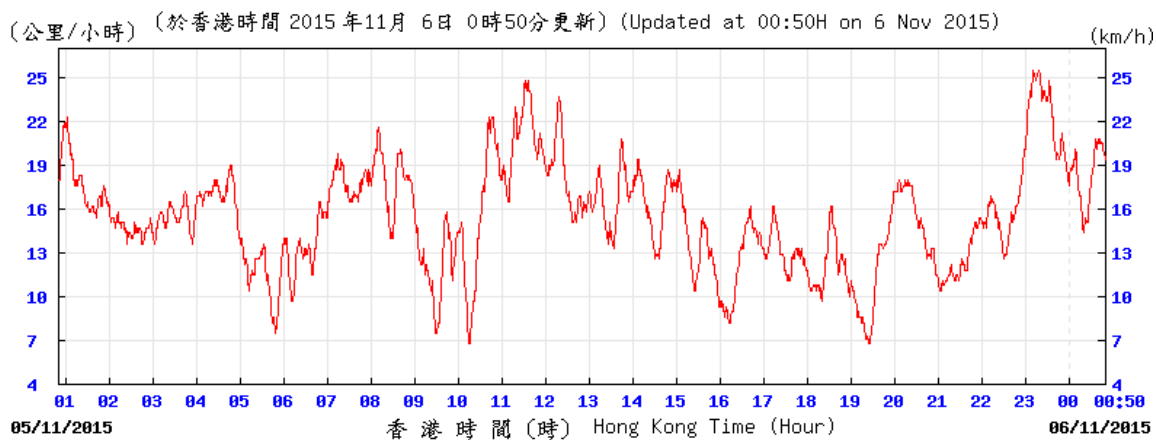
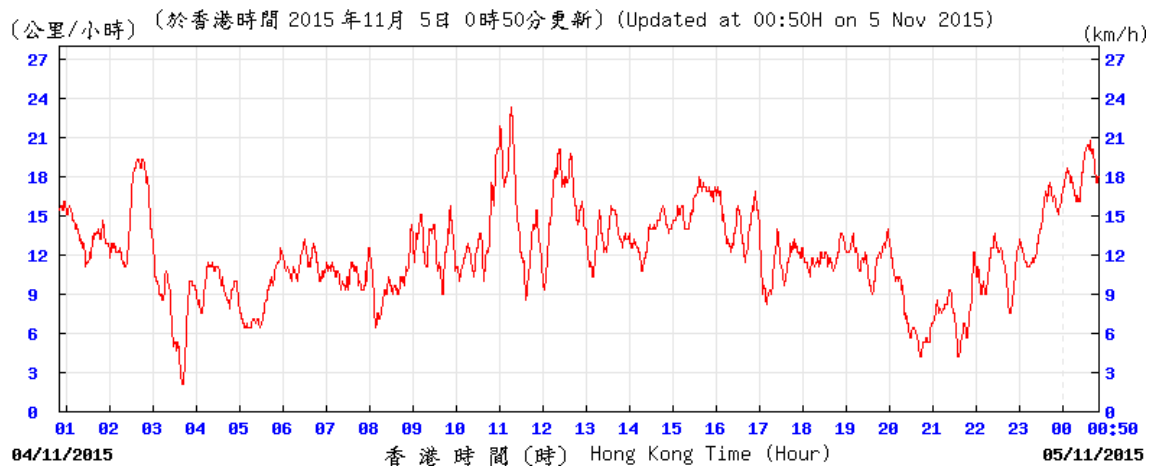
Remarks:

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

Title Shatin to Central Link – Contract 1107 Diamond Hill to Kai Tak Tunnels Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA13018	CINOTECH
	Date Nov 15	Appendix E	

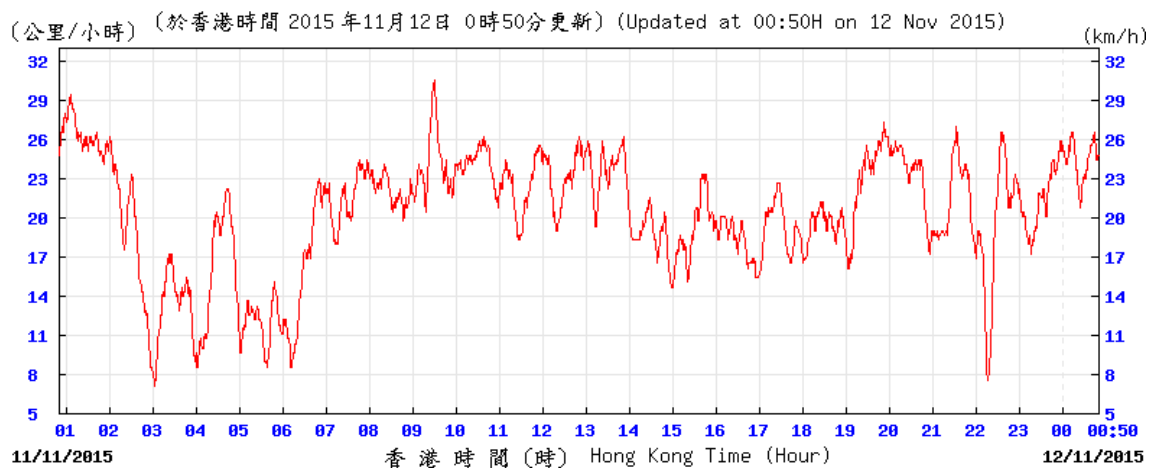
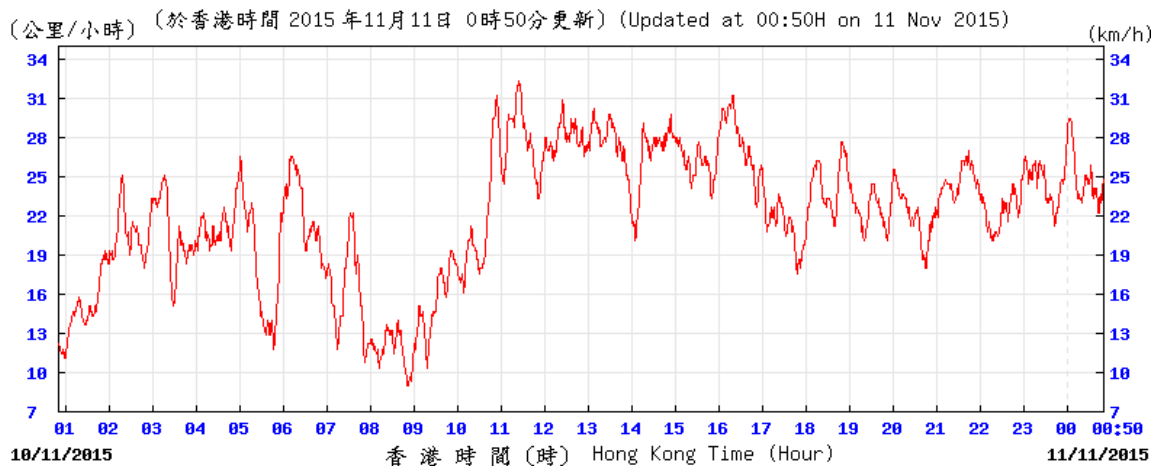
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

4-5 November 2015



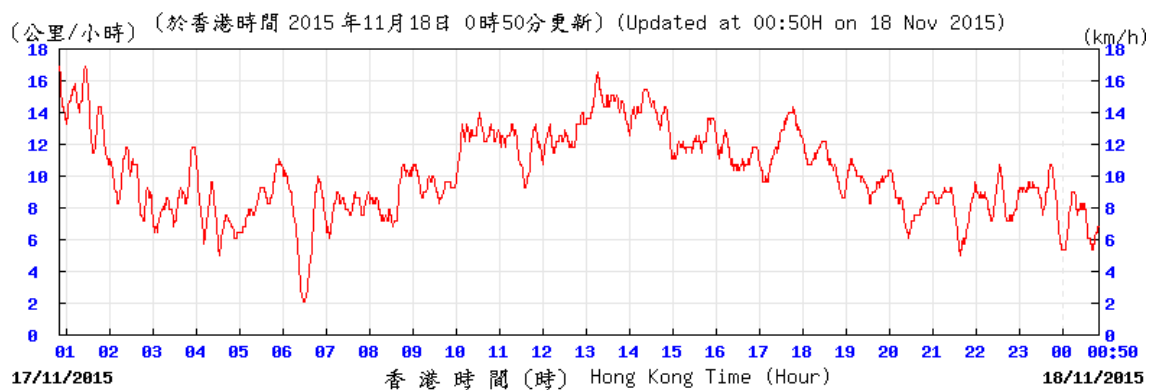
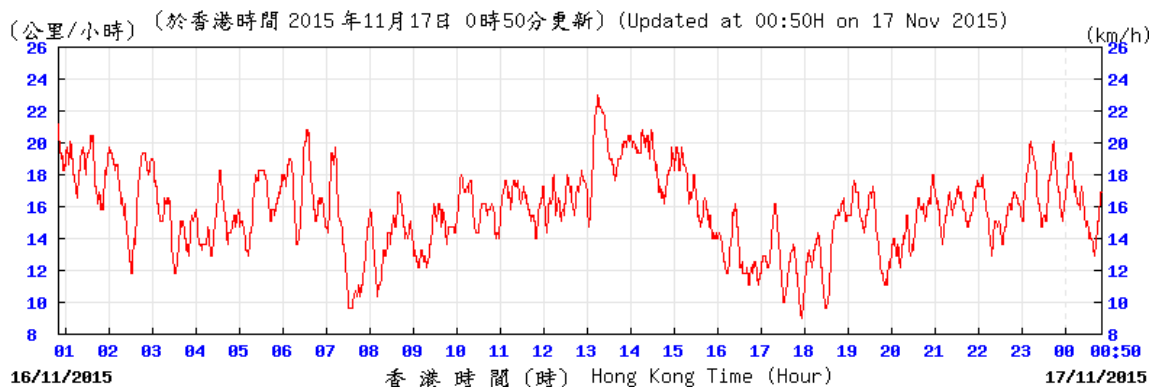
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

10-11 November 2015



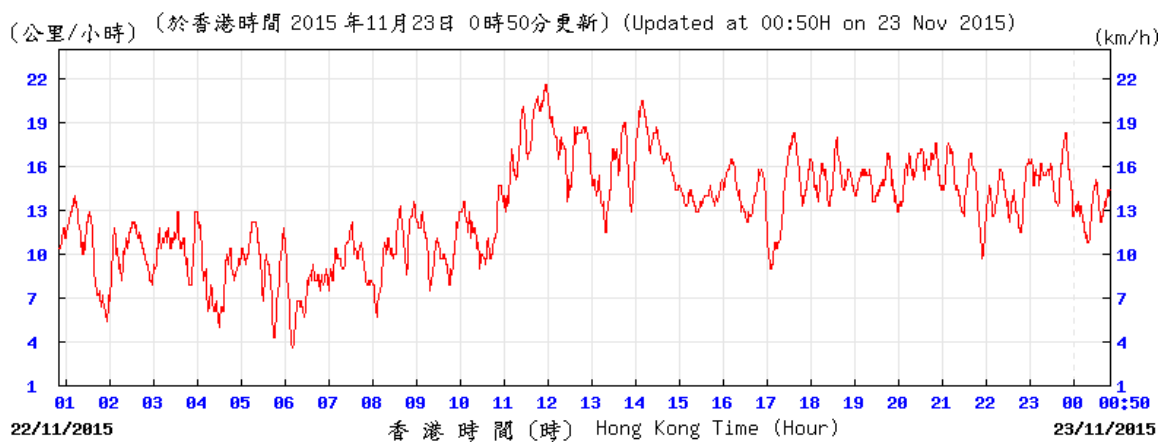
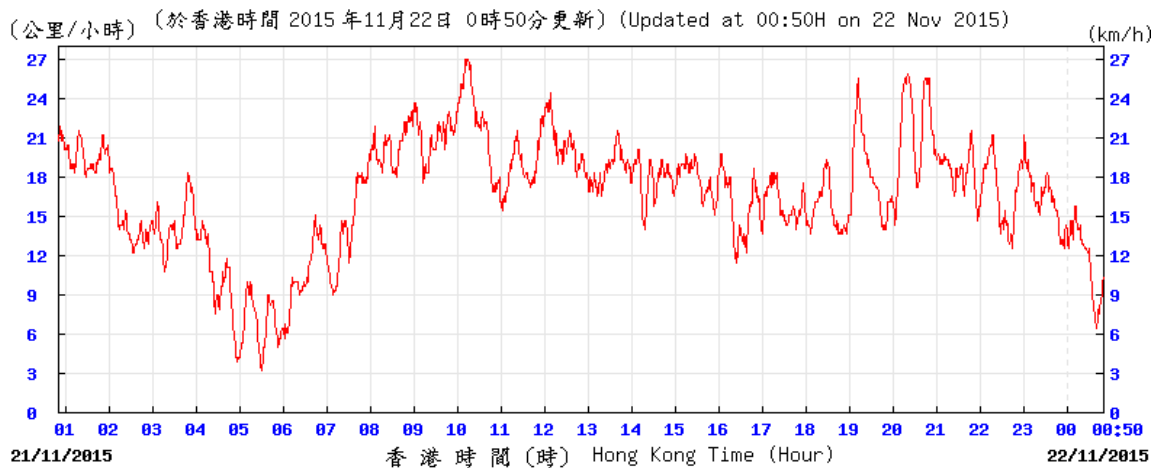
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

16-17 November 2015



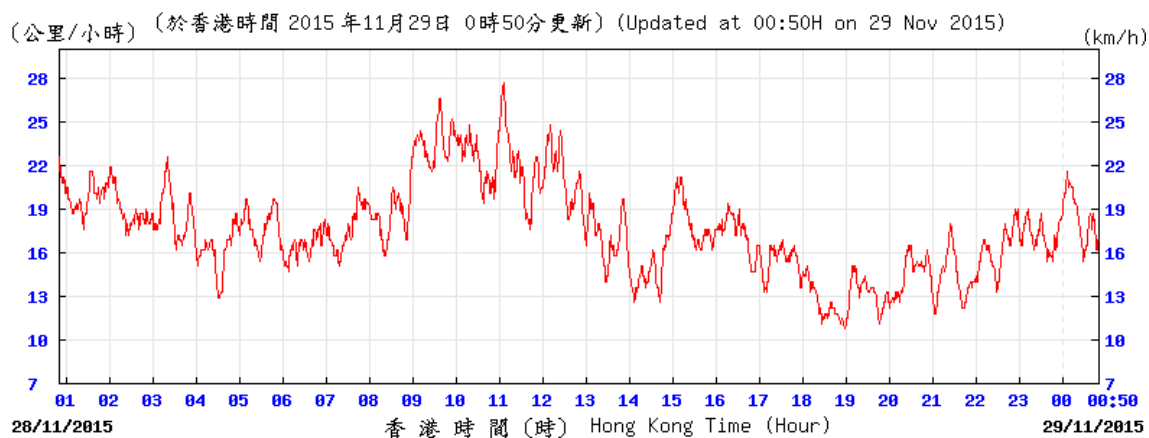
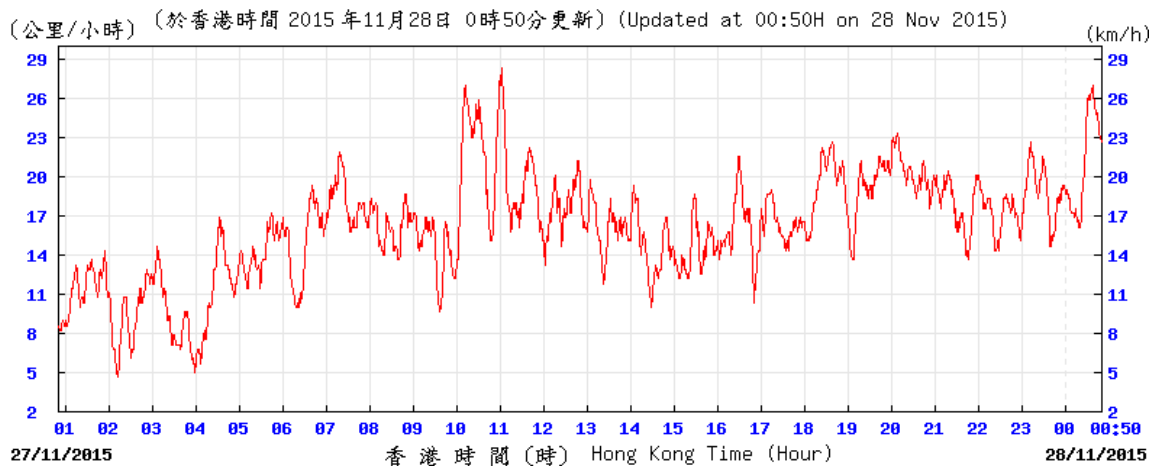
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

21-22 November 2015



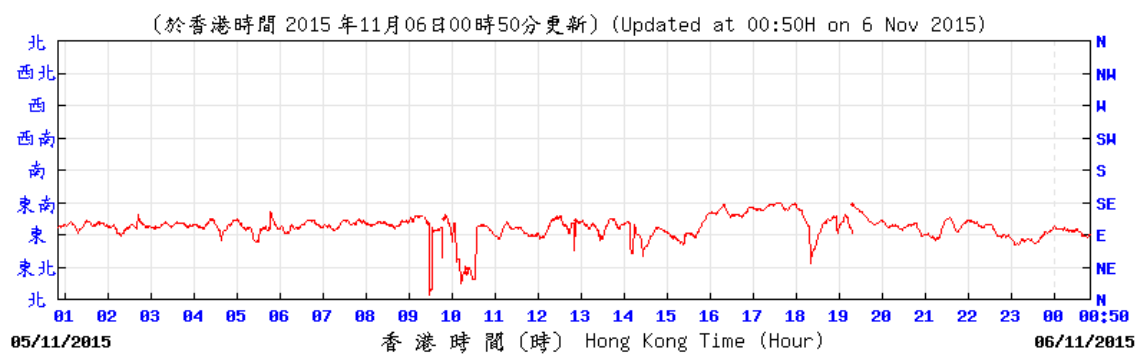
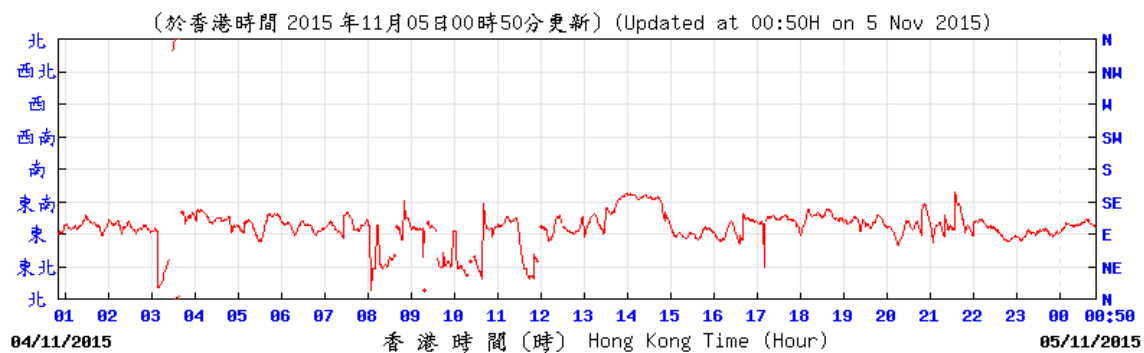
Average wind speed obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

27-28 November 2015



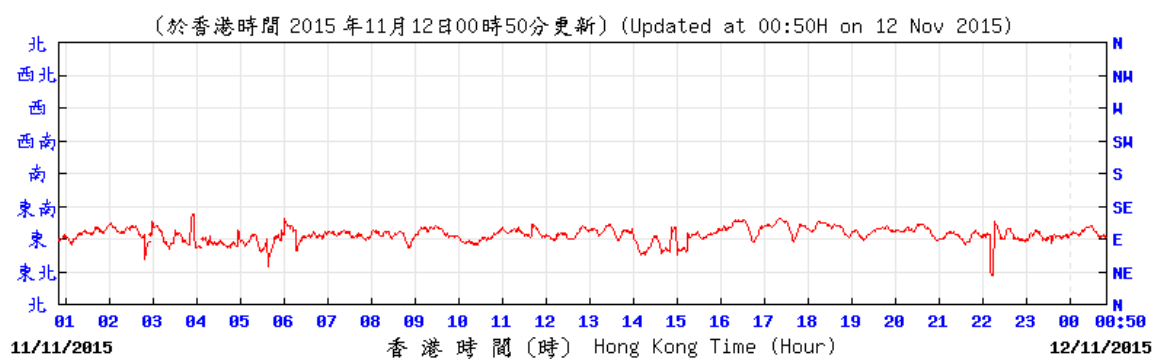
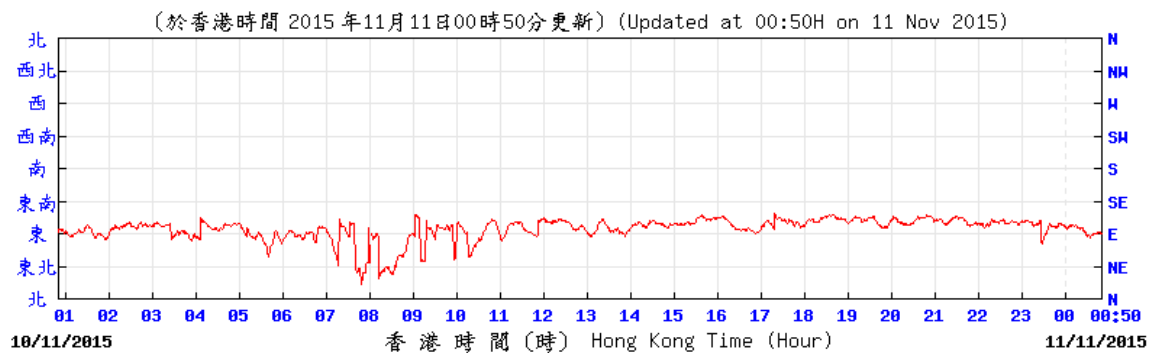
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

4-5 November 2015



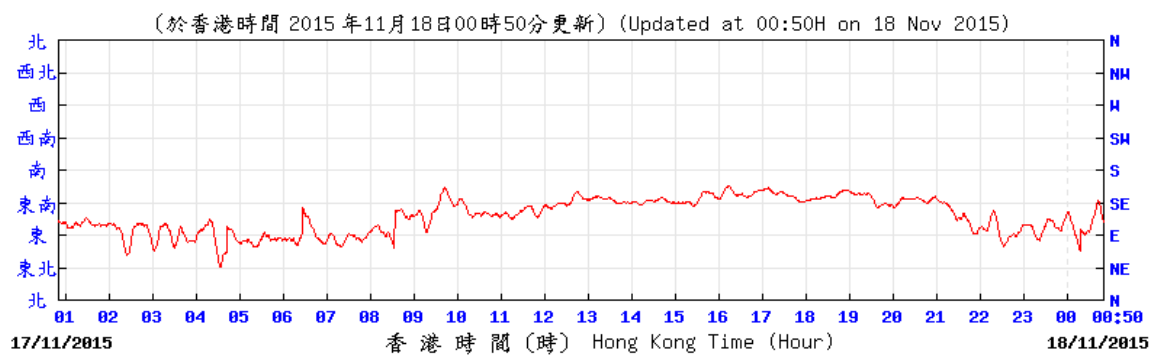
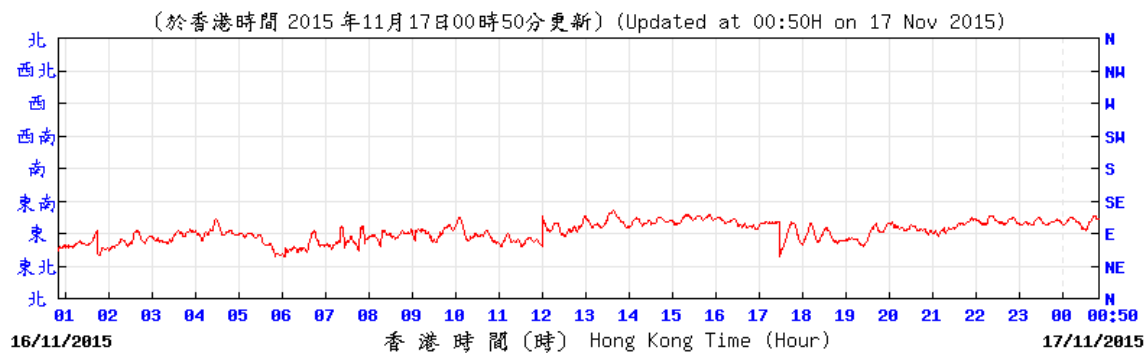
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

10-11 November 2015



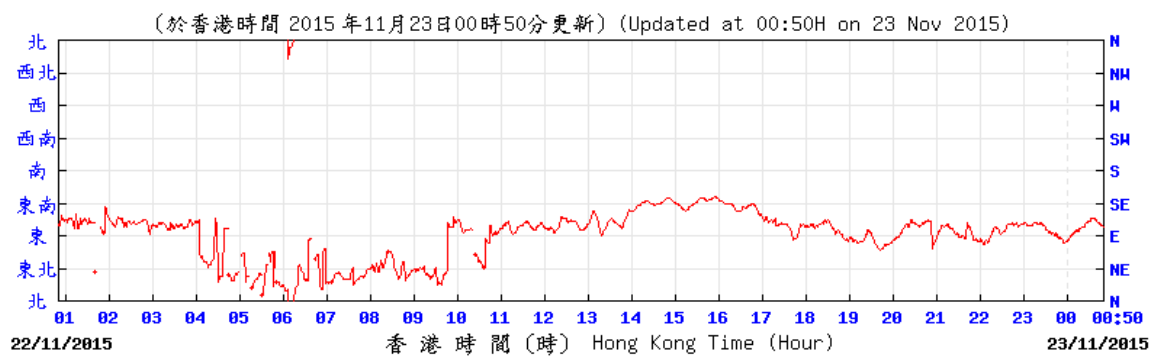
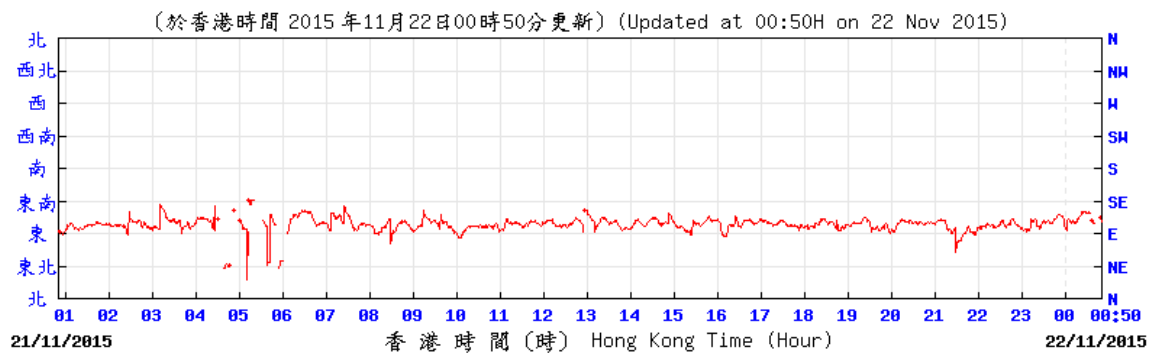
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

16-17 November 2015



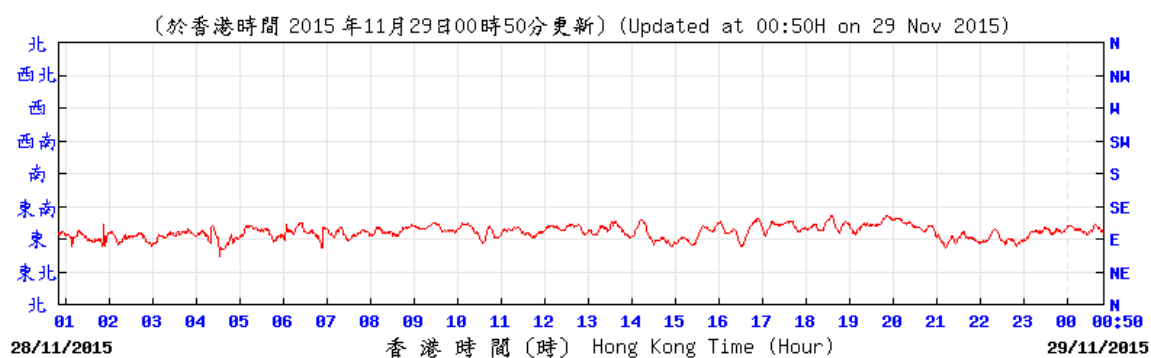
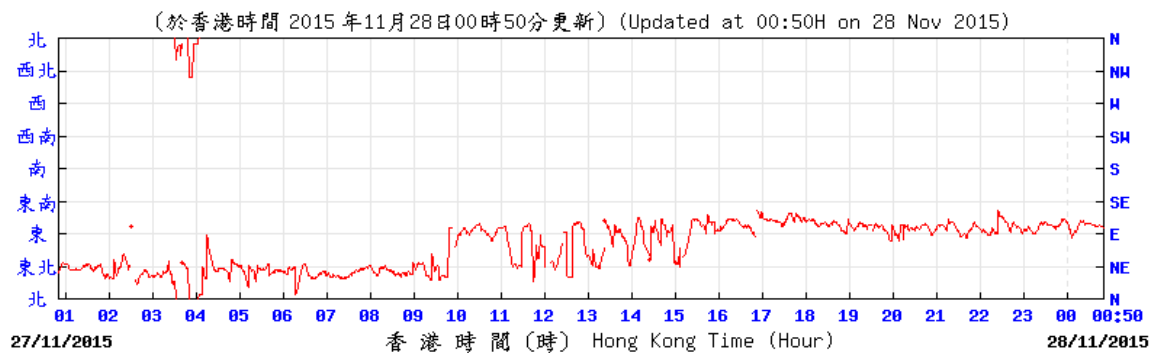
Wind direction obtained from the meteorological station at Kai Tak from the Hong Kong Observatory (HKO)

21-22 November 2015



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

27-28 November 2015



**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}
6-Nov-15	Cloudy	10:50	72.6	73.7	71.3	72.9	71	68.4
		10:55	73.8	75.4	72.0			
		11:00	73.4	74.8	71.5			
		11:05	71.6	72.8	70.2			
		11:10	72.9	73.1	71.9			
		11:15	73.0	74.2	72.0			
12-Nov-15	Cloudy	11:15	71.0	72.1	68.9	70.8	71	70.8 Measured ≤ Baseline Level
		11:20	71.2	72.2	69.1			
		11:25	70.0	72.3	68.7			
		11:30	70.5	71.9	69.4			
		11:35	71.0	71.9	68.7			
		11:40	71.2	72.4	69.5			
18-Nov-15	Sunny	11:30	72.9	73.4	70.9	72.1	71	65.6
		11:35	71.9	72.9	70.4			
		11:40	71.2	72.6	69.7			
		11:45	71.9	73.4	70.2			
		11:50	72.5	73.8	70.8			
		11:55	72.0	72.9	70.6			
23-Nov-15	Cloudy	15:10	73.2	74.8	71.5	73.1	71	68.9
		15:15	72.9	73.8	71.9			
		15:20	72.9	73.9	72.2			
		15:25	72.4	73.6	71.0			
		15:30	73.6	73.2	72.0			
		15:35	73.4	74.6	72.1			
30-Nov-15	Cloudy	11:05	73.6	74.8	72.2	73.3	71	69.4
		11:10	73.6	74.2	72.1			
		11:15	73.8	74.8	72.4			
		11:20	72.8	74.0	71.3			
		11:25	73.0	74.2	71.6			
		11:30	72.9	74.3	71.3			

Remarks:

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

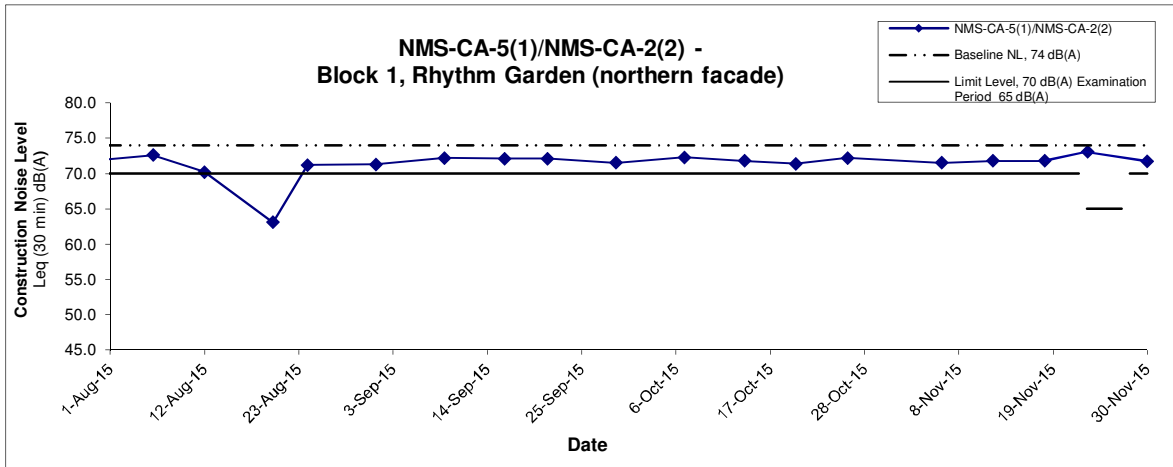
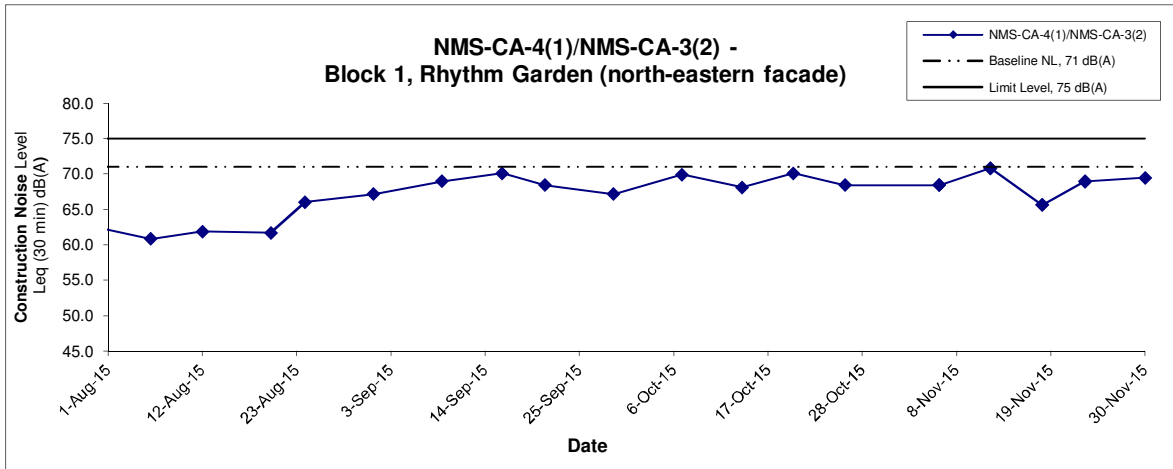
Appendix F - Noise Monitoring Results

Location NMS-CA-5(1)/NMS-CA-2(2) - Block 1, Rhythm Garden (northern façade)								
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}	L _{eq}
6-Nov-15	Cloudy	10:15	71.4	72.7	69.9	71.5	74	71.5 Measured ≤ Baseline Level
		10:20	71.5	72.7	70.0			
		10:25	71.4	72.7	70.0			
		10:30	71.5	72.6	70.2			
		10:35	71.4	72.5	70.2			
		10:40	71.5	72.5	70.2			
12-Nov-15	Cloudy	11:15	71.5	73.0	70.0	71.8	74	71.8 Measured ≤ Baseline Level
		11:20	72.1	73.3	69.6			
		11:25	72.0	74.1	69.8			
		11:30	71.7	73.0	70.1			
		11:35	71.8	73.2	69.7			
		11:40	71.6	72.9	69.8			
18-Nov-15	Sunny	10:55	71.3	72.5	70.0	71.8	74	71.8 Measured ≤ Baseline Level
		11:00	71.2	72.4	70.0			
		11:05	71.0	72.0	70.0			
		11:10	71.5	72.6	70.1			
		11:15	72.4	73.8	70.4			
		11:20	72.8	74.0	71.1			
23-Nov-15	Cloudy	14:30	73.8	75.3	71.5	73.1	74	73.1 Measured ≤ Baseline Level
		14:35	73.6	74.8	71.7			
		14:40	71.4	72.9	69.9			
		14:45	73.2	74.5	71.4			
		14:50	72.8	74.2	70.9			
		14:55	73.2	74.5	71.3			
30-Nov-15	Cloudy	10:30	71.5	72.6	70.2	71.7	74	71.7 Measured ≤ Baseline Level
		10:35	71.8	73.0	70.2			
		10:40	71.5	72.7	70.2			
		10:45	71.9	73.7	70.2			
		10:50	71.8	72.9	70.4			
		10:55	71.9	72.8	70.9			

Remarks:

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

Noise Levels



Remarks:

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

Title Shatin to Central Link - Contract 1107 - Diamond Hill to Kai Tak Tunnels Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA13018	CINOTECH
	Date Nov 15	Appendix F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: November 2015

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX H
SITE AUDIT SUMMARY

Shatin to Central Link -

Contract 1107 Diamond Hill to Kai Tak Tunnels

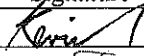

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151105
Date	5 November 2015 (Thursday)
Time	09:00 – 10:00

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

Ref. No.	Remarks/Observations	Related Item No.
151105-R02	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> Site water pumped to the Kai Tak nullah was observed not treated in prior. The Contractor was reminded to treat the water by de-silting facility prior to discharge. 	B 7
151105-R01	<p>Part C - Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none"> Dust generation was observed at exposed areas of the site. The Contractor was reminded to provide water spray more frequently to exposed site area. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up action on previous audit section (Ref. No.: 151029), all environmental deficiencies were observed rectified/improved by the Contractor. 	D 5

	Name	Signature	Date
Recorded by	Kevin Lam		5 November 2015
Checked by	Dr. Priscilla Choy		5 November 2015

Shatin to Central Link -

Contract 1107 Diamond Hill to Kai Tak Tunnels

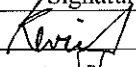

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151112
Date	12 November 2015 (Thursday)
Time	09:00 – 10:00

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

Ref. No.	Remarks/Observations	Related Item No.
151112-001	<p><i>Part B - Water Quality</i></p> <ul style="list-style-type: none">• Muddy water was observed pumped to the Kai Tak Nullah without prior treatment. The Contractor was reminded to direct the muddy water to de-silting facilities before pumping it into the nullah. <p><i>Part C - Landscape & Visual</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part D - Air Quality</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part E - Construction Noise Impact</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part F - Waste/Chemical Management</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part G - Permit / Licenses</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part H - Others</i></p> <ul style="list-style-type: none">• Follow-up action on previous audit section (Ref. No.: 151105), item 151105-R02 was remarked as 151112-001 and should be reviewed during next site inspection.	B 7

	Name	Signature	Date
Recorded by	Kevin Lam		12 November 2015
Checked by	Dr. Priscilla Choy		12 November 2015

Shatin to Central Link -

Contract 1107 Diamond Hill to Kai Tak Tunnels

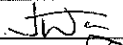

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151119
Date	19 November 2015 (Thursday)
Time	09:00 – 10:00

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

Ref. No.	Remarks/Observations	Related Item No.
	<p><i>Part B - Water Quality</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part C - Landscape & Visual</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part D - Air Quality</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part E - Construction Noise Impact</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part F - Waste/Chemical Management</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part G - Permit / Licenses</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part H - Others</i></p> <ul style="list-style-type: none">• Follow-up action on previous audit section (Ref. No.: 151112), all environmental deficiencies were observed rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Janet Wai		19 November 2015
Checked by	Dr. Priscilla Choy		19 November 2015

Shatin to Central Link -

Contract 1107 Diamond Hill to Kai Tak Tunnels

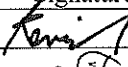

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151126
Date	26 November 2015 (Thursday)
Time	09:00 – 10:00

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

Ref. No.	Remarks/Observations	Related Item No.
	<p><i>Part B - Water Quality</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part C - Landscape & Visual</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part D – Air Quality</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part E – Construction Noise Impact</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part F – Waste/Chemical Management</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part G - Permit / Licenses</i></p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p><i>Part H – Others</i></p> <ul style="list-style-type: none">• Follow-up action on previous audit section (Ref. No.: 151119), no major environmental deficiencies were observed during last site inspection.	

	Name	Signature	Date
Recorded by	Kevin Lam		26 November 2015
Checked by	Dr. Priscilla Choy		26 November 2015

**APPENDIX I
EVENT AND ACTION PLANS**

Appendix I - Event and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1107 ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and EPD 2. Repeat measurement to confirm findings 3. Increase monitoring frequency 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Appendix I - Event and Action Plan for Air Quality Monitoring during Construction Phase

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

Appendix I - Event and Action Plan for Air Quality Monitoring during Construction Phase

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

Appendix I - Event and Action Plan for Landscape and Visual during Construction Phase

EVENT	ACTION			
	Works Contract 1107 ET	IEC	ER	CONTRACTOR
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

**APPENDIX J
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system.</p> <ul style="list-style-type: none"> The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites. 						^
Table 6.9	LV2	<p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context. <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> Trees of medium to high survival rate that would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB 	<p>Minimize the visual and landscape impact of the Project during construction phase</p>	Contractor	Within Project Site	Detailed design and construction stage	<ul style="list-style-type: none"> EIAO – TM ETWB TCW 2/2004 ETWB TCW 3/2006 	<p>N/A</p> <p>N/A</p> <p>N/A</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	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 <ul style="list-style-type: none"> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD) 	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^
/	A2	Open burning shall be prohibited	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	• APCO	^
Construction Dust Impact								
S7.6.6	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM- EIA criteria	*
S7.6.6	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction Sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM- EIA criteria	*

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</p> <ul style="list-style-type: none"> • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; 						<p>^</p> <p>^</p> <p>^</p> <p>N/A</p> <p>N/A</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p>
S7.6.6	D4	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
Construction Airborne Noise								
S8.5.6	AN1	Implement the following good site practices: <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant 	Control construction airborne	Contractor	All Construction Sites where	Construction stage	• Annex 5, TM-EIA	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>should be serviced regularly during the construction programme;</p> <ul style="list-style-type: none"> • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	noise		practicable			^ ^ ^ ^ N/A
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	Screen the noisy plant items to be used at all	Contractor	All Construction Sites	Construction stage	• Annex 5, TM-EIA	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		plants including air compressor, generators and saw.	construction sites					
S8.5.6	AN4	Use "Quiet" plant	Reduce the noise levels of plant items	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	N/A
S8.5.6	AN5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All Construction Sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.5.6	AN6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction stage	•TM-EIA	^
Water Quality (Construction Phase)								
S10.7.1	W1	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoff and Site Drainage</u> <ul style="list-style-type: none"> • At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site 	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water 	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction. 						^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via 						<p style="text-align: center;">^</p> <p style="text-align: center;">N/A</p> <p style="text-align: center;">*</p> <p style="text-align: center;">N/A</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</p> <ul style="list-style-type: none"> • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. 						<p style="text-align: center;">N/A</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.			practicable		• TM-water	
S10.7.1	W5	<p><u>Accidental Spillage</u></p> <p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> • Proper storage and handling facilities should be provided; • All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains; • The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings; and • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water 	^ ^ ^ N/A
<i>Waste Management (Construction Waste)</i>								
S11.4.1.1	WM1	<p><u>On-site sorting of C&D material</u></p> <ul style="list-style-type: none"> • Geological assessment should be carried out by competent persons on site during excavation to identify materials which are 	Separation of unsuitable rock from ending up at concrete batching plants	Contractor	All construction sites	Construction stage	• DEVB TC(W) No. 6/2010	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.</p>	<p>and be turned into concrete for structural use</p>					
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance 	^ ^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and EPD and get their approval before implementation 	<p>practicable so as to reduce the amount for final disposal</p>				<ul style="list-style-type: none"> • Waste Disposal Ordinance • ETWB TCW No. 19/2005 	<p>^</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p>
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> • Standard formwork or pre-fabrication should be used as far as 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 	<p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal 	^

SCL Works Contract 1107 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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.</p> <ul style="list-style-type: none"> The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	the amount for final disposal				Ordinance • ETWB TCW No.19/2005	^
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize 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 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	^ ^ ^

**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 2015

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 3)		Chemical Waste		Others, e.g. general refuse	
	(a)		(b)		(c)		(d)		(e=a-b-c-d)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000litre)		(in '000m ³)	
	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.
January	10.400	9.730	0.000	0.000	0.000	0.000	6.000	8.515	4.400	1.215	0.000	0.000	0.100	0.168	1.000	1.600	0.000	0.000	0.100	0.060
February	6.400	2.295	0.000	0.000	0.000	0.000	2.000	1.700	4.400	0.595	0.000	7.370	0.100	0.120	0.000	0.000	0.000	0.000	0.100	0.045
March	4.000	2.005	0.000	0.000	0.000	0.000	2.000	1.780	2.000	0.225	0.000	0.000	0.100	0.000	0.000	0.000	0.000	2.415	0.100	0.070
April	4.000	0.645	0.000	0.000	0.000	0.000	2.000	0.625	2.000	0.020	0.000	0.000	0.100	0.283	0.000	0.000	0.100	0.000	0.100	0.070
May	4.000	1.110	0.000	0.000	0.000	0.000	2.000	0.640	2.000	0.470	0.000	0.000	0.100	0.232	0.000	0.000	0.000	0.000	0.100	0.045
June	4.000	3.240	0.000	0.000	0.000	0.000	2.000	1.610	2.000	1.630	0.000	8.590	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.065
July	9.000	1.995	0.000	0.000	0.000	0.000	7.000	0.110	2.000	1.885	0.000	0.000	0.100	0.281	0.100	0.000	0.000	0.000	0.100	0.055
August	9.000	4.875	0.000	0.000	0.000	0.000	7.000	3.055	2.000	1.820	0.000	7.600	0.100	0.116	0.000	0.000	0.000	0.000	0.100	0.045
September	9.000	9.640	0.000	0.000	0.000	0.000	7.000	4.150	2.000	5.490	1.000	0.000	0.100	0.303	0.000	0.000	0.000	0.000	0.100	0.035
October	9.000	0.120	0.000	0.000	0.000	0.000	7.000	0.000	2.000	0.120	1.000	0.000	0.100	0.237	0.000	0.000	0.000	0.000	0.100	0.095
November	9.000	0.075	0.000	0.000	0.000	0.000	7.000	0.000	2.000	0.075	0.000	0.000	0.100	0.120	0.000	0.000	0.100	5.500	0.100	0.050
December	9.000		0.000		0.000		7.000		2.000		0.000		0.100		0.100		0.000		0.100	
Total	86.800	35.730	0.000	0.000	0.000	0.000	58.000	22.185	28.800	13.545	2.000	23.560	1.200	1.860	1.200	1.600	0.200	7.915	1.200	0.635

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
 - (3) The quantities of C&D Materials, in m³, was calculated by multiply the no. of truck with the volume of truck, which is 5m³.

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

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

Cumulative Complaint Log

Complaint Location/ Nature	Incoming Complaint Reference no.	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Status
SCL Contract 1107's Construction Site near Shaft A/ Construction Noise	14-29958	A resident living in Kai Ching Estate/ 8 December 2014	A resident of Kai Ching Estate complained about an incident of construction noise disturbance generated from operation of equipment, at the area adjacent to Shaft A in the night.	The Contractor had taken the following mitigation measures: <ul style="list-style-type: none"> • Hoardings and noise absorption blankets were erected along the site boundary to shield residents of Kai Ching Estate from noisy works during the time of the complaint; • The equipment involved in this complaint: the water pump, was removed immediately after the complaint was received to reduce noise nuisance to nearby noise sensitive receivers; • The low area near shaft A enclosure was backfilled to eliminate the flooding issue, thus the need of the water pump; 	Closed

<p>SCL Contract 1107's Construction Site near Site Entrance/ Construction Noise and Dust</p>	<p>14-31154</p>	<p>A resident living in Kai Ching Estate/ 15 December 2014</p>	<p>A resident of Kai Ching Estate complained about the noise disturbance generated from some sort of alarm noise at night from the construction site entrance; and dust nuisance from the construction site in general.</p>	<p>The alarm bell was installed to alert pedestrians of moving vehicles. During the time of complaint, vehicles might had moved in or out of the site, thus triggering the alarm.</p> <p>To avoid the same incident from happening again, the Contractor has agreed to permanently terminate the alarm bell.</p> <p>The Contractor has provided sufficient measures to minimize the smoke and dust emission. These measures include:</p> <ul style="list-style-type: none"> • Covering stockpile of bagged cements and other dusty material with impervious material. • Regularly conducting water spray on work sites and major haul road. • Washing every vehicle leaving the construction site. <p>The 24-hr TSP level monitoring conducted in December showed that the dust levels at Block 1, Rhythm Garden were under the Action and Limit Levels.</p>	<p>Closed</p>
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<p>SCL Contract 1107's Construction Site/ Construction Noise and Dust</p>	<p>15-04622</p>	<p>N/A / 12 March 2015</p>	<p>A public complaint about noise and dust nuisance from the Kai Tak Development Area was received. Since this Project is within the development area, the complaint was referred to the Contractor of SCL Contract 1107.</p>	<p>The Contractor had implemented appropriate and sufficient measures to minimise the noise and dust nuisance to adjacent sensitive receivers.</p> <p>The noise mitigation measures include:</p> <ul style="list-style-type: none"> • Installing noise absorption blankets on the hoarding at the site boundary near Kai Ching Estate; • Erecting acoustic enclosures to seal up the noisy PME and construction works (see Photo 2) in the shaft. <p>The dust mitigation measures include:</p> <ul style="list-style-type: none"> • Covering of stockpile of bagged cement and other dusty materials to reduce dust generation. • Water spraying stockpile of dusty materials as well as major haul roads and work sites to keep the surface wet. • Washing every vehicle leaving the construction site. • Regular cleaning of the access roads connecting public roads to vehicle washing areas. <p>There was also no non-compliance on construction noise and air quality recorded during the site inspections in March.</p> <p>The construction noise and 24-hr TSP level monitoring conducted in March also showed that the noise and dust levels at the monitoring stations were under the Action and Limit Levels.</p>	<p>Closed</p>
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<p>SCL Contract 1107's Construction Site/ Construction Noise and Dust</p>	<p>15-13442</p>	<p>N/A / 9 June 2015</p>	<p>A public complaint about noise and dust nuisance from the Kai Tak Development Area was received. Since this Project is within the development area, the complaint was referred to the Contractor of SCL Contract 1107.</p>	<p>Investigation conducted by the Contract ET and the results showed that sufficient mitigation measures were provided by the Contractor to minimize the noise and dust nuisance to adjacent sensitive receivers.</p> <p>The noise mitigation measures include:</p> <ul style="list-style-type: none"> • Noise absorption blankets were installed on the hoarding at the site boundary near Kai Ching Estate; • Acoustic enclosures were erected to seal up the noisy PME and construction works in the shaft; • The formwork erection was conducted inside the shaft which shield off the noisy operation. <p>The dust mitigation measures include:</p> <ul style="list-style-type: none"> • The stockpiles of dusty materials were covered by dust protective screens to reduce dust generation. Uncovered parts of the stockpile were provided with water spray to keep the dusty surface wet to reduce dust emission during stockpiling/backfilling work. • Watering on work sites and major haul roads was implemented regularly as stipulated in the Air Pollution Control Regulation and the Environmental Permit. Watering record is kept at the site entrance for easy inspection; • Vehicle movements were confined to designated haul roads. Automatic sprinkler system was installed at major haul roads to provide regular water spraying to reduce dust emission from vehicle movements; 	<p>Closed</p>
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				<ul style="list-style-type: none"> • Hoarding was provided along the entire length of the site boundary and beside roads or areas with public access; • Wheel washing facilities was provided at all vehicle exits and vehicle washing was provided for vehicles leaving the site. Access road leading to and exiting from vehicle washing areas were kept clean to ensure the public roads around site entrances were free from dust; <p>The construction noise and 24-hr TSP level monitoring conducted in May 2015 also showed that the noise and dust levels at the monitoring stations were under the Action and Limit Levels.</p>	
SCL Contract 1107's Construction Site/ Construction Noise and Dust	15-12472	N/A / 30 June 2015	<p>A public complaint about dust nuisance and muddy water discharge in the Kai Tak Development Area. Complainant alleged that uncovered dusty materials were found in Kai Tak development area and muddy water was found discharged into Kai Tak nullah.</p> <p>Since this Project is within the development area, the complaint was referred to the Contractor of SCL Contract 1107.</p>	<p>Investigation was conducted by the Contract ET. According to investigation results, the coverage for the stockpile was removed during the backfilling works, while the other parts of the stockpile were covered by dust protective screen. Mitigation measures including providing water spray and installation of waster sprinkler were implemented to keep the uncovered part wet during backfilling. The stockpile was completely covered after work.</p> <p>Wastewater was treated by sedimentation tanks with sufficient retention time before discharge into Kai Tak Nullah. All drainage facilities and erosion and sediment control structures were regularly inspected and maintained to ensure normal operation at</p>	Closed

				all times and during rainstorms. Water sampling was conducted monthly in accordance with the requirement of Effluent Discharge License (License No. WT00015861-2013). The lab test results complied with the conditions set in the Effluent Discharge License during the complaint period.	
--	--	--	--	--	--

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

**30th 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 30 November 2015]

(December 2015)

Certified by: Vivian Chan 

Position: Environmental Team Leader

Date: 11 December 2015



30th Monthly EM&A Report for November 2015

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

December 2015

Project/Deliverable No.	7076187 D70/02
Project Name	Shatin to Central Link – Works Contract 1112 Hung Hom Station and Stabling Sidings
Report Name	30 th Monthly EM&A Report for November 2015
Report Date	December 2015
Report for	Leighton Contractors (Asia) Limited

PREPARATION, REVIEW AND AUTHORISATION

Revision #	Date	Prepared by	Reviewed by	Approved by
1.0 (Draft)	December 2015	Man CHEUNG	Vivian CHAN	Alexi BHANJA
2.0 (Draft)	December 2015	Man CHEUNG	Vivian CHAN	Alexi BHANJA
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CONTENTS

EXECUTIVE SUMMARY.....	IV
Introduction	iv
Landscape and Visual Monitoring.....	iv
Air Quality Monitoring	iv
Noise Quality Monitoring.....	iv
Waste Management.....	iv
Environmental Auditing	v
Compliant, Notification of Summons and Successful Prosecution	v
Future Key Issues	v
1 INTRODUCTION.....	6
1.1 Project Background	6
1.2 Purpose of the Report	6
1.3 Report Structure.....	6
2 PROJECT INFORMATION.....	7
2.1 General Site Description	7
2.2 Construction Programme and Activities	8
2.3 Project Organisation	8
2.4 Status of Environmental Licences, Notification and Permits.....	9
3 ENVIRONMENTAL MONITORING PARAMETERS	11
3.1 Landscape and Visual Impact Monitoring.....	11
3.2 Air Quality Monitoring	11
3.3 Construction Noise Monitoring.....	14
4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES.....	15
5 MONITORING RESULTS.....	16
5.1 Landscape and Visual	16
5.2 Air Quality Monitoring	16
5.3 Regular Construction Noise Monitoring	16
5.4 Waste Management.....	16
6 ENVIRONMENTAL SITE INSPECTION AND AUDIT	18
7 ENVIRONMENTAL NON-CONFORMANCE	21
7.1 Summary of Monitoring Exceedances	21
7.2 Summary of Environmental Non-Compliance	21
7.3 Summary of Environmental Complaint.....	21

7.4	Summary of Environmental Summons and Successful Prosecution.....	21
8	FUTURE KEY ISSUES.....	22
8.1	Construction Programme for Next Month.....	22
8.2	Key Issues for the Coming Months	22
8.3	Monitoring Schedule for Next Month.....	22
9	CONCLUSIONS AND RECOMMENDATIONS.....	23
9.1	Conclusions	23
9.2	Recommendations	23

APPENDICES

Appendix A	Project Works Boundary
Appendix B	Construction Programme
Appendix C	Project Organisation for Environmental Works
Appendix D	Location of Air Quality Monitoring Station
Appendix E	Calibration Certificates of Monitoring Equipment
Appendix F	Wind Data
Appendix G	Environmental Monitoring Programme
Appendix H	Implementation Schedule of Environmental Mitigation Measures
Appendix I	Event and Action Plan
Appendix J	Measures Monitoring Results and their Graphical Presentations
Appendix K	Waste Flow Table
Appendix L	Cumulative Statistics of Complaints, Notification of Summons and Successful Prosecutions

TABLES

Table 2-1	Contact Information of Key Personnel
Table 2-2	Status of Environmental Licenses, Notification and Permits
Table 3-1	Air Quality Monitoring Parameters and Frequency
Table 3-2	Air Quality Monitoring Location
Table 3-3	Air Quality Monitoring Equipment
Table 4-1	Summary of Status of Required Submission under EP
Table 5-1	Summary of 24-hour TSP Monitoring Results
Table 6-1	Observations and Recommendations of Site Audits

EXECUTIVE SUMMARY

Introduction

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

Construction works of the Project commenced on 3 June 2013. This is the 30th Monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 30 November 2015 in accordance with the EM&A manual.

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

- Piling for foundation and noise enclosure at HUH and NAT
- Slab construction at HUH
- Initial excavation at HUH and HHS
- Underpinning at HUH
- Utilities diversion at SAT
- Modification works at Concourse level
- Drainage diversion at NAT
- Operation of MBME at HUH
- Reconstruction of 1875 drainage at HHS

Landscape and Visual Monitoring

Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 3 and 17 November 2015. All necessary mitigation measures have been implemented by the Contractor.

Air Quality Monitoring

Air quality (24-hour TSP) monitoring was carried out on 6, 12, 18, 24 and 30 November 2015. No exceedance of Action and Limit Level of 24-hour TSP monitoring was recorded at the monitoring location in the reporting month.

Noise Quality Monitoring

Construction airborne noise monitoring can be referred to the Monthly EM&A Report for Contract 1111.

Waste Management

Receptacles for collection of general refuse were provided at the site. As advised by the Contractor, 283,460 kg of general refuse was generated from the Project and disposed of at NENT landfill. A total of 18,663 m³ inert construction and demolition (C&D) materials were generated from the

Project, 7,030 m³ was reused in other projects and 11,636 m³ was disposed of at TM38 Public Fill. No chemical waste was disposed. A total of 2,323m³ Type 2 marine sediment was generated from SCL1112 and disposed of 534 kg of paper/cardboard packaging and no metals were recycled. No asphalt or plastic was recycled from the Project.

Environmental Auditing

A total of 5 weekly environmental site audits were conducted on 5, 12, 19 and 26 November 2015. The IEC joint site audit was undertaken on 19 November 2015.

Compliant, Notification of Summons and Successful Prosecution

No environmental complaints were reported during the reporting month.

No summons or prosecution related to the environmental issues were received in the reporting period.

Future Key Issues

Major site activities for the coming reporting month will include:

- Piling for foundation and noise enclosure at HUH and NAT
- Slab construction at HUH
- Initial excavation at HUH and HHS
- Underpinning at HUH
- Utilities diversion at SAT
- Modification works at Concourse level
- Drainage diversion at NAT
- Operation of MBME at HUH
- Reconstruction of 1875 drainage at HHS
- Installation of noise barrier

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

1 INTRODUCTION

1.1 Project Background

1.1.1 The Shatin to Central Link (SCL) is a designated project (DP) under the Environmental Impact Assessment Ordinance (EIAO). For the purposes of the Environmental Impact Assessment (EIA), five EIA studies have been conducted to cover different sections of the SCL. These are Tai Wai to Hung Hom Section (SCL (TAW-HUH)), Mong Kok East to Hung Hom Section (SCL (MKK-HUH)), Hung Hom to Admiralty Section (SCL (HUH-ADM)), Protection Works at Causeway Bay Typhoon Shelter and Stabling Sidings at Hung Hom Freight Yard (SCL (HHS)).

1.1.2 Three EIA reports are of relevance to Works Contract 1112 (the Project), namely EIA for SCL (TAW-HUH) (Register No. AEIAR-167/2012), EIA for SCL (MKK-HUH) (Register No. AEIAR-165/2012) and EIA for SCL (HHS) (Register No. AEIAR-164/2012). These were submitted and subsequently approved with conditions by the Environmental Protection Department (EPD) on 17 March 2012. Two Environmental Permits (EPs), Environmental Permit No. EP-437/2012 for SCL (MKK-HUH) and Environmental Permit No. EP-438/2012 for SCL (TAW-HUH) were subsequently obtained on 22 March 2012. A recent application for variation of the EP for SCL (TAW-HUH) was approved and a varied EP (EP No. EP-438/2012/I) was issued by Director of Environmental Protection (DEP) on 14 October 2015.

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 30th EM&A report which summarizes the monitoring results and audit findings during the reporting period from 1 to 30 November 2015.

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 foundation and noise enclosure at HUH and NAT
- Slab construction at HUH
- Initial excavation at HUH and HHS
- Underpinning at HUH
- Utilities diversion at SAT
- Modification works at Concourse level
- Drainage diversion at NAT
- Operation of MBME at HUH
- Reconstruction of 1875 drainage at HHS

2.3 Project Organisation

2.3.1 The project organization structure is presented in **Appendix C**. The contact names and numbers for key personnel of the Project are summarized in **Table 2-1**.

Table 2-1 Contact Information of Key Personnel

Company	Position	Name	Telephone	Fax
MTR	Construction Manager	Mr Kit CHAN	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/I	14 Oct 2015	-	Valid	EP for SCL (TAW-HUH)
Construction Noise Permit				
GW-RE0819-15	1 Sep 2015	29 Feb 2016	Valid	Works in concourse
GW-RE0970-15	8 Oct 2015	19 Nov 2015	Valid until cancellation on 19 Nov 2015	Concrete breaking on the railway track + track 7 ADMS maintenance + NAT viaduct road works
GW-RE1085-15	28 Oct 2015	27 Apr 2016	Valid	Under podium works (Removing previous area G)
GW-RE1164-15	20 Nov 2015	7 Jan 2016	Valid	Concrete breaking on the railway track + track 7 ADMS maintenance
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	-
Notification of Asbestos Abatement Works				
AX141187	11 Oct 2014 (earliest commencement date)	-	Notified	Demolition of International Mail Centre, 80 Salisbury Road, Hung Hom
AX141235	27 Oct 2014 (earliest commencement)	-	Notified	Demolition of Freight Operation Building, MTR Hung

Permit / Licence No. / Notification / Reference No.	Valid Period		Status	Remark
	From	To		
	date)			Hom Depot
Notification of New Expiration Date of Sediment Quality Report (SQR)				
EP60/G1/12- 395/Part XXVI	3 Nov 2014	22 Jan 2017	Notified	Data Reliability Review on Sediment Quality Report

3 ENVIRONMENTAL MONITORING PARAMETERS

3.1 Landscape and Visual Impact Monitoring

3.1.1 In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented and a site inspection shall be conducted once every two weeks throughout the construction period.

3.2 Air Quality Monitoring

Parameter, Frequency and Duration

3.2.1 In accordance with the EM&A Manual, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required throughout the construction period. The monitoring parameters and frequency are provided in **Table 3-1**.

Table 3-1 Air Quality Monitoring Parameters and Frequency

Parameter	Frequency
1-hour TSP	3 times in every 6 days when one documented valid complaint is received
24-hour TSP ^[1]	Once per 6 days

Note:

1. 24-hour TSP will be conducted when project-related construction activities are being undertaken within a radius of 500m from monitoring stations.

Monitoring Location

3.2.2 One air quality monitoring station was set up at the location in accordance with the approved EM&A Manuals. The location of the construction dust monitoring station is summarised in **Table 3-2** and shown in **Appendix D**.

3.2.3 The monitoring location of AM2 has been located on the roof of the Site Office Building next to Harbourfront Horizon since 19 March 2014.

Table 3-2 Air Quality Monitoring Location

ID	Location
AM2 ^[1]	Harbourfront Horizon ^[2]

Note:

1. Different IDs were used in various EM&A Manuals for dust monitoring location at Harbourfront Horizon, DMS-12 was used in EM&A Manual for SCL(TAW-HUH), AM2 were used in EM&A Manual and EIA report for SCL(MKK-HUH), and DMS-1 Works Contract 1112 were used in EM&A Manual and EIA report for HHS. For ease of future reference, AM2 will be adopted for EM&A reporting for Works Contract 1112 when referring to this monitoring location.
2. Air quality monitoring location at Harbourfront Horizon is the same as monitoring station CD6a as proposed in the EM&A Manual for “Kwun Tong Line Extension (KTE)”. Access to Harbourfront Horizon was rejected by the owner during preparation for baseline

monitoring for the KTE in early 2011. A representative monitoring location at the adjacent Finger Pier, at about 25m from Harbourfront Horizon, was adopted as an alternative monitoring location for KTE. This monitoring location is considered the most appropriate alternative monitoring location for AM2 and have been adopted for dust monitoring for Contract 1112.

Monitoring Equipment

3.2.4 The air quality monitoring was performed using High Volume Sampler (HVS). The HVS meets all the requirements of the EM&A Manual. Detail of the HVS used in air quality monitoring is provided in **Table 3-3**.

Table 3-3 Air Quality Monitoring Equipment

Equipment	Brand and Model	Serial Number
High Volume Sampler	GS-2310 Accu-vol	694-0665
Calibration Kit	Tisch (TE-5025A)	1941

3.2.5 The HVS were calibrated in every six months interval using calibration kit which is re-calibrated by the manufacturer after one year of use. The calibration certificate of the calibration kit and the calibration spreadsheet of the HVS is provided in **Appendix E**.

Monitoring Procedures

3.2.6 Specifications of HVS are as follow:

- i. 0.6 - 1.7m³ per minute adjustable flow range
- ii. Equipped with a timing / control device with +/- 5 minutes accuracy for 24 hours operation
- iii. Installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation
- iv. Capable of providing a minimum exposed area of 406cm²
- v. Flow control accuracy: +/- 2.5% deviation over 24-hour sampling period
- vi. Equipped with a shelter to protect the filter and sampler
- vii. Incorporated with an electronic mass flow rate controller or other equivalent devices
- viii. Equipped with a flow recorder for continuous monitoring
- ix. Provided with a peaked roof inlet
- x. Incorporated with a manometer
- xi. Able to hold and seal the filter paper to the sampler housing at horizontal position
- xii. Easily changeable filter and
- xiii. Capable of operating continuously for a 24-hour period.

3.2.7 Preparation of Filter Papers

- i. Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.

- ii. All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25°C and not variable by more than ± 3 °C; the relative humidity (RH) was < 50% and not variable by more than ± 5 %. A convenient working RH was 40%.
- iii. All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

3.2.8 Field Monitoring

- i. The power supply was checked to ensure the HVS works properly.
- ii. The filter holder and the area surrounding the filter were cleaned.
- iii. The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
- iv. The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- v. The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
- vi. Then the shelter lid was closed and was secured with the aluminium strip.
- vii. The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
- viii. A new flow rate record sheet was set into the flow recorder.
- ix. On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m³/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m³/min).
- x. The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
- xi. The initial elapsed time was recorded.
- xii. At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
- xiii. The final elapsed time was recorded.
- xiv. The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
- xv. It was then placed in a clean plastic envelope and sealed.
- xvi. All monitoring information was recorded on a standard data sheet.
- xvii. Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.

Wind Data Monitoring

- 3.2.9 Average wind data (wind speed and direction) at the King's Park meteorological station during the monitoring period were obtained from the Hong Kong Observatory (HKO) and presented in **Appendix F**.

Monitoring Schedule

- 3.2.10 The schedule for environmental monitoring in October 2015 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	13 November 2015	Submitted
	EP-438/2012/I	13 November 2015	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 3 and 17 November 2015. All necessary mitigation measures have been implemented by the Contractor.

5.1.2 The Event and Action Plan for Landscape and Visual Impact Monitoring is provided in *Appendix I*.

5.2 Air Quality Monitoring

5.2.1 The monitoring results for 24-hour TSP are summarized in *Table 5-1*. Detailed air quality monitoring results are presented in *Appendix J*.

Table 5-1 Summary of 24-hour TSP Monitoring Results

ID	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM2	46.9	30.4 – 71.3	182	260

5.2.2 No Action and Limit Level exceedance was recorded in the reporting month.

5.2.3 The Event and Action Plan is provided in *Appendix I*.

5.3 Regular Construction Noise Monitoring

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

5.3.2 The Action and Limit levels for construction noise are summarised in *table 5-2*.

Table 5-2 Action and Limit Levels

Time Period	Action Level	Limit Level
07:00-19:00 hours on normal weekdays	When one documented valid complaint is received	75dB(A)*

Note: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

* Reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

5.3.3 The Event and Action Plan for construction noise is provided in *Appendix I*.

5.4 Waste Management

5.4.1 Receptacles for collection of general refuse were provided at the site. As advised by the Contractor, 283,460 kg of general refuse was generated from the Project and disposed

of at NENT landfill. A total of 18,663 m³ inert construction and demolition (C&D) materials were generated from the Project, 7,030 m³ was reused in other projects and 11,636 m³ was disposed of at TM38 Public Fill. No chemical waste was disposed. A total of 2,323m³ Type 2 marine sediments were generated from SCL1112 and disposed of. 534 kg of paper/cardboard packaging and no metals were recycled. No asphalt or plastic was recycled from the Project. The waste flow table and marine sediment flow table were presented in **Appendix K**.

- 5.4.2 A billing account for construction waste disposal has been approved and a trip ticket system was implemented to record the waste generated from the Project in the reporting month.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

- 6.1.1 Weekly site audits were conducted by the ET and attended by the ER and the Contractor to monitor the timely implementation of proper environmental management practices and mitigation measures at the site. 4 site audits were carried out on 5, 12, 19 and 26 November 2015 during the reporting month. Representative of the IEC joined the site inspection on 19 November 2015. A summary of the implementation schedule of environmental mitigation measures is provided in **Appendix H**.
- 6.1.2 No EPD inspections were conducted during the reporting month.
- 6.1.3 During the weekly site inspections, no non-conformance was identified. Details of observations recorded during site inspection are summarized in **Table 6-1**.

Table 6-1 Observations and Recommendations of Site Audits

Parameters	Description	Works Area	Observation Date	Status
Noise	Doors of air compressor were observed opened. The Contractor should ensure all non-essential openings of air compressor are kept closed at all times to achieve the design acoustic performance of the enclosure.	HUH (M/N-17/18)	5 November 2015	The item was rectified by the Contractor on 12 November 2015.
		HUH (31)	12 November 2015	The item was rectified by the Contractor on 26 November 2015.
Air Quality	Dust emission was observed during excavation. The Contractor should provide water spraying during excavation for dust suppression.	NAT	5 November 2015	The item was rectified by the Contractor on 12 November 2015.
		HUH (Area B)	19 November 2015	The item will be followed-up in the next reporting month.
	Machineries were observed emitting white smoke. The Contractor should ensure all machineries are under regular maintenance.	NAT	19 November 2015	The item was rectified by the Contractor on 26 November 2015.
		HUH (N17)	26 November 2015	The item will be followed-up in the next reporting month.
Water Quality	Muddy wheel-washing water was observed at public road and public gullies. The Contractor should provide proper protection to prevent muddy wheel-washing water from discharging into the gully and improve wheel washing	Gate 3	29 October 2015	The item was rectified by the Contractor on 12 November 2015.

Parameters	Description	Works Area	Observation Date	Status
	system to prevent muddy water discharge to public road.			
	Plastic pipes for water removal from excavation pit were observed directly connected to storm drainage. The Contractor should ensure water pumped out from excavation pit is treated by silt removal facilities prior to discharging into the storm drains.	SAT	15 October 2015	The item will be followed-up in the next reporting month.
Waste/ Chemicals Management	Chemical containers and machineries were observed without secondary containment. The Contractor should provide secondary containment to all chemical containers to prevent land contamination.	HUH (near NAT)	29 October 2015	The item was rectified by the Contractor on 5 November 2015.
		NAT	5 November 2015	The item was rectified by the Contractor on 12 November 2015.
		HUH (M20)	12 November 2015	The item was rectified by the Contractor on 26 November 2015.
		HUH (30)	12 November 2015	The item was rectified by the Contractor on 26 November 2015.
		NAT	12 November 2015	The item was rectified by the Contractor on 26 November 2015.
		HUH (Q/R-24)	19 November 2015	The item will be followed-up in the next reporting month.
		HUH (near MBME)	19 November 2015	The item will be followed-up in the next reporting month.
		HHS (AJ/20)	19 November 2015	The item was rectified by the Contractor on 26 November 2015.
		NAT	26 November 2015	The item will be followed-up in the next reporting month.
			Waste skip was observed full. The Contractor should remove the rubbish regularly to	HUH (P/Q-34)

Parameters	Description	Works Area	Observation Date	Status
	prevent accumulation.	HUH (N-39)	19 November 2015	The item was rectified by the Contractor on 26 November 2015.
	General refuse was observed on the ground. The Contractor should provide sufficient rubbish bin or waste skip at the site.	NAT	29 October 2015	The item was rectified by the Contractor on 13 November 2015.
		HUH (near NAT)	29 October 2015	The item was rectified by the Contractor on 26 November 2015.
		Huh (O-15/16)	5 November 2015	The item was rectified by the Contractor on 13 November 2015.
		HUH (K-29)	19 November 2015	The item was rectified by the Contractor on 26 November 2015.
		HUH (31)	19 November 2015	The item was rectified by the Contractor on 26 November 2015.
		HHS (G20)	26 November 2015	The item will be followed-up in the next reporting month.

Note:

1. HUH: Hung Hom Station
2. HHS: Hung Hom Stabling Sidings
3. NAT: North Approach Tunnels
4. SAT: South Approach Tunnels
5. N/A: Not Applicable

6.1.4 Follow-up actions requested by Contractor’s ET and IEC during site inspections were undertaken by the Contractor and the work were confirmed in the following weekly site inspection. Follow-up actions that are still outstanding in the reporting month will be inspected in site inspections in following month, until the corresponding action has been satisfactorily completed by the Contractor.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

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

7.2 Summary of Environmental Non-Compliance

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

7.3 Summary of Environmental Complaint

7.3.1 No public complaint was received during reporting month. Details and cumulative statistics on environmental complaints can be referred to [Appendix L](#).

7.4 Summary of Environmental Summons and Successful Prosecution

7.4.1 No summon was received during the reporting month.

7.4.2 The cumulative statistics on notification of summons and successful prosecutions is provided in [Appendix L](#).

8 FUTURE KEY ISSUES

8.1 Construction Programme for Next Month

8.1.1 The construction programme for the upcoming month is provided in *Appendix B* and the key issues to be considered in the upcoming months include:

- Piling for foundation and noise enclosure at HUH and NAT
- Slab construction at HUH
- Initial excavation at HUH and HHS
- Underpinning at HUH
- Utilities diversion at SAT
- Modification works at Concourse level
- Drainage diversion at NAT
- Operation of MBME at HUH
- Reconstruction of 1875 drainage at HHS
- Installation of noise barrier

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 December 2015 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 30th Monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works carried out during the period from 1 to 30 November 2015.
- 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 No environmental complaint regarding construction noise during restricted hour was received during the reporting month.
- 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:

Noise Impact

- Ensure all air compressors are fully enclosed when in operation in order to ensure acoustic performance of the enclosure.

Air Quality Impact

- Provide water spraying during excavation for dust suppression.
- Ensure all machineries are under regular maintenance.

Water Quality Impact

- Provide proper protection to prevent muddy water from discharging into the gully and improve wheel washing system to prevent muddy wheel-washing water discharge to public road.
- Ensure water pumped out from excavation pit is treated by silt removal facilities prior to discharging into the storm drains.

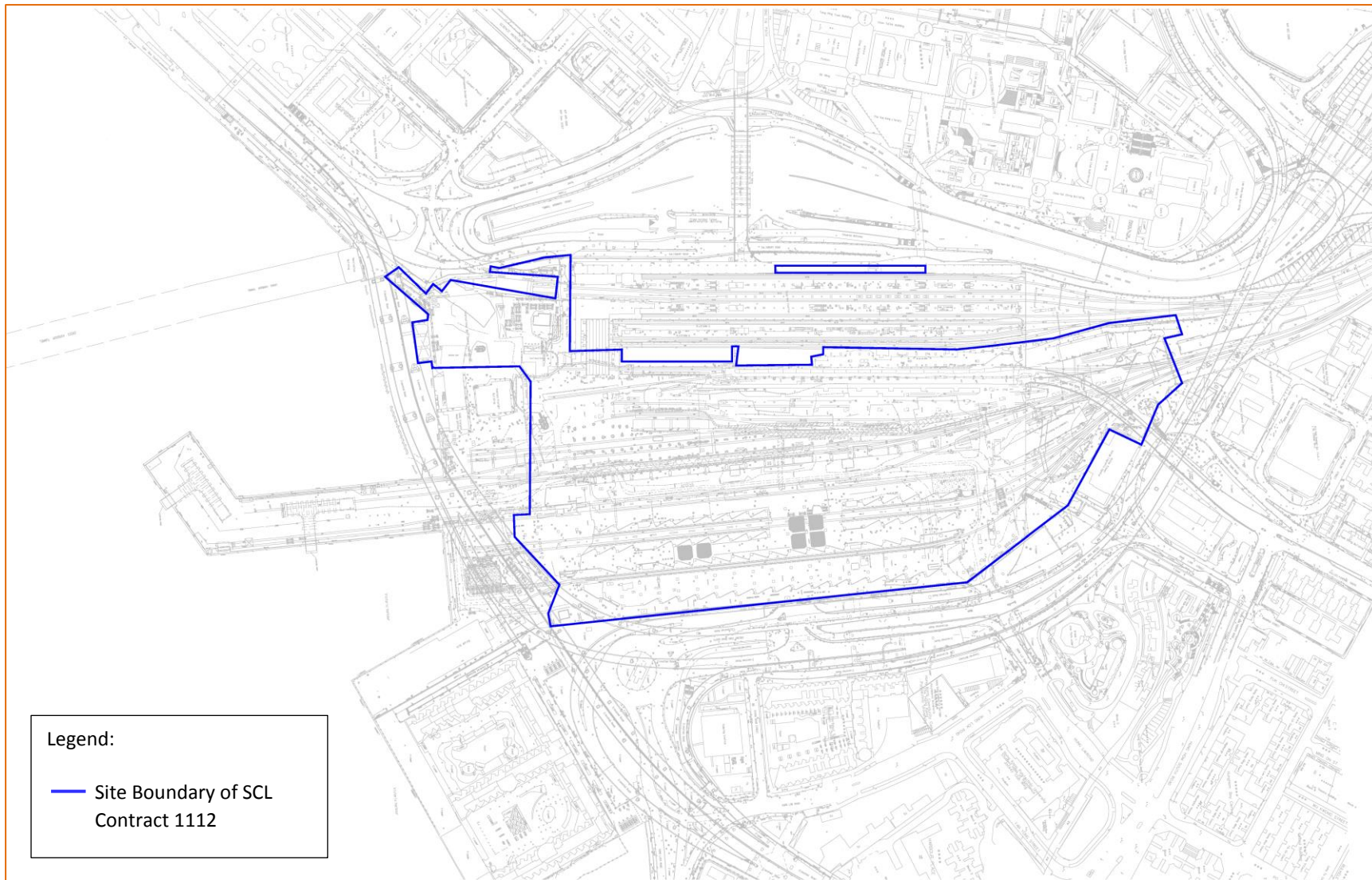
Chemical and Waste Management

- Provide secondary containment with proper maintenance and usage to prevent land contamination.

- Remove the rubbish regularly to prevent accumulation.
- Provide sufficient rubbish bin or waste skip at the site.

APPENDIX A

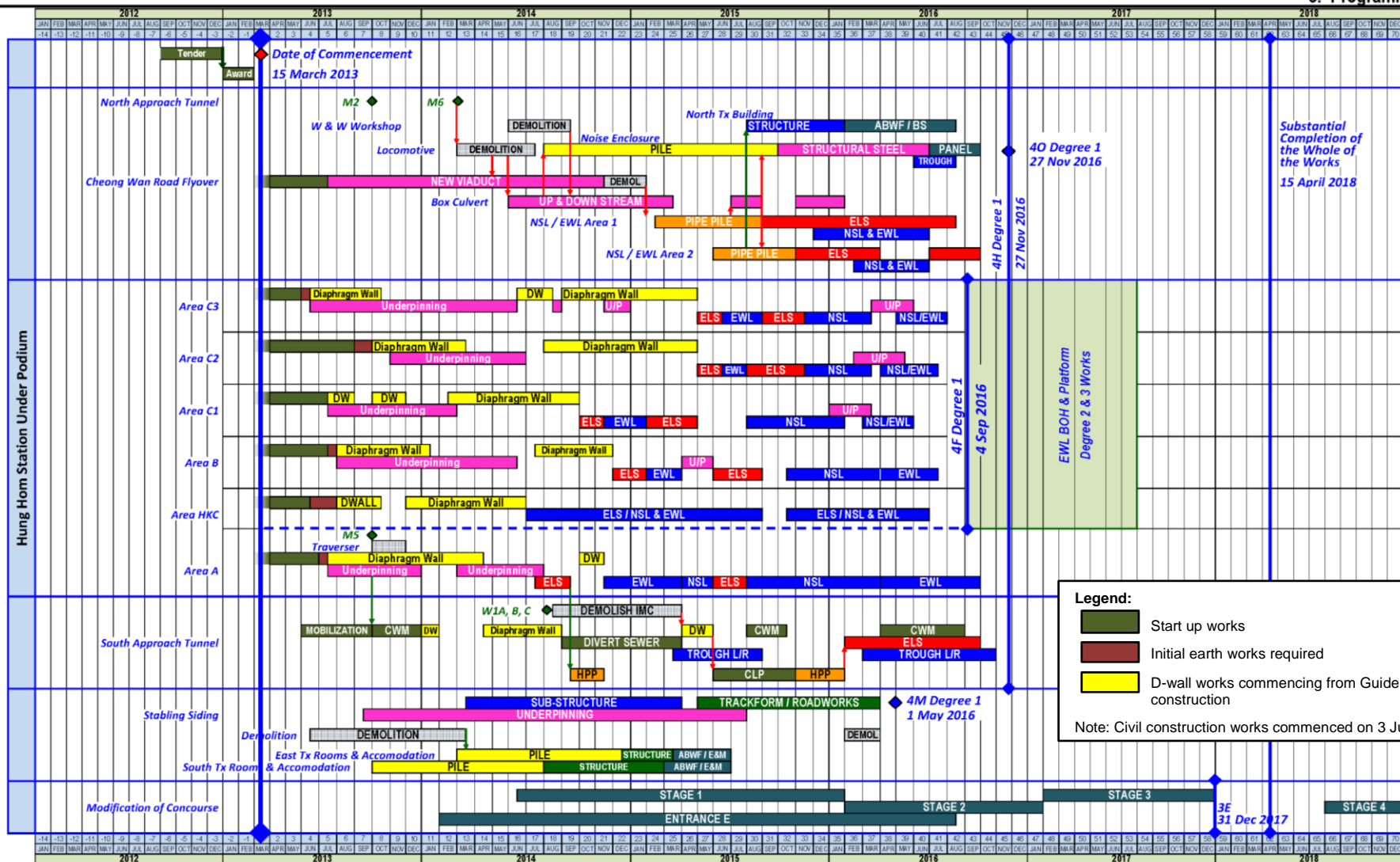
Project Works Boundary



APPENDIX B

Construction Programme

3. Programme



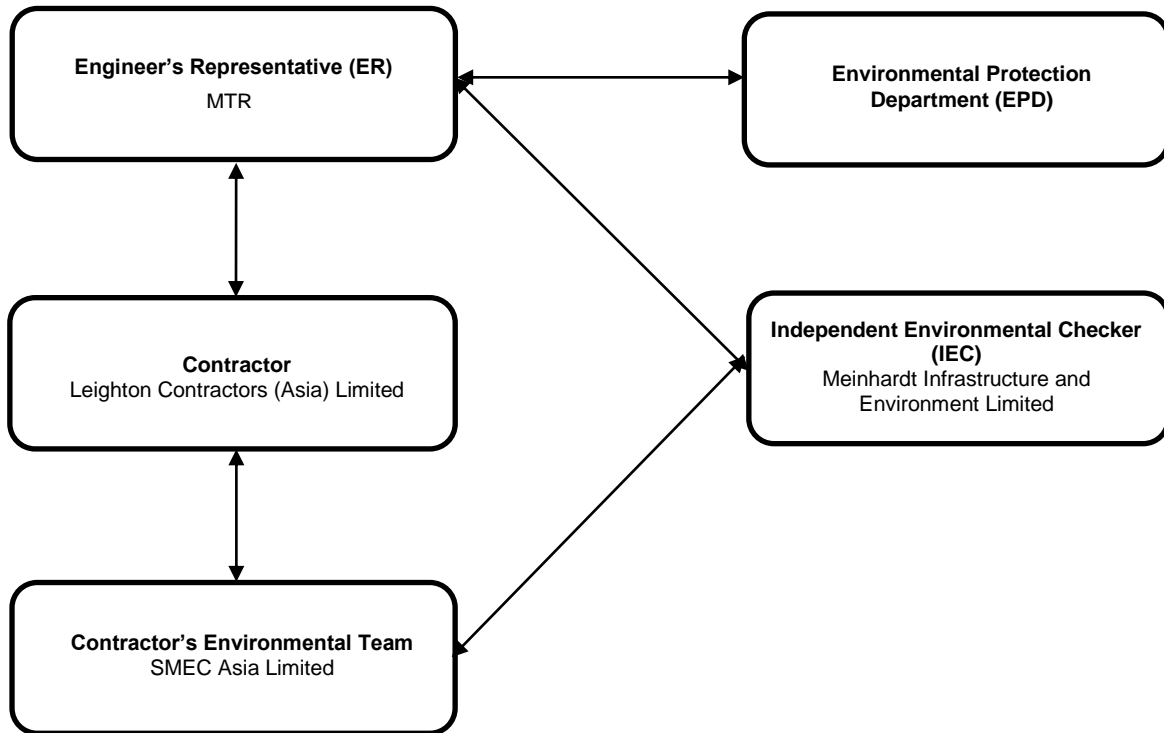
Legend:

- Start up works
- Initial earth works required
- D-wall works commencing from Guide wall construction

Note: Civil construction works commenced on 3 Jun 13

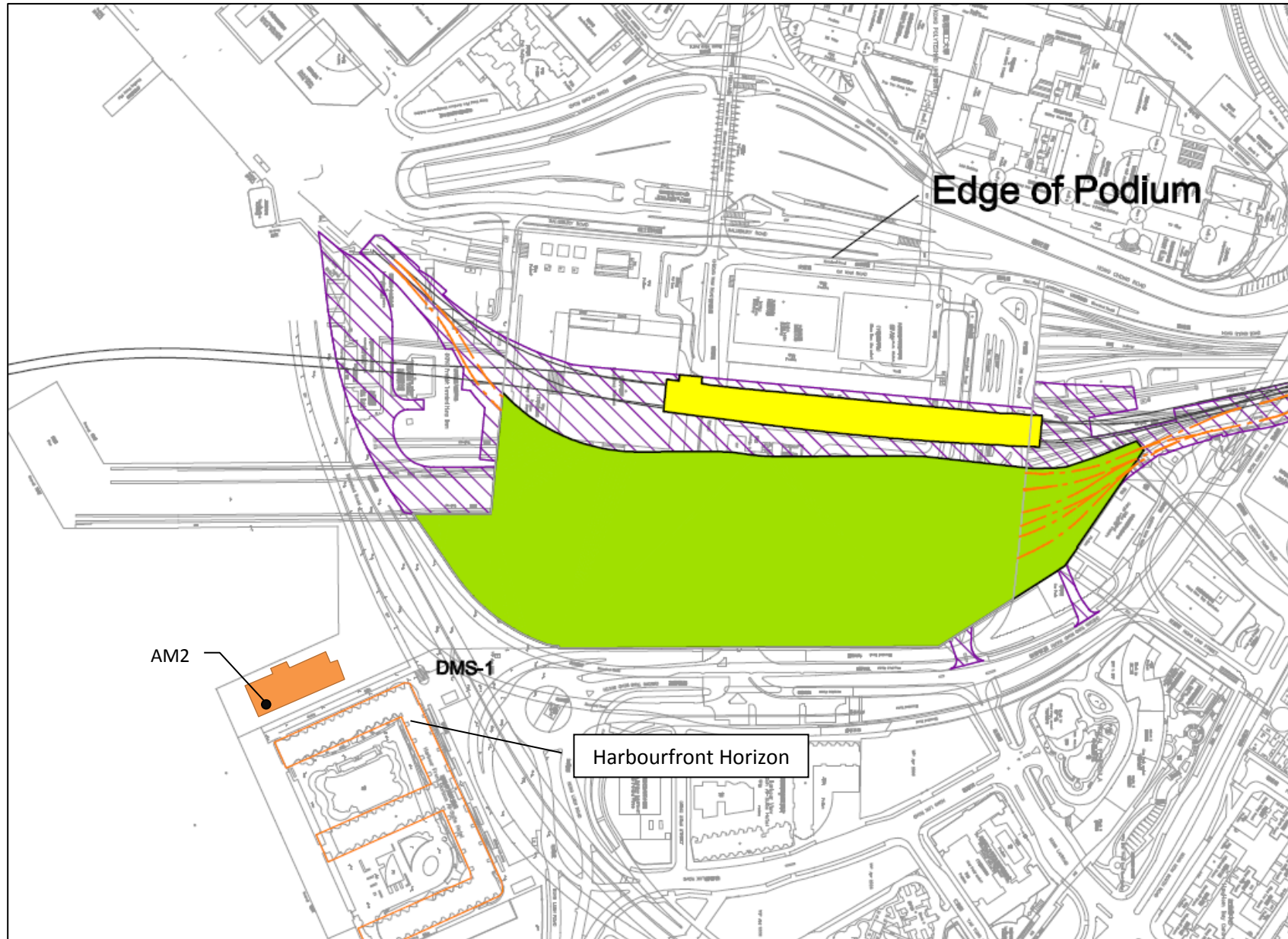
APPENDIX C

Project Organisation for Environmental Works



APPENDIX D

Location of Air Quality Monitoring Station



APPENDIX E

Calibration Certificates for Monitoring Equipment

TSP Sampler Calibration

SITE

Location: Hung Hom
 Sampler: Hunghom MTR TSP
 Serial No 694-0665
 Calibration Date: October 14, 2015
 Next Calibration Date: December 14, 2015
 Tech: Sam Wong

CONDITIONS

Barometric Pressure (in Hg): 40.02
 Temperature (deg F): 83
 Average Press. (in Hg): 40.02
 Average Temp. (deg F): 83
 Corrected Pressure (mm Hg): 1017
 Temperature (deg K): 301
 Corrected Average (mm Hg): 1017
 Average Temp. (deg K): 301

CALIBRATION ORIFICE

Make: Tisch
 Model: TE-5025A
 Serial#: 1941
 Qstd Slope: 2.10265
 Qstd Intercept: -0.00335
 Date Certified: March 24, 2015

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	11.80	1.881	60.0	69.01	Slope = 36.7239 Intercept = -0.8200 Corr. coeff.= 0.9991 # of Observations: 5
2	10.00	1.731	54.0	62.11	
3	7.80	1.529	48.0	55.20	
4	5.00	1.225	38.0	43.70	
5	3.00	0.949	30.0	34.50	


Calculations

$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta)) - b]$
 $IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$

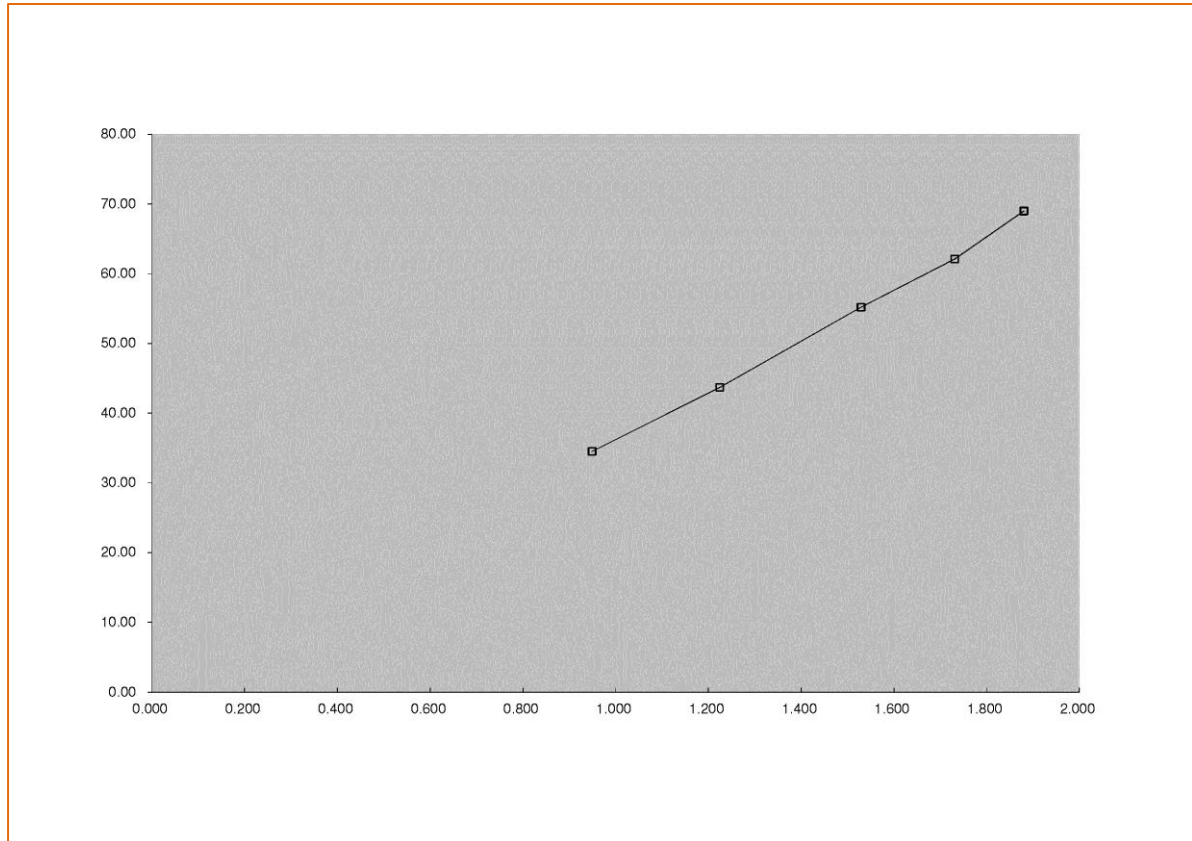
Qstd = standard flow rate
 IC = corrected chart response
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pa = actual pressure during calibration (mm Hg)
 Tstd = 298 deg K
 Pstd = 760 mm Hg
 For subsequent calculation of sampler flow:
 $1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)] - b)$

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

Reviewer: Sam Wong

Signature: 

Date: October 14, 2015





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 VILLAGE OF CLEVELAND, OH
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 877.263.7610 TOLL FREE
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ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 24, 2015 Rootmeter S/N 0438320 Ta (K) - 292
 Operator Tisch Orifice I.D. - 1941 Pa (mm) - 756.92

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4880	3.2	2.00
2	NA	NA	1.00	1.0510	6.4	4.00
3	NA	NA	1.00	0.9360	7.9	5.00
4	NA	NA	1.00	0.8920	8.8	5.50
5	NA	NA	1.00	0.7360	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0121	0.6802	1.4258	0.9958	0.6692	0.8784
1.0078	0.9589	2.0163	0.9916	0.9434	1.2422
1.0057	1.0745	2.2543	0.9895	1.0571	1.3888
1.0046	1.1262	2.3644	0.9884	1.1080	1.4566
0.9993	1.3578	2.8515	0.9832	1.3358	1.7568
Qstd slope (m) = 2.10265			Qa slope (m) = 1.31664		
intercept (b) = -0.00335			intercept (b) = -0.00206		
coefficient (r) = 0.99999			coefficient (r) = 0.99999		
y axis = SQRT [H2O (Pa/760) (298/Ta)]			y axis = SQRT [H2O (Ta/Pa)]		

CALCULATIONS

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

$$Qstd = Vstd / \text{Time}$$

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

$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

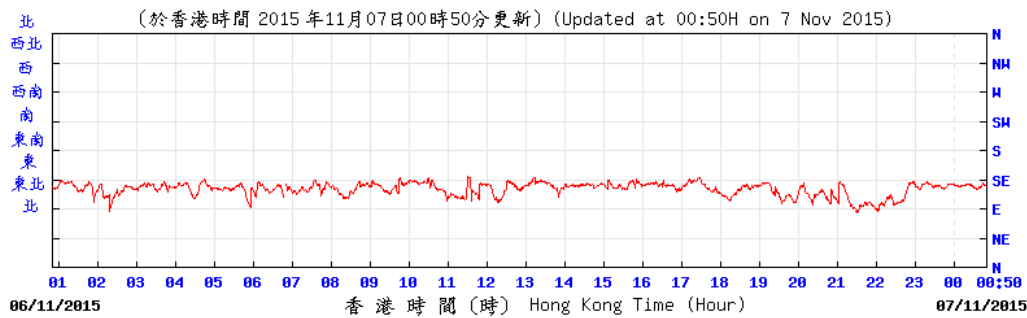
$$Qstd = 1/m \{ [\text{SQRT} (H2O (Pa/760) (298/Ta))] - b \}$$

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

Appendix F

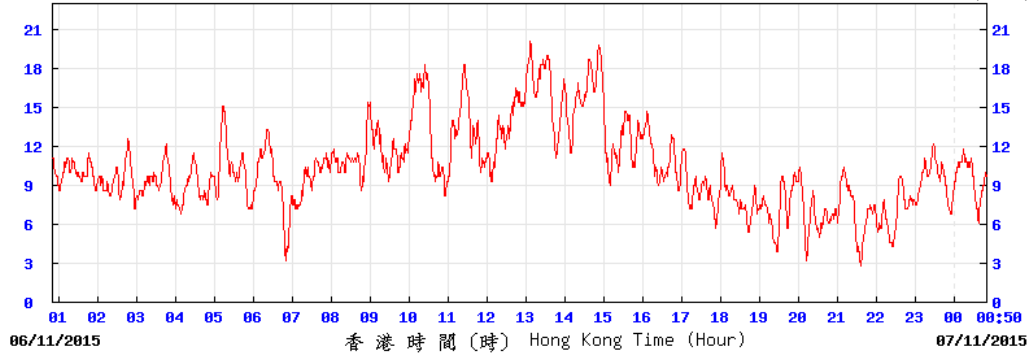
Wind Data

6 November 2015



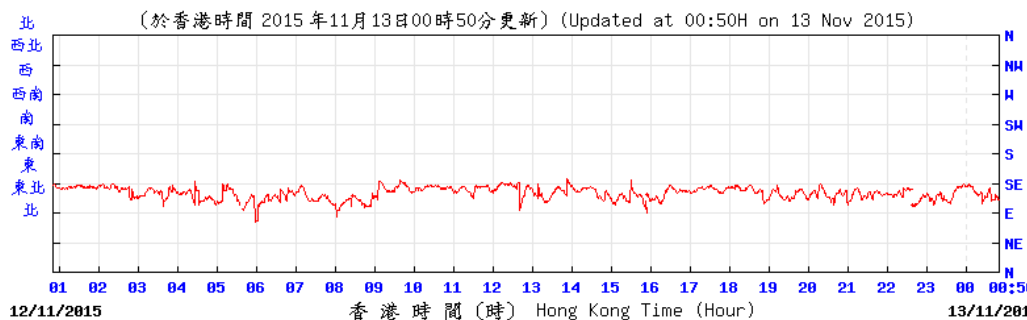
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(公里/小時) (於香港時間 2015 年11月 7日 0時50分更新) (Updated at 00:50H on 7 Nov 2015) (km/h)



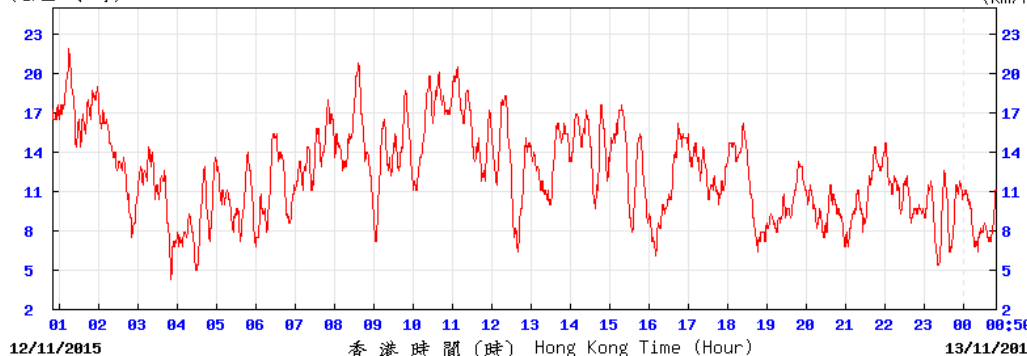
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12 November 2015



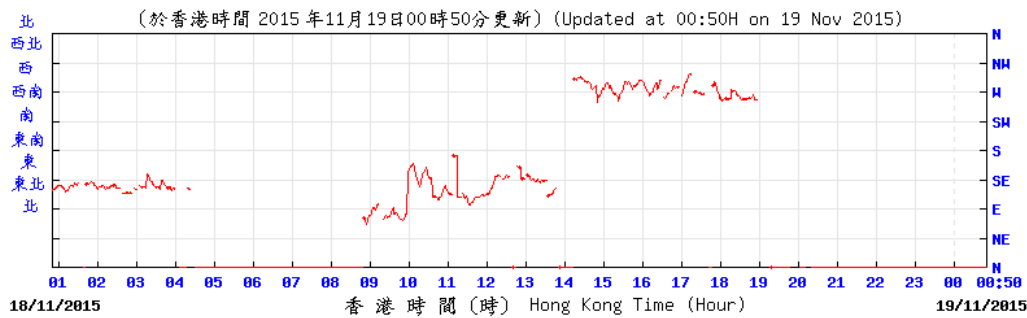
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(公里/小時) (於香港時間 2015 年11月13日 0時50分更新) (Updated at 00:50H on 13 Nov 2015) (km/h)

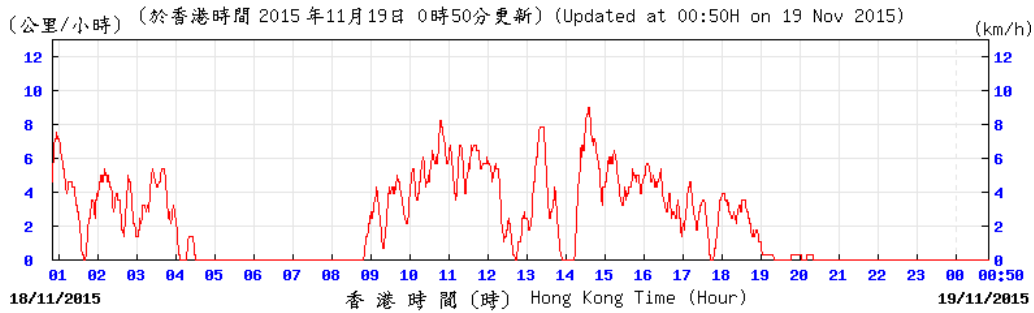


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18 November 2015

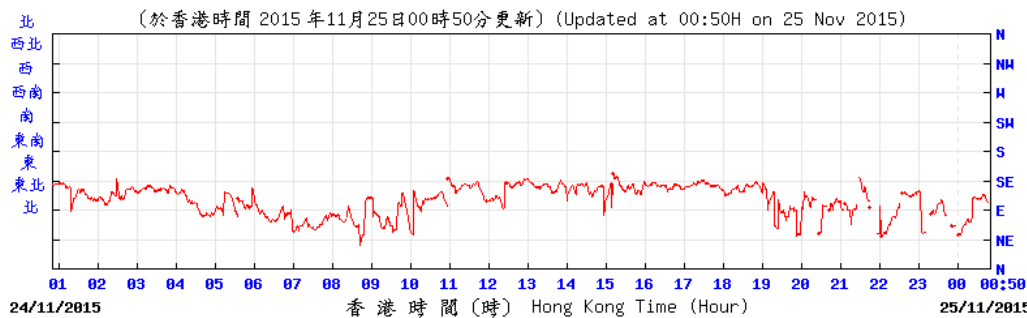


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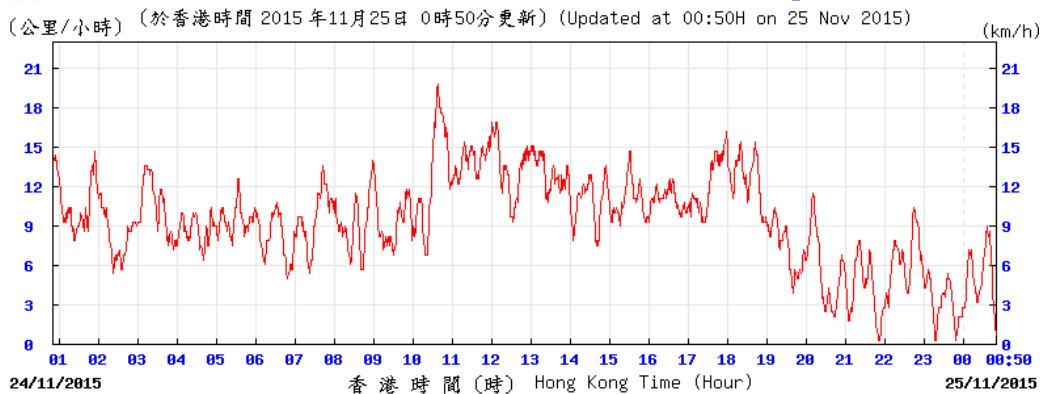


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24 November 2015

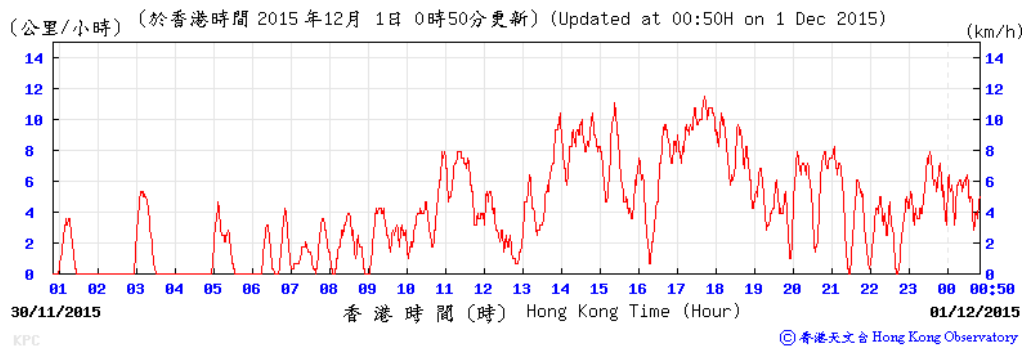
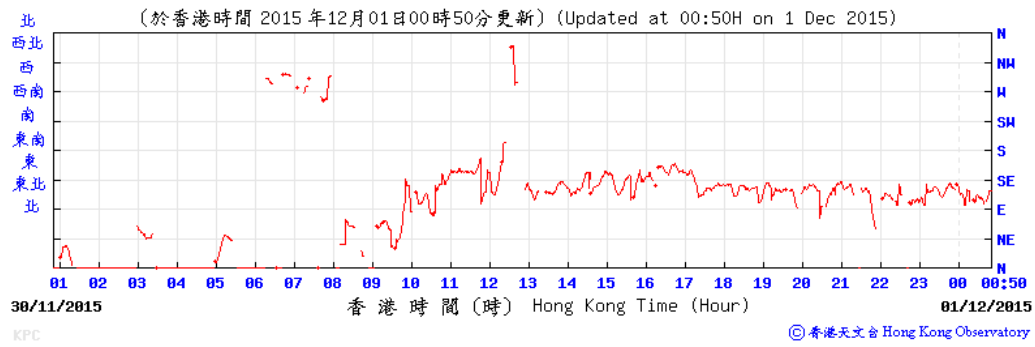


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30 November 2015



Appendix G

Environmental Monitoring Programme

Environmental Monitoring Schedule for SCL1112 in November 2015

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

Environmental Monitoring Schedule for SCL1112 in December 2015

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

APPENDIX H

Implementation Schedule of Environmental Mitigation Measures

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
Landscape & Visual (Construction Phase)							
S6.9.3 and S6.12 of Ref.1; Table 4.9 of Ref. 2; S6.12 of Ref. 3	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of existing soil</u></p> <ul style="list-style-type: none"> For soil conservation, existing topsoil will be re-used where possible for new planting areas within the project. The construction programme will consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up onsite as necessary. <p><u>No-intrusion zone</u></p> <ul style="list-style-type: none"> To maximise protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor will closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. <p><u>Protection of retained trees</u></p> <ul style="list-style-type: none"> All retained trees will be recorded photographically at the commencement of the contract, and carefully protected during the construction period. The contractor will be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor’s works sites. 	Minimise visual and landscape impact	Contractor	Within project site	Construction Stage	EIAO-TM	^ ^ ^ ^
S6.12 of Ref.1; Table 4.9 of Ref. 2; Table 6.9 of Ref. 3	<p><u>Decorative hoarding</u></p> <ul style="list-style-type: none"> Erection of decorative screen during construction stage to screen off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding will be designed to be compatible with the existing urban context. <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the facilities on the site, give control on the height and disposition/ arrangement of all facilities on the works site to minimise visual impact to adjacent VSRs. <p><u>Tree transplanting</u></p> <ul style="list-style-type: none"> Trees of medium to high survival rate that would be affected by the works will be transplanted where possible and 	Minimise the visual and landscape impact of the Project during construction phase	Contractor	Within project site	Detailed design and construction stage	EIAO-TM ETWB TCW 2/2004 ETWB TCW 3/2006	^ ^ ^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	practicable. Tree transplanting proposal including final location for transplanted trees will be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006.						
Air Quality (Construction Phase)							
N.A.	Emission from Vehicles and Plants: <ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD). 	Reduce air pollution emission from construction vehicles and plants	Contractor	All constructions sites	Construction stage	Air Pollution Control Ordinance (APCO)	^ * ^
Construction Dust Impact							
S7.6.5 of Ref. 1; S7.6.6 of Ref. 3	The contractor will follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation.	Minimise dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	APCO To control the dust impact to meet HKAQO and EIAO-TM criteria	^
S5.20, S5.21, S5.50 and Table 5.4 of Ref. 2	Barging Facility: <ul style="list-style-type: none"> Unloading of spoils to barge – the unloading process should be undertaken within a 3-sided screen with top tipping hall. Water spraying and flexible dust curtains should be provided at the discharge point for dust suppression. Transportation of the spoil from the construction sites to the Barging Point – watering once along all paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m² once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7L/m² to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the 	To minimize the construction dust impacts to the nearby sensitive receivers	Contractor	Barging point at Hung Hom Freight Pier	Construction stage	APCO	^ ^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	EM&A Manual. <ul style="list-style-type: none"> Vehicles leaving the barging facilities – vehicles would be required to pass through the wheel washing facilities to be provided at site exit. 						^
S7.6.5 of Ref. 1; S5.50 of Ref. 2; S7.6.6 of Ref. 3	Mitigation measures in form of regular watering under a good site practice will be adopted. Watering once per hour on exposed worksites and haul road will be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but will be sufficient to maintain an equivalent intensity of no less than 1.8 L/m ² to achieve the dust removal efficiency.	Minimise dust impact at the nearby sensitive receivers	Contractor	Active works areas, exposed areas and paved haul roads	Construction stage	APCO To control the dust impact to meet HKAQO and EIAO-TM criteria	*
S7.6.5 of Ref. 1; S5.51 of Ref. 2; S7.6.6 of Ref. 3	<ul style="list-style-type: none"> Any excavated or stockpile of dusty material will be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading. Any dusty materials remaining after a stockpile is removed will be wetted and cleared from the surface of roads. A stockpile of dusty material will not be extend beyond the pedestrian barriers, fencing or traffic cones. The load of dusty materials on a vehicle leaving a construction site will be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle. Where practicable, vehicle washing facilities with high pressure water jet will be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point will be paved with concrete, bituminous materials or hardcore. When there are open excavation and reinstatement works, hoarding of not less than 2.4m high will be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice will also be adopted by the contractor to ensure the conditions of the hoardings are properly maintained in construction period. The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit will be kept clear of dusty materials. Surfaces where any pneumatic or power-driven drilling, 	Minimise dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	APCO Air Pollution Control (Construction Dust) Regulation To control the dust impact to meet HKAQO and EIAO-TM criteria	^ ^ ^ ^ ^ ^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<p>cutting, polishing or other mechanical breaking operation takes place will be sprayed with water or a dust suppression chemical continuously.</p> <ul style="list-style-type: none"> Any area that involves demolition activities will be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet. Where scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting will be provided to enclose the scaffolding from the ground floor level of the building, or a canopy will be provided from the first floor level up to the highest level of the scaffolding. Any skip hoist for material transport will be totally enclosed by impervious sheeting. Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) will be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. Cement or dry PFA delivered in bulk will be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed. Loading, unloading, transfer, handling or storage of bulk cement or dry PFA will be carried out in a totally enclosed system or facility, and any vent or exhaust will be fitted with an effective fabric filter or equivalent air pollution control system. Exposed earth will be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 						<p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
S7.6.5 of Ref. 1; S5.57 of Ref. 2; S7.6.6 of Ref. 3	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Harbourfront Horizon	Construction stage	EIAO-TM APCO	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
Construction Airborne Noise							
S8.3.6 of Ref. 1; S6.61 of Ref. 2; S8.5.6 of Ref. 3	Implement the following good site practices: <ul style="list-style-type: none"> Only well-maintained plant will be operated on-site and plant will be serviced regularly during the construction programme. Machines and plant (such as trucks, cranes) that may be in intermittent use will be shut down between work periods or will be throttled down to a minimum. Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs. Silencers or mufflers on construction equipment will be properly fitted and maintained during the construction works. Mobile plant will be sited as far away from NSRs as possible and practicable. Material stockpiles, mobile container site office and other structures will be effectively utilised, where practicable, to screen noise from onsite construction activities. 	Control construction airborne noise	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	* ^ ^ ^ ^ ^
S8.3.6 of Ref. 1; S6.68 of Ref. 2; S8.5.6 of Ref. 3	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings will be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S6.64 – 6.67 and Table 6.20 of Ref. 2; S8.5.6 of Ref. 3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S6.62 – 6.63 and Table 6.19 of Ref. 2; S8.5.6 of Ref. 3	The following quiet PME should be used: <ul style="list-style-type: none"> Asphalt Paver (SWL=101dB(A)) Backhoe (SWL=106dB(A)) Backhoe with Hydraulic Breaker (SWL=110dB(A)) Concrete lorry mixer (SWL=96dB(A)) Concrete mixer truck (SWL=96dB(A)) Concrete Pump (SWL=106dB(A)) Concrete Pump Truck (SWL=106dB(A)) Crane, mobile (SWL=94dB(A)) Crawler Crane (SWL=102dB(A)) 	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<ul style="list-style-type: none"> • Drill, hand-held (SWL=98dB(A)) • Dump truck (SWL=104dB(A)) • Excavator (SWL=106dB(A)) • Flat Bed Lorry (SWL=102dB(A)) • Generator (SWL=95dB(A)) • Giken Piler and Power-pack (SWL=94dB(A)) • Hydraulic breaker (SWL=110dB(A)) • Hydraulic excavator (SWL=106dB(A)) • Lorry (SWL=102dB(A)) • Lorry with crane/ grab (SWL=94dB(A)) • Mini Piling Rig (SWL=112dB(A)) • Piling Rig (SWL=112dB(A)) • Poker, vibrator, hand-held (SWL=98dB(A)) • Road Roller (SWL=101dB(A)) • Rock Drill (SWL = 108dB(A)) • Roller (SWL = 101dB(A)) • Truck (SWL=103dB(A)) • Vibratory Hammer (SWL=118dB(A)) 						
S8.3.6 of Ref. 1; S8.5.6 of Ref. 3	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	Annex 5, EIAO-TM	^
S8.3.6 of Ref. 1; S8.5.6 of Ref. 3	Implement noise monitoring under EM&A programme.	Monitoring of construction noise impact	Contractor	Wing Fung Building	Construction stage as required by IEC	TM-EIA	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<p>vegetated areas.</p> <ul style="list-style-type: none"> Measures will be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they will be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations will be discharged into storm drains via silt removal facilities. Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ will be covered with tarpaulin or similar fabric during rainstorms. Measures will be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) will always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention will be paid to the control of silty surface runoff during storms, especially areas near steep slopes. All vehicles and plant will be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities will be provided at every construction site exit where practicable. Wash-water will have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road will be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. Oil interceptors will be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors will be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass will be provided for 						<p>#</p> <p>^</p> <p>*</p> <p>*</p> <p>^</p> <p>*</p> <p>^</p>

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<p>the oil interceptors to prevent flushing during heavy rain.</p> <ul style="list-style-type: none"> Construction solid waste, debris and rubbish on site will be collected, handled and disposed of properly to avoid water quality impacts. All fuel tanks and storage areas will be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. All the earth works involving will be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Adopt Best Management Practices. 						<p>^</p> <p>^</p> <p>^</p> <p>^</p>
S10.7.1 of Ref. 1; S10.7.1 of Ref. 3	<p><u>Tunnelling works</u></p> <ul style="list-style-type: none"> Cut-and-cover/ open-cut tunnelling work will be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Uncontaminated discharge will pass through sedimentation tanks prior to off-site discharge. The wastewater with a high concentration of SS will be treated (eg, by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It will be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) will be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 will be adhered to in the handling and disposal of bentonite slurries. 	To minimize construction water quality impact from tunnelling works	Contractor	All tunnelling portion	Construction stage	WPCO ProPECC PN1/94 EIAO-TM TM-Water	<p>^</p> <p>^</p> <p>^</p> <p>^</p>

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
S8.68 of Ref. 2; S10.7.1 of Ref. 1	<p><u>Operation of Barging Facilities</u> The following good practice shall apply for the barging facilities operations:</p> <ul style="list-style-type: none"> All barges should be fitted with tight bottom seals to prevent leakage of materials during transport; Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or transportation; All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water. Mitigation measures as outlined for control of <i>construction runoff and site drainage</i> provide above should be applied to minimise water quality impacts from site runoff and open stockpile spoils at the proposed barging facilities where appropriate. 	To minimize water quality impact from operation of barging facility	Contractor	All barging facilities	Construction stage	WPCO TM-EIA	^ ^ ^ ^ ^
S8.51 – 8.52 of Ref. 2	<p><u>Bentonite Slurries:</u></p> <ul style="list-style-type: none"> Bentonite slurries used in diaphragm wall construction should be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry should either be dewatered or mixed with inert fill material for disposal to a public filling area. If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS. 	To minimize water quality impact from bentonite slurries	Contractor	All works area	Construction stage	WPCO TM-EIA	^ ^
S8.53 – 8.54 of Ref. 2	<p><u>Wastewater from Building Construction:</u></p> <ul style="list-style-type: none"> Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as washing and general cleaning etc., can minimise water 	To minimize water quality impact from building construction	Contractor	All construction sites where practicable	Construction stage	WPCO EIAO-TM	^ N/A

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
	consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence which is under the ambit of regional office of EPD.						
S8.62 of Ref. 2	<p><u>Excavation Activities:</u></p> <ul style="list-style-type: none"> The construction programme should be properly planned to minimise soil excavation, if any, in rainy seasons. This prevents soil erosion from exposed soil surfaces. Any exposed soil surfaces should also be properly protected to minimise the potential for dust emission, increased siltation and contamination of runoff. In areas where a large amount of exposed soils exist, earth bunds or sand bags should be provided. Exposed stockpiles should be covered with tarpaulin or impervious sheets at all times. The stockpiles of materials should be placed at locations away from water environment so as to avoid releasing materials into the water bodies. Final surfaces of earthworks should be compacted and protected by permanent work. 	To minimize water quality impact from excavation activities	Contractor	All excavation works areas	Construction stage	WPCO EIAO-TM	^
S8.63 of Ref. 2	<p><u>Diaphragm Wall</u></p> <ul style="list-style-type: none"> The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be implemented to control site run-off and drainage as well as any site effluents generated from the works areas, and to prevent run-off and construction wastes from entering nearby water environment. Proper handling of bentonite slurries used in diaphragm wall construction should be adopted. 	To minimize water quality impact from diaphragm walling	Contractor	All diaphragm walling works areas	Construction stage	WPCO EIAO-TM	^
S8.60 – 8.61 of Ref. 2; S10.7.1 of Ref. 3	<p><u>Sewage effluent</u></p> <p>Portable chemical toilets are recommended for handling the construction sewage generated by the workforce. A licensed contractor will be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</p>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	WPCO TM-Water	^
S8.64 of Ref. 2; S10.7.1 of Ref. 3	<p><u>Groundwater seepage</u></p> <p>As some proposed works areas at Hung Hom are near Victoria Harbour, high ground water level regime due to both tidal effects and rainwater infiltration is anticipated. Appropriate measures will be deployed to minimise the intrusion of groundwater into excavation works areas. In case seepage of groundwater occurs, groundwater will be pumped out from the works areas and discharged into the storm system via silt</p>	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found.	Construction stage	WPCO TM-Water EIAO-TM	^

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
	removal facilities. Groundwater from dewatering process will also be discharged into the storm system via silt traps.						
S10.7.1 of Ref. 1; S8.57 – 8.59 of Ref. 2; S10.7.1 of Ref. 3	<p><u>Accidental spillage</u> To prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> • Proper storage and handling facilities will be provided. • All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. • The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. • Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	WPCO ProPECC PN1/94 EIAO-TM TM-Water	# ^ ^
S8.72 of Ref.2	Regular site inspections should be undertaken to inspect the construction activities and works areas	To ensure the recommended water quality mitigation measures are properly implemented	Contractor	All construction sites	Construction stage	EIAO-TM WPCO ProPECC PN 1/94 TM-DSS WDO	^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
Waste Management (Construction Phase)							
S11.4.1.1 of Ref. 1; S9.80 – 9.83 of Ref. 2; S11.4.1.1 of Ref.3	<p><u>Onsite sorting of C&D material</u></p> <p>Geological assessment will be carried out by competent persons onsite during excavation to identify materials which are not suitable to use as aggregate in structural concrete (eg, volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke rock will be separated at the source sites as far as practicable and stored at designated stockpile areas preventing them from delivering to crushing facilities. The crushing plant operator will also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities will be submitted by the Contractors for the Engineer to review and agree. In addition, site records will also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) ref: 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc will also be explored.</p>	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	DEVB TC(W) ref. 6/2010	^
S11.5.1 of Ref.1; S9.72 – 9.74 of Ref. 2; S11.5.1 of Ref.3	<p><u>Construction and demolition material</u></p> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement. Carry out onsite sorting. Make provisions in the Contract documents to allow and promote The use of recycled aggregates where appropriate. Adopt ‘selective demolition’ technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible. Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified. Implement an enhanced Waste Management Plan similar to ETWBTC (Works) ref 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. will be avoided. The contractor will propose the final disposal sites to the Project 	Good site practice to minimise the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	Land (Miscellaneous Provisions) Ordinance Waste Disposal Ordinance ETWB TCW Ref 19/2005	^ ^ ^ ^ ^ ^ ^

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
S11.5.1 of Ref.1; S9.84 – 9.93 of Ref. 2	<p><u>Land-based sediment</u></p> <ul style="list-style-type: none"> The basic requirements and procedures for excavated sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. The Project Proponent should agree in advance with MFC of CEDD on the site allocation. Subject to the final decision by MFC, Type 1 sediments are typically disposed to South Cheung Chau and/or East of Ninepin as open sea disposal while Type 2 sediments are disposed to East Sha Chau as confined marine disposal. Sampling and Testing Plan(s) should be prepared in accordance with ETWB TC(W) No. 34/2002. Site investigation, based on the Sediment Sampling and Testing Plan(s), should be carried out in order to confirm the disposal arrangements for the proposed excavated sediments. A Sediment Quality Report (SQR) should then be submitted to EPD for agreement prior to the tendering of the construction contract, discussing in details the site investigation, testing results as well as the delineation of each of the categories of excavated materials and the corresponding types of disposal. The excavated sediments is expected to be loaded onto the dumping trucks and transferred to the barging point where the sediments would be transported via barge to the existing designated disposal sites allocated by the MFC. The excavated sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002. Requirements of the Air Pollution Ordinance (Construction Dust) Regulation, where relevant, shall be adhered to during excavation, transportation and disposal of sediments. Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged 	To ensure the sediment is handled and disposed of in a least impacted way and in accordance to the statutory	Contractor	All construction sites	Construction stage	ETWB TC(W) NO. 34/2002 Dumping at Sea Ordinance (DASO) APCO WPCO	N/A N/A N/A N/A N/A

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<p>according to the Water Pollution Control Ordinance (WPCO).</p> <ul style="list-style-type: none"> In order to minimize the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments should be wetted during excavation / material handling and should be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In order to minimize the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. 						<p>N/A</p> <p>N/A</p> <p>N/A</p>
<p>S11.5.1 of Ref.1; S8.94 – 9.97 of Ref. 2; S11.5.1 of Ref. 3</p>	<p><u>Chemical waste</u></p> <ul style="list-style-type: none"> Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, will be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes will be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450L unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes will be clearly labelled and used solely for the storage of chemical waste; be enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; be covered to prevent rainfall entering; and be arranged so that incompatible materials are adequately separated. 	<p>Control the chemical waste and ensure proper storage, handling and disposal.</p>	<p>Contractor</p>	<p>All construction sites</p>	<p>Construction stage</p>	<p>Waste Disposal (Chemical Waste) (General) Regulation</p> <p>Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</p>	<p>^</p> <p>^</p> <p>^</p>

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<ul style="list-style-type: none"> Disposal of chemical waste will be via a licensed waste collector; and be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 						^
S9.98 – 9.99 of Ref 2	<p><u>Asbestos wastes</u></p> <ul style="list-style-type: none"> All storage of asbestos waste should be carried out properly in a secure place isolated from other substances so as to prevent any possible release of asbestos fibres into the atmosphere and contamination of other substances. The storage area should bear warning panels to alert people of the presence of asbestos waste. Collection, transportation and disposal of asbestos waste will follow the trip-ticket system. Licensed asbestos waste collectors will be appointed to collect the asbestos waste and deliver to the designated landfill for disposal. The Project Proponent should notify to EPD in advance for disposal of asbestos waste. After processing the notification, EPD will issue specific instructions and directions for disposal. The waste producer must strictly follow these directions 	To ensure the asbestos wastes are handled and disposed of in accordance with the statutory requirements	Contractor	All construction sites	Construction stage	Code of practice on the Handling, Transportation and Disposal of Asbestos Waste	^ N/A

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
Land Contamination							
S10.24 – 10.34 of Ref 2	<p><u>Precautionary measures</u></p> <ul style="list-style-type: none"> Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. The inspection process should involve a visual observation of excavated soils for discolouration and the presence of oils, together with identifying the presence of odours, which may also indicate soil and/or groundwater contamination. If soil discolouration or the presence of oil/unnatural odour is noted during visual inspection, sampling and testing should also be undertaken to verify the presence of contamination. 	To act as a general precautionary measure to screen soils for the presence of contamination during construction	Contractor	All construction sites	Construction stage	“Guidance Note for Contaminated Land Assessment and Remediation” “Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management”	^ ^
S10.35 of Ref 2	<ul style="list-style-type: none"> Potential remediation of contaminated soil If land contamination is identified, CAR and RAP detailing the proposed remediation works should be prepared. RR should then be prepared and submitted to EPD to demonstrate that the decontamination work is adequate and has been carried out in accordance with the endorsed CAR and RAP. Information such as soil treatment/disposal records (including trip tickets), confirmatory sampling results and photographs should be included in the RR. No construction work should be carried out prior to endorsement of the RR by EPD. In order to minimise environmental impacts arising from the handling of potentially contaminated materials, the following environmental precautionary measures are recommended to be utilised during the course of any required site remediation: Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; Excavation should be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; Supply of suitable clean backfill material is needed after excavation; If proposed remediation methods employ chemical oxidation methods as the contaminant mass reduction technology, chemicals will be securely and separately stored away from 	To remediate contaminated soil	Contractor	All construction sites	Construction stage	“Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards and Car Repair /Dismantling Workshop”	N/A N/A N/A N/A N/A

EIA Ref.	Recommended mitigation measures for Works Contract 1112	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for measures to achieve?	Status
	<p>sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and Personal Protective Equipment</p> <ul style="list-style-type: none"> • Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates should be sealed to prevent any discharge during transport or during wet conditions; • Speed control for the trucks carrying coVehicle wheel and body washing facilities at the site's exit points should be established and used; and contaminated materials should be enforced; • Pollution control measures for air emissions e.g. from biopile blower, noise emissions e.g. from blower, and water discharges e.g. runoff control should be implemented and complied with relevant regulations and guidelines. 						N/A
							N/A
							N/A
							N/A
S10.36 of Ref 2	<p>The Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations should be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures should be implemented as far as possible:</p> <p>Set up a list of safety measures for site workers.</p> <p>Provide written information and training on safety for site workers.</p> <p>Keep a log-book and plan showing the contaminated zones and clean zones.</p> <p>Maintain a hygienic working environment.</p> <p>Avoid dust generation.</p> <p>Provide face and respiratory protection gear to site workers.</p> <p>Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers.</p> <p>Provide first aid training and materials to site workers.</p>	To minimise the potentially adverse effects on health and safety of construction workers during the course of site remediation.	Contractor	All construction sites	Site remediation and prior to construction phase	<p>"Guidance Note for Contaminated Land Assessment and Remediation"</p> <p>"Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management"</p> <p>"Occupation Safety and Health Ordinance (Chapter 509)"</p>	N/A
EM&A Project							
S14.2 – 14.4 of Ref. 1; S13.2 – 13.4 of Ref. 3 1.	<ul style="list-style-type: none"> • An Environmental Team needs to be employed as per this EM&A Manual. • Prepare a systematic EMP to ensure effective implementation of the mitigation measures. • An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in this 	Perform environmental monitoring & auditing	Contractor	All construction sites	Construction stage	EIAO Guidance Note Ref4/2010 EIAO-TM	^

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	EM&A Manual are fully complied with.						

Remark for Status:

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

X Non-compliance of mitigation measure
 * Recommendation was made during site audit but improved/rectified by the contractor
 # Recommendation was made during site audit and improvement/rectification not yet completed by the contractor

Notes:

Ref. 1 – EIA Report for SCL (TAW-HUH)
 Ref. 2 – EIA Report for SCL (MKK-HUH)
 Ref. 3 – EIA Report for SCL (HHS)

This EMIS contains only those requirements that are relevant to Works Contract 1112 in terms of:

- EM&A required under Works Contract 1112
- Who to implement the measures – the Contractor (Leighton)
- The location of the measures – within and in the vicinity of the Works Contract 1112 Site Boundary
- When to implement the measures – during the design and construction

APPENDIX I

Event and Action Plan

Event and Action Plan for Landscape and Visual Impact Monitoring

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

Event and Action Plan for Air Quality

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

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

Event and Action Plan for Construction Noise

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

Note:

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

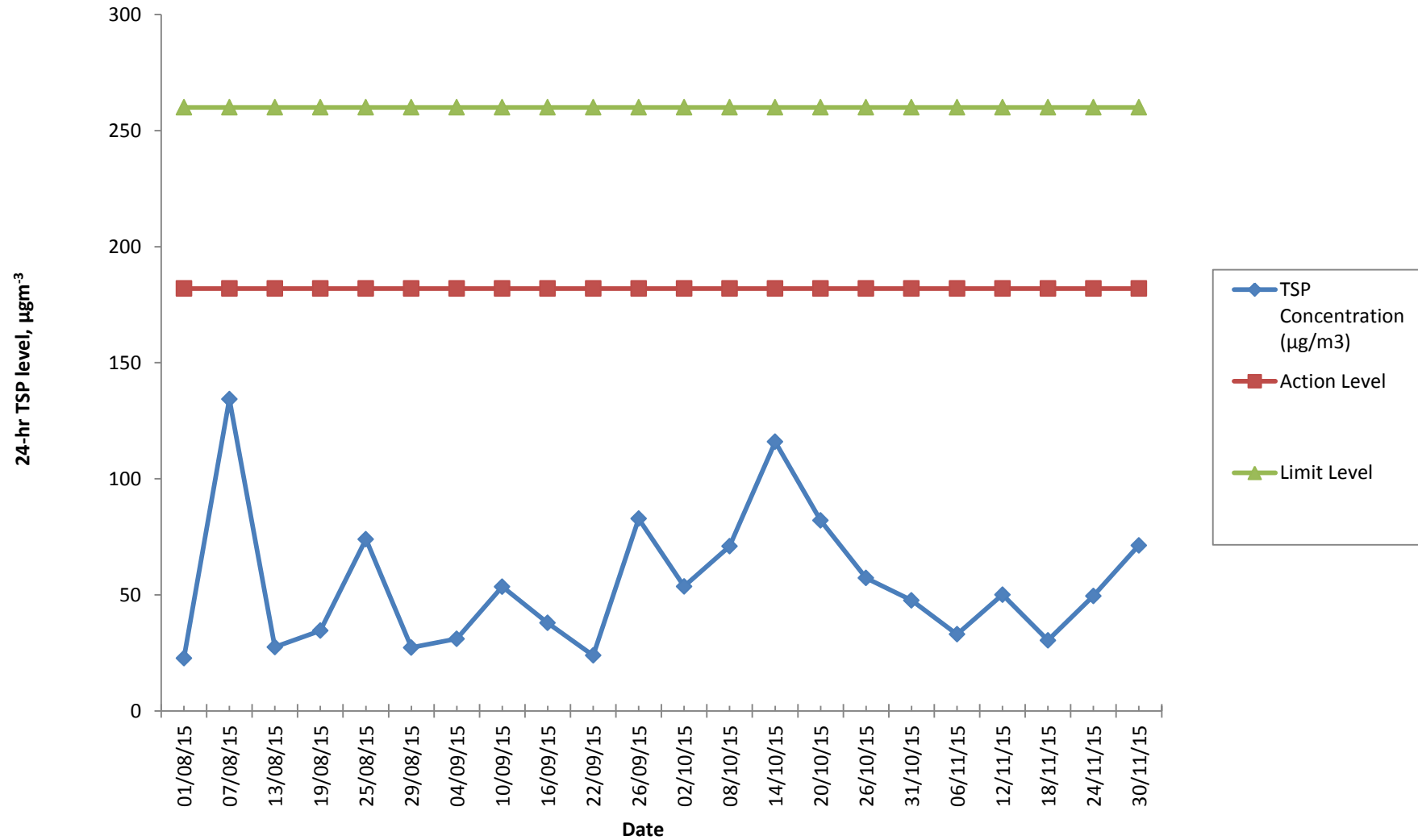
APPENDIX J

Monitoring Results and their Graphical Presentations

Air Quality Monitoring Results for AM2

Sampling Date	Wt. of paper (g)				Elapse Time			Flow Rate (CFM)			Total Volume (m ³)	TSP Concentration (µg/m ³)	Weather	Remark
	Paper No.	Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate				
06/11/15	C52	2.8483	2.9022	0.0539	13401.30	13425.30	24.00	40	40	40.0	1631.05	33.0462	Sunny	-
12/11/15	C53	2.8541	2.9358	0.0817	13425.30	13449.30	24.00	40	40	40.0	1631.05	50.0904	Rainy	-
18/11/15	C54	2.8459	2.8955	0.0496	13449.30	13473.30	24.00	40	40	40.0	1631.05	30.4099	Sunny	-
24/11/15	C82	2.9025	2.9833	0.0808	13473.30	13497.30	24.00	40	40	40.0	1631.05	49.5386	Sunny	-
30/11/15	C59	2.8516	2.9679	0.1163	13497.30	13521.30	24.00	40	40	40.0	1631.05	71.3038	Fine	-

Construction Dust Monitoring Results for AM2 (Harbourfront Horizon)



APPENDIX K

Waste Flow Table

Waste Flow Table																
Month	Actual Quantities of Inert C&D Materials Generated Monthly									Actual Quantities of non-inert C&D Wastes Generated Monthly						
	Generated				Disposed					Recycled				Disposed		
	Imported from SCL1111	Imported from SCL1121	Total Quantity Generated	Hard Rock and Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fills at HH Barging Point	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Metals	Paper/ Cardboard Packaging	Asphalt	Plastics	Chemical Waste	General Refuse	
Unit	(in '000m ³)									(in '000Kg)				(in '000Kg)	(in '000L)	(in '000Kg)
Jun-13	0		0	0	0	0	0	0	0	137.3	0	0	0	0	-	6.55
Jul-13	0		0.36	0	0	0	0	0	0.36	365.34	0	0	0	0	-	16.87
Aug-13	0		1.68	0	0	0	0.05	0	1.63	69.98	0.25	0	0	0	-	12.67
Sep-13	0		3.39	0	0	0	0.20	0	3.19	131.18	0.22	0	0.46	0	-	16.25
Oct-13	0		4.04	0	0	0	0.78	0	3.26	179.97	0.63	8.28	2.04	0	-	39.87
Nov-13	0		6.09	0	0	0	2.09	0.18	3.82	125.70	0.45	160.35	0	0	-	28.69
Dec-13	0		5.69	0	0	0	1.74	0.01	3.94	72.15	0.39	4.13	0	0	-	18.04
Jan-14	0		4.58	0	0	0	0	0.27	4.31	117.57	0.26	147.67	0.26	0	-	30.09
Feb-14	0		3.80	0	0	0.14 ^[Note1]	0	0.19	3.46	28.32	0.29	414.67	0	0	-	15.73
Mar-14	0		10.10	0	0	6.18 ^[Note2]	0	0.29	3.63	96.26	0.25	0	0	0	-	47.76
Apr-14	0		6.67	0	0	4.82 ^[Note3]	0	0.0053	1.85	75.43	0.23	1,322.39	0	0.2	-	78.63
May-14	0.52		5.77	0	0.43	2.00 ^[Note4]	0	0.12	3.65	48.86	0.28	501.45	0	0	-	66.03
Jun-14	0.47		4.56	0	0	1.73 ^[Note5]	0	0.29	2.54	42.95	0.25	0	0	0.4	-	45.97
Jul-14	0.34		8.61	0	0	2.89 ^[Note6]	0	0.87	4.84	70.99	0	0	0	0	-	40.50
Aug-14	0.20		8.57	0	0	3.56 ^[Note7]	0	0.44	4.57	227.86	0	0	0	0	-	76.93
Sep-14	0.23		11.11	0	0	5.82 ^[Note8]	0	0.23	5.06	220.85	0.29	0	0	0	-	43.01
Oct-14	0.54		12.79	0	0	6.04 ^[Note9]	0	0.06	6.69	174.82	0.71	329.16	0	0	-	97.92
Nov-14	0.93		10.63	0	0	3.78 ^[Note10]	0	0.15	6.70	163.72	0.56	376.40	0	0	-	81.91
Dec-14	3.72		8.59	0	0	2.97 ^[Note11]	0	0	5.62	385.80	0.53	166.98	0	5.4	-	130.83

Waste Flow Table																
Month	Actual Quantities of Inert C&D Materials Generated Monthly									Actual Quantities of non-inert C&D Wastes Generated Monthly						
	Generated				Disposed					Recycled				Disposed		
	Imported from SCL1111	Imported from SCL1121	Total Quantity Generated	Hard Rock and Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fills at HH Barging Point	Disposed as Public Fills at TKO137	Disposed as Public Fills at TM38	Metals	Paper/ Cardboard Packaging	Asphalt	Plastics	Chemical Waste	General Refuse	
Unit	(in '000m ³)									(in '000Kg)				(in '000Kg)	(in '000L)	(in '000Kg)
Jan-15	3.72		19.29	0	0	10.03 ^[Note12]	0	0	9.26	543.40	0.80	179.01	0	0	1.60	318.66
Feb-15	3.03		13.96	0	0	8.41 ^[Note13]	0	0	5.54	263.10	0.46	168.82	0	0	0	180.27
Mar-15	5.68		22.28	0	0	12.45 ^[Note14]	0	0	9.82	346.70	0.61	11.45	0	0	0	429.13
Apr-15	4.71		18.51	0	0	11.25 ^[Note15]	0	0.23	7.26	275.99	0.32	0	0	0	0	376.98
May-15	4.62		20.64	0	0	11.53 ^[Note16]	0	0	9.10	353.88	0.67	0	0	0	0	266.43
Jun-15	5.04		13.49	0	0	6.29 ^[Note17]	0	0	7.20	317.14	0.43	0	0	0.20	1.00	258.01
Jul-15	6.21	0.09	21.64	0	0	16.15 ^[Note18]	0	0	5.50	706.38	0.69	0	0	0	0	270.73
Aug-15	0.40	0	26.43	0	0	19.29 ^[Note19]	0	0	7.14	45.53	0.57	0	0	0	0	261.04
Sep-15	-	-	20.91	0	0	13.16 ^[Note20]	0	0	7.75	317.36	0.58	0	0	0.45	0	240.74
Oct-15	-	-	26.22	0	0	14.19 ^[Note21]	0	0	12.03	251.95	0.48	0	0	0	0	422.80
Nov-15	-	-	18.66	0	0	7.02 ^[Note22]	0	0	11.64	-	0.534	0	0	0	0	283.46
TOTAL	40.35	0.09	340.05	0	0.43	169.69	4.85	3.53	162.38	5830.27	12.90	3790.76	2.76	6.65	2.60	4213.14

Note:

- 137 m³ of the Inert C&D materials were reused in South Island Line (SIL) Project Contract 904.
- 267 m³ of the Inert C&D materials were reused in SIL Project Contract 904;
 3,998 m³ of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and
 1,912 m³ of the Inert C&D materials were reused in Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) Project Contract HY/2012/08.
- 1,728 m³ of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and
 3,088 m³ of the Inert C&D materials were reused in TM-CLKL and TMWB Project Contract HY/2012/08.
- 184 m³ of the Inert C&D materials were reused in South Island Line (SIL) Project Contract 904; and
 1814 m³ of the Inert C&D materials were reused in TM-CLKL and TMWB Project Contract HY/2012/08.

5. 1,021 m³ of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and 707 m³ of the Inert C&D materials were reused in TM-CLKL and TMWB Project Contract HY/2012/08.
6. 2,894 m³ of the Inert C&D materials were reused in TM-CLKL and TMWB Project Contract HY/2012/08.
7. 575.5m³ of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2012/08; and 2907.6 m³ of the Inert C&D materials were reused in TM-CLKL and TMWB Project Contract HY/2012/08; and 76.0 m³ of the Inert C&D materials were reused in Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West Project Contract HK/2009/08.
8. 4,905.4 m³ of the Inert C&D materials were reused in TM-CLKL and 912.3 m³ of the Inert C&D materials were reused in SIL Project Contract 904.
9. 5,522.9 m³ of the Inert C&D materials were reused in TM-CLKL and 515.9 m³ of the Inert C&D materials were reused in SIL Project Contract 904.
10. 3,774.6 m³ of the Inert C&D materials were reused in TM-CLKL.
11. 2,968.9 m³ of the Inert C&D materials were reused in TM-CLKL (HY/2012/08).
12. 9,988.1 m³ of the Inert C&D materials were reused in WENT (SITA) and 46.34 m³ of the Inert C&D materials were reused in SIL Project Contract 904.
13. 8,212.8 m³ of the Inert C&D materials were reused in WENT (SITA) and 200.9 m³ of the Inert C&D materials were reused in SIL Project Contract 904.
14. 11,757 m³ of the Inert C&D materials were reused in WENT (SITA), 23.41 m³ of the Inert C&D materials were reused in SIL Project Contract 904 and 672.78 m³ of the Inert C&D materials were reused in XRL822.
15. 10,633 m³ of the Inert C&D materials were reused in WENT (SITA) and 0.61176 m³ of the Inert C&D materials were reused in XRL822.
16. 11,533 m³ of the Inert C&D materials were reused in WENT (SITA).
17. 6,290 m³ of the Inert C&D materials were reused in WENT (SITA).
18. 16,145 m³ of the Inert C&D materials were reused in WENT (SITA).
19. 878 m³ of the Inert C&D materials were reused in WENT (SITA) and 18,415 m³ of the Inert C&D materials were reused in SCL1121.
20. 13,163 m³ of the Inert C&D materials were reused in SCL1121.
21. 14,189 m³ of the Inert C&D materials were reused in SCL1121.
22. 7,030 m³ of the Inert C&D materials were reused in SCL1121.

Marine Sediment Flow Table						
Month	Actual Quantities of Marine Dumping Monthly					
	Type 1			Type 2		
	Generated from SCL1111 ^[Note1]	Generated from SCL1112 ^[Note3]	Disposed	Generated from SCL1111 ^[Note2]	Generated from SCL1112 ^[Note4]	Disposed
Unit	(in '000m ³)			(in '000m ³)		
Jan-15	0	0	0	2.22	0.06	2.28
Feb-15	1.29	0	0.82	0	0	0
Mar-15	2.43	0	2.48	0	0	0
Apr-15	3.97	0.14	5.27	0	0	0
May-15	8.26	0.10	8.35	0	0	0
Jun-15	9.71	0.12	9.83	0	0	0
Jul-15	5.29	0	5.18	0	0	0
Aug-15	0	0	0	0	0	0
Sep-15	-	0	0	-	1.94	1.94
Oct-15	-	0.53	0.53	-	0	0
Nov-15	-	5.67	5.67	0	2.32	2.32
TOTAL	31.69	6.54	38.11	2.22	4.32	6.54

Note:

1. Type 1 Marine Sediment generated from SCL1111 will be delivered to the Barging Point at SCL1121 for disposal.
2. Type 2 Marine Sediment generated from SCL1111 will be delivered to the Barging Point at SCL1121 for disposal.
3. Type 1 Marine Sediment generated from SCL1112 will be delivered to the Barging Point at SCL1121 for disposal.
4. Type 2 Marine Sediment generated from SCL1112 will be delivered to the Barging Point at SCL1121 for disposal.

APPENDIX L

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Reference No.	Subject	Location of Concern	Status
Environmental complaints	28 September 2015	Public comment received by EPD, K01/RE/00024658-15	Complaint of general construction noise except renovation (within Restricted Hours) from construction site at Hung Hom	Harbour Plaza Metropolis, Tsim Sha Tsui	<ul style="list-style-type: none"> • A valid construction noise permit (CNP) (CNP no. GW-RN0969-15) was granted for such works from 25 September 2015 to 24 March 2016. • Noise mitigation measures were implemented at the site. • Due to the limited construction works being carried out during the evening period and most of the active construction works being carried out under the podium which had no direct line of sight from the nearest sensitive receiver, Harbour Plaza Metropolis, construction noise nuisance from Shatin to Central Link (SCL) Contract 1112 should not be anticipated. • Investigation report submitted to EPD on 3 November 2015.

Date Received	Reference No.	Subject	Location of Concern	Status
10 March 2015	Public comment received by EPD, K01/RE/00005632 -15	Complaint of malodour from Hung Hom Station (near Exit B1)	Hung Hom Station, Tsim Sha Tsui	<ul style="list-style-type: none"> • ET conducted inspection to examine the environmental performance of the site on 12 Mar 2015 • No odour was noticed by all attending parties. It was observed that excavation, predrilling, welding, box culvert construction and installation of TAM grout pipeworks were carried out at the NAT works area, located to the west and east of the footbridge • The source of malodour could not be identified • A barrier was erected on the eastern side of footbridge, with the barrier already in place on the western side of the footbridge since November 2014, so now both sides of the footbridge contain barriers to shield off any dust or odour from the site • No noticeable malodour was observed and the air quality control was found to be satisfactory according to conversation between EPD and the Contractor • Investigation Report submitted to EPD on 26 Mar 2015
7 Feb 2015	Public comment received by EPD, EPD's Ref. No. K01/RE/00003309 -15	Complaint of construction dust from the construction site at MTR Hung Hom Building, 8-8 Cheong Wan Road, Tsim Sha Tsui	MTR Hung Hom Station Building, 8-8 Cheong Wan Road	<ul style="list-style-type: none"> • ET conducted inspection to examine the environmental performance of the site on 10 Feb 2015 • No demolition works carried out inside Hung Hom Station and Freight Operation Building during the complaint period • Watering and dust screen (site enclosed with bamboo scaffold and tarpaulin sheet) were provided for the demolition work at International Mail Centre • Renovation works on-going inside the Hung Hom Station with dust mitigation measures implemented • A joint inspection was then conducted by the Contractor and EPD on 13 Feb 2015 and no adverse comment was provided by EPD • Investigation Report submitted to EPD on 23 Feb 2015

	Date Received	Reference No.	Subject	Location of Concern	Status
	11 Nov 2014	Public comment received by EPD, EPD's Ref. No. K01/RE/00028087-14	Complaint of welding smell and air nuisance other than dark smoke, from construction machine from Hung Hom Station, Tsim Sha Tsui	At footbridge between Hung Hom Station and Hung Hom Region, near Royal Peninsula	<ul style="list-style-type: none"> Barrier was erected on the side of footbridge facing the construction site ET conducted followed-up inspection of the implemented mitigation measures on 20 Nov 2014 and air quality control was found to be satisfactory Investigation Report submitted to EPD on 3 Dec 2014
	11 Nov 2014	Public comment received by EPD, EPD's Ref. No. K01/RE/00028181-14	Complaint of construction dust from Hung Hom Station, Tsim Sha Tsui	At footbridge between Hung Hom Station and Hung Hom Region, near Royal Peninsula	<ul style="list-style-type: none"> Barrier was erected on the side of footbridge facing the construction site ET conducted followed-up inspection of the implemented mitigation measures on 20 Nov 2014 and air quality control was found to be satisfactory Investigation Report submitted to EPD on 3 Dec 2014
Notification of summons	-	-	-	-	-
Successful Prosecution	-	-	-	-	-

Appendix I

**30th 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. 30

[Period from 1 to 30 November 2015]

Works Contract 1108 – Kai Tak Station and
Associated Tunnels

(December 2015)

Certified by: Goldie Fung 

Position: Environmental Team Leader

Date: 11 December 2015

Kaden – Chun Wo Joint Venture (KCJV)

Shatin to Central Link –

Contract 1108

Kai Tak Station and Associated Tunnels

Monthly Environmental Monitoring & Auditing Report for

November 2015

The Contents of this report have been certified by:



Ms. Goldie Fung
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TABLE OF CONTENT

Executive Summary	3
1 Introduction	5
1.1 Purpose of the Report	5
1.2 Structure of the Report	5
2 Project Information	7
2.1 Background	7
2.2 General Site Description	7
2.3 Construction Programme and Activities	7
2.4 Project Organization	8
2.5 Status of Environmental Licences, Notification and Permits	8
2.6 Summary of EM&A Requirements	9
3 Environmental Monitoring Requirements	10
3.1 Culture Heritage	10
3.2 Landscape and Visual	10
4 Implementation Status on Environmental Protection Requirements	11
5 Monitoring Results	12
5.1 Cultural Heritage	12
5.2 Landscape and Visual	12
5.3 Waste Management	12
6 Environmental Site Inspection	13
6.1 Site Audit	13
6.2 Implementation Status of Environmental Mitigation Measures	13
7 Environmental Non-Conformance	16
7.1 Summary of Environmental Exceedances	16
7.2 Summary of Environmental Non-Compliance	16
7.3 Summary of Environmental Complaint	16
7.4 Summary of Environmental Summon and Successful Prosecution	16
8 Future Key Issues	17
9 Conclusions and Recommendations	18
9.1 Conclusions	18
9.2 Recommendations	18

LIST OF APPENDICES

Appendix A: Site Location Plan

Appendix B: Construction Programme

Appendix C: Project Organization Chart & Contact Details

Appendix D: Buffer Zone for Lung Tsun Stone Bridge & Former Kowloon City Pier

Appendix E: Event/Action Plan for landscape & Visual During Construction Stage

Appendix F: Waste Flow Table

Appendix G: Updated Environmental Mitigation Implementation Schedule

Appendix H: Cumulative Log for Environmental Exceedance, Complaints, Notification of
Summons and Successful Prosecutions

LIST OF TABLES

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

Table 4.1: Status of Required Submissions under EP

Table 5.1: Quantities of Waste Disposed from the Project

Table 6.1: Summary Results of Site Inspections Findings

Executive Summary

This is the thirtieth 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 November 2015 to 30th November 2015.

Summary of the Construction Works undertaken during the Reporting Month

The major site activities in this reporting period were including:

- Open Cut Tunnel: Strut dismantling, SUA wall and roof concrete casting, shortcreting to cut slope, cast blinding, base slab steel fixing, wall and roof internal moulds erection.
- Cut and Cover Tunnel: roof and wall concrete casting, backfilling under reprop, water proof spraying.
- Station structure: ebar fixing and formwork erection, roof parapet beam of wall concreting, first floor concreting, sheetpile extraction.
- Mined Tunnel: Receiving Shaft backfilling, mined tunnel steel mould installation, uptrack rebar fixing.

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, a total of 55843m³ of inert C&D materials were generated, which 0m³ were disposed to the receiving facility of Contract 1108A and 55843m³ were reused in the contract. 151m³ of general refuse were generated and disposed at landfill site. 30 kg of paper, 6kg of plastic and 9090 kg of metal were sent to recyclers for recycling.

Environmental Site Inspection

Joint weekly inspections were conducted by representatives of the Contractor, Engineer and ET on 3rd, 10th, 17th and 24th November 2015. The representative of the IEC joined the site inspection on 10th November 2015. Inspection was conducted by EPD on 12th November 2015. No any comments were advised by EPD during this reporting period. Details of the audit findings and implementation status are presented in Section 6.

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

Four complaints received on in November 2015 were referred by EPD on 10th and 13th November 2015 respectively regarding mud left the site entrance near the Concorde Road affecting his driving activities and dirtying his vehicle. ET carried out the investigation on 10th and 18th November 2015 to resolve the concern.

No breaches of Action and Limits levels, non-compliance event, notification of summons and successful prosecution against the Project were received in this reporting month.

Future Key Issues

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

- Open cut tunnel: indoor wall surface painting, base slab concrete casting, steel fixing, interface shorterceting to slope, roof and wall concrete casting.

- Cut and cover tunnel: Downtrack roof and wall casting, shoring dismantling.
- Station: Adit A rebar fixing and formwork erection for staircase, Adit B formwork erection for ramp at concourse.
- Mined tunnel: Backfilling and top reprop to receiving shaft tunnel to be continued, downtrack and uptrack wall and crown construction.

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 thirtieth monthly EM&A Report which summarises the audit findings for the EM&A programme during the reporting period from 1st November 2015 to 30th November 2015.

1.2 Structure of the Report

The structure of the report is as follow:

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

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

Section 3: Environmental Monitoring Requirement – summarises the monitoring requirements and environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

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

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

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

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

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

Section 9: Conclusions and Recommendations

2 Project Information

2.1 Background

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

The construction of the SCL (TAW-HUH) and SCL (HHS) have been divided into a series of civil construction works contracts. This Works Contract 1108 covers the construction of Kai Tak Station (KAT) and the section of tunnel between KAT and Sung Wong Toi Station (SUW) plus a short section of tunnel from KAT towards Diamond Hill Station (DIH). This construction contract was awarded to Kaden – Chun Wo Joint Venture (KCJV) in April 2013.

2.2 General Site Description

The works area includes work sites in the Kai Tak New Development Area. The construction of tunnel will employ cut & cover method. The alignment and works area for the Project is shown in **Appendix A**.

2.3 Construction Programme and Activities

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

- Open Cut Tunnel: Strut dismantling, SUA wall and roof concrete casting, shortcreting to cut slope, cast blinding, base slab steel fixing, wall and roof internal moulds erection.
- Cut and Cover Tunnel: roof and wall concrete casting, backfilling under reprop, water proof spraying.
- Station structure: rebar fixing and formwork erection, roof parapet beam of wall concreting, first floor concreting, sheetpile extraction.
- Mined Tunnel: Receiving Shaft backfilling, mined tunnel steel mould installation, uptrack rebar fixing.

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/I	14/10/2015	N/A	Valid	/
Notification pursuant to Air Pollution Control (Construction Dust) Regulation				
Ref. Number 359540	16/05/2013	N/A	Valid	/
Construction Noise Permit for the Carrying Out of Percussive Piling				
N/A				
Construction Noise Permit for General Works				
GW-RE0928-15	14/09/2015	13/03/2016	Valid	/
GW-RE0688-15	14/07/2015	13/01/2016	Valid	/
GW-RE0932-15	14/09/2015	12/03/2016	Valid	/
GW-RE1066-15	27/10/2015	26/01/2016	Valid	/
GW-RE1075-15	26/10/2015	25/01/2016	Valid	/
GW-RE1077-15	27/10/2015	26/01/2016	Valid	/
GW-RE0493-15	21/05/2015	20/11/2015	Valid	/
Effluent Discharge License				
WT00020520-2014	07/01/2015	31/08/2018	Valid	/
Waste Disposal (Charges for Disposal of Construction Waste) Regulation				
Billing Account No. 7017544	07/06/2013	N/A	Valid	/
Registration of Chemical Waste Producer				
WPN 5213-286-K3069-01	09/07/2013	N/A	Valid	/

2.6 Summary of EM&A Requirements

The EM&A programme under Works Contract 1108 require regular environmental site audits. The EM&A requirements are described in the following sections, including:

- Weekly inspection for Cultural Heritage;
- Weekly inspection for Landscape and Visual;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

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

3 Environmental Monitoring Requirements

3.1 Culture Heritage

In accordance with the Environmental Permit and EM&A Manual, a buffer zone shall be maintained between both Lung Tsun Stone Bridge and Former Kowloon City Pier and SCL (TAW-HUH) works sites during the tunneling work. For Lung Tsun Stone Bridge, a horizontal distance of 25m between the bridge and the buffer boundary shall be maintained. For Former Kowloon City Pier, a vertical buffer distance of 1.8 – 2.2m from the top of the tunnel shall be maintained. The layout of the buffer zone was attached in **Appendix D**. No at-grade construction activities shall be allowed within the buffer zone. Audit shall be conducted on a weekly basis throughout the construction period for the mined tunnel section under Former Kowloon City Pier.

3.2 Landscape and Visual

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

The event/action plan for Landscape and Visual during Construction Stage is attached in **Appendix E**.

4 Implementation Status on Environmental Protection Requirements

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

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 3.4	Twenty ninth Monthly EM&A Report	13 th November 2015

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. Inert C&D materials were disposed to the receiving facility of Contract 1108A or reused in the Contract. General refuse was disposed to designated landfill site. Plastics, paper and metal were sent to recycler for recycling. Chemical waste generated was collected by licensed collector. Detail of waste management data is presented in **Appendix F**.

Table 5.1 Quantities of Waste Disposed from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/cardboard	Plastics	Metals
November 2015	0 m ³	151 m ³	0 kg	30 kg	6 kg	9090 kg

Notes:

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

According to the approved Sediment Management Plan, a portion of the excavated marine sediment, which is classified as uncontaminated Type 1 sediment and suitable for Open Sea Disposal, should be reused on site for backfilling material. The uncontaminated sediment is mixed with cement and general materials to Cement Stabilized Marine Mud (CSMM). The CSMM backfilling work has been started in September 2015. There are total 300m³ of CSMM backfilled in September 2015.

During this reporting period, CSMM backfilling work was not conducted and will be continue in coming months.

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 3rd, 10th, 17th and 24th November 2015. The representative of the IEC joined the site inspection on 13th October 2015. The details of observations during site audit can refer to Table 6.1.

Inspection was conducted by EPD on 12th November 2015. No any comments were advised by EPD during this reporting period.

6.2 Implementation Status of Environmental Mitigation Measures

According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. Updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix G**.

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

Table 6.1 Summary results of site inspections findings

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
Noise	N/A	N/A	N/A	N/A	N/A	/
Air	29 Sep 15 6, 13, 20, 27 Oct 15	Exposed stockpile was observed at Area 1.	Contractor was reminded to cover the marine mud with tarpaulin sheets for dust suppression.	Exposed stockpile at Area 1 was covered with tarpaulin sheets by contractor.	3 Nov 15	/
	27 Oct 15	Insufficient dust suppression measures were observed for rock breaking work at Area 3.	Contractor was advised to implement water spraying for dust control.	Breaking work was stopped by contractor	3 Nov 15	/
	24 Nov 15	Water spraying was missing for rock breaking work at Area 3.	Contractor was reminded to implement water spraying during rock breaking works for dust control.	Follow-up action will be inspected during next reporting month.	N/A	/
	24 Nov 15	Cement materials without enclosure was observed at Area 1.	Contractor was reminded to provide tarpaulin sheet and cover the cement for dust suppression.	Follow-up action will be inspected during next reporting month.	N/A	/
	24 Nov 15	Insufficient air mitigation measure was observed for cement mixing works at Area 2.	Contractor was reminded to provide an enclosure with 3-sides shelter and tip for dust suppression during cement mixing work.	Follow-up action will be inspected during next reporting month.	N/A	/
Water	27 Oct 15	Oil drums without secondary containment were observed at Area 1.	Contractor was advised to provide drip tray for the oil drums for prevention of chemical leakage.	Oil drum at Area 1 was removed by contractor.	3 Nov 15	/
	27 Oct 15 3 Nov 15	Soil deposition next to wheel washing bay was observed at Gate 1.	Contractor was reminded to clear and remove the soil deposition for prevent of surface run off	Soil deposition was removed by contractor.	10 Nov 15	/
	27 Oct 15	Malfunction of wastewater treatment plant was observed at Area 3.	Contractor was reminded to repair the wastewater treatment plant and ensure the wastewater treatment plant to operate normally.	Wastewater treatment plant at Area 3 was repaired and operated.	3 Nov 15	/
	27 Oct 15	Over flow of vehicle washing pool was observed at Gate 1.	Contractor was reminded to collect and pump the site water to wastewater treatment plant for further treatment.	Overflow of wheel washing pool was resolved by contractor.	3 Nov 15	/
	3 Nov 15	Uneven storage of oil drum was observed at Area 2.	Contractor was reminded to relocate the oil drum for prevention of topping and chemical leakage.	Oil drum at Area 2 was removed by contractor.	10 Nov 15	/
	10 Nov 15	Silty at wheel washing pool was observed near Gate 1.	Contractor was reminded to increase the replacement frequencies of silty water at wheel washing pool.	Silty water from wheel washing pool was removed by contractor.	17 Nov 15	/
	10 Nov 15	Insufficient mitigation measures for site water were observed at Area 2.	Contractor was reminded to divert the site water treatment plant or sedimentation tank of further treatment before	Sedimentation tank was provided to collect site water at Area 2.	17 Nov 15	/

Parameters	Date	Findings	Advice from ET	Action taken	Closing date	Remarks
			discharge into public drain.			
	17 & 24 Nov 15	Unclean haul road near wheel washing pool was observed.	Contractor was reminded to assign water truck to wash haul road and avoid earth deposition	Follow-up action will be inspected during next reporting month.	N/A	/
	17 Nov 15	Incorrect site water collection was observed at Area 2.	Contractor was reminded to review the wastewater treatment system and collect the site water for further treatment before discharging into public drain.	Site was collected and treated correctly by contractor.	24 Nov 15	/
	24 Nov 15	Oil drum without drip tray was observed at Area 3.	Contractor was advised to provide drip tray and place the oil drum inside the drip tray for prevention of chemical leakage.	Follow-up action will be inspected during next reporting month.	24 Nov 15	/
Waste / Chemical Management	27 Oct 15	Improper storage of chemical waste was observed at Area 1.	Contractor was reminded to provide a proper access for the chemical storage area.	Chemical waste at Area 1 was stored properly.	3 Nov 15	/
	17 Nov 15	Chemical waste label was missing at workshop area.	Contractor was advised to attached proper warning label for classification of chemical waste type	Chemical waste label was attached by contractor.	24 Nov 15	/
Cultural Heritage	10 Nov 15	Construction materials were observed inside the FKCP Area.	Contractor was advised to stop disposing the construction material inside FKCP Area and fence off FKCP Area	Construction materials inside the FKCP area were removed by contractor.	17 Nov 15	/
	24 Nov 15	Concreting material was observed disposing inside the FKCP area.	Contractor was advised to stop disposing the construction materials inside the FKCP area and fence off.	Follow-up action will be inspected during next reporting month.	N/A	/
Landscape and Visual	N/A	N/A	N/A	N/A	N/A	/
Permits/ Licenses	N/A	N/A	N/A	N/A	N/A	/

7 Environmental Non-Conformance

7.1 Summary of Environmental Exceedances

No breaches of Action and Limit levels were recorded in the reporting month.

7.2 Summary of Environmental Non-Compliance

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

7.3 Summary of Environmental Complaint

Four complaints received on in November 2015 were referred by EPD on 10th and 13th November 2015 respectively regarding mud left the site entrance near the Concorde Road affecting his driving activities and dirtying his vehicle. ET carried out the investigation on 10th and 18th November 2015 to resolve the concern. And, the investigation report for the complaint received in October 2015 regarding the compliance with CNP was included in **Appendix H**.

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:

- Open cut tunnel: indoor wall surface painting, base slab concrete casting, steel fixing, interface shortcreting to slope, roof and wall concrete casting.
- Cut and cover tunnel: Downtrack roof and wall casting, shoring dismantling.
- Station: Adit A rebar fixing and formwork erection for staircase, Adit B formwork erection for ramp at concourse.
- Mined tunnel: Backfilling and top reprop to receiving shaft tunnel to be continued, downtrack and uptrack wall and crown construction.

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 thirtieth monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during 1st November 2015 to 30th November 2015 in accordance with the EM&A Manual and the requirement under EP-438/2012/I.

4 nos. of environmental site inspections were carried out in this reporting month. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

Four complaints received on in November 2015 were referred by EPD on 10th and 13th November 2015 respectively regarding mud left the site entrance near the Concorde Road affecting his driving activities and dirtying his vehicle. ET carried out the investigation on 10th and 18th November 2015 to resolve the concern.

No exceedances, non-compliance event and summons/prosecution were received during the reporting period.

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

9.2 Recommendations

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

Noise Impact

- N/A

Air Quality Impact

- Cover dusty stockpile entirely with tarpaulin or spray with water to maintain exposed surface wet
- implement water spraying for breaking work
- Enclose the cement materials with tarpaulin sheets for dust suppression

- Provide 3-sides shelter with top for cement mixing work

Water Quality Impact

- Maintain the wastewater treatment facilities in proper functioning
- Provide drip tray for chemical containers
- Remove the soil deposition next to wheel washing pool at Gate 1
- Control the water level of wheel washing pool
- Provide proper storage area for chemical materials
- Increase the replacement frequencies of silty water from wheel washing pool
- Divert the site water to wastewater treatment facilities for further treatment.
- Assign water truck to wash the haul road near wheel washing pool

Chemical Management

- Provide chemical waste label for chemical waste

Waste Management

- N/A

Cultural Heritage

- Prevent any construction materials to dispose inside the FKCP area.

Appendix A – Site Location Plan



LEGEND:
 - - - - - SITE BOUNDARY

PLOT DRW: \\Site Layout Plan.dgn
 MODELNAME: E:\1008\KAI TAK STATION AND ASSOCIATED TUNNELS\Site Layout Plan.dgn
 PRINTED BY: CALVIN C 8/27/2014 8:53:35 AM
 FILENAME: E:\1008\KAI TAK STATION AND ASSOCIATED TUNNELS\Site Layout Plan.dgn

DRAWN	CC
DESIGNED	KW
CHECKED	ET
APPROVED	BW
DATE	11/AUG/2014



SHATIN TO CENTRAL LINK



TITLE
CONTRACT 1108
KAI TAK STATION AND ASSOCIATED TUNNELS
 SITE LAYOUT PLAN

SCALE
 1 : 1500 (A1)

DRAWING NO.
SITE LAYOUT PLAN

REV. A

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED
A	FIRST SUBMISSION	KW	11/08/14	BW					

DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHALL BE
 VERIFIED ON SITE.
 IN THE EVENT OF A DISCREPANCY BETWEEN THE
 DIMENSIONS SHOWN ON THIS DRAWING AND THE
 DIMENSIONS SHOWN ON ANY OTHER DRAWING,
 THIS DRAWING SHALL TAKE PRECEDENCE.
 NO REPRODUCTION OF THIS DRAWING OR ANY PART
 THEREOF IS PERMITTED WITHOUT THE WRITTEN
 CONSENT OF THE MTR CORPORATION LIMITED.

CADD REF. Site Layout Plan.dgn

Activity ID	Activity Name	Activity % Complete	Start	Finish	November				December				January				February				March	
					32				33				34				35				36	
					02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29
Contract 1108 Kai Tak Station and Associated Tunnels																						
Contractual Dates and Project Key Dates																						
Critical Dates																						
Schedule of Options																						
Latest Exercising Date																						
01108.CDO2a-ED	Option 2a - Roads L9 & L16 & Associated Works, except the works in Options 2b & 2c - Latest Exercising Date (31-Mar-15)	0%	30-Nov-15*																			
01108.CDO2b-ED	Option 2b - Landscape hardwork, irrigation facilities, softworks & pavers - Latest Exercising Date (31-Mar-15)	0%	30-Nov-15*																			
01108.CDO2c-ED	Option 2c - Establishment works of the landscape softworks in Option 2b - Latest Exercising Date (31-Mar-15)	0%	30-Nov-15*																			
01108.CDO1a-ED	Option 1a - Temporary passenger access roads within KTD & EVA above KAT- Latest Exercising Date (31-Dec-15)	0%	31-Dec-15*																			
01108.CDO1b-ED	Option 1b - Temporary passenger access road to connect Entrance D - Latest Exercising Date (31-Dec-15)	0%	31-Dec-15*																			
Specified Parts Completion of the Works (General Damages Applicable)																						
01108.CD3C	3C - Complete backfill of KAT station (Grid 12-19) & ready for EMSD/DCS contractor for laying DCS pipe (Wk.09/15, 01-Mar-15)	0%																				
01108.CD3D	3D - Complete backfill to ex. ground level of necessary station area for CLP cable lead-in (Wk.33/15, 16-Aug-15)	0%																				
IPS Milestone Dates																						
Cost Centre B - Kai Tak Station, Entrances and Adits																						
01108.MSB07b	B7 - Complete backfill to Ground Level (Week No. 33/15, 16-Aug-15)	0%																				
Cost Centre C - South Approach Tunnel																						
01108.MSC05	C5 - Complete mined tunnels included tunnel lining (Week No. 04/15, 25-Jan-15) under EI 2.2	0%																				
Cost Centre E - Option 1 - Temporary Passenger Access Road																						
01108.MSE01	E1 - Contractor's d wgs submission schedule & All permanent works Material Control Schedule approved (WN.04/16, 31-Jan-16)	0%																				
01108.MSE02	E2 - Shop drawings & material submission approved (Week No. 11/16, 20-Mar-16)	0%																				
Cost Centre F - Option 2 - CEDD Works for Roads L9 & L16 and Associated Works																						
01108.MSF01	F1 - Contractor's d wgs submission schedule & All permanent works Material Control Schedule approved (WN.33/15, 16-Aug-15)	0%																				
01108.MSF02	F2 - Shop drawings & material submission approved (Week No. 50/15, 13-Dec-15)	0%																				
Schedule of Access & Vacate Dates for Works Areas																						
Possession Dates																						
Works Areas																						
01108.ACW05	Works Area 1108.W5 (04-Jan-16)	0%	04-Jan-16*																			
Vacation Dates																						
Works Areas																						
01108.VAW08	Works Area 1108.W8 (31-Jul-15)	0%																				
01108.VAW10	Works Area 1108.W10 (31-Jul-15)	0%																				
01108.VAWA3	Works Area 1108.A3 (31-Dec-14)	0%																				
Schedule of Access Dates for Designated Contractors																						
District Cooling System																						
01108.IFDCS.1	District Cooling System - Works Areas 1108.W1 & 1108.W2 (Week No. 09/15, 01-Mar-15)	0%																				
A - Preliminaries																						
B - Kai Tak Station, Entrances and Adits																						
B1 KAT Station																						
B1.3 Station - U/G C&S Works (Below Concourse Level Soffit)																						
Metalworks, BWIC with Services and BS Works																						
01108.STN.BW12-24	GL 12~24 BWIC and BS works	90%	28-Feb-15 A	08-Dec-15																		
01108.STN.BW04-12	GL 04~12 BWIC and BS works	90%	28-Feb-15 A	05-Dec-15																		
01108.STN.BW00-04	GL 00-04 BWIC and BS works	0%	07-Dec-15	27-Jan-16																		
B1.4 Station U/G C&S Works (Concourse Level and Above)																						
Backfilling																						
Backfilling to Concourse Level																						
01108.STN.BF02-04.1	GL 02~04 Backfill and compaction, 6770 m3	90%	04-May-15 A	02-Dec-15																		
01108.STN.BF00-02.1	GL 00~02 Backfill and compaction, 4420 m3	90%	02-Jul-15 A	01-Dec-15																		
Backfilling to Lower Ground Level																						
01108.STN.BF14-16.2	GL 14~16 Backfill and compaction, 9710 m3	65%	04-May-15 A	11-Dec-15																		
01108.STN.BF16-19.2	GL 16~19 Backfill and compaction, 9710 m3	50%	01-Jun-15 A	16-Dec-15																		
01108.STN.BF19-21.2	GL 19~21 Backfill and compaction, 9400 m3	50%	11-Jun-15 A	16-Dec-15																		

▲ Milestone
 ▲ Critical Milestone
 ■ Critical Remaining Work
 ■ Remaining Work
 ■ Remaining Level of Effort
 — PMP Rev F
 ▨ Last Report
 ■ Actual Work

Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (November 2015)



Activity ID	Activity Name	Activity % Complete	Start	Finish	November					December					January					February				March	
					32					33					34					35				36	
					02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29	07		
01108.STN.BF00-02.2	GL 00~02 Backfill and compaction, 5490 m3	80%	06-Oct-15 A	03-Dec-15																					
Backfilling to Finish Ground Level																									
01108.STN.BF12-14.3	GL 12~14 Backfill and compaction, 8240 m3	90%	03-Mar-15 A	02-Dec-15																					
01108.STN.BF10-12.3	GL 10~12 Backfill and compaction, 8240 m3	95%	03-Mar-15 A	01-Dec-15																					
01108.STN.BF06-08.3	GL 06~08 Backfill and compaction, 8240 m3	90%	03-Mar-15 A	02-Dec-15																					
01108.STN.BF14-16.3	GL 14~16 Backfill and compaction, 8240 m3	60%	08-Apr-15 A	12-Dec-15																					
01108.STN.BF16-19.3	GL 16~19 Backfill and compaction, 8240 m3	50%	18-Apr-15 A	16-Dec-15																					
01108.STN.BF19-21.3	GL 19~21 Backfill and compaction, 7840 m3	75%	08-Jul-15 A	08-Dec-15																					
01108.STN.BF04-06.3	GL 04~06 Backfill and compaction, 8240 m3	80%	30-Jul-15 A	05-Dec-15																					
01108.STN.BF21-24.3	GL 21~24 Backfill and compaction, 7970 m3	60%	03-Aug-15 A	12-Dec-15																					
01108.STN.BF00-02.3	GL 00~02 Backfill and compaction, 6040 m3	55%	03-Oct-15 A	10-Dec-15																					
01108.STN.BF02-04.3	GL 02~04 Backfill and compaction, 7240 m3	65%	03-Oct-15 A	07-Dec-15																					
01108.MSB07bP	Completion of Station backfill and compaction for outside works - Programmed	0%		10-Dec-15																					
01108.CD3DP	Completion of Station backfill to ex. ground level of necessary atation for CLP cable lead-in - Programmed	0%		16-Dec-15																					
01108.IFDCS.1P	District Cooling System - WorksAreas 1108.W1 & 1108.W2 (01-Mar-15) - Programmed	0%		16-Dec-15																					
01108.CD3CP	Complete backfill of KAT station (Grid 12-19) for EMSD/DCS contractor for DCS pipe laying - Programmed	0%		16-Dec-15																					
Water Tanks & CLP Transformer Rooms																									
CLP Transformer Rooms																									
01108.STN.CP210	CLP Transformer Rooms 3~6 - ABWF Works	30%	02-Nov-15 A	27-Apr-16																					
01108.STN.CP220	CLP Transformer Rooms 1~2 - ABWF Works	5%	30-Nov-15 A	21-Jun-16																					
01108.STN.CP010	CLP Transformer Rooms 3~6 (GL 17-21/B-D) and Dedicated Access 2 (and LV Switch Room) - Walls, etc.	0%	30-Nov-15	02-Mar-16																					
01108.STN.CP020	CLP Transformer Rooms 1~2 (GL A1-A2/1-4) and Dedicated Access 1 (and LV Switch Room)- Walls, etc.	0%	10-Dec-15	24-Feb-16																					
01108.STN.CP110	CLP Transformer Rooms 3~6 - BS Works	0%	19-Jan-16	16-Apr-16																					
01108.STN.CP120	CLP Transformer Rooms 1~2 - BS Works	0%	25-Feb-16	25-Apr-16																					
Metalworks, BWIC with Services and BS Works																									
01108.STN.BW120	KAT Concourse level - BWIC with services	50%	15-Jul-15 A	29-Dec-15																					
01108.STN.BW130	KAT Concourse level - BS works	50%	15-Jul-15 A	29-Dec-15																					
01108.STN.BW110	KAT Concourse level - Elect hoisting beams, 5.99t	50%	29-Sep-15 A	29-Dec-15																					
01108.STN.BW220	KAT Concourse level - BWIC with services	0%	30-Nov-15	13-Jan-16																					
01108.STN.BW230	KAT Concourse level - BS works	0%	30-Nov-15	13-Jan-16																					
B1.5 Station - A/G C&S Works (Vent Shaft)																									
Northern Vent Shaft																									
01108.STN.NS010	Suspended slabs and beams	95%	01-Jun-15 A	02-Dec-15																					
01108.STN.NS020	External walls, columns and walls	95%	29-Jun-15 A	02-Dec-15																					
01108.STN.NS030	Drainage	0%	02-Dec-15	02-Jan-16																					
Souther Vent Shaft																									
01108.STN.SS010	Suspended slabs and beams	0%	10-Dec-15	04-Feb-16																					
01108.STN.SS020	External walls, columns and walls	0%	24-Dec-15	22-Feb-16																					
01108.STN.SS030	Drainage	0%	05-Feb-16	07-Mar-16																					
B1.6 Station - Station - A/G C&S Works (Entrance D & DEE)																									
Entrance D																									
01108.STN.ED030	Drainage	0%	30-Nov-15	29-Dec-15																					
01108.STN.ED040	Metal works	0%	10-Dec-15	24-Feb-16																					
Designated Emergency Entrance (DEE)																									
01108.STN.DE010	Suspended slabs and beams	30%	03-Aug-15 A	23-Dec-15																					
01108.STN.DE020	External walls, columns and walls	0%	30-Nov-15	06-Jan-16																					
01108.STN.DE030	Drainage	0%	14-Dec-15	06-Jan-16																					
B1.7 Station - ABWF Works (Below Concourse Level Soffit)																									
ABWF Works - Degree 1 of Completion																									
01108.STN.CD4A1P3a	KAT Platform level - GL 4~1 Degree 1 of completion - Blockwork, partition wall, plastering, finish, staircase, etc.	95%	28-Feb-15 A	02-Dec-15																					
ABWF Works - Degree 2 of Completion																									
01108.STN.CD4A2P3a	KAT Platform level - GL 4~1 Degree 2 of completion - Door, wall & ceiling frame/support, strut. steel, finish, fixture, etc.	95%	02-Jun-15 A	03-Dec-15																					
01108.STN.CD4A2P2a	KAT Platform level - GL 12~4 Degree 2 of completion - Door frame, m. staircase, strut. steel, fixture, etc.	95%	03-Aug-15 A	02-Dec-15																					
01108.STN.CD4A2P1a	KAT Platform level - GL 24~12 Degree 2 of completion - Door frame, m. staircase, strut. steel, fixture, etc.	95%	03-Aug-15 A	02-Dec-15																					
01108.CD4A2P	KAT Platform level - Degree 2 of completion (Week No. 33/15, 16-Aug-15) - Programmed	0%		27-Jan-16																					

- Milestone
- Critical Milestone
- Critical Remaining Work
- Remaining Work
- Remaining Level of Effort
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- Last Report
- Actual Work

Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (November 2015)



Activity ID	Activity Name	Activity % Complete	Start	Finish	November				December				January				February				March		
					32				33				34				35				36		
					02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29	07
ABWF Works - Degree 3 of Completion																							
01108.STN.CD4A3P1a	KAT Platform level GL 24~12 Degree 3 of completion - Int.&ext. to ceiling/ wall/ floor finish, incl.lift lobby, etc.	5%	03-Oct-15 A	25-Jan-16																			
01108.STN.CD4A3P2a	KAT Platform level GL 12~4 Degree 3 of completion - Int.&ext. to ceiling/ wall/ floor finish, incl.lift lobby, etc.	10%	07-Oct-15 A	22-Jan-16																			
01108.STN.CD4A3P3a	KAT Platform level GL 4~1 Degree 3 of completion - Int.&ext. to ceiling/ wall/ floor finish, incl.lift lobby, etc.	5%	11-Nov-15 A	25-Apr-16																			
01108.STN.CD4A3P1b	KAT Platform level GL 24~12 Degree 3 of completion - Glazing, permanent door, ironmongery, etc.	0%	25-Jan-16	24-Mar-16																			
01108.STN.CD4A3P2b	KAT Platform level GL 12~4 Degree 3 of completion - Glazing, permanent doors, ironmongery, etc.	0%	11-Feb-16	12-Apr-16																			
B1.8 Station - ABWF Works (Concourse Level and Above)																							
ABWF Works - Degree 1 of Completion																							
01108.STN.CD4B1P1a	KAT Concourse level, exclude 4G - GL 24~12 Degree 1 of completion - Blockwork, partition wall, plastering, etc.	75%	10-Feb-15 A	16-Dec-15																			
01108.STN.CD4B1P2a	KAT Concourse level, exclude 4G - GL 12~4 Degree 1 of completion - Blockwork, partition wall, plastering, etc.	75%	10-Feb-15 A	16-Dec-15																			
01108.STN.CD4B1P3a	KAT Concourse level, exclude 4G - GL 4~1 Degree 1 of completion - Blockwork, part.wall, plastering, finish, staircase, etc.	30%	03-Oct-15 A	20-Jan-16																			
01108.STN.CD4B1P1b	KAT Concourse level, exclude 4G - GL 24~12 Degree 1 of completion - E&M opening, finish, staircase, shaft&pit, etc.	0%	17-Dec-15	02-Mar-16																			
01108.STN.CD4B1P2b	KAT Concourse level, exclude 4G - GL 12~4 Degree 1 of completion - E&M opening, finish, staircase, shaft&pit, etc.	0%	04-Jan-16	16-Mar-16																			
B1.9 Station- ABWF Works (A/G Vent Shaft)																							
01108.STN.VS110	Floor finishes	0%	02-Dec-15	29-Feb-16																			
01108.STN.VS120	Wall finishes	0%	28-Dec-15	23-Mar-16																			
01108.STN.VS130	Ceiling finishes	0%	02-Feb-16	03-May-16																			
B1.10 Station - ABWF (A/G Entrance D & DEE)																							
01108.STN.ED060	Escalators - ABWF Works	0%	17-Dec-15	02-Mar-16																			
01108.STN.DE060	Lift - ABWF Works	0%	07-Jan-16	19-Mar-16																			
01108.STN.ED070	E&M Works for Escalators installation	0%	25-Jan-16	11-Apr-16																			
01108.STN.DE070	E&M Works for Lift installation	0%	04-Feb-16	21-Apr-16																			
B2 Entrance A, Adit & SEE																							
B2.1 Entrance A, Adit & SEE - Excavation																							
Temporary Works																							
01108.STN.DN04.3.2	Entrance A & SEE - Design Revision, if required, & Submit to RDO/ BD/ GEO	0%	30-Nov-15	31-Dec-15																			
01108.STN.DN04.3.3	Entrance A & SEE - Design No-adverse-comment by RDO/ BD/ GEO	0%	02-Jan-16	05-Feb-16																			
Excavation																							
01108.STN.EX610	Excavation, 4000 m3 for Adit & See	85%	21-May-15 A	01-Dec-15																			
B2.2 Entrance A, Adit & SEE - C&S Works																							
Entrance A, Adit and SEE																							
01108.STN.EA70	Suspended slabs and beams for Adit & See	95%	01-Apr-15 A	02-Dec-15																			
01108.STN.EA80	External walls, columns and walls for Adit & See	80%	25-May-15 A	08-Dec-15																			
01108.STN.EA90	Metal works and finishes for Adit & See	0%	30-Nov-15	25-Feb-16																			
01108.STN.EA100	Drainage for Adit & See	0%	30-Nov-15	12-Jan-16																			
01108.STN.PF610	Backfill and compaction, 3165 m3 for Adit & See	0%	13-Jan-16	25-Feb-16																			
01108.STN.EA060	DCS Pipe Installation	0%	26-Feb-16*																				
B3 Entrance B and Adit																							
B3.1 Entrance B and Adit - C&S Works																							
Entrance B and Adit																							
01108.STN.EB040	External walls, columns and walls	90%	02-Mar-15 A	05-Dec-15																			
01108.STN.EB020	Adit at roof level	85%	01-Jun-15 A	09-Dec-15																			
01108.STN.EB030	Suspended slabs and beams	30%	02-Oct-15 A	20-Jan-16																			
01108.STN.EB050	Drainage	0%	07-Dec-15	13-Jan-16																			
01108.STN.EB060	Metal works and finishes	0%	14-Jan-16	14-Apr-16																			
B3.2 Entrance B and Adit - ABWF Works																							
Entrance B and Adit																							
01108.STN.EB110	ABWF Works	0%	14-Jan-16	30-Mar-16																			
C - South Approach Tunnel																							
C1 Open Cut Tunnels (U=341m; D=340m)																							
C1.2 Excavation																							
C1.2.2 Temporary Works																							
Temporary Works Design & Approval																							
01108.OCT.DN06.2.3	Open Cut (CH 99222 to 99257, Interface with C1109) - Design - No-adverse-comment by RDO/ BD/ GEO	90%	24-Apr-15 A	02-Dec-15																			
Dewatering and Observation Wells																							

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Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (November 2015)



Activity ID	Activity Name	Activity % Complete	Start	Finish	November				December				January				February				March		
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					02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29	07
01108.OCT.DW0020	Ch 99080 to Ch 99185 Dewatering operations & maintenance, additional 21 nos. 4" submersible pumps	10%	30-Apr-14 A	20-Mar-17	[Gantt bar: 30-Apr-14 A to 20-Mar-17]																		
01108.OCT.DW0030	Ch 99185 to Ch 99218 Dewatering operations & maintenance, additional 13 nos. 4" submersible pumps	55%	01-Nov-14 A	11-Jul-16	[Gantt bar: 01-Nov-14 A to 11-Jul-16]																		
C1.3 C&S Works																							
Tunnel Construction CH 98975 to CH99217																							
Base Slabs																							
01108.OCT.TS9185	CH 99164~99185 Base slabs, 2 x 2 x 10.5mL	50%	10-Nov-15 A	08-Dec-15	[Gantt bar: 10-Nov-15 A to 08-Dec-15]																		
01108.OCT.TS9206	CH 99185~99206 Base slabs, 2 x 2 x 10.5mL	0%	09-Dec-15	29-Dec-15	[Gantt bar: 09-Dec-15 to 29-Dec-15]																		
01108.OCT.TS9217	CH 99206~99217 Base slabs, 2 x 10.5mL	0%	30-Dec-15	18-Jan-16	[Gantt bar: 30-Dec-15 to 18-Jan-16]																		
Walls & Top Slabs																							
01108.OCT.TR9185	CH 99164~99185 Wall & top slabs, 2 x 2 x 10.5mL	0%	09-Dec-15	04-Jan-16	[Gantt bar: 09-Dec-15 to 04-Jan-16]																		
01108.OCT.TR9206	CH 99185~99206 Wall & top slabs, 2 x 2 x 10.5mL	0%	05-Jan-16	27-Jan-16	[Gantt bar: 05-Jan-16 to 27-Jan-16]																		
01108.OCT.TR9217	CH 99206~99217 Wall & top slabs, 2 x 10.5mL	0%	28-Jan-16	18-Feb-16	[Gantt bar: 28-Jan-16 to 18-Feb-16]																		
Internal C&S Works																							
01108.OCT.IC9059	CH 99038~99059 Track level concrete works & finishes	90%	28-Jul-14 A	30-Nov-15	[Gantt bar: 28-Jul-14 A to 30-Nov-15]																		
01108.OCT.IC9080	CH 99059~99080 Track level concrete works & finishes	100%	15-Jul-15 A	30-Nov-15	[Gantt bar: 15-Jul-15 A to 30-Nov-15]																		
01108.OCT.IC9164	CH 99143~99164 Track level concrete works & finishes	80%	15-Jul-15 A	01-Dec-15	[Gantt bar: 15-Jul-15 A to 01-Dec-15]																		
01108.OCT.IC9185	CH 99164~99185 Track level concrete works & finishes	40%	14-Aug-15 A	05-Dec-15	[Gantt bar: 14-Aug-15 A to 05-Dec-15]																		
01108.OCT.IC8966	CH 98975~98996 Track level concrete works & finishes	0%	30-Nov-15	12-Dec-15	[Gantt bar: 30-Nov-15 to 12-Dec-15]																		
01108.OCT.IC9017	CH 98996~99017 Track level concrete works & finishes	0%	14-Dec-15	24-Dec-15	[Gantt bar: 14-Dec-15 to 24-Dec-15]																		
01108.OCT.IC9038	CH 99017~99038 Track level concrete works & finishes	0%	28-Dec-15	08-Jan-16	[Gantt bar: 28-Dec-15 to 08-Jan-16]																		
01108.OCT.IC9206	CH 99185~99206 Track level concrete works & finishes	0%	29-Feb-16	10-Mar-16	[Gantt bar: 29-Feb-16 to 10-Mar-16]																		
Waterproofing Works																							
01108.OCT.WP9185	CH 99164~99185 2-coat spray, 75mm screed & 75mm m b c kworks, 2 x 2 x 10.5mL	40%	05-Nov-14 A	10-Dec-15	[Gantt bar: 05-Nov-14 A to 10-Dec-15]																		
01108.OCT.WP9164	CH 99143~99164 2-coat spray, 75mm screed & 75mm m b c kworks, 2 x 2 x 10.5mL	65%	08-Nov-14 A	05-Dec-15	[Gantt bar: 08-Nov-14 A to 05-Dec-15]																		
01108.OCT.WP9017	CH 98996~99017 2-coat spray, 75mm screed & 75mm m b c kworks, 2 x 2 x 10.5mL	75%	09-Jun-15 A	03-Dec-15	[Gantt bar: 09-Jun-15 A to 03-Dec-15]																		
01108.OCT.WP8996	CH 98975~98996 2-coat spray, 75mm screed & 75mm m b c kworks, 2 x 2 x 10.5mL	50%	25-Jun-15 A	08-Dec-15	[Gantt bar: 25-Jun-15 A to 08-Dec-15]																		
01108.OCT.WP9206	CH 99185~99206 2-coat spray, 75mm spray & 75mm blockworks, 2 x 2 x 10.5mL	0%	29-Feb-16	17-Mar-16	[Gantt bar: 29-Feb-16 to 17-Mar-16]																		
Drainage																							
01108.OCT.DR9227	CH 98975~99217 U-channel, pipe laying, catch pits	0%	23-Jan-16	09-Apr-16	[Gantt bar: 23-Jan-16 to 09-Apr-16]																		
Tunnel Construction CH 99217 to CH 99257 (Interface with C1109)																							
Base Slabs																							
01108.OCT.TS9257	CH 99238~99257 Base slabs, 2 x 2 x 9.82mL	0%	30-Nov-15	19-Dec-15	[Gantt bar: 30-Nov-15 to 19-Dec-15]																		
01108.OCT.TS9238	CH 99217~99238 Base slabs, 2 x 2 x 10.5mL	0%	19-Jan-16	06-Feb-16	[Gantt bar: 19-Jan-16 to 06-Feb-16]																		
Wall & Top Slabs																							
01108.OCT.TR9257	CH 99238~99257 Wall & top slabs, 2 x 2 x 9.82mL	0%	21-Dec-15	09-Jan-16	[Gantt bar: 21-Dec-15 to 09-Jan-16]																		
01108.OCT.TR9238	CH 99217~99238 Wall & top slabs, 2 x 2 x 10.5mL	0%	11-Feb-16	29-Feb-16	[Gantt bar: 11-Feb-16 to 29-Feb-16]																		
Waterproofing Works																							
01108.OCT.WP9257	CH 99238~99257 2-coat spray, 75mm screed & 75mm m b c kworks, 2 x 2 x 9.82mL	0%	05-Jan-16	12-Jan-16	[Gantt bar: 05-Jan-16 to 12-Jan-16]																		
Backfill and Compaction																							
Backfill and Compaction Works CH 98975 to CH 99217																							
Formation Level to Finish Ground Level																							
01108.OCT.BF9143	CH 99122~99143 Backfill and compaction	60%	23-Jan-15 A	12-Dec-15	[Gantt bar: 23-Jan-15 A to 12-Dec-15]																		
01108.OCT.BF9122	CH 99101~99122 Backfill and compaction	75%	03-Feb-15 A	07-Dec-15	[Gantt bar: 03-Feb-15 A to 07-Dec-15]																		
01108.OCT.BF9059	CH 99038~99059 Backfill and compaction	60%	31-Mar-15 A	11-Dec-15	[Gantt bar: 31-Mar-15 A to 11-Dec-15]																		
01108.OCT.BF9101	CH 99080~99101 Backfill and compaction	60%	31-Mar-15 A	12-Dec-15	[Gantt bar: 31-Mar-15 A to 12-Dec-15]																		
01108.OCT.BF9080	CH 99059~99080 Backfill and compaction	60%	31-Mar-15 A	11-Dec-15	[Gantt bar: 31-Mar-15 A to 11-Dec-15]																		
01108.OCT.BF9038	CH 99017~99038 Backfill and compaction	50%	24-Jun-15 A	15-Dec-15	[Gantt bar: 24-Jun-15 A to 15-Dec-15]																		
01108.OCT.BF8996	CH 98975~98996 Backfill and compaction	10%	10-Oct-15 A	02-Jan-16	[Gantt bar: 10-Oct-15 A to 02-Jan-16]																		
01108.OCT.BF9017	CH 98996~99017 Backfill and compaction	40%	16-Oct-15 A	18-Dec-15	[Gantt bar: 16-Oct-15 A to 18-Dec-15]																		
01108.OCT.BF9164	CH 99143~99164 Backfill and compaction	0%	12-Dec-15	11-Jan-16	[Gantt bar: 12-Dec-15 to 11-Jan-16]																		
01108.OCT.BF9185	CH 99164~99185 Backfill and compaction	0%	11-Jan-16	03-Feb-16	[Gantt bar: 11-Jan-16 to 03-Feb-16]																		
CSMM Backfill																							
01108.OCT.BF9059c	CH 99038~99059 CSMM backfill, 21mL x 78m2, total 1638 m3	50%	17-Sep-15 A	05-Dec-15	[Gantt bar: 17-Sep-15 A to 05-Dec-15]																		
01108.OCT.BF9101c	CH 99080~99101 CSMM backfill, 21mL x 78m2, total 1638 m3	0%	30-Nov-15	12-Dec-15	[Gantt bar: 30-Nov-15 to 12-Dec-15]																		
01108.OCT.BF9122c	CH 99101~99122 CSMM backfill, 21mL x 78m2, total 1638 m3	0%	30-Nov-15	12-Dec-15	[Gantt bar: 30-Nov-15 to 12-Dec-15]																		

▲ Milestone
 ▲ Critical Milestone
 [Pink Box] Critical Remaining Work
 [Green Box] Remaining Work
 [Blue Box] Remaining Level of Effort
 [Green Line] PMP Rev F
 [Blue Line] Last Report
 [Blue Box] Actual Work

Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (November 2015)



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					32				33				34				35				36
					02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22
01108.CCT.BF8804c	CH98786~98804 CSMM backfill, 18mL x 42m2, total 756 m3	0%	26-Jan-16	03-Feb-16																	
01108.CCT.BF8825c	CH98804~98825 CSMM backfill, 21mL x 42m2, total 882 m3	0%	23-Feb-16	03-Mar-16																	
Backfill and Compaction CH 98928 to CH 98975																					
01108.CCT.BF8947	CH98928~98947 Backfill, compaction & remove strut, 6992m3	0%	29-Dec-15	26-Jan-16																	
01108.CCT.BF8966	CH98947~98966 Backfill, compaction & remove strut, 6992m3	0%	02-Feb-16	03-Mar-16																	
CSMM Backfill CH 98928 to CH 98975																					
01108.CCT.BF8947c	CH98903~98947 CSMM backfill, 37mL x 39.2m2 + 7mL x 78m2, total 1996 m3	0%	29-Dec-15	26-Jan-16																	
01108.CCT.BF8966c	CH 98947~98966 CSMM backfill, 19mL x 78m2, total 1482 m3	0%	02-Feb-16	03-Mar-16																	
C4 Stub Tunnels (U=32m; D=32m; R=33m)																					
C4.2 Stub Tunnels - C&S Works																					
Backfill and Compaction																					
Backfill and Compaction CH98258 to CH98290																					
01108.STT.BF8273	CH98258~98273 Backfill, compaction & remove strut, 8159 m3	95%	16-Jun-15 A	01-Dec-15																	
01108.STT.BF8290	CH98273~98290 Backfill, compaction & remove strut, 8159 m3	95%	16-Jun-15 A	01-Dec-15																	
C5 SUA																					
C5.1 SUA - C&S Works																					
SUA Adit GL A2/C2 and Access at GL C1/C2																					
01108.OCT.SU160	At CH99088/GL C1~C2 SUA - Top slab	100%	07-Nov-15 A	18-Nov-15 A																	
01108.OCT.SU510	At CH99088/GL A1~A2-C1~C2 SUA - Waterproofing, backfill & compaction	30%	21-Nov-15 A	29-Dec-15																	
C5.2 SUA - ABWF Works																					
01108.OCT.SU210	At CH99088/GL A1~A2 SUA - BWIC, BS works & works for Degree 1 of completion	0%	30-Nov-15	13-Feb-16																	
01108.OCT.SU220	At CH99088/GL A2~C2 SUA - BWIC, BS works & works for Degree 1 of completion	0%	21-Dec-15	05-Mar-16																	
C6 Access Shafts																					
C&S Works																					
C6.1.1 External Walls																					
01108.OCT.AS050	CH98746~98768 Access shaft - Temporary Wall 0.4mT 200mm above existing ground	0%	30-Nov-15	06-Jan-16																	
D - Associated Works																					
D1 Utilities																					
Fresh and Salt Watermains																					
01108.AWW.F010	Fresh watermain, 309m	0%	18-Feb-16	03-May-16																	
D2 Drainage																					
Sewerage and Stormwater																					
01108.AWD.F020	Foul sewer, F1.1~F1.3, 100m, 2 nr. MH	0%	08-Dec-15	21-Dec-15																	
01108.AWD.F010	Foul sewer, F1.3~F1.4~MH10, F1.7~F.14: 180m, 6 nr. MH	0%	17-Dec-15	17-Feb-16																	
01108.AWD.S020	Storm sewer, S1.1~S1.2: 35m, 1 nr. MH	0%	22-Dec-15	07-Jan-16																	
01108.AWD.S010	Storm sewer, S1.2~S1.3~S1.6, S1.4~S1.3, S2.1~S2.4~S1.6; DP-7~S2.4: 633m, 10 nr. MH	0%	18-Jan-16	02-Jun-16																	
01108.AWD.C010	U-channels, 197 m straight, 24 m curved	0%	18-Feb-16	23-Mar-16																	
D3 Instrumentation and Monitoring																					
Instrumentation Installation and Monitoring																					
01108.AWM.0010	Installation of piezometers, inclinometers, ground/ bldg/ utility settlement markers	90%	02-Jul-13 A	05-Dec-15																	
01108.AWM.0030	Regular Monitorings and Submit Monitoring Reports (weekly for 50 months)	55%	01-Aug-13 A	01-Sep-17																	
D5 Utilities Diversion																					
Diversion of Existing Nullah																					
Temporary Works & Hydraulic Assessment																					
01108.AWD.DNA1.3	KTND Hydraulic Assessment - No -adverse-comment by DSD	98%	08-Aug-13 A	30-Nov-15																	
01108.AWD.DN09.5.3	KTND Temporary Channel - Design - No -adverse-comment by DSD & RDO/ BD/ GEO	98%	16-Jan-14 A	30-Nov-15																	
E Option 1 SCL Works																					
Option 1a Temp. Passenger Access Roads connecting Station Entrances with Carriageways																					
Preliminaries																					
01108.CDO1a.EDP	Option 1a SCL Works - Temp. Passenger Access Roads - Latest Exercising Date (31-Dec-15)	0%	31-Dec-15																		
01108.O1A.PRE.010	Submission of drawings & permanent works material control schedules & Approval	0%	31-Dec-15	28-Jan-16																	
01108.O1A.PRE.020	Submission of shop drawings & materials & Approval	0%	29-Jan-16	29-Feb-16																	
Temporary Passage Access Road ER3, 4, 5, 7 & 8																					

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Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (November 2015)



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01108.O1A.TPA.010	Formation leveling, 2280 m2	0%	31-Dec-15	31-Mar-16																			
01108.O1A.TPA.020	Kerb foundation, concrete kerbs & edgings, 976 m	0%	15-Jan-16	15-Apr-16																			
01108.O1A.TPA.030	Type 1 granular sub-base, sand base, geotextile soil & copping layer, 2280 m2	0%	29-Jan-16	29-Apr-16																			
Option 1b Temp. Passenger Access Roads connecting Entrance D with Pedestrian Strip																							
Temporary Passenage Acces Road ER6																							
01108.CDO1B.EDP	Option 1b SCL Works - Temp. Passenger Access Road - Latest Exercising Date (31-Dec-15)	0%	31-Dec-15																				
01108.O1B.TPA.010	Formation leveling, 2343 m2	0%	05-Feb-16	07-May-16																			
01108.O1B.TPA.020	Kerb foundation, concrete kerbs & edgings, 368 m	0%	27-Feb-16	27-May-16																			
F Option 2 CEDD Entrusted Works for Roads L9 & L16 & Associated Works																							
Option 2a Roads L9 and L16 and Assocaied Works																							
Preliminaries																							
01108.CDO2a.EDP	Option 2a CEDD Entrusted Works - Roads L9 & L16 - Latest Exercising Date (31-Mar-15)	0%	30-Nov-15																				
01108.O2A.PRE.010	Submission of drawings & permanent works material control schedules & Approval	0%	30-Nov-15	06-Jan-16																			
01108.O2A.PRE.020	Submission of shop drawings & materials & Approval	0%	07-Jan-16	13-Feb-16																			
3. Drainage Works																							
Drainage - Pipe																							
01108.O2A.DRP020	SM1204~SM1216 PC concreted drainage pipe, 1.5m to 4.5m-dia, gully, manhole, chamber, etc. 460 m	0%	15-Feb-16	28-Apr-16																			
01108.O2A.DRP000	Remove disused pipes, 700m	0%	15-Feb-16	29-Mar-16																			
4. Sewage Works																							
01108.O2A.SEW020	FM50_10~DP23/24 Sewer pipe, 300d to 450d, 307mL; 13 nr MH	0%	30-Nov-15	13-Feb-16																			
01108.O2A.SEW000	Remove disused pipes, 400m	0%	30-Nov-15	12-Jan-16																			
01108.O2A.SEW025	FM50_10~DP23/24 Sewer pipe CCTV	0%	28-Jan-16	05-Mar-16																			
01108.O2A.SEW030	2A4_1~FM20_90 Sewer pipe, 300d & 375d; 195mL; 6 nr MH	0%	15-Feb-16	05-Apr-16																			
5. Waterworks																							
01108.O2A.FWM010	CH 342.7~661.7 Fresh watermain pipe, 200d, 250d, 300d, 600d - 320mL; trust blocks, chambers, valve, bend, etc.	0%	15-Feb-16	18-May-16																			
11. Preservation & Protection of Trees																							
01108.O2A.PPT010	(Provisional) Preservation & protection measures to preserved trees, survey & reporting (30 months)	0%	30-Nov-15	18-Mar-18																			
Option 2b Landscape Hardworks & Softworks, Irrigation Facilities & Pavers																							
Programmed Completion Date																							
001108.CDO2b.EDP	Option 2b CEDD Entrusted Works - LS Hardworks & Softwork & Irrigation System- LED (31-Mar-15)	0%	30-Nov-15																				
9. Irrigation Facilities																							
01108.O2B.IRR000	Design & Approval of Irrigation Systems	0%	30-Nov-15	13-Feb-16																			
Option 2c Establishment Works																							
10 Establishment Works																							
01108.CDO2c.EDP	Option 2c Establishment works of the landscape softworks in Option 2b -Latest Ex.Date (31-Mar-15) - Programmed	0%	30-Nov-15																				
G Option 3 CEDD Entrusted Works for Reconstruction of Kai Tak Nullah																							
Fencing																							
01108.O3.DEM010	Chainlink fence, 373 m	0%	19-Jan-16	26-Feb-16																			
Drainage & Duct																							
01108.O3.DRP020	PC drainage pipes, connections	0%	26-Jan-16	04-Mar-16																			
01108.O3.DRP010	Balancing hole chamber ladder, covers, etc.	0%	26-Feb-16	19-Apr-16																			
Earthworks																							
Formation Level																							
01108.O3.ERW030	CH 98620~98636 Formation level of proposed nullah	90%	14-May-15 A	02-Dec-15																			
01108.O3.ERW010	Ch 98578~98599 Formation level of proposed nullah	90%	14-May-15 A	02-Dec-15																			
01108.O3.ERW020	Ch 98599~98620 Formation level of proposed nullah	90%	14-May-15 A	02-Dec-15																			
Construction of Nullah																							
Formation of Nullah Foundation with Rock Fill																							
01108.O3.FML010	Type 2 Geotextile, 500thk Grade 200 Rock fill, 3760 m3	10%	25-Jun-15 A	23-Feb-16																			
Nullah - Twin-cell Box Culvert (SOL 01)																							
01108.O3.SL3080	Base slab, 6 bays x 15 mL (within W9)	35%	09-Sep-15 A	13-Jan-16																			
01108.O3.SL3090	Walls & Top slab, 3 bays x 15mL (within W9)	75%	07-Oct-15 A	15-Dec-15																			

▲ Milestone
 ▲ Critical Milestone
 ■ Critical Remaining Work
 ■ Remaining Work
 ■ Remaining Level of Effort

PMP Rev F
 Last Report
 Actual Work

Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (November 2015)



Activity ID	Activity Name	Activity % Complete	Start	Finish	November				December				January				February				March		
					32				33				34				35				36		
					02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29	07
01108.03.SL3100	Walls & Top slab, 3 bays x 15mL (within W9)	0%	30-Nov-15	03-Feb-16																			
01108.03.SL1030	Vacation Date for Works Area 11 08.W8 (31-Jul-15) programmed	0%		10-Dec-15*																			
01108.03.SL1040	Vacation Date for Works Area 11 08.W10 (31-Jul-15) programmed	0%		10-Dec-15*																			
01108.03.SL3070	Inspection manhole with balancing hole chamber (within W9)	0%	11-Dec-15	25-Feb-16																			
Nullah - Open & Decked Channel (SOL 02)																							
01108.03.SL3110	Base slab, 5 bays x 10mL typ. (within W9) Decked Channel	50%	30-Oct-15 A	30-Dec-15																			
01108.03.SL3120	Walls & Top slab, 5 bays x 10mL typ. (within W9) Decked Channel	0%	30-Dec-15	01-Mar-16																			
Nullah - Twin-cell Box Culvert (SOL 03)																							
01108.03.SL3170	Base slab, 6 bays x varius 10 to 15 mL (within W9)	65%	01-Sep-15 A	21-Dec-15																			
01108.03.SL3180	Walls & Top slab, 3 bays x 15mL (within W9)	75%	24-Sep-15 A	15-Dec-15																			
01108.03.SL3190	Walls & Top slab, 3 bays x 15mL (within W9)	25%	06-Nov-15 A	19-Jan-16																			
01108.03.SL3040	Inspection manhole with balancing hole chamber (within W9)	0%	11-Dec-15	25-Feb-16																			
Backfill																							
01108.03.ERW110	Backfill & compaction to finish ground level in/ at Works Areas 1108.W8 & W10	0%	30-Nov-15	10-Dec-15																			
01108.CDO.CDa1P	Completion of works in/ at Works Areas 1108.W8 & W10 (31-May-15) - Programmed	0%		10-Dec-15																			
01108.03.ERW120	Backfill & compaction to finish ground level - Remaining	0%	19-Jan-16	06-Apr-16																			

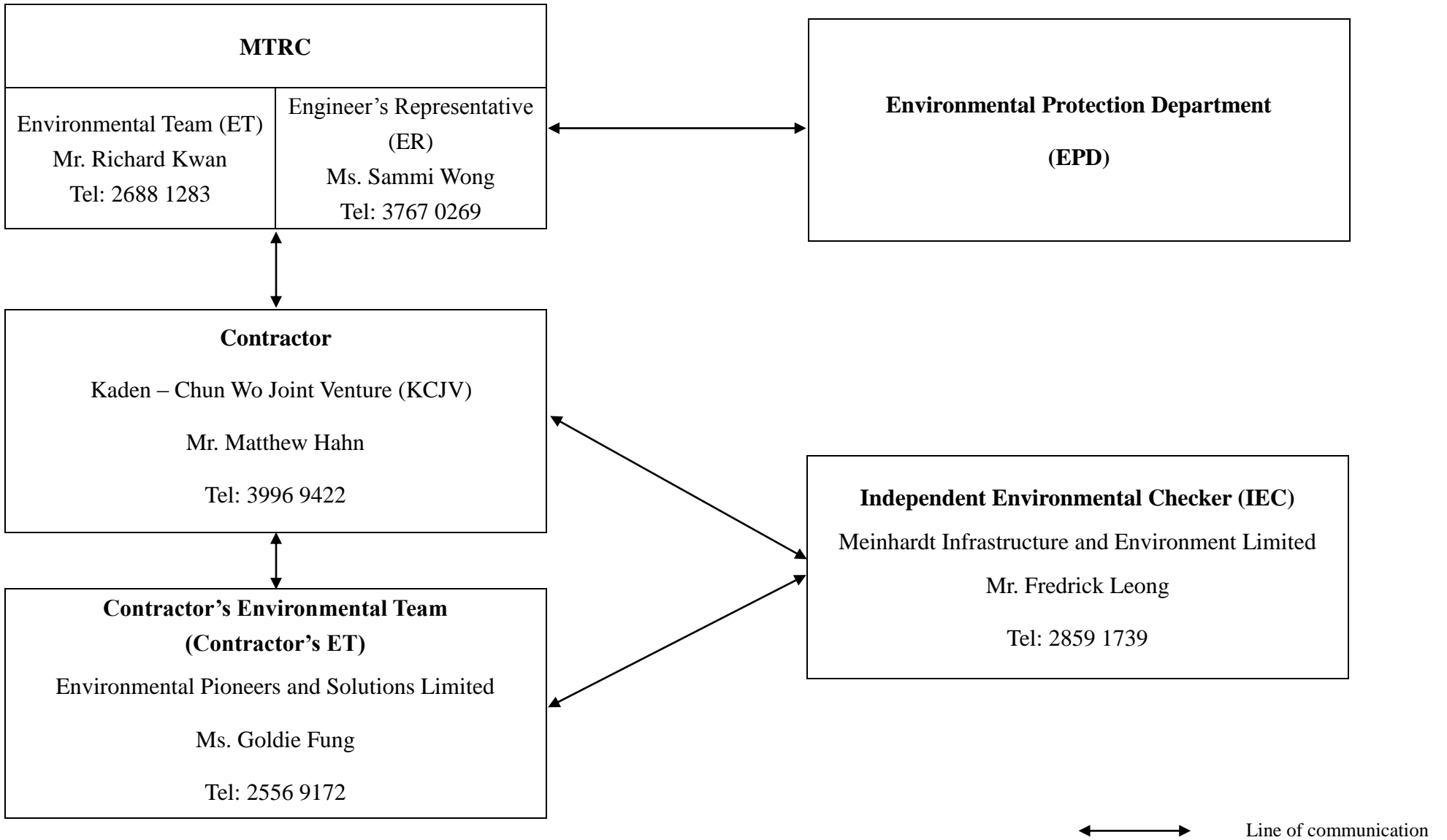
- Milestone
- Critical Milestone
- Critical Remaining Work
- Remaining Work
- Remaining Level of Effort
- PMP Rev F
- Last Report
- Actual Work

Contract 1108
Kai Tak Station and Associated Tunnels
3-months Rolling Programme (November 2015)

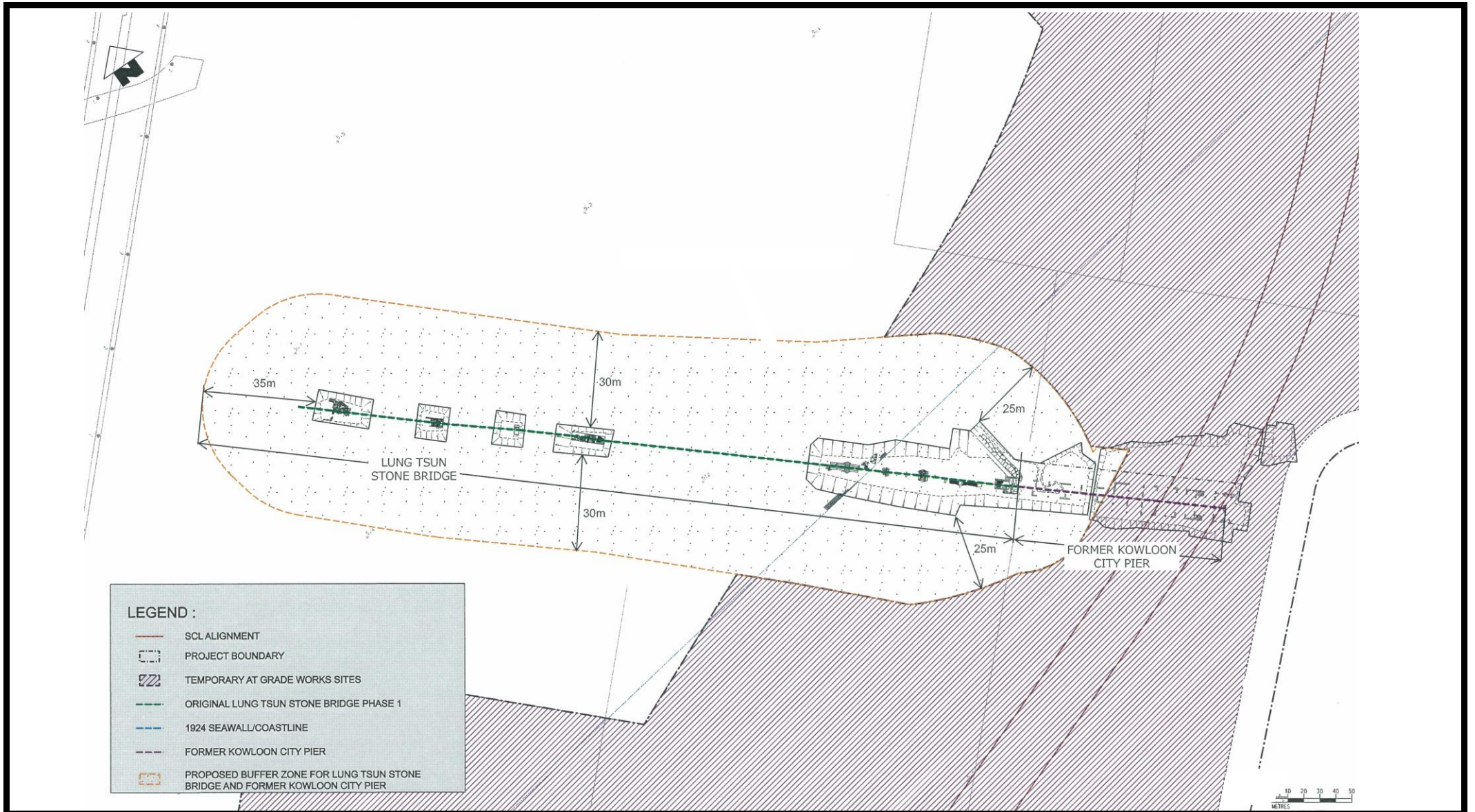


Appendix B – Construction Programme

Appendix C –Project Organization Chart & Contact Details



***Appendix D – Buffer Zone for Lung Tsun Stone Bridge & Former
Kowloon City Pier***



Project Title
工程名稱

Shatin to Central Link (SCL) - Tai Wai to Hung Hom Section(TAW-HUH)
沙田至中環綫 - 大圍至紅磡段

Environmental Permit No.: EP-438/2012/H
環境許可證編號：EP-438/2012/H

Figure 6
圖六

Buffer Zone from the Boundary of Lung Tsun Stone Bridge 龍津石橋界線之緩衝區
[This figure was prepared based on the attachment of the Application No.: VEP-432/2014]
[本圖是根據申請編號 VEP-432/2014 的附件編制]



***Appendix E – Event/Action Plan for landscape & Visual During
Construction Stage***

Event / Action Plan for Landscape and Visual during Construction Stage

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

Appendix F – Waste Flow Table

Monthly Summary Waste Flow Table for 2015 (year)

Month	<u>Actual Quantities of Inert C&D Materials Generated Monthly</u>						<u>Actual Quantities of Non-inert C&D Materials Generated Monthly</u>				
	Total Quantity Generated	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 '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	21.421	0.000	21.421	0.000	0.000	0.000	18.530	0.075	0.000	0.640	0.203
Feb	32.137	0.000	31.290	0.000	0.847	0.000	15.590	0.060	0.006	0.000	0.136
Mar	31.149	0.000	28.783	0.000	2.366	0.000	36.260	0.072	0.009	0.000	0.186
Apr	40.033	0.000	26.285	0.000	13.748	0.000	27.190	0.056	0.015	0.000	0.232
May	11.639	0.000	9.525	0.000	2.114	0.000	25.250	0.057	0.020	0.000	0.159
Jun	28.414	0.000	20.336	0.000	8.078	0.000	7.270	0.168	0.014	0.000	0.264
Sub-total	164.793	0.000	137.640	0.000	27.153	0.000	130.090	0.488	0.064	0.640	1.180
July	25.488	0.000	14.946	0.000	10.542	0.000	17.210	0.020	0.000	0.000	0.125
August	11.718	0.000	4.256	0.000	7.462	0.000	9.650	0.025	0.000	0.640	0.202
September	4.912	0.000	4.212	0.000	0.700	0.000	24.890	0.075	0.010	0.000	0.220
October	53.955	0.000	53.955	0.000	0.000	0.000	7.720	0.070	0.025	0.000	0.148
November	55.843	0.000	55.843	0.000	0.000	0.000	9.090	0.030	0.006	0.000	0.151
Total	316.709	0.000	270.852	0.000	45.857	0.000	198.650	0.708	0.105	1.280	2.026
Year 2014	311.876	0.000	39.476	0.000	272.400		103.280	0.855	0.056	1.540	1.484
Year 2013	144.512	0.000	0.000	0.000	144.512		93.330	0.030	0.000	0.480	2.568
Grand Total	773.097	0.000	310.328	0.000	462.769		395.260	1.593	0.161	3.300	6.078

Notes: * MTR SCL Contract 1108A barging point.

Government (CEDD) Public Fill Reception Facilities

***Appendix G – Updated Environmental Mitigation Implementation
Schedule***

Environmental Mitigation Implementation Schedule –SCL Contract 1108 (Kai Tak Station and Associated Tunnels)

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
<i>Cultural Heritage Impact (Construction and Operational Phase)</i>							
S4.9	CH1	Maintain a buffer distance as shown in Appendix D . A 1.8-2.2m vertical separation distance shall be maintained between the top of tunnel and the piles of the Former Kowloon City Pier.	Reserve sufficient area for necessary archaeological conservation and display works for Lung Tsun Stone Bridge in the future. Avoid direct impact on the Lung Tsun Stone Bridge and the Former Kowloon City Pier.	MTR Corporation Contractor	Lung Tsun Stone Bridge & Former Kowloon City Pier.	During the Construction of the tunnel section at Kai Tak	*
<i>Landscape & Visual (Construction Phase)</i>							
S6.9.3	LV1	The following good site practices and measures for minimisation and avoidance of potential impacts are recommended: <u>Re-use of Existing Soil</u> <ul style="list-style-type: none"> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, 					<p>✓</p> <p>✓</p> <p>✓</p>
S6.12	LV2	<p><u>Decorative Hoarding</u></p> <ul style="list-style-type: none"> 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
		<p>off undesirable views of the construction site for visual and landscape sensitive areas. Hoarding should be designed to be compatible with the existing urban context</p> <p><u>Management of facilities on work sites</u></p> <ul style="list-style-type: none"> To provide proper management of the facilities on the sites, give control on the height and disposition/ arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs. <p><u>Tree Transplanting</u></p> <ul style="list-style-type: none"> Trees of high to medium survival rate would be affected by the works shall be transplanted where possible and practicable. Tree transplanting proposal including final location for transplanted trees shall be submitted separately to seek relevant government department's approval, in accordance with ETWB TCW No 3/2006. 				construction stage	<p>✓</p> <p>N/A</p>
Air Quality (Construction Phase)							
/	A1	<p><u>Emission from Vehicles and Plants</u></p> <ul style="list-style-type: none"> All vehicles shall be shut down in intermittent use. Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be 	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		powered by ultra low sulphur diesel fuel (ULSD).					
/	A2	Open burning shall be prohibited.	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	✓
Construction Dust Impact							
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	*
S7.6.5	D2	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.8 L/m ² to achieve the dust removal efficiency.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	✓
S7.6.5	D3	<ul style="list-style-type: none"> Proper watering of exposed spoil should be undertaken throughout the construction phase; Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; A stockpile of dusty material should not be extended beyond the 	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<p>*</p> <p>✓</p> <p>✓</p> <p>✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>pedestrian barriers, fencing or traffic cones.</p> <ul style="list-style-type: none"> • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; 					<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>*</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and • Exposed earth should be properly treated by compaction, turfing, 					<p>✓</p> <p>N/A</p> <p>✓</p> <p>*</p> <p>*</p> <p>N/A</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.					
<i>Construction Noise (Airborne)</i>							
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other 	Control construction airborne noise	Contractor	All construction sites	Construction stage	✓ ✓ ✓ ✓ ✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.					
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	✓
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	✓
S8.3.6	N4	Use “Quiet plants”	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	✓
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne 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:	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> • At the start of site establishment (including the barging facilities), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m³/s a sedimentation basin 					<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>of 30m³ would be required and for a flow rate of 0.5 m³/s the basin would be 150 m³. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is 					<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">*</p> <p style="text-align: center;">✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>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.</p> <ul style="list-style-type: none"> • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is 					<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">*</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>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.</p> <ul style="list-style-type: none"> • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. 					<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p> <p style="text-align: center;">*</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Adopt best management practices 					<p>✓</p> <p>*</p>
S10.7.1	W2	<p><u>Tunnelling Works</u></p> <ul style="list-style-type: none"> Cut-&-cover/ open cut tunnelling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater. Direct discharge of the bentonite slurry (as a result of D-wall and bored tunnelling construction) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be 	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.					
S10.7.1	W3	<u>Sewage Effluent</u> <ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. 	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	✓
S10.7.1	W4	<u>Groundwater from Contaminated Area:</u> <ul style="list-style-type: none"> No direct discharge of groundwater from contaminated areas should be adopted. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed with reference to the site investigation data in this EIA report for compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-Water) and the existence of 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 	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found	Construction stage	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>should be either properly treated in compliance with the requirements of the TM-Water or properly recharged into the ground.</p> <ul style="list-style-type: none"> • If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-Water and should be discharged into the foul sewers. • If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-Water. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality 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 					<p>N/A</p> <p>N/A</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		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	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<p>✓</p> <p>✓</p> <p>✓</p>
Waste Management (Construction Waste)							
S11.4.1.1	WM1	<p>On-site sorting of C&D material</p> <ul style="list-style-type: none"> Geological assessment should be carried out by competent persons 	Separation of unsuitable rock from ending up at	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>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.</p>	<p>concrete batching plants and be turned into concrete for structural use</p>				
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; 	<p>Good site practice to minimize the waste generation and recycle the</p>	Contractor	All construction sites	Construction stage	✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt ‘Selective Demolition’ technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation 	C&D materials as far as practicable so as to reduce the amount for final disposal				<ul style="list-style-type: none"> ✓ ✓ ✓ ✓ ✓ ✓
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered Use of wooden hoardings should not 	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	<ul style="list-style-type: none"> ✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>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.</p> <ul style="list-style-type: none"> The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	the amount for final disposal				✓
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans are often recovered from the waste stream by 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	✓ ✓

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.</p> <ul style="list-style-type: none"> Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. 					<p>✓</p> <p>✓</p>
S11.5.1	WM6	<p><u>Land-based and Marine-based Sediment</u></p> <ul style="list-style-type: none"> All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location; All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be 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. 	To control pollution due to marine sediment	Contractor	Within Project Site Area	Construction Stage	<p>✓</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers; • The Contractors shall comply with the conditions in the dumping licence. • All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material; • The material shall be placed into the disposal pit by bottom dumping; • Contaminated marine mud shall be transported by spit barge of not less than 750m³ capacity and capable of rapid opening and discharge at the disposal site; • Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site. • For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping into designated mud pit 					<p>N/A</p> <p>✓</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>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.</p>					
S11.5.1	WM7	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	<p>✓</p> <p>*</p> <p>*</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measure	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation Status
		<p>container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.</p> <ul style="list-style-type: none"> Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 					✓
<i>EM&A Project</i>							
S14.2 – 14.4	EM2	<ol style="list-style-type: none"> An Environmental Team needs to be employed as per the EM&A Manual. Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with. 	Perform environmental monitoring & auditing	MTR Corporation/ Contractor	All construction sites	Construction stage	✓ ✓ ✓

Remarks :

- ✓ Compliance of mitigation measure
- X Non-compliance of mitigation measure

- Non-compliance but rectified by the contractor
 - * Recommendation was made during site audit but improved/rectified by the contractor.
- N/A Not Applicable

***Appendix H – Cumulative Log for Environmental Exceedance,
Complaints, Notification of Summons and Successful Prosecutions***

Cumulative Log for Environmental Exceedance, Complaints, Notification of Summons and Successful Prosecution

Reporting Month	Number of Exceedance	Number of Environmental Complaints	Number of Notification of Summons	Number of Successful Prosecutions
January 2015	0	3	0	0
February 2015	0	2	0	0
March 2015	0	1	0	0
April 2015	0	0	0	0
May 2015	0	0	0	0
June 2015	0	2	0	0
July 2015	0	0	0	0
August 2015	0	1	0	0
September 2015	0	0	0	0
October 2015	0	3	0	0
November 2015	0	4	0	0
Total	0	16	0	0
Year 2013	0	0	0	0
Year 2014	0	0	0	0
Grand Total	0	16	0	0

COMPLAINT / CONCERN LOG

Ref: KFMD0213-CL-151005

Log Ref	Event Date/Location	Complainant/Date of Contact	Details of Complaint	Investigation/Mitigation Action	File Closed
Ref no.: KFMD0213-C L-151005	Not Specified	Complaint was received on 5 th October 2015.	Complaint received on 5 th October 2015 was referred from EPD on 19 th October 2015 regarding 5 lorry mixers were operating inside the MTRC construction site in the evening which may breach CNP conditions.	<ol style="list-style-type: none"> 1. Complaint received on 5th October 2015 was referred by EPD on 19th October 2015 regarding 5 concrete lorry mixers were operating inside the MTRC construction site in the evening which may breach CNP conditions. 2. The Contractor has applied construction noise permits (CNPs) for carrying out concreting works after normal working date and time (i.e. 0700-1900 of normal weekdays). Total 2 CNPs are valid for the construction activities carried out at evening time in Kai Tak Station Area. The CNPs are attached in Appendix A. Contractor was reported that the concreting works had complied with the CNP's requirements for the evening time works on 5th October 2015. 3. ET conducted a site investigation on 20th October 2015 to resolve the concern. 4. During the investigation, no construction activities are scheduled to be carried out at the evening time. No potential noise impact nuisance caused to the sensitive receivers was noted. Contractor reported that concreting works are scheduled to be carried out on 26th October 2015 and will comply with the permit conditions. 5. Contractor had implemented the following mitigation measures during the evening time works. <ul style="list-style-type: none"> - Provide training for the staff to avoid violating CNP's requirements. - Assign staff to inspect the construction activities during the evening time works. 6. The Contractor was reminded to continue following 	Yes

				the conditions under all applied CNPs to avoid generating unacceptable environmental nuisance to nearby sensitive receivers.	
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Filed by Environmental Team Leader: _____


Date: 23rd October 2015

COMPLAINT / CONCERN LOG

Ref: KFMD0213-CL-151005

Log Ref	Event Date/Location	Complainant/Date of Contact	Details of Complaint	Investigation/Mitigation Action	File Closed
<p>Ref no.: KFMD0213-C L-151110</p> <p>EPD complaint ref.: 15-28724, 15-27785 & 15-25759</p>	<p>Gate 1</p>	<p>Complaint was received in November 2015</p>	<p>Complaints received in November 2015 were referred from EPD on 10th November 2015 regarding mud left the site entrance near the Concorde Road affecting his health and driving activities. And, muddy water flowed on the Concorde Road during flushing the MTR site entrance.</p>	<ol style="list-style-type: none"> 1. Complaints received in November 2015 were referred from EPD on 10th November 2015 regarding mud left the site entrance near the Concorde Road affecting his health and driving activities. And, muddy water flowed on the Concorde Road during flushing the MTR site entrance. Environmental Team (ET) was informed by email on the same day by MTRC. 2. Weekly site inspection was conducted on 27th October 2015, 3rd and 10th November 2015. No mud deposited on the site entrance near the concorde road and no muddy water was observed flowing onto concorde road. 3. ET has conducted a site investigation with the representatives from MTRC and Contractor on 10th November 2015 to resolve the concern. 4. During the investigation, no mud left on the site entrance near the concorde road and concorde road was free of muddy water. The following measures were observed for the prevention of mud deposition and muddy water flowing onto concorde road. <ul style="list-style-type: none"> - Wheel washing bay and high pressure water jets were provided at Gate 1 for washing off the soil and dirt from body and wheel of the vehicles before leaving the site - Sand and mud was removed by contractor near gate 1 - Water truck was assigned for cleaning the haul road 5. Contractor was reminded to enhance the effectiveness of vehicle washing (if necessary) to avoid dropping of soil on public road and provide proper measure to avoid flowing of muddy water onto the public road. <ul style="list-style-type: none"> - The time for wheel washing was extended for more 	<p>Yes</p>

				<p>thorough cleaning;</p> <ul style="list-style-type: none"> - Staffs were further instructed to ensure all vehicles were thoroughly cleaned and the load of dump trucks were properly covered before leaving the site; - More frequent clearing of mud from washing pool was implemented. <p>The staff was trained to prevent muddy water flowing onto concorde road.</p> <p>6. As similar complaint and observation were noted recently, the Contractor was seriously reminded to implement all necessary mitigation measure to avoid soil depositing on site entrance and muddy water flowing onto concorde road.</p>	
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Filed by Environmental Team Leader: _____  _____

Date: 13 November 2015

COMPLAINT / CONCERN LOG

Ref: KFMD0213-CL-151112

Log Ref	Event Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/Mitigation Action	File Closed
<p>Ref no.: KFMD0213-C L-151112</p> <p>EPD complaint ref.: 15-28981</p>	<p>Gate 1</p>	<p>Complaint was received on 12th November 2015</p>	<p>Complaint received on 12th November 2015 was referred from EPD on 13th November 2015 regarding mud left the site entrance near the Concorde Road affecting his driving activities and dirtying his vehicle.</p>	<ol style="list-style-type: none"> 1. Complaint received 12th November 2015 was referred from EPD on 13th November 2015 regarding mud left the site entrance near the Concorde Road affecting his driving activities and dirtying his vehicle. Environmental Team (ET) was informed via email by MTRC. 2. Joint site inspection with IEC was conducted on 10th November 2015. No mud deposition was observed on the haul road near Gate 1. Subsequent weekly site was conducted on 17th November 2015. Contractor was reminded to assign water truck to wash haul road and avoid earth deposition near wheel washing pool. 3. ET has conducted a site investigation with the representatives from Contractor on 18th November 2015 to resolve the concern. 4. During the investigation, no mud left on the site entrance near the concorde road was observed. The following measures were observed for the prevention of mud deposition. <ul style="list-style-type: none"> - Wheel washing bay and high pressure water jets were provided at Gate 1 for washing off the soil and dirt from body and wheel of the vehicles before leaving the site - Sand and mud was removed by contractor near gate 1 - Water truck was assigned for cleaning the haul road 5. Contractor was reminded to enhance the effectiveness of vehicle washing (if necessary) to avoid dropping of soil on site entrance. <ul style="list-style-type: none"> - The time for wheel washing was extended for more thorough cleaning; - Staffs were further instructed to ensure all vehicles were 	<p>Yes</p>

				<p>thoroughly cleaned and the load of dump trucks were properly covered before leaving the site;</p> <ul style="list-style-type: none">- More frequent clearing of mud from washing pool was implemented. <p>6. As similar complaint and observation were noted recently, the Contractor was seriously reminded to implement all necessary mitigation measure to avoid soil depositing on site entrance.</p>	
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Filed by Environmental Team Leader: _____

Date: 19 November 2015

Appendix J

**26th Monthly EM&A Report for Works Contract 1102 –
Hin Keng Station and Approach Structures**

MTR Corporation Limited

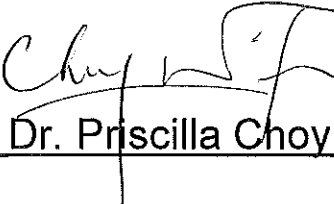
**Shatin to Central Link –
Tai Wai to Hung Hom Section**

Monthly EM&A Report No. 26

[Period from 1 to 30 November 2015]

Works Contract 1102 –
Hin Keng Station and Approach Structures

(December 2015)

Certified by: 
_____ Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 8th December 2015

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)

November 2015

Approved By


(Contractor's Environmental Team Leader)

REMARKS:

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

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

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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
Introduction	1
Summary of Construction Works undertaken during the Reporting Month	1
Environmental Monitoring and Audit Progress	1
Regular Construction Noise and Construction Dust Monitoring	1
Waste Management	1
Landscape and Visual.....	1
Environmental Site Inspection	2
Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution	2
Future Key Issues	2
1 INTRODUCTION	3
Purpose of the Report	3
Structure of the Report	3
2 PROJECT INFORMATION.....	4
Background	4
General Site Description	4
Construction Programme and Activities	4
Project Organization.....	4
Status of Environmental Licences, Notification and Permits.....	4
Summary of EM&A Requirements	5
3 ENVIRONMENTAL MONITORING REQUIREMENTS	6
Regular Construction Noise Monitoring	6
Monitoring Parameter and Frequency	6
Monitoring Equipment, Maintenance, Calibration and Procedures	6
Action & Limit Level for Construction Noise Monitoring	7
Continuous Noise Monitoring	7
Regular Construction Dust Monitoring	7
Monitoring Parameter and Frequency	7
Monitoring Equipment, Maintenance, Calibration and Procedures	7
Action and Limit Levels for Dust Monitoring	8
Landscape and Visual.....	8
4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS	9
5 MONITORING RESULTS	10
Regular Construction Noise Monitoring	10
Regular Dust Monitoring.....	10
Waste Management	11
Landscape and Visual.....	11
6 ENVIRONMENTAL SITE INSPECTION.....	12
Site Audits	12
Implementation Status of Environmental Mitigation Measures.....	12
7 ENVIRONMENTAL NON-CONFORMANCE	14
Summary of Exceedances	14

Summary of Environmental Non-Compliance.....	14
Summary of Environmental Complaint	14
Summary of Environmental Summon and Successful Prosecution	14
8 FUTURE KEY ISSUES	15
Construction Programme for the Next Month.....	15
Key Issues in the Next Month	15
Monitoring Schedule in the Next Month.....	15
9 CONCLUSIONS AND RECOMMENDATIONS	16
Conclusions	16
Recommendations	16

LIST OF TABLES

Table 2.1	Summaries of Environmental Licences, Notification and Permits
Table 3.1	Regular Construction Noise Monitoring Station
Table 3.2	Construction Noise Monitoring Parameters and Frequency
Table 3.3	Dust Monitoring Station
Table 3.4	Dust Monitoring Parameters and Frequency
Table 4.1	Status of Required Submissions under EP
Table 5.1	Summary Table of Construction Noise Monitoring Results
Table 5.2	Summary Table of Dust Monitoring Results
Table 5.3	Quantities of Waste Generated from the Project
Table 6.1	Observations and Recommendations of Site Audit

LIST OF FIGURES

Figure 1	Site Layout Plan of Works Contract 1102
Figure 2	Organization Chart and Key Contact of the Project
Figure 3	Location of Noise Monitoring Station
Figure 4	Location of Dust Monitoring Station

LIST OF APPENDICES

Appendix A	Tentative Construction Programme
Appendix B	Action and Limit Levels
Appendix C	Summary of Exceedance
Appendix D	Site Audit Summary
Appendix E	Updated Environmental Mitigation Implementation Schedule
Appendix F	Event and Action Plans
Appendix G	Waste Generation in the Reporting Month
Appendix H	Log and Cumulative Summary Table for Complaints, Notifications of Summons and Successful Prosecutions

EXECUTIVE SUMMARY**Introduction**

1. This is the 26th 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 30 November 2015.

Summary of Construction Works undertaken during the Reporting Month

2. The major site activities undertaken in the reporting month include:
 - Slope improvement works;
 - ELS structure installation & superstructure works at At-Grade Box;
 - Pier construction of Viaduct;
 - ABWF works at Hin Keng Station; and
 - Modification of Retaining Wall.

Environmental Monitoring and Audit Progress

3. A summary of the monitoring activities in this reporting period is listed below and the monitoring works were undertaken by Contractor ET of Works Contract SCL 1103:

Regular Construction Noise and Construction Dust Monitoring

- Regular construction noise monitoring during normal working hours
Noise Monitoring Station ID
 - NMS-CA-1⁽¹⁾ (C.U.H.K.A.A Thomas Cheung School) 4 times
- Construction Dust (24-hour TSP) Monitoring
Dust Monitoring Station ID
 - DMS-1⁽¹⁾ (C.U.H.K.A.A Thomas Cheung School) 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 1,388.4 m³ of inert C&D materials were generated from the Project and sent to Tuen Mun Area 38 Fill Bank and Contract 1108A Kai Tak Barging Point during the reporting month. No non-recyclable non-inert C&D materials and 112.2 m³ general refuse were disposed of at NENT Landfill. No chemical wastes, steel material, plastics and paper/cardboard packaging was generated and collected by the recycler during this reporting month.

Landscape and Visual

5. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 3 and 19 November 2015. 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 3, 10, 19 and 24 November 2015. The representative of the IEC joined the site inspection on 19 November 2015. 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;
 - ELS structure installation & superstructure works at At-Grade Box;
 - Structure works construction of Viaduct;
 - ABWF works at Hin Keng Station; 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 26th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 30 November 2015.

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;
 - ELS structure installation & superstructure works at At-Grade Box;
 - Pier construction of Viaduct;
 - ABWF works at Hin Keng Station; 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/I	14/10/2015	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
Reference No: 362534	29/7/2013	N/A	Valid
Billing Account for Construction Waste Disposal			
A/C No.: 7017900	02/8/2013	N/A	Valid
Registration of Chemical Waste Producer			
Registration No. 5218-759-P1057-03	03/9/2013	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance			
WT00018589-2014	29/4/2014	30/9/2018	Valid
Construction Noise Permit (CNP)			
GW-RN0354-15	30/6/2015	29/12/2015	Valid
GW-RN0607-15	15/10/2015	14/4/2016	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 (October 2015)	13 November 2015

5 MONITORING RESULTS

Regular Construction Noise Monitoring

- 5.1 A total of 4 sets of 30-minute construction noise measurements were carried out at the monitoring stations during normal weekdays during the reporting period by ET of SCL 1103. No exceedance of the limit level was recorded at designated monitoring station.
- 5.2 Based on observation during the on-site monitoring, road traffic nearby is considered as a potential noise source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.3 The detailed noise monitoring results together with their graphical presentations are presented in Appendix H of SCL 1103 monthly EM&A report.

Table 5.1 Summary Table of Construction Noise Monitoring Results

Parameter	Minimum Leq(30min), dB(A)	Maximum Leq(30min), dB(A)	Action Level	Limit Level, Leq(30min), dB(A)
Noise	< Baseline Level	< Baseline Level	When one documented complaint is received	70/65 ⁽¹⁾

Remarks:

- (1) For normal day-time working hours, the noise criteria is 70 dB(A) and 65 dB(A) for normal teaching period and examination periods respectively.
- (2) The noise monitoring data presented in the table is baseline corrected.

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

Regular Dust Monitoring

- 5.5 A total of 5 sets of 24-hour TSP monitoring were carried out at the designated monitoring station of the reporting period by ET of Works Contract SCL 1103. The monitoring results together with their graphical presentations are presented in Appendix E of SCL 1103 monthly EM&A report and a summary of the dust monitoring results in this reporting month is given in **Table 5.2**.

Table 5.2 Summary Table of Dust Monitoring Results

Parameter	Minimum $\mu\text{g}/\text{m}^3$	Maximum $\mu\text{g}/\text{m}^3$	Average $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
24-hr TSP	21.9	58.7	37.2	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		
November 2015 ^(d)	1,388.4 m ³	112.2 m ³	0 kg	0 kg	0 kg	0 kg

Notes:

- (a) Inert C&D materials include excavated soil and rock. 1,089.4 m³ of inert C&D materials was delivered to Tuen Mun Area 38 Fill Bank during the reporting month.
- (b) 299.0 m³ of excavated soil was delivered to Contract 1108A Kai Tak Barging Point and would be reused in other project in reporting month.
- (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 table in reporting month was 28 November 2015.

Landscape and Visual

- 5.10 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 3 and 19 November 2015. 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 3, 10, 19 and 24 November 2015 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 19 November 2015. EPD site inspection was conducted for chemical waste storage on 6 November 2015. No adverse comment was received. The details of observations during site audit carried out by ET can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

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

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	27 Oct 2015	<u>Reminder:</u> Ponding water on aquased near site entrance should be properly treated and cleared before discharge.	The quality of water treated in aquased was improved on 3 Nov 2015.
<i>Noise</i>	10 Nov 2015	<u>Reminder:</u> Noise mitigation measure at At-Grade Box should be enhanced when noisy work resumed to reduce noise nuisance.	No noisy work was observed resumed during site inspection on 19 Nov 2015.
<i>Landscape and Visual</i>	N/A	There was no observation in the reporting period.	N/A
<i>Air Quality</i>	3 Nov 2015	<u>Reminder:</u> Stockpile of backfilling material near swimming pool should be covered by impervious sheets for dust suppression.	The stockpile near swimming pool was covered by tarpaulin on 10 Nov 2015.
	10 Nov 2015	<u>Reminder:</u> Stockpile of construction materials in Viaduct area and near football court should be properly covered.	The stockpile in Viaduct area was removed. The stockpile near football court was covered on 19 Nov 2015.
<i>Waste / Chemical Management</i>	27 Oct 2015	Drip tray should be provided to chemical containers in Station area to prevent leakage.	The chemical containers in station area was removed on 3 Nov 2015.
	24 Nov 2015	Chemical was observed on paved ground in Station area. The chemical should be properly removed.	Follow up actions will be reported in the next month.
	24 Nov 2015	Drip tray should be provided to chemical containers in Station area to prevent leakage.	Follow up actions will be reported in the next month.

Parameters	Date	Observations and Recommendations	Follow-up
<i>Permits/ Licenses</i>	N/A	There was no observation in the reporting period.	N/A

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

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

Summary of Environmental Non-Compliance

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

Summary of Environmental Complaint

- 7.3 No environmental Project-related complaint was received in the reporting month. The Complaint Log in reporting month and cumulative summary table since the commencement of the Project is presented in **Appendix H**.

Summary of Environmental Summon and Successful Prosecution

- 7.4 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Log for environmental summon and successful prosecution in reporting month and cumulative summary table since the commencement of the Project is presented in **Appendix H**.

8 FUTURE KEY ISSUES

Construction Programme for the Next Month

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

- Slope improvement works;
- ELS structure installation & superstructure works at At-Grade Box;
- Structure works construction of Viaduct;
- ABWF works at Hin Keng Station; 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;
- Regular removal of silt, mud and sand along drainage channels and sedimentation tanks; and
- Proper storage and mitigation measures for chemical containers.

Monitoring Schedule in the Next Month

8.3 The tentative schedule of regular construction noise monitoring and 24-hour TSP monitoring at in the next reporting period is presented in **Appendix K** of SCL 1103 monthly EM&A report. The regular construction noise monitoring and 24-hour TSP monitoring will be conducted at the same monitoring locations in the next reporting period.

9 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 9.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 30 November 2015 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:

Construction Noise

- Regular review on the noise mitigation measures and the conditions of the implemented noise mitigation measures shall be properly maintained.

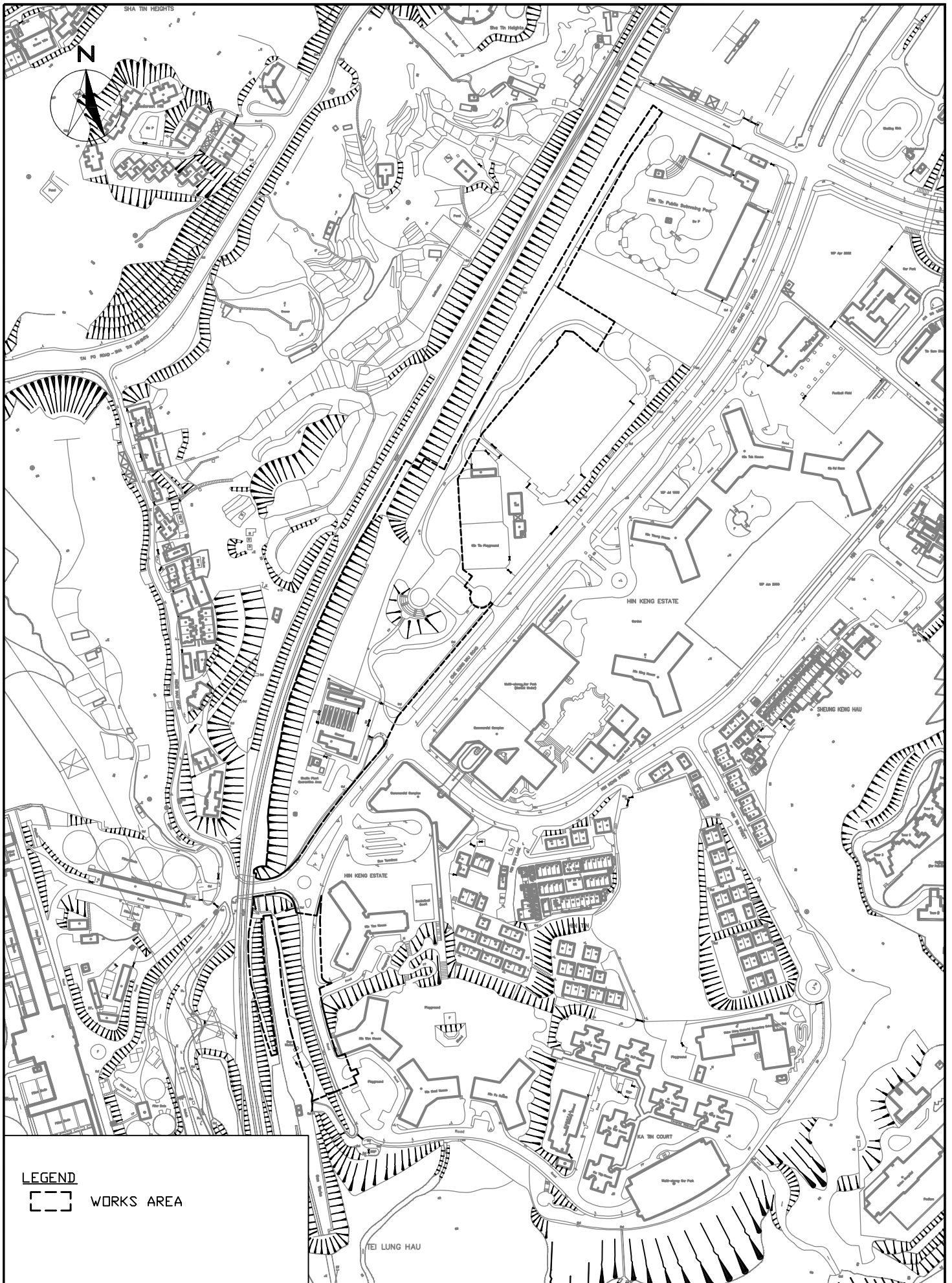
Air Quality

- Stockpile of dusty materials should be entirely covered by tarpaulin or impervious sheet.

Waste/Chemical Management

- Good site practice of providing drip trays for temporary use of chemicals shall be sustained. Drip trays should be properly maintained and ensure enough capacity for the chemical containers; and
- Chemical spilled on ground should be properly removed and disposed of as chemical waste.

FIGURES



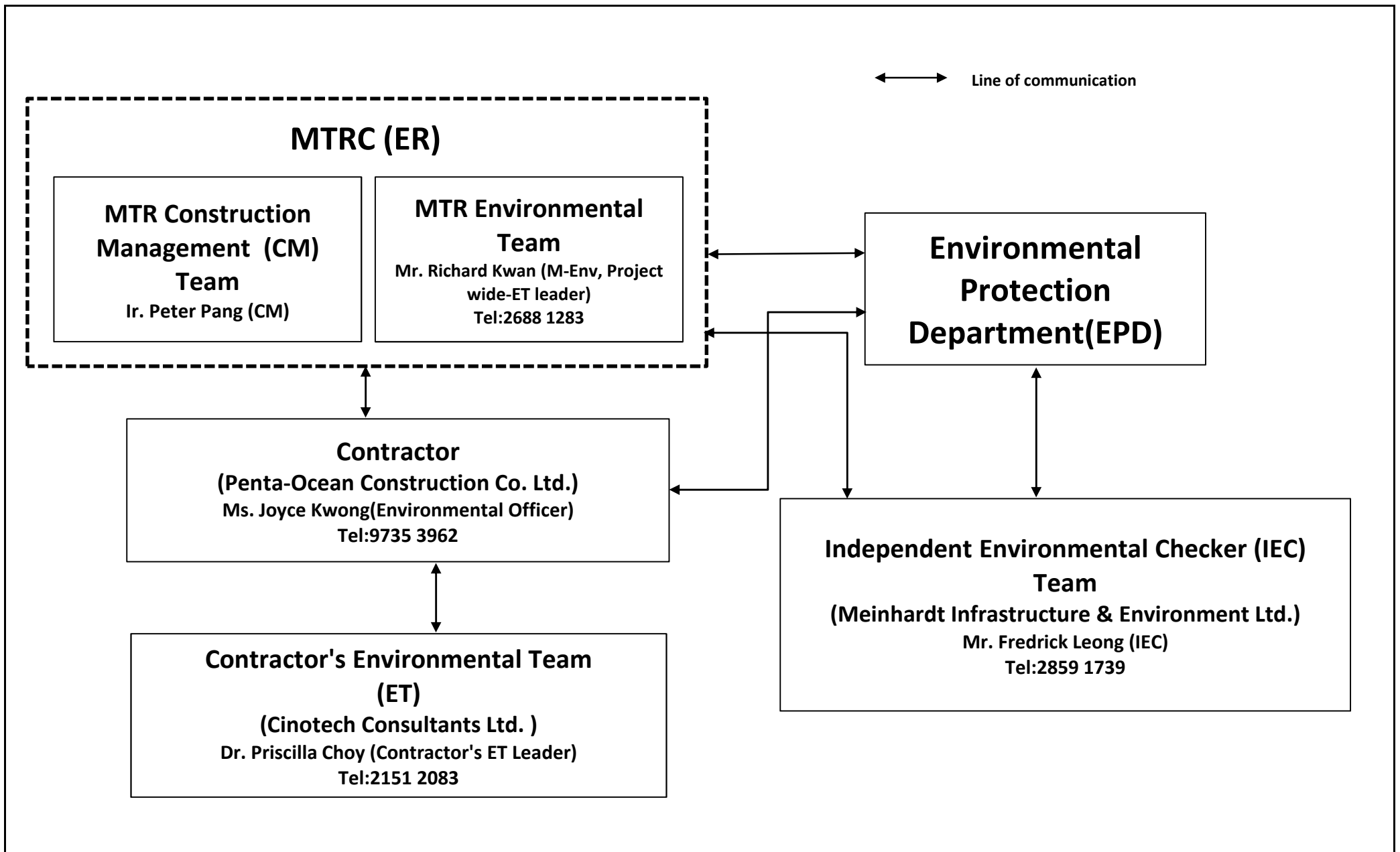
LEGEND

 WORKS AREA

CINOTECH
Cinotech Consultants Limited

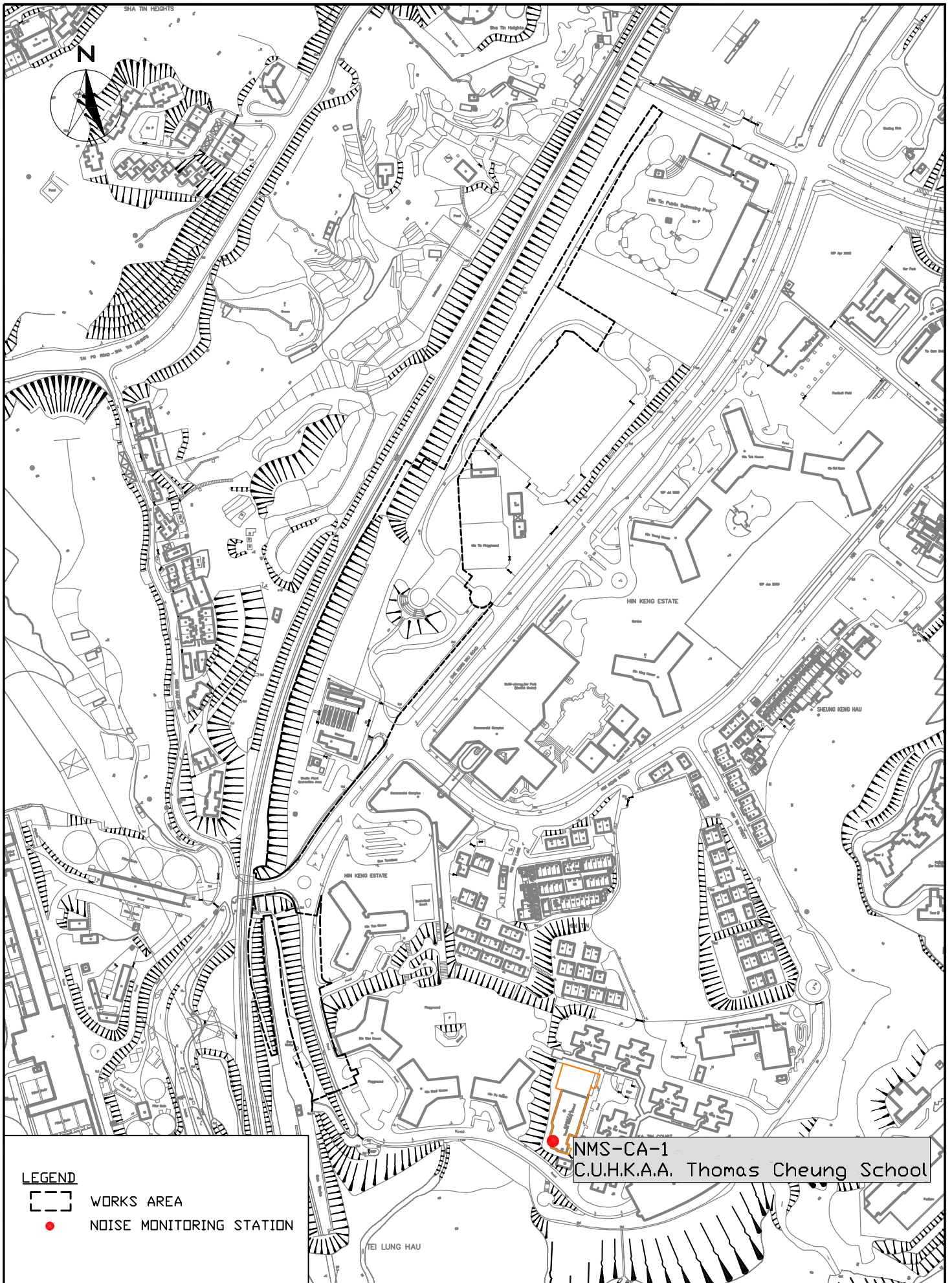
SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK -
HIN KENG STATION AND APPROACH STRUCTURES
**SITE LAYOUT PLAN OF
WORKS CONTRACT 1102**

SCALE	1:10000@A4	DATE	NOV 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 1
		REV	-



Title SCL Contract 1102 The Shatin to Central Link - Hin Keng Station and Approach Structures Organization Chart and Key Contact of the Project	Scale	N.T.S	Project No.	MA13040
	Date	Oct-13	Figure	2

CINOTECH



LEGEND

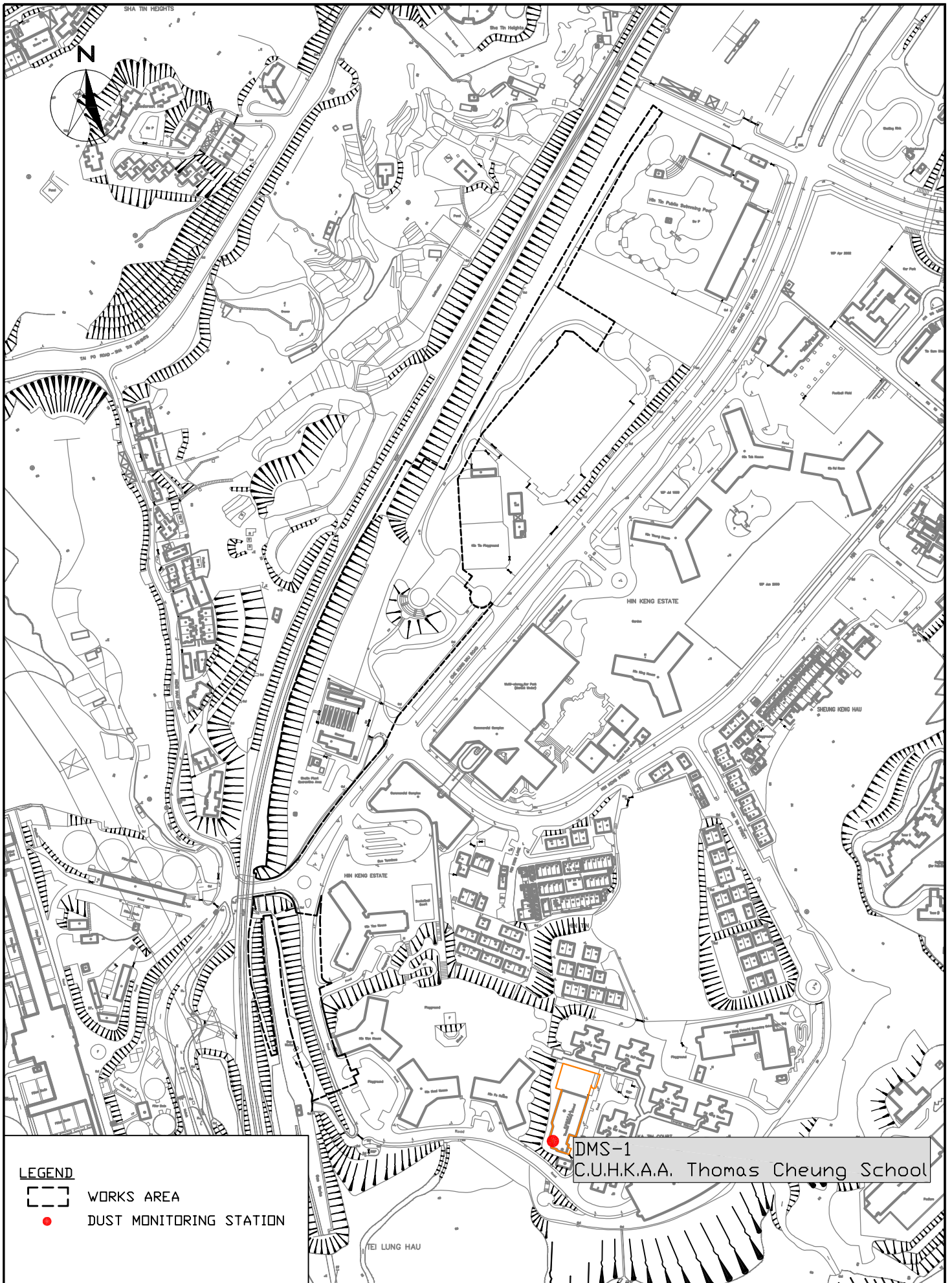
- WORKS AREA
- NOISE MONITORING STATION

NMS-CA-1
C.U.H.K.A.A. Thomas Cheung School





SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK -
HIN KENG STATION AND APPROACH STRUCTURES
LOCATION OF NOISE MONITORING STATION

SCALE	1:10000@A4	DATE	OCT 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 3
		REV	-



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

LEGEND

-  WORKS AREA
-  DUST MONITORING STATION



SCL CONTRACT 1102
THE SHATIN TO CENTRAL LINK -
HIN KENG STATION AND APPROACH STRUCTURES
LOCATION OF DUST MONITORING STATION

SCALE	1:10000@A4	DATE	OCT 2013
CHECK	GL	DRAWN	JW
JOB No.	MA13040	FIGURE NO.	FIG 4
		REV	-

**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	2015		2016		1R
						Nov	Dec	Jan	Feb	
3-month Rolling Programme Summary (Dec 2)		527.00	122.61	21-Oct-13 A	09-May-16					
Hin Keng Station		403.00	87.50	04-Mar-15 A	23-Mar-16					
Superstructure		403.00	87.50	04-Mar-15 A	23-Mar-16					
ABWF		403.00	87.50	04-Mar-15 A	23-Mar-16					
Ma On Shan Line & Tail Track		378.00	122.61	21-Oct-13 A	09-May-16					
Noise Barrier behind Hin Tin Swimming Pool		378.00	88.00	21-Oct-13 A	23-Mar-16					
Noise Barrier Work		157.00	30.61	15-Jul-14 A	09-May-16					
At-grade Box		168.00	107.00	12-Aug-15 A	19-Apr-16					
ELS Works		84.00	54.00	21-Sep-15 A	04-Feb-16					
Superstructure		168.00	107.00	12-Aug-15 A	19-Apr-16					
Hin Keng Viaduct		405.00	93.15	05-May-15 A	02-Apr-16					
Pier A2		28.00	0.00	26-Sep-15 A	04-Nov-15 A					
Superstructure		405.00	93.15	05-May-15 A	02-Apr-16					
FR63 Slope		85.00	14.80	03-Dec-14 A	17-Dec-15					
Drainage Work		64.00	7.60	03-Dec-14 A	09-Dec-15					
Soft Landscape		60.00	7.20	15-Jul-15 A	17-Dec-15					
FR65 Slope		90.00	9.00	05-Jan-15 A	10-Dec-15					
Soft Landscape		90.00	9.00	05-Jan-15 A	10-Dec-15					
F320 Slope		66.52	41.52	19-Oct-15 A	21-Jan-16					
Row 1		24.00	23.52	19-Oct-15 A	30-Dec-15					
Row 2		18.00	18.00	30-Dec-15	21-Jan-16					



- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- % Complete

MTRC SCL Project Contract 1102
Hin Keng Station and Approach Structures

3 Months Rolling Programme
Summary
(Period - Dec 2015 to Feb 2016)

Date	Revisi...	Checked	Approved
01-Dec-15	0		

**APPENDIX B
ACTION AND LIMIT LEVELS**

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

Regular Dust Monitoring Station	Description	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
DMS-1 ⁽¹⁾⁽²⁾	C.U.H.K.A.A. Thomas Cheung School	148.7	260

Note:

- (1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
 (2) Dust monitoring is carried out by Environmental Team of SCL Works Contract 1103.

Construction Noise

Regular Construction Noise Monitoring Station	Description	Time Period	Action Level	Limit Level
NMS-CA-1 ⁽¹⁾⁽²⁾	C.U.H.K.A.A Thomas Cheung School	0700-1900 hrs on normal weekdays	When one documented complaint is received	65 / 70 dB(A) ⁽³⁾

Note:

- (1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(TAW-HUH).
 (2) Construction Noise monitoring is carried out by Environmental Team of SCL Works Contract 1103.
 (3) Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period.

APPENDIX C
SUMMARY OF EXCEEDANCE

APPENDIX C – SUMMARY OF EXCEEDANCE

Reporting Month: November 2015

a) Exceedance Report for Dust Monitoring (NIL)

b) Exceedance Report for Noise Monitoring (NIL)

APPENDIX D
SITE AUDIT SUMMARY

**Shatin to Central Link -
Contract 1102 Hin Keng Station and Approach Structures**

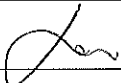

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151103
Date	3 November 2015 (Tuesday)
Time	09:00 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
151103-R01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> Stockpile of backfilling material near swimming pool should be covered by impervious sheets for dust suppression. <p>Part F – Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I – Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	E 6

	Name	Signature	Date
Recorded by	Jason Lai		3 November 2015
Checked by	Dr. Priscilla Choy		3 November 2015

*Shatin to Central Link -
Contract 1102 Hin Keng Station and Approach Structures*



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151110
Date	10 November 2015 (Tuesday)
Time	09:00 – 11:30

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

Ref. No.	Remarks/Observations	Related Item No.
151110-R01	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	E 6
151110-R02	<p>Part C – Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> Stockpile of construction materials in Viaduct area and near football court should be properly covered. <p>Part F – Construction Noise Impact</p> <ul style="list-style-type: none"> Noise mitigation measure at At-Grade Box should be enhanced when noisy work resumed to reduce noise nuisance. <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part I – Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	F 7

	Name	Signature	Date
Recorded by	Jason Lai		10 November 2015
Checked by	Dr. Priscilla Choy		10 November 2015

**Shatin to Central Link -
Contract 1102 Hin Keng Station and Approach Structures**



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151119
Date	19 November 2015 (Thursday)
Time	14:00 – 16:00

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

Ref. No.	Remarks/Observations	Related Item No.
	<p>Part B – Water Quality</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part C – Ecology</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part D – Landscape & Visual</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part E – Air Quality</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part F – Construction Noise Impact</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part G – Waste/Chemical Management</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part H – Permits/Licenses</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part I – Others</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	

	Name	Signature	Date
Recorded by	Jason Lai		19 November 2015
Checked by	Dr. Priscilla Choy		19 November 2015

***Shatin to Central Link -
Contract 1102 Hin Keng Station and Approach Structures***

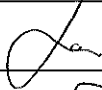

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	151124
Date	24 November 2015 (Tuesday)
Time	09:00 – 11:00

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

Ref. No.	Remarks/Observations	Related Item No.
151124-001	<p><i>Part B – Water Quality</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	
151124-002	<p><i>Part C – Ecology</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part D – Landscape & Visual</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part E – Air Quality</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part F – Construction Noise Impact</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part G – Waste/Chemical Management</i></p> <ul style="list-style-type: none"> • Chemical was observed on paved ground in Station area. The chemical should be properly removed. • Drip tray should be provided to chemical containers in Station area to prevent leakage. <p><i>Part H – Permits/Licenses</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p><i>Part I – Others</i></p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. 	<p>G 8</p> <p>G 10</p>

	Name	Signature	Date
Recorded by	Jason Lai		24 November 2015
Checked by	Dr. Priscilla Choy		24 November 2015

**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	<ul style="list-style-type: none"> • AFCD's requirements • EIAO • Country Parks Ordinance 	^
S5.7	E5	<p><u>Good Site Practices</u></p> <p>Impact to any habitats or local fauna should be avoided by implementing good site practices, including the containment of silt runoff within the site boundary, the containment of contaminated soils for removal from the site, appropriate storage of chemicals and chemical waste away from sites of ecological value and the provision of sanitary facilities for on-site workers. Adoption of such measures should permit waste to be suitably contained within the site for subsequent removal and appropriate disposal.</p> <p>The following good site practices should also be implemented:</p> <ul style="list-style-type: none"> • Erection of temporary geotextile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses in particular the Tei Lung Hau stream; • Avoidance of soil storage against trees or close to 	Minimise ecological impacts	Contractor	All construction sites	During construction	<ul style="list-style-type: none"> • ProPECC PN 1/94 	^
								N/A

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>waterbodies in particular the Tei Lung Hau stream;</p> <ul style="list-style-type: none"> • Delineation of works site by erecting hoardings to prevent encroachment onto adjacent habitats and fence off areas which have some ecological value e.g. Tei Lung Hau Stream and the adjoining secondary woodland, tunnel on hill at top of slope stabilisation works; • No on-site burning of waste; • Waste and refuse in appropriate receptacles. 						N/A ^ ^
S5.7	E7	<p><u>Water Quality and Hydrology</u></p> <ul style="list-style-type: none"> • Implement water control measures (ETWB TCW No. 5/2005, Protection of natural streams/ rivers from adverse impacts arising from construction works to avoid direct or indirect impacts on the Tei Lung Hau Stream) and good site practices. 	<ul style="list-style-type: none"> • Avoid indirect water impact to any wetland habitats or wetland fauna • Minimize the drawdown of water table 	Contractor	Works area in Hin Keng	Construction stage	• TCW No. 5/2005	^
<i>Landscape & Visual (Construction Phase)</i>								
S6.9.3	LV1	<p>The following good site practices and measures for minimisation and avoidance of potential impacts are recommended:</p> <p><u>Re-use of Existing Soil</u></p> <ul style="list-style-type: none"> • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage 	Minimize visual & landscape impact	Contractor	Within Project Site	Construction stage	TM-EIAO	^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>ground, gathering ground and mixing ground may be set up on-site as necessary.</p> <p><u>No-intrusion Zone</u></p> <ul style="list-style-type: none"> To maximize protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate "No-intrusion Zone" to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the "no-intrusion zone", even for indirect construction activities and storage of equipment. <p><u>Protection of Retained Trees</u></p> <ul style="list-style-type: none"> All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed and included in the Contract Specification, which specifying the tree protection requirement, submission and approval system, and the tree monitoring system. The Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
<i>Air Quality (Construction Phase)</i>								
/	A1	Emission from Vehicles and Plants <ul style="list-style-type: none"> • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD) 	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^ ^ ^
/	A2	Open burning shall be prohibited	Reduce air pollution emission from work site	Contractor	All construction sites	Construction stage	• APCO	^
<i>Construction Dust Impact</i>								
S7.6.5	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^
S7.6.5	D2	• Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road in the Kowloon area and once per 1.5hour at those in the Tai Wai area should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact to meet HKAQO and TM-EIA criteria	^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>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</p>						
S7.6.5	D3	<ul style="list-style-type: none"> • Proper watering of exposed spoil should be undertaken throughout the construction phase: • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit 	<p>Minimize dust impact at the nearby sensitive receivers</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • APCO • To control the dust impact to meet HKAQO and TM-EIA criteria 	<p>^</p> <p>*</p> <p>^</p> <p>^</p> <p>^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>point should be paved with concrete, bituminous materials or hardcores;</p> <ul style="list-style-type: none"> • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding;</p> <p>Any skip hoist for material transport should be totally enclosed by impervious sheeting;</p> <ul style="list-style-type: none"> • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; <p>and</p> <ul style="list-style-type: none"> • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		construction site or part of the construction site where the exposed earth lies.						
S7.6.5	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	• TM-EIA	^
Construction Noise (Airborne)								
S8.3.6	N1	Implement the following good site practices: <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other 	Control construction airborne noise	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^ ^ ^ ^ ^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.						
S8.3.6	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy plants including air compressor, generators and saw.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	*
S8.3.6	N4	Use "Quiet plants"	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N5	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIA	^
S8.3.6	N6	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected	Contractor	Selected representative	Construction stage	• TM-EIA	^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

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

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

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

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<p>accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.</p> <ul style="list-style-type: none"> • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. • All the earth works involving should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable. • Adopt best management practices 						<p>^</p> <p>^</p> <p>^</p> <p>^</p>
S10.7.1	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> • Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. 	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • TM-water 	^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S10.7.1	W7	<p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> • All the tanks, containers, storage area should be banded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains. • The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. • Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	To minimize water quality impact from accidental spillage	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance • ProPECC PN1/94 • TM-EIAO • TM-Water 	* ^ ^
Waste Management (Construction Waste)								
S11.4.1.1	WM1	<p><u>On-site sorting of C&D material</u></p> <ul style="list-style-type: none"> • Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc). Volcanic rock and Aplite dyke 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	<ul style="list-style-type: none"> • DEVB TC(W) No. 6/2010 	^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		operator should also be reminded to set up measures to prevent unsuitable rock from ended up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractors for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc should also be explored.						
S11.5.1	WM2	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promotethe use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005 	^ ^ ^ ^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation 						<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>
S11.5.1	WM3	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. 	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> • Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005 	<p style="text-align: center;">^</p>

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 						^
S11.5.1	WM4	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. Office wastes can be reduced through the recycling of paper if 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> Waste Disposal Ordinance 	^ ^ ^ ^

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
		<ul style="list-style-type: none"> • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. 						^
Land Contamination								

SCL Works Contract 1102 - Environmental Mitigation Implementation Schedule

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

APPENDIX F
EVENT AND ACTION PLANS

Appendix F - Event and Action Plan for Air Quality Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1102 ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 	<ol style="list-style-type: none"> 1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Inform the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

LIMIT LEVEL

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

Event and Action Plan for Noise Monitoring during Construction Phase

EVENT	ACTION			
	Works Contract 1102 ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and ER 2. Discuss with the ER, IEC and Contractor on the remedial measures required 3. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of complaint in writing 2. Notify the Contractor, IEC and ET 3. Review and agree on the remedial measures proposed by the Contractor; 4. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures 2. Report the results of investigation to the IEC, ET and ER 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify the IEC, Contractor and EPD 2. Repeat measurement to confirm findings 3. Increase monitoring frequency 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of the Contractor's remedial measures and keep IEC, ER and EPD informed of the results 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Notify the Contractor, IEC and ET 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 4. Supervise the implementation of remedial measures 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance 2. Take immediate action to avoid further exceedance 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification. 4. Implement the agreed proposals 5. Revise and resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event and Action Plan for Landscape and Visual during Construction Phase

Action Level	Works Contract 1102 ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, the IEC and the ER 2. Discuss remedial actions with the IEC, the ER and the Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET, ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the Contractor, the IEC and the ER 3. Increase inspection frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Identify Source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with the ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by the ER until the non-conformity is abated.

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

Name of Contractor: Penta-Ocean Construction Co. Ltd.
Waste Flow Table for Year 2015

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated (in '000m ³)	Broken Concrete (in '000m ³)	Reused in the Contract (in '000m ³)	Reused in other Projects (See Note 2) (in '000m ³)	Disposed as Public Fill (See Note 1) (in '000m ³)	Disposed as Sorting Facility (in '000m ³)	Metals (in '000 kg)	Paper/ cardboard packaging (in '000kg)	Plastics (in '000kg)	Chemical Waste (in '000kg)	Others, e.g. general refuse (in '000m ³)
Jan-15	1.5370	0	0	0	1.5277	0.0093	0	0	0	0	0.1224
Feb-15	1.3199	0	0	0	1.3156	0.0045	0	0	0	0	0.0876
Mar-15	2.0981	0	0	0.3023	1.7724	0.0235	0	0	0	0	0.1674
Apr-15	0.5166	0	0	0	0.5058	0.0109	0	0	0	0	0.1784
May-15	0.4987	0	0	0	0.4948	0.0039	0	0	0	0	0.1224
Jun-15	2.5555	0	0	0	2.5526	0.0029	0	0	0	0	0.1182
Sub-total	8.5258	0	0	0.3023	8.1689	0.0550	0	0	0	0	0.7964
Jul-15	3.5247	0	0	0	3.5247	0	0	0	0	0	0.1394
Aug-15	1.9326	0	0	0.0152	1.9173	0	0	0	0	0	0.1209
Sep-15	2.4723	0	0	0.1542	2.3181	0	0	0	0	0	0.1338
Oct-15	1.5722	0	0	0	1.5722	0	0	0	0	0	0.0867
Nov-15 (See Note 3)	1.3884	0	0	0.2990	1.0894	0	0	0	0	0	0.1122
Dec-15											
Total	19.4160	0	0	0.7707	18.5906	0.055	0	0	0	0	1.3894

Note: (1) Inert C&D materials include excavated soil and rock. 1,089.4m³ of inert C&D materials was delivered to Tuen Mun Area 38 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 table in reporting month was 28 November 2015.

**APPENDIX H
LOG AND CUMULATIVE SUMMARY
TABLE FOR COMPLAINTS,
NOTIFICATIONS OF SUMMONS AND
SUCCESSFUL PROSECUTIONS**

Appendix H - Log and Cumulative Summary Table for Complaints, Notifications of Summons and Successful Prosecutions**Reporting Month:** November 2015**Complaint Log**

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Status
--	--	--	--	--	--

Log for Notifications of Summons

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

Log for Successful Prosecutions

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

Cumulative Summary Table for Complaints, Notifications of Summons and Successful Prosecution

Reporting Month	Number of Complaints	Number of Notifications of Summons	Number of Successful Prosecution
October 2013	0	0	0
November 2013	0	0	0
December 2013	0	0	0
January 2014	0	0	0
February 2014	0	0	0
March 2014	0	0	0
April 2014	0	0	0
May 2014	0	0	0
June 2014	0	0	0
July 2014	0	0	0
August 2014	0	0	0
September 2014	0	0	0
October 2014	0	0	0
November 2014	1	0	0
December 2014	0	0	0

Reporting Month	Number of Complaints	Number of Notifications of Summons	Number of Successful Prosecution
January 2015	0	0	0
February 2015	0	0	0
March 2015	0	0	0
April 2015	0	0	0
May 2015	0	0	0
June 2015	0	0	0
July 2015	0	0	0
August 2015	0	0	0
September 2015	0	0	0
October 2015	0	0	0
November 2015	0	0	0
Total	1	0	0