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24th CONSOLIDATED MONTHLY EM&A REPORT

October 2018

Client	**:**	Civil Engineering and Development Department, HKSAR
EP No.	**:**	EP-337/2009 – New Distributor Roads Serving the Planned Kai Tak Development Area
Contract No.	**:**	KLN/2016/05 – Independent Environmental Checker for Contract No. KL/2015/02 Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area
Report No.	**:**	0087/16/ED/0825

Prepared by	**:**	Wingo So
Reviewed by	**:**	Calvin Leung
Certified by	**:**	Colin Yung Independent Environmental Checker Fugro Technical Services Limited

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EXECUTIVE SUMMARY

i. This is the 24th Consolidated Monthly EM&A Report which summaries the EM&A works undertaken by respective contract under EP-337/2009 within the period between 1 October and 30 October 2018.

ii. The EP-337/2009 relevant major construction activities undertaken in the reporting month are summarized as follow:

Contract No. KL/2010/03:

- NA (The works has been completed and no further EM&A submission is required.)

Contract No. KL/2012/02:

- The Environmental Team Leader's letter dated 10 September 2018 was seeking EPD's approval on the proposal to cease construction phase EM&A works (environmental monitoring and site audit) under Contract No. KL/2012/02 Kai Tak Development - Stage 3A Infrastructure at Former North Apron Area under the Environmental Permit (EP) No. EP-337/2009 Condition 3.1.
- A joint site visit with representatives CEDD and EPD had been conducted on 18 September 2018.
- The cessation of environmental monitoring and construction site audit at the works site, whilst site inspection and audit for landscape and visual mitigation measures at least once every three months according to the EM&A Manual will continue until the end of the 12-month establishment period (i.e. 9 May 2019) was approved by Environmental Protection Department on 2 October 2018.

Contract No. KL/2012/03:

- Daily Cleaning;
- Finishing works, E&M work, Access Road Construction in PS2;
- Site Clearance Works in DCS;
- Footpath Construction at Sung Wong Toi Road;
- Finishing works and E&M works in Portion 4 (NPS & Sewerage); and
- Removal of excavated material in Portion 6.

Contract No. KL/2014/01:

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- Construction of box culvert and underpass;
- Construction of utilities trough at Kai Tak Bridge;
- Construction of pile caps, noise barrier footings and steel structure, outfalls, deck structure and columns;
- Laying of sewer, drainage and pavement; and
- Erection of noise barrier steel structure and panels.

Contract No. KL/2014/03:

- Excavation and laying of drainage pipe and manhole;
- Excavation and ELS construction;
- Construction of Supporting Underground Structure; and
- Construction of District Cooling System.

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Contract No. KL/2015/02:

- Excavate with ELS works for subway construction at PERE
- Structural works for subway SW6 from CH0 to CH18 and Staircase ST3
- Carry out trial pits and drive sheet piles for subway construction at layby of PERE (Stage 4)
- Demolition of existing end walls at B5 connection
- Flow diversion and demolition of existing box culvert for B3 and B6 construction
- DCS and Drainage and works in Portion 6, Road D1
- DCS, Drainage, Sewerage and Waterworks in Road L7
- Drainage and Sewerage works in Portion 2 & 3

Breaches of the Action and Limit Levels

iii. No Action / Limit Level exceedance was recorded for 24-hr TSP monitoring in the reporting month.

iv. No Action / Limit Level exceedance was recorded for 1-hr TSP monitoring in the reporting month.

v. No Action / Limit Level exceedance was recorded for noise monitoring in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

vi. No complaint, notification of summons or prosecution was received in this reporting month.

Reporting Changes

vii. There was no reporting change in the reporting month.

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Future Key Issues

viii. The potential environmental impacts for the coming month and the control measures are shown in **Table I**:

Table I Summary of Key Issues for the Coming Month and Control Measures

Major Impact Prediction	Control Measures
Contract No. KL/2012/03:	
Air quality impact (dust)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Watering of any earth moving activities.
Water quality impact (surface run-off)	• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; • Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; • Provision of site boundary bund such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and • Provision of measures to prevent discharge into the stream.
Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.
Contract No. KL/2014/01:	
Air quality impact (dust)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Watering of any earth moving activities.
Water quality impact (surface run-off)	• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; • Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; • Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and • Provision of measures to prevent discharge into the stream.
Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.
Contract No. KL/2014/03:	
Construction dust, construction noise, water quality, waste management and landscape and visual impact.	• Sufficient watering of the works site with the active dust emitting activities; • Limitation of the speed for vehicles on unpaved site roads; • Properly cover or enclosure of the stockpiles and dusty materials; • Good site practices on loading dusty materials; • Providing sufficient vehicles washing facilities at every vehicle exit point; • Good maintenance to the plant and equipment; • Use of quieter plant and Quality Powered Mechanical Equipment (QPME); • Use of acoustic fabric and noise barrier; • Using the approved Non-road Mobile Machineries (NRMMs); • Proper storage and handling of chemical;

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Major Impact Prediction	Control Measures
	• Appropriate desilting, oil interceptors or sedimentation devices provided on site for treatment before discharge; • Onsite waste sorting and implementation of trip ticket system; • Training of the site personnel in proper waste management and chemical waste handling procedures; • Proper storage of the construction materials; • Erection of decorative screen hoarding; • Strictly following the Environmental Permits and Licenses; • Provide sufficient mitigation measures as recommended in Approved EIA Reports
Contract No. KL/2015/02:	
Air quality impact (dust)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Watering of any earth moving activities.
Water quality impact (surface run-off)	• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; • Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; • Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and • Provision of measures to prevent discharge into the stream.
Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.

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1. INTRODUCTION

1.1 Background

1.1.1 The Kai Tak Development is located in the south-eastern part of Kowloon Peninsula of the HKSAR, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling.

1.1.2 A study of environmental impact assessment (EIA) was undertaken to consider the key issues of air quality, noise, water quality, waste, land contamination, cultural heritage and landscape and visual impact, and identify possible mitigation measures associated with the works. EIA Report (Register No. AEIAR-130/2009) was approved by the Environmental Protection Department (EPD) on 4 March 2009.

1.1.3 The EP-337/2009 was issued on 23 April 2009 for the new distributor roads serving the planned Kai Tak Development to the following scale and slope:

a) Road D1 – a dual 2-lane carriageway of approximately 1.3 km long.
b) Road D2 – a dual 3-lane carriageway of approximately 1.1 km long.
c) Road D3 – a dual 2-lane carriageway of approximately 2.3 km long.
d) Road D4 – a dual 2-lane carriageway of approximately 0.9 km long.

1.1.4 The Civil Engineering and Development Department HKSAR has appointed Fugro Technical Services Limited (FTS) to undertake the role of Independent Environmental Checker (IEC) for the Contract No. KL/2015/02.

1.1.5 This is the 24th Consolidated Monthly EM&A Report which summaries the EM&A works undertaken by respective contract under EP-337/2009 within the period between 1 October and 30 October 2018.

1.2 Summary of relevant Contract Information of Key Personnel

Party	Position	Name	Telephone	Fax
Contract No. KL/2012/03:				
Project Proponent (CEDD)	Senior Engineer	Mr. C. K. Choi	2301 1174	2301 1277
Engineer's Representative (AECOM)	CRE	Mr. W. K. Leung	2798 0771	3013 8864
	RE	Mr. Jacky Pun		
IEC (ANewR)	IEC	Mr. Adi Lee	2618 2831	3007 8648
ET (Cinotech)	ET Leader	Dr. Priscilla Choy	2151 2089	3107 1388
	Project Coordinator and Audit Team Leader	Ms. Ivy Tam	2151 2090	
Main Contractor (Kwan On)	Site Agent	Mr. Albert Ng	3689 7752	3689 7726
			6146 6761 (Hotline)	
Contract No. KL/2014/01:				
Project Proponent (CEDD)	Senior Engineer	Mr. Sunny Lo	3579 2450	3579 4516
	Engineer	Mr. Keith Chu	3579 2124	
Engineer's Representative (AECOM)	CRE	Mr. Clive Cheng	3746 1801	2798 0783
IEC (KSMC)	IEC	Dr. C. F. Ng	2618 2166	2120 7752
ET (Cinotech)	ET Leader	Dr. Priscilla Choy	2151 2089	3107 1388
	Audit Team	Ms. Ivy Tam	2151 2090	

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Party	Position	Name	Telephone	Fax
	Leader			
Main Contractor (CCJV)	EO	Mr. Dennis Ho	2960 1398	2960 1399
Contract No. KL/2014/03:				
Project Proponent (CEDD)	Co-ordinator	Ms. Amy Chu	3106 3172	2369 4980
Engineer's Representative (HMJV)	CRE	Mr. Chris Wong	3742 3803	3742 3899
IEC (Ramboll Hong Kong Limited)	IEC	Mr. F. C. Tsang	3465 2851	3465 2899
ET (MCL)	ET Leader	Mr. Colin Yung	3565 4114	3565 4160
Main Contractor (CRBC)	Site Agent	Mr. Dickey Yau	5699 4503	2283 1689
	EO	Mr. Calvin So	9724 6254	
Contract No. KL/2015/02:				
Project Proponent (CEDD)	Senior Engineer	Ms. K. Pong	2301 1466	2369 4980
Engineer's Representative (AECOM)	SRE	Mr. Vincent Lee	2798 0771	2210 6110
IEC (FTS)	IEC	Mr. Colin Yung	3565 4114	2450 8032
ET (Cinotech)	ET Leader	Dr. Priscilla Choy	2151 2089	3107 1388
	Audit Team Leader	Ms. Ivy Tam	2151 2090	
Main Contractor (PWHJV)	Site Agent	Mr. W. M. Wong	6386 3535	2398 8301

1.3 Summary of Construction Programme and Activities

1.3.1 The construction programme of each Contract is summarized in the appendices of the corresponding Monthly EM&A.

1.3.2 The major construction activities undertaken in the reporting month are summarized as follow:

Contract No. KL/2010/03:

- NA (The works has been completed and no further EM&A submission is required.)

Contract No. KL/2012/02:

- The Environmental Team Leader's letter dated 10 September 2018 was seeking EPD's approval on the proposal to cease construction phase EM&A works (environmental monitoring and site audit) under Contract No. KL/2012/02 Kai Tak Development - Stage 3A Infrastructure at Former North Apron Area under the Environmental Permit (EP) No. EP-337/2009 Condition 3.1.
- A joint site visit with representatives CEDD and EPD had been conducted on 18 September 2018.
- The cessation of environmental monitoring and construction site audit at the works site, whilst site inspection and audit for landscape and visual mitigation measures at least once every three months according to the EM&A Manual will continue until the end of the 12-month establishment period (i.e. 9 May 2019) was approved by Environmental Protection Department on 2 October 2018.

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Contract No. KL/2012/03:

- Daily Cleaning;
- Finishing works, E&M work, Access Road Construction in PS2;
- Site Clearance Works in DCS;
- Footpath Construction at Sung Wong Toi Road;
- Finishing works and E&M works in Portion 4 (NPS & Sewerage); and
- Removal of excavated material in Portion 6.

Contract No. KL/2014/01:

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- Construction of box culvert and underpass;
- Construction of utilities trough at Kai Tak Bridge;
- Construction of pile caps, noise barrier footings and steel structure, outfalls, deck structure and columns;
- Laying of sewer, drainage and pavement; and
- Erection of noise barrier steel structure and panels.

Contract No. KL/2014/03:

- Excavation and laying of drainage pipe and manhole;
- Excavation and ELS construction;
- Construction of Supporting Underground Structure; and
- Construction of District Cooling System.

Contract No. KL/2015/02:

- Excavate with ELS works for subway construction at PERE
- Structural works for subway SW6 from CH0 to CH18 and Staircase ST3
- Carry out trial pits and drive sheet piles for subway construction at layby of PERE (Stage 4)
- Demolition of existing end walls at B5 connection
- Flow diversion and demolition of existing box culvert for B3 and B6 construction
- DCS and Drainage and works in Portion 6, Road D1
- DCS, Drainage, Sewerage and Waterworks in Road L7
- Drainage and Sewerage works in Portion 2 & 3

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1.4 Summary of Inter-relationship with the environmental protection/ mitigation measures with the construction programme

1.4.1 The summary of inter-relationship with environmental protection/mitigation measures are presented as follow:

Major Environmental Impact	Control Measures
Contract No. KL/2012/03:	
Dust, Water Quality, Waste Management (Construction of superstructure of Pumping Station PS2 and NPS)	• Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; and • On-site waste sorting and implementation of trip ticket system.
Dust, Noise (Backfilling between sewerage manholes 1K1_1 and FMH10_340 and construction of manhole FMH10_370a at L6)	• Use of quiet plant and well-maintained construction plant; and • Properly cover the stockpiles;
Noise, Waste Management (Installation of precast unit and construction of in-situ portions of Box Culvert B6; Construction of jacking pits nos. 1 and 2; Installation of gas pipe at pit no. 10; Construction of washout chamber at pit no. 11)	• Use of quiet plant and well-maintained construction plant; and • Provide hoarding. • Good management and control on construction waste reduction
Noise (Construction of sewerage manhole FMH 10 at Bailey Street; Widening works of Sung Wong Toi Road.)	• Use of quiet plant and well-maintained construction plant; and • Provide hoarding.
Noise, Water Quality (Pipe laying from manhole SMH2204 to Box Culvert B6; Laying of rising mains from PS2 to chainage CHA-18; Pipe laying from stormwater manholes SMH1962 to SMH1963 and construction of manholes SMH1953 and SMH1963 at L6; Installation of DCS)	• Use of quiet plant and well-maintained construction plant; and • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall.
Contract No. KL/2014/01:	
Noise, dust impact, water quality and waste generation	• Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • On-site waste sorting and implementation of trip ticket system • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Use of quiet plant and well-maintained construction plant; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; • Provide mitigation measure to temporary use of chemicals;

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Major Environmental Impact	Control Measures
	• Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.
Contract No. KL/2014/03:	
Air Quality Impact, Construction Noise Impact, Water Quality Impact, Chemical and Waste Management, Landscape and Visual Impact	• Sufficient watering of the works site with the active dust emitting activities; • Limitation of the speed for vehicles on unpaved site roads; • Properly cover or enclosure of the stockpiles and dusty materials; • Good site practices on loading dusty materials; • Providing sufficient vehicles washing facilities at every vehicle exit point; • Good maintenance to the plant and equipment; • Use of quieter plant and Quality Powered Mechanical Equipment (QPME); • Use of acoustic fabric and noise barrier; • Using the approved Non-road Mobile Machineries (NRMMs); • Proper storage and handling of chemical; • Appropriate desilting, oil interceptors or sedimentation devices provided on site for treatment before discharge; • Onsite waste sorting and implementation of trip ticket system; • Training of the site personnel in proper waste management and chemical waste handling procedures; • Proper storage of the construction materials; • Erection of decorative screen hoarding; • Strictly following the Environmental Permits and Licenses; • Provide sufficient mitigation measures as recommended in Approved EIA Reports
Contract No. KL/2015/02:	
Noise, dust impact, water quality and waste generation	• Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • On-site waste sorting and implementation of trip ticket system • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Use of quiet plant and well-maintained construction plant; • Provide movable noise barrier; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; • Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.

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1.5 Summary Status of Environmental Licences, Notifications and Permits

1.5.1 A summary of the relevant environmental licenses, permits and/or notifications on environmental protection for this EP and relevant Contract are presented in **Table 1.1**.

Table 1.1 Relevant Environmental Licenses, Permits and/or Notifications

Environmental License / Permit / Notification	Reference Number	Valid From	Valid Till
Contract No. KL/2012/03:			
Environmental Permit	EP-337/2009 EP-344/2009	23/04/2009 23/04/2009	N/A N/A
Effluent Discharge License	WT00020971-2015	22/04/2015	21/04/2020
Registration of Chemical Waste Producer	5213-286-K2958-05	-	N/A
Contract No. KL/2014/01:			
Environmental Permit	EP-337/2009 EP-445/2013/A	23/04/2009 13/08/2009	N/A N/A
Effluent Discharge License	WT00023634-2016	-	31/03/2021
Registration of Chemical Waste Producer	5213-247-C4004-01	-	N/A
Construction Noise Permit	GW-RE0646-18	19/09/2018	17/12/2018
Contract No. KL/2014/03:			
Environmental Permit	EP-337/2009 EP-339/2009/A EP-451/2013	23/04/2009 18/06/2009 19/09/2013	N/A N/A N/A
Notification pursuant to Air Pollution (Construction Dust) Regulation	395601	16/11/2015	N/A
Billing Account for Waste Disposal	A/C No.: 7023814	30/11/2015	N/A
Billing Account for Waste Disposal (Vessel)	A/C No.: 7027469	25/08/2017 22/11/2017	18/11/2017 18/02/2018
Construction Noise Permit	GW-RE0395-18 GW-RE0489-18	05/06/2018 14/07/2018	04/12/2018 11/01/2019
Wastewater Discharge License	WT00023125-2015	06/01/2016	31/01/2021
Chemical Waste Producer License	5213-247-C1232-12	23/11/2015	N/A
Contract No. KL/2015/02:			
Environmental Permit	EP-337/2009	23/04/2009	N/A
Wastewater Discharge License	WT00027495-2017	28/03/2017	31/03/2022
Billing Account for Waste Disposal	A/C No.: 7026164	20/10/2016	N/A
Registration of Chemical Waste Producer	WPN5213-229-P3271-01	14/08/2017	N/A
Construction Noise Permit	-	-	-

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2. ENVIRONMENTAL MONITORING AND AUDIT

2.1 Results and Observations

Air Quality

2.1.1 The schedule of air quality monitoring in reporting month is provided in the appendices of the corresponding Monthly EM&A.

2.1.2 The weather conditions during the monitoring are provided in the appendices of the corresponding Monthly EM&A.

2.1.3 The monitoring data of 24-hr TSP and 1 hour TSP are summarized in **Table 2.1**. Detailed monitoring data are presented in the appendices of the corresponding Monthly EM&A.

Table 2.1 Summary of 24-hr and 1 hour TSP Monitoring Results

Parameter	Monitoring Station	Average ($\mu g/m^3$)	Range ($\mu g/ m^3$)	Action Level ($\mu g/ m^3$)	Limit Level ($\mu g/ m^3$)
Contract No. KL/2012/03:					
1-hr TSP	AM2	97.3	49.7 – 169.1	346	500
	AM3(A)	77.6	32.0 – 147.3	351	
	AM4(C)	44.7	103.1 – 203.0	371	
	AM5	31.0	77.2 – 158.2	345	
24-hr TSP	AM2(A)	66.2	49.7 – 80.6	157	260
	AM3(B)	104.5	72.6 – 124.9	187	
	AM4(C)	126.7	65.7 – 163.4	187	
	AM5	41.7	31.3 – 64.6	156	
Contract No. KL/2014/01:					
NA (No air quality monitoring is required for the Project)					
Contract No. KL/2014/03:					
1-hr TSP	KTD1a	No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted.			
	KTD2a				
	KER1b				
24-hr TSP	KTD1a	58	36 - 81	177	260
	KTD2a	58	27 - 89	157	
	KER1b	66	33 - 143	172	
Contract No. KL/2015/02:					
1-hr TSP	AM2	88.8	38.9– 202.0	346	500
24-hr TSP	AM2(A)	58.4	24.4 – 86.5	157	260

2.1.4 No Action / Limit Level exceedance was recorded for 24-hr TSP monitoring in the reporting month.

2.1.5 No Action / Limit Level exceedance was recorded for 1-hr TSP monitoring in the reporting month.

2.1.6 The monitoring data of 24-hr TSP was compared with the EIA predictions are presented in the appendices of the corresponding Monthly EM&A.

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2.1.7 The Event and Action Plan for air quality is given in in the appendices of the corresponding Monthly EM&A.

Noise

2.1.8 The schedule of noise monitoring in reporting month is provided in in the appendices of the corresponding Monthly EM&A.

2.1.9 The noise monitoring data are summarized in **Table 2.2**. Detailed monitoring data are presented in the appendices of the corresponding Monthly EM&A.

Table 2.2 Summary of Noise Impact Monitoring Results

Monitoring Stations	Construction Noise Level Leq $_{(30min)}$ dB(A) (Range)	Action Level	Limit Level dB (A)
Contract No. KL/2012/03:		When one documented complaint is received	
M6(A)	50.6 – 66.2		70*
M7	52.4 – 68.5		70*
M8	60.1 – 68.3		70*
M9	67.6 – 71.1		75
Contract No. KL/2014/01:			
NA (No Construction noise monitoring is required for the Project.)			NA
Contract No. KL/2014/03:			
KTD1a	65 - 74		75
KTD2a	63 - 72		75
KER1b	64 - 71		75
Contract No. KL/2015/02:			
M3	63.9 – 78.8#		70*
M4	73.1 – 76.1#		70*
M5(C)	66.7 – 77.8#		75

(*) Noise Limit Level is 65 dB(A) during school examination periods.
(#) Measured noise level ≤ background / baseline noise level, detailed data refer to the corresponding Monthly EM&A report.

2.1.10 The noise monitoring data was compared with the EIA predictions are presented in the appendices of the corresponding Monthly EM&A.

2.1.11 No Action / Limit Level exceedance was recorded for noise monitoring in the reporting month.

2.1.12 The Event and Action Plan for noise is given in in the appendices of the corresponding Monthly EM&A.

Landscape and Visual

2.1.13 Site audits were carried out on a weekly basis to monitor and audit the landscape and visual mitigation measures within the site boundaries of this Project. Detailed of observations are presented in the appendices of the corresponding Monthly EM&A.

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3. SITE INSPECTION

3.1 Site Inspection

3.1.1 Site inspections were carried out weekly to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. The site inspection of each Contract are summarized as follow:

Contract No. KL/2012/03:
Site audits were conducted on 5, 12, 19 and 24 October 2018 in the reporting month. IEC site inspection was conducted on 24 October 2018.

Contract No. KL/2014/01:
Site audits were conducted by representatives of the Contractor, Supervising Officer and ET on 3, 10, 18, 24 and 31 October 2018 in the reporting month. IEC joint site inspection was conducted on 24 October 2018.

Contract No. KL/2014/03:
In the reporting month, five site inspections were carried out on 3, 10, 16, 24 and 31 October 2018. Two of them, held on 3 and 24 October 2018 were the joint inspections with the IEC, ER, the Contractor and the ET.

Contract No. KL/2015/02:
Site audits were conducted on 2, 10, 15, 22 and 29 October 2018 in the reporting month. A joint site audit with the representative of IEC, ER, the Contractor and the ET was conducted on 10 October 2018.

3.1.2 Detailed of observation, recommendation of site inspections and summary of the mitigation measures implementation schedule is provided in the appendices of the corresponding Monthly EM&A.

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4. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

4.1 Complaints, Notification of Summons and Prosecution

4.1.1 The summary of complaints, notification of summons and prosecution in the reporting month is shown as **Table 4.1**.

Table 4.1 Summary of Complaints, Notification of Summons and Prosecution

Event	No. of Event This Month	Remark
Contract No. KL/2012/03:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
Contract No. KL/2014/01:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
Contract No. KL/2014/03:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA
Contract No. KL/2015/02:		
Complaint received	0	NA
Notifications of any summons & prosecutions received	0	NA

4.1.2 Detailed records are presented in the appendices of the corresponding Monthly EM&A.

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5. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

5.1 Implementation Status

5.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and the EM&A Manuals. The implementation status of the mitigation measures during the reporting month are presented in the appendices of the corresponding Monthly EM&A.

5.2 Waste Management

5.2.1 The amount of wastes generated of this Project during the reporting month is shown in the appendices of the corresponding Monthly EM&A.

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6. FUTURE KEY ISSUES

6.1 Construction Programme for the Next Two Months

6.1.1 The major site activities undertaken for the coming two months are summarized in follow:

Contract No. KL/2012/02:

- N.A (The cessation of EM&A Works (Construction Phase) for this Project was approved by Environmental Protection Department on 2 October 2018)

Contract No. KL/2012/03:

- Daily Cleaning;
- Finishing works, E&M work in PS2;
- Site Clearance works in DCS;
- Site clearance work, landscape work at Sung Wong Toi Road;
- Finishing works and E&M works in Portion 4 (NPS & Sewerage); and
- Removal of excavated materials in Portion 6

Contract No. KL/2014/01:

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- Construction of box culvert and underpass;
- Construction of utilities trough at Kai Tak Bridge;
- Construction of pile caps, noise barrier footings and steel structure, outfalls, deck structure and columns;
- Laying of sewer, drainage and pavement; and
- Erection of noise barrier steel structure and panels.

Contract No. KL/2014/03:

- Installation of sheet pile for drainage works;
- Excavation and laying of drainage pipe and manhole;
- Construction of road base and road pavement;
- Construction of Supporting Underground Structure;
- Construction of socketed H-Pile; and
- Excavation and ELS construction;
- Construction of District Cooling System.

Contract No. KL/2015/02:

- Excavate with ELS works for subway construction at PERE
- Structural works for subway SW6 from CH0 to CH34 and Staircase ST3
- Structural works for pile caps at the existing Bridge K72
- Sheet piling works at SKLR playground (Stage 4)
- Demolish the existing K73 parapet for temporary slip road (Stage 4)
- Demolition of existing end walls at B5 connection
- Construction of box culvert B3 and B6 connection
- DCS and Drainage and works in Portion 6, Road D1
- DCS, Drainage, Sewerage and Waterworks in Road L7
- Drainage and Sewerage works in Portion 2 & 3
- Drainage, Sewerage and Water works in Portion 4

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6.2 Key Issues for the Coming Month

6.2.1 The potential environmental impacts arising from the above construction activities and the control measures are shown in **Table 6.1**:

Table 6.1 Summary of Key Issues for the Coming Month and Control Measures

Major Impact Prediction	Control Measures
Contract No. KL/2012/03:	
Air quality impact (dust)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Watering of any earth moving activities.
Water quality impact (surface run-off)	• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; • Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; • Provision of site boundary bund such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and • Provision of measures to prevent discharge into the stream.
Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.
Contract No. KL/2014/01:	
Air quality impact (dust)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Watering of any earth moving activities.
Water quality impact (surface run-off)	• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; • Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; • Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and • Provision of measures to prevent discharge into the stream.
Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.
Contract No. KL/2014/03:	
Construction dust, construction noise, water quality, waste management and landscape and visual impact.	• Sufficient watering of the works site with the active dust emitting activities; • Limitation of the speed for vehicles on unpaved site roads; • Properly cover or enclosure of the stockpiles and dusty materials; • Good site practices on loading dusty materials; • Providing sufficient vehicles washing facilities at every vehicle exit point; • Good maintenance to the plant and equipment; • Use of quieter plant and Quality Powered Mechanical Equipment (QPME); • Use of acoustic fabric and noise barrier; • Using the approved Non-road Mobile Machineries (NRMMs); • Proper storage and handling of chemical; • Appropriate desilting, oil interceptors or sedimentation devices provided on site for treatment before discharge;

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Major Impact Prediction	Control Measures
	• Onsite waste sorting and implementation of trip ticket system; • Training of the site personnel in proper waste management and chemical waste handling procedures; • Proper storage of the construction materials; • Erection of decorative screen hoarding; • Strictly following the Environmental Permits and Licenses; • Provide sufficient mitigation measures as recommended in Approved EIA Reports
Contract No. KL/2015/02:	
Air quality impact (dust)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Watering of any earth moving activities.
Water quality impact (surface run-off)	• Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; • Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; • Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and • Provision of measures to prevent discharge into the stream.
Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.

6.3 Monitoring Schedules for the Next Three Months

6.3.1 The tentative schedules for environmental monitoring in the coming three months are provided in in the appendices of the corresponding Monthly EM&A.

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7. CONCLUSIONS

7.1.1 No Action / Limit Level exceedance was recorded for 24-hr TSP monitoring in the reporting month.

7.1.2 No Action / Limit Level exceedance was recorded for 1-hr TSP monitoring in the reporting month.

7.1.3 No Action / Limit Level exceedance was recorded for noise monitoring in the reporting month.

7.1.4 No complaint, notification of summons or prosecution was received in this reporting month.

7.1.5 The potential environmental impacts arising from the coming two months of major construction activities and the control measures are shown in **Table 6.1**

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Appendix A

Monthly EM&A Report
For
Contract No. KL/2012/02
Kai Tak Development - Stage 3A Infrastructure at North Apron Area

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(No Monthly EM&A Report in the reporting period.)

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Appendix B

Monthly EM&A Report
For
Contract No. KL/2012/03
Kai Tak Development - Stage 4 Infrastructure at North Apron Area

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Civil Engineering and Development Department

EP-344/2009 – New Sewage Pumping Stations Serving KTD
EP-337/2009 – New Distributor Roads Serving the Planned KTD

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area

Monthly EM&A Report

October 2018

(Version 1.0)

Approved By	(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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ANEWR

Kai Tak Development Site Office
Contract No. KL/2012/03
c/o AECOM
8/F, Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin
New Territories
Hong Kong

Your reference:

Our reference: HKCEDD11/50/105346

Date: 12 November 2018

Attention: Mr Stanley Chan

BY EMAIL & POST
(email: RE1@ktd-5a.com)

Dear Sirs

Agreement No. EDO 08/2018
Independent Environmental Checker (IEC) for CEDD Contract No. KL/2012/03
Kai Tak Development – Stage 4 infrastructure at former north apron area
Verification of Monthly EM&A Report for October 2018

We refer to emails of 6 and 12 November 2018 attaching a Monthly EM&A Report for October 2018 prepared by the ET.

We have no further comment and hereby verify the Report in accordance with Clause 3.3 of the Environmental Permit nos. EP-337/2009 and EP-344/2009.

Please do not hesitate to contact the undersigned or our Mr Nic Lam on 2618 2831 should you have any queries.

Yours faithfully
ANEWR CONSULTING LIMITED

Adi Lee
Independent Environmental Checker

LYMA/LHHN/FSKA/lhmh

cc CEDD – Mr C K Choi (email: ckchoi@cedd.gov.hk)
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EXECUTIVE SUMMARY

Introduction

1. This is the 59th Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Ltd. for "Contract No. KL/2012/03 - Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area" (Hereafter referred to as "the Project"). This contract comprises the construction of Schedule 2 Designated Projects (DP) Road D2 & Sewage Pumping Station PS2 and PS NPS which forms a part of the works under two Environmental Permits (EP), EP-337/2009 and EP-344/2009. The title of the designated projects under Environmental Permit No.: EP-344/2009 is "New sewage pumping stations serving Kai Tak Development" and under Environmental Permit No.: EP-337/2009 is "New distributor roads serving the planned Kai Tak Development". This report documents the findings of EM&A Works conducted from 1 to 31 October 2018.

2. The major site activities undertaken in the reporting month included:
   - Daily Cleaning;
   - Finishing works, E&M work, Access Road Construction in PS2;
   - Site Clearance Works in DCS;
   - Footpath Construction at Sung Wong Toi Road;
   - Finishing works and E&M works in Portion 4 (NPS & Sewerage); and
   - Removal of excavated material in Portion 6.

Environmental Monitoring Works

3. Environmental monitoring for the Project was performed in accordance with the EM&A Manual and the monitoring results were checked and reviewed. Site Inspections/Audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

4. Summary of the breaches of action and limit levels in the reporting month for the Project is tabulated in **Table I**.

Table I Breaches of Action and Limit Levels for the Project in the Reporting Month

Parameter	No. of Project-related Exceedance		Action Taken
	Action Level	Limit Level	
1-hr TSP	0	0	N/A
24-hr TSP	0	0	N/A
Noise	0	0	N/A

1-hour & 24-hour TSP Monitoring

5. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

6. All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

7. The construction noise monitoring at Station M8 – Po Leung Kok Ngan Po Ling College was cancelled on 12 and 30 October 2018 due to the permission problem. The application form was submitted to the school principal and the status of permission will be updated after received the reply slip. No Action/Limit Level exceedance was recorded.

Environmental Licenses and Permits

8. Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, Environmental Permits No. EP-344/2009 and EP-337/2009 were issued on 23 April 2009.

9. Registration of Chemical Waste Producer (Waste Producer Number: 5213-286-K2958-05).

10. Water Discharge License (WT00020971-2015).

Key Information in the Reporting Month

11. Summary of complaint received, reporting changes and notifications of any summons and successful prosecutions in the reporting month is tabulated in **Table II**.

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	---
Reporting Changes	0	---	N/A	N/A	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---

Future Key Issues

12. The future key environmental issues in the coming month include:
    1. Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
    2. Water spraying for dust generating activity and on haul road;
    3. Proper storage of construction materials on site;
    4. Storage of chemicals/fuel and chemical waste/waste oil on site;
    5. Accumulation of general and construction waste on site;
    6. Noise from operation of the equipment, especially for rock-breaking activities, piling works and machinery on-site; and
    7. Review and implementation of temporary drainage system for the surface runoff.

1. INTRODUCTION

Background

1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. Stage 4 Infrastructure at Former North Apron Area is one of the construction stages of KTD. Schedule 2 DPs in this Project include new distributor roads serving the planned KTD and new sewage pumping stations serving the planned KTD. The general layout of the Project is shown in **Figure 1.**

1.2 Two Environmental Permits (EPs) No. EP-344/2009 and EP-337/2009 were also issued to the Permit Holder Civil Engineering and Development Department on 23 April 2009 for new sewage pumping stations serving the planned KTD and new distributor roads serving the planned KTD respectively.

1.3 A study of environmental impact assessment (EIA) was undertaken to identify the key issues of air quality, noise, water quality, waste, land contamination, cultural heritage and landscape and visual impact, and recommend possible mitigation measures associated with the works. The EIA Report (Register No. AEIAR-130/2009) was approved by the Environmental Protection Department (EPD) on 4 April 2009.

1.4 Cinotech Consultants Limited (Cinotech) is commissioned by Kwan On Construction Co., Ltd. (the Contractor) to undertake the role of the Environmental Team (ET) for the Contract No. KL/2012/03 - Stage 4 Infrastructure at Former North Apron Area. The construction work under KL/2012/03 comprises the construction of Road D2 & Sewage Pumping Station PS2 and PS NPS which forms a part of the works under two EPs (EP-337/2009 and EP-344/2009).

1.5 The construction commencement of this Contract was on 1st December 2013 for Road D2, Sewage Pumping Station PS2 and PS NPS. This is the 59th Monthly EM&A report summarizing the EM&A works for the Project from 1 to 31 October 2018.

Project Organizations

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

- Project Proponent – Civil Engineering and Development Department (CEDD).
- The Engineer and the Engineer's Representative (ER) – AECOM.
- Environmental Team (ET) – Cinotech Consultants Limited (CCL).
- Independent Environmental Checker (IEC) – ANewR Consulting Limited. (ANewR).
- Contractor – Kwan On Construction Co., Ltd. (Kwan On).

1.7 The key contacts of the Project are shown in **Table 1.1** and **Figure 5**.

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Position	Phone No.	Fax No.
CEDD	Project Proponent	Mr. C. K. Choi	Senior Engineer	2301 1174	2301 1277
AECOM	Engineer's Representative	Mr. W. K. Leung	CRE	2798 0771	3013 8864
		Mr. Jacky Pun	RE		
Cinotech	Environmental Team	Dr. Priscilla Choy	Environmental Team Leader	2151 2089	3107 1388
		Ms. Ivy Tam	Project Coordinator and Audit Team Leader	2151 2090	
ANewR	Independent Environmental Checker	Mr. Adi Lee	Independent Environmental Checker	2618 2831	3007 8648
Kwan On	Contractor	Mr. Albert Ng	Site Agent	3689 7752	3689 7726
				6146 6761 (Hotline telephone number)	

Construction Activities undertaken during the Reporting Month

1.8 The site activities undertaken in the reporting month included:

- Daily Cleaning;
- Finishing works, E&M work, Access Road Construction in PS2;
- Site Clearance Works in DCS;
- Footpath Construction at Sung Wong Toi Road;
- Finishing works and E&M works in Portion 4 (NPS & Sewerage); and
- Removal of excavated material in Portion 6.

1.9 The construction programme showing the inter-relationship with environmental protection/mitigation measures is presented in **Table 1.2**.

Table 1.2 Construction Programme Showing the Inter-Relationship with Environmental Protection/Mitigation Measures

Construction Works	Generated Major Environmental Impact	Control Measures
Construction of superstructure of Pumping Station PS2 and NPS;	Dust, Water Quality, Waste Management	• Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; and • On-site waste sorting and implementation of trip ticket system.
Backfilling between sewerage manholes 1K1_1 and FMH10_340 and construction of manhole FMH10_370a at L6;	Dust, Noise	• Use of quiet plant and well-maintained construction plant; and • Properly cover the stockpiles;
Installation of precast unit and construction of in-situ portions of Box Culvert B6; Construction of jacking pits nos. 1 and 2; Installation of gas pipe at pit no. 10; Construction of washout chamber at pit no. 11;	Noise, Waste Management	• Use of quiet plant and well-maintained construction plant; and • Provide hoarding. • Good management and control on construction waste reduction
Construction of sewerage manhole FMH 10 at Bailey Street; Widening works of Sung Wong Toi Road.	Noise	• Use of quiet plant and well-maintained construction plant; and • Provide hoarding.
Pipe laying from manhole SMH2204 to Box Culvert B6; Laying of rising mains from PS2 to chainage CHA-18; Pipe laying from stormwater manholes SMH1962 to SMH1963 and construction of manholes SMH1953 and SMH1963 at L6; Installation of DCS;	Noise, Water Quality	• Use of quiet plant and well-maintained construction plant; and • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall.

Summary of EM&A Requirements

1.10 The EM&A programme requires construction noise monitoring, air quality monitoring, landscape and visual monitoring and environmental site audit. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event Action Plans;
- Environmental requirements and mitigation measures, as recommended in the EM&A Manual under the EP.

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

1.12 This report presents the implementation of the EM&A programme for the Project from 1 to 31 October 2018.

1.13 Air quality monitoring stations within 500m and noise monitoring stations within 300m from the boundary of this Project are considered as relevant monitoring locations. In such regard, the relevant air quality and noise monitoring locations are tabulated in **Table 1.3** (see **Figure 2 and 3** for their locations).

Table 1.3 Air Quality and Noise Monitoring Stations for this Project

Locations	Monitoring Stations In accordance with EM&A Manual	Alternative Monitoring Stations
Air Quality Monitoring Stations		
AM2 - Lee Kau Yan Memorial School	Yes	AM2(A) – Ng Wah Catholic Secondary School
AM3 – Sky Tower	No	AM3(A) – Holy Trinity Bradbury Centre
AM4 – Grand Waterfront	No	AM4(A) – EMSD Workshop*
AM5 – CCC Kei To Secondary School	No	N/A^
AM6 – Site 1B4 (Planned)	N/A	
Noise Monitoring Stations		
M6 – Holy Carpenter Primary School	No	M6(A) – Oblate Primary School
M7 – CCC Kei To Secondary School	Yes	N/A
M8 – Po Leung Kuk Ngan Po Ling College	Yes	N/A
M9 – Tak Long Estate	Yes	N/A
M10 – Site 1B4 (Planned)	N/A	

Remarks:
- "Yes" – Monitoring station is the same as that stated in EM&A Manual
- No – Monitoring station is not the same as that stated in EM&A Manual. Request for carrying monitoring works at the monitoring stations stated in EM&A Manual was rejected by owner of premise. Alternative monitoring stations were proposed by the ET of Schedule 3 EIA and approved by the EPD.
- N/A – No alternative monitoring station is required.
- *AM4(A) – EMSD Workshop was cancelled due to unsuccessful accessibility of the facility. 1-hr TSP monitoring was conducted at AM4(B) – Ma Tau Kok Road (next to EMSD workshop) temporarily and 24-hr TSP monitoring was conducted at AM4(C) – New Pumping Station under Contract No. KL/2012/03.
- ^AM5(A) – Po Leung Kuk Ngan Po Ling College was cancelled because no permission was granted from the premise. Air quality monitoring was carried out at AM5 – CCC Kei To Secondary School.

1.14 According to the Environmental Monitoring and Audit Manual (EM&A Manual) of the Kai Tak Development (KTD) Schedule 3 Environmental Impact Assessment (EIA) Report, the impact monitoring at the designated monitoring stations as required in KTD EM&A Manual under the EP, has been conducted in Environmental Monitoring Works for Kai Tak Development under Schedule 3 of KTD, which is on-going starting from December 2010, when the impact monitoring data under Schedule 3 of KTD were adopted for the Project.

1.15 Although Contract no. KLN/2013/16 under Schedule 3 of KTD has been superseded by KLN/2016/09 since early March 2017, the ET continued to adopt the impact monitoring data under Schedule 3 of KTD until appropriate new arrangement is agreed. The KLN/2016/09 impact environmental monitoring schedule is shown in **Appendix D**.

Status of Compliance with Environmental Permits Conditions

1.16 The status of required submission related to this Project under the Environmental Permits No. EP-337/2009 and EP-344/2009 is summarized in the **Table 1.4** and **Table 1.5** respectively:

Table 1.4 Summary Table for Required Submission under EP No. EP-337/2009

EP Conditions	Submission	Submission Date	Remark
1.11	Notification of Commencement Date of Construction of Project	31 October 2013	For Road D2
2.3	Management Organization of Main Construction Companies	31 October 2013	For Contract No. KL/2012/03
2.4	Design Drawing(s) of the Project	28 October 2013	For Road D2
2.11	Landscape Mitigation Plan(s) for distributors road(s)	7 January 2014	For Road D2
2.12	As-built drawing(s) for the distributor road(s)	To be submitted at least one week before the commencement of operation of distributor road(s)	
3.2	Baseline Monitoring Report	26 November 2010 (Part I) 24 December 2010 (Part II)	/
3.3	Four hard copies and one electronic copy of the Monthly EM&A Report No. 58 (August 2018)	11 October 2018	Monthly EM&A Report for Contract No. KL/2012/03

Table 1.5 Summary Table for Required Submission under EP No. EP-344/2009

EP Conditions	Submission	Submission Date	Remark
1.11	Notification of Commencement Date of Construction of Project	31 October 2013	For Pumping Station PS2 and PS NPS
2.3	Management Organization of Main Construction Companies	31 October 2013	For Contract No. KL/2012/03
2.4	Design Drawing(s) of the Project	28 October 2013	For Pumping Station PS2 and PS NPS
2.11	Landscape Mitigation Plan(s) for sewage pumping station(s)	7 January 2014	For Pumping Station PS2 and PS NPS
2.12	As-built drawing(s) for the sewage pumping station (s)	To be submitted at least one week before the commencement of operation of distributor road(s)	
3.2	Baseline Monitoring Report	26 November 2010 (Part I) 24 December 2010 (Part II)	/
3.3	Four hard copies and one electronic copy of the Monthly EM&A Report No. 58 (August 2018)	11 October 2018	Monthly EM&A Report for Contract No. KL/2012/03

2. AIR QUALITY

Monitoring Requirements

2.1 According to EM&A Manual under the Eps, 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring were conducted to monitor the air quality for this Project. For regular impact monitoring, a sampling frequency of at least once in every six days at all of the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six days shall be undertaken when the highest dust impact occurs. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

2.2 Five designated monitoring stations were selected for air quality monitoring programme. Impact dust monitoring was conducted at four of the air quality monitoring stations (AM2, AM3(A), AM4(C) and AM5. **Table 2.1** describes the air quality monitoring locations, which are also depicted in **Figure 2**.

Table 2.1 Locations for Air Quality Monitoring

Monitoring Stations	Locations	Location of Measurement
AM2	Lee Kau Yan Memorial School	Rooftop (about 8/F) Area
AM2(A)	Ng Wah Catholic Secondary School	Rooftop (about 8/F) Area
AM3(A)	Holy Trinity Bradbury Centre	Rooftop (about 8/F) Area
AM4(C)	New Pumping Station	Rooftop (about 6/F) Area
AM5	CCC Kei To Secondary School	Rooftop (about 10/F) Area
#AM6	PA 15	Site 1B4 (Planned)

Remarks: # The impact monitoring at these locations will only be carried out until the sensitive receivers at the building are resided.

Monitoring Equipment

2.3 **Table 2.2** summarizes the equipment used in the impact air monitoring programme. Copies of calibration certificates and laboratory accreditation are attached in **Appendix B**.

Table 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Calibrator	TE-5025A	1
1-hour TSP Dust Meter	Laser Dust Monitor – Model Hal-HPC300/ 301	5
HVS Sampler	TE-5170	4
Wind Anemometer	Davis Weather Monitor, Vantage Pro2	1

Monitoring Parameters, Frequency and Duration

2.4 Table 2.3 summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period. The air quality monitoring schedule for the reporting month is shown in **Appendix D**.

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

Parameters	Frequency
1-hr TSP	At least three times every 6 days
24-hr TSP	At least once every 6 days

Monitoring Methodology and Quality Assurance and Quality Control (QA/QC) Procedure

1-hour TSP Monitoring

Measuring Procedures

2.5 The measuring procedures of the 1-hour dust meters were in accordance with the Manufacturer's Instruction Manual as follows:

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Set POWER to "ON" and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet has been released.
- Push the knob at MEASURE position.
- Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
- Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, count value and site condition were recorded during the monitoring period.

Maintenance/Calibration

2.6 The following maintenance/calibration was required for the direct dust meters:

- Check and calibrate the meter by High-Volume Sampler (HVS) to check the validity and accuracy of the results measured by direct reading method at 2-month intervals throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

2.7 High volume samplers (HVS) (Model GMWS-2310 Accu-Vol) completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50). Moreover, the HVS also met all the requirements in section 2.5 of the updated EM&A Manual.

Operating/Analytical Procedures

2.8 Operating/analytical procedures for the operation of HVS were as follows:

- A horizontal platform was provided with appropriate support 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 sampler was more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

2.9 Prior to the commencement of the 24-hour TSP sampling, the flow rate of the high volume sampler was properly set (between 1.1 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

2.10 For 24-hour TSP sampling, fiberglass filters having a collection efficiency of ≥ 99% for particles of 0.3μm (DOP) diameter were used.

2.11 The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.

2.12 The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.

2.13 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. The applied pressure should be sufficient to avoid air leakage at the edges.

2.14 The shelter lid was closed and secured with the aluminum strip.

2.15 The timer was then programmed so that the TSP will be sampled for 24 hours. 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).

2.16 After completion of sampling, the filter was removed and sent to Wellab Ltd., which is accredited under HOKLAS for laboratory analysis. The elapsed time was also recorded.

2.17 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning temperature 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%.

Maintenance/Calibration

2.18 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.
- High volume samplers were calibrated at bi-monthly intervals using G25A Calibration Kit throughout all stages of the air quality monitoring.
- Orifice Transfer Standards were calibrated at yearly intervals throughout all stages of the air quality monitoring.

Results, Observations and Action/Limit Level Exceedance

2.19 All other 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

2.20 All other 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

2.21 This weather information for the reporting month is summarized in **Appendix C.**

2.22 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices E and F** respectively.

2.23 The summary of exceedance record in the reporting month is shown in **Appendix H**. No exceedance in Action/Limit Levels of 1-hour and 24-hour TSP was recorded for the air

quality monitoring.

2.24 According to our field observations, the major dust source identified at the designated air quality monitoring stations is as follows:

Table 2.4 Major dust source identified at the designated air quality monitoring stations

Station	Major Dust Source
AM2 – Lee Kau Yan Memorial School	Road Traffic Dust Exposed site area and open stockpiles Site vehicle movement
AM2(A) – Ng Wah Catholic Secondary School	Road Traffic Dust Exposed site area and open stockpiles Excavation works Site vehicle movement
AM3(B) – Family Planning Association of Hong Kong	Road Traffic Dust Exposed site area Excavation works Site vehicle movement
AM4(C) – New Pumping Station under Contract No. KL/2012/03	Site vehicle movement
AM5 – CCC Kei To Secondary School	Road Traffic Dust

3. NOISE

Monitoring Requirements

3.1 According to EM&A Manuals under the EP, construction noise monitoring was conducted to monitor the construction noise arising from the construction activities within KTD. The regular monitoring frequency for each monitoring station shall be on a weekly basis to conduct one set of measurements between 0700 and 1900 hours on normal weekdays. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

3.2 Five designated monitoring stations were selected for noise monitoring programme. Noise monitoring was conducted at four designated monitoring stations (M6, M7, M8 and M9). **Figure 3** shows the locations of these stations.

3.3 Construction noise monitoring at Station M6 – Holy Carpenter Primary School was rejected by the premise owner on 6th October 2014. The monitoring station has been relocated at a proposed alternative noise monitoring station M6(A) – Oblate Primary School since 10th October 2014 to carry out the monitoring works.

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Locations	Location of Measurement
*M6(A)	Oblate Primary School	Rooftop (about 7/F) Area
M7	CCC Kei To Secondary School	Rooftop (about 8/F) Area
M8	Po Leung Kuk Ngan Po Ling College	Staircase Area (about 9/F)
M9	Tak Long Estate	Car Park Building (about 2/F)
#M10	Site 1B4 (Planned)	-

Remarks:
* Alternative noise monitoring station for M6 – Holy Carpenter Primary School from 10th October 2014 onwards
\# The impact monitoring at these locations will only be carried out until existence of the sensitive receiver at the building.

Monitoring Equipment

3.4 **Table 3.2** summarizes the noise monitoring equipment. Copies of calibration certificates are provided in **Appendix B**.

Table 3.2 Noise Monitoring Equipment

Equipment	Model and Make	Qty.
Integrating Sound Level Meter	SVANTEK SVAN 955/957 & BSWA 801	2
Calibrator	SVANTEK SV30A & Brüel & Kjær 4231	2

Monitoring Parameters, Frequency and Duration

3.5 Table 3.3 summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency	Type of Measurement
M7 M8 M9	L_{10}(30 min.) dB(A) L_{90}(30 min.) dB(A) L_{eq}(30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade (*)
M6(A)	L_{10}(30 min.) dB(A) L_{90}(30 min.) dB(A) L_{eq}(30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Free Field (*)

(*) Refer to bullet point 1 and 2 in the following section.

Monitoring Methodology and QA/QC Procedures

- The Sound Level Meter was set on a tripod at a point 1m from the exterior of the sensitive receivers building façade and be at a position 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels was adjusted with a correction of +3 dB(A).
- The battery condition was checked to ensure the correct 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
  - time measurement : 30 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the L_{eq}, L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused temporarily during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- 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.

Maintenance and Calibration

3.6 The microphone head of the sound level meter and calibrator was cleaned with a soft cloth at quarterly intervals.

3.7 The sound level meter and calibrator were checked and calibrated at yearly intervals.

3.8 Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results, Observations and Action/Limit Level Exceedance

3.9 The construction noise monitoring at Station M8 – Po Leung Kok Ngan Po Ling College was cancelled on 12 and 30 October 2018 due to the permission problem. The application form was submitted to the school principal and the status of permission will be updated after received the reply slip. No Action/Limit Level exceedance was recorded.

3.10 The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table 3.4**.

3.11 Noise monitoring results and graphical presentations are shown in **Appendix G**.

3.12 The major noise source identified at the designated noise monitoring stations is as follows:

Table 3.4 Major noise source identified at the designated noise monitoring stations

Monitoring Stations	Locations	Major Noise Source
M6(A)	Oblate Primary School	Road and marine traffic Noise
M7	CCC Kei To Secondary School	Road and marine traffic Noise
M8	Po Leung Kuk Ngan Po Ling College	Excavation works at the site (Contract No.: 1/WSD/14(K)) facing Po Leung Kuk Ngan Po Ling College
M9	Tak Long Estate	Road paving and asphalt paving works

Table 3.5 Baseline noise level and noise limit level for monitoring stations

Monitoring Stations	Baseline Noise Level, dB (A)	Noise Limit Level, dB (A)
M6(A)	63.9 (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
M7	68.7 (at 0700 – 1900 hrs on normal weekdays)	
M8	61.9 (at 0700 – 1900 hrs on normal weekdays)	
M9	59.9 (at 0700 – 1900 hrs on normal weekdays)	75 (at 0700 – 1900 hrs on normal weekdays)

(*) Noise Limit Level is 65 dB(A) during school examination periods.

4. COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS

4.1 According to Section 16.1.6 (vi) of the EM&A Manual, the EM&A data were compared with the EIA predictions as summarized in **Table 4.1** to **4.3** below.

Table 4.1 Comparison of 1-hr TSP data with EIA predictions

Station	Predicted 1-hr TSP conc.			
	Scenario1 (Mid 2009 to Mid 2013), µg/m3	Scenario2 (Mid 2013 to Late 2016), µg/m3	Reporting Month (Oct 2018), µg/m3	
			Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	97.3	49.7 – 169.1
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	217	247	77.6	32.0 – 147.3
AM4(C) – New Pumping Station	N/A	N/A	44.7	103.1 – 203.0
AM5– CCC Kei To Secondary School	159	221	31.0	77.2 – 158.2

Table 4.2 Comparison of 24-hr TSP data with EIA predictions

Station	Predicted 24-hr TSP conc.			
	Scenario1 (Mid 2009 to Mid 2013), µg/m3	Scenario2 (Mid 2013 to Late 2016), µg/m3	Reporting Month (Oct 2018), µg/m3	
			Average	Range
AM2(A) – Ng Wah Catholic Secondary School (Alternative station for Lee Kau Yan Memorial School)	145	169	66.2	49.7 – 80.6
AM3(B) – Family Planning Association of Hong Kong	N/A	N/A	104.5	72.6 – 124.9
AM4(C) – New Pumping Station	N/A	N/A	126.7	65.7 – 163.4
AM5 – CCC Kei To Secondary School	103	128	41.7	31.3 – 64.6

Table 4.3 Comparison of Noise Monitoring Data with EIA predictions

Stations	Predicted Mitigated Construction Noise Levels during Normal Working Hour ($L_{eq\ (30min)}$ dB(A))	Reporting Month (Oct 2018), $L_{eq\ (30min)}$ dB(A)
M6(A) - Oblate Primary School ^	N/A	50.6 – 66.2
M7 - CCC Kei To Secondary School	45 – 68	52.4 – 68.5
M8 - Po Leung Kuk Ngan Po Ling College	44 – 70	60.1 – 68.3
M9 – Tak Long Estate	Not predicted in EIA Report	67.6 – 71.1

(^) Alternative noise monitoring station for M6 – Holy Carpenter Primary School from 10th October 2014 onwards.

4.2 The averages of 1-hour TSP concentrations in all stations in the reporting month were below the prediction in the approved Environmental Impact Assessment (EIA) Report.

4.3 The averages of 24-hour TSP concentrations in all stations in the reporting month were below the prediction in the approved Environmental Impact Assessment (EIA) Report.

4.4 The range of noise level monitoring at all stations in the reporting month were below the prediction in the approved Environmental Impact Assessment (EIA) Report.

5. LANDSCAPE AND VISUAL

Monitoring Requirements

5.1 According to EM&A Manual of the Kai Tak Development EIA Study, ET shall monitor and audit the contractor's activities during the construction period on a weekly basis, and to report on the contractor's performance.

Results and Observations

5.2 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of landscape and visual mitigation measures within the site boundaries of this Project. The summaries of site audits are attached in **Appendix I**.

5.3 No non-compliance of the landscape and visual impact was recorded in the reporting month.

5.4 In accordance with the Action Plan presented in **Appendix J**, no corrective actions were required in the reporting month.

6. ENVIRONMENTAL AUDIT

Site Audits

6.1 Site audits were carried out on a 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 I**.

6.2 Site audits were conducted on 5, 12, 19 and 24 October 2018 in the reporting month. IEC site inspection was conducted on 24 October 2018. No non-compliance was observed during the site audits.

Status of Environmental Licensing and Permitting

6.3 All permits/licenses obtained for the Project are summarized in Table 6.1.

Table 6.1 Summary of Environmental Licensing and Permit Status

Permit No.	Valid Period		Details	Status
	From	To		
Environmental Permit (EP)				
EP-337/2009	23/04/09	N/A	Construction of new distributor roads serving the planned Kai Tak development.	Valid
EP-344/2009	23/04/09	N/A	Construction of a new sewage pumping station serving the planned Kai Tak development with installed capacity of more than 2,000 m^3 per day and a boundary of which is less than 150m from an existing or planned residential area or educational institution.	Valid
Effluent Discharge License				
WT00020971-2015	22/04/15	21/04/20	Discharge License for the discharge of wastewater from the construction site including contaminated surface run-off to the communal storm water drain	Valid
Registration of Chemical Waste Producer				
5213-286-K2958-05	--	--	Registration of chemical waste producer for chemical waste produced during construction of Stage 4 at former North Apron Area Infrastructure.	Valid

Status of Waste Management

6.4 The amount of wastes generated by the major site activities of this Project during the reporting month is shown in **Appendix M**.

6.5 In respect of the dump truck cover, the Contractor is advised to take record photos and inspection to ensure that the skips of all dump trucks have been fully covered before leaving the site.

Implementation Status of Environmental Mitigation Measures

6.6 During site inspections in the reporting month, no non-conformance was identified. ET weekly site inspections were carried out during the reporting month and the observations and recommendations are summarized in Table 6.2.

Table 6.2 Observations and Recommendations of Site Inspections for EP-337/2009

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	**--**
Air Quality	--	--	**--**
Noise	--	--	**--**
Waste/Chemical Management	5th October 2018	Reminder: General refuse should be removed regularly within site area	The general refuse was removed on 12th October 2018.
	24th October 2018	Reminder: Contractor should remove the C&D waste regularly to avoid accumulation.	This item will be followed up in next reporting month.
Landscape and Visual	--	--	**--**
Permits /Licences	--	--	**--**

Table 6.3 Observations and Recommendations of Site Inspections for EP-344/2009

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality			
Air Quality			
Noise	--	--	**--**
Waste/Chemical Management	28th September 2018	Reminder: C&D waste should be dispose properly to avoid accumulation. (Near PS2)	The C&D waste was removed on 5th October 2018.
	12th October 2018	Reminder: General refuse should be collected regularly to avoid accumulation.	The general refuse was removed on 19th October 2018.
	24th October 2018	Reminder: Contractor should clear the dusty materials along the site boundary of NPS.	This item will be followed up in next reporting month.
Landscape and Visual	--	--	**--**
Permits /Licences	--	--	**--**

Summary of Mitigation Measures Implemented

6.7 The monthly IEC audit was carried out on 24 October 2018, the observations were recorded and they are presented as follows:

Follow up of last monthly audit:
- Dusty materials were covered entirely by imperious sheeting (Green).

Observation(s) in the reporting month:
- Nil

6.8 An updated summary of the EMIS is provided in **Appendix K**.

Implementation Status of Event Action Plans

6.9 The Event Action Plans for air quality, noise and landscape and visual are presented in **Appendix J**.

1-hr TSP Monitoring

6.10 No Action/Limit Level exceedance was recorded in the reporting month.

24-hr TSP Monitoring

6.11 No Action/Limit Level exceedance was recorded in the reporting month.

Construction Noise

6.12 No Action/Limit Level exceedance was recorded in the reporting month.

Landscape and visual

6.13 No non-compliance was recorded in the reporting month.

Summary of Complaint, Warning, Notification of any Summons and Successful Prosecution

6.14 No environmental complaint and environmental prosecution was received in the reporting month. The summaries of environmental complaint, warning, summon and notification of successful prosecution for the Project are presented in **Appendix L**.

7. FUTURE KEY ISSUES

7.1 Major site activities undertaken for the coming two months include:

- Daily Cleaning;
- Finishing works, E&M work in PS2;
- Site Clearance works in DCS;
- Site clearance work, landscape work at Sung Wong Toi Road;
- Finishing works and E&M works in Portion 4 (NPS & Sewerage); and
- Removal of excavated materials in Portion 6

7.2 The tentative construction program for the Project is provided in **Appendix N.**

Key Issues for the Coming Month

7.3 Key environmental issues in the coming month include:

1. Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
2. Water spraying for dust generating activity and on haul road;
3. Proper storage of construction materials on site;
4. Storage of chemicals/fuel and chemical waste/waste oil on site;
5. Accumulation of general and construction waste on site;
6. Noise from operation of the equipment, especially for rock-breaking activities, piling works and machinery on-site; and
7. Review and implementation of temporary drainage system for the surface runoff.

7.4 The tentative program of major site activities and the impact prediction and environmental mitigation measures for the coming two months, i.e. November and December 2018 are summarized as follows:

Table 7.1 Summary of the tentative program of major site activities, the impact prediction and control measures for November and December 2018

Construction Works	Major Impact Prediction	Control Measures
As mentioned in Section 7.1	Air quality impact (dust)	a) Frequent watering of haul road and unpaved/exposed areas; b) Frequent watering or covering stockpiles with tarpaulin or similar means; and c) Watering of any earth moving activities.
	Water quality impact (surface run-off)	d) Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; e) Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; f) Provision of site boundary bund such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and g) Provision of measures to prevent discharge into the stream.
	Noise Impact	h) Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; i) Controlling the number of plants use on site; j) Regular maintenance of machines; and k) Use of acoustic barriers if necessary.

Monitoring Schedule for the Next Month

7.5 The tentative environmental monitoring schedules for the next month are shown in **Appendix D**.

8. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

8.1 Environmental monitoring works required under the EM&A Manual were performed in the reporting month and all monitoring results were checked and reviewed.

1-hr TSP Monitoring

8.2 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. 1-hour TSP concentrations in all stations in the reporting month were below the prediction in the approved Environmental Impact Assessment (EIA) Report.

24-hr TSP Monitoring

8.3 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. 24-hour TSP concentrations in all stations in the reporting month were below the prediction in the approved Environmental Impact Assessment (EIA) Report.

Construction Noise Monitoring

8.4 The noise monitoring at Station M8 – Po Leung Kok Ngan Po Ling College was cancelled on 12 and 30 October 2018 due to the permission problem. The application form was submitted to the school principal and the status of permission will be updated after received the reply slip. The construction noise levels in all stations in the reporting month were below the range of predicted mitigated construction noise levels in the approved Environmental Impact Assessment (EIA) report.

Complaints, Notification of any Summons and Prosecution Received

8.5 No environmental complaint and environmental prosecution was received in the reporting month. The summaries of environmental complaint, warning, summon and notification of successful prosecution for the Project are presented in **Appendix L**.

Recommendations

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

Air Quality Impact

- To implement dust suppression measures on all haul roads, stockpiles, dry surfaces and excavation works.
- To mitigate the dust generation by adequate water spraying on dry days.

Noise Impact
- To inspect the noise sources inside the site.
- To disperse the locations of noisy equipments and position the equipments as far away as possible from sensitive receivers.
- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers in an appropriate location.

Water Impact
- To prevent any surface runoff discharge into any stream course.
- To review and implement temporary drainage system.
- To identify any wastewater discharges from site.
- To ensure properly maintenance for de-silting facilities.
- To clear the silt and sediment in the sedimentation tanks.
- To review the capacity of de-silting facilities for discharge.
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge.

Waste/Chemical Management
- To check for any accumulation of waste materials or rubbish on site.
- To ensure the performance of sorting of C&D materials at source (during generation);
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site.
- To provide proper storage area or drip trays for oil containers/ equipment on site.
- To avoid improper handling or storage of oil drum on site.

Landscape and Visual
- To protect the existing trees to be retained.
- To transplant the trees unavoidably affected by the works.
- To control of night-time lighting.
- To provide decorative screen hoarding.
- To complete landscape works at site area as early as possible.

Effectiveness of Environmental Management

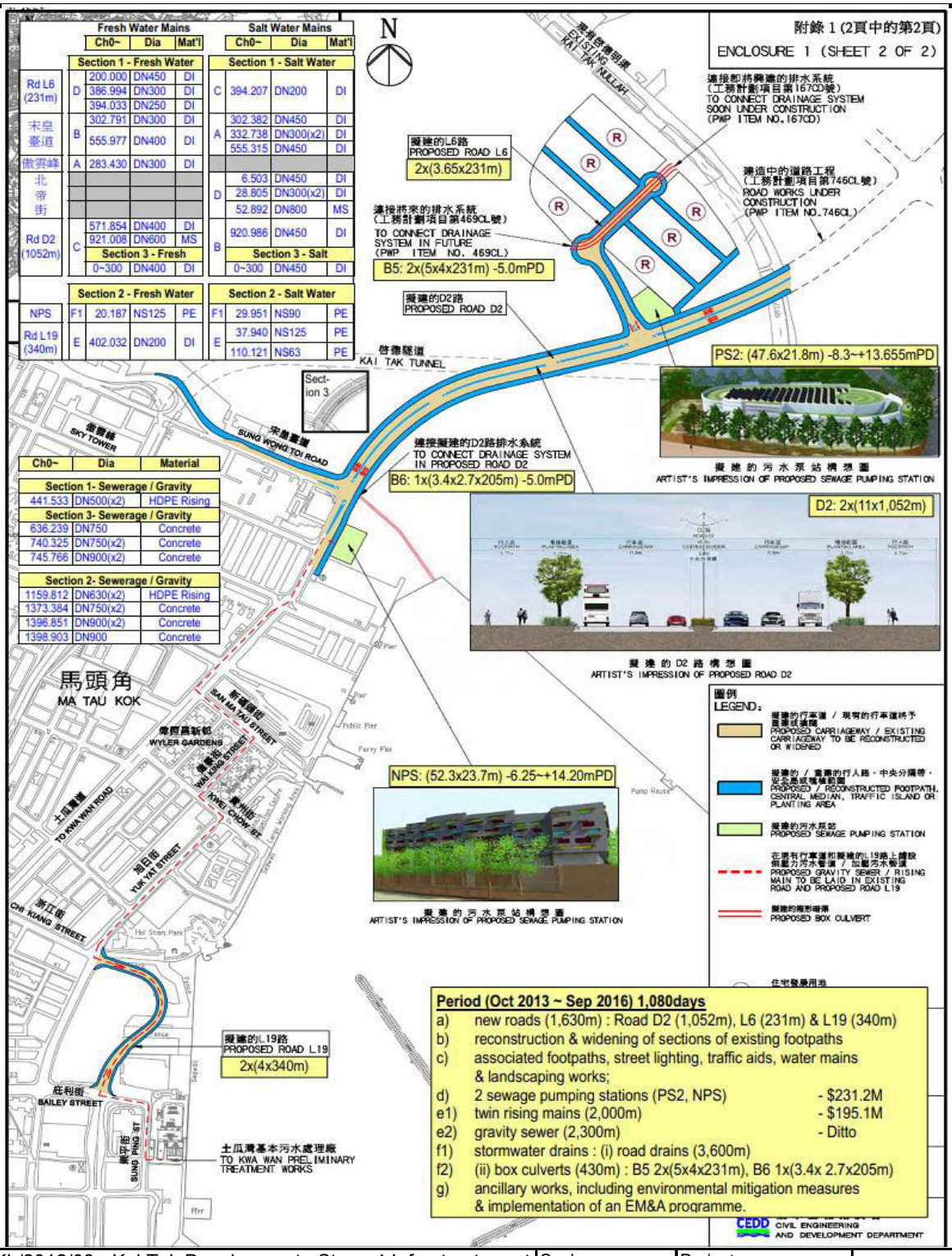
8.7 The above recommendations and the recommended mitigation measures in the EM&A Manual were carried out by the Contractor during construction. No non-compliance was recorded during the environmental site inspections as shown in **Appendix I**.

8.8 The effectiveness of environmental management is satisfactory as the above recommendations are met. Some of the examples of mitigation measures for the following recommendations are given in **Table 8.1** below.
- Surface runoff discharge into any stream course is prevented;
- Provision of sedimentation facilities after identification of wastewater discharges from site;
- Discharge or accidental spillage of chemical waste or oil directly from the site is avoided;
- Improper handling or storage of oil drum on site is avoided;
- The existing trees to be retained are protected; and
- Night-time lighting is controlled.

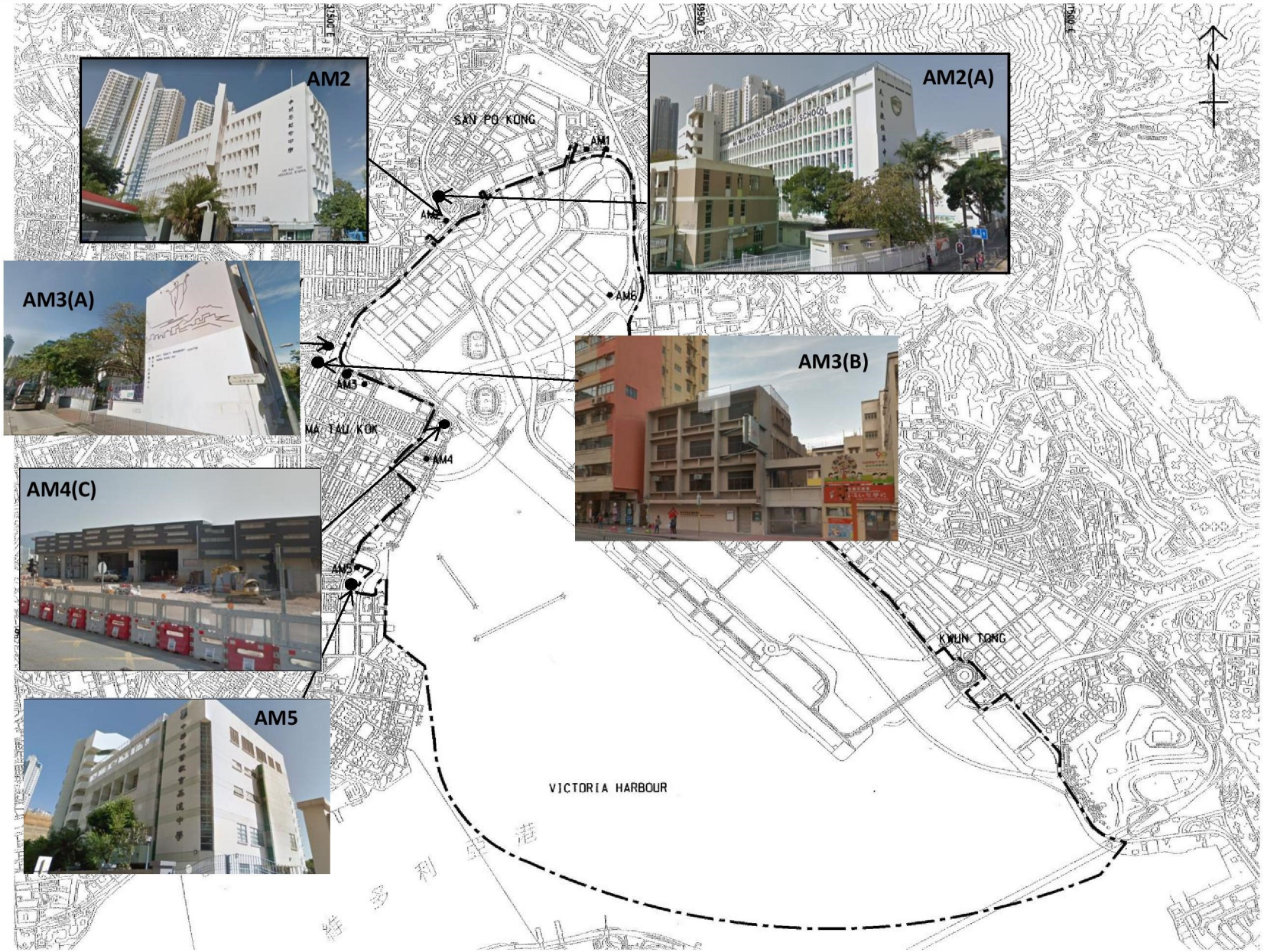
Table 8.1 Examples of Mitigation Measures for Environmental Recommendations

To prevent any surface runoff discharge into any stream course.	Follow-up measure(s) after identification of wastewater discharges from site.
To avoid any discharge or accidental spillage of chemical waste or oil directly from the site	To avoid improper handling or storage of oil drum on site
To protect the existing trees to be retained	To control of night-time lighting

FIGURES

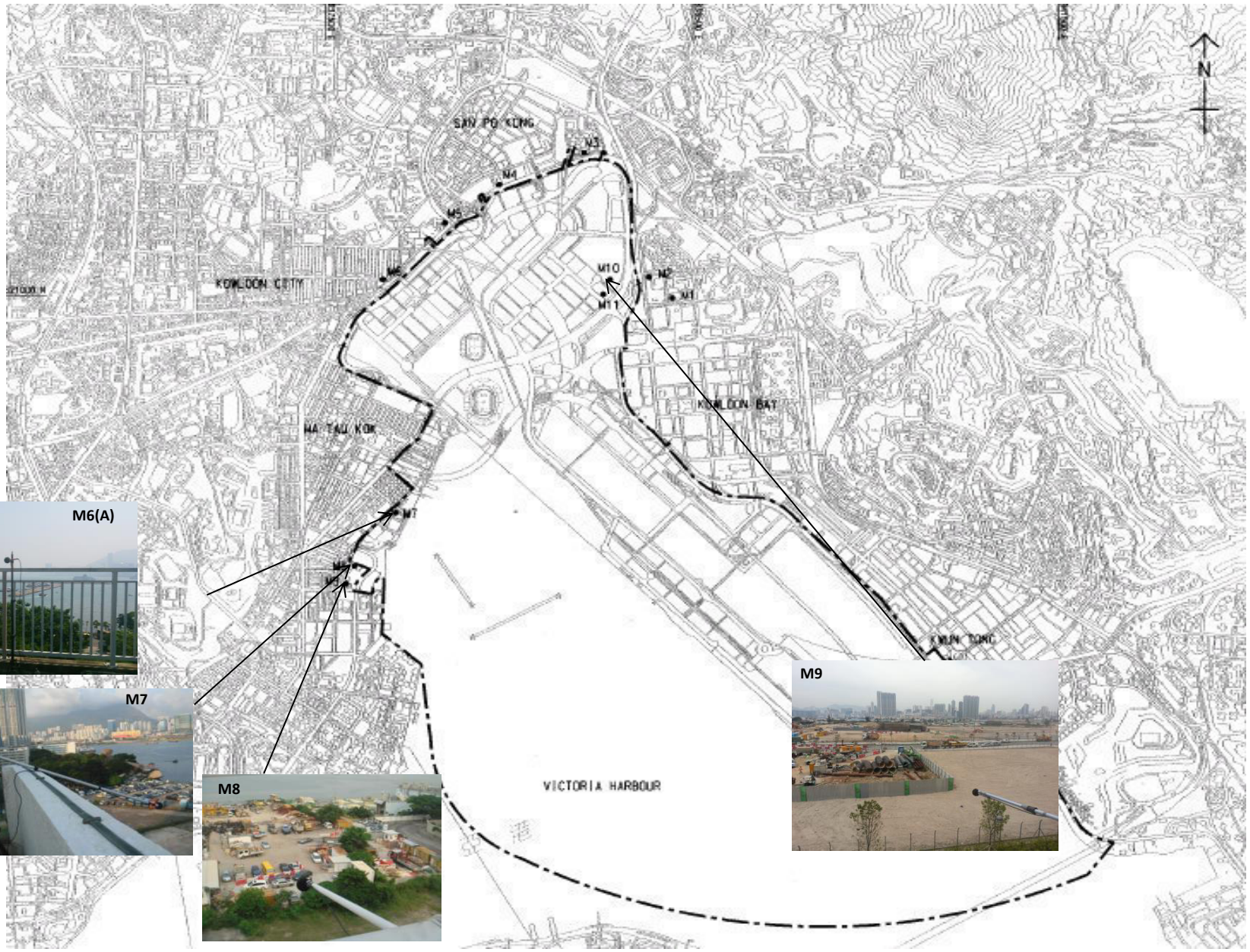


Title	KL/2012/03 - Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area	Scale N.T.S	Project No. MA13056	CINOTECH
	Site Layout Plan	Date Sep-13	Figure 1	



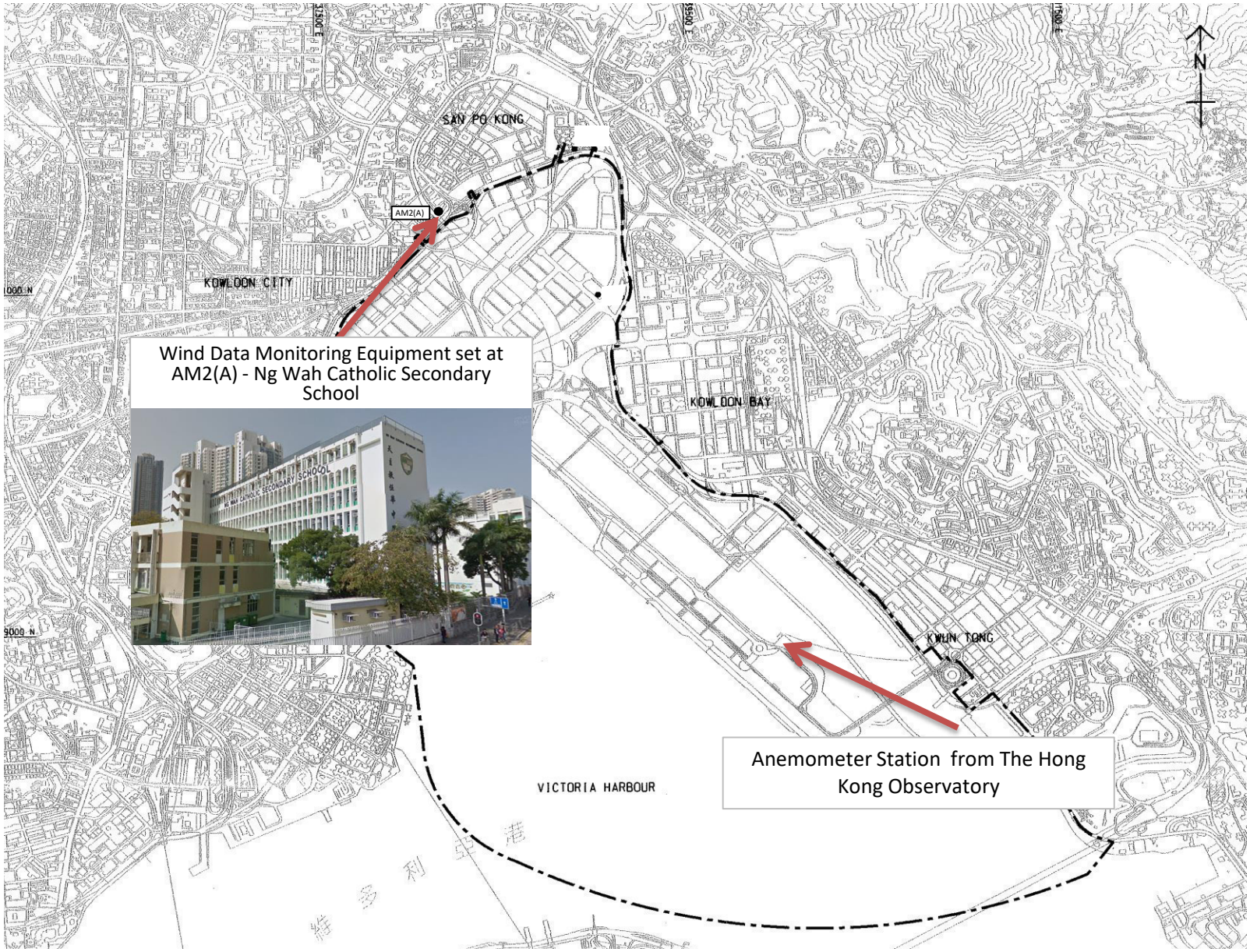
Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Air Quality Monitoring Stations under this Project	Scale: N.T.S Date: Dec-17	Project No.: MA13056 Figure: 2

CINOTECH



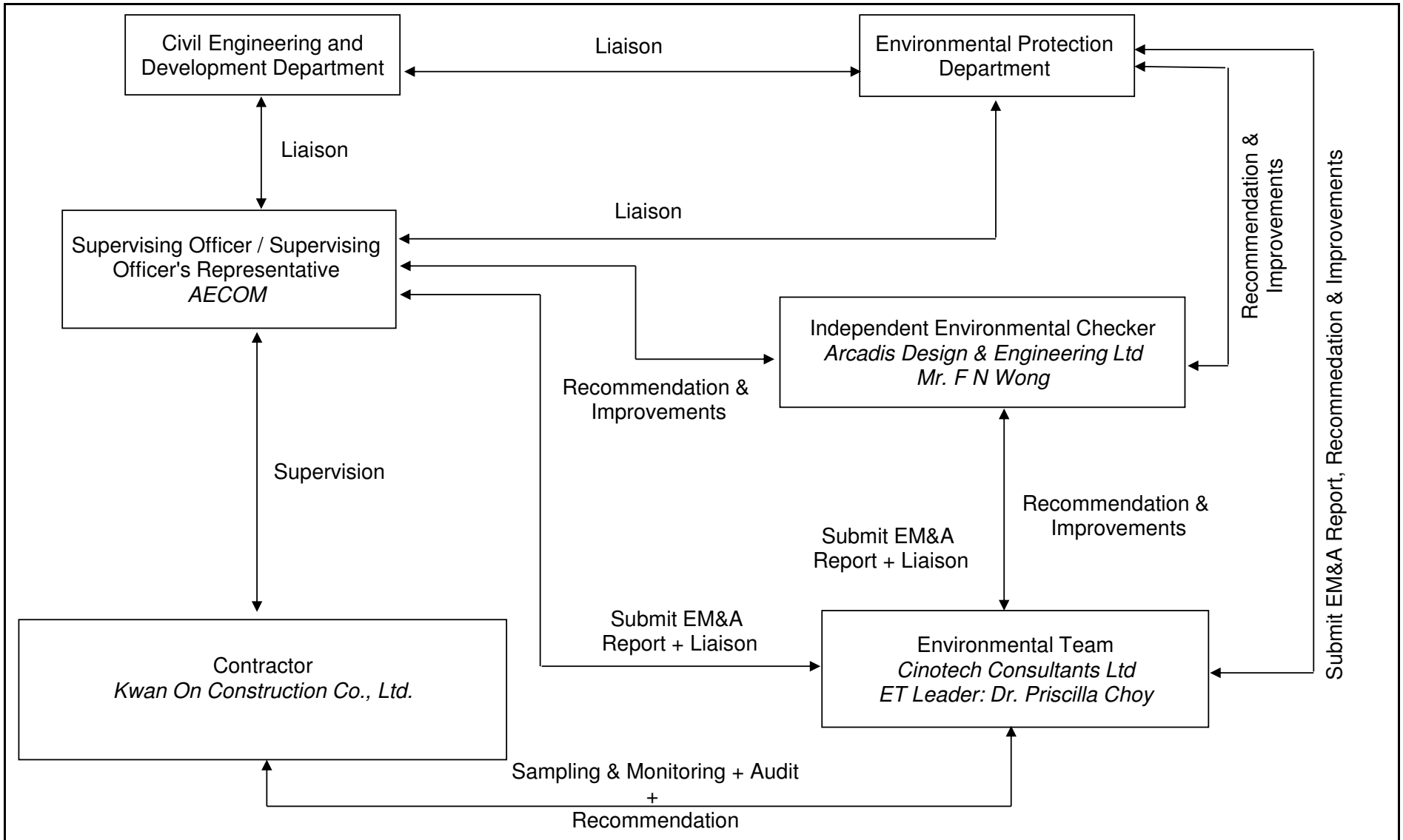
Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Noise Monitoring Stations under this Project	Scale: N.T.S Date: Dec-16	Project No.: MA13056 Figure: 3

CINOTECH



Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area	Scale: N.T.S	Project No.: MA13056
	Location of Wind Data Monitoring Equipment	Date: Aug-17	Figure: 4

CINOTECH



Title	Scale	Project
Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Management Structure	N.T.S	No. MA13056
	Date: Dec-16	Figure: 5

CINOTECH

APPENDIX A
ACTION AND LIMIT LEVELS

Appendix A - Action and Limit Levels

Table A-1 Action and Limit Levels for 1-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM2	346	500
AM3(A)	351	
AM4(C)	371	
AM5	345	

Table A-2 Action and Limit Levels for 24-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM2(A)	157	260
AM3(B)	167	
AM4(C)	187	
AM5	156	

Table A-3 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) 70dB(A)/65dB(A)*

Remarks: 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. *70dB(A) and 65dB(A) for schools during normal teaching periods and school examination periods, respectively.

APPENDIX B
COPIES OF CALIBRATION CERTIFCATES

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TEST REPORT

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

Test Report No.:	29668
Date of Issue:	2018-08-18
Date Received:	2018-08-16
Date Tested:	2018-08-16
Date Completed:	2018-08-18
Next Due Date:	2018-10-17

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 3020408
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-01

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.143

****

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Patrick Tse

PATRICK TSE
Laboratory Manager

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TEST REPORT

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

Test Report No.:	29669
Date of Issue:	2018-08-18
Date Received:	2018-08-16
Date Tested:	2018-08-16
Date Completed:	2018-08-18
Next Due Date:	2018-10-17

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 3020409
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-02

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.147

****

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APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Test Report No.:	29956
Date of Issue:	2018-10-18
Date Received:	2018-10-16
Date Tested:	2018-10-16
Date Completed:	2018-10-18
Next Due Date:	2018-12-17

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 3020409
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-02

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.140

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
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ATTN: **Mr. W. K. Tang**

Test Report No.:	29670
Date of Issue:	2018-08-18
Date Received:	2018-08-16
Date Tested:	2018-08-16
Date Completed:	2018-08-18
Next Due Date:	2018-10-17
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 3020410
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-03

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.183

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TEST REPORT

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

Test Report No.:	29957
Date of Issue:	2018-10-18
Date Received:	2018-10-16
Date Tested:	2018-10-16
Date Completed:	2018-10-18
Next Due Date:	2018-12-17

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 3020410
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-03

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.146

****

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

Test Report No.:	29661
Date of Issue:	2018-08-13
Date Received:	2018-08-11
Date Tested:	2018-08-11
Date Completed:	2018-08-13
Next Due Date:	2018-10-12

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701019
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-01

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.177

****

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TEST REPORT

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

Test Report No.:	29952
Date of Issue:	2018-10-15
Date Received:	2018-10-12
Date Tested:	2018-10-12
Date Completed:	2018-10-15
Next Due Date:	2018-12-14

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701019
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-01

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.170

****

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TEST REPORT

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

ATTN: **Mr. W. K. Tang**

Test Report No.:	29664
Date of Issue:	2018-08-13
Date Received:	2018-08-11
Date Tested:	2018-08-11
Date Completed:	2018-08-13
Next Due Date:	2018-10-12
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701012
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-07

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.161

****

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TEST REPORT

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

Test Report No.:	C/N/171215A
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17

ATTN: **Mr. W.K. Tang** Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35921
Equipment No.	: N-13-02

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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Patrick Tse
PATRICK TSE
Laboratory Manager

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TEST REPORT

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

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/171215B
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17
Page:	1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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TEST REPORT

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

Test Report No.:	29816
Date of Issue:	2018-09-29
Date Received:	2018-09-28
Date Tested:	2018-09-28
Date Completed:	2018-09-29
Next Due Date:	2019-09-28

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

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

Methodology:

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

Results:

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

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TEST REPORT

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

Test Report No.:	29683
Date of Issue:	2018-08-20
Date Received:	2018-08-17
Date Tested:	2018-08-17
Date Completed:	2018-08-20
Next Due Date:	2019-08-19

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Item for calibration:

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

Test conditions:

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

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/13/0008

Station: AM2(A) - Ng Wah Catholic Secondary School

Date: 12-Sep-18 Next Due Date: 11-Nov-18 Operator: MH

Equipment No.: A-01-13 Model No.: TE-5170 Serial No.: 1352

Ambient Condition			
Temperature, Ta (K)	300.2	Pressure, Pa (mmHg)	757.1

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.8	3.56	60.79	8.0	2.81
2	10.4	3.21	54.80	6.6	2.55
3	7.7	2.76	47.15	5.2	2.27
4	4.9	2.20	37.62	3.1	1.75
5	3.2	1.78	30.40	2.0	1.41

By Linear Regression of Y on X

Slope , mw = 0.0465 **Intercept, bw =** 0.0105

Correlation coefficient* = 0.9981

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.09**

Remarks:

Conducted by: LEE MAN HEI Signature: Lei Date: 12/9/2018

Checked by: WK Tang Signature: Kwai Date: 12/9/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/17/0001

Station: AM3(B) - Hong Kong Family Planning Association Operator: MH

Date: 2-Oct-18 Next Due Date: 1-Dec-18

Equipment No.: A-01-17 Serial No. 3460

Ambient Condition			
Temperature, Ta (K)	301	Pressure, Pa (mmHg)	764.7

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.8	3.43	58.59	7.5	2.73
2	9.7	3.11	53.12	6.3	2.51
3	7.8	2.79	47.63	5.1	2.25
4	5.3	2.30	39.27	3.4	1.84
5	3.2	1.79	30.51	2.1	1.45

By Linear Regression of Y on X

Slope , mw = **0.0464** **Intercept, bw =** **0.0318**

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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.12**

Remarks:

Conducted by: MH Signature: Date: 2/10/2018

Checked by: W.K. Tang Signature: Date: 2/10/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/62/0009

Project No. AM4(C) -
New Pumping Station under Contract KL/2012/03

Operator: MH

Date: 4-Sep-18

Next Due Date: 3-Nov-18

Equipment No.: A-01-62

Serial No. 2351

Ambient Condition			
Temperature, Ta (K)	302.9	Pressure, Pa (mmHg)	757.8

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	13.8	3.68	62.87	8.3	2.85
2	11.7	3.39	57.89	7.0	2.62
3	8.3	2.85	48.76	5.4	2.30
4	5.4	2.30	39.33	3.5	1.85
5	3.2	1.77	30.28	2.1	1.44

By Linear Regression of Y on X

Slope , mw = 0.0431 **Intercept, bw =** 0.1525

Correlation coefficient* = 0.9986

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.10**

Remarks:

Conducted by: LEE MAN HEI Signature: Lei Date: 4/9/2018

Checked by: WK Tang Signature: Kwan Date: 4/9/2018

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/59/0009

Station: AM5 - CCC Kei To Secondary School Operator: MH

Date: 2-Oct-18 Next Due Date: 1-Dec-18

Equipment No.: A-01-59 Serial No. 2354

Ambient Condition			
Temperature, Ta (K)	302.3	Pressure, Pa (mmHg)	763.2

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	13-Feb-19	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.6	3.53	60.35	8.2	2.85
2	10.8	3.27	55.87	6.9	2.61
3	7.7	2.76	47.18	4.7	2.16
4	5.3	2.29	39.14	3.5	1.86
5	3.4	1.83	31.35	2.2	1.48

By Linear Regression of Y on X

Slope , mw = 0.0467 **Intercept, bw =** 0.0064

Correlation coefficient* = 0.9983

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.10**

Remarks:

Conducted by: LTE MAN HEI Signature: Kei Date: 2/10/2018

Checked by: WK Tong Signature: Kwai Date: 2/10/2018

TISCH Environmental

RECALIBRATION DUE DATE:
February 13, 2019

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	February 13, 2018	**Rootsmeter S/N:** 438320	**Ta:** 293	°K	
Operator:	Jim Tisch		**Pa:** 763.3	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2896**			

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4670	3.2	2.00
2	3	4	1	1.0380	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0172	0.6934	1.4293	0.9958	0.6788	0.8762
1.0129	0.9758	2.0213	0.9916	0.9553	1.2392
1.0107	1.0962	2.2599	0.9895	1.0732	1.3854
1.0097	1.1422	2.3702	0.9885	1.1182	1.4530
1.0043	1.3853	2.8586	0.9832	1.3562	1.7524
QSTD	**m=**	**2.06726**	**QA**	**m=**	**1.29448**
	b=	**-0.00045**		**b=**	**-0.00028**
	r=	**0.99992**		**r=**	**0.99992**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
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Technology Park, 18 On Lai Street,
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Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	29680A
Date of Issue:	2018-07-28
Date Received:	2018-07-27
Date Tested:	2018-07-27
Date Completed:	2018-07-28
Next Due Date:	2019-01-27
Page:	1 of 2

ATTN: **Mr. W.K. Tang**

Certificate of Calibration

Item for calibration:

Description	: Weather Stations, Vantage Pro2
Manufacturer	: Davis Instruments
Model No.	: 6152
Serial No.	: AR160809018

Test conditions:

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

Test Specifications:

1. Performance check of anemometer
2. Performance check of wind direction sensor

Methodology:

In-house method with reference anemometer (RS232 Integral Vane Digital Anemometer)

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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TEST REPORT

Test Report No.:	29680A
Date of Issue:	2018-07-28
Date Received:	2018-07-27
Date Tested:	2018-07-27
Date Completed:	2018-07-28
Next Due Date:	2019-01-27

Results:

1. Performance check of anemometer

Air Velocity, m/s		Difference D (m/s)
Instrument Reading (V1)	Reference Value (V1)	D = V1 – V2
2.00	2.00	0.00

2. Performance check of wind direction sensor

Wind Direction (°)		Difference D (°)
Instrument Reading (W1)	Reference Value (W2)	D = W1 - W2
0	0	0
45	45	0
90.2	90	0.2
135.3	135	0.3
180	180	0
225.1	225	0.1
270.3	270	0.3
315	315	0
360	360	0

**********END OF REPORT**********

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APPENDIX C
WEATHER INFORMATION

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
01-Oct-18	26.8	70	2.9
02-Oct-18	27.2	67	-
03-Oct-18	26.9	68	-
04-Oct-18	26.9	54	-
05-Oct-18	27.1	40	-
06-Oct-18	26.8	48	-
07-Oct-18	27.1	69	-
08-Oct-18	26.7	75	2
09-Oct-18	26.5	78	0.6
10-Oct-18	24.8	83	42.8
11-Oct-18	23.2	72	-
12-Oct-18	23.8	73	0.3
13-Oct-18	24.7	72	0.4
14-Oct-18	25.3	79	0.6
15-Oct-18	25.6	84	31.4
16-Oct-18	24.3	92	8.9
17-Oct-18	23.5	84	1.5
18-Oct-18	22.5	87	12.6
19-Oct-18	24.2	77	0.2

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20-Oct-18	24	78	Trace
21-Oct-18	24.8	77	Trace
22-Oct-18	25	81	Trace
23-Oct-18	25.3	79	0.1
24-Oct-18	25.2	80	Trace
25-Oct-18	25.5	79	-
26-Oct-18	26.3	76	-
27-Oct-18	25.4	61	-
28-Oct-18	24.3	54	-
29-Oct-18	25.2	35	-
30-Oct-18	25.7	33	-
31-Oct-18	25	37	-

* The above information was extracted from the daily weather summary by Hong Kong Observatory.

** Trace means rainfall less than 0.05 mm

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
1-Oct-2018	00:00	1.8	WNW
1-Oct-2018	01:00	1.7	W
1-Oct-2018	02:00	2.0	WNW
1-Oct-2018	03:00	2.2	W
1-Oct-2018	04:00	1.5	W
1-Oct-2018	05:00	1.4	W
1-Oct-2018	06:00	1.2	WNW
1-Oct-2018	07:00	1.6	W
1-Oct-2018	08:00	1.4	W
1-Oct-2018	09:00	2.0	WNW
1-Oct-2018	10:00	2.2	SW
1-Oct-2018	11:00	2.5	NW
1-Oct-2018	12:00	2.6	N
1-Oct-2018	13:00	2.8	N
1-Oct-2018	14:00	2.6	NE
1-Oct-2018	15:00	2.6	ENE
1-Oct-2018	16:00	2.8	SE
1-Oct-2018	17:00	2.4	S
1-Oct-2018	18:00	1.8	S
1-Oct-2018	19:00	1.3	SE
1-Oct-2018	20:00	1.5	S
1-Oct-2018	21:00	1.7	S
1-Oct-2018	22:00	1.9	S
1-Oct-2018	23:00	1.8	S
2-Oct-2018	00:00	1.9	S
2-Oct-2018	01:00	1.7	S
2-Oct-2018	02:00	1.8	S
2-Oct-2018	03:00	1.5	NW
2-Oct-2018	04:00	1.2	NNW
2-Oct-2018	05:00	1.3	WSW
2-Oct-2018	06:00	1.4	NNW
2-Oct-2018	07:00	1.5	WNW
2-Oct-2018	08:00	1.4	NW
2-Oct-2018	09:00	1.5	WNW
2-Oct-2018	10:00	1.8	WNW
2-Oct-2018	11:00	2.3	WNW
2-Oct-2018	12:00	2.9	NNW

II. Mean Wind Speed and Wind Direction

2-Oct-2018	13:00	2.5	NNW
2-Oct-2018	14:00	2.6	WNW
2-Oct-2018	15:00	1.9	NNW
2-Oct-2018	16:00	1.7	NNW
2-Oct-2018	17:00	1.9	NNW
2-Oct-2018	18:00	1.6	WNW
2-Oct-2018	19:00	1.5	NNW
2-Oct-2018	20:00	1.2	WNW
2-Oct-2018	21:00	1.4	NW
2-Oct-2018	22:00	1.3	NW
2-Oct-2018	23:00	1.5	NW
3-Oct-2018	00:00	1.6	WNW
3-Oct-2018	01:00	1.7	E
3-Oct-2018	02:00	1.7	NNW
3-Oct-2018	03:00	1.7	NNW
3-Oct-2018	04:00	1.8	NNW
3-Oct-2018	05:00	1.6	NNW
3-Oct-2018	06:00	1.2	NW
3-Oct-2018	07:00	1.2	WNW
3-Oct-2018	08:00	1.2	W
3-Oct-2018	09:00	1.3	NW
3-Oct-2018	10:00	1.8	ESE
3-Oct-2018	11:00	2.1	WSW
3-Oct-2018	12:00	1.9	WNW
3-Oct-2018	13:00	1.9	S
3-Oct-2018	14:00	2.5	W
3-Oct-2018	15:00	2.4	S
3-Oct-2018	16:00	2.1	SW
3-Oct-2018	17:00	2.4	ESE
3-Oct-2018	18:00	1.7	E
3-Oct-2018	19:00	1.4	WSW
3-Oct-2018	20:00	1.2	NW
3-Oct-2018	21:00	1.2	NE
3-Oct-2018	22:00	1.3	WSW
3-Oct-2018	23:00	1.4	NNW
4-Oct-2018	00:00	1.4	WNW
4-Oct-2018	01:00	1.7	SSW
4-Oct-2018	02:00	1.1	SE

II. Mean Wind Speed and Wind Direction

4-Oct-2018	03:00	2.0	NNW
4-Oct-2018	04:00	1.6	NNW
4-Oct-2018	05:00	1.6	SSE
4-Oct-2018	06:00	1.4	NW
4-Oct-2018	07:00	1.3	NW
4-Oct-2018	08:00	1.7	NW
4-Oct-2018	09:00	1.7	W
4-Oct-2018	10:00	2.1	NW
4-Oct-2018	11:00	2.3	WNW
4-Oct-2018	12:00	2.2	WNW
4-Oct-2018	13:00	2.0	WNW
4-Oct-2018	14:00	2.0	NNW
4-Oct-2018	15:00	2.2	NW
4-Oct-2018	16:00	2.0	NNW
4-Oct-2018	17:00	1.7	NNW
4-Oct-2018	18:00	1.6	NW
4-Oct-2018	19:00	1.4	NNW
4-Oct-2018	20:00	1.4	NW
4-Oct-2018	21:00	1.6	NW
4-Oct-2018	22:00	1.9	NW
4-Oct-2018	23:00	1.6	WNW
5-Oct-2018	00:00	1.5	SSE
5-Oct-2018	01:00	1.3	S
5-Oct-2018	02:00	1.4	S
5-Oct-2018	03:00	1.9	SSW
5-Oct-2018	04:00	1.7	WNW
5-Oct-2018	05:00	1.6	SW
5-Oct-2018	06:00	1.5	N
5-Oct-2018	07:00	1.5	NNE
5-Oct-2018	08:00	1.8	WNW
5-Oct-2018	09:00	1.9	NW
5-Oct-2018	10:00	2.5	S
5-Oct-2018	11:00	2.5	W
5-Oct-2018	12:00	2.7	WSW
5-Oct-2018	13:00	2.6	NW
5-Oct-2018	14:00	2.1	NNW
5-Oct-2018	15:00	2.2	NNW
5-Oct-2018	16:00	1.7	NNW

II. Mean Wind Speed and Wind Direction

5-Oct-2018	17:00	1.6	NNW
5-Oct-2018	18:00	1.9	NNW
5-Oct-2018	19:00	1.2	NNW
5-Oct-2018	20:00	1.3	NNW
5-Oct-2018	21:00	1.0	NW
5-Oct-2018	22:00	1.0	NNW
5-Oct-2018	23:00	1.0	NNW
6-Oct-2018	00:00	1.4	NNW
6-Oct-2018	01:00	1.5	WNW
6-Oct-2018	02:00	1.0	NW
6-Oct-2018	03:00	1.2	NW
6-Oct-2018	04:00	1.2	NNW
6-Oct-2018	05:00	0.8	ESE
6-Oct-2018	06:00	1.1	S
6-Oct-2018	07:00	0.8	SE
6-Oct-2018	08:00	1.1	SE
6-Oct-2018	09:00	1.8	SE
6-Oct-2018	10:00	1.7	S
6-Oct-2018	11:00	2.0	SE
6-Oct-2018	12:00	1.9	S
6-Oct-2018	13:00	2.4	SSW
6-Oct-2018	14:00	2.5	SW
6-Oct-2018	15:00	2.2	SW
6-Oct-2018	16:00	2.4	SSW
6-Oct-2018	17:00	2.0	N
6-Oct-2018	18:00	1.9	N
6-Oct-2018	19:00	1.4	S
6-Oct-2018	20:00	1.1	NNW
6-Oct-2018	21:00	0.9	NNW
6-Oct-2018	22:00	0.6	NNW
6-Oct-2018	23:00	0.8	NW
7-Oct-2018	00:00	1.1	NW
7-Oct-2018	01:00	1.0	WNW
7-Oct-2018	02:00	0.7	NNE
7-Oct-2018	03:00	0.8	W
7-Oct-2018	04:00	0.9	NNW
7-Oct-2018	05:00	0.9	SSW
7-Oct-2018	06:00	1.0	ESE

II. Mean Wind Speed and Wind Direction

7-Oct-2018	07:00	1.2	NNW
7-Oct-2018	08:00	1.3	NNW
7-Oct-2018	09:00	1.7	NNW
7-Oct-2018	10:00	2.2	NNW
7-Oct-2018	11:00	2.5	WNW
7-Oct-2018	12:00	3.2	NW
7-Oct-2018	13:00	2.8	S
7-Oct-2018	14:00	2.9	NW
7-Oct-2018	15:00	2.9	NW
7-Oct-2018	16:00	2.2	N
7-Oct-2018	17:00	2.3	S
7-Oct-2018	18:00	2.0	WSW
7-Oct-2018	19:00	1.7	N
7-Oct-2018	20:00	1.5	SSE
7-Oct-2018	21:00	1.6	SSE
7-Oct-2018	22:00	2.0	SSE
7-Oct-2018	23:00	1.8	ESE
8-Oct-2018	00:00	2.1	NE
8-Oct-2018	01:00	2.4	NNE
8-Oct-2018	02:00	1.3	NNE
8-Oct-2018	03:00	1.0	N
8-Oct-2018	04:00	1.4	NE
8-Oct-2018	05:00	1.3	E
8-Oct-2018	06:00	1.5	N
8-Oct-2018	07:00	1.4	W
8-Oct-2018	08:00	1.7	W
8-Oct-2018	09:00	1.5	W
8-Oct-2018	10:00	2.0	NW
8-Oct-2018	11:00	2.0	SW
8-Oct-2018	12:00	2.2	NNE
8-Oct-2018	13:00	2.2	N
8-Oct-2018	14:00	2.2	WNW
8-Oct-2018	15:00	2.5	SW
8-Oct-2018	16:00	2.0	SE
8-Oct-2018	17:00	2.1	SW
8-Oct-2018	18:00	1.6	WNW
8-Oct-2018	19:00	2.0	NNE
8-Oct-2018	20:00	1.8	WNW

II. Mean Wind Speed and Wind Direction

8-Oct-2018	21:00	2.0	NW
8-Oct-2018	22:00	1.7	NNE
8-Oct-2018	23:00	1.5	ESE
9-Oct-2018	00:00	1.5	WSW
9-Oct-2018	01:00	1.5	N
9-Oct-2018	02:00	1.2	ENE
9-Oct-2018	03:00	1.6	NE
9-Oct-2018	04:00	1.9	ENE
9-Oct-2018	05:00	1.7	NNW
9-Oct-2018	06:00	1.5	WNW
9-Oct-2018	07:00	1.4	ENE
9-Oct-2018	08:00	2.0	NE
9-Oct-2018	09:00	2.6	SSE
9-Oct-2018	10:00	2.6	NNE
9-Oct-2018	11:00	2.5	NNE
9-Oct-2018	12:00	2.9	S
9-Oct-2018	13:00	2.7	SW
9-Oct-2018	14:00	2.8	W
9-Oct-2018	15:00	3.2	NE
9-Oct-2018	16:00	3.2	NNE
9-Oct-2018	17:00	2.6	NE
9-Oct-2018	18:00	2.5	NE
9-Oct-2018	19:00	2.4	NE
9-Oct-2018	20:00	2.0	NNE
9-Oct-2018	21:00	2.6	NNE
9-Oct-2018	22:00	2.6	SE
9-Oct-2018	23:00	2.5	SSE
10-Oct-2018	00:00	2.7	ENE
10-Oct-2018	01:00	2.6	N
10-Oct-2018	02:00	2.9	NE
10-Oct-2018	03:00	2.5	ENE
10-Oct-2018	04:00	1.8	NNE
10-Oct-2018	05:00	1.7	ENE
10-Oct-2018	06:00	1.5	NE
10-Oct-2018	07:00	1.7	NE
10-Oct-2018	08:00	1.9	ENE
10-Oct-2018	09:00	1.9	SSE
10-Oct-2018	10:00	2.9	NNE

II. Mean Wind Speed and Wind Direction

10-Oct-2018	11:00	2.7	ENE
10-Oct-2018	12:00	2.5	ESE
10-Oct-2018	13:00	2.6	ESE
10-Oct-2018	14:00	2.7	NNE
10-Oct-2018	15:00	2.2	N
10-Oct-2018	16:00	2.5	WNW
10-Oct-2018	17:00	2.3	WNW
10-Oct-2018	18:00	2.1	ENE
10-Oct-2018	19:00	1.7	ENE
10-Oct-2018	20:00	1.7	W
10-Oct-2018	21:00	1.6	WNW
10-Oct-2018	22:00	2.0	SSW
10-Oct-2018	23:00	2.1	NE
11-Oct-2018	00:00	2.4	NE
11-Oct-2018	01:00	2.5	ENE
11-Oct-2018	02:00	2.1	NE
11-Oct-2018	03:00	2.2	ENE
11-Oct-2018	04:00	2.5	E
11-Oct-2018	05:00	2.5	E
11-Oct-2018	06:00	2.3	SE
11-Oct-2018	07:00	2.3	NW
11-Oct-2018	08:00	2.1	NE
11-Oct-2018	09:00	2.6	NE
11-Oct-2018	10:00	2.0	NE
11-Oct-2018	11:00	2.2	NE
11-Oct-2018	12:00	2.2	WNW
11-Oct-2018	13:00	2.7	SSW
11-Oct-2018	14:00	2.8	NNE
11-Oct-2018	15:00	2.6	N
11-Oct-2018	16:00	2.7	NNE
11-Oct-2018	17:00	2.3	ENE
11-Oct-2018	18:00	1.7	SE
11-Oct-2018	19:00	1.5	ESE
11-Oct-2018	20:00	1.3	SSE
11-Oct-2018	21:00	1.6	ENE
11-Oct-2018	22:00	1.2	SSW
11-Oct-2018	23:00	1.3	W
12-Oct-2018	00:00	1.6	W

II. Mean Wind Speed and Wind Direction

12-Oct-2018	01:00	1.4	WNW
12-Oct-2018	02:00	1.3	WSW
12-Oct-2018	03:00	1.2	WSW
12-Oct-2018	04:00	0.9	SSW
12-Oct-2018	05:00	0.9	WSW
12-Oct-2018	06:00	0.9	WNW
12-Oct-2018	07:00	0.8	WNW
12-Oct-2018	08:00	1.2	WNW
12-Oct-2018	09:00	1.5	SW
12-Oct-2018	10:00	1.5	WSW
12-Oct-2018	11:00	1.7	WSW
12-Oct-2018	12:00	2.0	W
12-Oct-2018	13:00	2.1	ESE
12-Oct-2018	14:00	2.0	ESE
12-Oct-2018	15:00	2.0	WNW
12-Oct-2018	16:00	1.8	NNE
12-Oct-2018	17:00	1.4	NE
12-Oct-2018	18:00	1.1	NE
12-Oct-2018	19:00	1.1	NE
12-Oct-2018	20:00	0.8	NE
12-Oct-2018	21:00	0.8	NE
12-Oct-2018	22:00	0.9	ENE
12-Oct-2018	23:00	1.1	NNE
13-Oct-2018	00:00	1.0	NE
13-Oct-2018	01:00	1.1	NE
13-Oct-2018	02:00	0.8	N
13-Oct-2018	03:00	0.7	ENE
13-Oct-2018	04:00	0.7	SW
13-Oct-2018	05:00	0.6	WSW
13-Oct-2018	06:00	1.1	SSW
13-Oct-2018	07:00	1.1	WSW
13-Oct-2018	08:00	1.0	WNW
13-Oct-2018	09:00	1.7	NNE
13-Oct-2018	10:00	1.8	ENE
13-Oct-2018	11:00	2.5	ENE
13-Oct-2018	12:00	2.5	SSW
13-Oct-2018	13:00	2.3	SW
13-Oct-2018	14:00	2.3	WSW

II. Mean Wind Speed and Wind Direction

13-Oct-2018	15:00	2.2	W
13-Oct-2018	16:00	2.0	S
13-Oct-2018	17:00	1.6	NE
13-Oct-2018	18:00	1.7	ENE
13-Oct-2018	19:00	1.4	NE
13-Oct-2018	20:00	1.4	W
13-Oct-2018	21:00	1.9	WSW
13-Oct-2018	22:00	2.0	NE
13-Oct-2018	23:00	2.0	N
14-Oct-2018	00:00	2.0	ESE
14-Oct-2018	01:00	1.7	ENE
14-Oct-2018	02:00	1.7	ESE
14-Oct-2018	03:00	1.6	NNE
14-Oct-2018	04:00	1.5	E
14-Oct-2018	05:00	1.3	ENE
14-Oct-2018	06:00	1.1	NE
14-Oct-2018	07:00	1.2	NE
14-Oct-2018	08:00	1.5	NNE
14-Oct-2018	09:00	1.4	ENE
14-Oct-2018	10:00	2.0	E
14-Oct-2018	11:00	2.6	ENE
14-Oct-2018	12:00	2.5	NNE
14-Oct-2018	13:00	1.9	NE
14-Oct-2018	14:00	1.9	ESE
14-Oct-2018	15:00	1.8	NNE
14-Oct-2018	16:00	1.9	ENE
14-Oct-2018	17:00	2.1	E
14-Oct-2018	18:00	2.0	ESE
14-Oct-2018	19:00	2.1	NE
14-Oct-2018	20:00	2.2	NNE
14-Oct-2018	21:00	2.4	NNE
14-Oct-2018	22:00	2.6	ENE
14-Oct-2018	23:00	2.2	ENE
15-Oct-2018	00:00	2.4	NNE
15-Oct-2018	01:00	2.1	N
15-Oct-2018	02:00	2.0	NE
15-Oct-2018	03:00	1.7	WSW
15-Oct-2018	04:00	1.9	N

II. Mean Wind Speed and Wind Direction

15-Oct-2018	05:00	1.5	WNW
15-Oct-2018	06:00	1.7	WSW
15-Oct-2018	07:00	1.7	WSW
15-Oct-2018	08:00	2.1	WSW
15-Oct-2018	09:00	2.3	WSW
15-Oct-2018	10:00	2.5	W
15-Oct-2018	11:00	2.5	W
15-Oct-2018	12:00	2.9	WSW
15-Oct-2018	13:00	3.1	WSW
15-Oct-2018	14:00	2.7	WNW
15-Oct-2018	15:00	2.6	WNW
15-Oct-2018	16:00	2.3	W
15-Oct-2018	17:00	2.3	WNW
15-Oct-2018	18:00	2.0	WNW
15-Oct-2018	19:00	1.7	W
15-Oct-2018	20:00	1.6	WNW
15-Oct-2018	21:00	1.8	SSW
15-Oct-2018	22:00	1.6	SSW
15-Oct-2018	23:00	1.5	WNW
16-Oct-2018	00:00	1.7	WNW
16-Oct-2018	01:00	1.9	W
16-Oct-2018	02:00	1.6	W
16-Oct-2018	03:00	1.7	WNW
16-Oct-2018	04:00	1.6	WNW
16-Oct-2018	05:00	1.3	WNW
16-Oct-2018	06:00	1.1	WNW
16-Oct-2018	07:00	1.1	W
16-Oct-2018	08:00	1.3	WNW
16-Oct-2018	09:00	2.2	WNW
16-Oct-2018	10:00	2.4	WNW
16-Oct-2018	11:00	2.4	WSW
16-Oct-2018	12:00	2.5	SSW
16-Oct-2018	13:00	2.3	SSE
16-Oct-2018	14:00	2.0	ESE
16-Oct-2018	15:00	2.0	SE
16-Oct-2018	16:00	2.2	SSE
16-Oct-2018	17:00	2.3	S
16-Oct-2018	18:00	2.8	SW

II. Mean Wind Speed and Wind Direction

16-Oct-2018	19:00	2.5	WSW
16-Oct-2018	20:00	2.2	NW
16-Oct-2018	21:00	2.5	SSW
16-Oct-2018	22:00	2.5	S
16-Oct-2018	23:00	3.0	WSW
17-Oct-2018	00:00	3.2	W
17-Oct-2018	01:00	3.2	N
17-Oct-2018	02:00	3.1	W
17-Oct-2018	03:00	2.8	NE
17-Oct-2018	04:00	1.9	NNE
17-Oct-2018	05:00	1.8	NE
17-Oct-2018	06:00	1.8	ENE
17-Oct-2018	07:00	1.8	SSE
17-Oct-2018	08:00	1.9	NE
17-Oct-2018	09:00	1.8	ENE
17-Oct-2018	10:00	2.1	SE
17-Oct-2018	11:00	2.3	ESE
17-Oct-2018	12:00	2.8	ESE
17-Oct-2018	13:00	2.2	SE
17-Oct-2018	14:00	2.2	SSE
17-Oct-2018	15:00	2.5	ESE
17-Oct-2018	16:00	2.2	ESE
17-Oct-2018	17:00	1.8	ESE
17-Oct-2018	18:00	1.4	ESE
17-Oct-2018	19:00	1.0	S
17-Oct-2018	20:00	1.1	SE
17-Oct-2018	21:00	1.1	SSE
17-Oct-2018	22:00	1.1	SSE
17-Oct-2018	23:00	1.1	SSE
18-Oct-2018	00:00	1.4	ESE
18-Oct-2018	01:00	1.4	SSE
18-Oct-2018	02:00	1.3	SE
18-Oct-2018	03:00	1.2	ENE
18-Oct-2018	04:00	1.2	ENE
18-Oct-2018	05:00	1.2	ESE
18-Oct-2018	06:00	1.2	ESE
18-Oct-2018	07:00	1.3	SSW
18-Oct-2018	08:00	1.6	NNE

II. Mean Wind Speed and Wind Direction

18-Oct-2018	09:00	2.2	WNW
18-Oct-2018	10:00	2.7	SE
18-Oct-2018	11:00	3.0	SW
18-Oct-2018	12:00	3.3	WNW
18-Oct-2018	13:00	3.4	WNW
18-Oct-2018	14:00	3.3	SW
18-Oct-2018	15:00	3.1	WSW
18-Oct-2018	16:00	3.3	ESE
18-Oct-2018	17:00	3.1	NE
18-Oct-2018	18:00	2.6	WSW
18-Oct-2018	19:00	1.9	NW
18-Oct-2018	20:00	1.7	ESE
18-Oct-2018	21:00	1.5	S
18-Oct-2018	22:00	1.9	NW
18-Oct-2018	23:00	2.2	NNW
19-Oct-2018	00:00	2.2	NNE
19-Oct-2018	01:00	2.4	ENE
19-Oct-2018	02:00	2.5	SE
19-Oct-2018	03:00	2.3	SSE
19-Oct-2018	04:00	2.0	SE
19-Oct-2018	05:00	1.9	SE
19-Oct-2018	06:00	1.5	S
19-Oct-2018	07:00	1.7	NE
19-Oct-2018	08:00	1.8	WNW
19-Oct-2018	09:00	2.0	WSW
19-Oct-2018	10:00	2.3	NNE
19-Oct-2018	11:00	3.0	WNW
19-Oct-2018	12:00	2.8	WNW
19-Oct-2018	13:00	2.7	SW
19-Oct-2018	14:00	2.4	ENE
19-Oct-2018	15:00	2.3	ESE
19-Oct-2018	16:00	2.2	WNW
19-Oct-2018	17:00	2.2	NE
19-Oct-2018	18:00	1.4	NNE
19-Oct-2018	19:00	1.0	NE
19-Oct-2018	20:00	1.2	NE
19-Oct-2018	21:00	1.4	NW
19-Oct-2018	22:00	1.7	SE

II. Mean Wind Speed and Wind Direction

19-Oct-2018	23:00	1.6	NW
20-Oct-2018	00:00	1.7	ESE
20-Oct-2018	01:00	1.7	N
20-Oct-2018	02:00	1.5	NE
20-Oct-2018	03:00	1.5	SSE
20-Oct-2018	04:00	1.3	SSE
20-Oct-2018	05:00	1.2	SW
20-Oct-2018	06:00	1.2	NE
20-Oct-2018	07:00	1.6	SW
20-Oct-2018	08:00	1.6	NNE
20-Oct-2018	09:00	2.2	NE
20-Oct-2018	10:00	2.1	ENE
20-Oct-2018	11:00	2.6	SSE
20-Oct-2018	12:00	2.4	ENE
20-Oct-2018	13:00	2.3	N
20-Oct-2018	14:00	1.9	E
20-Oct-2018	15:00	1.9	SSW
20-Oct-2018	16:00	2.0	W
20-Oct-2018	17:00	1.3	E
20-Oct-2018	18:00	1.4	NW
20-Oct-2018	19:00	1.2	NE
20-Oct-2018	20:00	1.3	E
20-Oct-2018	21:00	1.1	SSE
20-Oct-2018	22:00	1.5	SSW
20-Oct-2018	23:00	1.3	SW
21-Oct-2018	00:00	1.7	SSW
21-Oct-2018	01:00	1.6	SSE
21-Oct-2018	02:00	1.7	SW
21-Oct-2018	03:00	1.7	NE
21-Oct-2018	04:00	1.7	ENE
21-Oct-2018	05:00	1.2	E
21-Oct-2018	06:00	0.9	WNW
21-Oct-2018	07:00	0.8	SSW
21-Oct-2018	08:00	1.1	SE
21-Oct-2018	09:00	2.0	WNW
21-Oct-2018	10:00	2.1	W
21-Oct-2018	11:00	1.7	NNE
21-Oct-2018	12:00	2.1	ENE

II. Mean Wind Speed and Wind Direction

21-Oct-2018	13:00	2.2	ESE
21-Oct-2018	14:00	2.1	E
21-Oct-2018	15:00	1.6	SSE
21-Oct-2018	16:00	1.7	ENE
21-Oct-2018	17:00	1.7	ENE
21-Oct-2018	18:00	1.1	ESE
21-Oct-2018	19:00	0.8	S
21-Oct-2018	20:00	1.0	ESE
21-Oct-2018	21:00	1.1	SSE
21-Oct-2018	22:00	0.9	ENE
21-Oct-2018	23:00	1.0	ESE
22-Oct-2018	00:00	1.1	SSE
22-Oct-2018	01:00	1.0	SSE
22-Oct-2018	02:00	0.7	W
22-Oct-2018	03:00	1.1	WNW
22-Oct-2018	04:00	1.0	E
22-Oct-2018	05:00	1.0	S
22-Oct-2018	06:00	1.1	ENE
22-Oct-2018	07:00	1.0	WSW
22-Oct-2018	08:00	1.7	W
22-Oct-2018	09:00	1.7	NE
22-Oct-2018	10:00	1.8	N
22-Oct-2018	11:00	2.4	NNE
22-Oct-2018	12:00	2.1	N
22-Oct-2018	13:00	1.6	WSW
22-Oct-2018	14:00	1.7	WNW
22-Oct-2018	15:00	2.2	WNW
22-Oct-2018	16:00	2.6	WSW
22-Oct-2018	17:00	1.8	WSW
22-Oct-2018	18:00	1.4	NNE
22-Oct-2018	19:00	1.6	NE
22-Oct-2018	20:00	1.8	NE
22-Oct-2018	21:00	1.6	ENE
22-Oct-2018	22:00	1.3	SSW
22-Oct-2018	23:00	1.5	ENE
23-Oct-2018	00:00	1.6	SSE
23-Oct-2018	01:00	1.7	ESE
23-Oct-2018	02:00	1.5	NE

II. Mean Wind Speed and Wind Direction

23-Oct-2018	03:00	1.3	NE
23-Oct-2018	04:00	1.5	SE
23-Oct-2018	05:00	1.4	W
23-Oct-2018	06:00	1.3	NW
23-Oct-2018	07:00	1.2	SSW
23-Oct-2018	08:00	1.2	SSE
23-Oct-2018	09:00	1.8	S
23-Oct-2018	10:00	2.2	ENE
23-Oct-2018	11:00	2.6	WNW
23-Oct-2018	12:00	2.8	W
23-Oct-2018	13:00	3.0	WNW
23-Oct-2018	14:00	2.9	W
23-Oct-2018	15:00	2.9	W
23-Oct-2018	16:00	3.1	WNW
23-Oct-2018	17:00	2.7	WSW
23-Oct-2018	18:00	2.8	SW
23-Oct-2018	19:00	2.6	SW
23-Oct-2018	20:00	2.5	SW
23-Oct-2018	21:00	2.5	WNW
23-Oct-2018	22:00	2.5	SSW
23-Oct-2018	23:00	2.0	WNW
24-Oct-2018	00:00	2.2	WNW
24-Oct-2018	01:00	2.3	NE
24-Oct-2018	02:00	2.1	NNE
24-Oct-2018	03:00	1.9	N
24-Oct-2018	04:00	2.0	E
24-Oct-2018	05:00	1.8	ENE
24-Oct-2018	06:00	1.5	NE
24-Oct-2018	07:00	2.0	WNW
24-Oct-2018	08:00	1.7	WNW
24-Oct-2018	09:00	2.6	NNE
24-Oct-2018	10:00	3.4	SE
24-Oct-2018	11:00	3.8	NNE
24-Oct-2018	12:00	3.2	ENE
24-Oct-2018	13:00	3.0	ENE
24-Oct-2018	14:00	2.9	N
24-Oct-2018	15:00	3.3	N
24-Oct-2018	16:00	3.1	NE

II. Mean Wind Speed and Wind Direction

24-Oct-2018	17:00	3.2	ENE
24-Oct-2018	18:00	2.6	NE
24-Oct-2018	19:00	2.6	ENE
24-Oct-2018	20:00	2.3	SW
24-Oct-2018	21:00	2.2	NE
24-Oct-2018	22:00	2.0	NE
24-Oct-2018	23:00	2.0	ENE
25-Oct-2018	00:00	2.1	ESE
25-Oct-2018	01:00	1.9	E
25-Oct-2018	02:00	2.2	NNE
25-Oct-2018	03:00	2.0	ESE
25-Oct-2018	04:00	1.6	ESE
25-Oct-2018	05:00	1.7	NNE
25-Oct-2018	06:00	1.6	ENE
25-Oct-2018	07:00	1.7	ENE
25-Oct-2018	08:00	2.0	SW
25-Oct-2018	09:00	2.5	ENE
25-Oct-2018	10:00	2.9	NE
25-Oct-2018	11:00	3.0	NE
25-Oct-2018	12:00	2.8	NNE
25-Oct-2018	13:00	2.5	NNE
25-Oct-2018	14:00	2.3	NNE
25-Oct-2018	15:00	2.5	NE
25-Oct-2018	16:00	2.0	NE
25-Oct-2018	17:00	1.6	NE
25-Oct-2018	18:00	1.4	ESE
25-Oct-2018	19:00	1.3	NNE
25-Oct-2018	20:00	1.7	NNE
25-Oct-2018	21:00	1.2	NNE
25-Oct-2018	22:00	1.3	ENE
25-Oct-2018	23:00	1.5	ENE
26-Oct-2018	00:00	1.4	WNW
26-Oct-2018	01:00	1.1	N
26-Oct-2018	02:00	1.1	NE
26-Oct-2018	03:00	1.0	ESE
26-Oct-2018	04:00	0.9	SE
26-Oct-2018	05:00	0.9	E
26-Oct-2018	06:00	1.1	ENE

II. Mean Wind Speed and Wind Direction

26-Oct-2018	07:00	1.0	NNE
26-Oct-2018	08:00	0.9	W
26-Oct-2018	09:00	1.3	SSE
26-Oct-2018	10:00	1.4	NNW
26-Oct-2018	11:00	1.5	NNW
26-Oct-2018	12:00	2.1	WSW
26-Oct-2018	13:00	2.4	NE
26-Oct-2018	14:00	2.3	NE
26-Oct-2018	15:00	2.2	ESE
26-Oct-2018	16:00	2.0	SE
26-Oct-2018	17:00	1.3	SE
26-Oct-2018	18:00	1.1	SSE
26-Oct-2018	19:00	0.9	SSE
26-Oct-2018	20:00	0.8	ENE
26-Oct-2018	21:00	1.2	NNE
26-Oct-2018	22:00	0.8	W
26-Oct-2018	23:00	1.0	W
27-Oct-2018	00:00	1.3	WNW
27-Oct-2018	01:00	1.0	ENE
27-Oct-2018	02:00	1.1	N
27-Oct-2018	03:00	1.5	S
27-Oct-2018	04:00	1.3	N
27-Oct-2018	05:00	1.7	W
27-Oct-2018	06:00	1.5	SW
27-Oct-2018	07:00	1.7	WSW
27-Oct-2018	08:00	1.7	WSW
27-Oct-2018	09:00	2.1	WNW
27-Oct-2018	10:00	2.0	ENE
27-Oct-2018	11:00	2.6	S
27-Oct-2018	12:00	2.1	SE
27-Oct-2018	13:00	2.2	NNE
27-Oct-2018	14:00	2.4	N
27-Oct-2018	15:00	2.2	N
27-Oct-2018	16:00	1.8	ENE
27-Oct-2018	17:00	1.8	ENE
27-Oct-2018	18:00	1.7	ENE
27-Oct-2018	19:00	1.7	W
27-Oct-2018	20:00	1.9	ENE

II. Mean Wind Speed and Wind Direction

27-Oct-2018	21:00	2.5	ESE
27-Oct-2018	22:00	1.5	NNE
27-Oct-2018	23:00	1.8	NNE
28-Oct-2018	00:00	1.6	SSE
28-Oct-2018	01:00	1.6	NNE
28-Oct-2018	02:00	1.6	ENE
28-Oct-2018	03:00	1.7	ENE
28-Oct-2018	04:00	1.3	NE
28-Oct-2018	05:00	1.2	ENE
28-Oct-2018	06:00	1.4	SSE
28-Oct-2018	07:00	1.3	ESE
28-Oct-2018	08:00	1.4	NE
28-Oct-2018	09:00	1.5	NE
28-Oct-2018	10:00	2.1	NE
28-Oct-2018	11:00	2.1	NE
28-Oct-2018	12:00	2.3	NE
28-Oct-2018	13:00	2.9	NNE
28-Oct-2018	14:00	2.3	NE
28-Oct-2018	15:00	1.9	WNW
28-Oct-2018	16:00	2.2	ENE
28-Oct-2018	17:00	2.0	E
28-Oct-2018	18:00	1.6	ENE
28-Oct-2018	19:00	1.5	E
28-Oct-2018	20:00	1.6	E
28-Oct-2018	21:00	1.5	ENE
28-Oct-2018	22:00	1.4	SSE
28-Oct-2018	23:00	1.7	SSE
29-Oct-2018	00:00	2.5	NNE
29-Oct-2018	01:00	2.3	ENE
29-Oct-2018	02:00	2.0	ENE
29-Oct-2018	03:00	2.1	ENE
29-Oct-2018	04:00	1.9	ENE
29-Oct-2018	05:00	2.1	SE
29-Oct-2018	06:00	2.0	E
29-Oct-2018	07:00	2.0	N
29-Oct-2018	08:00	2.1	ENE
29-Oct-2018	09:00	2.3	ENE
29-Oct-2018	10:00	2.5	NE

II. Mean Wind Speed and Wind Direction

29-Oct-2018	11:00	2.6	ESE
29-Oct-2018	12:00	2.2	ESE
29-Oct-2018	13:00	2.2	NE
29-Oct-2018	14:00	2.3	NE
29-Oct-2018	15:00	2.3	NE
29-Oct-2018	16:00	2.0	NE
29-Oct-2018	17:00	2.0	SE
29-Oct-2018	18:00	2.1	ENE
29-Oct-2018	19:00	1.7	ENE
29-Oct-2018	20:00	1.4	ENE
29-Oct-2018	21:00	1.7	NNE
29-Oct-2018	22:00	1.8	E
29-Oct-2018	23:00	1.9	SE
30-Oct-2018	00:00	1.8	NE
30-Oct-2018	01:00	1.7	ENE
30-Oct-2018	02:00	1.7	E
30-Oct-2018	03:00	1.9	E
30-Oct-2018	04:00	2.5	E
30-Oct-2018	05:00	1.9	E
30-Oct-2018	06:00	2.0	SSE
30-Oct-2018	07:00	2.0	E
30-Oct-2018	08:00	1.6	SE
30-Oct-2018	09:00	2.0	E
30-Oct-2018	10:00	1.2	E
30-Oct-2018	11:00	1.4	N
30-Oct-2018	12:00	1.9	NE
30-Oct-2018	13:00	2.2	ENE
30-Oct-2018	14:00	1.3	NE
30-Oct-2018	15:00	1.9	N
30-Oct-2018	16:00	1.4	SSE
30-Oct-2018	17:00	1.8	SSE
30-Oct-2018	18:00	2.1	SSE
30-Oct-2018	19:00	2.2	SSE
30-Oct-2018	20:00	1.8	SSE
30-Oct-2018	21:00	1.5	ESE
30-Oct-2018	22:00	1.2	SE
30-Oct-2018	23:00	1.8	SSE
31-Oct-2018	00:00	2.2	SSE

II. Mean Wind Speed and Wind Direction

31-Oct-2018	01:00	2.2	ESE
31-Oct-2018	02:00	2.2	SE
31-Oct-2018	03:00	2.0	ENE
31-Oct-2018	04:00	2.1	NE
31-Oct-2018	05:00	2.7	NE
31-Oct-2018	06:00	2.0	SE
31-Oct-2018	07:00	1.7	SE
31-Oct-2018	08:00	1.5	SE
31-Oct-2018	09:00	2.0	N
31-Oct-2018	10:00	1.9	N
31-Oct-2018	11:00	1.8	NW
31-Oct-2018	12:00	1.7	NE
31-Oct-2018	13:00	2.0	ENE
31-Oct-2018	14:00	1.8	SSE
31-Oct-2018	15:00	1.8	WSW
31-Oct-2018	16:00	2.0	WSW
31-Oct-2018	17:00	2.2	W
31-Oct-2018	18:00	2.1	WSW
31-Oct-2018	19:00	2.1	SW
31-Oct-2018	20:00	2.1	NE
31-Oct-2018	21:00	2.2	SSW
31-Oct-2018	22:00	2.5	SW
31-Oct-2018	23:00	1.9	SW

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area
Impact Air and Noise Monitoring Schedule for October 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Oct	2-Oct	3-Oct	4-Oct	5-Oct	6-Oct
		1 hr TSP X3 AM4(C), AM5 **Noise** M6(A), M7, M8, M9	**24-hr TSP** AM2(A),AM3(B) AM4(C),AM5	**1 hr TSP X3** AM2, AM3(A)		
7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct
	1 hr TSP X3 AM4(C), AM5	**24-hr TSP** AM2(A),AM3(B) AM4(C),AM5	**1 hr TSP X3** AM2, AM3(A)		**1 hr TSP X3** AM4(C), AM5 **Noise** M6(A), M7, M9	
14-Oct	15-Oct	16-Oct	**17-Oct**	18-Oct	19-Oct	20-Oct
	1 hr TSP X3 AM2, AM3(A) **24-hr TSP** AM2(A),AM3(B) AM4(C),AM5			**1 hr TSP X3** AM4(C), AM5 **Noise** M6(A), M7, M8, M9	**24-hr TSP** AM2(A),AM3(B) AM4(C),AM5	**1 hr TSP X3** AM2, AM3(A)
21-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct
			1 hr TSP X3 AM4(C), AM5 **Noise** M6(A), M7, M8, M9	**24-hr TSP** AM2(A),AM3(B) AM4(C),AM5	**1 hr TSP X3** AM2, AM3(A)	
28-Oct	29-Oct	30-Oct	31-Oct			
		1 hr TSP X3 AM4(C), AM5 **Noise** M6(A), M7, M9	**24-hr TSP** AM2(A),AM3(B) AM4(C),AM5			

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

Air Quality Monitoring Station
AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School
AM3(A) - Holy Trinity Bradbury Centre
AM3(B) - Hong Kong Family Planning Association
AM4(C) - New Pumping Station under Contract KL/2012/03
AM5 - CCC Kei To Secondary School

Noise Monitoring Station
M6(A) - Oblate Primary School
M7 - CCC Kei To Secondary School
M8 - Po Leung Kuk Ngan Po Ling College
M9 - Tak Long Estate

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area
Tentative Impact Air and Noise Monitoring Schedule for November 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Nov	2-Nov	3-Nov
				1 hr TSP X3 AM2, AM3(A)		
4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov	10-Nov
	1 hr TSP X3 AM4(C), AM5 **Noise** M6(A) M7, M8, M9	**24-hr TSP** AM2(A),AM3(B) AM4(C),AM5	**1 hr TSP X3** AM2, AM3(A)		**1 hr TSP X3** AM4(C), AM5	
11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov	17-Nov
	24-hr TSP AM2(A),AM3(B) AM4(C),AM5	**1 hr TSP X3** AM2, AM3(A)		**1 hr TSP X3** AM4(C), AM5 **Noise** M6(A) M7, M8, M9	**24-hr TSP** AM2(A),AM3(B) AM4(C),AM5	
18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov	24-Nov
	1 hr TSP X3 AM2, AM3(A)		**1 hr TSP X3** AM4(C), AM5 **Noise** M6(A) M7, M8, M9	**24-hr TSP** AM2(A),AM3(B) AM4(C),AM5	**1 hr TSP X3** AM2, AM3(A)	
25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov	
		1 hr TSP X3 AM4(C), AM5 **Noise** M6(A) M7, M8, M9	**24-hr TSP** AM2(A),AM3(B) AM4(C),AM5	**1 hr TSP X3** AM2, AM3(A)		

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

Air Quality Monitoring Station
AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School
AM3(A) - Holy Trinity Bradbury Centre
AM3(B) - Hong Kong Family Planning Association
AM4(C) - New Pumping Station under Contract KL/2012/03
AM5 - CCC Kei To Secondary School

Noise Monitoring Station
M6(A) - Oblate Primary School
M7 - CCC Kei To Secondary School
M8 - Po Leung Kuk Ngan Po Ling College
M9 - Tak Long Estate

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results

Location AM2 - Lee Kau Yan Memorial School			
Date	Time	Weather	Particulate Concentration (µg/m3)
4-Oct-18	13:00	Sunny	169.1
4-Oct-18	14:00	Sunny	151.6
4-Oct-18	15:00	Sunny	141.5
10-Oct-18	8:55	Cloudy	57.2
10-Oct-18	9:55	Cloudy	56.0
10-Oct-18	10:55	Cloudy	53.7
15-Oct-18	8:55	Cloudy	52.1
15-Oct-18	9:55	Cloudy	49.7
15-Oct-18	10:55	Cloudy	53.2
20-Oct-18	13:05	Sunny	146.6
20-Oct-18	14:05	Sunny	143.2
20-Oct-18	15:05	Sunny	153.8
26-Oct-18	13:00	Sunny	75.6
26-Oct-18	14:00	Sunny	79.1
26-Oct-18	15:00	Sunny	76.8
		Average	97.3
		Maximum	169.1
		Minimum	49.7

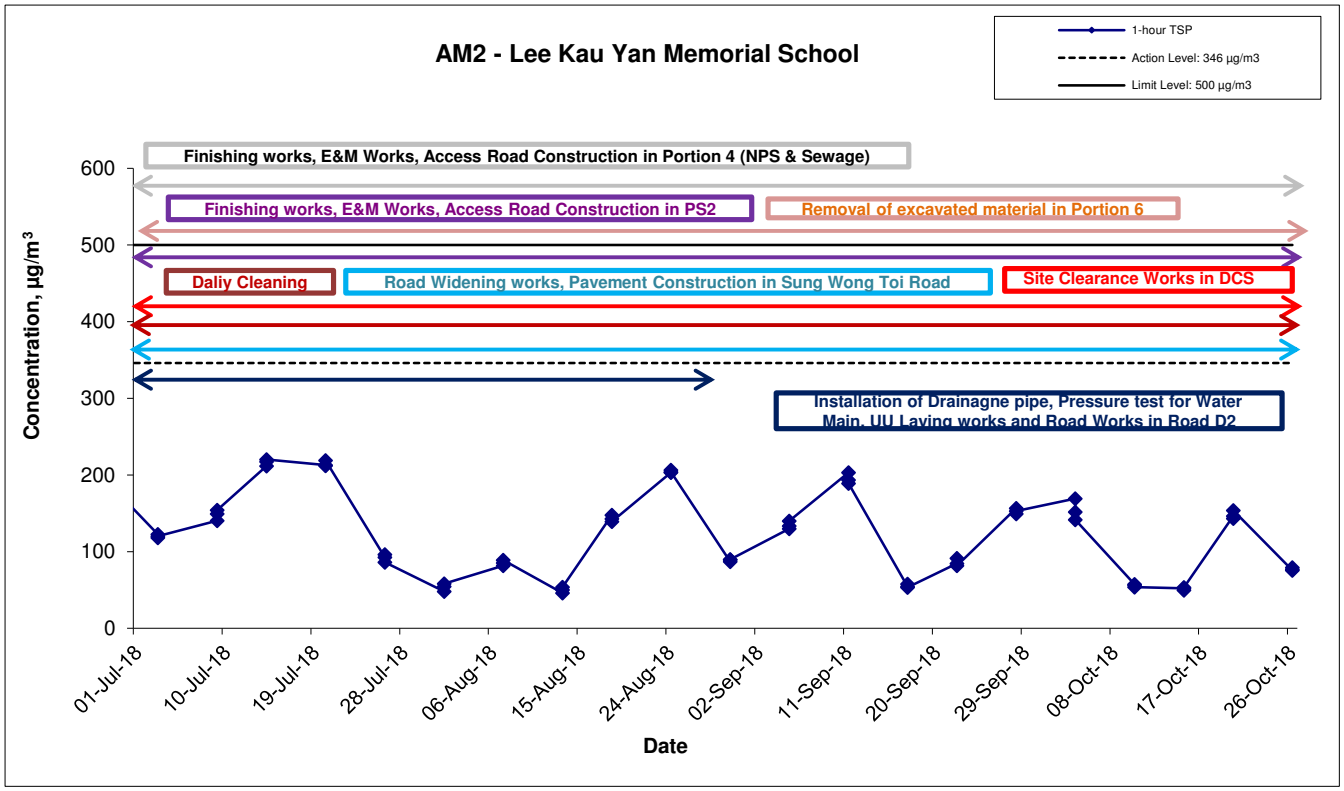
Location AM3(A) - Holy Trinity Bradury Centre			
Date	Time	Weather	Particulate Concentration (µg/m3)
4-Oct-18	9:00	Sunny	125.6
4-Oct-18	10:00	Sunny	114.6
4-Oct-18	11:00	Sunny	130.5
10-Oct-18	13:00	Cloudy	43.6
10-Oct-18	14:00	Cloudy	42.4
10-Oct-18	15:00	Cloudy	40.1
15-Oct-18	13:00	Cloudy	32.0
15-Oct-18	14:00	Cloudy	33.1
15-Oct-18	15:00	Cloudy	37.7
20-Oct-18	9:00	Sunny	132.9
20-Oct-18	10:00	Sunny	141.2
20-Oct-18	11:00	Sunny	147.3
26-Oct-18	9:00	Sunny	44.5
26-Oct-18	10:00	Sunny	47.9
26-Oct-18	11:00	Sunny	50.2
		Average	77.6
		Maximum	147.3
		Minimum	32.0

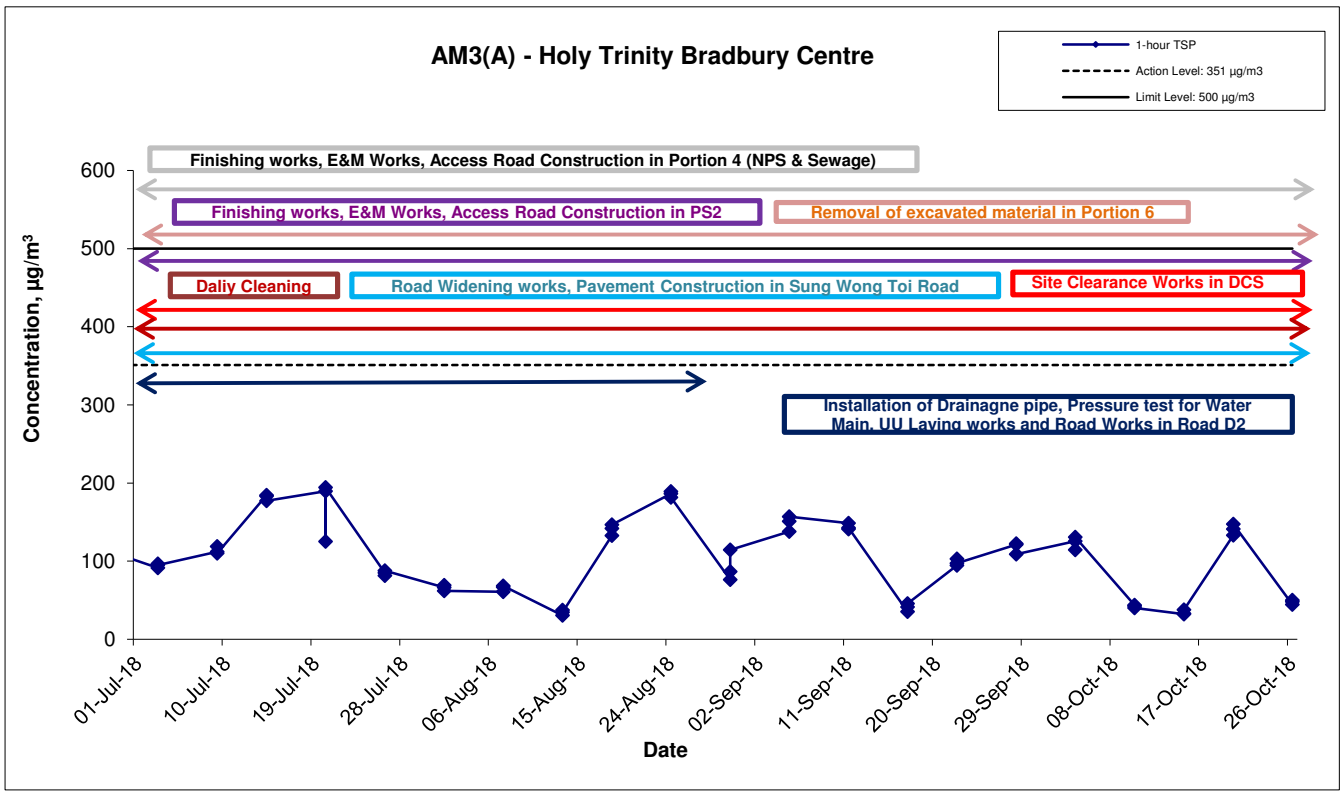
Appendix E - 1-hour TSP Monitoring Results

Location AM4(C) - New Pumping Station			
Date	Time	Weather	Particulate Concentration (µg/m3)
2-Oct-18	9:00	Sunny	187.9
2-Oct-18	10:00	Sunny	192.8
2-Oct-18	11:00	Sunny	203.0
8-Oct-18	9:00	Sunny	64.2
8-Oct-18	10:00	Sunny	49.3
8-Oct-18	11:00	Sunny	55.1
12-Oct-18	13:00	Cloudy	47.0
12-Oct-18	14:00	Cloudy	44.7
12-Oct-18	15:00	Cloudy	45.9
18-Oct-18	9:00	Cloudy	118.8
18-Oct-18	10:00	Cloudy	131.8
18-Oct-18	11:00	Cloudy	140.8
24-Oct-18	9:00	Cloudy	103.6
24-Oct-18	10:00	Cloudy	109.2
24-Oct-18	11:00	Cloudy	106.0
30-Oct-18	9:00	Sunny	81.2
30-Oct-18	10:00	Sunny	86.4
30-Oct-18	11:00	Sunny	88.8
		Average	103.1
		Maximum	203.0
		Minimum	44.7

Location AM5 - CCC Kei To Secondary School			
Date	Time	Weather	Particulate Concentration (µg/m3)
2-Oct-18	13:00	Sunny	143.1
2-Oct-18	14:00	Sunny	158.2
2-Oct-18	15:00	Sunny	151.4
8-Oct-18	9:00	Sunny	34.3
8-Oct-18	10:00	Sunny	36.6
8-Oct-18	11:00	Sunny	38.9
12-Oct-18	9:00	Cloudy	36.7
12-Oct-18	10:00	Cloudy	31.0
12-Oct-18	11:00	Cloudy	34.4
18-Oct-18	13:00	Cloudy	87.0
18-Oct-18	14:00	Cloudy	88.3
18-Oct-18	15:00	Cloudy	81.4
24-Oct-18	13:00	Cloudy	91.4
24-Oct-18	14:00	Cloudy	81.1
24-Oct-18	15:00	Cloudy	88.6
30-Oct-18	13:00	Sunny	61.3
30-Oct-18	14:00	Sunny	71.0
30-Oct-18	15:00	Sunny	74.3
		Average	77.2
		Maximum	158.2
		Minimum	31.0

1-hr TSP Concentration Levels

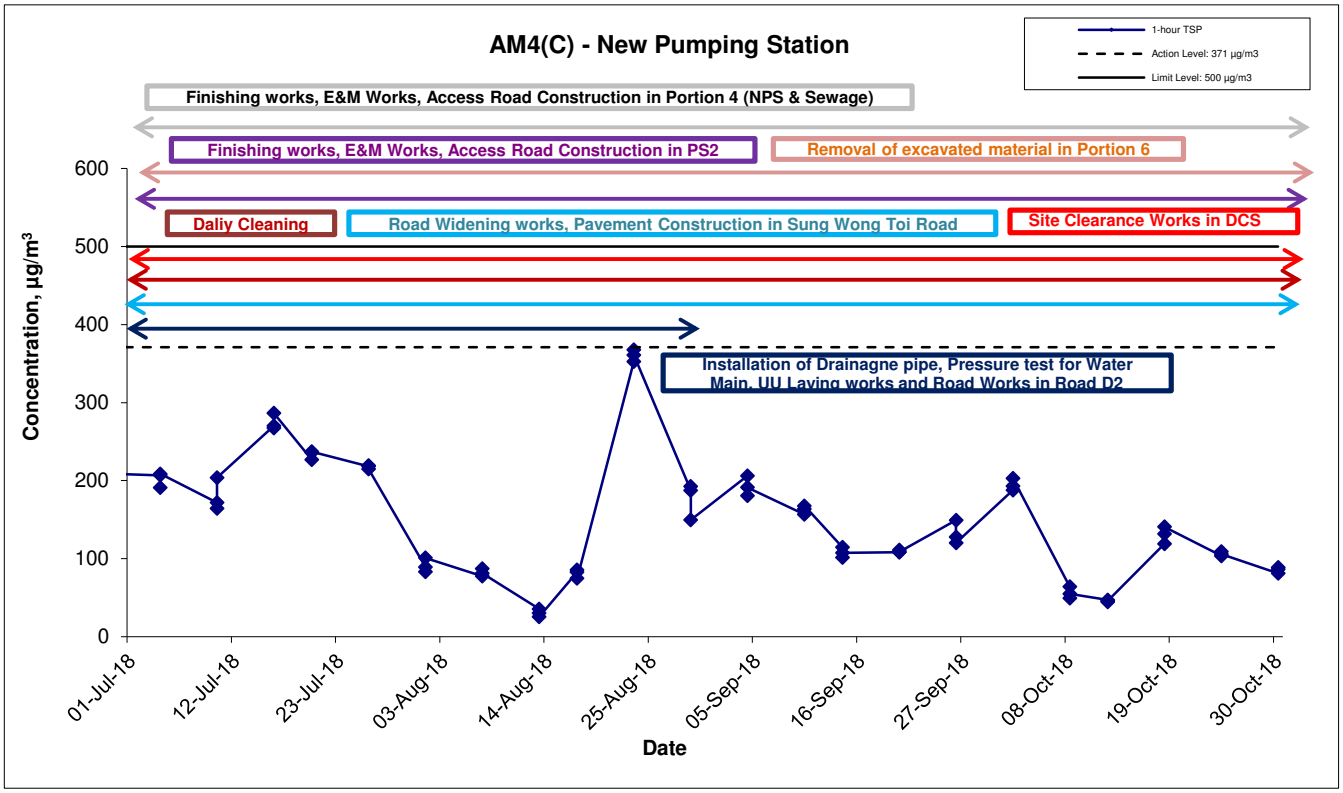


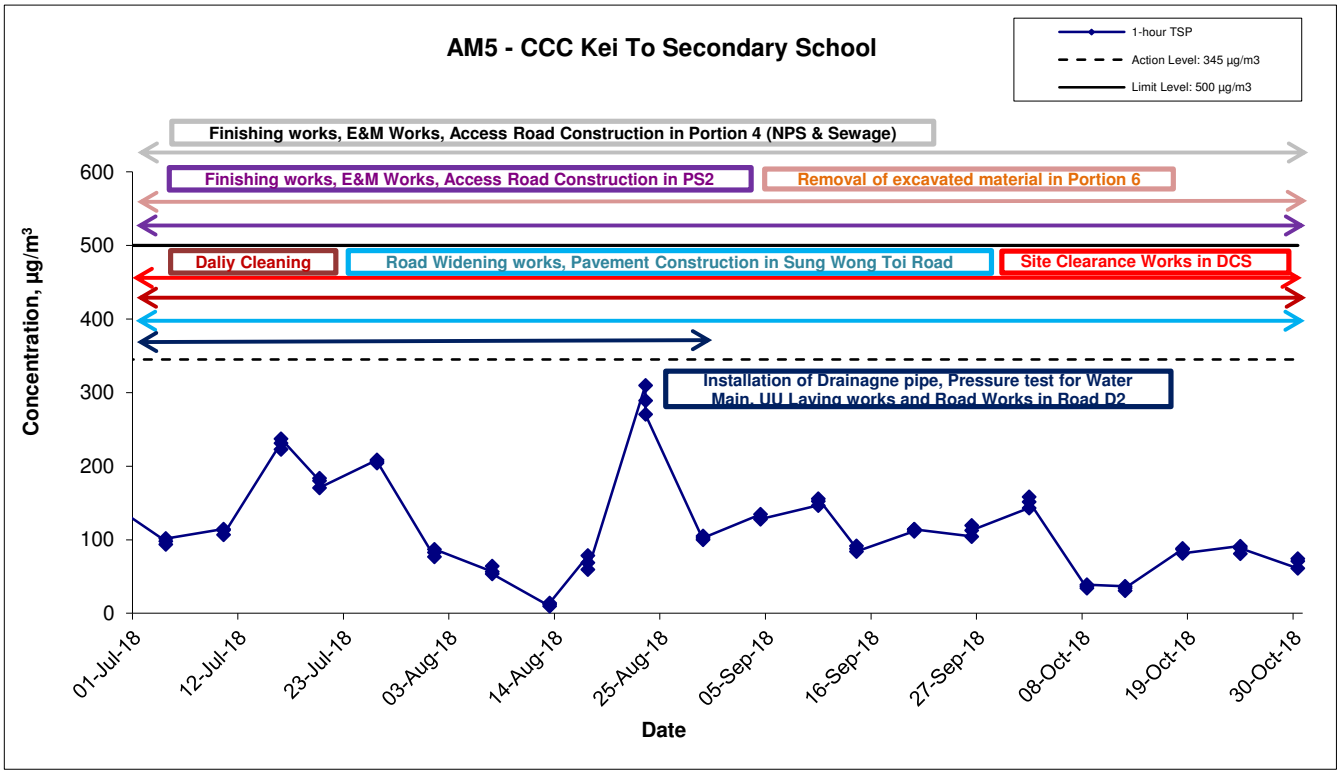


Title: Graphical Presentation of 1-hour TSP Monitoring Results	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area	Scale: N.T.S Date: Sep 18	Project No.: MA13056 Appendix: E

CINOTECH

1-hr TSP Concentration Levels





Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA13056	CINOTECH
	Date: Oct 18	Appendix: E	

APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - 24-hour TSP Monitoring Results

Location AM2(A) - Ng Wah Catholic Secondary School

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
3-Oct-18	Sunny	302.3	762.7	3.6349	3.7699	0.1350	2712.2	2736.2	24.0	1.22	1.22	1.22	1755.8	76.9
9-Oct-18	Sunny	297.9	763.7	2.9777	3.0930	0.1153	2760.2	2784.2	24.0	1.23	1.23	1.23	1770.0	65.1
15-Oct-18	Cloudy	300.2	763.5	2.9747	3.0907	0.1160	2808.2	2832.2	24.0	1.22	1.22	1.22	1762.9	65.8
19-Oct-18	Cloudy	297.1	766.3	2.9912	3.0794	0.0882	2856.2	2880.2	24.0	1.23	1.23	1.23	1775.4	49.7
25-Oct-18	Cloudy	298.1	766.7	2.9926	3.0977	0.1051	2904.2	2928.2	24.0	1.23	1.23	1.23	1772.9	59.3
31-Oct-18	Cloudy	295.9	764.6	2.9428	3.0861	0.1433	2952.2	2976.2	24.0	1.23	1.23	1.23	1777.0	80.6
													Min	49.7
													Max	80.6
													Average	66.2

Location AM3(B) - Hong Kong Family Planning Association

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
3-Oct-18	Sunny	300.5	764.6	2.9369	3.1552	0.2183	1241.7	1265.7	24.0	1.21	1.21	1.21	1748.4	124.9
9-Oct-18	Sunny	298.3	764.1	2.9593	3.1448	0.1855	1265.7	1289.7	24.0	1.22	1.22	1.22	1754.3	105.7
15-Oct-18	Cloudy	299.4	764.2	2.9872	3.1143	0.1271	1289.7	1313.7	24.0	1.22	1.22	1.22	1751.2	72.6
19-Oct-18	Cloudy	297.6	766.5	2.9956	3.1884	0.1928	1313.7	1337.7	24.0	1.22	1.22	1.22	1759.2	109.6
25-Oct-18	Sunny	298.2	766.1	3.0033	3.2056	0.2023	1337.7	1361.7	24.0	1.22	1.22	1.22	1757.0	115.1
31-Oct-18	Cloudy	296.3	765.2	2.9830	3.1578	0.1748	1361.7	1385.7	24.0	1.22	1.22	1.22	1761.6	99.2
													Min	72.6
													Max	124.9
													Average	104.5

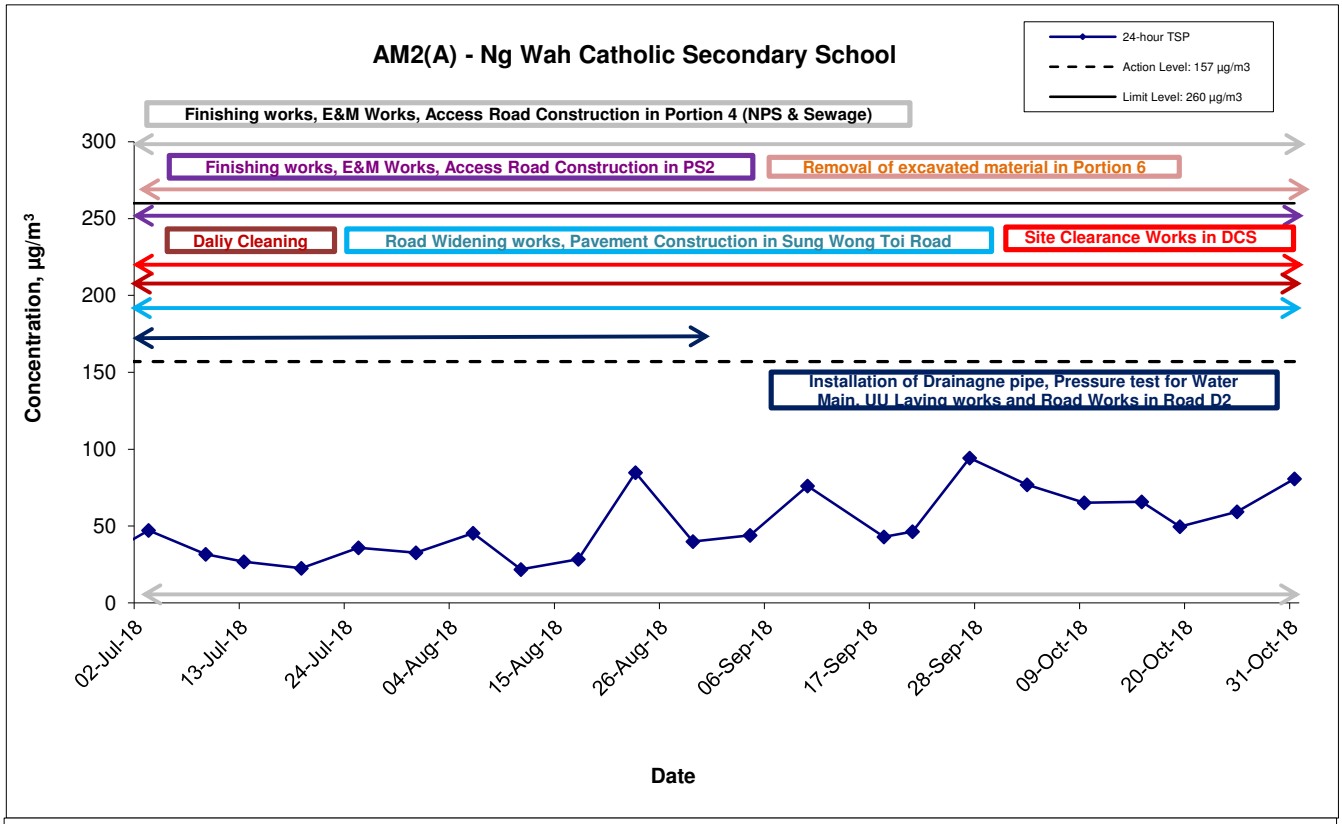
Location AM4(C) - New Pumping Station under Contract KL/2012/03

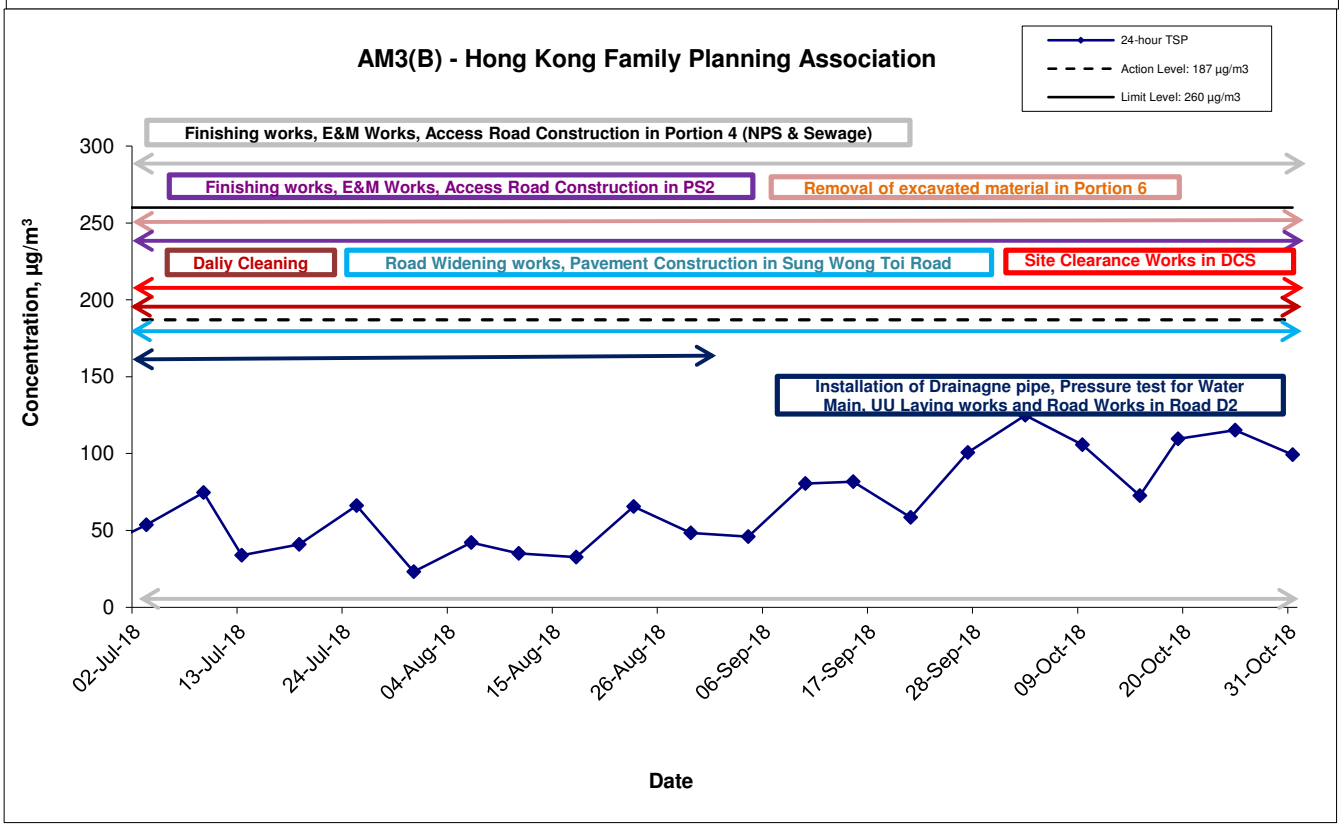
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
3-Oct-18	Sunny	300.8	764.1	2.9820	3.2706	0.2886	1625.1	1649.1	24.0	1.23	1.23	1.23	1766.5	163.4
9-Oct-18	Sunny	297.5	763.5	3.0267	3.1982	0.1715	1649.1	1673.1	24.0	1.23	1.23	1.23	1776.4	96.5
15-Oct-18	Cloudy	299.7	763.6	3.6286	3.7448	0.1162	1673.1	1697.1	24.0	1.23	1.23	1.23	1769.4	65.7
19-Oct-18	Cloudy	297.3	766.0	3.0178	3.2554	0.2376	1697.1	1721.1	24.0	1.24	1.24	1.24	1780.1	133.5
25-Oct-18	Sunny	298.6	766.7	3.0064	3.2596	0.2532	1721.1	1745.1	24.0	1.23	1.23	1.23	1776.8	142.5
31-Oct-18	Cloudy	295.5	764.4	3.2041	3.4873	0.2832	1745.1	1769.1	24.0	1.24	1.24	1.24	1784.0	158.7
													Min	65.7
													Max	163.4
													Average	126.7

Location AM5 - CCC Kei To Secondary School

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
3-Oct-18	Sunny	301.3	764.7	2.9430	3.0322	0.0892	1754.0	1778.0	24.0	1.22	1.22	1.22	1757.1	50.8
9-Oct-18	Sunny	298.1	763.2	3.0115	3.0670	0.0555	1778.0	1802.0	24.0	1.23	1.23	1.23	1764.8	31.4
15-Oct-18	Cloudy	300.2	763.4	3.5978	3.6563	0.0585	1802.0	1826.0	24.0	1.22	1.22	1.22	1758.8	33.3
19-Oct-18	Cloudy	297.4	766.6	2.9846	3.0531	0.0685	1826.0	1850.0	24.0	1.23	1.23	1.23	1770.8	38.7
25-Oct-18	Sunny	298.5	766.2	2.9673	3.0226	0.0553	1850.0	1874.0	24.0	1.23	1.23	1.23	1767.1	31.3
31-Oct-18	Cloudy	296.8	764.7	2.9740	3.0884	0.1144	1874.0	1898.0	24.0	1.23	1.23	1.23	1770.4	64.6
													Min	31.3
													Max	64.6
													Average	41.7

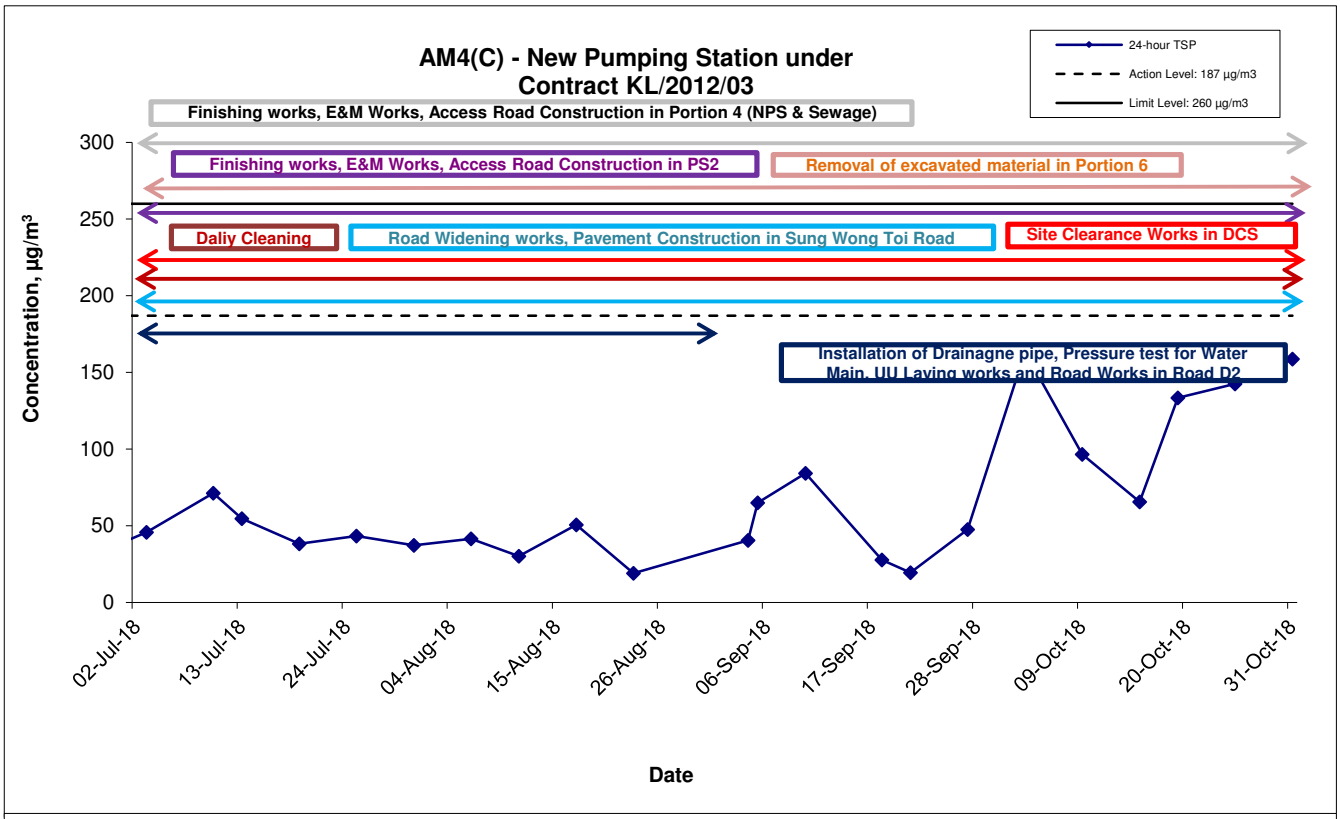
24-hr TSP Concentration Levels

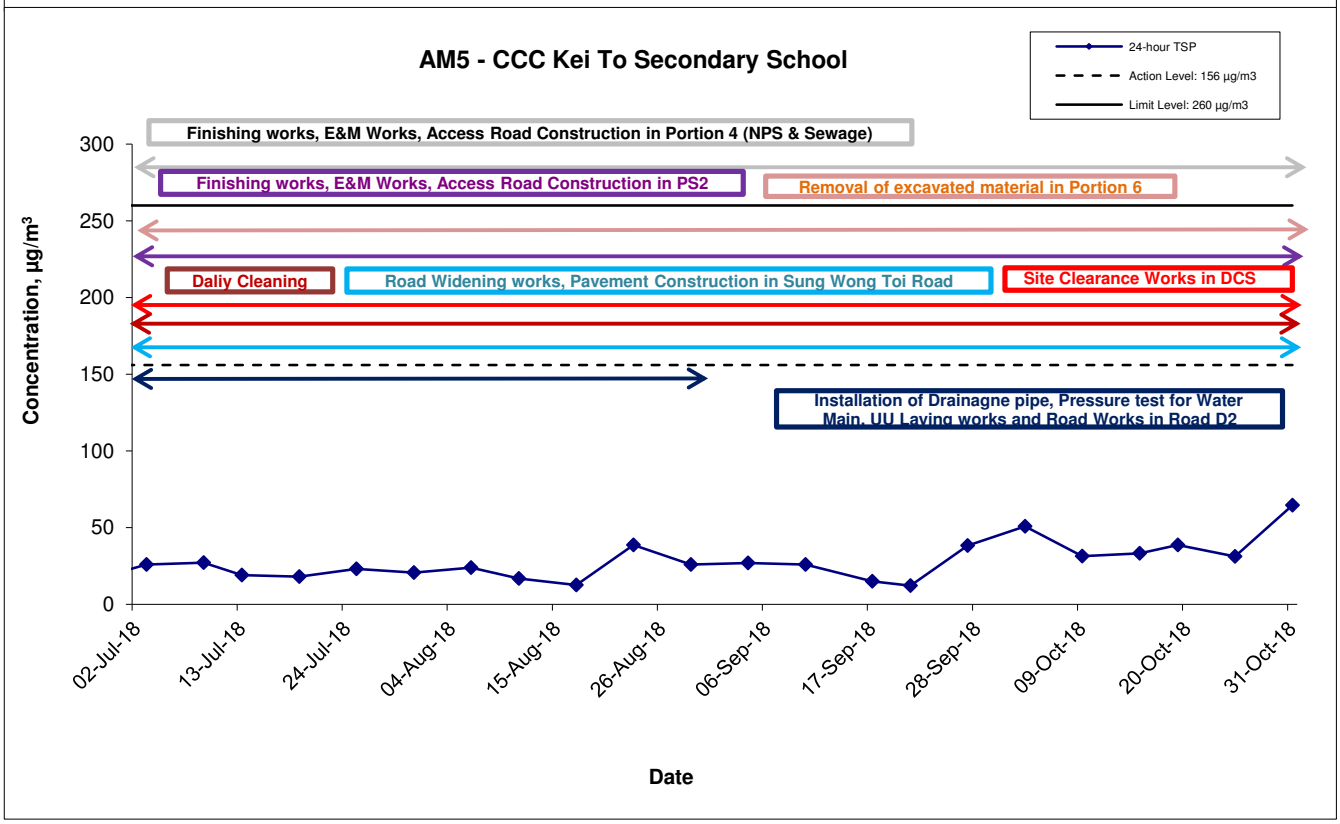




Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S Date: Nov 18	Project No.: MA13056 Appendix: F	CINOTECH

24-hr TSP Concentration Levels





Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S Date: Nov 18	Project No.: MA13056 Appendix: F	CINOTECH

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix G - Noise Monitoring Results

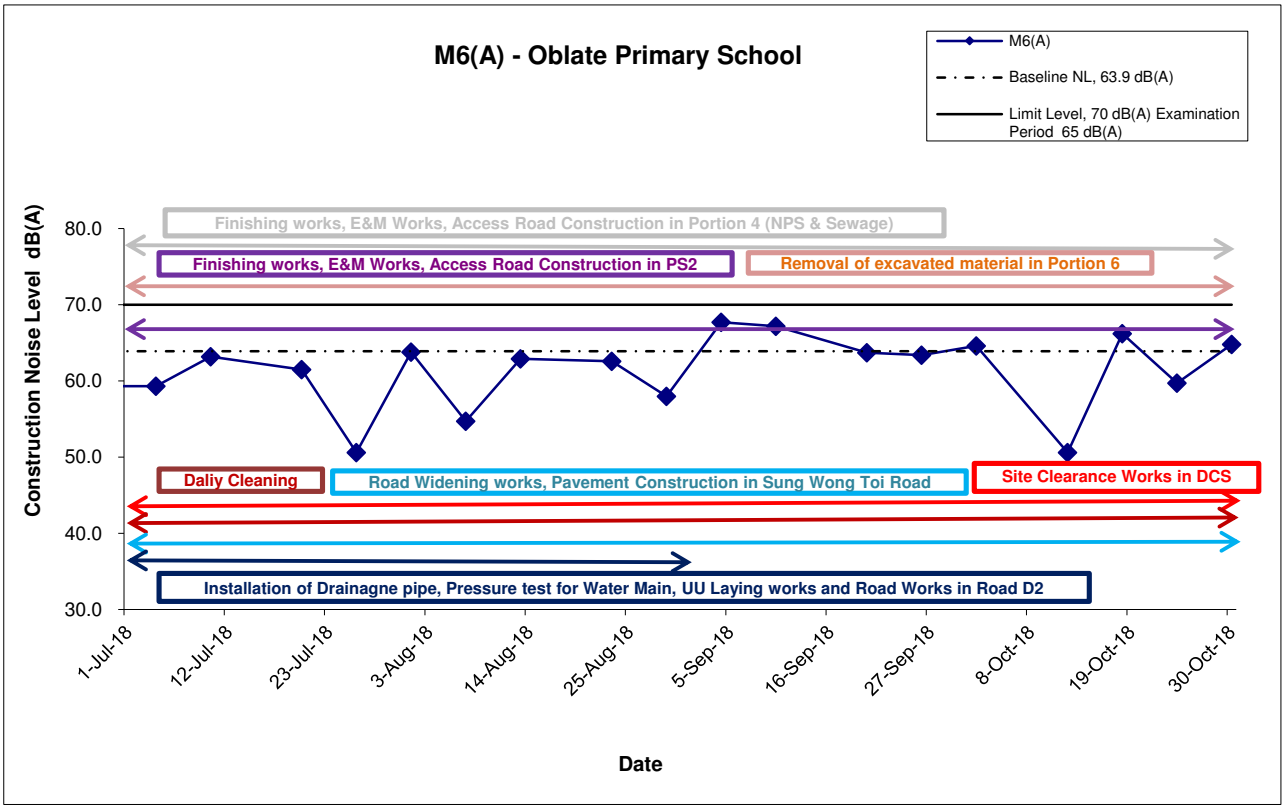
Location M6(A) - Oblate Primary School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
2-Oct-18	14:00	Sunny	67.3	69.3	62.1	63.9	64.6
12-Oct-18	10:00	Cloudy	64.1	66.6	61.2		50.6
18-Oct-18	14:00	Cloudy	68.2	69.2	64.3		66.2
24-Oct-18	11:00	Cloudy	65.3	68.4	58.2		59.7
30-Oct-18	15:00	Sunny	67.4	69.3	63.2		64.8

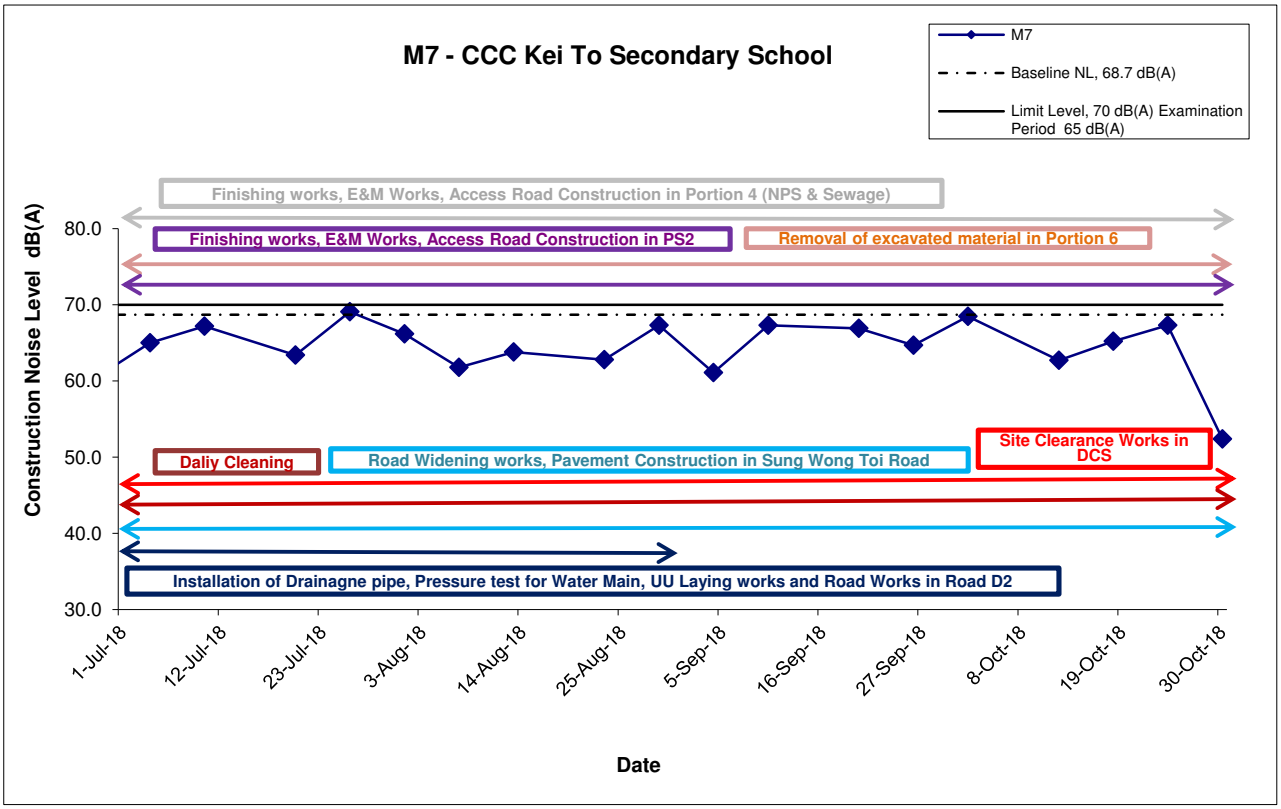
Location M7 - CCC Kei To Secondary School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
2-Oct-18	13:05	Sunny	68.5	69.2	63.1	68.7	68.5 Measured ≦ Baseline
12-Oct-18	11:30	Cloudy	62.7	64.6	60.1		62.7 Measured ≦ Baseline
18-Oct-18	13:05	Cloudy	65.2	66.9	61.4		65.2 Measured ≦ Baseline
24-Oct-18	13:05	Cloudy	67.3	69.2	60.1		67.3 Measured ≦ Baseline
30-Oct-18	13:05	Sunny	68.8	69.2	64.3		52.4

Location M8 - Po Leung Kuk Ngan Po Ling College							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
2-Oct-18	14:45	Sunny	69.2	71.3	67.4	61.9	68.3
18-Oct-18	16:00	Cloudy	64.1	66.4	60.2		60.1
24-Oct-18	15:00	Cloudy	68.3	69.9	66.2		67.2

Location M9 - Tak Long Estate							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
2-Oct-18	10:30	Sunny	71.4	72.5	68.9	59.9	71.1
12-Oct-18	14:35	Cloudy	68.7	70.9	65.1		68.1
18-Oct-18	10:30	Cloudy	69.3	71.2	65.8		68.8
24-Oct-18	09:30	Cloudy	68.3	70.1	65.2		67.6
30-Oct-18	10:00	Sunny	70.2	71.4	68.2		69.8

Noise Levels

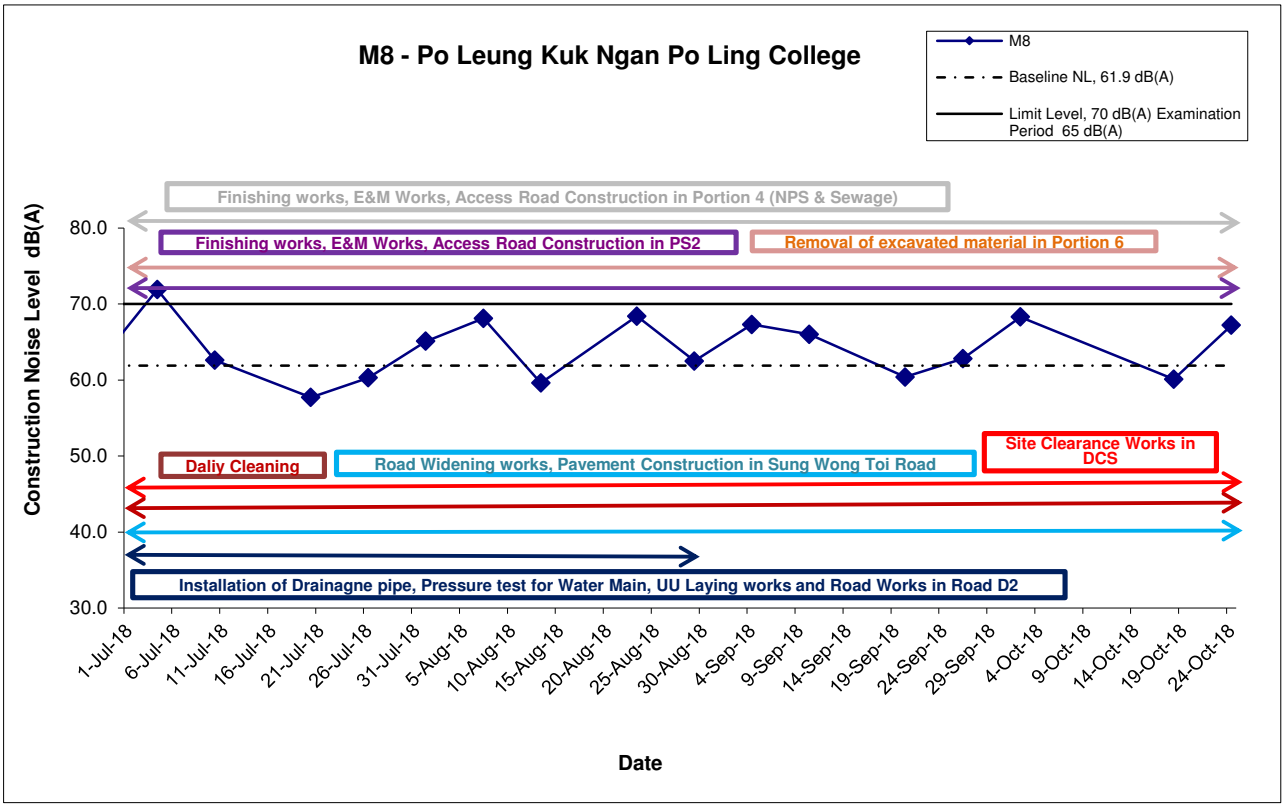


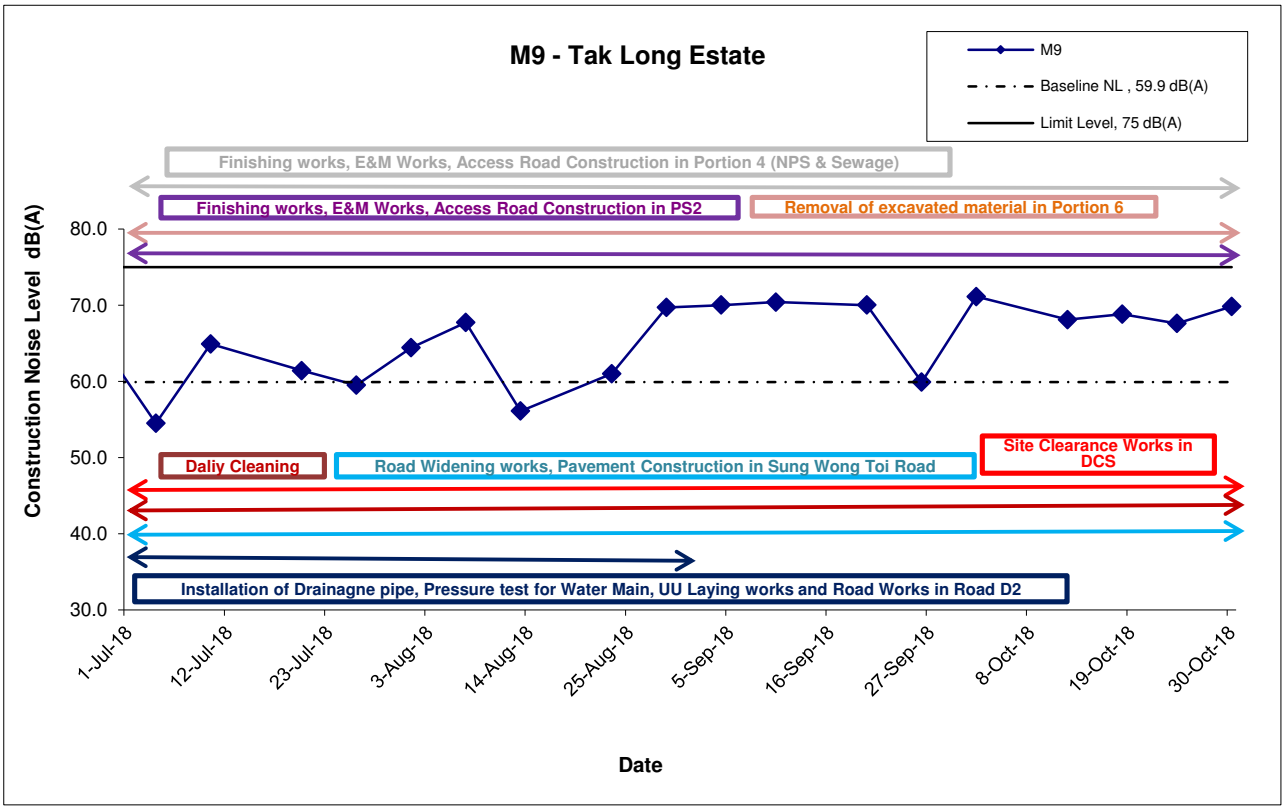


Remarks: The construction noise levels in the Tables in Appendix G were adopted for plotting the graphs

Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA13056	CINOTECH
		Date Oct 18	Appendix G	

Noise Levels





Remarks: The construction noise levels in the Tables in Appendix G were adopted for plotting the graphs

Title: Graphical Presentation of Construction Noise Monitoring Results	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area	Scale: N.T.S	Project No.: MA13056	CINOTECH
		Date: Oct 18	Appendix: G	

APPENDIX H
SUMMARY OF EXCEEDANCE

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area

Appendix H – Summary of Exceedance

Exceedance Report for Contract No. KL/2012/03

(A) Exceedance Report for Air Quality
(NIL in the reporting month)

(B) Exceedance Report for Construction Noise
(NIL in the reporting month)

(C) Exceedance Report for Landscape and Visual
(NIL in the reporting month)

APPENDIX I
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181005
Date	5 October 2018
Time	10:00-12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
181005-R01	• General refuse should be removed regularly within site area.	E1 iii
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 180928), the environmental deficiency was observed to be improved/rectified by Contractor.	

	Name	Signature	Date
Recorded by	Tommy Cheng		8 October 2018
Checked by	Dr. Priscila Choy		8 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181012
Date	12 October 2018
Time	10:00-12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 181005), the environmental deficiency was observed to be improved/rectified by Contractor.	

	Name	Signature	Date
Recorded by	Tommy Cheng		15 October 2018
Checked by	Dr. Priscila Choy		15 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181019
Date	19 October 2018
Time	10:00-12:00

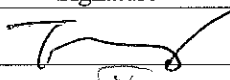
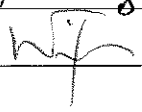
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 181012), no major environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		22 October 2018
Checked by	Dr. Priscila Choy		22 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181024
Date	24 October 2018
Time	14:00-16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
181024-R01	• Contractor should remove the C&D waste regularly to avoid accumulation.	E1i
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 181019), no major environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		26 October 2018
Checked by	Dr. Priscila Choy		26 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181005
Date	5 October 2018
Time	10:00-12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 180928), the environmental deficiency was observed to be improved/rectified by Contractor.	

	Name	Signature	Date
Recorded by	Tommy Cheng		8 October 2018
Checked by	Dr. Priscilla Choy		8 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181012
Date	12 October 2018
Time	10:00-12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
181012-R01	• General refuse should be collected regularly to avoid accumulation.	E 1i
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 181005), no environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		15 October 2018
Checked by	Dr. Priscilla Choy		15 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181019
Date	19 October 2018
Time	10:00-12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 181012), the environmental deficiency was observed to be improved/rectified by Contractor.	

	Name	Signature	Date
Recorded by	Tommy Cheng		22 October 2018
Checked by	Dr. Priscilla Choy		22 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181024
Date	24October 2018
Time	14:00-16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
181024-R01	• Contractor should clear the dusty materials along the site boundary of NPS.	C 3
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 181019), no environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		26 October 2018
Checked by	Dr. Priscilla Choy		26 October 2018

APPENDIX J
EVENT ACTION PLANS

Appendix J - Event Action Plans

Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded by one sampling	1. Identify source and investigate the causes of exceedance; 2. Inform Contactor, IEC and ER; 3. Repeat measurement to confirm finding.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded by two or more consecutive sampling	1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC and ER; 3. Increase monitoring frequency to daily; 4. Discuss with IEC and Contractor on remedial actions required; 5. Assess the effectiveness of Contractor's remedial actions; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues.	1. Discuss with ET and IEC on proper remedial actions; 2. Submit proposals for remedial actions to ER and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit Level being exceeded by one sampling	1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Assess effectiveness of Contractor's remedial actions and keep	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures;	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be	1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on proper remedial actions; 3. Submit proposals for remedial actions to ER and IEC within three

	EPD, IEC and ER informed of the results.	4. Advise the ER on the effectiveness of the proposed remedial measures.	implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues.	working days of notification; 4. Implement the agreed proposals.
Limit Level being exceeded by two or more consecutive sampling	1. Notify IEC, ER, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Carry out analysis of Contractor's working procedures to identify source and investigate the causes of exceedance; 4. Increase monitoring frequency to daily; 5. Arrange meeting with IEC, ER and Contractor to discuss the remedial actions to be taken; 6. Assess effectiveness of Contractor's remedial actions and keep EPD, IEC and ER informed of the results; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Discuss with ET, ER and IEC on proper remedial actions; 3. Submit proposals for remedial actions to IEC within three working days of notification; 4. Implement the agreed proposals; 5. Submit further remedial actions if problem still not under control; 6. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

Appendix J - Event Action Plans

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. (The above actions should be taken within 2 working days after the exceedance is identified)
Limit Level being exceeded	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance;	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals;

	5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	(The above actions should be taken within 2 working days after the exceedance is identified)	measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)	4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)

Appendix J - Event Action Plans

Event/Action Plan for Landscape and Visual

EVENT ACTION LEVEL	ACTION			
	ET	IEC	ER	CONTRACTOR
Design Check	1. Check final design conforms to the requirements of EP and prepare report.	1. Check report. 2. Recommend remedial design if necessary	1. Undertake remedial design if necessary	
Non-conformity on one occasion	1. Identify Source 2. Inform IEC and ER 3. Discuss remedial actions with IEC, ER and Contractor 4. Monitor remedial actions until rectification has been completed	1. Check report 2. Check Contractor's working method 3. Discuss with ET and Contractor on possible remedial measures 4. Advise ER on effectiveness of proposed remedial measures. 5. Check implementation of remedial measures.	1. Notify Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source Inform IEC and	1. Check monitoring report	1. Notify Contractor 2. Ensure remedial measures are properly	1. Amend working methods 2. Rectify damage and

	ER 2. Increase monitoring frequency 3. Discuss remedial actions with IEC, ER and Contractor 4. Monitor remedial actions until rectification has been completed 5. If non-conformity stops, cease additional monitoring	2. Check Contractor's working method 3. Discuss with ET and Contractor on possible remedial measures 4. Advise ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures.	implemented	undertake any necessary replacement

APPENDIX K
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

Appendix K - Summary of Implementation Schedule of Mitigation Measures for Construction Phase

Types of Impacts	Mitigation Measures	Status
Construction Dust	8 times daily watering of the work site with active dust emitting activities.	^
	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.	
	• Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	^
	• Misting for the dusty material should be carried out before being loaded into the vehicle.	^
	• Any vehicle with an open load carrying area should have properly fitted side and tail boards.	^
	• Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	^
	• The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	^
	• The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. On-site unpaved roads should be compacted and kept free of lose materials.	^
	• Vehicle washing facilities should be provided at every vehicle exit point.	^
	• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	^
	• Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	*
	• Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides.	^
	• Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^

Construction Noise	Use of quiet PME, movable barriers barrier for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump	^
	Good Site Practice: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.	^
	• Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.	N/A(1)
	• Mobile plant, if any, should be sited as far away from NSRs as possible.	^
	• Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.	^
	• Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	^
	• Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	^
	Scheduling of Construction Works during School Examination Period	^
	(i) Provision of low noise surfacing in a section of Road L2; and	N/A
	(ii) Provision of structural fins	N/A
	(i) Avoid the sensitive façade of class room facing Road L2 and L4; and	N/A
	(ii) Provision of low noise surfacing in a section of Road L2 & L4	N/A
	(i) Provision of low noise surfacing in a section of Road L4 before occupation of Site 1I1; and	N/A
	(ii) Setback of building about 5m from site boundary.	N/A
	Setback of building about 35m to the northwest direction at 1L3 and 5m at Site 1L2.	N/A
	(i) avoid any sensitive façades with openable window facing the existing Kowloon City Road network; and	N/A
	(ii) for the sensitive facades facing the To Kwa Wan direction, either setback the facades by about 5m to the northeast direction or do not provide the facades with openable window.	N/A

	(i) avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or (ii) provision of 17.5m high noise tolerant building fronting To Kwa Wan Road and restrict the height of the residential block(s) located at less than 55m away from To Kwa Wan Road to no more than 25m above ground. (i) avoid any sensitive facades with openable window facing the slip road connecting Prince Edward Road East and San Po Kong or other alternative mitigation measures and at-source mitigation measures for the surrounding new local roads to minimise the potential traffic noise impacts from the slip road	N/A N/A N/A
	All the ventilation fans installed in the below will be provided with silencers or acoustics treatment. (i) SPS (ii) ESS (iii) Tunnel Ventilation Shaft (iv) EFTS depot Installation of retractable roof or other equivalent measures	N/A N/A N/A N/A N/A
Construction Water Quality	The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including: • Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply; • Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps; • An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and • For all unmanned SPSs, a remote monitor system connecting SPSs with the control station through telemetry system should be provided so that swift actions could be taken in case of malfunction of unmanned facilities. <u>Land-based Construction</u> *Construction Runoff* Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow	N/A N/A N/A N/A ^ ^ ^

	Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles 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.	^
	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	^
	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	^
	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	^
	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, 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.	^
	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	^

	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 located wheel washing bay should be provided at every site exit, and 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.	^
	Drainage	
	It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	^
	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	^
	All fuel tanks and storage areas should be provided with locks and be located 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 the coastal waters of the Victoria Harbour WCZ.	^
	Sewage Effluent	
	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	^
	Stormwater Discharges	
	Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	N/A

	Debris and Litter	
	In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials. litter or wastes to marine waters does not occur	^
	Construction Works at or in Close Proximity of Storm Culvert or Seafront	
	The proposed works should preferably be carried out within the dry season where the flow in the drainage channel /storm culvert/ nullah is low.	^
	The use of less or smaller construction plants may be specified to reduce the disturbance to the bottom sediment at the drainage channel /storm culvert / nullah.	^
	Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works.	^
	Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.	^
	Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers.	^
	Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.	^
	Mitigation measures to control site runoff from entering the nearby water environment should be implemented to minimize water quality impacts. Surface channels should be provided along the edge of the waterfront within the work sites to intercept the runoff.	^
	Construction effluent, site run-off and sewage should be properly collected and/or treated.	^
	Any works site inside the storm water courses should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props to prevent adverse impact on the storm water quality.	^
	Silt curtain may be installed around the construction activities at the seafront to minimize the potential impacts due to accidental spillage of construction materials.	^
	Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert/drainage channel/sea.	^

	Supervisory staff should be assigned to station on site to closely supervise and monitor the works	^
	Marine water quality monitoring and audit programme shall be implemented for the proposed sediment treatment operation.	^
	Good Site Practices It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during construction activities include:	
	• Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site	^
	• Training of site personnel in proper waste management and chemical waste handling procedures	^
	• Provision of sufficient waste disposal points and regular collection for disposal	^
	• Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers	^
	• A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites)	^
	Waste Reduction Measures Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:	
	• Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals	^
	• 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	^
	• Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force	^
	• Any unused chemicals or those with remaining functional capacity should be recycled	^
	• Proper storage and site practices to minimise the potential for damage or contamination of construction materials	^

Construction and Demolition Material

Mitigation measures and good site practices should be incorporated into contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include:

- Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for disposal, the transient stockpiles should be located away from waterfront or storm drains as far as possible ^
- Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric ^
- Skip hoist for material transport should be totally enclosed by impervious sheeting ^
- Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site ^
- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores ^
- The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle ^
- All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet ^
- The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading ^

When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Materials" should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system. ^

Chemical Waste

After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation* ^

	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem	*
Landscape and Visual	CM1 All existing trees should be carefully protected during construction. CM2 Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work. CM3 Control of night-time lighting. CM4 Erection of decorative screen hoarding.	^ N/A ^ ^

Remarks:	^ Compliance of mitigation measure;
	X Non-compliance of mitigation measure;
	N/A Not Applicable at this stage; N/A(1) Not observed;
	• Non-compliance but rectified by the contractor;
	* Recommendation was made during site audit but improved/rectified by the contractor.

APPENDIX L
SUMMARIES OF ENVIRONMENTAL COMPLAINT, WARNING, SUMMON AND NOTIFICATION OF SUCCESSFUL PROSECUTION

Contract No. KL/2012/03

Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area

Appendix L – Summary of environmental complaint, warning, summon and notification of successful prosecution

Reporting Month: October 2018

Warnings / Summons and Successful Prosecutions received in the reporting month

Log Ref.	Received Date	Details of Warning / Summons and Successful Prosecutions	Investigation/Mitigation Action	Status
N/A	N/A	N/A	N/A	N/A

Remarks: No warning/summon and prosecution were received in the reporting period.

Complaint Log

EPD Complaint Ref No.	Date of Complaint	Complaint Details	Investigation / Mitigation Action	Status
N/A	N/A	N/A	N/A	N/A

APPENDIX M
GENERATED WASTE QUANTITY

APPENDIX IV

Monthly Summary Waste Flow Table

(PS Clause 1.86)

Name of Department: CEDD

Contract No. : KL/2012/03

Monthly Summary Waste Flow Table for October 2018 (year) (in tons)

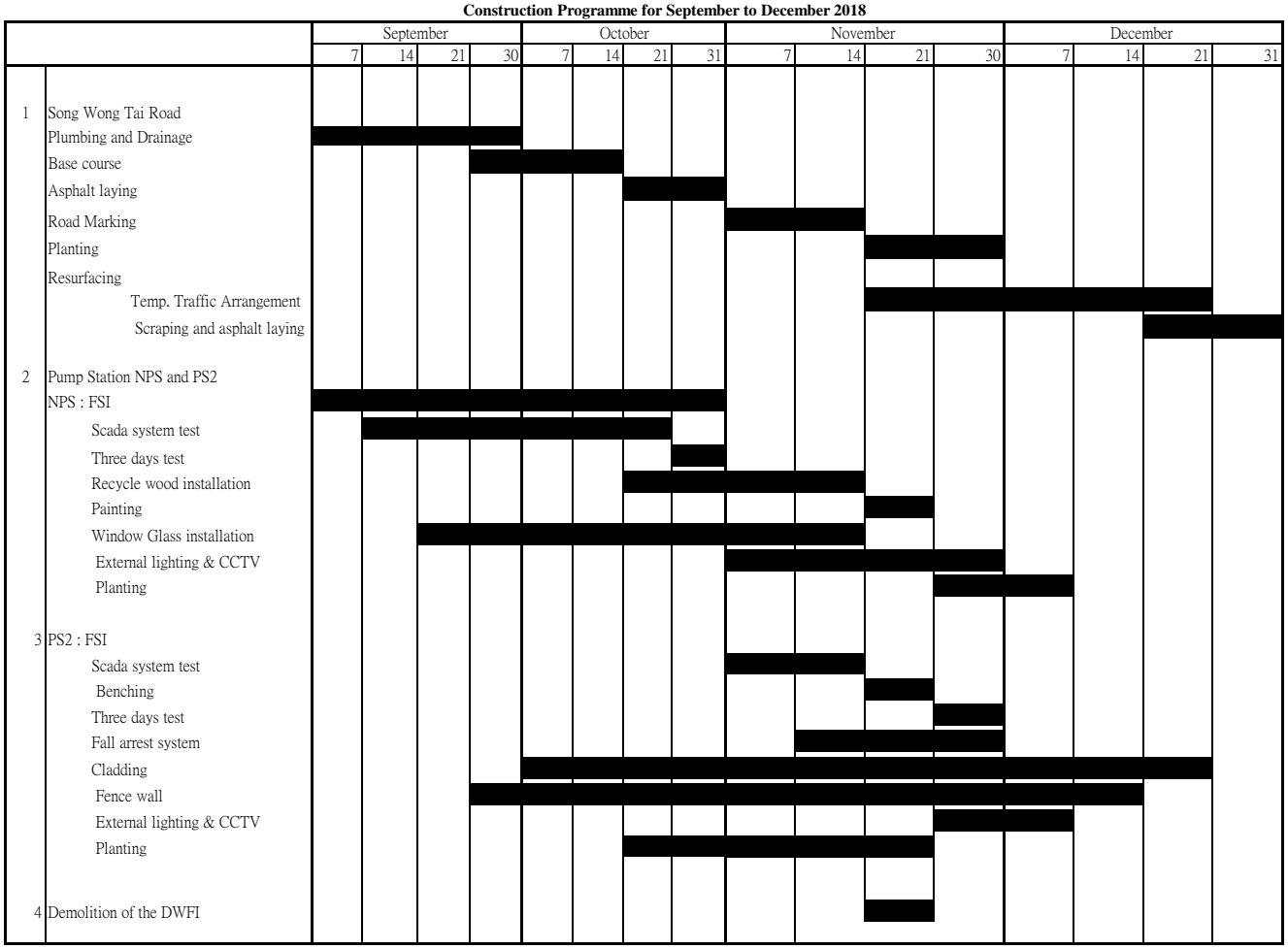
Month	Total Disposal Loads	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
			Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
	(No.s)	(in tons)	0	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)
2013 (Oct - Dec) Sub-Total	108	463.69	0	0	0	0	0	0	0	0	0	463.69
2014 (Jan – Dec) Sub-Total	24	16925.7	0	0	16798.93	83.66	1804.27	0	0	0	0	43.11
2015 (Jan – Dec) Sub-Total	284	81859.97	0	0	38291.91	43457.21	19920	0	0	0	0	310.26
2016 (Jan – Dec) Sub-Total	3369	50762.64	0	0	0	49894.67	4020	0	0	0	0	867.95
2017 (Jan – Dec) Sub-Total	2737	39615.16	0	0	0	38996.26	0	0	0	0	0	603.11
Jan-18	48	575.23	0	0	0	497.91	0	0	0	0	0	77.32
Feb-18	10	81.78	0	0	0	30.34	0	0	0	0	0	51.44
Mar-18	59	869.93	0	0	0	817.87	0	0	0	0	0	52.06
Apr-18	14	136.71	0	0	0	91.67	0	0	0	0	0	45.04
May-18	327	5176.05	0	0	0	5125.76	0	0	0	0	0	50.29
Jun-18	14	141.28	0	0	0	104.01	0	0	0	0	0	37.27
Jul-18	22	188.88	0	0	0	121.23	0	0	0	0	0	67.65
Aug-18	15	94.82	0	0	0	14.78	0	0	0	0	0	80.04
Sep-18	5	25.46	0	0	0	0	0	0	0	0	0	25.46
Oct-18	9	37.96	0	0	0	0	0	0	0	0	0	37.96
Nov-18												
Dec-18												
Total	7045	196955.26	0	0	55090.84	139235.4	25744.27	0	0	0	0	2812.65

APPENDIX N
CONSTRUCTION PROGRAMME

Contract No.: KL/2012/03

Kai Tak Development - Stage 4 Infrastructure at Former North Apron Area

Construction Programme for September to December 2018



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Appendix C

Monthly EM&A Report
For
Contract No. KL/2014/01
Kai Tak Development - Stage 2 Infrastructure works for Developments at Southern Part of the Former Runway

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Civil Engineering and Development Department

EP-337/2009 & EP-445/2013/A

Contract No. KL/2014/01

Kai Tak Development –
Stage 2 Infrastructure works for Developments at Southern Part of the Former Runway

Monthly EM&A Report
October 2018

(Version 1.0)

Approved By	(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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嘉誠管理顧問有限公司
Ka Shing management consultant Limited

Our ref: 10-11-2018

10-11-2018

By email: clive.cheng@aecom-ktd.com and By hand

Supervising Officer Representative
Aecom Asia Co Ltd.
8/F Grand Central Plaza Tower 2
138 Shatin Rural Committee Road
Sha Tin, N.T. Hong Kong
(Attn: Mr. Cheng Chi Hung)

Dear Mr. Cheng,

Re: Contract No. KL/2014/01 (Environmental Permit Nos. EP-337/2009 and EP-445/2013/A)
Kai Tak Development –Stage 2 Infrastructure Works for Developments at Southern Part of the Former Runway
Monthly EM&A report for October 2018

Reference is made to the Environmental Team's submission of the draft Monthly EM&A Report (version 1.0) for October 2018 provided to Independent Environmental Checker (IEC) via email dated on 6 th November 2018 for review and comment.

Please be informed that IEC has no adverse comment on the captioned submission. IEC writes to verify the captioned submission in accordance with Specific Condition 2.2 of the Environmental Permit No. 337/2009 and 445/2013/A.

Thank you very much for your attention and please feel free to contact the undersigned should you require further information.

Yours faithfully,
For and on behalf of
Ka Shing Management Consultant Limited

Dr. C.F. Ng
Independent Environmental Checker

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EXECUTIVE SUMMARY

Introduction

1. This is the 31st Monthly Environmental Monitoring and Audit Report prepared by Cinotech Consultants Ltd. for "Contract No. KL/2014/01 - Kai Tak Development – Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway" (Hereafter referred to as "the Project"). This contract work comprises two Schedule 2 designated projects (DP), namely the new distributor road D4(part) and roads D3A & D4A serving the planned KTD. The DPs are part of the designated projects under Environmental Permits (EP) No.: EP-337/2009 ("New distributor roads serving the planned Kai Tak Development") and EP-445/2013/A ("Kai Tak Development – Roads D3A & D4A") respectively. This report documents the findings of EM&A Works conducted from 1 – 31 October 2018.

2. With reference to the same principle of EIA report of the Project, no air quality monitoring station within 500m and noise monitoring station within 300m from the boundary of this Project are considered as relevant monitoring locations. In such regard, no relevant air quality and noise monitoring location are required for monitoring under the Project. The monitoring works for recommended monitoring stations in EM&A Manual of the DPs are conducted by Kai Tak Development (KTD) Schedule 3 Project.

3. The major site activities undertaken in the reporting month included:
   - TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
   - Construction of box culvert and underpass;
   - Construction of utilities trough at Kai Tak Bridge;
   - Construction of pile caps, noise barrier footings and steel structure, outfalls, deck structure and columns;
   - Laying of sewer, drainage and pavement; and
   - Erection of noise barrier steel structure and panels.

Environmental Monitoring Works

4. Environmental monitoring for the Project was performed in accordance with the EM&A Manual and the monitoring results were checked and reviewed. Site Inspections/Audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

5. Summary of the non-compliance in the reporting month for the Project is tabulated in Table I.

Table I Non-compliance Recorded for the Project in the Reporting Month

Parameter	No. of Project-related Exceedance		Action Taken
	Action Level	Limit Level	
Noise	0	0	N/A

Environmental Monitoring for Air Quality and Construction Noise

6. No monitoring for air quality and construction noise is required. No Action/Limit Level exceedance was recorded.

Environmental Licenses and Permits

7. Licenses/Permits granted to the Project include the Environmental Permits (EP) for the Project, EP-337/2009 issued on 23 April 2009 and EP-445/2013 issued on 3 May 2013 (Amended Environmental Permit (No.: EP-445/2013/A) issued on 13 August 2014).

8. Billing Account for Disposal of Construction Waste (A/C No. 7024073)

9. Registration of Chemical Waste Producer (License: 5213-247-C4004-01).

10. Water Discharge License (License: WT00023634-2016).

11. Construction Noise Permits (Permit: GW-RE0646-18)

Key Information in the Reporting Month

12. Summary of key information in the reporting month is tabulated in Table II.

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	---
Reporting Changes	0	---	N/A	N/A	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---

Future Key Issues

13. The future key environmental issues in the coming month include:

- Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- Water spraying for dust generating activity and on haul road;
- Proper storage of construction materials on site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation of general and construction waste on site;
- Noise from operation of the equipment, especially for excavation activities and machinery on-site;
- Wastewater and runoff discharge from site;
- Regular removal of silt, mud and sand along u-channels and sedimentation tanks; and
- Review and implementation of temporary drainage system for the surface runoff.

1. INTRODUCTION

Background

1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. Stage 2 Infrastructure Works for Developments for Southern Part of the Former Runway is one of the construction stages of KTD. It contains two Schedule 2 DPs including new distributor roads serving the planned KTD and KTD Roads D3A & D4A. The general layout of the Project is shown in **Figure 1.**

1.2 One Environmental Permit (EP) No.: EP-337/2009 was issued on 23 April 2009 for new distributor roads serving the planned KTD and one Environmental Permit No.: EP-445/2013 was issued on 3 May 2013 for Kai Tak Development Roads D3A & D4A to Civil Engineering and Development Department (CEDD) as the Permit Holder. Pursuant to Section 13 of the EIAO, the Director of Environmental Protection Department amended the Environmental Permit No.: EP-445/2013 based on the Application No. VEP-449/2014 and the Environmental Permit (No.: EP-445/2013/A) was issued on 13 August 2014.

1.3 A study of environmental impact assessment (EIA) was undertaken to consider the key issues of air quality, noise, water quality, waste, land contamination, cultural heritage and landscape and visual impact, and identify possible mitigation measures associated with the works. EIA Reports (Register No. AEIAR-130/2009 and AEIAR-170/2013) were approved by the Environmental Protection Department (EPD) on 4 March 2009 and 3 May 2013 respectively.

1.4 Cinotech Consultants Limited (Cinotech) was commissioned by Civil Engineering and Development Department (CEDD) to undertake the role of the Environmental Team (ET) for the Contract No. KL/2014/01 – Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway. The construction work under KL/2014/01 comprises the construction of part of the Road D4 under the EP (EP-337/2009) and the construction of Roads D3A & D4A under the EP (EP-445/2013/A).

1.5 Cinotech Consultants Limited was commissioned by Civil Engineering and Development Department (CEDD) to undertake the Environmental Monitoring and Audit (EM&A) works for the Project. The construction commencement of this Contract is on 13 April 2016. This is the 31st Monthly EM&A report summarizing the EM&A works for the Project from 1 – 31 October 2018.

1.6 All project information since the commencement of work under EPs including Monthly EM&A Reports is made available to the public via internet access at the website: http://www.kl201401.com/

Project Organizations

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

- Project Proponent – Civil Engineering and Development Department (CEDD).
- The Supervising Officer and the Supervising Officer's Representative (SO) – AECOM Asia Co. Ltd. (AECOM).
- Environmental Team (ET) – Cinotech Consultants Limited (CCL).
- Independent Environmental Checker (IEC) – Ka Shing Management Consultant Ltd. (KSMC).
- Contractor – Continental Engineering Corp. and Chit Cheung Construction Co. Ltd. Joint Venture (CCJV).

1.8 The key contacts of the Project are shown in **Table 1.1**.

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Position	Phone No.	Fax No.
CEDD	Project Proponent	Mr. Sunny Lo	Senior Engineer	3579 2450	3579 4516
		Mr. Keith Chu	Engineer	3579 2124	
AECOM	Supervising Officer	Mr. Clive Cheng	CRE	3746 1801	2798 0783
Cinotech	Environmental Team	Dr. Priscilla Choy	Environmental Team Leader	2151 2089	3107 1388
		Ms. Ivy Tam	Audit Team Leader	2151 2090	
KSMC	Independent Environmental Checker	Dr. C. F. Ng	IEC	2618 2166	2120 7752
CCJV	Contractor	Mr. Dennis Ho	Environmental Officer	2960 1398	2960 1399

Construction Activities undertaken during the Reporting Month

1.9 The site activities undertaken in the reporting month included:

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- Construction of box culvert and underpass;
- Construction of utilities trough at Kai Tak Bridge;
- Construction of pile caps, noise barrier footings and steel structure, outfalls, deck structure and columns;
- Laying of sewer, drainage and pavement; and
- Erection of noise barrier steel structure and panels.

1.10 The construction programme showing the inter-relationship with environmental protection/mitigation measures is presented in Table 1.2.

Table 1.2 Construction Programme Showing the Inter-Relationship with Environmental Protection/Mitigation Measures

Construction Works	Major Environmental Impact	Control Measures
As mentioned in Section 1.8	Noise, dust impact, water quality and waste generation	Sufficient watering of the works site with active dust emitting activities; Properly cover the stockpiles; On-site waste sorting and implementation of trip ticket system; Appropriate desilting/sedimentation devices provided on site for treatment before discharge; Use of quiet plant and well-maintained construction plant; Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; Provide mitigation measure to temporary use of chemicals; Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.

Summary of EM&A Requirements

1.11 The EM&A programme requires construction noise monitoring, air quality monitoring, landscape and visual monitoring and environmental site audit. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event Action Plans;
- Environmental requirements and mitigation measures, as recommended in the EM&A Manual under the EP.

1.12 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 5 of this report.

2. AIR QUALITY

Monitoring Requirements

2.1 With reference to the same principle of EIA report of the Project, no air quality monitoring station within 500m from the boundary of this Project are considered as relevant monitoring locations. No air quality monitoring is required for the Project.

Observations

2.2 No monitoring for air quality is required for the Project.

2.3 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of air quality mitigation measures within the site boundaries of this Project. The summaries of site audits are attached in **Appendix C.**

3. NOISE

Monitoring Requirements

3.1 With reference to the same principle of EIA report of the Project, no construction noise monitoring station within 300m from the boundary of this Project are considered as relevant monitoring locations. No Construction noise monitoring is required for the Project. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Observations

3.2 No monitoring for construction noise is required for the Project. No Action/Limit Level exceedance was recorded. The summary of exceedance record in reporting month is shown in **Appendix B**.

3.3 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of construction noise mitigation measures within the site boundaries of this Project. The summaries of site audits are attached in **Appendix C**.

4. LANDSCAPE AND VISUAL

Monitoring Requirements

4.1 According to EM&A Manual of the Kai Tak Development EIA Study, ET shall monitor and audit the contractor's operation during the construction period on a weekly basis, and to report on the contractor's compliance.

Results and Observations

4.2 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of landscape and visual mitigation measures within the site boundaries of this Project. The summaries of site audits are attached in **Appendix C**.

4.3 No non-compliance of the landscape and visual impact was recorded in the reporting month.

4.4 Should non-compliance of the landscape and visual impact occur, action in accordance with the action plan presented in **Appendix D** shall be performed.

5. ENVIRONMENTAL AUDIT

Site Audits

5.1 Site audits were carried out on a 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**.

5.2 Site audits were conducted by representatives of the Contractor, Supervising Officer and ET on 3, 10, 18, 24 and 31 October 2018 in the reporting month. IEC joint site inspection was conducted on 24 October 2018. No non-compliance was observed during the site audits.

Status of Environmental Licensing and Permitting

5.3 All permits/licenses obtained for the Project are summarized in Table 5.1.

Table 5.1 Summary of Environmental Licensing and Permit Status

Permit No.	Valid Period		Details	Status
	From	To		
Environmental Permit (EP)				
EP-337/2009	23/04/09	N/A	Construction of new distributor roads serving the planned Kai Tak development.	Valid
EP-445/2013/A	13/08/14	N/A	Construction of Kai Tak Development roads D3A and D4A	Valid
Effluent Discharge License				
WT00023634-2016	--	31/03/21	Wastewater from the construction site including effluent treated by screen and sedimentation tank	Valid
Registration of Chemical Waste Producer				
5213-247-C4004-01	--	N/A	Chemical Waste Types: Surplus paint, waste contaminated by paint, diesel, waste contaminated by diesel, spent lubricating oil and waste, soil contaminated by lubricating oil.	Valid
Construction Noise Permit (CNP)				
GW-RE0646-18	19/09/18	17/12/18	Construction Noise Permit for the use of powered mechanical equipment for carrying out construction work other than percussive pilling and performing prescribed construction work.	Valid

Status of Waste Management

5.4 The amount of wastes generated by the major site activities of this Project during the reporting month is shown in **Appendix G**.

5.5 In respect of the dump truck cover, the Contractor is reminded to take record photos and inspection to ensure that all dump trucks have fully covered the skip before leaving the site.

Implementation Status of Environmental Mitigation Measures

5.6 During site inspections in the reporting month, no non-conformance was identified. ET weekly site inspections were carried out during the reporting month and the observations and recommendations are summarized in Table 5.2.

Table 5.2 Observations and Recommendations of Site Inspections

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	--
Air Quality	24 October 2018	Reminder: Properly cover the dusty material at near T Junction.	The condition was observed to be improved/rectified by the contractor during the audit session on 31 October 2018
	31 October 2018	Reminder: To properly cover the dusty material at near urban room C.	Follow up actions will be reported in the next month.
	31 October 2018	Reminder: To provide mitigation measure (e.g. watering) in the haul road at near urban room C for dust suppression.	Follow up actions will be reported in the next month.
Noise	--	--	--
Waste/ Chemical Management	--	--	--
Landscape and Visual	24 October 2018	Reminder: Properly provide landscape mitigation measure along the access roads to the Cruise Terminal..	The condition was observed to be improved/rectified by the contractor during the audit session on 31 October 2018
Permits/ Licences	--	--	--

Summary of Mitigation Measures Implemented

5.7 An updated summary of the EMIS is provided in **Appendix E**.

Implementation Status of Event Action Plans

5.8 The Event Action Plans for noise and landscape and visual are presented in **Appendix D**. No Event Action Plan for air quality is considered necessary.

Construction Noise

5.9 No Action/Limit Level exceedance was recorded in the reporting month.

Landscape and visual

5.10 No non-compliance was recorded in the reporting month.

Summary of Complaint, Warning, Notification of any Summons and Successful Prosecution

5.11 The summaries of environmental complaint, warning, summon and notification of successful prosecution for the Project is presented in **Appendix F**.

6. FUTURE KEY ISSUES

6.1 Major site activities undertaken for the coming two months include:

- TTA implementation, junction improvement works at Shing Fung Road and Wang Chiu Road / Kai Cheung Road;
- Construction of box culvert and underpass;
- Construction of utilities trough at Kai Tak Bridge;
- Construction of pile caps, noise barrier footings and steel structure, outfalls, deck structure and columns;
- Laying of sewer, drainage and pavement; and
- Erection of noise barrier steel structure and panels.

Key Issues for the Coming Month

6.2 Key environmental issues in the coming month include:

- Wastewater and runoff discharge from site;
- Regular removal of silt, mud and sand along u-channels and sedimentation tanks;
- Review and implementation of temporary drainage system for the surface runoff;
- Noise from operation of the equipment, especially for rock-breaking activities, piling works and machinery on-site;
- Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- Water spraying for dust generating activity and on haul road;
- Proper storage of construction materials on site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation of general and construction waste on site.

6.3 The tentative program of major site activities and the impact prediction and control measures for the coming two months, i.e. November and December 2018 are summarized as follows:

Construction Works	Major Impact Prediction	Control Measures
As mentioned in Section 7.1	Air quality impact (dust)	a) Frequent watering of haul road and unpaved/exposed areas; b) Frequent watering or covering stockpiles with tarpaulin or similar means; and c) Watering of any earth moving activities.
	Water quality impact (surface run-off)	a) Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; b) Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; c) Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and d) Provision of measures to prevent discharge into the stream.

Construction Works	Major Impact Prediction	Control Measures
	Noise Impact	a) Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; b) Controlling the number of plants use on site; c) Regular maintenance of machines; and d) Use of acoustic barriers if necessary.

7. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

7.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 to 31 October 2018.

Air Quality and Construction Noise

7.2 No regular monitoring air quality and noise monitoring is required for the Project. No Action/Limit Level exceedance was recorded.

Landscape and visual

7.3 No non-compliance was recorded in the reporting month.

Complaint and Prosecution

7.4 No environmental complaints and environmental prosecution were received in the reporting month.

7.5 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

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

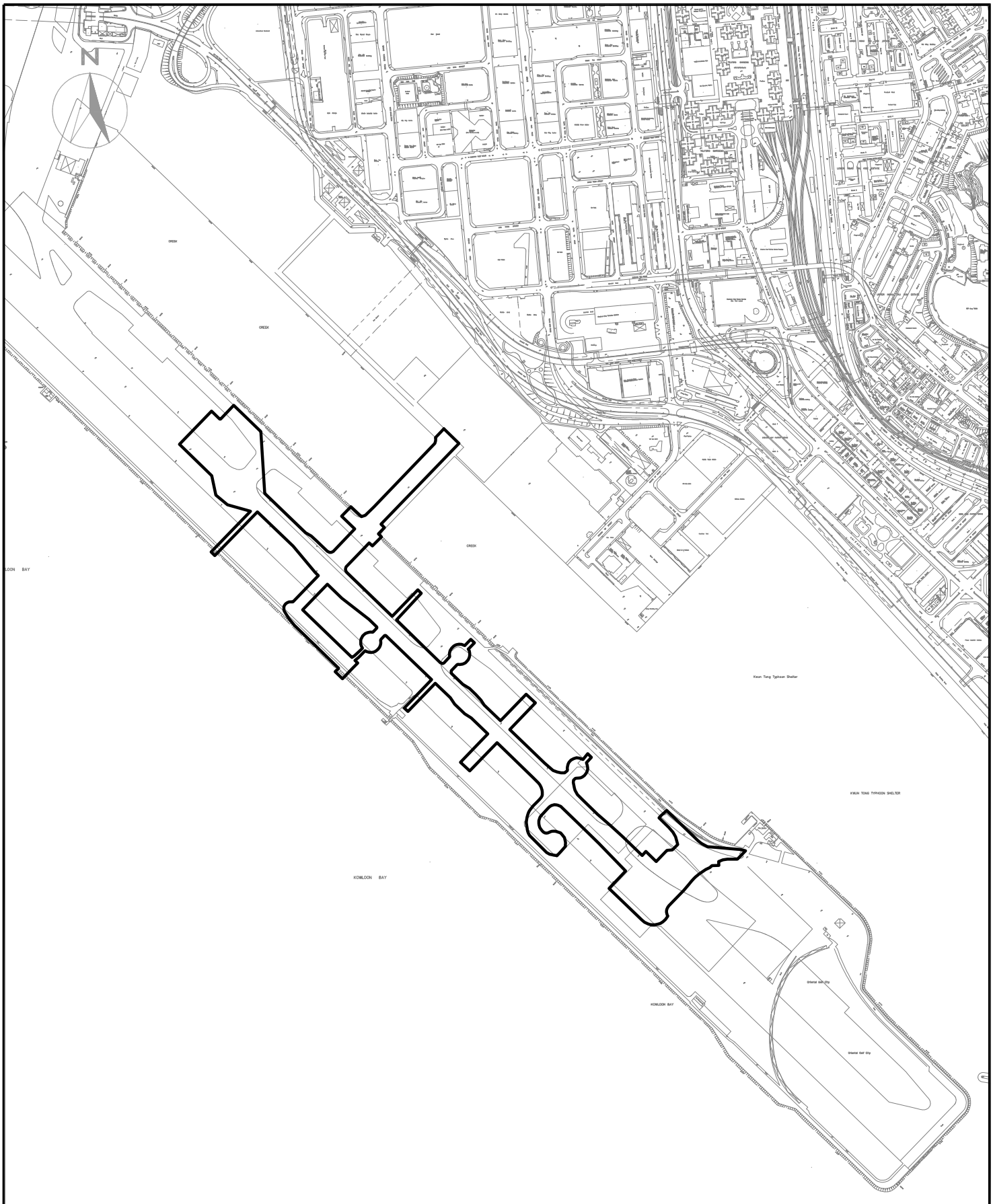
Air Quality

- To provide sufficient water spraying more frequently to haul roads or unpaved area for dust suppression.
- To properly cover the dusty stockpile to prevent dust generation.

Landscape and Visual

- To properly provide mitigation measure (e.g hanging banner) at the site boundary to reduce/mitigate the visual impact.

FIGURES



LEGEND:

SITE BOUNDARY

CINOTECH

Cinotech Consultants Limited

KL/2014/01 KAI TAK DEVELOPMENT - STAGE 2
INFRASTRUCTURE WORKS FOR DEVELOPMENT AT
SOUTHERN PART OF THE FORMER RUNWAY

SITE LAYOUT PLAN

SCALE	1:1000@A4	DATE	MAY 2016
CHECK	JL	DRAWN	JW
JOB No.	MA15046	FIGURE NO. 1	REV -

APPENDIX A
ACTION AND LIMIT LEVELS

Appendix A - Action and Limit Levels

Table A-1 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level[(1)(2)]
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) 70dB(A)/65dB(A)*

Remarks: (1) 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.

(2) No regular noise impact monitoring station for this Contract. It is subject to the noise sensitive receiver(s) and additional monitoring work.

(*) 70dB(A) and 65dB(A) for schools during normal teaching periods and school examination periods respectively.

APPENDIX B
SUMMARY OF EXCEEDANCE

Contract No. KL/2014/01
Kai Tak Development –Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway

Appendix B – Summary of Exceedance

Exceedance Record for Contract No. KL/2014/01

Reporting Month: October 2018

(A) Exceedance Record for Construction Noise

(NIL in the reporting month)

(B) Exceedance Record for Landscape and Visual

(NIL in the reporting month)

APPENDIX C
SITE AUDIT SUMMARY

Contract No. KL/2014/01
Kai Tak Development - Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway
EP-337/2009 & EP-445/2013/A

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181003
Date	3 October 2018 (Wednesday)
Time	14:30 – 16:00

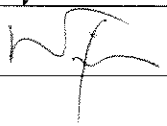
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.:180926), all identified deficiencies were observed improved/rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Kinson Poon		3 October 2018
Checked by	Dr. Priscilla Choy		4 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181010
Date	10 October 2018 (Wednesday)
Time	14:30 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.:181003), no major environmental deficiency was observed during site inspection.	

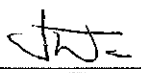
	Name	Signature	Date
Recorded by	Kinson Poon		10 October 2018
Checked by	Dr. Priscilla Choy		11 October 2018

Contract No. KL/2014/01
Kai Tak Development - Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway
EP-337/2009 & EP-445/2013/A

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181018
Date	18 October 2018 (Wednesday)
Time	14:30 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.:181010), no major environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Janet Wai		18 October 2018
Checked by	Dr. Priscilla Choy		19 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181024
Date	24 October 2018 (Wednesday)
Time	14:30 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
181024-R01	• Properly cover the dusty material at near T Junction.	C 7
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
181024-R02	• Properly provide landscape mitigation measure along the access roads to the Cruise Terminal.	F 7
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.:181018), no major environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Kinson Poon		24 October 2018
Checked by	Dr. Priscilla Choy		26 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181031
Date	31 October 2018 (Wednesday)
Time	14:30 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
181031-R01 181031-R02	• To properly cover the dusty material at near urban room C. • To provide mitigation measure (e.g. watering) in the haul road at near urban room C for dust suppression.	C 7 C 5
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.:181024), no major environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Kinson Poon		31 October 2018
Checked by	Dr. Priscilla Choy		6 November 2018

APPENDIX D
EVENT ACTION PLANS

Appendix D - Event Action Plans

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	4. Notify ER, IEC and Contractor; 5. Carry out investigation; 6. Report the results of investigation to the IEC, ER and Contractor; 7. Discuss with the IEC and Contractor on remedial measures required; 8. Increase monitoring frequency to check mitigation effectiveness. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. (The above actions should be taken within 2 working days after the exceedance is identified)
Limit Level being exceeded	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)

Appendix D - Event Action Plans

Event/Action Plan for Landscape and Visual

EVENT ACTION LEVEL	ACTION			
	ET	IEC	ER	CONTRACTOR
Design Check	• Check final design conforms to the requirements of EP and prepare report.	• Check report. • Recommend remedial design if necessary	• Undertake remedial design if necessary	
Non-conformity on one occasion	• Identify Source • Inform IEC and ER • Discuss remedial actions with IEC, ER and Contractor • Monitor remedial actions until rectification has been completed	• Check report • Check Contractor's working method • Discuss with ET and Contractor on possible remedial measures • Advise ER on effectiveness of proposed remedial measures. • Check implementation of remedial measures.	• Notify Contractor • Ensure remedial measures are properly implemented	• Amend working methods • Rectify damage and undertake any necessary replacement
Repeated Non-conformity	• Identify Source • Inform IEC and ER • Increase monitoring frequency • Discuss remedial actions with IEC, ER and Contractor • Monitor remedial actions until rectification has been completed • If non-conformity stops, cease additional monitoring	• Check monitoring report • Check Contractor's working method • Discuss with ET and Contractor on possible remedial measures • Advise ER on effectiveness of proposed remedial measures • Supervise implementation of remedial measures.	• Notify Contractor • Ensure remedial measures are properly implemented	• Amend working methods • Rectify damage and undertake any necessary replacement

APPENDIX E
ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

Appendix E - Summary of Implementation Schedule of Mitigation Measures for Construction Phase

EIA Ref.	Mitigation Measures	Status
Construction Air Quality		
S3.2 (AEIAR-130/2009)	8 times daily watering of the work site with active dust emitting activities.	^
S4.8 (AEIAR-170/2013)	Control measures stipulated in the approved KTD Schedule 3 EIA Report should be strictly followed.	^
S3.2 (AEIAR-130/2009) and S4.8 (AEIAR-170/2013)	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.	
	● Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	*
	● Misting for the dusty material should be carried out before being loaded into the vehicle.	^
	● Any vehicle with an open load carrying area should have properly fitted side and tail boards.	^
	● Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	^
	● The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	^
	● The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. Onsite unpaved roads should be compacted and kept free of lose materials.	^
	● Vehicle washing facilities should be provided at every vehicle exit point.	^

EIA Ref.	Mitigation Measures	Status
	● The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores. ● Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet. ● Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides; and ● Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^ * ^ ^
Construction Noise		
S3.3 (AEIAR-130/2009)	Use of quiet PME, movable barriers barrier for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump.	^
S3.3 (AEIAR-130/2009)	Good Site Practice: ● Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. ● Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. ● Mobile plant, if any, should be sited as far away from NSRs as possible. ● Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. ● Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. ● Material stockpiles and other structures should be effectively utilized, wherever	^ ^ ^ ^ ^

EIA Ref.	Mitigation Measures	Status
	practicable, in screening noise from on-site construction activities.	
S3.3 (AEIAR-130/2009)	Scheduling of Construction Works during School Examination Period	N/A
S3.8 (AEIAR-170/2013)	Provision of a landscaped deck along Roads D3A & D4A.	N/A
S3.8 (AEIAR-170/2013)	● Provision of about 1090 m length of vertical noise barrier (connected to the deck) at Roads D3A & D4A; ● Provision of about 60 m length of overhang vertical noise barrier (connected to the deck) at Road D4A; and ● Provision of staircases with noise barriers next to Sites 4A1 and 4B1 It should be noted that the exact length of the mitigation measures would be subject to minor refinement during the detailed design stage.	N/A N/A N/A
S3.8 (AEIAR-170/2013)	Non-noise sensitive use areas within Sites 4A1 and 4B1.	N/A
S3.8 (AEIAR-170/2013)	Avoid sensitive façade with openable window facing Road D3A.	N/A
Construction Water Quality		
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	<u>Construction Runoff</u> Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: ● use of sediment traps ● adequate maintenance of drainage systems to prevent flooding and overflow	 ^ ^

EIA Ref.	Mitigation Measures	Status
	Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles 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.	^
	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	^
S5.8 (AEIAR-170/2013)	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. Appropriate drainage like intercepting channels should be provided where necessary.	^
	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.	^
S3.4 (AEIAR-130/2009)	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure	^

EIA Ref.	Mitigation Measures	Status
	which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	^
S3.4 (AEIAR-130/2009)	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, 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.	^
	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	^
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	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 located wheel washing bay should be provided at every site exit, and 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	^

EIA Ref.	Mitigation Measures	Status
	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.	
S5.8 (AEIAR-170/2013)	<u>Boring and Drilling Water</u> Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	^
	<u>Acid Cleaning, Etching and Pickling Wastewater</u> 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	^
S3.4 (AEIAR-130/2009)	<u>Drainage</u> It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	^
S3.4 (AEIAR-130/2009)	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	^

EIA Ref.	Mitigation Measures	Status
S3.4 (AEIAR-130/2009)	All fuel tanks and storage areas should be provided with locks and be located 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 the coastal waters of the Victoria Harbour WCZ.	^
S5.8 (AEIAR-170/2013)	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distance of 100 m should be maintained between the discharge points of construction site effluent and the existing seawater intakes and the planned WSR mentioned in S5.3.1 as appropriate. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water 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 (RO) of EPD.	^
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	<u>Sewage Effluent</u> Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	^
S5.8	Notices should be posted at conspicuous locations to remind the workers not to discharge	^

EIA Ref.	Mitigation Measures	Status
(AEIAR-170/2013)	any sewage or wastewater into the surrounding environment. Regular environmental audit of the construction site will provide an effective control of any malpractices and can encourage continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the project would not cause water pollution problem after undertaking all required measures.	
S3.4 (AEIAR-130/2009) and S5.8 (AEIAR-170/2013)	<u>Stormwater Discharges</u> Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes.	^
	<u>Debris and Litter</u> In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials, litter or wastes to marine waters does not occur.	^
S5.8 (AEIAR-170/2013)	<u>Accidental Spillage</u> Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes. Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	^

EIA Ref.	Mitigation Measures	Status
	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: ● Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. ● Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. ● Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	^ ^ ^
Construction Waste Management		
S6.7 (AEIAR-170/2013)	Prepare a Waste Management Plan, which becomes a part of the Environmental Management Plan, in accordance with the requirements stipulated in ETWB TC(W) No. 19/2005, approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites.	^
S3.5 (AEIAR-130/2009) and S6.7 (AEIAR-170/2013)	Good Site Practices It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during construction activities include: ● Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical waste handling procedures ● Provision of sufficient waste disposal points and regular collection for disposal	^ ^

EIA Ref.	Mitigation Measures	Status
	● Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers ● A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites) ● Regular cleaning and maintenance systems, sumps and oil interceptors ● Separation of chemical wastes for special handling and appropriate treatment	^ ^ ^ ^
	Waste Reduction Measures Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: ● Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals ● 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 ● Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force ● Any unused chemicals or those with remaining functional capacity should be recycled ● Proper storage and site practices to minimise the potential for damage or contamination of construction materials ● Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste ● Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.	 ^ ^ ^ ^ ^ ^

EIA Ref.	Mitigation Measures	Status
S3.5 (AEIAR-130/2009)	Construction and Demolition Materials Mitigation measures and good site practices should be incorporated in the contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include: ● Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible. ● Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric. ● Skip hoist for material transport should be totally enclosed by impervious sheeting. ● Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site. ● The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores. ● The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle. ● All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet. ● The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading. When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket	^ ^ ^ ^ ^ ^ ^ ^

EIA Ref.	Mitigation Measures	Status
	System for Disposal of Construction and Demolition Materials" should be included as one of the contractual requirement sand implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	
S3.5 (AEIAR-130/2009)	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem	^
Construction Landscape and Visual		
S3.8.12 (AEIAR-130/2009) and S7.9 (AEIAR-170/2013)	● Minimized construction area and contractor's temporary works areas. ● All existing trees should be carefully protected during construction. ● Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work. ● Control of night-time lighting. ● Erection of decorative screen hoarding. ● Reduction of construction period to practical minimum. ● Limitation of / Ensuring no run-off into surrounding landscape and adjacent seawater areas. ● Temporary or advance landscape should be provided along the temporary access roads to the Cruise Terminal until such time as road D3 is open.	^ ^ ^ ^ ^ ^ ^ *

Remarks:	EIA Report (AEIAR-130/2009) – Kai Tak Development EIA Report (AEIAR-170/2013) – Kai Tak Development – Roads D3A & D4A	
	^ Compliance of mitigation measure;	X Non-compliance of mitigation measure;
	N/A Not Applicable at this stage; N/A(1) Not observed;	• Non-compliance but rectified by the contractor;
	* Recommendation was made during site audit but improved/rectified by the contractor.	

APPENDIX F
SUMMARIES OF ENVIRONMENTAL COMPLAINT, WARNING, SUMMON AND NOTIFICATION OF SUCCESSFUL PROSECUTION

Contract No. KL/2014/01

Kai Tak Development –Stage 2 Infrastructure Works for Developments at the Southern Part of the Former Runway

Appendix F – Summary of environmental complaint, warning, summon and notification of successful prosecution

Reporting Month: October 2018

Contract No. KL/2014/01

Log Ref.	Location	Received Date	Details of Complaint/warning/summon and prosecution	Investigation/Mitigation Action	Status
N/A	N/A	N/A	N/A	N/A	N/A

Remarks: No environmental complaint/warning/summon and prosecution were received in the reporting period.

APPENDIX G
WASTE GENERATED QUANTITY

Name of Department: CEDD

Contract No. KL/2014/01

Waste Flow Table for Year 2018

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 tonne)	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in tonne)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in tonne)
Jan	5,821.15	0	0	0	5821.15	0	0	0.02	0	0	121.57
Feb	2,270.11	0	0	0	2270.11	0	0	0	0	0	85.98
Mar	2,914.70	0	0	0	2914.70	0	0	0.25	0	0	81.4
Apr	2,248.44	0	0	0	2248.44	0	0	0	0	0	75.27
May	2,022.25	0	0	0	2022.25	0	0	0.3	0	0	50.92
June	5748.34	0	0	0	5748.34	0	0	0	0	0	111.04
Sub-total	21,024.99	0	0	0	21,024.99	0	0	0.570	0	0	526.18
July	4,442.16	0	0	0	4442.16	0	0	0.400	0	0	198.8
Aug	299.44	0	0	0	299.44	0	0	0	0	0	159.61
Sept	548.56	0	0	0	548.56	0	0	0	0	0	108.52
Oct	1399.22	0	0	0	1399.22	0	0	0	0	0	112.7
Nov											
Dec											
Total	27,714.37	0.00	0.00	0.00	27,714.37	0.00	0.00	0.970	0.000	0.00	1,105.81

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Appendix D

Monthly EM&A Report
For
Contract No. KL/2014/03
Kai Tak Development - Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

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MONTHLY EM&A REPORT

October 2018

Client	**:**	Civil Engineering and Development Department, HKSAR
Contract No.	**:**	KLN/2015/07
Contract Name	**:**	Environmental Monitoring Works for Contract KL/2014/03 – Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway
Report No.	**:**	0405/15/ED/1119A
EP-337/2009		New Distributor Roads Serving the Planned Kai Tak Development Area
EP-339/2009/A		Decommissioning of the Remaining Parts (Ex-GFS Building, Radar Station and Hong Kong Aviation Club) of the former Kai Tak Airport
EP-451/2013		Trunk Road T2

Prepared by : Janet W. T. Yu

Reviewed by : Alfred Y. S. Lam

Certified by : _____
Colin K. L. Yung
Environmental Team Leader
Fugro Technical Services Limited

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RAMBOLL

Ref.: CEDKTDS3EM00_0_0345L.18

12 November 2018

Hyder-Meinhardt Joint Venture
17/F, Two Harbour Square,
180 Wai Yip Street, Kwun Tong
Kowloon, Hong Kong

By Post and Email

Attention: Mr. Wong W. K., Chris

Dear Mr. Wong,

Re: Contract No. KL/2014/03 – Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway
Monthly EM&A Report for October 2018

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for October 2018 (Report No. 0405/15/ED/1119A) we received by e-mail on 12 November 2018.

Please be informed that we have no adverse comment on the captioned report. We hereby verify the captioned submission according to Condition 3.3 of EP-337/2009, Condition 3.3 of EP-339/2009/A and Condition 3.4 of EP-451/2013.

Thank you for your attention. Please do not hesitate to contact us should you have any queries.

Yours sincerely,
For and on behalf of
Ramboll Hong Kong Limited

F. C. Tsang
Independent Environmental Checker

c.c.	CEDD	Attn.:	Ms. Amy Chu	Fax: 2369 4980
	MateriaLab	Attn.:	Mr. Colin K. L. Yung	Fax: 3565 4160
	CRBC	Attn.:	Mr. Dickey Yau	Fax: 2283 1689

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EXECUTIVE SUMMARY

i. The Civil Engineering and Development Department HKSAR has appointed Fugro Technical Services Limited (FTS) to undertake the Environmental Team services for the Project and implement the EM&A works.

ii. This Monthly EM&A report presents the environmental monitoring and audit works for the period between 1 October and 31 October 2018. As informed by the Contractor, major activities in the reporting month were:

- Excavation and laying of drainage pipe and manhole;
- Excavation and ELS construction;
- Construction of Supporting Underground Structure; and
- Construction of District Cooling System.

Breaches of the Action and Limit Levels

iii. No Action / Limit Level exceedance was recorded for 24-hr TSP and construction noise at KTD1a, KTD2b and KER1b in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

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

Reporting Changes

v. There was no reporting change in the reporting month.

Future Key Issues

vi. The key issues to be considered in the coming reporting month include:

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

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1. INTRODUCTION

1.1 Background

1.1.1 The Kai Tak Development is located in the south-eastern part of Kowloon Peninsula of the HKSAR, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling.

1.1.2 Contract No. KL/2014/03 is the works package to construct an approximately 420m long supporting underground structure (SUS) underneath Shing Cheong Road and Cheung Yip Street. The EM&A programme under this Contract is governed by three EPs (EP-337/2009, EP-339/2009/A and EP-451/2013) and two EM&A Manuals (AEIAR-130/2009 and AEIAR-174/2013). The Works to be executed under this Contract and corresponding EPs include but not be limited to the following main items:

EP-451/2013 – Trunk Road T2

(i) Construction of approximately 420m long supporting underground structure (SUS) including diaphragm walls, barrettes, piled foundation, top and bottom slabs, end wall and adits underneath Shing Cheong Road and Cheung Yip Street;

EP-337/2009 – New Distributor Roads Serving the Planned Kai Tak Development

(ii) Widening and re-alignment of Cheung Yip Street of approximately 330m long and associated footpaths;
(iii) Demolition, reconstruction and widening of Shing Cheong Road of approximately 410m long and associated footpaths;
(iv) Construction of drainage outfall and modification of existing seawall;
(v) Construction of ancillary works including surface drainage, sewerage, water, fire fighting, street lighting, street furniture, road marking, road signage, utilities and services, irrigation and landscape works.

EP-339/2009/A – Decommissioning of the Remaining Parts (Ex-GFS Building, Radar Station and Hong Kong Aviation Club) of the former Kai Tak Airport

(vi) Demolition of RADAR Tower and guard house;

Other works not covered by any EP

(vii) Construction of two subways between Phase II of New Acute Hospital (Site A) and Hong Kong Children's Hospital (Site C), and between Phase I of New Acute Hospital (Site B) and Site C;
(viii) Construction of District Cooling System (DCS) along Cheung Yip Street and Shing Cheong Road

1.1.3 The location and boundary of the site is shown in **Figure 1**.

1.1.4 This Monthly EM&A report is required under EP-337/2009 Condition 3.3, EP-339/2009/A Condition 3.3 and EP-451/2013 Condition 3.4. It is to report the results and findings of the EM&A programme required in the EM&A Manuals.

1.1.5 This is the thirty second monthly EM&A Report which summarize the impact monitoring results and audit findings for the Project within the period between 1 October 2018 and 31 October 2018.

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1.2 Project Organization

1.2.1 The project proponent was the Civil Engineering and Development Department, HKSAR (CEDD). Hyder Meinhardt Joint Venture (HMJV) was commissioned by CEDD as the Engineer for the Project. Ramboll Hong Kong Limited was commissioned as the Independent Environmental Checker (IEC). China Road and Bridge Corporation (Hong Kong) (CRBC) was appointed as the main contractor for the construction works under the contract KL/2014/03. Fugro Technical Services Limited (FTS) was appointed as the Environmental Team (ET) by CEDD to implement the EM&A programme for the Project.

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

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Project Proponent (CEDD)	Co-ordinator	Ms. Amy Chu	3106 3172	2369 4980
Engineer's Representative (HMJV)	Chief Resident Engineer	Mr. W. K., Chris Wong	3742 3803	3742 3899
IEC (Ramboll Hong Kong Limited)	Independent Environmental Checker	Mr. F. C. Tsang	3465 2851	3465 2899
Main Contractor (CRBC)	Site Agent	Mr. Yau Kwok Kiu, Dickey	5699 4503	2283 1689
	Environmental Officer	Mr. Calvin So	9724 6254	2283 1689
ET (FTS)	Environmental Team Leader	Mr. Colin Yung	3565 4114	3565 4160

1.3 Construction Programme and Activities

1.3.1 The construction of the Project commenced in February 2016 and is expected to complete in 2020. The construction programme is shown in **Appendix A**.

1.3.2 A summary of the major construction activities undertaken in the reporting month were:

- Excavation and laying of drainage pipe and manhole;
- Excavation and ELS construction;
- Construction of Supporting Underground Structure; and
- Construction of District Cooling System.

1.4 Inter-relationship with the environmental protection/ mitigation measures with the construction programme

1.4.1 According to the construction activities in the construction programme mentioned in Section 1.3.2, the following environmental protection/ mitigation measures including Air Quality Impact, Construction Noise Impact, Water Quality Impact, Chemical and Waste Management, Landscape and Visual Impact shall be implemented:

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- Sufficient watering of the works site with the active dust emitting activities;
- Limitation of the speed for vehicles on unpaved site roads;
- Properly cover or enclosure of the stockpiles and dusty materials;
- Good site practices on loading dusty materials;
- Providing sufficient vehicles washing facilities at every vehicle exit point;
- Good maintenance to the plant and equipment;
- Use of quieter plant and Quality Powered Mechanical Equipment (QPME);
- Use of acoustic fabric and noise barrier;
- Using the approved Non-road Mobile Machineries (NRMMs);
- Proper storage and handling of chemical;
- Appropriate desilting, oil interceptors or sedimentation devices provided on site for treatment before discharge;
- Onsite waste sorting and implementation of trip ticket system;
- Training of the site personnel in proper waste management and chemical waste handling procedures;
- Proper storage of the construction materials;
- Erection of decorative screen hoarding;
- Strictly following the Environmental Permits and Licenses;
- Provide sufficient mitigation measures as recommended in Approved EIA Reports

1.5 Status of Environmental Licences, Notifications and Permits

1.5.1 A summary of the relevant environmental licenses, permits and/or notifications on environmental protection for this Contract is presented in **Table 1.2**.

Table 1.2 Relevant Environmental Licenses, Permits and/or Notifications

Environmental License / Permit / Notification	Reference Number	Valid From	Valid Till
Environmental Permit	EP-337/2009 EP-339/2009/A EP-451/2013	23 April 2009 18 June 2009 19 September 2013	Not Applicable Not Applicable Not Applicable
Notification pursuant to Air Pollution (Construction Dust) Regulation	395601	4 December 2015	Not Applicable
Billing Account for Waste Disposal	A/C No.: 7023814	22 December 2015	Not Applicable
Billing Account for Waste Disposal (Vessel)	A/C No.: 7027469	9 August 2018	18 November 2018
Construction Noise Permit	GW-RE0395-18	5 June 2018	4 December 2018
Construction Noise Permit	GW-RE0489-18	14 July 2018	11 January 2019
Wastewater Discharge License	WT00023125-2015	6 January 2016	31 January 2021
Chemical Waste Producer License	5213-247-C1232-12	23 November 2015	Not Applicable

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2. AIR QUALITY

2.1 Monitoring Requirement

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 at least once every 6 days. In case of complaints, 1-hour TSP monitoring should be carried out at least 3 times per 6 days when the highest dust impacts are likely to occur. The Action and Limit Levels of the air quality monitoring are given in **Appendix C**.

2.2 Monitoring Equipment

The 24-hour TSP air quality monitoring was performed using High Volume Air Samplers (HVS) located at each of the designated monitoring station. Portable TSP Monitors would be used in case of complaints for 1-hour TSP monitoring.

Table 2.1 summarizes the equipment used in air quality monitoring.

Table 2.1 Air Quality Monitoring Equipment

Item	Location	Brand	Model	Equipment	Serial Number
1	KER1b	Tisch	TE-5170 (TSP)	High Volume Sampler	
			TE-300-310X	- Mass Flow Controller	2037
			TE-5005X	- Blower Motor Assembly	3482
			TE-5007X	- Mechanical Timer	4488
			TE-5009X	- Continuous Flow Recorder	4371
2	KTD1a	Tisch	TE-5170 (TSP)	High Volume Sampler	
			TE-300-310X	- Mass Flow Controller	2524
			TE-5005X	- Blower Motor Assembly	4037
			TE-5007X	- Mechanical Timer	5160
			TE-5009X	- Continuous Flow Recorder	4377
3	KTD2b	Tisch	TE-5170 (TSP)	High Volume Sampler	
			TE-300-310X	- Mass Flow Controller	2618
			TE-5005X	- Blower Motor Assembly	3838
			G3031	- Mechanical Timer	2251
			G1051	- Continuous Flow Recorder	2307
4		Tisch	TE-5025A	HVS Sampler Calibrator	438320/2456
5		*Sibata	Model LD-3B	Sibata Portable TSP Monitors	NA

Note:
No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted.

2.3 Monitoring Methodology

2.3.1 24-hour TSP air quality monitoring

HVS Installation

The following guidelines were adopted during the installation of HVS:

- Sufficient support is provided to secure the samplers against gusty wind.
- No two samplers are placed less than 2 meters apart.

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- The distance between the sampler and an obstacle, such as buildings, is at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2 meters of separation from walls, parapets and penthouses is required for rooftop samples.
- A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
- No furnaces or incineration flues are nearby.
- Airflow around the samplers is unrestricted.
- The samplers are 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

Fiberglass filters (provided by the HOKLAS accredited laboratory) shall be used (Note: these filters have a collection efficiency of larger than 99% for particles of 0.3 μm diameter). A HOKLAS accredited laboratory (ALS Technichem (HK) Pty Ltd.) is responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for monitoring team.

All filters are equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature is around 25°C and not variable by more than ±3°C; the relative humidity (RH) is < 50% and not variable by more than ±5%. A convenient working RH is 40%.

Operating / Analytical Procedures

Operating / analytical procedures for the air quality monitoring are highlighted as follows:

- Prior to the commencement of the dust sampling, the flow rate of the HVS are properly set (between 0.6 m^3/min and 1.7 m^3/min) in accordance with the EM&A manual. The flow rate shall be indicated on the flow rate chart.
- The power supply shall be checked to ensure the samplers worked properly.
- On sampling, the samplers shall be operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air quality monitoring station.
- The filter holding frame is then removed by loosening the four nuts and carefully a weighted and conditioned filter is centered with the stamped number upwards, on a supporting screen.
- The filter shall be aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame is tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The shelter lid shall be closed and secured with the aluminum strip.
- The timer is then programmed. Information shall be 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).
- After sampling, the filter shall be removed and sent to laboratory for weighing. The elapsed time is also recorded.
- Before weighing, all filters are equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature 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 are returned to MCL for further analysis of TSP concentrations collected by each filter.

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2.3.2 1-hour TSP air quality monitoring

Operating / Analytical Procedures

The measuring procedures of the 1-hr dust meter are in accordance with the Manufacturer's instruction Manual as follows:

- Pull up the air sampling inlet cover
- Change the Mode 0 to BG once
- Push Start/Stop switch once
- Turn the knob to SENSI.ADJ and press it
- Push Start/Stop switch once
- Return the knob to the position MEASURE slowly
- Push the timer set switch to set measuring time
- Remove the cap and make a measurement

2.4 Maintenance / Calibration

2.4.1 24-hour TSP air quality monitoring

The following maintenance / calibration are required for the HVS:

- The high volume motors and their accessories are properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking are made to ensure that the equipments and necessary power supply are in good working condition.
- All HVS shall be calibrated (five point calibration) using Calibration Kit upon installation and thereafter in every 3 months.
- A copy of the calibration certificates for the HVS and calibrator are provided in **Appendix D**.

2.4.2 1-hour TSP air quality monitoring

The portable TSP monitor should be calibrated at 1 year intervals

2.5 Monitoring Locations

2.5.1 According to the EM&A Manual, three air quality monitoring locations, namely KTD1, KTD2 and KER1, are covered by this Contract within the South Apron Area of Former Kai Tak Airport. The other two air quality monitoring locations, which are identified in Cha Kwo Ling area, are farther than 500m away from the site boundary and thus not covered by this Contract. The monitoring works in Cha Kwo Ling area are covered by other Contract(s) respectively.

2.5.2 According to the approved alternative baseline air quality and noise monitoring locations (EPD reference: () in EP2/K19/A/21 pt.5), the original monitoring locations (KTD1, KTD2 and KER1) are proposed to be replaced by alternative monitoring locations (KTD1a, KTD2a and KER1a) for air quality monitoring.

2.5.3 According to the approved relocation of monitoring location KER1a (EPD reference: () in EP2/K19/A/21 pt.5), the monitoring location KER1a are proposed to be relocated by alternative monitoring locations KER1b for air quality monitoring.

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2.5.4 According to the approved relocation of monitoring location KTD2a (EPD reference: () in EP2/K19/A/21 pt.6), the monitoring location KTD2a are proposed to be relocated by alternative monitoring locations KTD2b for air quality monitoring.

2.5.5 The most updated locations are summarized in **Table 2.2** and shown in **Figure 2**.

Table 2.2 Location of Air Quality Monitoring Station

Monitoring Station	Location
KTD1a	Centre of Excellence in Paediatrics (Children's Hospital)
KTD2b	G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital)
KER1b	Site Boundary at Cheung Yip Street

2.6 Results and Observations

2.6.1 The schedule of air quality monitoring in reporting month is provided in **Appendix E**. Power supply of high volume sampler at KER1b was suspended on 8 October 2018 due to the damage of the cable, TSP monitoring was resumed on 10 October 2018.

2.6.2 No Action / Limit Level exceedance was recorded for 24-hr TSP at KTD1a, KTD2b and KER1b in the reporting month.

2.6.3 No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted in the reporting month.

2.6.4 During the reporting month, major dust sources including loading and unloading of C&D wastes, vehicles movement were observed in the site. Non-project related construction activities at the nearby construction site and road traffic along Shing Cheong Road, Cheung Yip Street and the Kwun Tong By-pass were observed. The above factors may affect the monitoring results.

2.6.5 The weather conditions during the monitoring are provided in **Appendix K**.

2.6.6 The monitoring data of 24-hr TSP are summarized in **Table 2.3**. Detailed monitoring data are presented in **Appendix F**.

Table 2.3 Summary of 24-hr TSP Monitoring Results

Parameter	Monitoring Station	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
24-hr TSP in $\mu g/m^3$	KTD1a	58	36 - 81	177	260
	KTD2b	58	27 - 89	157	
	KER1b	66	33 - 143	172	

2.6.7 The Event and Action Plan for air quality is given in **Appendix H**.

2.7 Comparison of 24-hr TSP Monitoring Results with EIA Predictions

2.7.1 The monitoring data of 24-hr TSP was compared with the EIA predictions as summarized in **Table 2.4**.

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Table 2.4 Comparison of 24-hr TSP data with EIA predictions

Monitoring Station	Receiver Reference	Predicted Maximum 24-hour TSP Concentration ($\mu g/m^3$)	24-hour TSP concentration in October 2018 ($\mu g/m^3$)	Average 24-hour TSP concentration in October 2018 ($\mu g/m^3$)
KTD1a	KTD3	126	36 - 81	58
KTD2b	-	-	27 - 89	58
KER1b	KTD6	169	33 - 143	66

Note:
For KTD2b, there was no receiver reference in the EIA report, EIAR-174/2013.
Predicted Maximum TSP Concentration extracted from Table 4.14 of EIA Report, EIAR-174/2013.

2.7.2 The 24-hour TSP monitoring results at KTD1a, KTD2b and KER1b were below the Predicted Maximum 24-hr TSP concentration in the approved Environmental Impact Assessment (EIA) Report and no Action / Limit Level exceedance was recorded in the reporting period.

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3. NOISE

3.1 Monitoring Requirement

3.1.1 In accordance with the approved EM&A Manuals, Leq (30min) monitoring is conducted for at least once a week during the construction phase between 0700 and 1900 on normal weekdays at the designated monitoring locations.

3.2 Monitoring Equipment

3.2.1 The sound level meter used in noise monitoring will comply with the International Electrotechnical Commission Publication (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications as referred to in the Technical Memorandum issued under the Noise Control Ordinance (NCO).

3.2.2 Sound level calibrator will be used for the on-site calibration of the meter. This calibrator complies with the IEC Publication 942 (1988) Class 1 and ANSI S1.40 - 1984. Noise measurements were only accepted to be valid if the calibration levels from before and after the measurement agree to within 1.0dB.

3.2.3 Measurements shall be recorded to the nearest 0.1dB. Sound level meters are programmed to measure A-weighted equivalent continuous sound pressure level at 30-minute intervals between 0700 and 1900 on normal weekdays at least once a week when construction activities are underway.

Table 3.1 summarizes the noise monitoring equipment model being used for this project.

Table 3.1 Noise Monitoring Equipment

Item	Brand	Model	Equipment	Serial Number
1	Casella	CEL-63X Series	Integrating Sound Level Meter	3148029
2	Casella	CEL-63X Series	Integrating Sound Level Meter	3756127
3	Casella	CEL-63X Series	Integrating Sound Level Meter	0873599
4	Casella	CEL-120/1	Calibrator	5230758
5	Benetech	GM816	Wind Speed Anemometer	13372555
6	Testo	05600480	Wind Speed Anemometer	61003846

3.3 Monitoring Parameters and Frequency

Table 3.2 presents the noise monitoring parameters and frequencies.

Table 3.2 Monitoring Parameters and Frequencies of Noise Monitoring

Parameter	Frequency and Period
LAeq **(30min)** L10 and L90 will be recorded for reference	At each station at 0700-1900 hours on normal weekdays at a frequency of once a week

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3.4 Monitoring Methodology

3.4.1 The monitoring procedures are as follows:

- The monitoring station is set at a point 1m from the exterior of the sensitive receivers building façade and set at a position 1.2m above the ground.
- The battery condition is checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time are set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - measurement time : Weekly 30 minutes between 0700-1900 on normal weekdays
- Prior to and after noise measurement, the meter shall be 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 will be considered invalid and repeat of noise measurement is required after re-calibration or repair of the equipment.
- Noise monitoring should be 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 should be paused during periods of high intrusive noise if possible and observation shall be recorded when intrusive noise is not avoided.
- At the end of the monitoring period, the Leq, L10 and L90 are recorded. In addition, site conditions and noise sources are recorded on a standard record sheet.

3.5 Maintenance / Calibration

3.5.1 Maintenance and Calibration procedures are as follows:

- The microphone head of the sound level meter and calibrator should be cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator should be calibrated annually by a HOKLAS laboratory.
- Relevant calibration certificates are provided in **Appendix D**.

3.6 Monitoring Locations

3.6.1 According to the EM&A Manual, three noise monitoring locations, namely KTD1, KTD2 and KER1, are covered by this Contract within the South Apron Area of Former Kai Tak Airport. The other two noise monitoring locations, which are identified in Cha Kwo Ling area, are farther than 300m away from the site boundary and thus not covered by this Contract. The monitoring works in Cha Kwo Ling area are covered by other Contract(s) respectively.

3.6.2 According to the approved alternative baseline air quality and noise monitoring locations (EPD reference: () in EP2/K19/A/21 pt.5), the original monitoring locations (KTD1, KTD2 and KER1) are proposed to be replaced by alternative monitoring locations (KTD1a, KTD2a and KER1a) for noise monitoring.

3.6.3 According to the approved relocation of monitoring location KER1a (EPD reference: () in EP2/K19/A/21 pt.5), the monitoring location KER1a are proposed to be relocated by alternative monitoring locations KER1b for noise monitoring.

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3.6.4 According to the approved relocation of monitoring location KTD2a (EPD reference: () in EP2/K19/A/21 pt.6), the monitoring location KTD2a are proposed to be relocated by alternative monitoring locations KTD2b for noise monitoring.

3.6.5 The most updated locations are summarized in **Table 3.3** and shown in **Figure 2**.

Table 3.3 Location of Noise Monitoring Station

Monitoring Station	Location
KTD1a	Centre of Excellence in Paediatrics (Children's Hospital)
KTD2b	G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital)
KER1b	Site Boundary at Cheung Yip Street

3.7 Results and Observations

3.7.1 The schedule of noise monitoring in reporting month is provided in **Appendix E**.

3.7.2 During the monitoring month, at KTD1a, project related construction activities and road traffic along Shing Cheong Road were observed in the surroundings. At KTD2b, road traffic along the Kwun Tong By-pass and non-project related construction activities at the nearby construction site was observed. At KER1b, road traffic along Cheung Yip Street was observed. Major noise sources including noise emission from plant & PME and some other construction activities, travel of vehicles, loading and unloading of C&D waste were observed in the site. The above factors may affect the monitoring results.

3.7.3 No raining and wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation. The weather conditions during the monitoring month are provided in **Appendix K**.

3.7.4 The noise monitoring data are summarized in **Table 3.4**. Detailed monitoring data are presented in **Appendix G**.

Table 3.4 Summary of Noise Impact Monitoring Results

Time Period	Leq $_{(30min)}$ dB(A) (Range)			Action Level	Limit Level
	Noise Monitoring Stations				
	KTD1a	KTD2b	KER1b		
0700-1900 hrs on normal weekdays	65 - 74	63 - 72	64 - 71	When one documented complaint is received	75 dB(A)

Note:
KTD1a: Façade Measurement
KTD2b & KER1b: Free-field measurement (+3dB(A) correction has been applied)

3.7.5 No Action / Limit Level exceedance of location KTD1a, KTD2b and KER1b was recorded for construction noise in the reporting month.

3.7.6 The Action and Limit Levels for noise impact monitoring have been set and are presented in **Appendix C**.

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3.7.7 The Event and Action Plan for noise is given in **Appendix H**.

3.8 Comparison of Noise Monitoring Results with EIA Predictions

3.8.1 The noise monitoring data was compared with the EIA predictions as summarized in **Table 3.5**.

Table 3.5 Comparison of Noise Monitoring data with EIA predictions

Monitoring Station	Receiver Reference	Maximum Predicted Mitigated Construction Noise Level, dB(A)	Maximum Leq $_{(30min)}$ dB(A) In October 2018
KTD1a	KTD1	74	74
KTD2b	KTD2	75	72
KER1b	KER1	75	71

Note:
Maximum Predicted Mitigated Construction Noise Level extracted from Table 5.13 of EIA Report, EIAR-174/2013.

3.8.2 The impact noise monitoring results of location KTD1a, KTD2b and KER1b in the reporting month did not exceed the Maximum Predicted Mitigated Construction Noise Level in the approved Environmental Impact Assessment (EIA) Report and no Action / Limit Level exceedance was recorded in the reporting period.

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4. LANDSCAPE AND VISUAL

4.1 Audit Requirements

4.1.1 As per the Trunk Road T2 EM&A Manual, the landscape and visual mitigation measures during the construction phase shall be audited by a Registered Landscape Architect, as a member of the Environmental Team, at least once every two weeks to ensure compliance with the intended aims of the measures.

4.1.2 According to the Kai Tak Development EM&A Manual, measures to mitigate landscape and visual impacts during construction should be checked to ensure compliance with the intended aims of the measures. The progress of the engineering works shall be regularly reviewed onsite to identify the earliest practical opportunities for the landscape works to be undertaken. The ET shall report on the Contractor's compliance on a weekly basis.

4.2 Results and Observations

4.2.1 To monitor and audit the implementation of landscape and visual mitigation measures, five weekly Landscape and Visual Site audits were carried out on 3, 10, 16, 24 and 31 October 2018 and two of them 10 and 24 October 2018 were carried out by a Registered Landscape Architect. The weekly Landscape and Visual Impact reports were counter-signed by IEC as according to the requirement of EM&A Manual (AEIAR-130/2009).

4.2.2 Should non-compliance of the landscape and visual impact occur, action in accordance to the event action plan presented in **Appendix H** shall be carried out.

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5. WASTE MANAGEMENT

5.1 Audit Requirements

5.1.1 The effective management of waste arising during the construction phase will be monitored through the site audit programme. Regular audits and site inspections should be carried out to ensure that the recommended good site practices and other mitigation measures are implemented by the Contractor.

5.1.2 The audit should look at all aspects of on-site waste management practices including the waste generation, storage, recycling, transport and disposal. The aims of waste audit are:

- to ensure the waste arising from the works are handled, stored, collected, transferred and disposed of in an environmentally acceptable manner;
- verify the implementation status and evaluate the effectiveness of the mitigation measures; and
- to encourage the reuse and recycling of material.

5.2 Results and Observations

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

5.2.2 The amount of wastes generated by the site activities in the reporting month is shown in **Appendix I**.

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6. SITE INSPECTION

6.1 Site Inspection

6.1.1 Site inspections were carried out weekly to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix J**.

6.1.2 In the reporting month, five site inspections were carried out on 3, 10, 16, 24 and 31 October 2018. Two of them, held on 3 and 24 October 2018 was the joint inspections with the IEC, ER, the Contractor and the ET.

6.1.3 No outstanding issues were reported during the reporting month. Details of observations recorded during the site inspections are summarized in **Appendix M**.

6.1.4 All the follow-up actions requested by Contractor's ET and IEC during the site inspections were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting month.

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7. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

7.1 Environmental Exceedance

7.1.1 No Action / Limit Level exceedance was recorded for 24-hr TSP and construction noise at KTD1a, KTD2b and KER1b in the reporting month.

7.2 Complaints, Notification of Summons and Prosecution

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

7.2.2 Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix L.**

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8. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

8.1 Implementation Status

8.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and the EM&A Manuals. The implementation status of the mitigation measures during the reporting month is summarized in **Appendix J**. Status of required submission under the EP during the reporting period is summarized in **Table 8.1**.

Table 8.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
EP-337/2009		
Condition 2.3	Management Organization of Main Construction Companies	18/12/2015
Condition 2.4	Design Drawing of the Project	18/12/2015
Condition 2.11	Landscape Mitigation Plan(s)	18/12/2015
Condition 3.3	Monthly EM&A Report (September 2018)	12/10/2018
EP-339/2009/A		
Condition 2.4	Management Organization of Main Construction Companies	18/12/2015
Condition 2.5	Design Drawing of the Project	18/12/2015
Condition 3.3	Monthly EM&A Report (September 2018)	12/10/2018
EP-451/2013		
Condition 2.3	Management Organization of Main Construction Companies	18/12/2015
Condition 2.4	Design Drawing of the Project	18/12/2015
Condition 2.5	Landscape Mitigation Plan(s)	18/12/2015
Condition 2.10	Supplementary Contamination Assessment Report	18/12/2015
Condition 3.3	Baseline Monitoring Report	12/02/2016
Condition 3.4	Monthly EM&A Report (September 2018)	12/10/2018

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9. FUTURE KEY ISSUES

9.1 Construction Programme for the Next Two Months

- Installation of sheet pile for drainage works;
- Excavation and laying of drainage pipe and manhole;
- Construction of road base and road pavement;
- Construction of Supporting Underground Structure;
- Construction of socketed H-Pile; and
- Excavation and ELS construction;
- Construction of District Cooling System.

9.2 Key Issues for the Coming Month

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

9.3 Monitoring Schedules for the Next Three Months

9.3.1 The tentative schedules for environmental monitoring in the coming three months are provided in **Appendix E**.

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10. CONCLUSIONS

10.1.1 24-hour TSP impact monitoring and construction noise monitoring were carried out in the reporting month, no Action / Limit Level exceedance was recorded during the period.

10.1.2 No complaint of air quality was received. Therefore, no impact 1-hour TSP monitoring was conducted in the reporting month.

10.1.3 Five environmental site inspections were carried out in the reporting month. Recommendations on mitigation measures on air quality, chemical and waste management and landscape and visual impact were given to the Contractor for remediating the deficiencies identified during the site inspections.

10.1.4 Five weekly Landscape and Visual Site audits were carried out on 3, 10, 16, 24 and 31 October 2018 and two of them, 10 and 24 October 2018 were carried out by a Registered Landscape Architect in the reporting month. The weekly Landscape and Visual Impact reports were counter-signed by IEC as according to the requirement of EM&A Manual (AEIAR-130/2009).

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

10.2 Comment and Recommendations

10.2.1 The recommended environmental mitigation measures, as proposed in the EIA reports and EM&A Manuals shall be effectively implemented to minimize the potential environmental impacts from the Project. The EM&A programme would effectively monitor the environmental impacts generated from the construction activities and ensure the proper implementation of mitigation measures.

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

Air Quality Impact
- Backfilling materials should be properly covered.

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 and Waste Management
- Chemical containers should be placed in drip tray.

Land Contamination
- No specific observation was identified in the reporting month.

Landscape and Visual Impact
- Backfilling materials should be properly covered.

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General Condition

- No specific observation was identified in the reporting month.

Permit / Licenses

- No specific observation was identified in the reporting month.

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Figure 1

Project General Layout

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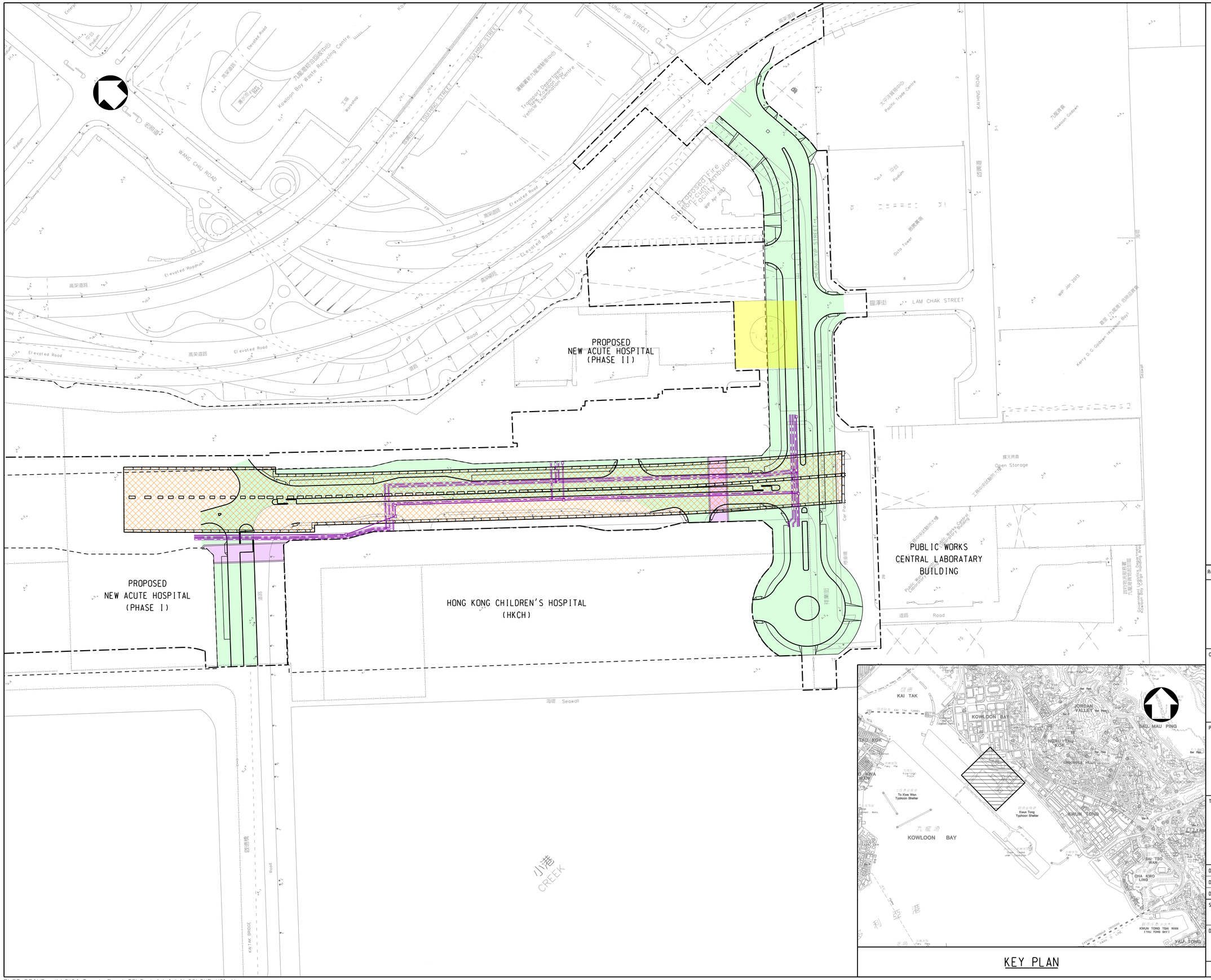

LEGENDS:

- SITE BOUNDARY
- HOSPITAL SITE BOUNDARY
- PROPOSED SUPPORTING UNDERGROUND STRUCTURE
- PROPOSED SUBWAYS
- PROPOSED ROADWORKS
- PROPOSED DISTRICT COOLING SYSTEM
- DEMOLITION OF RADAR TOWER

Rev.	Date	Drawn	Description	Checked	Approved

Hyder MEINHARDT
Hyder-Meinhardt JV

CLIENT

CEDD 土木工程拓展署
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

PROJECT

CONTRACT NO. KL/2014/03
KAI TAK DEVELOPMENT - STAGE 3
INFRASTRUCTURE WORKS FOR DEVELOPMENTS AT THE SOUTHERN PART OF THE FORMER RUNWAY

TITLE

GENERAL LAYOUT PLAN

DESIGNED			ENG. CHECK		
DRAWN			COORDINATION		
DWG. CHECK			APPROVED		

SCALE AT A1	STATUS	REV
1 : 1000		A

Drawing No.

FIGURE 1.0

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KEY PLAN

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Figure 2

Air and Noise Monitoring Locations

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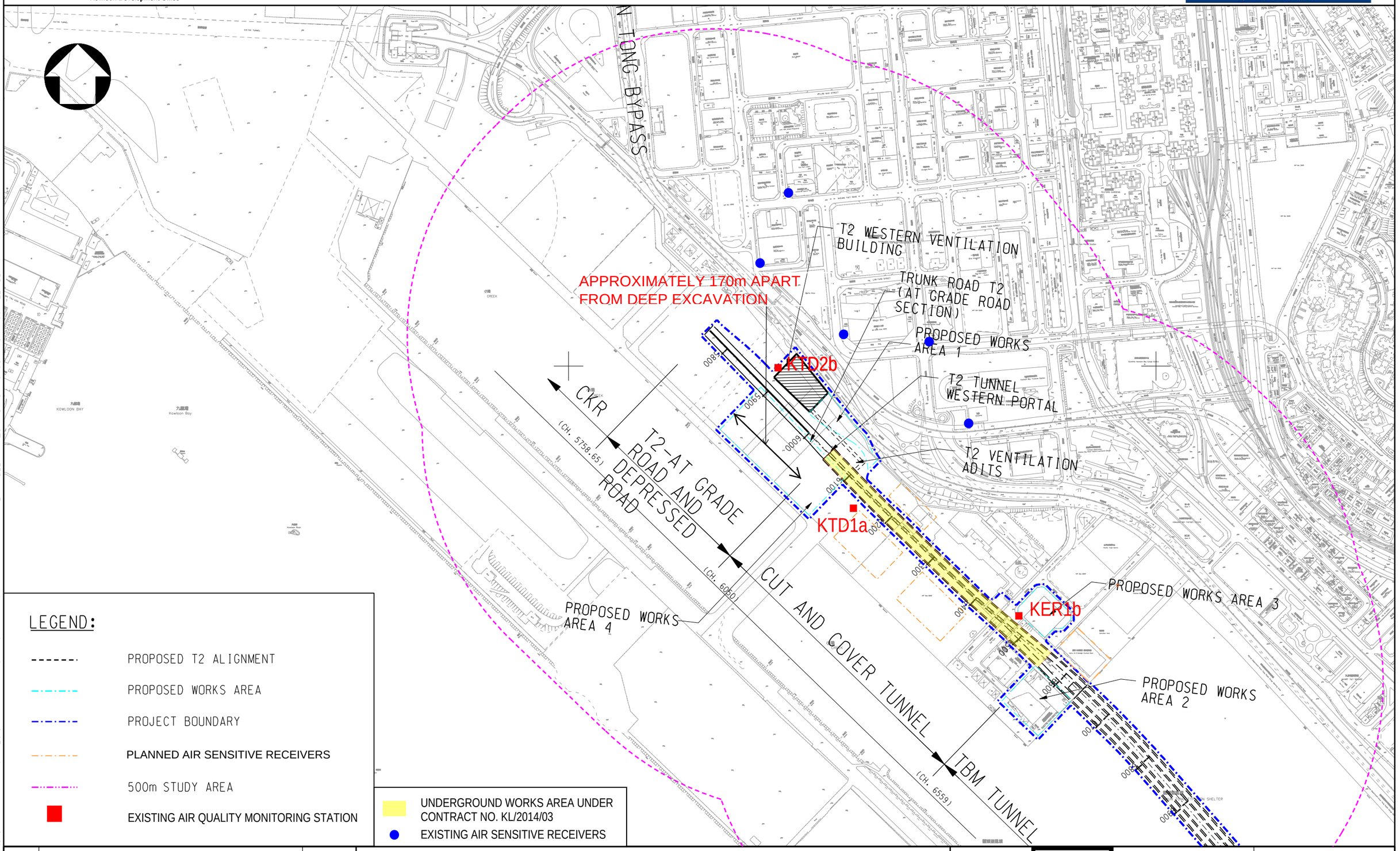
Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

Hyder-Meinhardt JV



LEGEND:

- PROPOSED T2 ALIGNMENT
- PROPOSED WORKS AREA
- PROJECT BOUNDARY
- PLANNED AIR SENSITIVE RECEIVERS
- 500m STUDY AREA
- EXISTING AIR QUALITY MONITORING STATION
- UNDERGROUND WORKS AREA UNDER CONTRACT NO. KL/2014/03
- EXISTING AIR SENSITIVE RECEIVERS

Rev.	Description	Date

Drawing title

IDENTIFIED DUST MONITORING STATIONS AT SOUTH APRON OF FORMER KAI TAK AIRPORT

Original Size: A3

Scale: 1 : 6000 | Date: 30/01/2012

File name

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Drawing No.: FIGURE 2.1a (revised)

Rev.: --

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Civil Engineering and Development Department
九龍拓展處
Kowloon Development Office

AGREEMENT NO. CE 38/2008(HY)
KAI TAK DEVELOPMENT - TRUNK ROAD T2 AND INFRASTRUCTURE AT SOUTH APRON - INVESTIGATION, DESIGN AND CONSTRUCTION

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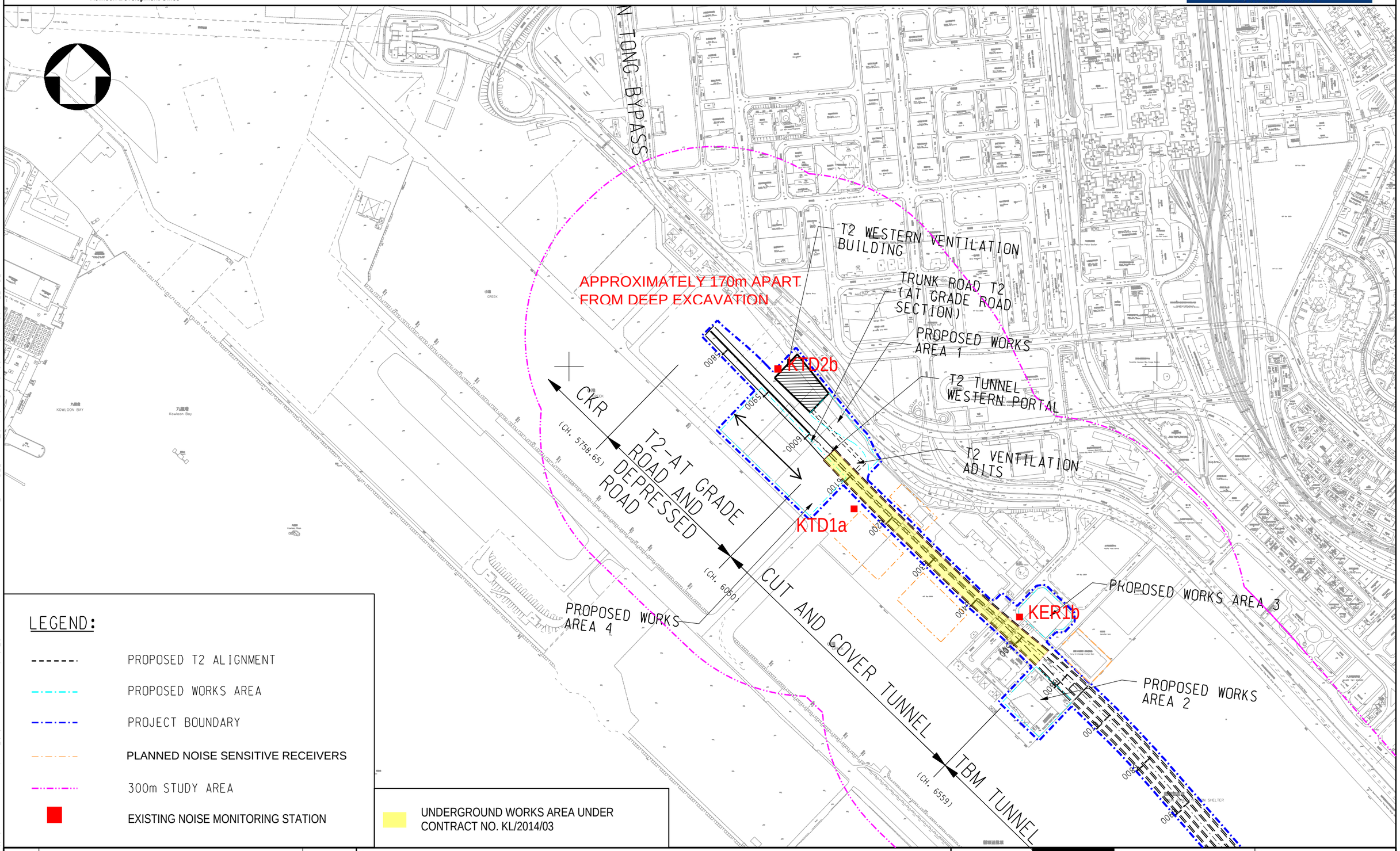

LEGEND:

- PROPOSED T2 ALIGNMENT
- PROPOSED WORKS AREA
- PROJECT BOUNDARY
- PLANNED NOISE SENSITIVE RECEIVERS
- 300m STUDY AREA
- EXISTING NOISE MONITORING STATION
- UNDERGROUND WORKS AREA UNDER CONTRACT NO. KL/2014/03

Rev.	Description	Date

Drawing title

IDENTIFIED NOISE MONITORING STATIONS AT SOUTH APRON OF FORMER KAI TAK AIRPORT

Original Size: A3
Scale: 1 : 6000
Date: 30/01/2012
File name:
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Rev.: --

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Appendix A

Construction Programme

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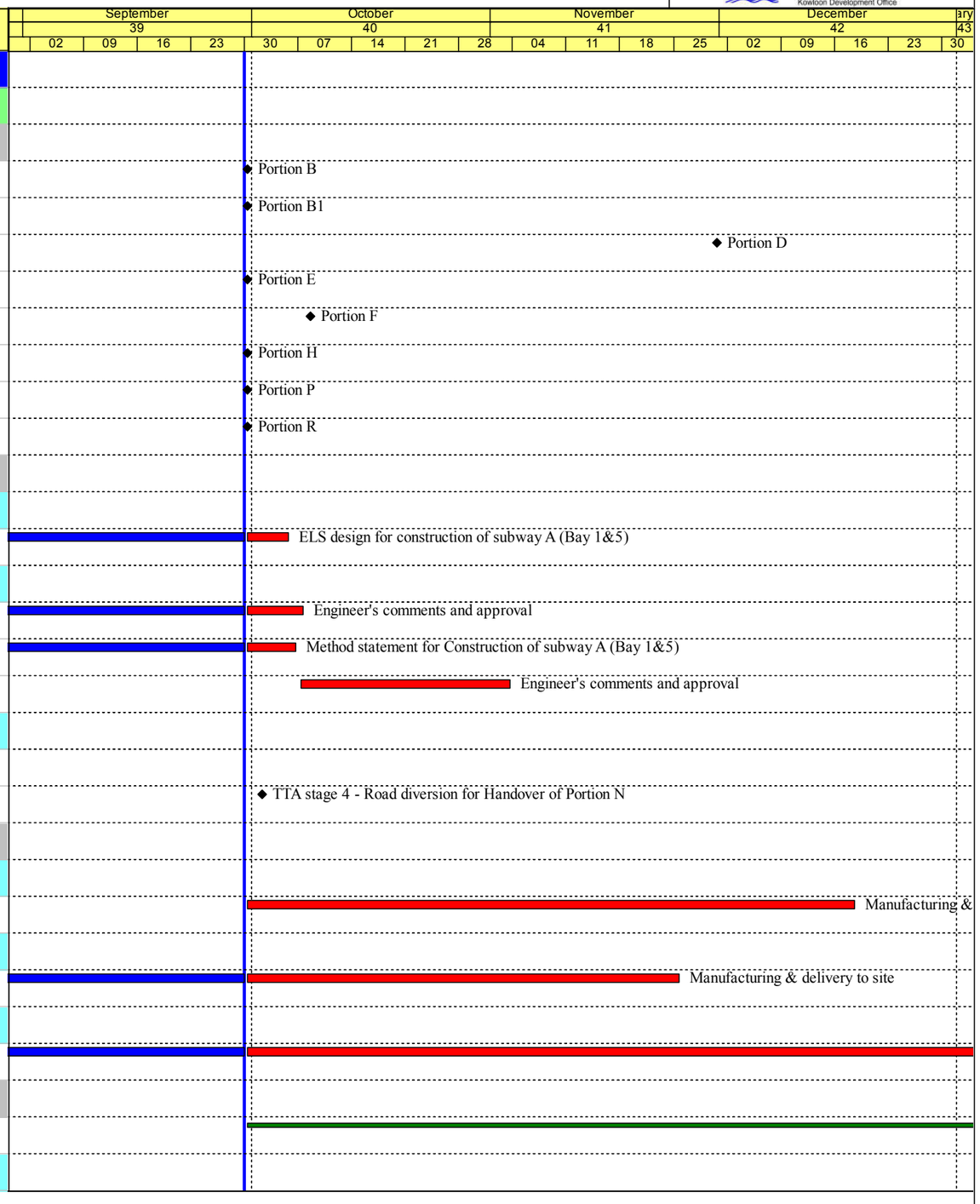
KL/2014/03 Kai Tak Development - Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

CEDD 土木工程拓展署 Civil Engineering and Development Department 九龍拓展處 Kowloon Development Office

Activity ID	Activity Name	Rem Dur	Start	Finish
SUS updated + SCR for SUS calendar days Zone 3 stage 2 Time Compression delete Section 1 CSR				
Project Key Dates				
Site Handover Date				
K-PK-SHD-1100	Portion B	0		30-Sep-18*
K-PK-SHD-1200	Portion B1	0		30-Sep-18*
K-PK-SHD-1400	Portion D	0		30-Nov-18*
K-PK-SHD-1500	Portion E	0		30-Sep-18*
K-PK-SHD-1600	Portion F	0		08-Oct-18*
K-PK-SHD-1700	Portion H	0		30-Sep-18*
K-PK-SHD-2300	Portion P	0		30-Sep-18*
K-PK-SHD-2500	Portion R	0		30-Sep-18*
General Submission				
Major Temporary Works Design				
K-PA-GSP-6840	ELS design for construction of subway A (Bay 1&5)	6	28-Feb-18 A	05-Oct-18
Major Construction Works Method Statement				
K-PA-GSP-7455	Engineer's comments and approval	8	23-Oct-17 A	07-Oct-18
K-PA-GSP-7460	Method statement for Construction of subway A (Bay 1&5)	7	16-Aug-18 A	06-Oct-18
K-PA-GSP-7465	Engineer's comments and approval	28	07-Oct-18	03-Nov-18
Temporary Traffic Management				
Implementation of Temporary Traffic Arrangement				
K-PA-TTA-4400	TTA stage 4 - Road diversion for Handover of Portion N	0		02-Oct-18
Materials Procurement (Major Materials)				
Water Works				
K-PA-MP-1050	Manufacturing & delivery to site	80	30-Sep-18	18-Dec-18
ELS struct / waling				
K-PA-MP-1150	Manufacturing & delivery to site	57	10-Jun-16 A	25-Nov-18
Chilled Water Pipes - DCS				
K-PA-MP-1350	Manufacturing & delivery to site	155	06-Feb-17 A	03-Mar-19
Preliminaries				
K-DR-PRE-1800	Submission of time-lapsed photographs and video	453	20-Feb-16 A	27-Dec-19
Barge Loading Facilities				



中國路橋工程有限責任公司 CHINA ROAD AND BRIDGE CORPORATION

◆ Milestone
Critical Activity
Non-Critical Activity
Remaining Level of Effort
Actual Work

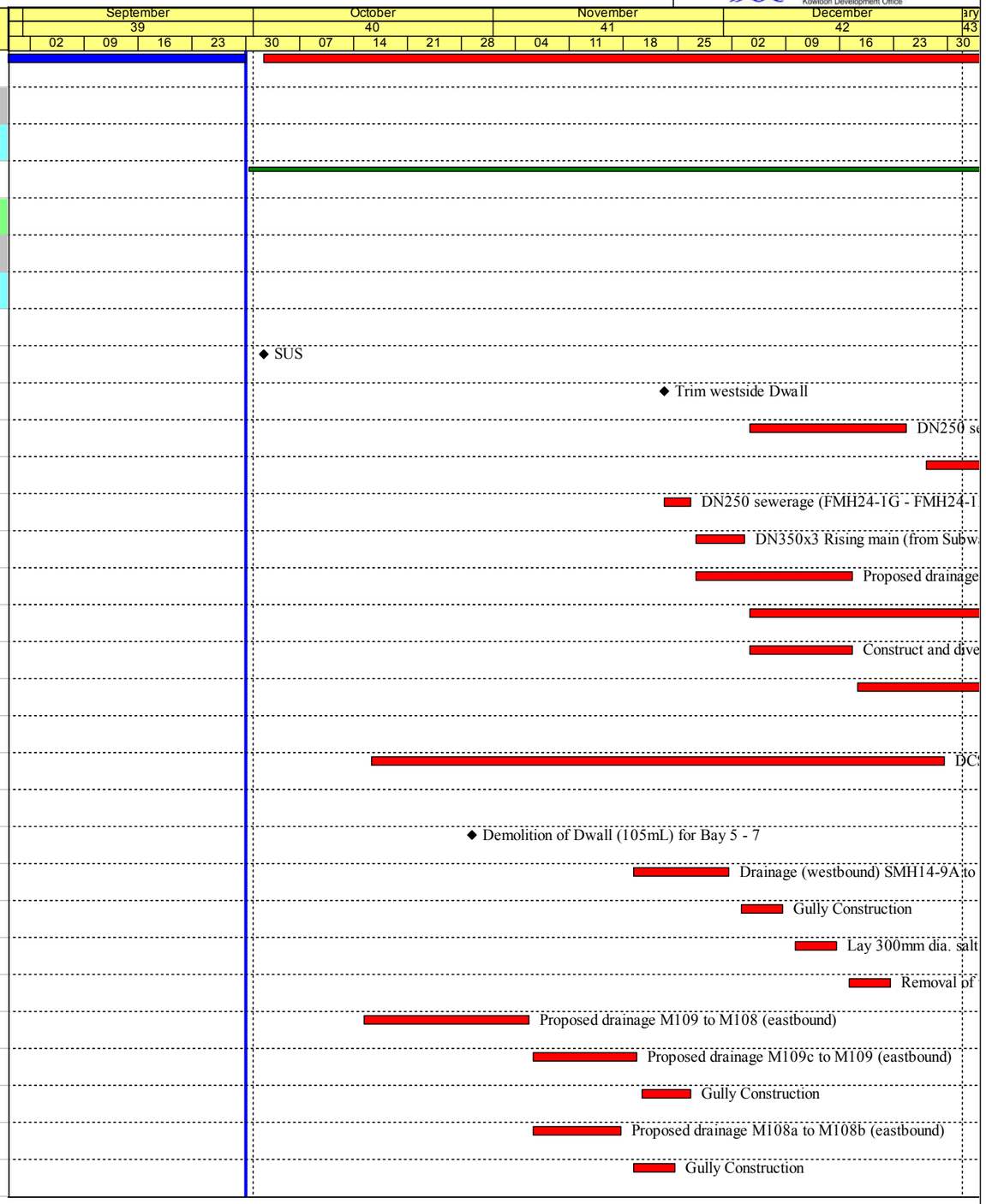
3 MRP Oct 2018 - Dec 2018

Project ID :39 3MRP Oct - Dec 18
Layout : KL201403 3MRP

3 Months Rolling Programme

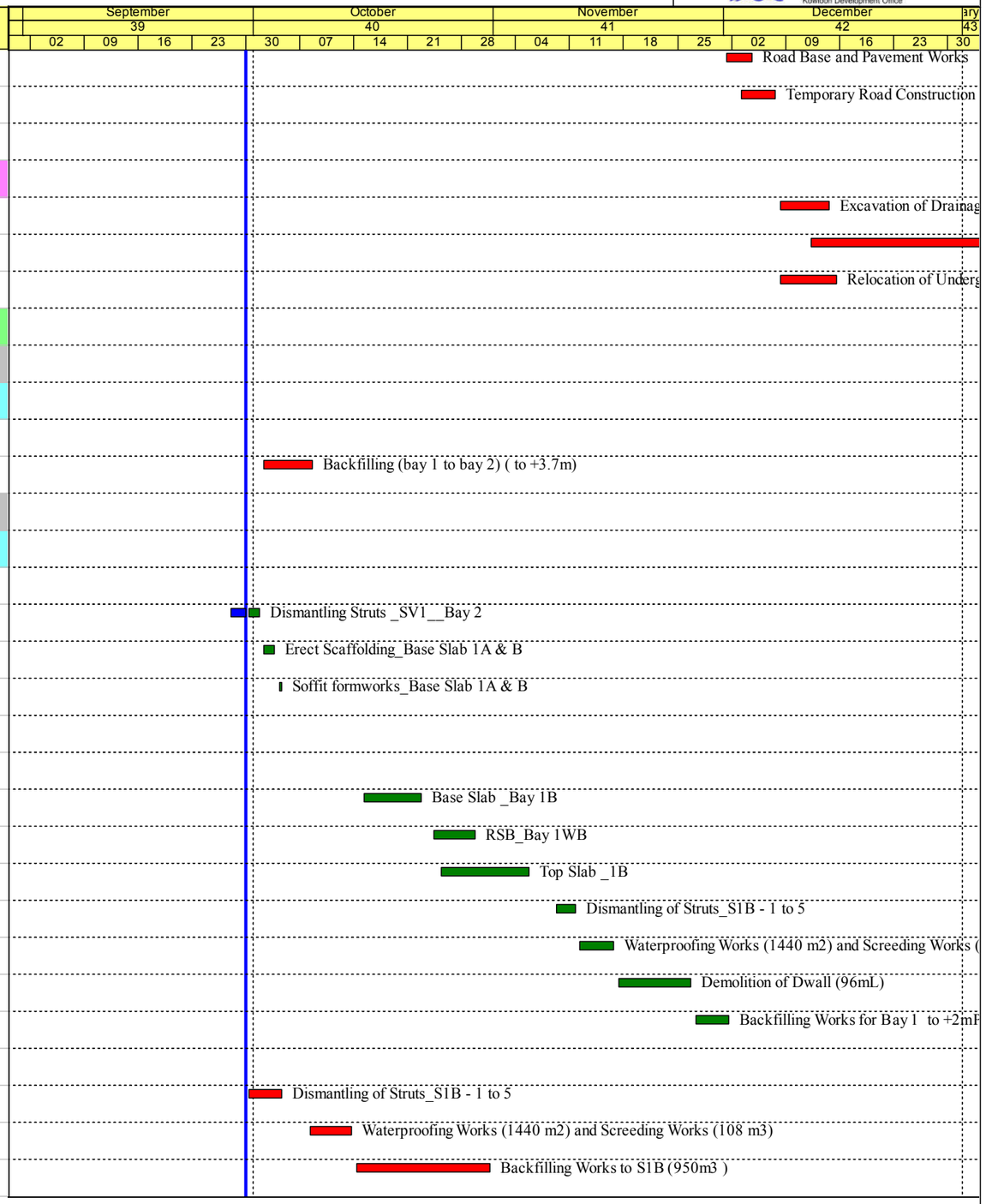
Date	Revision	Checked	Approved
30-Sep-18	Oct18 - Dec 18		

Activity ID	Activity Name	Rem Dur	Start	Finish
K-DR-PRE-1480	Operation of temporary barging point	80	21-Jun-17 A	07-Jan-19
Instrumentation and Monitoring				
Tilt Monitoring Tile Plates				
K-IM-TMT-1000	Tilt Monitoring near PWCL	136	25-Apr-16 A	12-Feb-19
Section 1 of the Works-Remainder of the Works				
Roadwork and Drainage Works				
Road D4-3 (Ching Shung Road)				
Zone 2 R & D Works (Stage 1) CH410-CH340				
SCR1000	SUS	0	02-Oct-18*	
SCR1020	Trim westside Dwall	0		23-Nov-18
SCR1040	DN250 sewerage (HKCH - FMH24-1E - FMH24-1G)	18	04-Dec-18*	24-Dec-18
SCR1050	Proposed drainage (westbound) SMH14-13 to M111c	18	27-Dec-18*	17-Jan-19
SCR1120	DN250 sewerage (FMH24-1G - FMH24-1F)	3	23-Nov-18*	26-Nov-18
SCR1130	DN350x3 Rising main (from Subway B - FMH24-1B) phase 1 near EB Dwall	6	27-Nov-18*	03-Dec-18
SCR1140	Proposed drainage M112 to M110 (eastbound)	18	27-Nov-18*	17-Dec-18
SCR1150	Lay fresh watermain (eastbound)	24	04-Dec-18*	03-Jan-19
SCR1210	Construct and divert temporary footpath	12	04-Dec-18*	17-Dec-18
SCR1220	Sewerage (from FMH24-1F - FMH24-1B - FMH24-1C)	48	18-Dec-18	18-Feb-19
Shing Fung Road R & D Works (Stage 1)				
SCR1260	DCS at Zone 2 Bay 1 (CH20 - CH35)	62	16-Oct-18*	29-Dec-18
Zone 3 R & D Works (Stage 1) CH340 to CH270 - For shifting of gate no. 1				
SCR1490	Demolition of Dwall (105mL) for Bay 5 - 7	0		29-Oct-18
SCR1510	Drainage (westbound) SMH14-9A to SMH14-8	12	19-Nov-18*	01-Dec-18
SCR1520	Gully Construction	6	03-Dec-18*	08-Dec-18
SCR1530	Lay 300mm dia. salt watermain (westbound)	6	10-Dec-18*	15-Dec-18
SCR1540	Removal of temporary crane platform	6	17-Dec-18*	22-Dec-18
SCR1550	Proposed drainage M109 to M108 (eastbound)	18	15-Oct-18*	05-Nov-18
SCR1560	Proposed drainage M109c to M109 (eastbound)	12	06-Nov-18*	19-Nov-18
SCR1570	Gully Construction	6	20-Nov-18*	26-Nov-18
SCR1580	Proposed drainage M108a to M108b (eastbound)	11	06-Nov-18*	17-Nov-18
SCR1590	Gully Construction	6	19-Nov-18*	24-Nov-18



Activity ID	Activity Name	Rem Dur	Start	Finish
SCR1600	Lay 600mm dia. fresh watermain (eastbound)	6	26-Nov-18*	01-Dec-18
SCR1610	Construct temporary access road (permanent pavement) to gate no. 1 and divert access road	30	17-Dec-18*	23-Jan-19
Zone 3 R & D Works (Stage 2) CH270 to 190				
SCR1730	Demolition of Dwall (110mL) for Bay 8 - 10	0		20-Dec-18
SCR1780	Proposed drainage M107 to M108 (eastbound)	16	20-Dec-18	10-Jan-19
Zone 4 SUS				
SCR1880	Dismantling of Struts_S3 - 1 to 10 for Subway A	0		03-Dec-18
SCR1890	Backfill to level approx. -2.3 mPD for DCS	33	03-Dec-18	12-Jan-19
Cheung Yip Street Cul de Sac				
SCR2182	Storm drainage M103 to M105/M104 to M201/M104a to M104	48	20-Nov-18*	17-Jan-19
SCR2183	Trim formation, lay subbase and kerb (half of cul de sac)	18	20-Nov-18	10-Dec-18
SCR2185	Lay bituminous pavement	18	11-Dec-18	03-Jan-19
Road D4-4 (Cheung Yip Street)				
CH220 - CH420 Southbound				
Part 1				
Sewerage Works				
K-01-RWS-9472	Laying Sewerage Pipe and Construction of FMH23-16A /FMH23-17A (Part 2)	0	30-Aug-18 A	03-Sep-18 A
K-01-RWS-9473	Backfilling Sewerage Pipe and FMH23-16A /FMH23-17A (Part 2)	0	04-Sep-18 A	10-Sep-18 A
K-01-RWS-9475	Laying Sewerage Pipe aFMH23-15A (Part 2)	12	02-Oct-18	15-Oct-18
K-01-RWS-9476	Backfilling Sewerage Pipe FMH23-15A (Part 2)	12	16-Oct-18	30-Oct-18
K-01-RWS-9477	Relocation of Underground Utilities under Center Median	7	31-Oct-18	07-Nov-18
Laying of Drainage Pipe and Construction of Manhole (M301 to M306)				
K-01-RWS-9485	Excavation of Drainage Pipe and Manhole (M301 to M306)	6	01-Sep-18 A	08-Oct-18
K-01-RWS-9490	Laying Drainage Pipe and Construction of Manhole (M301 to M306)	15	11-Sep-18 A	19-Oct-18
K-01-RWS-9500	Backfilling Drainage Pipe and Manhole (M301 to M306)	12	20-Oct-18	02-Nov-18
K-01-RWS-9502	Construction of Gully and other drainage works along M301 to M306	10	08-Nov-18	19-Nov-18
Water Works				
K-01-RWS-9580	Laying of Fresh Watermain Pipe	5	20-Nov-18	24-Nov-18
K-01-RWS-9604	Laying of Salt Watermain Pipe	5	20-Nov-18	24-Nov-18
Road Works				
K-01-RWS-1075	Construction of Subgrade Works and Subbase Works	5	26-Nov-18	30-Nov-18

Activity ID	Activity Name	Rem Dur	Start	Finish
K-01-RWS-1076	Road Base and Pavement Works	3	01-Dec-18	04-Dec-18
K-01-RWS-1077	Temporary Road Construction for TTA stage 3 - phase 2	5	03-Dec-18	07-Dec-18
Part 2				
Laying of Drainage Pipe and Construction of Manhole (SMH4048691, SHM4048692 and M401)				
K-01-RWS-1052	Excavation of Drainage Pipe and Manhole (SMH4048691-92)	6	08-Dec-18	14-Dec-18
K-01-RWS-1052	Laying Drainage Pipe and Construction Manhole (SMH4048691-92)	18	12-Dec-18	04-Jan-19
K-01-RWS-1095	Relocation of Underground Utilities under Center Median	7	08-Dec-18	15-Dec-18
Section 1A of the Works -Construction of Supporting Underground Structure				
SUS and Ventilation Adits from CH6+150 to CH6+220 in Zone 1				
Construction of Tunnel Box Structure				
Backfilling Works				
K-1A-SV1-6900	Backfilling (bay 1 to bay 2) (to +3.7m)	6	02-Oct-18	08-Oct-18
SUS and Ventilation Adits from CH6+220 to CH6+291 in Zone 2				
Construction of SUS Structure at Zone 2				
VA2				
A1610	Dismantling Struts _SV1__Bay 2	2	28-Sep-18 A	01-Oct-18
A1620	Erect Scaffolding_Base Slab 1A & B	2	02-Oct-18	03-Oct-18
A1630	Soffit formworks_Base Slab 1A & B	1	04-Oct-18	04-Oct-18
Scaffolding / Falseworks				
Bay 1				
A1642	Base Slab _Bay 1B	8	15-Oct-18	22-Oct-18
A1668	RSB_Bay 1WB	6	24-Oct-18	29-Oct-18
A1710	Top Slab _1B	12	25-Oct-18	05-Nov-18
A2500	Dismantling of Struts_S1B - 1 to 5	3	09-Nov-18	11-Nov-18
A2510	Waterproofing Works (1440 m2) and Screeding Works (108 m3)	5	12-Nov-18	16-Nov-18
A2520	Demolition of Dwall (96mL)	10	17-Nov-18	26-Nov-18
A2530	Backfilling Works for Bay 1 to +2mPD (950m3)	5	27-Nov-18	01-Dec-18
Bay 2				
A2540	Dismantling of Struts_S1B - 1 to 5	5	30-Sep-18	04-Oct-18
A2550	Waterproofing Works (1440 m2) and Screeding Works (108 m3)	6	08-Oct-18	13-Oct-18
A2552	Backfilling Works to S1B (950m3)	18	14-Oct-18	31-Oct-18



Activity ID	Activity Name	Rem Dur	Start	Finish
A2555	Dismantling of Struts_S1B - 6 to 9, S1A - 1 to 6	7	01-Nov-18	07-Nov-18
A2560	Demolition of Dwall (142mL)	15	08-Nov-18	22-Nov-18
SUS Structure from CH6+291 to 6+467 in Zone 3				
Construction of SUS Structure at Zone 3				
System Formworks - SUS Construction Works at Zone 3				
Bay 5 to 7				
A2570	Dismantling of Struts_S4 - 1 to 7	0	03-Sep-18 A	10-Sep-18 A
A2580	Waterproofing Works (1440 m2) and Screeding Works (105 m3)	0	20-Sep-18 A	23-Sep-18 A
A2590	Backfilling Works to S1A (6850m3)	12	29-Sep-18 A	11-Oct-18
A2600	Dismantling of Struts_S1A - 7 to 12	6	12-Oct-18	17-Oct-18
A2610	Demolition of Dwall (105mL)	11	18-Oct-18	28-Oct-18
Bay 8 to 10				
A2240	Top slab_SF_Bay 9	8	15-Sep-18 A	07-Oct-18
A2290	Top slab_SF_Bay 10	16	05-Oct-18	20-Oct-18
A2620	Dismantling of Struts_S4 - 8 to 12 for Bay 8 and Bay9	5	11-Oct-18	15-Oct-18
A2625	Dismantling of Struts_S4 - 13 to 15 for Bay 10	3	24-Oct-18	26-Oct-18
A2630	Waterproofing Works (1540 m2)	13	17-Oct-18	29-Oct-18
A2635	Screeding Works (115 m3)	2	30-Oct-18	31-Oct-18
A2640	Backfilling Works to S2A (6850m3) @400m3 (A)	18	26-Oct-18	12-Nov-18
A2645	Dismantling of Struts_S2A - 1 to 8	7	13-Nov-18	19-Nov-18
A2649	Backfilling Works to S1 (6350m3) @400m3 (B)	16	20-Nov-18	05-Dec-18
A2650	Dismantling of Struts_S1 - 1 to 7	7	05-Dec-18	11-Dec-18
A2660	Demolition of Dwall (110mL)	11	09-Dec-18	19-Dec-18
SUS Structure from CH6+467 to 6+568 in Zone 4				
System Works - Construction of SUS Structure at Zone 4				
Bay 11 to 13 (Top Slab)				
A2340	Top slab_SF_Bay 11	0	10-Sep-18 A	24-Sep-18 A
A2370	Wall_Bay 12	0	05-Sep-18 A	13-Sep-18 A
A2390	Top slab_SF_Bay 12	0	20-Sep-18 A	30-Sep-18 A
A2420	Wall_Bay 13	0	15-Sep-18 A	27-Sep-18 A
A2670	Top slab_SF_Bay 13	13	30-Sep-18 A	12-Oct-18

Hyder - Meinhardt JV

KL/2014/03 Kai Tak Development - Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

CEDD 土木工程拓展署 Civil Engineering and Development Department 九龍拓展處 Kowloon Development Office

Activity ID	Activity Name	Rem Dur	Start	Finish
A2680	Dismantling of Struts_S4 - 16 to 25	10	15-Oct-18	24-Oct-18
A2700	Waterproofing Works (1900 m2)	4	25-Oct-18	28-Oct-18
A2710	Screeding Works (145 m3)	3	29-Oct-18	31-Oct-18
A2720	Backfilling Works to S3 (8760m3) @400m3 (C)	22	01-Nov-18	22-Nov-18
A2730	Dismantling of Struts_S3 - 1 to 10	10	23-Nov-18	02-Dec-18
A2740	Backfilling Works to S2 (3230m3) @400m3 (D)	8	03-Dec-18	10-Dec-18
A2750	Dismantling of Struts_S2 - 1 to 5	5	10-Dec-18	14-Dec-18
A2752	Backfilling Works to S1 (7730m3) @400m3 (E)	20	15-Dec-18	03-Jan-19
Bay 14 to 15 (Top Slab)				
A2440	Base Slab_bay 14	8	27-Sep-18 A	07-Oct-18
A2450	Dismantling of Struts _Bay 14	7	12-Oct-18	18-Oct-18
A2460	Wall_Bay 14	8	19-Oct-18	26-Oct-18
A2490	Top slab_Bay 14	15	01-Nov-18	15-Nov-18
A2770	Dismantling of Struts_S4 - 26 to 28 & DS1-4	7	18-Nov-18	24-Nov-18
A2780	Waterproofing Works (1350 m2)	3	25-Nov-18	27-Nov-18
A2790	Screeding Works (100 m3)	2	28-Nov-18	29-Nov-18
A2800	Backfilling Works to S3 (5670m3) @400m3 (F)	15	30-Nov-18	14-Dec-18
A2810	Dismantling of Struts_S3 - 11 to 14	8	15-Dec-18	22-Dec-18
A2830	Backfilling Works to S2 (6040m3) @400m3 (G)	16	23-Dec-18	07-Jan-19
Section 3 of the Works- Construction of District Cooling System (Subject to Excision)				
Construction of District Cooling System				
Construction of DCS Works at Zone 2				
SCR1030	DCS at Zone 2 Bay 2 to Bay 4 (CH35 - CH110)	24	27-Nov-18*	24-Dec-18
Construction of DCS Works at Zone 3				
SCR1500	Zone 3 DCS (3 x 900) south of Gate 1 bridge (CH140 - CH190)	18	29-Oct-18	17-Nov-18
SCR1740	Zone 3 DCS (3 x 900) westbound (CH190 - CH270)	28	20-Dec-18*	24-Jan-19
Construction of DCS Works at Zone 4				
K-03-DCS-7800	Construction of DCS Valve Pit	65	10-Aug-18 A	17-Dec-18
K-03-DCS-7810	ELS for DCS (Outside of SUS)	48	20-Nov-18*	17-Jan-19
Section 4A of the Works-Construction of Subway A (Subject to Excision)				
K-4A-BAY-1900	ELS for Subway A Bay 1 (west of D-wall)	48	02-Oct-18*	27-Nov-18

中國路橋工程有限責任公司 CHINA ROAD AND BRIDGE CORPORATION

◆ Milestone
Critical Activity
Non-Critical Activity
Remaining Level of Effort
Actual Work

3 MRP Oct 2018 - Dec 2018

Project ID :39 3MRP Oct - Dec 18
Layout : KL201403 3MRP

3 Months Rolling Programme

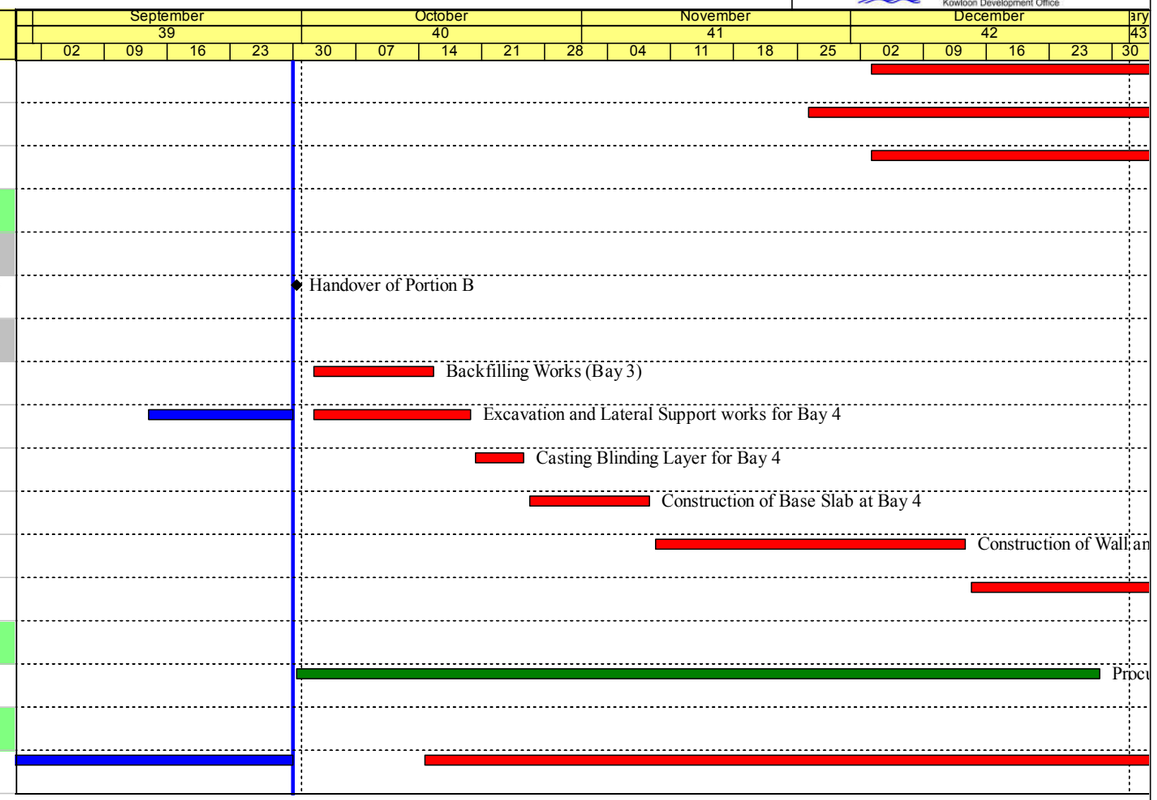
Date	Revision	Checked	Approved
30-Sep-18	Oct18 - Dec 18		

Hyder - Meinhardt JV

KL/2014/03 Kai Tak Development - Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway

CEDD 土木工程拓展署 Civil Engineering and Development Department 九龍拓展處 Kowloon Development Office

Activity ID	Activity Name	Rem Dur	Start	Finish
K-4A-BAY-1910	Form wall opening for Subway A	33	03-Dec-18*	12-Jan-19
K-4A-BAY-1930	ELS for Subway A Bay 3 (east of D-wall)	48	26-Nov-18	23-Jan-19
K-4A-BAY-1960	Construction of Subway A Bay 2 (within SUS)	48	03-Dec-18*	30-Jan-19
Section 4B of the Works- Construction of Subway B (Subject to Excision)				
Bay 1 & 2				
K-4B-BAY-3100	Handover of Portion B	0		30-Sep-18*
Bay 3 & 4				
K-4B-BAY-3310	Backfilling Works (Bay 3)	12	02-Oct-18	15-Oct-18
K-4B-BAY-3330	Excavation and Lateral Support works for Bay 4	15	14-Sep-18 A	19-Oct-18
K-4B-BAY-3340	Casting Blinding Layer for Bay 4	5	20-Oct-18	25-Oct-18
K-4B-BAY-3350	Construction of Base Slab at Bay 4	12	26-Oct-18	08-Nov-18
K-4B-BAY-3360	Construction of Wall and Top Slab at Bay 4	30	09-Nov-18	13-Dec-18
K-4B-BAY-3370	Backfilling Works (Bay 4)	20	14-Dec-18	09-Jan-19
Section 5 of the Works-Completion of All Landscape Softworks				
K-05-LCS-1000	Procurement of plant species	90	30-Sep-18	28-Dec-18
Section 7 of the Works-Preservation and Protection of Existing Trees				
K-07-001-1000	Section 7 of the Works-Preservation and Protection of Existing Trees	390	04-Jan-16 A	08-Nov-19



中國路橋工程有限責任公司 CHINA ROAD AND BRIDGE CORPORATION

◆ Milestone
Critical Activity
Non-Critical Activity
Remaining Level of Effort
Actual Work

3 MRP Oct 2018 - Dec 2018

Project ID :39 3MRP Oct - Dec 18
Layout : KL201403 3MRP

3 Months Rolling Programme			
Date	Revision	Checked	Approved
30-Sep-18	Oct18 - Dec 18		

FUGRO TECHNICAL SERVICES LIMITED

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Appendix B

Project Organization Chart

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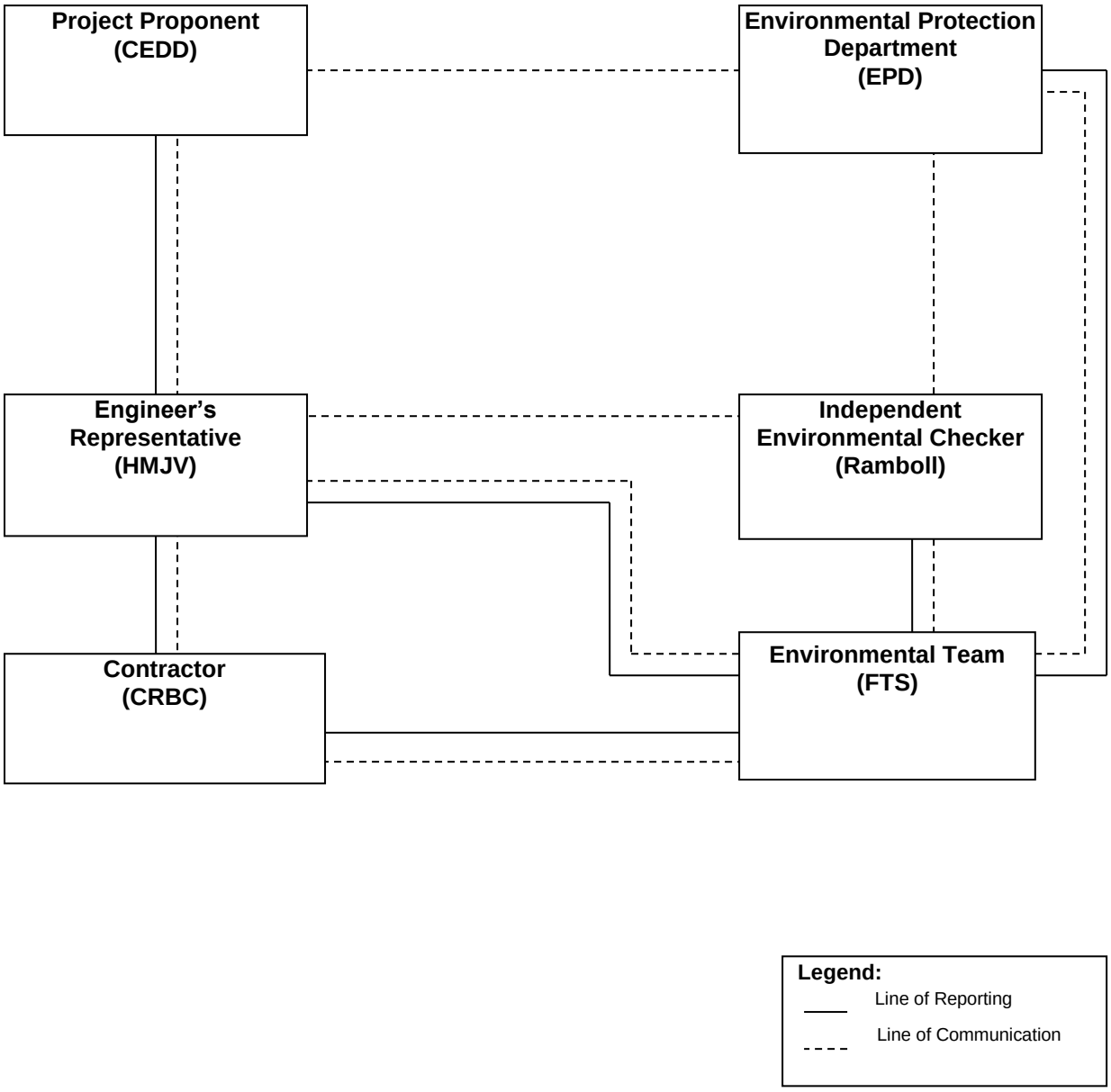
Website : www.fugro.com



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Appendix C

Action and Limit Levels for Air Quality and Noise

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Action and Limit Levels for 24-hr TSP and 1-hr TSP

Parameter	Monitoring Station	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/ m^3$)
24-hr TSP ($\mu g/m^3$)	KTD1a	177	260
	KTD2b	157	
	KER1b	172	
*1-hr TSP ($\mu g/m^3$)	KTD1a	285	500
	KTD2b	279	
	KER1b	295	

Note:
1-hr TSP monitoring should be required in case of complaints.

Action and Limit Levels for Construction Noise, Leq (30min), dB(A)

Time Period	Location	Action	Limit
0700-1900 hrs on normal weekdays	KTD1a KTD2b KER1b	When one documented complaint is received	75 dB(A)

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Appendix D

Calibration Certificates of Monitoring Equipment

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TISCH Environmental

RECALIBRATION DUE DATE:
November 20, 2018

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	November 20, 2017	**Rootsmeter S/N:** 438320	**Ta:** 294	°K
Operator:	Jim Tisch		**Pa:** 756.9	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2456**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4440	3.2	2.00
2	3	4	1	1.0260	6.4	4.00
3	5	6	1	0.9130	7.8	5.00
4	7	8	1	0.8680	8.8	5.50
5	9	10	1	0.7190	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0052	0.6961	1.4209	0.9958	0.6896	0.8814
1.0010	0.9756	2.0095	0.9915	0.9664	1.2465
0.9991	1.0943	2.2467	0.9897	1.0840	1.3936
0.9978	1.1495	2.3563	0.9884	1.1387	1.4616
0.9926	1.3805	2.8418	0.9832	1.3675	1.7628
QSTD	**m=**	**2.07133**	**QA**	**m=**	**1.29703**
	b=	**-0.01892**		**b=**	**-0.01173**
	r=	**0.99995**		**r=**	**0.99995**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

sch Environmental, Inc.
45 South Miami Avenue
illage of Cleves, OH 45002

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

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Email : mcl@fugro.com.hk

MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 2-Oct-18
Location : KTD1a
Next Calibration Date: 1-Jan-19
Brand: Tisch
Technician: Toby Wan
Model: TE-5170 S/N: 4037

CONDITIONS

Sea Level Pressure (hPa):	1014.9	Corrected Pressure (mm Hg):	761
Temperature (°C):	27	Temperature (K):	300

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.07013
Model:	TE-5025A	Qstd Intercept:	-0.01892
Calibration Date:	20-Nov-17	Expiry Date:	20-Nov-18
S/N:	2456		

CALIBRATIONS

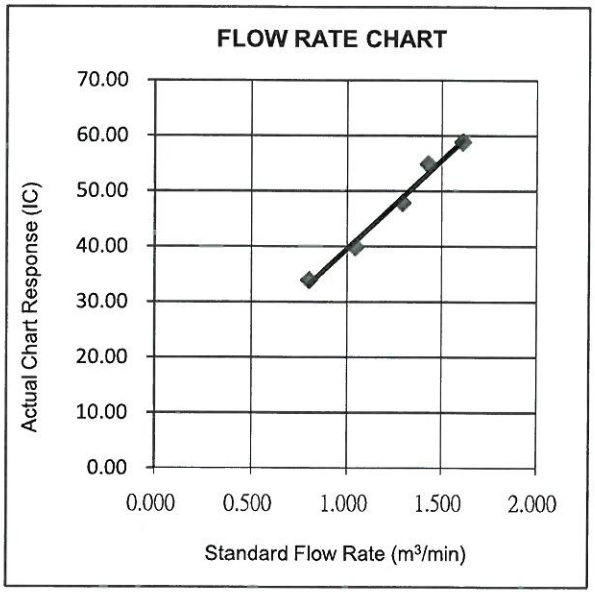
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	11.50	0.40	11.100	1.614	59.00	58.84	Slope =	31.9470
13	10.30	1.60	8.700	1.430	55.00	54.85	Intercept =	7.5845
10	9.40	2.30	7.100	1.293	48.00	47.87	Corr. coeff.=	0.9939
7	8.30	3.70	4.600	1.042	40.00	39.89		
5	7.30	4.60	2.700	0.801	34.00	33.91		

Calculations:

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]
Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)
m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



CHOI KAM HO
Project Consultant

Report Date: 2nd October, 2018

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MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Location : KER1b
Brand: Tisch
Model: TE-5170 S/N: 3482

Date of Calibration: 2-Oct-18
Next Calibration Date: 1-Jan-19
Technician: Toby Wan

CONDITIONS

Sea Level Pressure (hPa):	1014.9	Corrected Pressure (mm Hg):	761
Temperature (°C):	27	Temperature (K):	300

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.07013
Model:	TE-5025A	Qstd Intercept:	-0.01892
Calibration Date:	20-Nov-17	Expiry Date:	20-Nov-18
S/N:	2456		

CALIBRATIONS

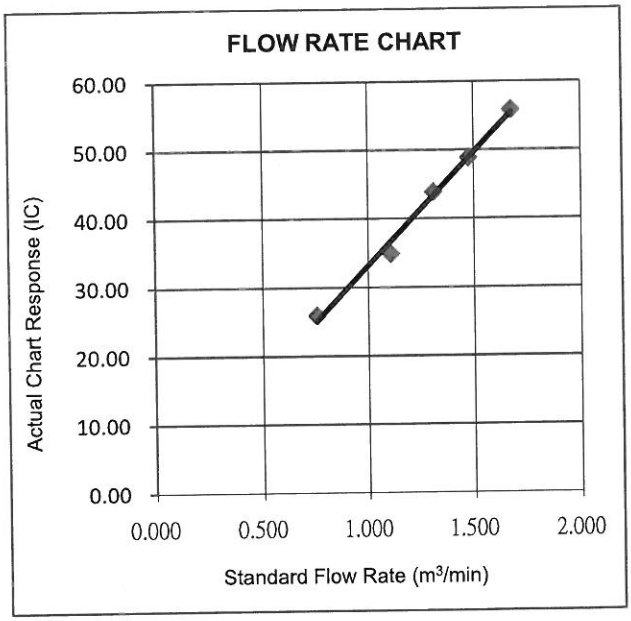
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	12.00	0.00	12.000	1.678	56.00	55.85	Slope =	32.9848
13	10.60	1.30	9.300	1.478	49.00	48.87	Intercept =	0.1261
10	9.40	2.10	7.300	1.311	44.00	43.88	Corr. coeff.=	0.9961
7	8.70	3.50	5.200	1.108	35.00	34.91		
5	7.60	5.20	2.400	0.755	26.00	25.93		

Calculations:

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]
Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)
m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



Report Date: 2nd October, 2018

CHOI KAM HO
Project Consultant

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MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Location : KTD2b
Brand: Tisch
Model: TE-5170 S/N: 3838

Date of Calibration: 9-Aug-18
Next Calibration Date: 8-Nov-18
Technician: Toby Wan

CONDITIONS

Sea Level Pressure (hPa):	1003.3	Corrected Pressure (mm Hg):	753
Temperature (°C):	30	Temperature (K):	303

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.07013
Model:	TE-5025A	Qstd Intercept:	-0.01892
Calibration Date:	20-Nov-17	Expiry Date:	20-Nov-18
S/N:	2456		

CALIBRATIONS

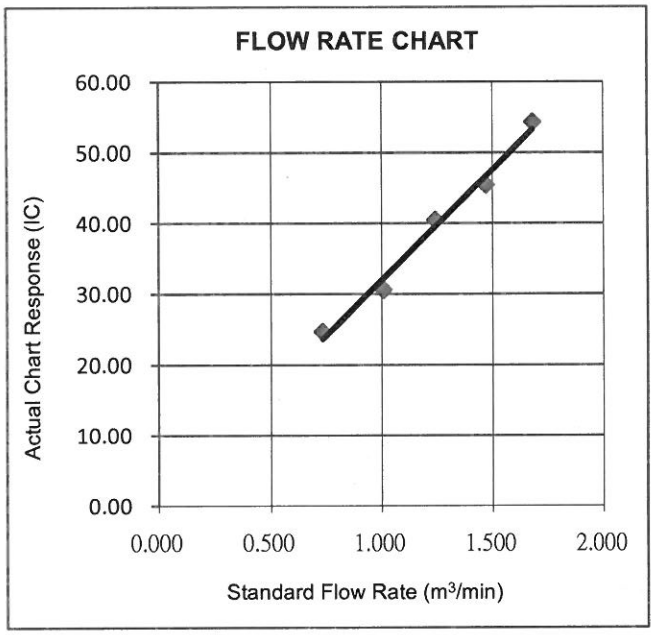
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	3.80	-8.50	12.300	1.682	55.00	54.29	Slope =	31.2460
13	2.90	-6.50	9.400	1.471	46.00	45.41	Intercept =	0.7345
10	1.00	-5.70	6.700	1.243	41.00	40.47	Corr. coeff.:	0.9933
7	0.20	-4.20	4.400	1.009	31.00	30.60		
5	-0.80	-3.10	2.300	0.732	25.00	24.68		

Calculations:

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]
Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)
m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



CHOI KAM HO
Project Consultant

Report Date: 9th August, 2018

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MateriaLab

Report no.: 172379CA185011A

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : MateriaLab Consultants Ltd.

Address : Room 723 & 725, 7/F., Block B, Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No. :	CEL-63X	CE-251	CEL-495
Serial No. :	3148029	01910	003318

Next Calibration Date : 12-Apr-2019

Specification Limit : EN 61672: 2003 Type 1

Laboratory Information

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 13-Apr-2018 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct comparison

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighing frequency response	4000Hz	1.7	2.6 to -0.6
	2000Hz	1.4	2.8 to -0.4
	1000Hz	0.0	1.1 to -1.1
	500Hz	-3.4	-1.8 to -4.6
	250Hz	-8.8	-7.2 to -10.0
	125Hz	-16.2	-14.6 to -17.6
	63Hz	-26.2	-24.7 to -27.7
	31.5Hz	-39.1	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.0	± 0.6
	104dB-114dB	0.0	± 0.6

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighing is fast
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.
5. This is to supersede the previous report no. 172379CA185011.

Checked by : _____ Date : 5-7-2018 Certified by : _____ Date : 7-7-2018

Leung Kwok Tai (Assistant Manager)

CA-R-297 (22/07/2009)

** End of Report **

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MateriaLab

Report no.: 172379CA180517A

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : MateriaLab Consultants Ltd.

Address : Room 723 & 725, 7/F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No.	CEL-63X	CE-251	CEL-495
Serial No. :	3756127	00995	003350

Next Calibration Date : 11-Mar-2019

Specification Limit : EN 61672: 2003 Type 1

Laboratory Information

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 12-Mar-2018 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct comparison

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighing frequency response	4000Hz	-0.3	2.6 to -0.6
	2000Hz	0.9	2.8 to -0.4
	1000Hz	0.3	1.1 to -1.1
	500Hz	-2.9	-1.8 to -4.6
	250Hz	-8.2	-7.2 to -10.0
	125Hz	-15.6	-14.6 to -17.6
	63Hz	-25.6	-24.7 to -27.7
	31.5Hz	-38.6	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.0	± 0.6
	104dB-114dB	0.0	± 0.6

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighing is fast
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.
5. This is to supersede the previous report no. 172379CA180517.

Checked by : _____ Date : 5-7-2018 Certified by : _____ Date : 7.7.2018

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

** End of Report **

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MateriaLab

Report no.: 172379CA185066A

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : MateriaLab Consultants Ltd.

Address : Room 723 & 725, 7/F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Sound Level Meter

Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No. :	CEL-63X	CE-251	CEL-495
Serial No. :	0873599	01801	003341

Next Calibration Date : 26-Apr-2019

Specification Limit : EN 61672: 2003 Type 1

Laboratory Information

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)

Equipment ID. : R-108-1

Date of Calibration : 27-Apr-2018 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct comparison

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weighing frequency response	4000Hz	1.9	2.6 to -0.6
	2000Hz	1.3	2.8 to -0.4
	1000Hz	-0.1	1.1 to -1.1
	500Hz	-3.5	-1.8 to -4.6
	250Hz	-8.9	-7.2 to -10.0
	125Hz	-16.4	-14.6 to -17.6
	63Hz	-26.4	-24.7 to -27.7
	31.5Hz	-39.3	-37.4 to -41.4
Differential level linearity	94dB-104dB	0.0	± 0.6
	104dB-114dB	0.0	± 0.6

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighing is fast
4. The equipment does comply with EN 61672: 2003 Type 1 sound level meter for the above measurement.
5. This is to supersede the previous report no. 172379CA185066.

Checked by : _____ Date : 5-7-2018 Certified by : _____ Date : 7.7-2018

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

** End of Report **

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MateriaLab

Report no.: 172379CA180517(1)

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client Supplied Information

Client : MateriaLab Consultants Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description	:	Sound Calibrator
Manufacturer	:	Casella (Model no. CEL-120/1)
Serial No.	:	5230758
Equipment ID	:	FY-SLC-01
Next Calibration Date	:	11-Mar-2019
Specification Limit	:	EN 60942: 2003 Type 1

Laboratory Information

Description	:	Reference Sound level meter
Equipment ID.	:	R-119-1
Date of Calibration :	12-Mar-2018	Ambient Temperature : 22 °C
Calibration Location :	Calibration Laboratory of FTS	
Method Used	:	By direct comparison

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	-0.4 dB	±0.4dB
114dB	-0.3 dB	

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The equipment does comply with the specification limit.

Checked by : _____ Date : 13.3.2018 Certified by : _____ Date : 13.3.2018.

CA-R-297 (22/07/2009)

Chan Chun Wai (Manager)

** End of Report **

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MateriaLab

Report No. : 183057CA185180(1)

CALIBRATION CERTIFICATE OF ANEMOMETER

Client Supplied Information

Client : MateriaLab Consultants Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Anemometer

Manufacturer : Benetech

Model No. : GM816

Serial No. : 13372555

Equipment ID. : N/A

Next Calibration Date : 08-Jun-2019

Laboratory Information

Details of Reference Equipment –

Description : Reference Anemometer

Equipment ID. : R-101-4

Date of Calibration : 09-Jun-2018 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct Comparison

Calibration Results :

Reference Reading (m/s)	UUT Reading (m/s)	Error (m/s)
1.96	2.2	0.2
4.04	4.1	0.1
6.05	6.2	0.2
8.02	7.9	-0.1
10.06	9.7	-0.4

Remark :

1. The equipment being used in this calibration is traceable to recognized National Standards.

Checked by : William Date : 12-6-2018 Certified by : Date : 13.6.2018

CA-R-297 (22/07/2009)

Chan Chun Wai (Manager)

** End of Report **

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MateriaLab

Report No. : 182933CA185214(2)

CALIBRATION CERTIFICATE OF ANEMOMETER

Client Supplied Information

Client : Materialab Consultants Ltd.

Address: Room 723 & 725, 7F., Block B Profit Industrial Building, 1-15 Kwai Fung Crescent, Kwai Chung, N.T.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Comfort Level Probe

Manufacturer : Testo

	Meter	Probe
Model No. :	480	409
Serial No. :	61003846	03216409

Equipment ID : N/A

Next Calibration Due Date : 22-Aug-2019

Laboratory Information

Details of Reference Equipment –

Description : Reference Anemometer

Equipment ID. : R-101-4

Date of Calibration : 23-Aug-2018 Ambient Temperature : 20± 2 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : By direct Comparison

Calibration Results :

Reference Reading (m/s)	UUT Reading (m/s)	Error (m/s)
1.05	1.06	0.01
3.02	3.06	0.04
5.04	5.07	0.03

Remarks :

1. The equipment being used in this calibration is traceable to recognized National Standards.
2. The reported readings in this calibration are an average from 10 trials.

Checked by : William Date : 31-8-2018 Certified by : K.T.Leung Date : 31-8-2018

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

** End of Report **

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Appendix E

Environmental Monitoring Schedule

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Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (October 2018)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
	1	2 TSP Monitoring	3 Noise Monitoring	4	5	6
7	8 TSP Monitoring [4] Noise Monitoring	9	10 TSP Monitoring [4]	11	12	13 TSP Monitoring Noise Monitoring
14	15	16	17	18	19 TSP Monitoring Noise Monitoring	20
21	22	23	24 TSP Monitoring Noise Monitoring	25	26	27
28	29	30 TSP Monitoring Noise Monitoring	31			

Remarks

1. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital), KER1b: Site Boundary at Cheung Yip Street
2. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
3. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.
4. Power supply of high volume sampler at KER1b was suspended due to the damage of the cable, TSP monitoring was resumed at 10 October 2018.

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Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (November 2018)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
				1	2	3
4	5 TSP Monitoring Noise Monitoring	6	7	8	9	10 TSP Monitoring Noise Monitoring
11	12	13	14	15	16 TSP Monitoring Noise Monitoring	17
18	19	20	21	22 TSP Monitoring Noise Monitoring	23	24
25	26	27	28 TSP Monitoring Noise Monitoring	29	30	

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital), KER1b: Site Boundary at Cheung Yip Street
3. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
4. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

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Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (December 2018)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
						1
2	3	4 TSP Monitoring Noise Monitoring	5	6	7	8
9	10 TSP Monitoring Noise Monitoring	11	12	13	14	15 TSP Monitoring Noise Monitoring
16	17	18	19	20	21 TSP Monitoring Noise Monitoring	22
23	24	25	26	27 TSP Monitoring Noise Monitoring	28	29
30	31					

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital), KER1b: Site Boundary at Cheung Yip Street
3. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
4. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

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Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (January 2019)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
		1	2 TSP Monitoring Noise Monitoring	3	4	5
6	7	8 TSP Monitoring Noise Monitoring	9	10	11	12
13	14 TSP Monitoring Noise Monitoring	15	16	17	18	19 TSP Monitoring Noise Monitoring
20	21	22	23	24	25 TSP Monitoring Noise Monitoring	26
27	28	29	30	31 TSP Monitoring Noise Monitoring		

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition
2. Monitoring Locations – KTD1a: Centre of Excellence in Paediatric (Children's Hospital), KTD2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital), KER1b: Site Boundary at Cheung Yip Street
3. TSP Monitoring: 24-hours TSP Monitoring per 6 days, and 3 x 1-hour TSP Monitoring per 6 days (as required in case of complaints)
4. Noise Monitoring: Leq (30 min) between 0700 and 1900 hours.

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Appendix F

Air Quality Monitoring Data

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24-hour TSP Monitoring Result for
Kai Tak Development - Stage 3 Infrastructure Works for
Developments at the Southern Part of the Former Runway

KTD1a - Centre of Excellence in Paediatrics (Children's Hospital)

Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume (m^3)	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
2-Oct-18	Fine	300.2	761.2	2.6880	2.8113	0.1233	24	1.50	1.51	1.50	2165.5	57	177	260
8-Oct-18	Fine	299.7	760.7	2.6194	2.6914	0.0720	24	1.37	1.38	1.38	1980.3	36		
13-Oct-18	Fine	279.2	763.0	2.6757	2.7928	0.1171	24	1.50	1.44	1.47	2115.1	55		
19-Oct-18	Fine	297.2	763.0	2.6801	2.8095	0.1294	24	1.45	1.44	1.44	2079.6	62		
24-Oct-18	Cloudy	298.7	763.0	2.6501	2.7634	0.1133	24	1.38	1.38	1.38	1983.7	57		
30-Oct-18	Fine	298.7	761.2	2.6574	2.8248	0.1674	24	1.44	1.44	1.44	2075.5	81		
											Min	36		
											Max	81		
											Average	58		

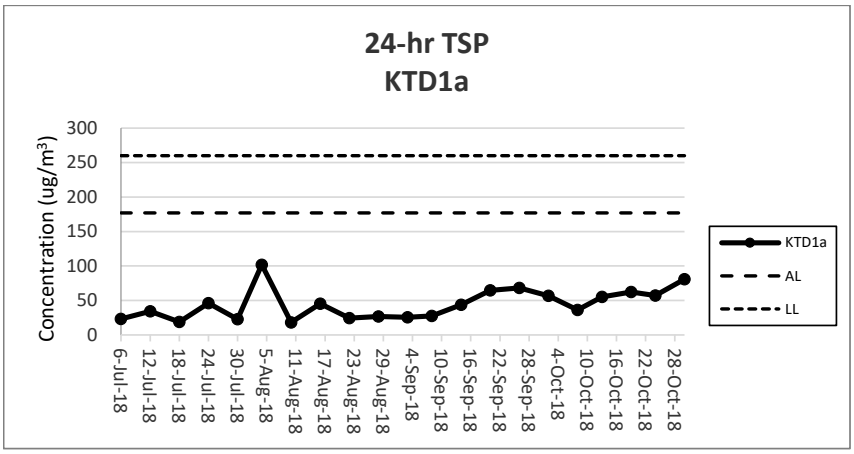
KTD 2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital)

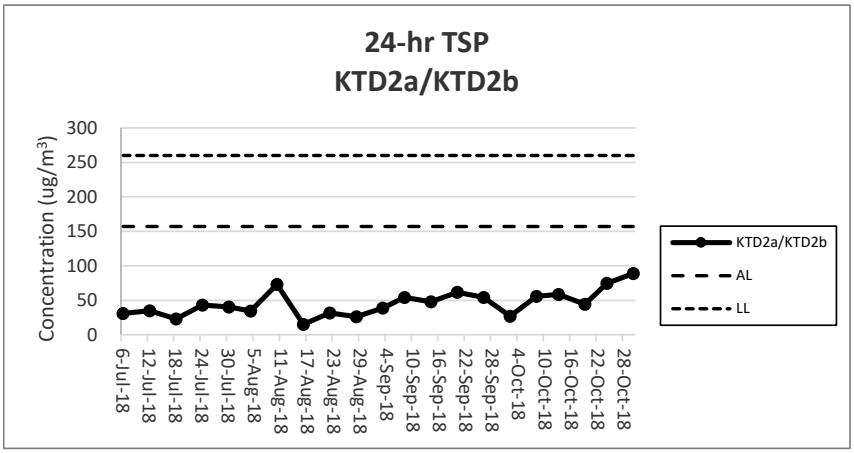
Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume (m^3)	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
2-Oct-18	Fine	300.2	761.2	2.6886	2.7379	0.0493	24	1.27	1.27	1.27	1832.0	27	157	260
8-Oct-18	Fine	299.7	760.7	2.6275	2.7533	0.1258	24	1.56	1.57	1.57	2255.0	56		
13-Oct-18	Fine	279.2	763.0	2.6813	2.8094	0.1281	24	1.56	1.49	1.53	2197.0	58		
19-Oct-18	Fine	297.2	763.0	2.6375	2.7333	0.0958	24	1.50	1.49	1.50	2156.6	44		
24-Oct-18	Cloudy	298.7	763.0	2.6538	2.7907	0.1369	24	1.28	1.27	1.28	1836.1	75		
30-Oct-18	Fine	298.7	761.2	2.6563	2.8566	0.2003	24	1.57	1.57	1.57	2257.6	89		
											Min	27		
											Max	89		
											Average	58		

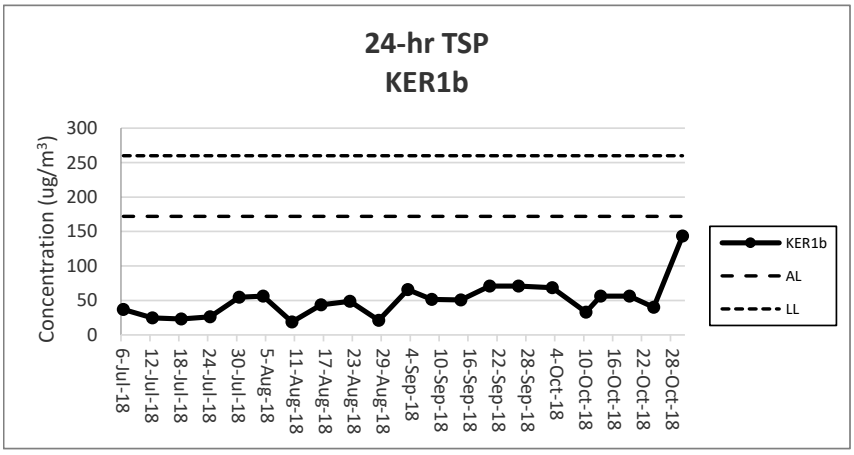
KER1b - Site Boundary at Cheung Yip Street

Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume (m^3)	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
2-Oct-18	Fine	300.2	761.2	2.6715	2.7980	0.1265	24	1.28	1.29	1.29	1850.5	68	172	260
10-Oct-18	Fine	296.2	764.2	2.6158	2.6652	0.0494	24	1.05	1.04	1.04	1503.1	33		
13-Oct-18	Fine	279.2	763.0	2.6870	2.7833	0.0963	24	1.21	1.16	1.19	1711.7	56		
19-Oct-18	Fine	297.2	763.0	2.6294	2.7237	0.0943	24	1.17	1.16	1.17	1679.1	56		
24-Oct-18	Cloudy	298.7	763.0	2.6689	2.7436	0.0747	24	1.29	1.29	1.29	1854.5	40		
30-Oct-18	Fine	298.7	761.2	2.6587	2.9246	0.2659	24	1.29	1.29	1.29	1853.2	143		
											Min	33		
											Max	143		
											Average	66		

Note:
Underline: Exceedance of Action Level
Underline and Bold: Exceedance of Limit Level
Power supply of high volume sampler at KER1b was suspended due to the damage of the cable, TSP monitoring was resumed at 10 October 2018.







Note:

1) The major activities being carried out on site during the reporting period can be referred to Section 1.3.2.

2) The weather conditions during the reporting period can be referred to Appendix K.

3) Any other factors which might affect the monitoing results can be referred to Section 2.6.4.

4) QA/QC results, calibration results and detection limits can be referred to Appendix D.

5) KTD 2a was relocated to KTD2b on 9 August 2018

6) Power supply of high volume sampler at KER1b was suspended on 8 October 2018 due to the damage of the cable, TSP monitoring was resumed at 10 October 2018.

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Appendix G

Noise Monitoring Data

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Noise Impact Monitoring Result for
Kai Tak Development - Stage 3 Infrastructure Works for
Developments at the Southern Part of the Former Runway

KTD 1a: Centre of Excellence in Paediatrics (Children's Hospital)

Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
3-Oct-18	10:16	74	76	66	0.2	Fine
8-Oct-18	14:00	71	74	69	0.9	Fine
13-Oct-18	10:30	68	71	67	0.0	Fine
19-Oct-18	10:00	68	71	65	0.2	Fine
24-Oct-18	10:01	65	66	61	0.8	Cloudy
30-Oct-18	9:54	72	75	68	0.3	Fine
	Max	74				
	Min	65				
	Limit Level	**75**				

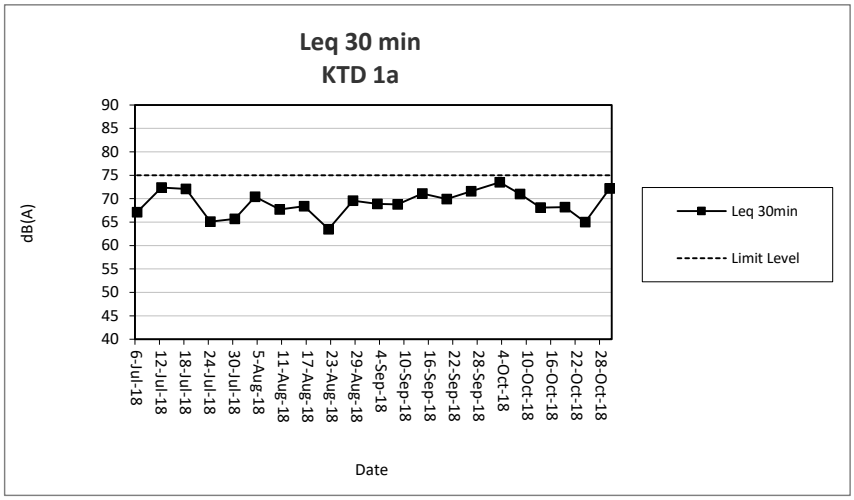
KTD 2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital)

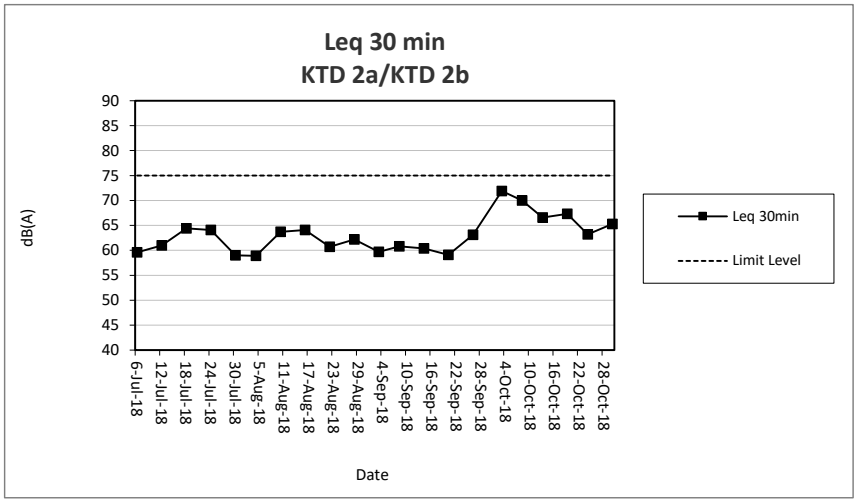
Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
3-Oct-18	9:37	72	77	64	0.3	Fine
8-Oct-18	14:50	70	72	67	2.3	Fine
13-Oct-18	9:42	67	68	65	0.0	Fine
19-Oct-18	9:00	67	69	65	0.1	Fine
24-Oct-18	9:13	63	64	62	0.0	Cloudy
30-Oct-18	10:33	65	67	62	0.5	Fine
	Max	72				
	Min	63				
	Limit Level	**75**				

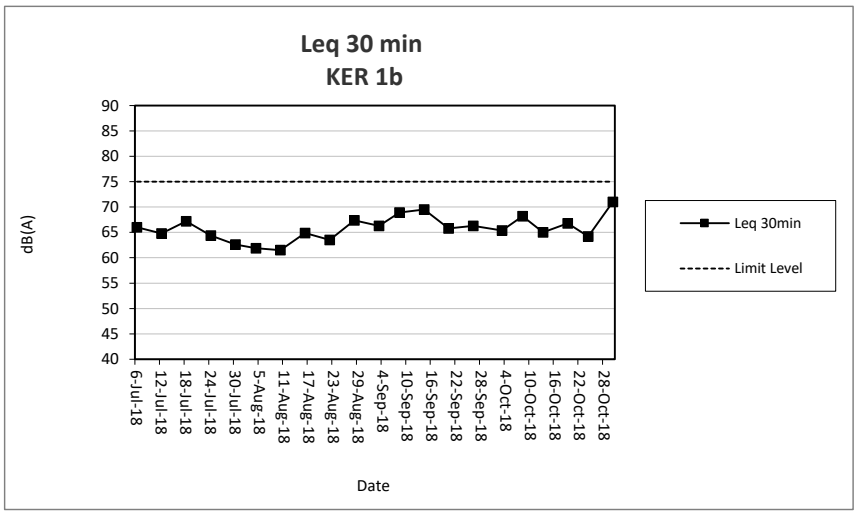
KER 1b: Site Boundary at Cheung Yip Street

Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
3-Oct-18	11:00	65	67	63	0.6	Fine
8-Oct-18	15:42	68	69	62	0.8	Fine
13-Oct-18	8:30	65	67	62	0.0	Fine
19-Oct-18	11:00	67	69	65	0.2	Fine
24-Oct-18	10:39	64	65	62	1.2	Cloudy
30-Oct-18	9:04	71	73	67	1.3	Fine
	Max	71				
	Min	64				
	Limit Level	**75**				

Note:
KTD1a: Façade Measurement
KTD2b & KER1b: Free-field measurement (+3dB(A) correction has been applied)
No raining or wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation.







Note:

1) The major activities being carried out on site during the reporting period can be referred to Section 1.3.2.
2) The weather conditions during the reporting period can be referred to Appendix K.
3) Any other factors which might affect the monitoing results can be referred to Section 3.7.2.
4) QA/QC results, calibration results and detection limits can be referred to Appendix D.
5) KTD 2a was relocated to KTD2b on 9 August 2018

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Appendix H

Events and Action Plan

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Event and Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
Action Level				
Exceedance for one sample.	1. Identify sources, investigate the causes of complaint and propose remedial measures. 2. Inform IEC and ER. 3. Repeat measurement to confirm finding;. 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET. 2. Check the Contractor's working methods.	1. Notify the Contractor.	1. Rectify any unacceptable practices. 2. Amend working methods agreed with the ER as appropriate.
Exceedance for two or more consecutive samples.	1.Identify sources. 2.Inform the IEC and ER. 3.Advise the ER on the effectiveness of the proposed remedial measures; 4.Repeat measurements to confirm findings. 5.Increase monitoring frequency to daily. 6.Discuss with the IEC, ER and Contractor on remedial action required. 7.If exceedance continues, arrange meeting with the IEC, Contractor and ER. 8.If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET. 2. Check the Contractor's working methods. 3. Discuss with the ET, ER and Contractor on possible remedial measures if required. 4. Advise the ER on the effectiveness of proposed remedial measures if required.	1. Notify the Contractor. 2. Ensure remedial measures properly implemented.	1. Submit proposals for remedial action to the ER within 3 working days of notification. 2. Implement the agreed proposals. 3. Amend proposal as appropriate
Limit Level				
Exceedance for one sample.	1. Identify sources, investigate causes of exceedance and proposed remedial measures. 2. Inform the IEC, ER, and Contractor. 3. Repeat measurement to confirm finding. 4. 4. Increase monitoring frequency to daily. 5. Assess effectiveness of the Contractor's remedial action and keep the IEC and ER informed of the results	1. Check monitoring data submitted by the ET. 2. Check the Contractor's working methods. 3. Discuss with the ET, ER and Contractor on possible remedial measures. 4. Advise the ER and ET on the effectiveness of the proposed remedial measures. 5. Supervise the implementation of remedial measures.	1. Confirm receipt of the notification of exceedance in writing. 2. Notify the Contractor. 3. Ensure remedial measures are properly implemented.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial action to the ER and copy to the ET and IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Amend proposal as appropriate.
Exceedance for two or more consecutive samples	1. Notify the IEC, ER and Contractor. 2. Identify sources. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Carry out analysis of the Contractor's working procedures with the ER to determine the possible mitigation to be implemented. 6. Arrange meeting with the IEC and ER to discuss the remedial	1. Discuss amongst the ER, ET and Contractor on the potential remedial action. 2. Review the Contractor's remedial action whenever necessary to assure their effectiveness and advise the ER and ET accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of the notification of exceedance in writing. 2. Notify the Contractor. 3. In consultation with the IEC and ET, agree with the Contractor on the remedial measures to be implemented. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial action to the ER and copy to the IEC and ET within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problems still not under control. 5. Stop the relevant portion of works as determined by the ER

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EVENT	ACTION			
	ET	IEC	ER	Contractor
	action to be taken. 7. Assess the effectiveness of the Contractor's remedial action and keep the IEC, EPD and ER informed of the results. 8. If exceedance stops, cease additional monitoring		what portion of works is responsible and instruct the Contractor to stop that portion of works until the exceedance is abated.	until the exceedance is abated.

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Event and Action Plan for Noise Impact

EVENT	ACTION			
	ET	IEC	ER	Contractor
Action Level	1. Notify the IEC, ER and Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC and Contractor. 4. Discuss jointly with the ER and Contractor and formulate remedial measures. 5. Increase the monitoring frequency to check the mitigation effectiveness	1. Review the monitoring data submitted by the ET. 2. Review the construction methods and proposed redial measures by the Contractor, and advise the ET and ER if the proposed remedial measures would be sufficient	1. Notify the Contractor. 2. Require the Contractor to propose remedial measures for implementation if required.	1. Submit noise mitigation proposals to the ER and copy to the IEC and ET. 2. Implement noise mitigation proposals.
Limit Level	1. Notify the IEC, ER and Contractor. 2. Identify sources. 3. Repeat measurements to confirm findings. 4. Carry out analysis of the Contractor's working procedures with the ER and Contractor to determine possible mitigations to be implemented. 5. Record the causes and action taken for the exceedances. 6. Increase the monitoring frequency. 7. Assess the effectiveness of the Contractor's remedial action with the ER and keep the IEC informed of the results. **8.** If exceedance stops, cease additional monitoring	1. Discuss amongst the ER, ET and Contractor on the potential remedial action. 2. Review the Contractor's remedial action whenever necessary to assure their effectiveness and advise the ER accordingly. **3.** Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problems. 4. Ensure remedial measures are properly implemented. **5.** If exceedance continues, consider what portion of work is responsible and instruct the Contractor to stop that portion of works until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial action to the ER and copy to the ET and IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problems still not under control. **5.** Stop the relevant portion of works as determined by the ER until the exceedance is abated.

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Event and Action Plan for Landscape and Visual Impact

EVENT	ACTION			
	ET	IEC	ER	Contractor
Non-conformity on one occasion	1. Identify Source 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial actions until rectification has been completed	1. Check 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. 5. Check implementation of remedial measures.	1. Notify Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source 2. Inform the IEC and the ER 3. Increase monitoring frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring	1. Check monitoring 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 5. Supervise implementation of remedial measures.	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement

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Appendix I

Waste Flow Table

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Waste Flow Table for Year 2016

Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	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 (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
2016 Jan	0.159	0.101	0.058	Nil	Nil	Nil	Nil	0.023	0.00002	0.0158	0.0335
2016 Feb	0.291	0.050	0.241	Nil	Nil	Nil	1.34	0.023	0.00002	0.0158	0.0335
2016 Mar	2.7389	0.0407	0.0662	Nil	2.632	Nil	5.92	0.023	0.00002	0.0158	0.0571
2016 Apr	4.1718	0.0578	0.462	Nil	3.652	Nil	12.5	0.023	0.00002	0.0158	0.0426
2016 May	3.592	Nil	0.299	Nil	3.293	Nil	5.23	0.023	0.00002	0.0158	0.0621
2016 June	4.6035	Nil	0.8555	Nil	3.748	Nil	Nil	0.023	0.00002	0.0158	0.0619
2016 July	6.155	0.153	0.015	Nil	5.987	Nil	7.84	0.023	0.00002	0.0158	0.0433
2016 Aug	5.1155	Nil	Nil	Nil	5.1155	Nil	19.93	0.023	Nil	Nil	0.0147
2016 Sept	7.2267	Nil	Nil	Nil	7.2267	Nil	33.65	0.023	Nil	Nil	0.0103
2016 Oct	4.6448	Nil	Nil	Nil	4.6448	Nil	13.30	0.023	Nil	Nil	0.0385
2016 Nov	6.1626	Nil	Nil	Nil	6.1626	Nil	27.06	0.023	Nil	Nil	0.0192
2016 Dec	6.3522	Nil	Nil	Nil	6.3522	Nil	13.30	0.023	Nil	Nil	0.0121
Total	51.213	0.4025	1.9967	Nil	48.8138	Nil	140.07	0.276	0.00014	0.1106	0.4288

Note:
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 materials.
3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

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Waste Flow Table for Year 2017

Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	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 (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
2017 Jan	4.2300	Nil	Nil	Nil	4.2300	Nil	0.015	0.023	Nil	Nil	0.0109
2017 Feb	3.2128	Nil	Nil	Nil	3.2128	Nil	0.015	0.023	Nil	Nil	0.0096
2017 Mar	9.4759	Nil	Nil	Nil	9.4759	Nil	0.034	0.023	Nil	Nil	0.0162
2017 Apr	4.8827	Nil	Nil	Nil	4.8827	Nil	0.016	0.023	Nil	Nil	0.0062
2017 May	3.0366	Nil	Nil	Nil	3.0366	Nil	0.022	0.023	Nil	Nil	0.0282
2017 Jun	2.5656	Nil	Nil	Nil	2.5656	Nil	41.25	Nil	Nil	Nil	0.0357
2017 Jul	5.5267	Nil	0.7851	Nil	4.7416	Nil	4.01	0.4515	Nil	0.25	0.0364
2017 Aug	11.4734	Nil	0.0276	Nil	11.4458	Nil	7.4	Nil	Nil	Nil	0.0196
2017 Sep	23.9373	Nil	2.6167	Nil	21.3206	Nil	3.52	Nil	Nil	Nil	0.0333
2017 Oct	17.8261	Nil	0.4069	Nil	17.4192	Nil	Nil	Nil	Nil	Nil	0.0156
2017 Nov	5.8834	Nil	0.6664	Nil	5.217	Nil	Nil	Nil	Nil	Nil	0.023
2017 Dec	21.3554	Nil	0.4763	Nil	20.8791	Nil	29.13	Nil	Nil	Nil	0.022
Total	113.4059	Nil	4.9790	Nil	108.4269	Nil	85.412	0.5665	Nil	0.25	0.2567

Note:
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 materials.
3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

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Waste Flow Table for Year 2018

Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (Inert C&D)	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 (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
2018 Jan	10.2340	Nil	Nil	Nil	10.2340	Nil	32.39	Nil	Nil	Nil	0.0161
2018 Feb	6.5256	Nil	Nil	Nil	6.5256	Nil	Nil	Nil	Nil	Nil	0.0235
2018 Mar	28.1995	Nil	Nil	Nil	28.1995	Nil	54.54	Nil	Nil	Nil	0.0190
2018 Apr	11.2165	Nil	Nil	Nil	11.2165	Nil	Nil	Nil	Nil	Nil	0.0270
2018 May	5.6011	Nil	Nil	Nil	5.6011	Nil	Nil	Nil	Nil	Nil	0.0140
2018 Jun	5.8072	Nil	Nil	Nil	5.8072	Nil	93.3	Nil	Nil	Nil	0.0235
2018 Jul	7.4206	Nil	Nil	Nil	7.4206	Nil	Nil	Nil	Nil	Nil	0.0383
2018 Aug	2.0815	Nil	Nil	Nil	2.0815	Nil	Nil	Nil	Nil	Nil	0.0665
2018 Sep	0.3710	Nil	Nil	Nil	0.3710	Nil	Nil	Nil	Nil	Nil	0.0436
2018 Oct	0.9087	Nil	Nil	Nil	0.9620	0.0533	Nil	Nil	Nil	Nil	0.0444
2018 Nov											
2018 Dec											
Total	78.3657	Nil	Nil	Nil	78.4190	0.0533	180.23	Nil	Nil	Nil	0.3159

Note:
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 materials.
3) Total Quantity Generated (Inert) = Hard Rock and Large Broken Concrete + Reused in the Contract + Disposed as Public Fill – Imported Fill

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Appendix J

Environmental Mitigation Implementation Schedule (EMIS)

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
<u>Air Quality Measures</u>					
New Distributor Roads Serving the Planned KTD					
AEIAR-130/2009 S3.2	AEIAR 130/2009 EM&A Manual S2.2	8 times daily watering of the work site with active dust emitting activities.	Contractor	All relevant worksites	Implemented
Decommissioning of the Radar Station of the former Kai Tak Airport					
AEIAR-130/2009 S5.2.19	AEIAR 130/2009 EM&A Manual S4.2.4	The excavation area should be limited to as small in size as possible and backfilled with clean and/or treated soil shortly after excavation work. The exposed excavated area should be covered by the tarpaulin during night time. The top layer soils should be sprayed with fine misting of water immediately before the excavation.	Contractor	All relevant worksites	Not Applicable
Trunk Road T2					
AEIAR-174/2013 S4.9.2.1	AEIAR-174/2013 EM&A Manual S2.3.1.1	Watering of the construction areas 12 times per day to reduce dust emissions by 91.7%, with reference to the “Control of Open Fugitive Dust Sources” (USEPA AP-42). The amount of water to be applied would be 0.91L/m2 for the respective watering frequency.	Contractor	All relevant worksites	Implemented
		Dust enclosures with watering would be provided along the loading ramps and conveyor belts for unloading the C&D materials to the barge for dust suppression.	Contractor	All relevant worksites	Not Applicable
		8 km per hour is the recommended limit of the speed for vehicles on unpaved site roads.	Contractor	All relevant worksites	Implemented
		<u>Good Site Practices</u>			
AEIAR-130/2009	AEIAR 130/2009	Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should	Contractor	All relevant	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
S3.2, S5.2.19, AEIAR-174/2013 S4.9.2.2	EM&A Manual S2.2, S4.2, AEIAR-174/2013 EM&A Manual S2.3.1.2	be fully covered by impermeable sheeting to reduce dust emission.		worksites	
		Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. Use of frequent watering for particularly dusty construction areas and areas close to ASRs.	Contractor	All relevant worksites	Implemented
		Misting for the dusty material should be carried out before being loaded into the vehicle. Any vehicle with an open load carrying area should have properly fitted side and tail boards.	Contractor	All relevant worksites	Implemented
		Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	Contractor	All relevant worksites	Implemented
		Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	Contractor	All relevant worksites	Implemented
		The vehicles should be restricted to maximum speed of 10 km per hour. Confined haulage and delivery vehicle to designated roadways insider the site. Onsite unpaved roads should be compacted and kept free of lose materials.	Contractor	All relevant worksites	Implemented
		Vehicle washing facilities should be provided at every vehicle exit point. Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites. The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	Contractor	All relevant worksites	Implemented
		Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	Contractor	All relevant worksites	Implemented
		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.	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed.	Contractor	All relevant worksites	Implemented
		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.	Contractor	All relevant worksites	Implemented
		Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.	Contractor	All relevant worksites	Implemented
		Open stockpiles shall be avoided or covered. Prevent placing dusty material storage piles near ASRs.	Contractor	All relevant worksites	Implemented
		Routing of vehicles and position of construction plant should be at the maximum possible distance from ASRs.	Contractor	All relevant worksites	Implemented
		<u>Dark smoke</u>			
		Dark smoke emission shall be control in accordance with the Air Pollution Control (Smoke) Regulation and ETWB TCW 19/2005.	Contractor	All relevant worksites	Implemented
		Plant and equipment should be well maintained to prevent dark smoke emission.	Contractor	All relevant worksites	Implemented
<u>Noise Measures</u>					
Trunk Road T2					
AEIAR-174/2013 S5.9.2.1	AEIAR-174/2013 EM&A Manual S3.4.1.1	The use of quieter plant, including Quality Powered Mechanical Equipment (QPME) is specified for the list of equipment: • Concrete lorry mixer • Dump Truck, 5.5 tonne < gross vehicle weight <= 38 tonne • Generator, Super Silenced, 70 dB(A) at 7m	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		• Poker, vibratory, Hand-held (electric) • Water Pump, Submersible (Electric) • Mobile Crane - KOBELCO CKS900 • Excavator, wheeled/tracked - HYUNDAI R80CR-9			
		Use of temporary or fixed noise barriers with a surface density of at least 10kg/m^2 to screen noise from movable and stationary plant.	Contractor	All relevant worksites	Implemented
		Use of enclosures with covers at top and three sides and a surface density of at least 10kg/m^2 to screen noise from generally static noisy plant such as air compressors.	Contractor	All relevant worksites	Implemented
		Use of acoustic fabric for the silent piling system, drill rigs, rock drills etc.	Contractor	All relevant worksites	Implemented
		<u>Good Site Practices</u>			
AEIAR-130/2009 S3.3, S5.3.10, AEIAR-174/2013 S5.9.2.1	AEIAR 130/2009 EM&A Manual S2.3, S4.3.2, AEIAR-174/2013 EM&A Manual S3.4.1.1	Only well-maintained plant should be operated on-site and plant shall be serviced regularly during the construction/ decommissioning program.	Contractor	All relevant worksites	Implemented
		Silencers or mufflers on construction equipment should be utilized and shall be properly maintained during the construction/ decommissioning program.	Contractor	All relevant worksites	Implemented
		Mobile plant, if any, should be sited as far away from NSRs as possible.	Contractor	All relevant worksites	Implemented
		Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or should be throttled down to a minimum.	Contractor	All relevant worksites	Implemented
		Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	Contractor	All relevant worksites	Implemented
		Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction/ decommissioning activities.	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Use of site hoarding as a noise barrier to screen noise at low level NSRs.	Contractor	All relevant worksites	Implemented
		For the use of hand held percussive breakers (with mass of above 10kg) and portable air compressors (supply air at 500 kPa or above), the noise level of such PME shall comply with a stringent noise emission standard and a noise emission label shall be obtained from the DEP before use at any time in construction site.	Contractor	All relevant worksites	Implemented
		Quiet powered mechanical equipment (PME) shall be used for the construction of the Project.	Contractor	All relevant worksites	Implemented
		Full enclosures shall be used to screen noise from relatively static PMEs (including air compressor, bar bender, concrete pump, generator and water pump) from sensitive receiver(s).	Contractor	All relevant worksites	Implemented
		Movable cantilevered noise barriers shall be used to screen noise from mobile PMEs (including asphalt paver, breaker, excavator and hand-held breaker) from sensitive receiver(s). These movable cantilevered noise barriers shall be located close to the mobile PMEs and shall be moved/adjusted iteratively in step with each movement of the corresponding mobile PMEs in order to maximize their noise reduction effects.	Contractor	All relevant worksites	Implemented
		Only approved or exempted Non-road Mobile Machineries (NRMMs) including regulated machines and non-road vechicles with proper labels are allowed to be used in specified activities on-site.	Contractor	All relevant worksites	Implemented
<u>Water Quality Measures</u>					
Trunk Road T2					
		<u>Accidental Spillage</u>			
AEIAR-174/2013 S6.4.8.5	AEIAR-174/2013 EM&A Manual S4.2.1.1	All bentonite slurry should be stored in a container that resistant to corrosion, maintained in good conditions and securely closed; The container should be labelled in English and Chinese and note that the container is for storage of bentonite slurry only.	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		The storage container should be placed on an area of impermeable flooring and bunded with capacity to accommodate 110% of the volume of the container size or 20% by volume stored in the area and enclosed with at least 3 sides.	Contractor	All relevant worksites	Implemented
		The storage container should be sufficiently covered to prevent rainfall entering the container or bunded area (water collected within the bund must be tested and disposed of as chemical waste, if necessary). An emergency clean up kit shall be readily available where bentonite fluid will be stored or used.	Contractor	All relevant worksites	Implemented
		The handling and disposal of bentonite slurries should be undertaken in accordance within ProPECC PN 1/94. Surplus bentonite slurries used in construction works shall be reconditioned and reused wherever practicable. Residual bentonite slurry shall be disposed of from the site as soon as possible as stipulated in Clause 8.56 of the General Specification for Civil Engineering Works. The Contractor should explore alternative disposal outlets for the residual bentonite slurry (dewatered bentonite slurry to be disposed to a public filling area and liquid bentonite slurry, if mixed with inert fill material, to be disposed to a public filling area) and disposal at landfill should be the last resort.	Contractor	All relevant worksites	Implemented
AEIAR-174/2013 S6.4.8.8	AEIAR-174/2013 EM&A Manual S4.2.1.1	In order to protect against impacts to the surrounding marine waters of the KTTS and Victoria Harbour in the event of an accidental spillage of fuel or oil, the Contractor will be required to prepare a spill response plan to the satisfaction of AFCD, EPD, FSD, Police, TD and WSD to define procedures for the control, containment and clean-up of any spillage that could occur on the construction site.	Contractor	All relevant worksites	Implemented
		<u>Dredging, Reclamation and Filling</u>			
		No dredging, reclamation or filling in the marine environment shall be carried out.	Contractor	All relevant worksites	Implemented
Decommissioning of the Radar Station of the former Kai Tak Airport					
		<u>Building Demolition</u>			

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
AEIAR-130/2009 S5.4	AEIAR 130/2009 EM&A Manual S4.4	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” should be followed as far as practicable in order to minimise surface runoff and the chance of erosion.	Contractor	All relevant worksites	Not Applicable
		There is a need to apply to EPD for a discharge licence under the WPCO for discharging effluent from the construction site. The discharge quality is required to meet the requirements specified in the discharge licence. All the runoff, wastewater or extracted groundwater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. It is anticipated that the wastewater generated from the works areas would be of small quantity. Monitoring of the treated effluent quality from the works areas should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD.	Contractor	All relevant worksites	Not Applicable
		<u>General Construction Works</u>			
		<u>Construction Runoff</u>			
AEIAR-130/2009 S3.4, S5.4/ AEIAR-174/2013 S6.4.8.1	AEIAR 130/2009 EM&A Manual S2.4, S4.4/ AEIAR-174/2013 EM&A Manual S4.2.1.1	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include the use of sediment traps and adequate maintenance of drainage systems to prevent flooding and overflow.	Contractor	All relevant worksites	Implemented
		Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles 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.	Contractor	All relevant worksites	Implemented
		Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.			
		Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Contractor	All relevant worksites	Implemented
		Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	Contractor	All relevant worksites	Implemented
		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.	Contractor	All relevant worksites	Implemented
		Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, 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.	Contractor	All relevant worksites	Implemented
		Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	Contractor	All relevant worksites	Implemented
		An adequately designed and located wheel washing bay should be provided at every site exit, and 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.	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		<u>Drainage</u>			
		It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	Contractor	All relevant worksites	Implemented
		All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Contractor	All relevant worksites	Implemented
		<u>Stormwater Discharges</u>			
		Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes.	Contractor	All relevant worksites	Implemented
		<u>Sewage Effluent</u>			
		Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	Contractor	All relevant worksites	Implemented
		<u>Debris and Litter</u>			
		In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials, litter or wastes to marine waters does not occur. Debris and refuse generated on-site should be collected, handled and disposed of	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		properly to avoid entering into the adjacent harbour waters. Stockpiles of cement and other construction materials should be kept covered when not being used.			
		<u>Accidental Spillage</u>			
		Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to the nearby harbour waters, all fuel tanks and storage areas should be provided with locks and be 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 the coastal waters of the Victoria Harbour WCZ. The bund should be drained of rainwater after a rain event.	Contractor	All relevant worksites	Partially Implemented
<u>Waste Management Measures</u>					
		<u>Waste Management Plan</u>			
AEIAR-174/2013 S11.4.8.1	AEIAR-174/2013 EM&A Manual S9.2.1.2	Contractor should be requested to submit an outline Waste Management Plan (WMP) prior to the commencement of construction work, in accordance with the ETWB TC(W) No.19/2005 so as to provide an overall framework of waste management and reduction.	Contractor	All relevant worksites	Implemented
		<u>Good Site Practices</u>			
AEIAR-130/2009 S3.5, S5.5	AEIAR 130/2009 EM&A Manual S2.5, S4.5	Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.	Contractor	All relevant worksites	Implemented
		Training of site personnel in proper waste management and chemical waste handling procedures.	Contractor	All relevant worksites	Implemented
		Provision of sufficient waste disposal points and regular collection for disposal.	Contractor	All relevant worksites	Implemented
		Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	Contractor	All relevant worksites	Implemented
		<u>Waste Reduction Measures</u>			
		Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals.	Contractor	All relevant worksites	Implemented
		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.	Contractor	All relevant worksites	Implemented
		Encourage collection of aluminum cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force.	Contractor	All relevant worksites	Implemented
		Any unused chemicals or those with remaining functional capacity should be recycled.	Contractor	All relevant worksites	Implemented
		Proper storage and site practices to minimize the potential for damage or contamination of construction materials.	Contractor	All relevant worksites	Implemented
		<u>Construction and Demolition Materials</u>			
		Where it is unavoidable to have transient stockpiles of C&D material within the work site pending collection for disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible.	Contractor	All relevant worksites	Implemented
		Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric.	Contractor	All relevant worksites	Implemented
		Skip hoist for material transport should be totally enclosed by impervious sheeting.	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site.	Contractor	All relevant worksites	Implemented
		The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	Contractor	All relevant worksites	Implemented
		The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle.	Contractor	All relevant worksites	Implemented
		All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.	Contractor	All relevant worksites	Implemented
		The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading.	Contractor	All relevant worksites	Implemented
		When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket System for Disposal of Construction and Demolition Materials” should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	Contractor	All relevant worksites	Implemented
		<u>Chemical Waste</u>			
		After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		General Refuse			
		General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem.	Contractor	All relevant worksites	Implemented
Land Contamination Measures					
		For any excavation works conducted at Radar Station			
		As the risk due to dermal contact with groundwater by site workers is uncertain, it is recommended that personnel protective equipment (PPE) be used by site workers as a mitigation measure.	Contractor	All relevant worksites	Not Applicable
Landscape and Visual Impact					
		New Distributor Roads Serving the Planned KTD			
		Construction Phase			
		All existing trees should be carefully protected during construction.	Contractor	All relevant worksites	Not Applicable
		Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.	Contractor	All relevant worksites	Not Applicable
		Control of night-time lighting.	Contractor	All relevant worksites	Not Applicable

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		Erection of decorative screen hoarding.	Contractor	All relevant worksites	Implemented
		Trunk Road T2			
		Construction Phase			
AEIAR-174/2013 S9.9.1.1	AEIAR-174/2013 EM&A Manual S7.2.1.2	All works shall be carefully designed to minimize impacts on existing landscape resources and visually sensitive receivers. Existing trees within works area shall be retained and protected.	Contractor	All relevant worksites	Not Applicable
		Existing trees of good quality and condition that are unavoidably affected by the works should be transplanted.	Contractor	All relevant worksites	Not Applicable
		Large temporary stockpiles of excavated material shall be covered with unobtrusive sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance.	Contractor	All relevant worksites	Partially Implemented
		Construction plant and building material shall be orderly and carefully stored in order to create a neat and tidy visual appearance.	Contractor	All relevant worksites	Implemented
		Erection of decorative screen hoarding should be designed to be compatible with the existing urban context.	Contractor	All relevant worksites	Implemented
		All lighting in construction site shall be carefully controlled to minimize light pollution and night-time glare to nearby residences and GIC user. The contractor shall consider other security measures, which shall minimize the visual impacts.	Contractor	All relevant worksites	Not Applicable
General Condition					
		The Permit Holder shall display conspicuously a copy of this Permit on the Project site(s) at all vehicular site entrances/exits or at a convenient location for public's information at all times. The Permit Holder shall ensure that the most updated information about the Permit, including any amended Permit, is displayed at such locations. If the Permit Holder surrenders a part or the whole of the Permit, the notice he sends to the Director shall also be displayed at the same	Contractor	All relevant worksites	Implemented

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EIA Ref	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Who to implement the measure	Location / Timing	Construction Phase Implementation Status
		locations as the original Permit. The suspended, varied or cancelled Permit shall be removed from display at the Project site(s).			

Implementation status: Implemented / Partially Implemented / Not Implemented / Not Applicable

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Appendix K

Weather and Meteorological Conditions during Reporting Month

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Date	Mean Pressure (hPa)	Air Temperature			Mean Relative Humidity (%)	Total Rainfall (mm)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)		
October 2018						
01	1013.9	29.6	26.8	23.2	70	2.9
02	1014.9	30.4	27.2	25.3	67	0
03	1015.3	30.5	26.9	25	68	0
04	1013.8	30.5	26.9	24.2	54	0
05	1012.1	31.4	27.1	23.6	40	0
06	1013.4	30.9	26.8	23.5	48	0
07	1014.7	30.5	27.1	25.1	69	0
08	1014.2	29.8	26.7	24.3	75	2
09	1013.7	29.3	26.5	25.1	78	0.6
10	1014.7	29.2	24.8	22.5	83	42.8
11	1017.6	24.7	23.2	22.3	72	0
12	1018.9	27.1	23.8	22	73	0.3
13	1017.5	26.8	24.7	22.7	72	0.4
14	1015.5	27.3	25.3	23.6	79	0.6
15	1014.6	27.9	25.6	24.3	84	31.4
16	1013.2	25.8	24.3	23.2	92	8.9
17	1012.5	25.2	23.5	21.9	84	1.5
18	1014.7	23.9	22.5	20.9	87	12.6
19	1017.2	26	24.2	23	77	0.2
20	1018.6	24.9	24	23.3	78	Trace
21	1017.6	27.3	24.8	23.2	77	Trace
22	1015.9	27.4	25	23.7	81	Trace
23	1016.5	27.4	25.3	24.1	79	0.1
24	1016.8	27.4	25.2	24	80	Trace
25	1017	27.7	25.5	24.4	79	0
26	1016.5	28.6	26.3	23.9	76	0
27	1018.1	27.9	25.4	23.7	61	0
28	1017.4	27.5	24.3	21.7	54	0
29	1015.1	28.9	25.2	22.2	35	0
30	1014.8	28.5	25.7	23.4	33	0
31	1014.2	27.2	25	22.9	37	0

Source: Hong Kong Observatory

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Appendix L

Cumulative statistics on Environmental Complaints, Notifications of Summons and Successful Prosecution

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Environmental Complaints Log

Reference No.	Date of Complaint Received	Received From	Received By	Nature of Complaint	Date of Investigation	Outcome	Date of Reply
20161207_complaint_c	7 Dec 2016	EPD	Andy Choy (CRBC)	Air	13 Feb 2017	Project-related	13 Feb 2017
20170209_complaint_c	9 Feb 2017	EPD	Andy Choy (CRBC)	Air	22 Feb2017	Not Project-related	7 Mar 2017
20170502_complaint_c	2 May 2017	CEDD	Andy Choy (CRBC)	Noise	4 May 2017	Not Valid	22 May 2017
20170716_complaint_a	16 July 2017	CEDD	HMJV	Water Quality	4 Aug 2017	Not Project-related	4 Aug 2017
20180530_complaint	30 May 2018	EPD	CRBC	Air	9 June 2018	Not Valid	20 June 2018

Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Project-to-Date
Air	3	0	3
Noise	1	0	1
Water	1	0	1
Waste	0	0	0
Total	0	0	0

Cumulative Statistics on Notification of Summons and Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Notification of Summons and Prosecutions This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

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Appendix M

Summary of Site Audit in the Reporting Month

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Summary of Site Audit in the Reporting Month

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	24 October 2018	Reminder: Backfilling material in Zone 1 should be properly covered.	NA
Noise	NA		
Water Quality	NA		
Chemical and Waste Management	3 October 2018	Observation: Chemical containers were not placed on drip tray (Zone 3). Contractor should provide drip tray to store chemical containers properly.	The item was rectified by the Contractor and inspected on 10 October 2018.
Land Contamination	NA		
Landscape and Visual Impact	24 October 2018	Reminder: Backfilling material in Zone 1 should be properly covered.	NA
General Condition	NA		

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Appendix N

Outstanding Issues and Deficiencies

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Summary of Outstanding Issues and Deficiencies in the Reporting Month

Parameters	Outstanding Issues	Deficiencies
Air Quality	NA	Any items of deficiencies can be referred to **Appendix M**.
Noise	NA	
Water Quality	NA	
Chemical and Waste Management	NA	
Land Contamination	NA	
Landscape and Visual Impact	NA	
General Condition	NA	
Others	NA	

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Appendix E

Monthly EM&A Report
For
Contract No. KL/2015/02
Kai Tak Development - Stage 5A Infrastructure at Former North Apron Area

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Civil Engineering and Development Department

EP-337/2009 – New Distributor Roads Serving the Planned KTD

Contract No. KLN/2016/04
Environmental Monitoring Works for
Contract No. KL/2015/02
Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area

Monthly EM&A Report

October 2018

(version 1.0)

Approved By	(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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Date 13 November 2018
Our Ref. MCL/ED/0536/2018/C

Cinotech Consultants Limited
Rm 1710, Technology Park,
18 On Lai Street, Shatin,
New Territories,
Hong Kong

BY EMAIL

Attn.: Dr. Priscilla Choy

Dear Madam,

Contract No. KL/2015/02
Kai Tak Development –Stage 5A Infrastructure at Former North Apron
Verification of Monthly EM&A Report for October 2018

We refer to your emails dated 6, 12 and 13 November 2018 regarding the Monthly EM&A Report for October 2018 for the captioned project prepared by the ET.

We have no further comment and hereby verify the Report in accordance with Clause 3.3 of Environmental Permit no. EP-337/2009.

Should you require further information, please do not hesitate to contact Mr. Wingo So at 3565 4374 or the undersigned on 3565 4114.

Assuring you of our best attention at all times.

Yours faithfully,
For and on behalf of
FUGRO TECHNICAL SERVICES LIMITED

Colin K. L. Yung
Independent Environmental Checker

CY/ws

c.c. CEDD – Attn.: Ms. K. Pong
Attn.: Mr. Jeremy Yuen
AECOM – Attn.: Mr. Vincent Lee
Attn.: Mr. Stanley Chan

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EXECUTIVE SUMMARY

Introduction

1. This is the 22nd Monthly Environmental Monitoring and Audit Report prepared by Cinotech Consultants Ltd. for "Contract No. KL/2015/02 - Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area" (Hereafter referred to as "the Project"). This contract comprises one Schedule 2 designated project (DP), namely the new distributor road D1 serving the planned KTD. The DP is part of the designated project under Environmental Permit (EP) No.: EP-337/2009 ("New distributor roads serving the planned Kai Tak Development") respectively. This report documents the findings of EM&A Works conducted during October 2018.

2. With reference to the same principle of EIA report of the Project, air quality monitoring stations within 500m and noise monitoring stations within 300m from the boundary of this Project are considered as relevant monitoring locations. In such regard, the relevant air quality and noise monitoring locations are tabulated in **Table I** (see **Figure 2 and 3** for their locations).

Table I – Air Quality and Noise Monitoring Stations for this Project

Locations	Monitoring Stations In accordance with EM&A Manual	Alternative Monitoring Stations
Air Quality Monitoring Stations		
AM2 - Lee Kau Yan Memorial School	Yes (1-hour TSP)	N/A
	No (24-hour TSP)	AM2(A) – Ng Wah Catholic Secondary School
Noise Monitoring Stations		
M3 - Cognitio College	Yes	N/A
M4 - Lee Kau Yan Memorial School	Yes	N/A
M5 – Nam Yuen	No	M5(C) – Mercy Grace's Home

3. The major site activities undertaken in the reporting month included:
   - Excavate with ELS works for subway construction at PERE
   - Structural works for subway SW6 from CH0 to CH18 and Staircase ST3
   - Carry out trial pits and drive sheet piles for subway construction at layby of PERE (Stage 4)
   - Demolition of existing end walls at B5 connection
   - Flow diversion and demolition of existing box culvert for B3 and B6 construction
   - DCS and Drainage and works in Portion 6, Road D1
   - DCS, Drainage, Sewerage and Waterworks in Road L7
   - Drainage and Sewerage works in Portion 2 & 3

Environmental Monitoring Works

4. Environmental monitoring for the Project was performed in accordance with the EM&A Manual

and the monitoring results were checked and reviewed. Site Inspections/Audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

5. Summary of the non-compliance in the reporting month for the Project is tabulated in **Table II**.

Table II Non-compliance Recorded for the Project in the Reporting Month

Parameter	No. of Project-related Exceedance		Action Taken
	Action Level	Limit Level	
1-hr TSP	0	0	N/A
24-hr TSP	0	0	N/A
Noise	0	0	N/A

1-hour & 24-hour TSP Monitoring

6. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

7. All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

8. All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Environmental Licenses and Permits

9. Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, EP-337/2009 issued on 23 April 2009. All valid Licenses/Permits for this Project are shown in **Table 6.1**.

- Billing Account for Construction Waste Disposal (A/C# 7026164).
- Effluent Discharge License (WT00027495-2017).
- Registration of Chemical Waste Producer (WPN5213-286-P3271-01).

Key Information in the Reporting Month

10. Summary of key information in the reporting month is tabulated in **Table III**.

Table III Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	---	---	N/A	N/A	---
Reporting Changes	---	---	N/A	N/A	---
Notifications of any summons & prosecutions received	---	---	N/A	N/A	---

Future Key Issues

11. The future key environmental issues in the coming month include:
    - Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
    - Water spraying for dust generating activity and on haul road;
    - Proper storage of construction materials on site;
    - Storage of chemicals/fuel and chemical waste/waste oil on site;
    - Accumulation of general and construction waste on site;
    - Noise from operation of the equipment, especially for rock-breaking activities, piling works and machinery on-site;
    - Wastewater and runoff discharge from site;
    - Regular removal of silt, mud and sand along u-channels and sedimentation tanks; and
    - Review and implementation of temporary drainage system for the surface runoff.

1. INTRODUCTION

Background

1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. Stage 5A Infrastructure at Former North Apron Area is one of the construction stages of KTD. It contains one Schedule 2 DP including new distributor roads serving the planned KTD. The general layout of the Project is shown in **Figure 1.**

1.2 An Environmental Permit (EP) No. EP-337/2009 was issued on 23 April 2009 for new distributor roads serving the planned KTD to Civil Engineering and Development Department as the Permit Holder.

1.3 A study of environmental impact assessment (EIA) was undertaken to consider the key issues of air quality, noise, water quality, waste, land contamination, cultural heritage and landscape and visual impact, and identify possible mitigation measures associated with the works. An EIA Report (Register No. AEIAR-130/2009) was approved by the Environmental Protection Department (EPD) on 4 April 2009.

1.4 Cinotech Consultants Limited (Cinotech) was commissioned by Civil Engineering and Development Department (CEDD) to undertake the role of the Environmental Team (ET) for the Contract No. KL/2015/02 – Stage 5A Infrastructure at Former North Apron Area. The construction work under KL/2015/02 comprises the construction of part of the Road D1 under the EP (EP-337/2009).

1.5 Cinotech Consultants Limited was commissioned by Civil Engineering and Development Department (CEDD) to undertake the Environmental Monitoring and Audit (EM&A) works for the Project. The commencement date of construction of Road D1 (part) under this Contract was on 16 January 2017.

Project Organizations

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

- Project Proponent – Civil Engineering and Development Department (CEDD).
- The Engineer and the Engineer's Representative (ER) – AECOM Asia Co. Ltd (AECOM).
- Environmental Team (ET) – Cinotech Consultants Limited (Cinotech).
- Independent Environmental Checker (IEC) – Fugro Technical Services Limited (FTS).
- Contractor – Peako - Wo Hing Joint Venture (PWHJV).

1.7 The key contacts of the Project are shown in **Table 1.1**.

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Position	Phone No.	Fax No.
CEDD	Project Proponent	Ms. K. Pong	Senior Engineer	2301 1466	2369 4980
AECOM	Engineer's Representative	Mr. Vincent Lee	SRE	2798 0771	2210 6110
Cinotech	Environmental Team	Dr. Priscilla Choy	Environmental Team Leader	2151 2089	3107 1388
		Ms. Ivy Tam	Audit Team Leader	2151 2090	
FTS	Independent Environmental Checker	Mr. Colin Yung	Independent Environmental Checker	3565 4114	2450 8032
PWHJV	Contractor	Mr. W.M. Wong	Site Agent	6386 3535	2398 8301

Construction Activities undertaken during the Reporting Month

1.8 The site activities undertaken in the reporting month included:

- Excavate with ELS works for subway construction at PERE
- Structural works for subway SW6 from CH0 to CH18 and Staircase ST3
- Carry out trial pits and drive sheet piles for subway construction at layby of PERE (Stage 4)
- Demolition of existing end walls at B5 connection
- Flow diversion and demolition of existing box culvert for B3 and B6 construction
- DCS and Drainage and works in Portion 6, Road D1
- DCS, Drainage, Sewerage and Waterworks in Road L7
- Drainage and Sewerage works in Portion 2 & 3

1.9 The construction programme for the Project is shown in **Appendix N**.

1.10 The construction programme showing the inter-relationship with environmental protection/mitigation measures are presented in **Table 1.2**.

Table 1.2 Construction Programme Showing the Inter-Relationship with Environmental Protection/Mitigation Measures

Construction Works	Major Environmental Impact	Control Measures
Refer to Section 1.8	Noise, dust impact, water quality and waste generation	• Sufficient watering of the works site with active dust emitting activities; • Properly cover the stockpiles; • On-site waste sorting and implementation of trip ticket system • Appropriate desilting/sedimentation devices provided on site for treatment before discharge; • Use of quiet plant and well-maintained construction plant; • Provide movable noise barrier; • Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall; • Provide sufficient mitigation measures as recommended in Approved EIA Report/Lease requirement.

Summary of EM&A Requirements

1.11 The EM&A programme requires construction noise monitoring, air quality monitoring, landscape and visual monitoring and environmental site audit. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event Action Plans;
- Environmental requirements and mitigation measures, as recommended in the EM&A Manual under the EP.

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

1.13 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely air quality and noise levels and audit works for the Project during October 2018.

2. AIR QUALITY

Monitoring Requirements

2.1 According to EM&A Manual under the EP, 1-hour and 24-hour TSP monitoring were conducted to monitor the air quality for this Project. For regular impact monitoring, a sampling frequency of at least once in every six days at all of the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six days shall be undertaken when the highest dust impact occurs. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

2.2 1-hour TSP impact dust monitoring was conducted at the air quality monitoring station, AM2 - Lee Kau Yan Memorial School and 24-hour TSP impact dust monitoring were conducted at the air quality monitoring station, AM2(A) - Ng Wah Catholic Secondary School in the reporting month.

2.3 **Table 2.1** describes the air quality monitoring locations, which are also depicted in **Figure 2**.

Table 2.1 Locations for Air Quality Monitoring

Monitoring Stations	Locations	Location of Measurement
AM2 (1-hour TSP)	Lee Kau Yan Memorial School	Rooftop (about 8/F) Area
AM2(A) (24-hour TSP)	Ng Wah Catholic Secondary School	Rooftop (about 8/F) Area

Monitoring Equipment

2.4 **Table 2.2** summarizes the equipment used in the impact air monitoring programme. Copies of calibration certificates are attached in **Appendix B**.

Table 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Calibrator	TISCH TE-5025A	1
1-hour TSP Dust Meter	Hal Technology Hal-HPC300 / 301	4
HVS Sampler	TE-5170 c/w of TSP sampling inlet	1
Wind Anemometer	Davis Instruments 7440	1

Monitoring Parameters, Frequency and Duration

2.5 **Table 2.3** summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period. The air quality monitoring schedule for the reporting month is shown in **Appendix D**.

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

Parameters	Frequency
1-hr TSP	Three times / 6 days
24-hr TSP	Once / 6 days

Monitoring Methodology and QA/QC Procedure

1-hour TSP Monitoring

(Equipment: Hal Technology; Model no. Hal-HPC300, Hal-HPC301)

Measuring Procedures

2.5 The measuring procedures of the 1-hour dust meters were in accordance with the Manufacturer's Instruction Manual as follows:

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Set POWER to "ON" and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet has been released.
- Push the knob at MEASURE position.
- Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
- Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, count value and site condition were recorded during the monitoring period.

Maintenance/Calibration

2.6 The following maintenance/calibration was required for the direct dust meters:

Check the meter at a 3-month interval and calibrate the meter at a 1-year interval throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

2.7 High volume (HVS) samplers (Model TE-5170), completed with appropriate sampling inlets, were employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50). Moreover, the HVS also met all the requirements in section 2.5 of the updated EM&A Manual.

Operating/Analytical Procedures

2.8 Operating/analytical procedures for the operation of HVS were as follows:

- A horizontal platform was provided with appropriate support 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 sampler was more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

2.9 Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m^3/min. and 1.4 m^3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

2.10 For TSP sampling, fiberglass filters have a collection efficiency of > 99% for particles of 0.3μm diameter were used.

2.11 The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.

2.12 The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.

2.13 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. The applied pressure should be sufficient to avoid air leakage at the edges.

2.14 The shelter lid was closed and secured with the aluminum strip.

2.15 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).

2.16 After sampling, the filter was removed and sent to the HOKLAS laboratory (Wellab Ltd.) for weighing. The elapsed time was also recorded.

2.17 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature 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%.

Maintenance/Calibration

2.18 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.
- High volume samplers were calibrated at bi-monthly intervals using TE-5025A Calibration Kit throughout all stages of the air quality monitoring.

Results and Observations

2.19 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

2.20 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

2.21 The weather information for the reporting month is summarized in **Appendix C.**

2.22 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices E and F** respectively.

2.23 The summary of exceedance record in reporting month is shown in **Appendix H**. No exceedance was recorded for the air quality monitoring.

2.24 According to our field observations during the monitoring, the major dust source identified at the two designated air quality monitoring stations are road traffic dust, exposed site area and open stockpiles, excavation works and site vehicle movements.

2.25 The summary of 1-hour and 24-hour TSP air quality monitoring results during the reporting month are shown in **Appendix E** and **Appendix F** respectively.

3. NOISE

Monitoring Requirements

3.1 According to EM&A Manuals under the EP, construction noise monitoring was conducted to monitor the construction noise arising from the construction activities within KTD. The regular monitoring frequency for each monitoring station shall be on a weekly basis and conduct one set of measurements between 0700 and 1900 hours on normal weekdays. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

3.2 Three designated monitoring stations were selected for noise monitoring programme. Noise monitoring was conducted at three designated monitoring stations (M3, M4, M5(C)). **Figure 3** shows the locations of these stations.

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Locations	Location of Measurement
M3	Cognitio College	Rooftop (about 6/F) Area
M4	Lee Kau Yan Memorial School	Rooftop (about 7/F) Area
M5(C)	Mercy Grace's Home	Rooftop (about 5/F) Area

Monitoring Equipment

3.3 **Table 3.2** summarizes the noise monitoring equipment. Copies of calibration certificates are provided in **Appendix B**.

Table 3.2 Noise Monitoring Equipment

Equipment	Model and Make	Qty.
Integrating Sound Level Meter	• SVANTEK SVAN 955 & 957 • BSWA 801	7
Calibrator	• SVANTEK SV30A • Brüel & Kjær 4231	3

Monitoring Parameters, Frequency and Duration

3.4 **Table 3.3** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency	Measurement
M3 M4 M5(C)	L_{10}(30 min.) dB(A) L_{90}(30 min.) dB(A) L_{eq}(30 min.) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade

Monitoring Methodology and QA/QC Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2 m above the ground.
- The battery condition was checked to ensure the correct 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
  - time measurement : 30 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the L_{eq}, L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused temporarily during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- 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.

Maintenance and Calibration

3.5 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.

3.6 The sound level meter and calibrator were checked and calibrated at yearly intervals.

3.7 Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

3.8 All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. The summary of exceedance record in reporting month is shown in **Appendix H**.

3.9 The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table 3.5**.

3.10 Noise monitoring results and graphical presentations are shown in **Appendix G**.

3.11 The major noise source identified at the designated noise monitoring stations are shown in **Table 3.4**.

Table 3.4 Major Noise Source identified at the Designated Noise Monitoring Stations

Monitoring Stations	Locations	Major Noise Source
M3	Cognitio College	Traffic Noise Daily school activities
M4	Lee Kau Yan Memorial School	Traffic Noise Site vehicle movement Excavation works Piling works Daily school activities
M5(C)	Mercy Grace's Home	Traffic Noise Site vehicle movement

Table 3.5 Baseline Noise Level and Noise Limit Level for Monitoring Stations

Station	Baseline Noise Level, dB (A)	Noise Limit Level, dB (A)
M3	76.3/78.6(1) (at 0700 – 1900 hrs on normal weekdays)	70* (at 0700 – 1900 hrs on normal weekdays)
M4	76.7 (at 0700 – 1900 hrs on normal weekdays)	
M5(C)	N/A(2) (at 0700 – 1900 hrs on normal weekdays)	75 (at 0700 – 1900 hrs on normal weekdays)

(*) Noise Limit Level is 65 dB(A) during school examination periods.

Note (1): The baseline noise review report submitted for M3 was approved by EPD on 23rd August 2013. (Baseline Level was found to be 78.6 dB(A) at Rooftop of Cognitio College)

Note (2): The background Noise Level was recorded during the Lunch Hour of Construction Site (i.e. 12:00-13:00) and to be used as the referencing value for compliance checking for Noise Action and Limit Level.

Note (3): The noise level due to the construction work (CNL) was calculated by the following formula:

$$CNL = 10 \log (10^{MNL/10} - 10^{BNL/10})$$

Remarks: MNL = Measured Noise Level, BNL = Baseline Noise Level

4. COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS

4.1 The EM&A data was compared with the EIA predictions as summarized in **Tables 4.1** to **4.3**.

Table 4.1 Comparison of 1-hr TSP data with EIA predictions

Station	Predicted 1-hr TSP conc.		Measured 1-hr TSP conc.	
	Scenario1 (Mid 2009 to Mid-2013), µg/m^3	Scenario2 (Mid 2013 to Late 2016), µg/m^3	Reporting Month (October 18), µg/m^3	
			Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	88.8	38.9– 202.0

Table 4.2 Comparison of 24-hr TSP data with EIA predictions

Station	Predicted 24-hr TSP conc.		Measured 24-hr TSP conc.	
	Scenario1 (Mid 2009 to Mid-2013), µg/m^3	Scenario2 (Mid 2013 to Late 2016), µg/m^3	Reporting Month (October 18), µg/m^3	
			Average	Range
AM2(A) – Ng Wah Catholic Secondary School	145	169	58.4	24.4 – 86.5

Table 4.3 Comparison of Noise Monitoring Data with EIA predictions

Stations	Predicted Mitigated Construction Noise Levels during Normal Working Hour ($L_{eq\ (30min)}$ dB(A))	Reporting Month (October 18), $L_{eq\ (30min)}$ dB(A)
M3 – Cognitio College	47 – 75	63.9 – 78.8(1)
M4 – Lee Kau Yan Memorial School	47 – 74	73.1 – 76.1(2)
M5(C) – Mercy Grace's Home	Not predicted in EIA Report	66.7 – 77.8(1)

Remarks:
(1) Since the background noise level recorded during 12:00 to 13:00 was higher than those recorded during the construction period, the recorded noise levels were considered non-valid exceedance of Noise Limit Level.
(2) Since the baseline noise level was higher than those recorded during the construction period, the recorded noise levels were considered non-valid exceedance of Noise Limit Level.

4.2 The average 1-hour TSP concentrations at AM2 in the reporting month were below the prediction in the approved Environmental Impact Assessment (EIA) Report.

4.3 The average 24-hour TSP concentrations at AM2(A) in the reporting month were below the prediction in the approved EIA Report.

4.4 The noise monitoring results in the reporting month at M3 and M4 were outside the range of the predicted mitigated constriction noise levels in the EIA Report.

4.5 Construction noise levels at M5(C) were not predicted in EIA Report.

5. LANDSCAPE AND VISUAL

Monitoring Requirements

5.1 According to EM&A Manual of the Kai Tak Development EIA Study, ET shall monitor and audit the contractor's operation during the construction period on a weekly basis, and to report on the contractor's compliance.

Results and Observations

5.2 Site audits were conducted on a weekly basis to monitor the timely implementation of landscape and visual mitigation measures within the site boundaries of this Project. The summaries of site audits are attached in **Appendix I**.

5.3 No non-compliance of the landscape and visual impact was recorded in the reporting month.

5.4 Should non-compliance of the landscape and visual impact occur, action in accordance with the action plan presented in **Appendix J** shall be performed.

6. ENVIRONMENTAL AUDIT

Site Audits

6.1 Site audits were carried out on a 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 I**.

6.2 Site audits were conducted on 2, 10, 15, 22 and 29 October 2018 in the reporting month. A joint site audit with the representative of IEC, ER, the Contractor and the ET was conducted on 10 October 2018. The details of the observations during site audit are summarized in **Table 6.2**.

Review of Environmental Monitoring Procedures

6.3 The monitoring works conducted by the monitoring team were inspected regularly. The following observations have been recorded for the monitoring works:

Air Quality Monitoring
- The monitoring team recorded all observations around the monitoring stations within and outside the construction site.
- The monitoring team recorded the temperature and weather conditions on the monitoring days.

Noise Monitoring
- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- Major noise sources were identified and recorded. Other intrusive noise attributing to the result was trimmed off by pausing the monitoring temporarily.

Status of Environmental Licensing and Permitting

6.4 All permits/licenses obtained for the Project are summarized in **Table 6.1**.

Table 6.1 Summary of Environmental Licensing and Permit Status

Permit No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-337/2009	23/04/09	N/A	Valid
Effluent Discharge License			
WT00027495-2017	28/03/17	31/03/22	Valid
Billing Account for Construction Waste Disposal			
A/C# 7026164	20/10/16	N/A	Valid
Registration of Chemical Waste Producer			
WPN5213-229-P3271-01	14/08/17	N/A	Valid
Construction Noise Permit (CNP)			
-	-	-	-

Status of Waste Management

6.5 The amount of wastes generated by the major site activities of this Project during the reporting month is shown in **Appendix M**.

Implementation Status of Environmental Mitigation Measures

6.6 During site inspections in the reporting month, no non-conformance was identified. ET weekly site inspections were carried out during the reporting month and the observations and recommendations are summarized in **Table 6.2**.

Table 6.2 Observations and Recommendations of Site Inspections

Parameters	Ref No.	Observations and Recommendations	Follow-up
Water Quality	2 October 2018	Muddy water should be treated in the first chamber of the sedimentation tank before discharging (Portion 1).	Rectification/improvement was observed during the follow-up audit session on 10 October 2018
	22 October 2018	Sediment was seen accumulated in the sediment tank, Contractor was reminded to clear the sediment regularly.	Rectification/improvement was observed during the follow-up audit session on 29 October 2018
Air Quality	2 October 2018	Dusty haul road should be sprayed with water for dust suppression (Portion 1, 2)	Rectification/improvement was observed during the follow-up audit session on 10 October 2018
	10 October 2018	Generators should be attached with NRMM labels (B5)	Rectification/improvement was observed during the follow-up audit session on 15 October 2018
	15 October 2018	Stockpile should be covered to prevent dust generation at the end of the working day. The contractor is reminded to provide photo record for ET certification	Rectification/improvement was observed during the follow-up audit session on 22 October 2018
	22 October 2018	Contractor should clear the sediment in the drip tray of the generator.	Rectification/improvement was observed during the follow-up audit session on 29 October 2018
	29 October 2018	Water should be sprayed on the haul road regularly for dust suppression. (Portion 1)	Rectification/improvement was observed during the follow-up audit session on 5 November 2018
Noise	N/A	--	--
Waste/ Chemical Management	10 October 2018	General refuse and other waste should be sorted and disposed (B5).	Rectification/improvement was observed during the follow-up audit session on 15 October 2018
Landscape and Visual	N/A	--	--
Permits/ Licenses	N/A	--	--

Summary of Mitigation Measures Implemented

6.7 An updated summary of the EMIS is provided in **Appendix K**.

Implementation Status of Event Action Plans

6.8 The Event Action Plans for air quality, noise and landscape and visual are presented in **Appendix J**.

1-hr TSP Monitoring

6.9 No Action/Limit Level exceedance was recorded in the reporting month.

24-hr TSP Monitoring

6.10 No Action/Limit Level exceedance was recorded in the reporting month.

Construction Noise

6.11 No Action/Limit Level exceedance was recorded in the reporting month.

Landscape and visual

6.12 No non-compliance was recorded in the reporting month.

Summary of Complaint, Warning, Notification of any Summons and Successful Prosecution

6.13 The summaries of environmental complaint, warning, summon and notification of successful prosecution for the Project is presented in **Appendix L**.

7. FUTURE KEY ISSUES

7.1 Major site activities undertaken for the coming two months include:

- Excavate with ELS works for subway construction at PERE
- Structural works for subway SW6 from CH0 to CH34 and Staircase ST3
- Structural works for pile caps at the existing Bridge K72
- Sheet piling works at SKLR playground (Stage 4)
- Demolish the existing K73 parapet for temporary slip road (Stage 4)
- Demolition of existing end walls at B5 connection
- Construction of box culvert B3 and B6 connection
- DCS and Drainage and works in Portion 6, Road D1
- DCS, Drainage, Sewerage and Waterworks in Road L7
- Drainage and Sewerage works in Portion 2 & 3
- Drainage, Sewerage and Water works in Portion 4

7.2 Key environmental issues in the coming month include:

- Wastewater and runoff discharge from site;
- Regular removal of silt, mud and sand along u-channels and sedimentation tanks;
- Review and implementation of temporary drainage system for the surface runoff;
- Noise from operation of the equipment, especially for rock-breaking activities, piling works and machinery on-site;
- Dust generation from stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- Water spraying for dust generating activity and on haul road;
- Proper storage of construction materials on site;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation of general and construction waste on site.

7.3 The tentative major site activities is mentioned in Section 7.1 of this report. The impact prediction and control measures for the coming two months are summarized as follows:

<u>Air quality impact (dust)</u>

- Frequent watering of haul road and unpaved/exposed areas;
- Frequent watering or covering stockpiles with tarpaulin or similar means; and
- Watering of any earth moving activities.

<u>Water quality impact (surface run-off)</u>

- Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains;
- Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge;
- Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and
- Provision of measures to prevent discharge into the stream.

<u>Noise Impact</u>

- Scheduling of noisy construction activities if necessary to avoid persistent noisy operation;

- Controlling the number of plants use on site;
- Regular maintenance of machines; and
- Use of acoustic barriers if necessary.

Monitoring Schedule for Next Month

7.4 The tentative environmental monitoring schedules for next month are shown in **Appendix D**.

8. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

8.1 Environmental monitoring works were performed in the reporting month and all monitoring results were checked and reviewed.

1-hr TSP Monitoring

8.2 All 1-hr TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hr TSP Monitoring

8.3 All 24-hr TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

8.4 All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Landscape and visual

8.5 No non-compliance was recorded in the reporting month.

Complaint and Prosecution

8.6 No environmental complaint and environmental prosecution was received in the reporting month.

Recommendations

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

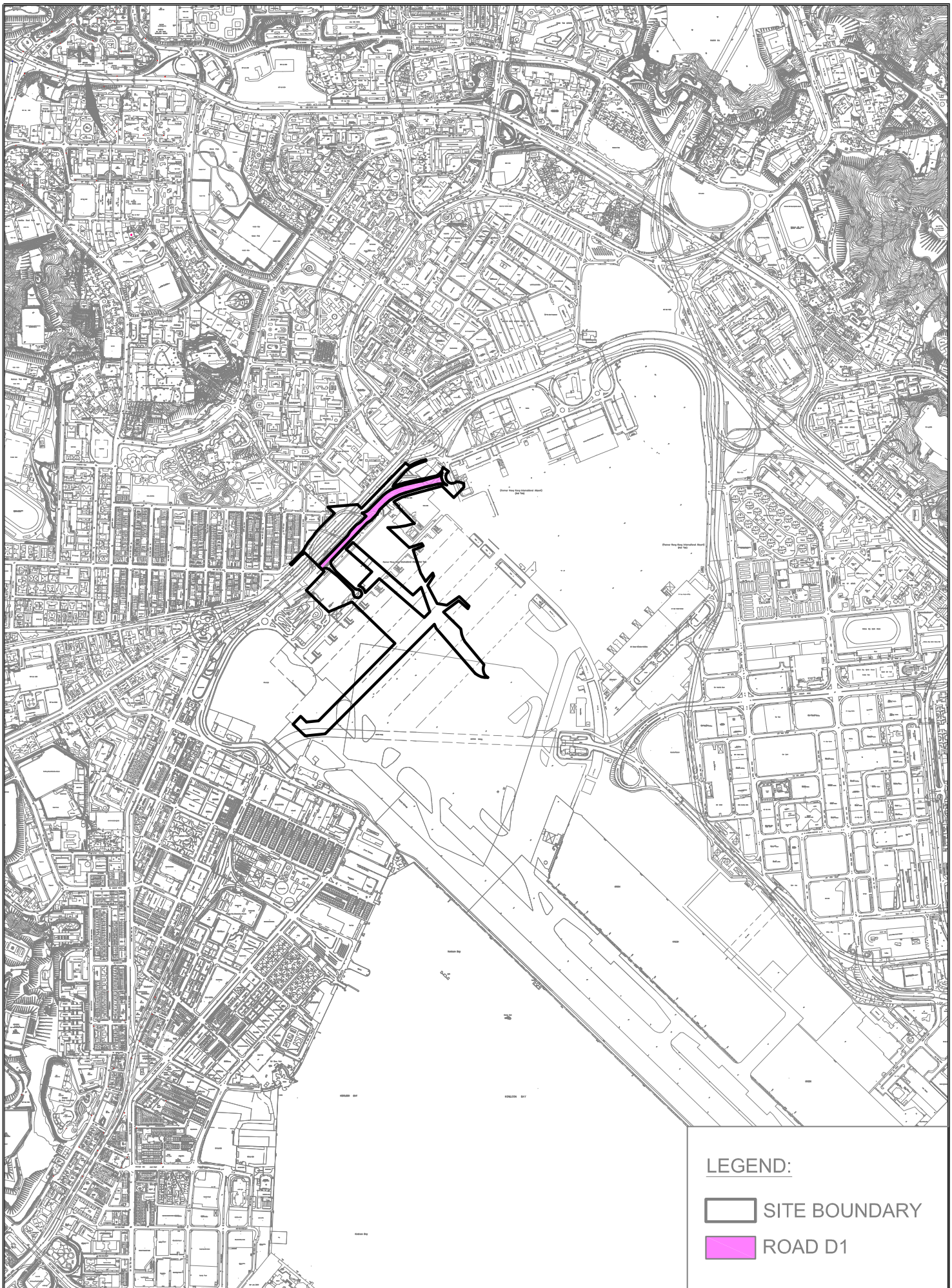
Air Quality

- Exposed stockpile and slope should be properly covered by impervious sheeting for dust suppression.
- Water spraying should be provided to the haul roads and unpaved areas frequently to minimize the dust impact.

Waste/Chemical Management

- Drip tray should be provided underneath for chemical container to avoid chemical leakage.
- The chemical container should be temporary stored at the chemical waste storage area before disposal

FIGURES

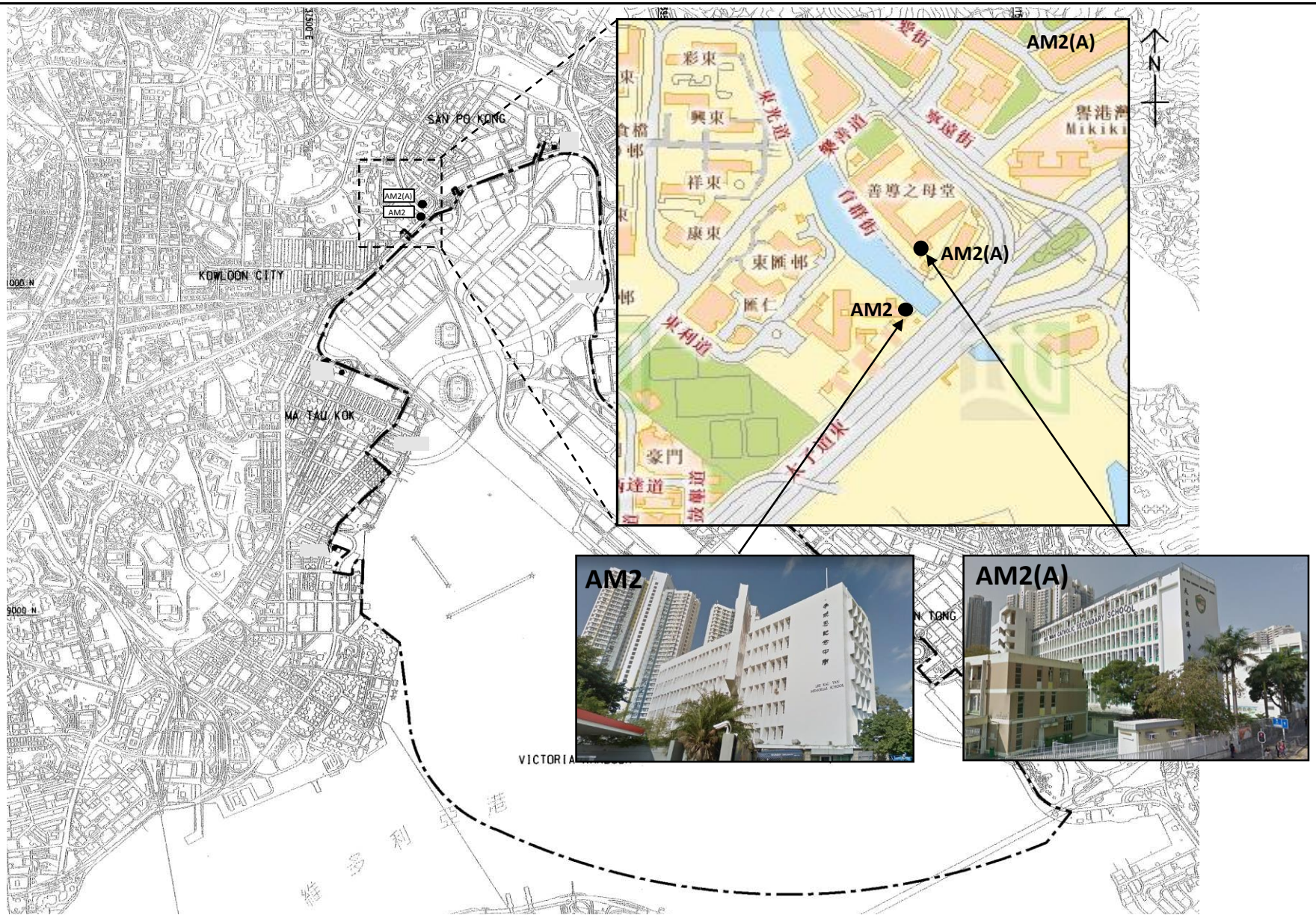


CINOTECH
Cinotech Consultants Limited

KL/2015/02 KAI TAK - STAGE 5A INFRASTRUCTURE AT FORMER NORTH APRON AREA

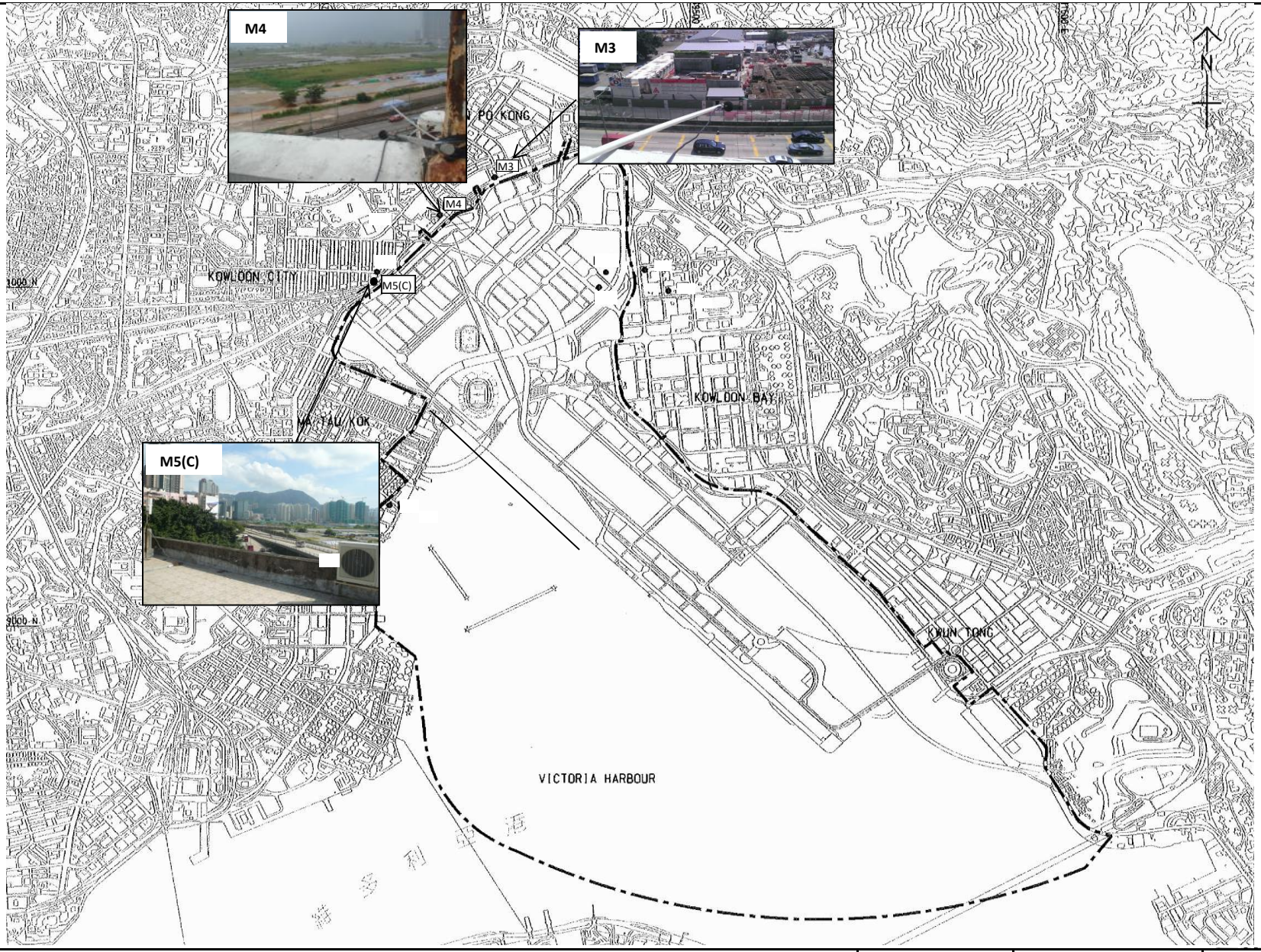
SITE LAYOUT PLAN

SCALE	1:1500@A4	DATE	DEC 2016
CHECK	KC	DRAWN	JW
JOB No.	MA16043	FIGURE NO. 1	REV -



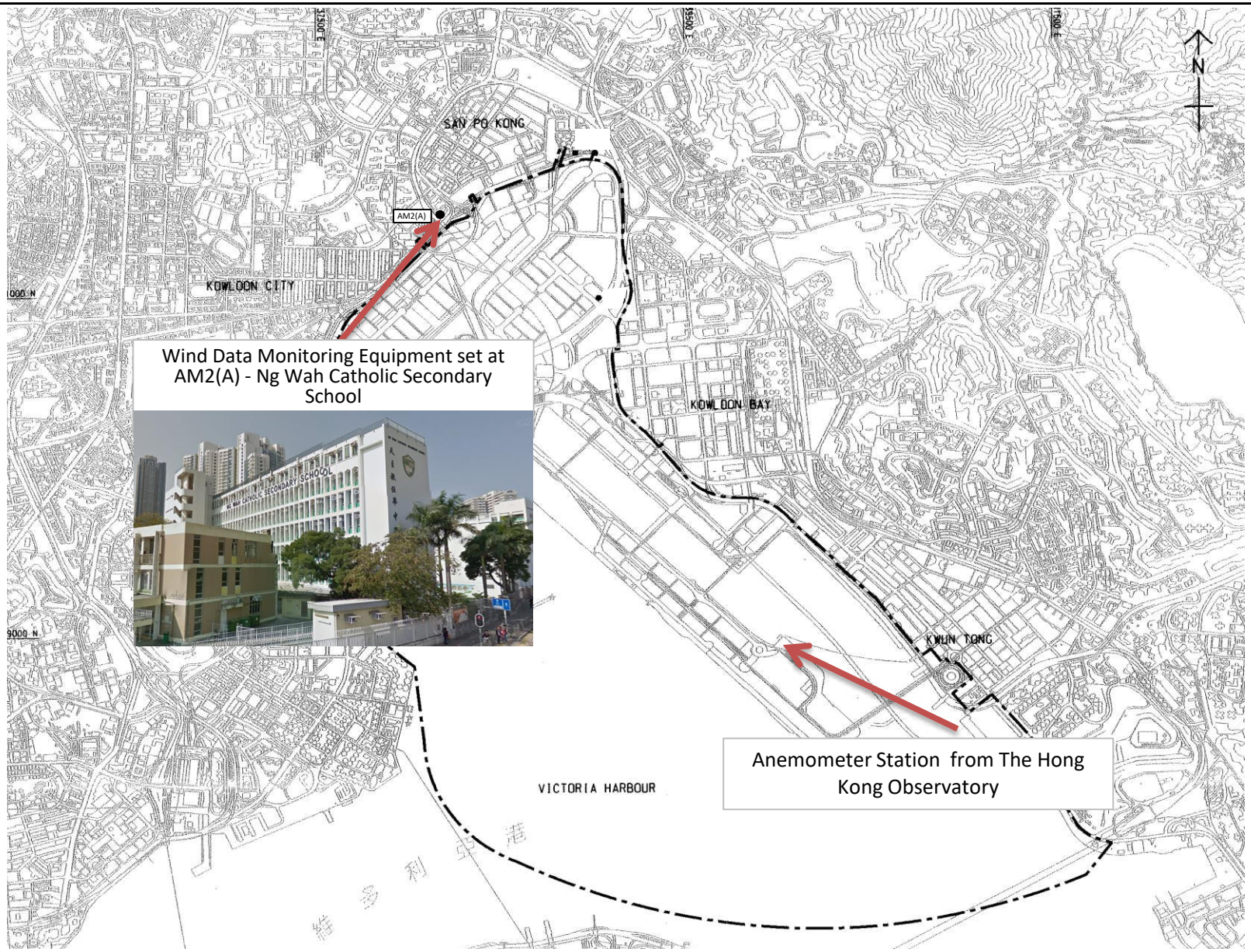
Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area Location of Air Quality Monitoring Stations	Scale: N.T.S Date: Aug-17	Project No.: MA16043 Figure: 2

CINOTECH



Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Location of Noise Monitoring Stations	Scale: N.T.S Date: Apr-17	Project No.: MA16043 Figure: 3

CINOTECH



Title	Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Location of Wind Data Monitoring Equipment	Scale: N.T.S Date: Aug-17	Project No.: MA16043 Figure: 4

CINOTECH

APPENDIX A
ACTION AND LIMIT LEVELS FOR AIR QUALITY AND NOISE

Appendix A - Action and Limit Levels

Table A-1 Action and Limit Levels for 1-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM2	346	500

Table A-2 Action and Limit Levels for 24-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM2(A)	157	260

Table A-3 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) 70dB(A)/65dB(A)*

Remarks: 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. *70dB(A) and 65dB(A) for schools during normal teaching periods and school examination periods, respectively.

APPENDIX B
COPIES OF CALIBRATION CERTIFCATES

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA13056/13/0008

Station: AM2(A) - Ng Wah Catholic Secondary School

Date: 12-Sep-18 Next Due Date: 11-Nov-18 Operator: MH

Equipment No.: A-01-13 Model No.: TE-5170 Serial No.: 1352

Ambient Condition			
Temperature, Ta (K)	300.2	Pressure, Pa (mmHg)	757.1

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0585	Intercept, bc	-0.00045
Last Calibration Date:	13-Feb-18	**mc x Qstd + bc = $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$**			
Next Calibration Date:	13-Feb-19	**Qstd = $\{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.8	3.56	60.79	8.0	2.81
2	10.4	3.21	54.80	6.6	2.55
3	7.7	2.76	47.15	5.2	2.27
4	4.9	2.20	37.62	3.1	1.75
5	3.2	1.78	30.40	2.0	1.41

By Linear Regression of Y on X

Slope , mw = 0.0465 **Intercept, bw =** 0.0105

Correlation coefficient* = 0.9981

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.09**

Remarks:

Conducted by: LEE MAN HEI Signature: hei Date: 12/9/2018

Checked by: WK Tang Signature: Kwai Date: 12/9/2018

TISCH Environmental

RECALIBRATION DUE DATE:
February 13, 2019

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	February 13, 2018	**Rootsmeter S/N:** 438320	**Ta:** 293	°K	
Operator:	Jim Tisch		**Pa:** 763.3	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2896**			

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4670	3.2	2.00
2	3	4	1	1.0380	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0172	0.6934	1.4293	0.9958	0.6788	0.8762
1.0129	0.9758	2.0213	0.9916	0.9553	1.2392
1.0107	1.0962	2.2599	0.9895	1.0732	1.3854
1.0097	1.1422	2.3702	0.9885	1.1182	1.4530
1.0043	1.3853	2.8586	0.9832	1.3562	1.7524
QSTD	**m=**	**2.06726**	**QA**	**m=**	**1.29448**
	b=	**-0.00045**		**b=**	**-0.00028**
	r=	**0.99992**		**r=**	**0.99992**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

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

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

WELLAB 匯力 Testing & Research

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

TEST REPORT

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

ATTN: **Mr. W.K. Tang**

Test Report No.:	29680A
Date of Issue:	2018-07-28
Date Received:	2018-07-27
Date Tested:	2018-07-27
Date Completed:	2018-07-28
Next Due Date:	2019-01-27
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Weather Stations, Vantage Pro2
Manufacturer	: Davis Instruments
Model No.	: 6152
Serial No.	: AR160809018

Test conditions:

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

Test Specifications:

1. Performance check of anemometer
2. Performance check of wind direction sensor

Methodology:

In-house method with reference anemometer (RS232 Integral Vane Digital Anemometer)

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

Test Report No.:	29680A
Date of Issue:	2018-07-28
Date Received:	2018-07-27
Date Tested:	2018-07-27
Date Completed:	2018-07-28
Next Due Date:	2019-01-27

Results:

1. Performance check of anemometer

Air Velocity, m/s		Difference D (m/s)
Instrument Reading (V1)	Reference Value (V1)	D = V1 – V2
2.00	2.00	0.00

2. Performance check of wind direction sensor

Wind Direction (°)		Difference D (°)
Instrument Reading (W1)	Reference Value (W2)	D = W1 - W2
0	0	0
45	45	0
90.2	90	0.2
135.3	135	0.3
180	180	0
225.1	225	0.1
270.3	270	0.3
315	315	0
360	360	0

**********END OF REPORT**********

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TEST REPORT

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

Test Report No.:	29668
Date of Issue:	2018-08-18
Date Received:	2018-08-16
Date Tested:	2018-08-16
Date Completed:	2018-08-18
Next Due Date:	2018-10-17

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 3020408
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-01

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.143

****

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

PATRICK TSE
Laboratory Manager

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Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	29956
Date of Issue:	2018-10-18
Date Received:	2018-10-16
Date Tested:	2018-10-16
Date Completed:	2018-10-18
Next Due Date:	2018-12-17

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC300
Serial No.	: 3020409
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-26-02

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.140

****

PREPARED AND CHECKED BY:
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Patrick Tse

PATRICK TSE
Laboratory Manager

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TEST REPORT

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

Test Report No.:	29661
Date of Issue:	2018-08-13
Date Received:	2018-08-11
Date Tested:	2018-08-11
Date Completed:	2018-08-13
Next Due Date:	2018-10-12

ATTN: **Mr. W. K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701019
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-01

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.177

****

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TEST REPORT

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

ATTN: **Mr. W. K. Tang**

Test Report No.:	29953
Date of Issue:	2018-10-15
Date Received:	2018-10-12
Date Tested:	2018-10-12
Date Completed:	2018-10-15
Next Due Date:	2018-12-14
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Handheld Particle Counter
Manufacturer	: Hal Technology
Model No.	: Hal-HPC301
Serial No.	: 3011701012
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 5 minutes
Equipment No.	: A-27-07

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	1.148

****

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TEST REPORT

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

Test Report No.:	29813
Date of Issue:	2018-09-15
Date Received:	2018-09-14
Date Tested:	2018-09-14
Date Completed:	2018-09-15
Next Due Date:	2019-09-14

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12563
Microphone No.	: 34377
Equipment No.	: N-08-03

Test conditions:

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

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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Laboratory Manager

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TEST REPORT

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

Test Report No.:	29501
Date of Issue:	2018-08-27
Date Received:	2018-08-24
Date Tested:	2018-08-24
Date Completed:	2018-08-27
Next Due Date:	2019-08-26

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

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Test Report No.:	29499
Date of Issue:	2018-08-13
Date Received:	2018-08-11
Date Tested:	2018-08-11
Date Completed:	2018-08-13
Next Due Date:	2019-08-12

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

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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PATRICK TSE
Laboratory Manager

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TEST REPORT

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

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

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.	: 21460
Microphone No.	: 43679
Equipment No.	: N-08-09

Test conditions:

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

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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PATRICK TSE
Laboratory Manager

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Shatin, NT, Hong Kong

Test Report No.:	C/N/171215
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Shatin, NT, Hong Kong

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/171215A
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35921
Equipment No.	: N-13-02

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
Room 1710, Technology Park,
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Test Report No.:	C/N/171215B
Date of Issue:	2017-12-18
Date Received:	2017-12-15
Date Tested:	2017-12-15
Date Completed:	2017-12-18
Next Due Date:	2018-12-17

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 20 degree Celsius
Relative Humidity	: 64%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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PATRICK TSE
Laboratory Manager

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TEST REPORT

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

Test Report No.:	29816
Date of Issue:	2018-09-29
Date Received:	2018-09-28
Date Tested:	2018-09-28
Date Completed:	2018-09-29
Next Due Date:	2019-09-28

ATTN: **Mr. W.K. Tang** Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

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

Methodology:

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

Results:

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

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TEST REPORT

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

Test Report No.:	C/N/171103
Date of Issue:	2017-11-06
Date Received:	2017-11-03
Date Tested:	2017-11-03
Date Completed:	2017-11-06
Next Due Date:	2018-11-05

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Equipment No.	: N-02-01

Test conditions:

Room Temperatre	: 21 degree Celsius
Relative Humidity	: 64 %

Methodology:

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

Results:

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

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TEST REPORT

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

Test Report No.:	29683
Date of Issue:	2018-08-20
Date Received:	2018-08-17
Date Tested:	2018-08-17
Date Completed:	2018-08-20
Next Due Date:	2019-08-19
Page:	1 of 1

ATTN: **Mr. W.K. Tang**

Item for calibration:

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

Test conditions:

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

Methodology:

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

Results:

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

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Laboratory Manager

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APPENDIX C
WEATHER INFORMATION

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
01-Oct-18	26.8	70	2.9
02-Oct-18	27.2	67	-
03-Oct-18	26.9	68	-
04-Oct-18	26.9	54	-
05-Oct-18	27.1	40	-
06-Oct-18	26.8	48	-
07-Oct-18	27.1	69	-
08-Oct-18	26.7	75	2
09-Oct-18	26.5	78	0.6
10-Oct-18	24.8	83	42.8
11-Oct-18	23.2	72	-
12-Oct-18	23.8	73	0.3
13-Oct-18	24.7	72	0.4
14-Oct-18	25.3	79	0.6
15-Oct-18	25.6	84	31.4
16-Oct-18	24.3	92	8.9
17-Oct-18	23.5	84	1.5
18-Oct-18	22.5	87	12.6
19-Oct-18	24.2	77	0.2

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20-Oct-18	24	78	Trace
21-Oct-18	24.8	77	Trace
22-Oct-18	25	81	Trace
23-Oct-18	25.3	79	0.1
24-Oct-18	25.2	80	Trace
25-Oct-18	25.5	79	-
26-Oct-18	26.3	76	-
27-Oct-18	25.4	61	-
28-Oct-18	24.3	54	-
29-Oct-18	25.2	35	-
30-Oct-18	25.7	33	-
31-Oct-18	25	37	-

* The above information was extracted from the daily weather summary by Hong Kong Observatory.

** Trace means rainfall less than 0.05 mm

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
1-Oct-2018	00:00	1.8	WNW
1-Oct-2018	01:00	1.7	W
1-Oct-2018	02:00	2.0	WNW
1-Oct-2018	03:00	2.2	W
1-Oct-2018	04:00	1.5	W
1-Oct-2018	05:00	1.4	W
1-Oct-2018	06:00	1.2	WNW
1-Oct-2018	07:00	1.6	W
1-Oct-2018	08:00	1.4	W
1-Oct-2018	09:00	2.0	WNW
1-Oct-2018	10:00	2.2	SW
1-Oct-2018	11:00	2.5	NW
1-Oct-2018	12:00	2.6	N
1-Oct-2018	13:00	2.8	N
1-Oct-2018	14:00	2.6	NE
1-Oct-2018	15:00	2.6	ENE
1-Oct-2018	16:00	2.8	SE
1-Oct-2018	17:00	2.4	S
1-Oct-2018	18:00	1.8	S
1-Oct-2018	19:00	1.3	SE
1-Oct-2018	20:00	1.5	S
1-Oct-2018	21:00	1.7	S
1-Oct-2018	22:00	1.9	S
1-Oct-2018	23:00	1.8	S
2-Oct-2018	00:00	1.9	S
2-Oct-2018	01:00	1.7	S
2-Oct-2018	02:00	1.8	S
2-Oct-2018	03:00	1.5	NW
2-Oct-2018	04:00	1.2	NNW
2-Oct-2018	05:00	1.3	WSW
2-Oct-2018	06:00	1.4	NNW
2-Oct-2018	07:00	1.5	WNW
2-Oct-2018	08:00	1.4	NW
2-Oct-2018	09:00	1.5	WNW
2-Oct-2018	10:00	1.8	WNW
2-Oct-2018	11:00	2.3	WNW
2-Oct-2018	12:00	2.9	NNW

II. Mean Wind Speed and Wind Direction

2-Oct-2018	13:00	2.5	NNW
2-Oct-2018	14:00	2.6	WNW
2-Oct-2018	15:00	1.9	NNW
2-Oct-2018	16:00	1.7	NNW
2-Oct-2018	17:00	1.9	NNW
2-Oct-2018	18:00	1.6	WNW
2-Oct-2018	19:00	1.5	NNW
2-Oct-2018	20:00	1.2	WNW
2-Oct-2018	21:00	1.4	NW
2-Oct-2018	22:00	1.3	NW
2-Oct-2018	23:00	1.5	NW
3-Oct-2018	00:00	1.6	WNW
3-Oct-2018	01:00	1.7	E
3-Oct-2018	02:00	1.7	NNW
3-Oct-2018	03:00	1.7	NNW
3-Oct-2018	04:00	1.8	NNW
3-Oct-2018	05:00	1.6	NNW
3-Oct-2018	06:00	1.2	NW
3-Oct-2018	07:00	1.2	WNW
3-Oct-2018	08:00	1.2	W
3-Oct-2018	09:00	1.3	NW
3-Oct-2018	10:00	1.8	ESE
3-Oct-2018	11:00	2.1	WSW
3-Oct-2018	12:00	1.9	WNW
3-Oct-2018	13:00	1.9	S
3-Oct-2018	14:00	2.5	W
3-Oct-2018	15:00	2.4	S
3-Oct-2018	16:00	2.1	SW
3-Oct-2018	17:00	2.4	ESE
3-Oct-2018	18:00	1.7	E
3-Oct-2018	19:00	1.4	WSW
3-Oct-2018	20:00	1.2	NW
3-Oct-2018	21:00	1.2	NE
3-Oct-2018	22:00	1.3	WSW
3-Oct-2018	23:00	1.4	NNW
4-Oct-2018	00:00	1.4	WNW
4-Oct-2018	01:00	1.7	SSW
4-Oct-2018	02:00	1.1	SE

II. Mean Wind Speed and Wind Direction

4-Oct-2018	03:00	2.0	NNW
4-Oct-2018	04:00	1.6	NNW
4-Oct-2018	05:00	1.6	SSE
4-Oct-2018	06:00	1.4	NW
4-Oct-2018	07:00	1.3	NW
4-Oct-2018	08:00	1.7	NW
4-Oct-2018	09:00	1.7	W
4-Oct-2018	10:00	2.1	NW
4-Oct-2018	11:00	2.3	WNW
4-Oct-2018	12:00	2.2	WNW
4-Oct-2018	13:00	2.0	WNW
4-Oct-2018	14:00	2.0	NNW
4-Oct-2018	15:00	2.2	NW
4-Oct-2018	16:00	2.0	NNW
4-Oct-2018	17:00	1.7	NNW
4-Oct-2018	18:00	1.6	NW
4-Oct-2018	19:00	1.4	NNW
4-Oct-2018	20:00	1.4	NW
4-Oct-2018	21:00	1.6	NW
4-Oct-2018	22:00	1.9	NW
4-Oct-2018	23:00	1.6	WNW
5-Oct-2018	00:00	1.5	SSE
5-Oct-2018	01:00	1.3	S
5-Oct-2018	02:00	1.4	S
5-Oct-2018	03:00	1.9	SSW
5-Oct-2018	04:00	1.7	WNW
5-Oct-2018	05:00	1.6	SW
5-Oct-2018	06:00	1.5	N
5-Oct-2018	07:00	1.5	NNE
5-Oct-2018	08:00	1.8	WNW
5-Oct-2018	09:00	1.9	NW
5-Oct-2018	10:00	2.5	S
5-Oct-2018	11:00	2.5	W
5-Oct-2018	12:00	2.7	WSW
5-Oct-2018	13:00	2.6	NW
5-Oct-2018	14:00	2.1	NNW
5-Oct-2018	15:00	2.2	NNW
5-Oct-2018	16:00	1.7	NNW

II. Mean Wind Speed and Wind Direction

5-Oct-2018	17:00	1.6	NNW
5-Oct-2018	18:00	1.9	NNW
5-Oct-2018	19:00	1.2	NNW
5-Oct-2018	20:00	1.3	NNW
5-Oct-2018	21:00	1.0	NW
5-Oct-2018	22:00	1.0	NNW
5-Oct-2018	23:00	1.0	NNW
6-Oct-2018	00:00	1.4	NNW
6-Oct-2018	01:00	1.5	WNW
6-Oct-2018	02:00	1.0	NW
6-Oct-2018	03:00	1.2	NW
6-Oct-2018	04:00	1.2	NNW
6-Oct-2018	05:00	0.8	ESE
6-Oct-2018	06:00	1.1	S
6-Oct-2018	07:00	0.8	SE
6-Oct-2018	08:00	1.1	SE
6-Oct-2018	09:00	1.8	SE
6-Oct-2018	10:00	1.7	S
6-Oct-2018	11:00	2.0	SE
6-Oct-2018	12:00	1.9	S
6-Oct-2018	13:00	2.4	SSW
6-Oct-2018	14:00	2.5	SW
6-Oct-2018	15:00	2.2	SW
6-Oct-2018	16:00	2.4	SSW
6-Oct-2018	17:00	2.0	N
6-Oct-2018	18:00	1.9	N
6-Oct-2018	19:00	1.4	S
6-Oct-2018	20:00	1.1	NNW
6-Oct-2018	21:00	0.9	NNW
6-Oct-2018	22:00	0.6	NNW
6-Oct-2018	23:00	0.8	NW
7-Oct-2018	00:00	1.1	NW
7-Oct-2018	01:00	1.0	WNW
7-Oct-2018	02:00	0.7	NNE
7-Oct-2018	03:00	0.8	W
7-Oct-2018	04:00	0.9	NNW
7-Oct-2018	05:00	0.9	SSW
7-Oct-2018	06:00	1.0	ESE

II. Mean Wind Speed and Wind Direction

7-Oct-2018	07:00	1.2	NNW
7-Oct-2018	08:00	1.3	NNW
7-Oct-2018	09:00	1.7	NNW
7-Oct-2018	10:00	2.2	NNW
7-Oct-2018	11:00	2.5	WNW
7-Oct-2018	12:00	3.2	NW
7-Oct-2018	13:00	2.8	S
7-Oct-2018	14:00	2.9	NW
7-Oct-2018	15:00	2.9	NW
7-Oct-2018	16:00	2.2	N
7-Oct-2018	17:00	2.3	S
7-Oct-2018	18:00	2.0	WSW
7-Oct-2018	19:00	1.7	N
7-Oct-2018	20:00	1.5	SSE
7-Oct-2018	21:00	1.6	SSE
7-Oct-2018	22:00	2.0	SSE
7-Oct-2018	23:00	1.8	ESE
8-Oct-2018	00:00	2.1	NE
8-Oct-2018	01:00	2.4	NNE
8-Oct-2018	02:00	1.3	NNE
8-Oct-2018	03:00	1.0	N
8-Oct-2018	04:00	1.4	NE
8-Oct-2018	05:00	1.3	E
8-Oct-2018	06:00	1.5	N
8-Oct-2018	07:00	1.4	W
8-Oct-2018	08:00	1.7	W
8-Oct-2018	09:00	1.5	W
8-Oct-2018	10:00	2.0	NW
8-Oct-2018	11:00	2.0	SW
8-Oct-2018	12:00	2.2	NNE
8-Oct-2018	13:00	2.2	N
8-Oct-2018	14:00	2.2	WNW
8-Oct-2018	15:00	2.5	SW
8-Oct-2018	16:00	2.0	SE
8-Oct-2018	17:00	2.1	SW
8-Oct-2018	18:00	1.6	WNW
8-Oct-2018	19:00	2.0	NNE
8-Oct-2018	20:00	1.8	WNW

II. Mean Wind Speed and Wind Direction

8-Oct-2018	21:00	2.0	NW
8-Oct-2018	22:00	1.7	NNE
8-Oct-2018	23:00	1.5	ESE
9-Oct-2018	00:00	1.5	WSW
9-Oct-2018	01:00	1.5	N
9-Oct-2018	02:00	1.2	ENE
9-Oct-2018	03:00	1.6	NE
9-Oct-2018	04:00	1.9	ENE
9-Oct-2018	05:00	1.7	NNW
9-Oct-2018	06:00	1.5	WNW
9-Oct-2018	07:00	1.4	ENE
9-Oct-2018	08:00	2.0	NE
9-Oct-2018	09:00	2.6	SSE
9-Oct-2018	10:00	2.6	NNE
9-Oct-2018	11:00	2.5	NNE
9-Oct-2018	12:00	2.9	S
9-Oct-2018	13:00	2.7	SW
9-Oct-2018	14:00	2.8	W
9-Oct-2018	15:00	3.2	NE
9-Oct-2018	16:00	3.2	NNE
9-Oct-2018	17:00	2.6	NE
9-Oct-2018	18:00	2.5	NE
9-Oct-2018	19:00	2.4	NE
9-Oct-2018	20:00	2.0	NNE
9-Oct-2018	21:00	2.6	NNE
9-Oct-2018	22:00	2.6	SE
9-Oct-2018	23:00	2.5	SSE
10-Oct-2018	00:00	2.7	ENE
10-Oct-2018	01:00	2.6	N
10-Oct-2018	02:00	2.9	NE
10-Oct-2018	03:00	2.5	ENE
10-Oct-2018	04:00	1.8	NNE
10-Oct-2018	05:00	1.7	ENE
10-Oct-2018	06:00	1.5	NE
10-Oct-2018	07:00	1.7	NE
10-Oct-2018	08:00	1.9	ENE
10-Oct-2018	09:00	1.9	SSE
10-Oct-2018	10:00	2.9	NNE

II. Mean Wind Speed and Wind Direction

10-Oct-2018	11:00	2.7	ENE
10-Oct-2018	12:00	2.5	ESE
10-Oct-2018	13:00	2.6	ESE
10-Oct-2018	14:00	2.7	NNE
10-Oct-2018	15:00	2.2	N
10-Oct-2018	16:00	2.5	WNW
10-Oct-2018	17:00	2.3	WNW
10-Oct-2018	18:00	2.1	ENE
10-Oct-2018	19:00	1.7	ENE
10-Oct-2018	20:00	1.7	W
10-Oct-2018	21:00	1.6	WNW
10-Oct-2018	22:00	2.0	SSW
10-Oct-2018	23:00	2.1	NE
11-Oct-2018	00:00	2.4	NE
11-Oct-2018	01:00	2.5	ENE
11-Oct-2018	02:00	2.1	NE
11-Oct-2018	03:00	2.2	ENE
11-Oct-2018	04:00	2.5	E
11-Oct-2018	05:00	2.5	E
11-Oct-2018	06:00	2.3	SE
11-Oct-2018	07:00	2.3	NW
11-Oct-2018	08:00	2.1	NE
11-Oct-2018	09:00	2.6	NE
11-Oct-2018	10:00	2.0	NE
11-Oct-2018	11:00	2.2	NE
11-Oct-2018	12:00	2.2	WNW
11-Oct-2018	13:00	2.7	SSW
11-Oct-2018	14:00	2.8	NNE
11-Oct-2018	15:00	2.6	N
11-Oct-2018	16:00	2.7	NNE
11-Oct-2018	17:00	2.3	ENE
11-Oct-2018	18:00	1.7	SE
11-Oct-2018	19:00	1.5	ESE
11-Oct-2018	20:00	1.3	SSE
11-Oct-2018	21:00	1.6	ENE
11-Oct-2018	22:00	1.2	SSW
11-Oct-2018	23:00	1.3	W
12-Oct-2018	00:00	1.6	W

II. Mean Wind Speed and Wind Direction

12-Oct-2018	01:00	1.4	WNW
12-Oct-2018	02:00	1.3	WSW
12-Oct-2018	03:00	1.2	WSW
12-Oct-2018	04:00	0.9	SSW
12-Oct-2018	05:00	0.9	WSW
12-Oct-2018	06:00	0.9	WNW
12-Oct-2018	07:00	0.8	WNW
12-Oct-2018	08:00	1.2	WNW
12-Oct-2018	09:00	1.5	SW
12-Oct-2018	10:00	1.5	WSW
12-Oct-2018	11:00	1.7	WSW
12-Oct-2018	12:00	2.0	W
12-Oct-2018	13:00	2.1	ESE
12-Oct-2018	14:00	2.0	ESE
12-Oct-2018	15:00	2.0	WNW
12-Oct-2018	16:00	1.8	NNE
12-Oct-2018	17:00	1.4	NE
12-Oct-2018	18:00	1.1	NE
12-Oct-2018	19:00	1.1	NE
12-Oct-2018	20:00	0.8	NE
12-Oct-2018	21:00	0.8	NE
12-Oct-2018	22:00	0.9	ENE
12-Oct-2018	23:00	1.1	NNE
13-Oct-2018	00:00	1.0	NE
13-Oct-2018	01:00	1.1	NE
13-Oct-2018	02:00	0.8	N
13-Oct-2018	03:00	0.7	ENE
13-Oct-2018	04:00	0.7	SW
13-Oct-2018	05:00	0.6	WSW
13-Oct-2018	06:00	1.1	SSW
13-Oct-2018	07:00	1.1	WSW
13-Oct-2018	08:00	1.0	WNW
13-Oct-2018	09:00	1.7	NNE
13-Oct-2018	10:00	1.8	ENE
13-Oct-2018	11:00	2.5	ENE
13-Oct-2018	12:00	2.5	SSW
13-Oct-2018	13:00	2.3	SW
13-Oct-2018	14:00	2.3	WSW

II. Mean Wind Speed and Wind Direction

13-Oct-2018	15:00	2.2	W
13-Oct-2018	16:00	2.0	S
13-Oct-2018	17:00	1.6	NE
13-Oct-2018	18:00	1.7	ENE
13-Oct-2018	19:00	1.4	NE
13-Oct-2018	20:00	1.4	W
13-Oct-2018	21:00	1.9	WSW
13-Oct-2018	22:00	2.0	NE
13-Oct-2018	23:00	2.0	N
14-Oct-2018	00:00	2.0	ESE
14-Oct-2018	01:00	1.7	ENE
14-Oct-2018	02:00	1.7	ESE
14-Oct-2018	03:00	1.6	NNE
14-Oct-2018	04:00	1.5	E
14-Oct-2018	05:00	1.3	ENE
14-Oct-2018	06:00	1.1	NE
14-Oct-2018	07:00	1.2	NE
14-Oct-2018	08:00	1.5	NNE
14-Oct-2018	09:00	1.4	ENE
14-Oct-2018	10:00	2.0	E
14-Oct-2018	11:00	2.6	ENE
14-Oct-2018	12:00	2.5	NNE
14-Oct-2018	13:00	1.9	NE
14-Oct-2018	14:00	1.9	ESE
14-Oct-2018	15:00	1.8	NNE
14-Oct-2018	16:00	1.9	ENE
14-Oct-2018	17:00	2.1	E
14-Oct-2018	18:00	2.0	ESE
14-Oct-2018	19:00	2.1	NE
14-Oct-2018	20:00	2.2	NNE
14-Oct-2018	21:00	2.4	NNE
14-Oct-2018	22:00	2.6	ENE
14-Oct-2018	23:00	2.2	ENE
15-Oct-2018	00:00	2.4	NNE
15-Oct-2018	01:00	2.1	N
15-Oct-2018	02:00	2.0	NE
15-Oct-2018	03:00	1.7	WSW
15-Oct-2018	04:00	1.9	N

II. Mean Wind Speed and Wind Direction

15-Oct-2018	05:00	1.5	WNW
15-Oct-2018	06:00	1.7	WSW
15-Oct-2018	07:00	1.7	WSW
15-Oct-2018	08:00	2.1	WSW
15-Oct-2018	09:00	2.3	WSW
15-Oct-2018	10:00	2.5	W
15-Oct-2018	11:00	2.5	W
15-Oct-2018	12:00	2.9	WSW
15-Oct-2018	13:00	3.1	WSW
15-Oct-2018	14:00	2.7	WNW
15-Oct-2018	15:00	2.6	WNW
15-Oct-2018	16:00	2.3	W
15-Oct-2018	17:00	2.3	WNW
15-Oct-2018	18:00	2.0	WNW
15-Oct-2018	19:00	1.7	W
15-Oct-2018	20:00	1.6	WNW
15-Oct-2018	21:00	1.8	SSW
15-Oct-2018	22:00	1.6	SSW
15-Oct-2018	23:00	1.5	WNW
16-Oct-2018	00:00	1.7	WNW
16-Oct-2018	01:00	1.9	W
16-Oct-2018	02:00	1.6	W
16-Oct-2018	03:00	1.7	WNW
16-Oct-2018	04:00	1.6	WNW
16-Oct-2018	05:00	1.3	WNW
16-Oct-2018	06:00	1.1	WNW
16-Oct-2018	07:00	1.1	W
16-Oct-2018	08:00	1.3	WNW
16-Oct-2018	09:00	2.2	WNW
16-Oct-2018	10:00	2.4	WNW
16-Oct-2018	11:00	2.4	WSW
16-Oct-2018	12:00	2.5	SSW
16-Oct-2018	13:00	2.3	SSE
16-Oct-2018	14:00	2.0	ESE
16-Oct-2018	15:00	2.0	SE
16-Oct-2018	16:00	2.2	SSE
16-Oct-2018	17:00	2.3	S
16-Oct-2018	18:00	2.8	SW

II. Mean Wind Speed and Wind Direction

16-Oct-2018	19:00	2.5	WSW
16-Oct-2018	20:00	2.2	NW
16-Oct-2018	21:00	2.5	SSW
16-Oct-2018	22:00	2.5	S
16-Oct-2018	23:00	3.0	WSW
17-Oct-2018	00:00	3.2	W
17-Oct-2018	01:00	3.2	N
17-Oct-2018	02:00	3.1	W
17-Oct-2018	03:00	2.8	NE
17-Oct-2018	04:00	1.9	NNE
17-Oct-2018	05:00	1.8	NE
17-Oct-2018	06:00	1.8	ENE
17-Oct-2018	07:00	1.8	SSE
17-Oct-2018	08:00	1.9	NE
17-Oct-2018	09:00	1.8	ENE
17-Oct-2018	10:00	2.1	SE
17-Oct-2018	11:00	2.3	ESE
17-Oct-2018	12:00	2.8	ESE
17-Oct-2018	13:00	2.2	SE
17-Oct-2018	14:00	2.2	SSE
17-Oct-2018	15:00	2.5	ESE
17-Oct-2018	16:00	2.2	ESE
17-Oct-2018	17:00	1.8	ESE
17-Oct-2018	18:00	1.4	ESE
17-Oct-2018	19:00	1.0	S
17-Oct-2018	20:00	1.1	SE
17-Oct-2018	21:00	1.1	SSE
17-Oct-2018	22:00	1.1	SSE
17-Oct-2018	23:00	1.1	SSE
18-Oct-2018	00:00	1.4	ESE
18-Oct-2018	01:00	1.4	SSE
18-Oct-2018	02:00	1.3	SE
18-Oct-2018	03:00	1.2	ENE
18-Oct-2018	04:00	1.2	ENE
18-Oct-2018	05:00	1.2	ESE
18-Oct-2018	06:00	1.2	ESE
18-Oct-2018	07:00	1.3	SSW
18-Oct-2018	08:00	1.6	NNE

II. Mean Wind Speed and Wind Direction

18-Oct-2018	09:00	2.2	WNW
18-Oct-2018	10:00	2.7	SE
18-Oct-2018	11:00	3.0	SW
18-Oct-2018	12:00	3.3	WNW
18-Oct-2018	13:00	3.4	WNW
18-Oct-2018	14:00	3.3	SW
18-Oct-2018	15:00	3.1	WSW
18-Oct-2018	16:00	3.3	ESE
18-Oct-2018	17:00	3.1	NE
18-Oct-2018	18:00	2.6	WSW
18-Oct-2018	19:00	1.9	NW
18-Oct-2018	20:00	1.7	ESE
18-Oct-2018	21:00	1.5	S
18-Oct-2018	22:00	1.9	NW
18-Oct-2018	23:00	2.2	NNW
19-Oct-2018	00:00	2.2	NNE
19-Oct-2018	01:00	2.4	ENE
19-Oct-2018	02:00	2.5	SE
19-Oct-2018	03:00	2.3	SSE
19-Oct-2018	04:00	2.0	SE
19-Oct-2018	05:00	1.9	SE
19-Oct-2018	06:00	1.5	S
19-Oct-2018	07:00	1.7	NE
19-Oct-2018	08:00	1.8	WNW
19-Oct-2018	09:00	2.0	WSW
19-Oct-2018	10:00	2.3	NNE
19-Oct-2018	11:00	3.0	WNW
19-Oct-2018	12:00	2.8	WNW
19-Oct-2018	13:00	2.7	SW
19-Oct-2018	14:00	2.4	ENE
19-Oct-2018	15:00	2.3	ESE
19-Oct-2018	16:00	2.2	WNW
19-Oct-2018	17:00	2.2	NE
19-Oct-2018	18:00	1.4	NNE
19-Oct-2018	19:00	1.0	NE
19-Oct-2018	20:00	1.2	NE
19-Oct-2018	21:00	1.4	NW
19-Oct-2018	22:00	1.7	SE

II. Mean Wind Speed and Wind Direction

19-Oct-2018	23:00	1.6	NW
20-Oct-2018	00:00	1.7	ESE
20-Oct-2018	01:00	1.7	N
20-Oct-2018	02:00	1.5	NE
20-Oct-2018	03:00	1.5	SSE
20-Oct-2018	04:00	1.3	SSE
20-Oct-2018	05:00	1.2	SW
20-Oct-2018	06:00	1.2	NE
20-Oct-2018	07:00	1.6	SW
20-Oct-2018	08:00	1.6	NNE
20-Oct-2018	09:00	2.2	NE
20-Oct-2018	10:00	2.1	ENE
20-Oct-2018	11:00	2.6	SSE
20-Oct-2018	12:00	2.4	ENE
20-Oct-2018	13:00	2.3	N
20-Oct-2018	14:00	1.9	E
20-Oct-2018	15:00	1.9	SSW
20-Oct-2018	16:00	2.0	W
20-Oct-2018	17:00	1.3	E
20-Oct-2018	18:00	1.4	NW
20-Oct-2018	19:00	1.2	NE
20-Oct-2018	20:00	1.3	E
20-Oct-2018	21:00	1.1	SSE
20-Oct-2018	22:00	1.5	SSW
20-Oct-2018	23:00	1.3	SW
21-Oct-2018	00:00	1.7	SSW
21-Oct-2018	01:00	1.6	SSE
21-Oct-2018	02:00	1.7	SW
21-Oct-2018	03:00	1.7	NE
21-Oct-2018	04:00	1.7	ENE
21-Oct-2018	05:00	1.2	E
21-Oct-2018	06:00	0.9	WNW
21-Oct-2018	07:00	0.8	SSW
21-Oct-2018	08:00	1.1	SE
21-Oct-2018	09:00	2.0	WNW
21-Oct-2018	10:00	2.1	W
21-Oct-2018	11:00	1.7	NNE
21-Oct-2018	12:00	2.1	ENE

II. Mean Wind Speed and Wind Direction

21-Oct-2018	13:00	2.2	ESE
21-Oct-2018	14:00	2.1	E
21-Oct-2018	15:00	1.6	SSE
21-Oct-2018	16:00	1.7	ENE
21-Oct-2018	17:00	1.7	ENE
21-Oct-2018	18:00	1.1	ESE
21-Oct-2018	19:00	0.8	S
21-Oct-2018	20:00	1.0	ESE
21-Oct-2018	21:00	1.1	SSE
21-Oct-2018	22:00	0.9	ENE
21-Oct-2018	23:00	1.0	ESE
22-Oct-2018	00:00	1.1	SSE
22-Oct-2018	01:00	1.0	SSE
22-Oct-2018	02:00	0.7	W
22-Oct-2018	03:00	1.1	WNW
22-Oct-2018	04:00	1.0	E
22-Oct-2018	05:00	1.0	S
22-Oct-2018	06:00	1.1	ENE
22-Oct-2018	07:00	1.0	WSW
22-Oct-2018	08:00	1.7	W
22-Oct-2018	09:00	1.7	NE
22-Oct-2018	10:00	1.8	N
22-Oct-2018	11:00	2.4	NNE
22-Oct-2018	12:00	2.1	N
22-Oct-2018	13:00	1.6	WSW
22-Oct-2018	14:00	1.7	WNW
22-Oct-2018	15:00	2.2	WNW
22-Oct-2018	16:00	2.6	WSW
22-Oct-2018	17:00	1.8	WSW
22-Oct-2018	18:00	1.4	NNE
22-Oct-2018	19:00	1.6	NE
22-Oct-2018	20:00	1.8	NE
22-Oct-2018	21:00	1.6	ENE
22-Oct-2018	22:00	1.3	SSW
22-Oct-2018	23:00	1.5	ENE
23-Oct-2018	00:00	1.6	SSE
23-Oct-2018	01:00	1.7	ESE
23-Oct-2018	02:00	1.5	NE

II. Mean Wind Speed and Wind Direction

23-Oct-2018	03:00	1.3	NE
23-Oct-2018	04:00	1.5	SE
23-Oct-2018	05:00	1.4	W
23-Oct-2018	06:00	1.3	NW
23-Oct-2018	07:00	1.2	SSW
23-Oct-2018	08:00	1.2	SSE
23-Oct-2018	09:00	1.8	S
23-Oct-2018	10:00	2.2	ENE
23-Oct-2018	11:00	2.6	WNW
23-Oct-2018	12:00	2.8	W
23-Oct-2018	13:00	3.0	WNW
23-Oct-2018	14:00	2.9	W
23-Oct-2018	15:00	2.9	W
23-Oct-2018	16:00	3.1	WNW
23-Oct-2018	17:00	2.7	WSW
23-Oct-2018	18:00	2.8	SW
23-Oct-2018	19:00	2.6	SW
23-Oct-2018	20:00	2.5	SW
23-Oct-2018	21:00	2.5	WNW
23-Oct-2018	22:00	2.5	SSW
23-Oct-2018	23:00	2.0	WNW
24-Oct-2018	00:00	2.2	WNW
24-Oct-2018	01:00	2.3	NE
24-Oct-2018	02:00	2.1	NNE
24-Oct-2018	03:00	1.9	N
24-Oct-2018	04:00	2.0	E
24-Oct-2018	05:00	1.8	ENE
24-Oct-2018	06:00	1.5	NE
24-Oct-2018	07:00	2.0	WNW
24-Oct-2018	08:00	1.7	WNW
24-Oct-2018	09:00	2.6	NNE
24-Oct-2018	10:00	3.4	SE
24-Oct-2018	11:00	3.8	NNE
24-Oct-2018	12:00	3.2	ENE
24-Oct-2018	13:00	3.0	ENE
24-Oct-2018	14:00	2.9	N
24-Oct-2018	15:00	3.3	N
24-Oct-2018	16:00	3.1	NE

II. Mean Wind Speed and Wind Direction

24-Oct-2018	17:00	3.2	ENE
24-Oct-2018	18:00	2.6	NE
24-Oct-2018	19:00	2.6	ENE
24-Oct-2018	20:00	2.3	SW
24-Oct-2018	21:00	2.2	NE
24-Oct-2018	22:00	2.0	NE
24-Oct-2018	23:00	2.0	ENE
25-Oct-2018	00:00	2.1	ESE
25-Oct-2018	01:00	1.9	E
25-Oct-2018	02:00	2.2	NNE
25-Oct-2018	03:00	2.0	ESE
25-Oct-2018	04:00	1.6	ESE
25-Oct-2018	05:00	1.7	NNE
25-Oct-2018	06:00	1.6	ENE
25-Oct-2018	07:00	1.7	ENE
25-Oct-2018	08:00	2.0	SW
25-Oct-2018	09:00	2.5	ENE
25-Oct-2018	10:00	2.9	NE
25-Oct-2018	11:00	3.0	NE
25-Oct-2018	12:00	2.8	NNE
25-Oct-2018	13:00	2.5	NNE
25-Oct-2018	14:00	2.3	NNE
25-Oct-2018	15:00	2.5	NE
25-Oct-2018	16:00	2.0	NE
25-Oct-2018	17:00	1.6	NE
25-Oct-2018	18:00	1.4	ESE
25-Oct-2018	19:00	1.3	NNE
25-Oct-2018	20:00	1.7	NNE
25-Oct-2018	21:00	1.2	NNE
25-Oct-2018	22:00	1.3	ENE
25-Oct-2018	23:00	1.5	ENE
26-Oct-2018	00:00	1.4	WNW
26-Oct-2018	01:00	1.1	N
26-Oct-2018	02:00	1.1	NE
26-Oct-2018	03:00	1.0	ESE
26-Oct-2018	04:00	0.9	SE
26-Oct-2018	05:00	0.9	E
26-Oct-2018	06:00	1.1	ENE

II. Mean Wind Speed and Wind Direction

26-Oct-2018	07:00	1.0	NNE
26-Oct-2018	08:00	0.9	W
26-Oct-2018	09:00	1.3	SSE
26-Oct-2018	10:00	1.4	NNW
26-Oct-2018	11:00	1.5	NNW
26-Oct-2018	12:00	2.1	WSW
26-Oct-2018	13:00	2.4	NE
26-Oct-2018	14:00	2.3	NE
26-Oct-2018	15:00	2.2	ESE
26-Oct-2018	16:00	2.0	SE
26-Oct-2018	17:00	1.3	SE
26-Oct-2018	18:00	1.1	SSE
26-Oct-2018	19:00	0.9	SSE
26-Oct-2018	20:00	0.8	ENE
26-Oct-2018	21:00	1.2	NNE
26-Oct-2018	22:00	0.8	W
26-Oct-2018	23:00	1.0	W
27-Oct-2018	00:00	1.3	WNW
27-Oct-2018	01:00	1.0	ENE
27-Oct-2018	02:00	1.1	N
27-Oct-2018	03:00	1.5	S
27-Oct-2018	04:00	1.3	N
27-Oct-2018	05:00	1.7	W
27-Oct-2018	06:00	1.5	SW
27-Oct-2018	07:00	1.7	WSW
27-Oct-2018	08:00	1.7	WSW
27-Oct-2018	09:00	2.1	WNW
27-Oct-2018	10:00	2.0	ENE
27-Oct-2018	11:00	2.6	S
27-Oct-2018	12:00	2.1	SE
27-Oct-2018	13:00	2.2	NNE
27-Oct-2018	14:00	2.4	N
27-Oct-2018	15:00	2.2	N
27-Oct-2018	16:00	1.8	ENE
27-Oct-2018	17:00	1.8	ENE
27-Oct-2018	18:00	1.7	ENE
27-Oct-2018	19:00	1.7	W
27-Oct-2018	20:00	1.9	ENE

II. Mean Wind Speed and Wind Direction

27-Oct-2018	21:00	2.5	ESE
27-Oct-2018	22:00	1.5	NNE
27-Oct-2018	23:00	1.8	NNE
28-Oct-2018	00:00	1.6	SSE
28-Oct-2018	01:00	1.6	NNE
28-Oct-2018	02:00	1.6	ENE
28-Oct-2018	03:00	1.7	ENE
28-Oct-2018	04:00	1.3	NE
28-Oct-2018	05:00	1.2	ENE
28-Oct-2018	06:00	1.4	SSE
28-Oct-2018	07:00	1.3	ESE
28-Oct-2018	08:00	1.4	NE
28-Oct-2018	09:00	1.5	NE
28-Oct-2018	10:00	2.1	NE
28-Oct-2018	11:00	2.1	NE
28-Oct-2018	12:00	2.3	NE
28-Oct-2018	13:00	2.9	NNE
28-Oct-2018	14:00	2.3	NE
28-Oct-2018	15:00	1.9	WNW
28-Oct-2018	16:00	2.2	ENE
28-Oct-2018	17:00	2.0	E
28-Oct-2018	18:00	1.6	ENE
28-Oct-2018	19:00	1.5	E
28-Oct-2018	20:00	1.6	E
28-Oct-2018	21:00	1.5	ENE
28-Oct-2018	22:00	1.4	SSE
28-Oct-2018	23:00	1.7	SSE
29-Oct-2018	00:00	2.5	NNE
29-Oct-2018	01:00	2.3	ENE
29-Oct-2018	02:00	2.0	ENE
29-Oct-2018	03:00	2.1	ENE
29-Oct-2018	04:00	1.9	ENE
29-Oct-2018	05:00	2.1	SE
29-Oct-2018	06:00	2.0	E
29-Oct-2018	07:00	2.0	N
29-Oct-2018	08:00	2.1	ENE
29-Oct-2018	09:00	2.3	ENE
29-Oct-2018	10:00	2.5	NE

II. Mean Wind Speed and Wind Direction

29-Oct-2018	11:00	2.6	ESE
29-Oct-2018	12:00	2.2	ESE
29-Oct-2018	13:00	2.2	NE
29-Oct-2018	14:00	2.3	NE
29-Oct-2018	15:00	2.3	NE
29-Oct-2018	16:00	2.0	NE
29-Oct-2018	17:00	2.0	SE
29-Oct-2018	18:00	2.1	ENE
29-Oct-2018	19:00	1.7	ENE
29-Oct-2018	20:00	1.4	ENE
29-Oct-2018	21:00	1.7	NNE
29-Oct-2018	22:00	1.8	E
29-Oct-2018	23:00	1.9	SE
30-Oct-2018	00:00	1.8	NE
30-Oct-2018	01:00	1.7	ENE
30-Oct-2018	02:00	1.7	E
30-Oct-2018	03:00	1.9	E
30-Oct-2018	04:00	2.5	E
30-Oct-2018	05:00	1.9	E
30-Oct-2018	06:00	2.0	SSE
30-Oct-2018	07:00	2.0	E
30-Oct-2018	08:00	1.6	SE
30-Oct-2018	09:00	2.0	E
30-Oct-2018	10:00	1.2	E
30-Oct-2018	11:00	1.4	N
30-Oct-2018	12:00	1.9	NE
30-Oct-2018	13:00	2.2	ENE
30-Oct-2018	14:00	1.3	NE
30-Oct-2018	15:00	1.9	N
30-Oct-2018	16:00	1.4	SSE
30-Oct-2018	17:00	1.8	SSE
30-Oct-2018	18:00	2.1	SSE
30-Oct-2018	19:00	2.2	SSE
30-Oct-2018	20:00	1.8	SSE
30-Oct-2018	21:00	1.5	ESE
30-Oct-2018	22:00	1.2	SE
30-Oct-2018	23:00	1.8	SSE
31-Oct-2018	00:00	2.2	SSE

II. Mean Wind Speed and Wind Direction

31-Oct-2018	01:00	2.2	ESE
31-Oct-2018	02:00	2.2	SE
31-Oct-2018	03:00	2.0	ENE
31-Oct-2018	04:00	2.1	NE
31-Oct-2018	05:00	2.7	NE
31-Oct-2018	06:00	2.0	SE
31-Oct-2018	07:00	1.7	SE
31-Oct-2018	08:00	1.5	SE
31-Oct-2018	09:00	2.0	N
31-Oct-2018	10:00	1.9	N
31-Oct-2018	11:00	1.8	NW
31-Oct-2018	12:00	1.7	NE
31-Oct-2018	13:00	2.0	ENE
31-Oct-2018	14:00	1.8	SSE
31-Oct-2018	15:00	1.8	WSW
31-Oct-2018	16:00	2.0	WSW
31-Oct-2018	17:00	2.2	W
31-Oct-2018	18:00	2.1	WSW
31-Oct-2018	19:00	2.1	SW
31-Oct-2018	20:00	2.1	NE
31-Oct-2018	21:00	2.2	SSW
31-Oct-2018	22:00	2.5	SW
31-Oct-2018	23:00	1.9	SW

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area
Impact Air and Noise Monitoring Schedule for October 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Oct	2-Oct	3-Oct	4-Oct	5-Oct	6-Oct
			Noise [M3, M5(C)]	**1 hr TSP X3** [AM2] **Noise** [M4] **24hr TSP** AM2(A)		
7-Oct	8-Oct	9-Oct	10-Oct	11-Oct	12-Oct	13-Oct
		Noise [M3, M5(C)]	**1 hr TSP X3** [AM2] **Noise** [M4] **24hr TSP** AM2(A)			
14-Oct	15-Oct	16-Oct	**17-Oct**	18-Oct	19-Oct	20-Oct
	1 hr TSP X3 [AM2] **Noise** [M4]	**24hr TSP** AM2(A)			**Noise** [M3, M5(C)]	**1 hr TSP X3** [AM2]
21-Oct	22-Oct	23-Oct	24-Oct	25-Oct	26-Oct	27-Oct
	24hr TSP AM2(A)			**Noise** [M3, M5(C)]	**1 hr TSP X3** [AM2] **Noise** [M4] **24hr TSP** AM2(A)	
28-Oct	29-Oct	30-Oct	31-Oct			
			Noise [M3, M5(C)]			

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

Air Quality Monitoring Statio

AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School

Noise Monitoring Statio

M3 - Cognitio College
M4 - Lee Kau Yan Memorial School
M5(C) - Mercy Grace's Home

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area
Tentative Impact Air and Noise Monitoring Schedule for November 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Nov	2-Nov	3-Nov
				1 hr TSP X3 [AM2] **Noise** [M4] **24hr TSP** AM2(A)		
4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov	10-Nov
			1 hr TSP X3 [AM2] **Noise** [M4] **24hr TSP** AM2(A)		**Noise** [M3, M5(C)]	
11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov	17-Nov
		1 hr TSP X3 [AM2] **Noise** [M4] **24hr TSP** AM2(A)		**Noise** [M3, M5(C)]		
18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov	24-Nov
	1 hr TSP X3 [AM2] **24hr TSP** AM2(A)		**Noise** [M3, M5(C)]		**1 hr TSP X3** [AM2] **Noise** [M4] **24hr TSP** AM2(A)	
25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov	
		Noise [M3, M5(C)]		**1 hr TSP X3** [AM2] **Noise** [M4] **24hr TSP** AM2(A)		

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

Air Quality Monitoring Statio

AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School

Noise Monitoring Statio

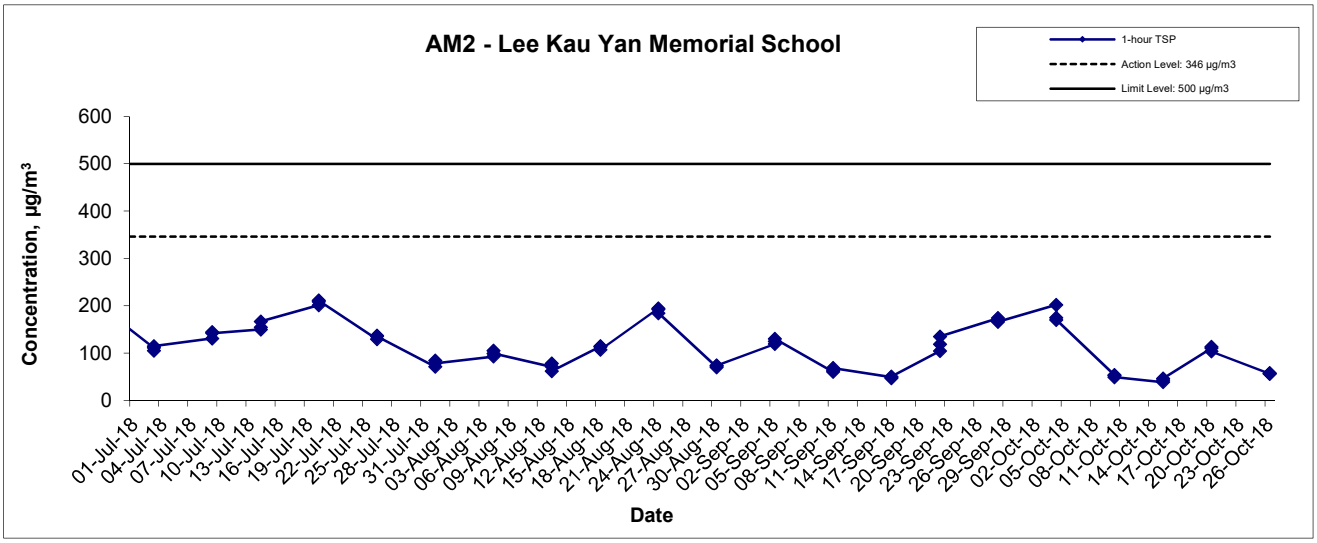
M3 - Cognitio College
M4 - Lee Kau Yan Memorial School
M5(C) - Mercy Grace's Home

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results

Location AM2 - Lee Kau Yan Memorial School			
Date	Time	Weather	Particulate Concentration (µg/m3)
4-Oct-18	13:05	Sunny	202.0
4-Oct-18	14:05	Sunny	175.3
4-Oct-18	15:05	Sunny	170.2
10-Oct-18	9:00	Cloudy	53.7
10-Oct-18	10:00	Cloudy	52.6
10-Oct-18	11:00	Cloudy	49.1
15-Oct-18	9:00	Cloudy	38.9
15-Oct-18	10:00	Cloudy	43.4
15-Oct-18	11:00	Cloudy	46.9
20-Oct-18	13:00	Sunny	110.8
20-Oct-18	14:00	Sunny	113.5
20-Oct-18	15:00	Sunny	103.8
26-Oct-18	13:05	Sunny	57.0
26-Oct-18	14:05	Sunny	58.1
26-Oct-18	15:05	Sunny	57.0
		Average	88.8
		Maximum	202.0
		Minimum	38.9

1-hr TSP Concentration Levels



Title: Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S Date: Oct 18	Project No.: MA16043 Appendix: E	CINOTECH

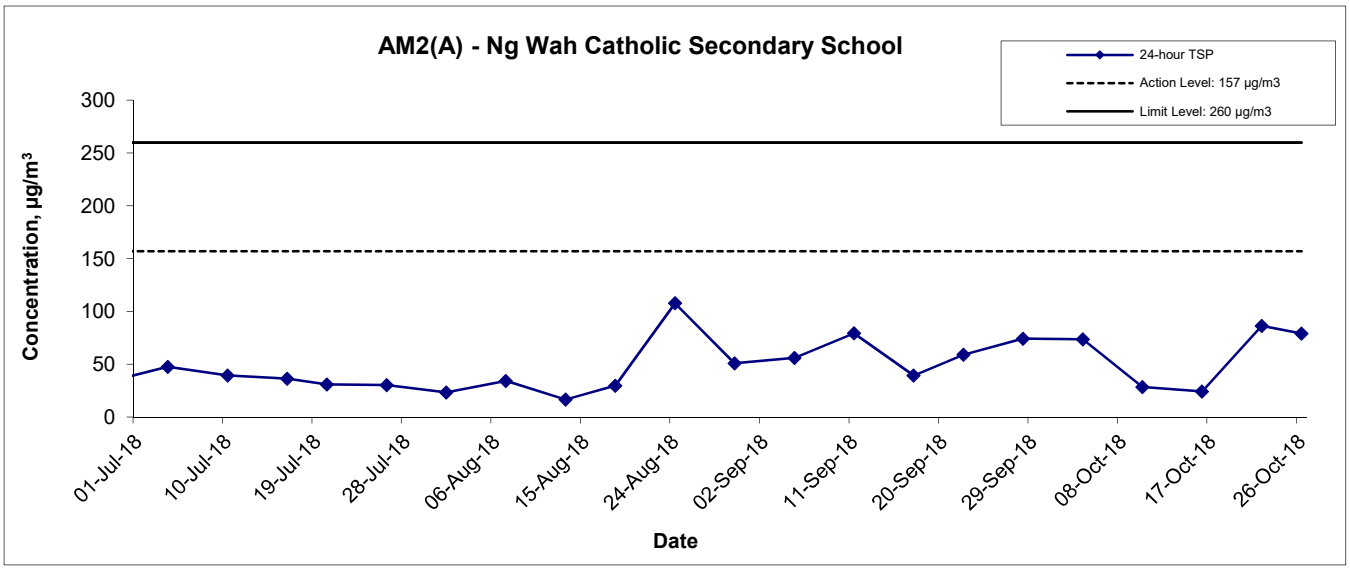
APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - 24-hour TSP Monitoring Results

Location AM2(A) - Ng Wah Catholic Secondary School

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (μg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
4-Oct-18	Sunny	299.3	764.0	3.0003	3.1303	0.1300	2736.2	2760.2	24.0	1.23	1.23	1.23	1766.1	73.6
10-Oct-18	Cloudy	300.6	764.0	3.6025	3.6526	0.0501	2784.2	2808.2	24.0	1.22	1.22	1.22	1762.3	28.4
16-Oct-18	Cloudy	296.9	763.3	3.6114	3.6546	0.0432	2832.2	2856.2	24.0	1.23	1.23	1.23	1772.5	24.4
22-Oct-18	Cloudy	299.3	765.8	2.9704	3.1233	0.1529	2880.2	2904.2	24.0	1.23	1.23	1.23	1768.2	86.5
26-Oct-18	Cloudy	299.4	766.1	2.9908	3.1307	0.1399	2928.2	2952.2	24.0	1.23	1.23	1.23	1768.3	79.1
													Min	24.4
													Max	86.5
													Average	58.4

24-hr TSP Concentration Levels



Title: Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S Date: Oct 18	Project No.: MA16043 Appendix: F	CINOTECH

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

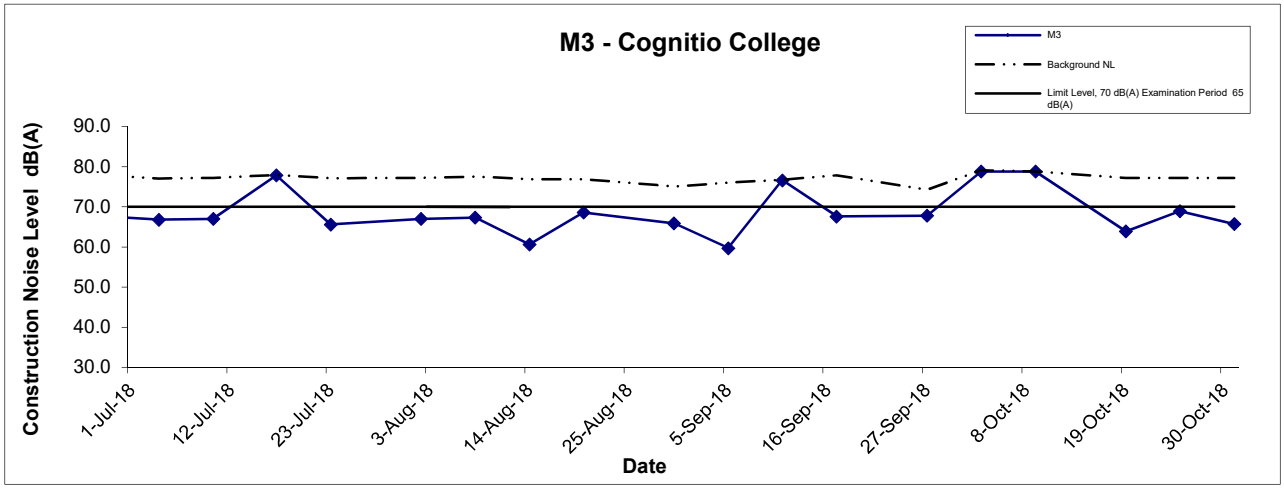
Appendix G - Noise Monitoring Results

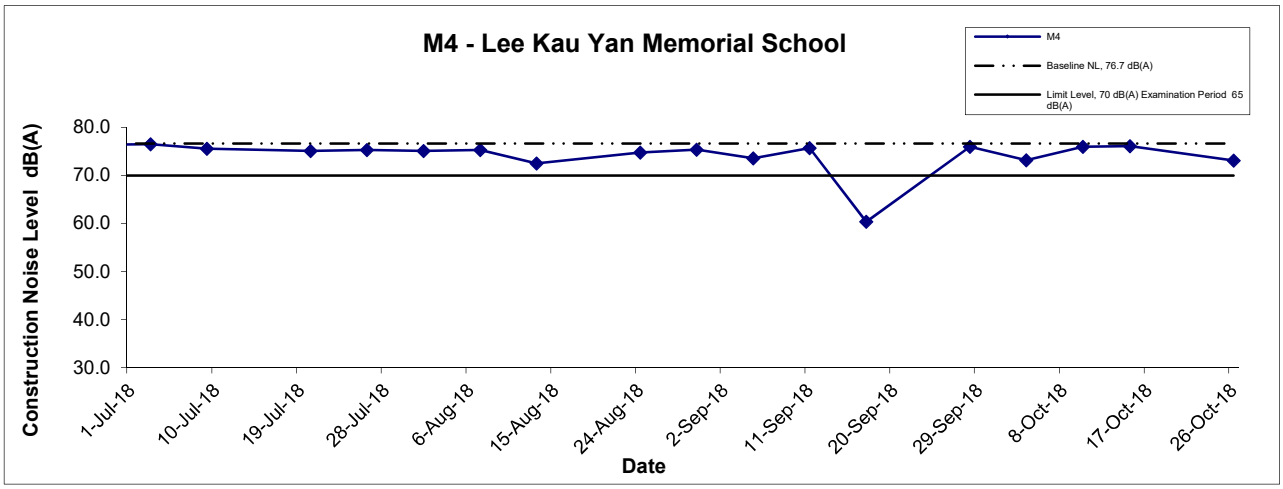
Location M3 - Cognitio College							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Background Noise	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Oct-18	13:00	Sunny	78.8	80.4	76.5	79.1	78.8 Measured ≦ Background
9-Oct-18	13:05	Cloudy	78.8	80.3	76.4	78.8	78.8 Measured ≦ Background
19-Oct-18	12:30	Cloudy	77.4	78.1	75.2	77.2	63.9
25-Oct-18	13:00	Cloudy	77.8	78.3	75.4	77.2	68.9
31-Oct-18	13:00	Cloudy	77.5	79.2	75.1	77.2	65.7

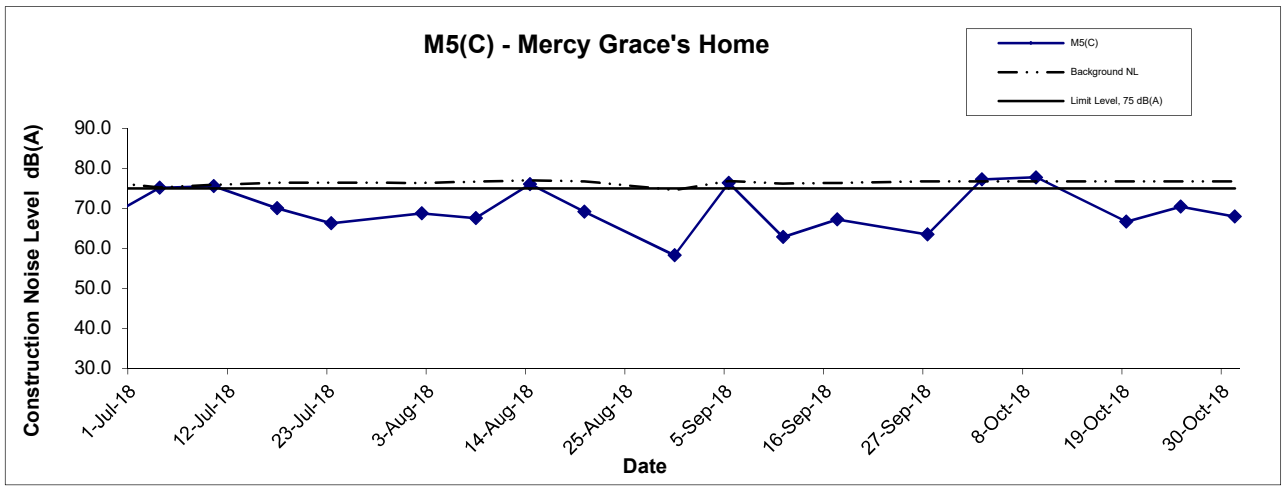
Location M4 - Lee Kau Yan Memorial School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
4-Oct-18	13:15	Sunny	73.2	75.6	70.4	76.7	73.2 Measured ≦ Baseline
10-Oct-18	09:15	Cloudy	76.0	77.2	74.2		76.0 Measured ≦ Baseline
15-Oct-18	09:15	Cloudy	76.1	77.9	74.1		76.1 Measured ≦ Baseline
26-Oct-18	13:15	Sunny	76.1	77.2	73.2		73.1 Measured ≦ Baseline

Location M5(C) - Mercy Grace's Home							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Background Noise	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
3-Oct-18	13:10	Sunny	77.3	78.8	76.2	77.6	77.3 Measured ≦ Background
9-Oct-18	13:00	Sunny	77.8	79.5	75.1	77.9	77.8 Measured ≦ Background
19-Oct-18	13:00	Cloudy	77.3	78.4	75.2	76.9	66.7
25-Oct-18	13:00	Cloudy	77.4	78.2	75.2	76.4	70.5
31-Oct-18	13:00	Cloudy	76.9	77.8	74.3	76.3	68.0

Noise Levels







Remarks: The construction noise levels in the Tables in Appendix G were adopted for plotting the graphs

Title: Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development –Stage 5A Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S	Project No.: MA16043	CINOTECH
	Date: Oct 18	Appendix: G	

APPENDIX H
SUMMARY OF EXCEEDANCE

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area

Appendix H – Summary of Exceedance

Exceedance Report for Contract No. KL/2015/02

(A) Exceedance Report for Air Quality
(NIL in the reporting month)

(B) Exceedance Report for Construction Noise
(NIL in the reporting month)

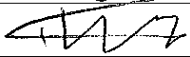
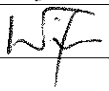
(C) Exceedance Report for Landscape and Visual
(NIL in the reporting month)

APPENDIX I
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181002
Date	2 October 2018
Time	14:00-16:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
181002-O02	• Muddy water should be treated in the first chamber of the sedimentation tank before discharging (Portion 1).	B 4
	C. Air Quality	
181002-O01	• Dusty haul road should be sprayed with water for dust suppression (Portion 1, 2).	C 6
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	- Following up on previous audit sections, the deficiencies were improved/rectified by the Contractor	

	Name	Signature	Date
Recorded by	Victor Wong		2 October 2018
Checked by	Dr. Priscilla Choy		2 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181010
Date	10 October 2018
Time	09:30-11:30

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

Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
181010-O01	• Generators should be attached with NRMM labels (B5)	C 19
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
181010-O02	• General refuse and other waste should be sorted and disposed (B5).	E 1i
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	- Following up on previous audit sections, the deficiencies were improved/rectified by the Contractor	

	Name	Signature	Date
Recorded by	Victor Wong		10 October 2018
Checked by	Dr. Priscilla Choy		10 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181015
Date	15 October 2018
Time	14:00-16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
181015-R01	• Stockpile should be covered to prevent dust generation at the end of the working day. The contractor is reminded to provide photo record for ET certification.	C 7
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	- Following up on previous audit sections, the deficiencies were improved/rectified by the Contractor	

	Name	Signature	Date
Recorded by	Victor Wong		15 October 2018
Checked by	Dr. Priscilla Choy		15 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181022
Date	22 October 2018
Time	14:00-16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
181022-R01	• Sediment was seen accumulated in the sediment tank, Contractor was reminded to clear the sediment regularly.	B 3iv
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
181022-R02	• Contractor should clear the sediment in the drip tray of the generator.	E 9
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	- Following up on the previous site audit, the deficiencies were improved/rectified by the Contractor	

	Name	Signature	Date
Recorded by	Jonathan Lee		26 October 2018
Checked by	Dr. Priscilla Choy		26 October 2018

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	181029
Date	29 October 2018
Time	14:00-16:00

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

Ref. No.	Remarks/Observations	Related Item No.
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
181029-O01	• Water should be sprayed on the haul road regularly for dust suppression. (Portion 1)	C 6
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	- Following up on the previous site audit, the deficiencies were improved/rectified by the Contractor	

	Name	Signature	Date
Recorded by	Victor Wong		29 October 2018
Checked by	Dr. Priscilla Choy		29 October 2018

APPENDIX J
EVENT ACTION PLANS

Appendix J - Event Action Plans

Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded by one sampling	1. Identify source and investigate the causes of exceedance; 2. Inform Contactor, IEC and ER; 3. Repeat measurement to confirm finding.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded by two or more consecutive sampling	1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC and ER; 3. Increase monitoring frequency to daily; 4. Discuss with IEC and Contractor on remedial actions required; 5. Assess the effectiveness of Contractor's remedial actions; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues.	1. Discuss with ET and IEC on proper remedial actions; 2. Submit proposals for remedial actions to ER and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit Level being exceeded by one sampling	1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Assess effectiveness of Contractor's remedial actions and keep	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures;	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be	1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on proper remedial actions; 3. Submit proposals for remedial actions to ER and IEC within three

	EPD, IEC and ER informed of the results.	4. Advise the ER on the effectiveness of the proposed remedial measures.	implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues.	working days of notification; 4. Implement the agreed proposals.
Limit Level being exceeded by two or more consecutive sampling	1. Notify IEC, ER, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Carry out analysis of Contractor's working procedures to identify source and investigate the causes of exceedance; 4. Increase monitoring frequency to daily; 5. Arrange meeting with IEC, ER and Contractor to discuss the remedial actions to be taken; 6. Assess effectiveness of Contractor's remedial actions and keep EPD, IEC and ER informed of the results; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Discuss with ET, ER and IEC on proper remedial actions; 3. Submit proposals for remedial actions to IEC within three working days of notification; 4. Implement the agreed proposals; 5. Submit further remedial actions if problem still not under control; 6. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

Appendix J - Event Action Plans

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals. (The above actions should be taken within 2 working days after the exceedance is identified)
Limit Level being exceeded	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance;	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals;

	5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	(The above actions should be taken within 2 working days after the exceedance is identified)	measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)	4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)

Appendix J - Event Action Plans

Event/Action Plan for Landscape and Visual

EVENT ACTION LEVEL	ACTION			
	ET	IEC	ER	CONTRACTOR
Design Check	1. Check final design conforms to the requirements of EP and prepare report.	1. Check report. 2. Recommend remedial design if necessary	1. Undertake remedial design if necessary	
Non-conformity on one occasion	1. Identify Source 2. Inform IEC and ER 3. Discuss remedial actions with IEC, ER and Contractor 4. Monitor remedial actions until rectification has been completed	1. Check report 2. Check Contractor's working method 3. Discuss with ET and Contractor on possible remedial measures 4. Advise ER on effectiveness of proposed remedial measures. 5. Check implementation of remedial measures.	1. Notify Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	1. Identify Source Inform IEC and	1. Check monitoring report	1. Notify Contractor 2. Ensure remedial measures are properly	1. Amend working methods 2. Rectify damage and

	ER 2. Increase monitoring frequency 3. Discuss remedial actions with IEC, ER and Contractor 4. Monitor remedial actions until rectification has been completed 5. If non-conformity stops, cease additional monitoring	2. Check Contractor's working method 3. Discuss with ET and Contractor on possible remedial measures 4. Advise ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures.	implemented	undertake any necessary replacement

APPENDIX K
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

Appendix K – Summary of Implementation Schedule of Mitigation Measures for Construction Phase

EIA Ref.	Recommended Mitigation Measures	Implementation Status
Construction Air Quality		
S6.5	8 times daily watering of the work site with active dust emitting activities.	^
S6.8	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.	
	• Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	*
	• Misting for the dusty material should be carried out before being loaded into the vehicle. Any vehicle with an open load carrying area should have properly fitted side and tail boards.	^
	• Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	^
	• The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.	*
	• The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. Onsite unpaved roads should be compacted and kept free of lose materials.	^
	• Vehicle washing facilities should be provided at every vehicle exit point.	^
	• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	^ ^
	• Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	*
	• Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides.	^
	• Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^

S6.8	• DWFI compound for JVBC: A DWFI compound is proposed at the downstream of JVC to contain pollution in drainage systems entering the KTAC and KTTS by interception facilities until the ultimate removal of the pollution sources. Tidal barriers and desiliting facilities will form part of the compounds to prevent any accumulation of sediment within the downstream section of JVBC and hence fully mitigate the potential odour emissions from the headspace of JVBC near the existing discharge locations. The odour generating operations within the proposed desilting compound will be fully enclosed and the odorous air will be collected and treated by high efficiency deodorizers before discharge to the atmosphere.	N/A
	• Desilting compound for KTN: Two desilting compounds are proposed for KTN (at Site 1D6 and Site 1P1) to contain pollution in drainage systems entering the KTAC and KTTS by interception facilities until the ultimate removal of the pollution sources. Tidal barriers and desiliting facilities will form part of the compounds to prevent any accumulation of sediment within the downstream section of KTN and hence fully mitigate the potential odour emissions from the headspace of KTN near the existing discharge locations. The odour generating operations within the proposed desilting compound will be fully enclosed and the odorous air will be collected and treated by high efficiency deodorizers before discharge to the atmosphere.	N/A
	• Decking or reconstruction of KTN within apron area: It is proposed to deck the KTN or reconstruct the KTN within the former Apron area into Kai Tak River from the south of Road D1 to the north of Road D2 along the existing alignment of KTN. The Kai Tak River will compose of a number of channels flowing with nonodorous fresh water and THEES effluent. The channel flowing with THEES effluent will be designed with the width of water surface of not more than 16m.	N/A
	• Localised maintenance dredging: Localised maintenance dredging should be conducted to provide water depth of not less than 3.5m over the whole of KTAC and KTTS. With reference to the water depth data recorded during the odour survey, only some of the areas in the northern part of KTAC (i.e. to the north of taxiway bridge) including the area near the northern edge of KTAC, the area near western bank of KTAC, and the area near the JVC discharge have water depths shallower than 3.5m. The area involved would be about 40% of the northern KTAC and the dredging depth required would be from about 2.7m to less than 1m. The maintenance dredging to be carried out prior to the occupation of any new development in the immediate vicinity of KTAC to avoid potential localized odour impacts at the future ASRs during the maintenance	N/A

Appendix K – Summary of Implementation Schedule of Mitigation Measures for Construction Phase

	dredging operation. • Improvement of water circulation in KTAC and KTTS: 600m gap opening at the northern part of the former Kai Tak runway, the water circulation in KTAC and KTTS would be substantially improved. Together with the improvement in water circulation, the DO level in KTAC and KTTS would also be increased. • In-situ sediment treatment by bioremediation: Bioremediation would be applied to the entire KTAC and KTTS.	N/A N/A
Construction Noise		
S7.8	Use of quiet PME, movable barriers barrier for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump.	^
S7.9	Good Site Practice: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. • Mobile plant, if any, should be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	 ^ ^ ^ ^ ^ ^
S7.9	Scheduling of Construction Works during School Examination Period	^
S7.8	(i) Provision of low noise surfacing in a section of Road L2; and (ii) Provision of structural fins	N/A N/A
S7.8	(i) Avoid the sensitive façade of class room facing Road L2 and L4; and (ii) Provision of low noise surfacing in a section of Road L2 & L4	N/A N/A

Appendix K – Summary of Implementation Schedule of Mitigation Measures for Construction Phase

S7.8	(i) Provision of low noise surfacing in a section of Road L4 before occupation of Site 1I1; and	N/A
	(ii) Setback of building about 5m from site boundary.	N/A
S7.8	Setback of building about 35m to the northwest direction at 1L3 and 5m at Site 1L2.	N/A
S7.8	(i) avoid any sensitive façades with openable window facing the existing Kowloon City Road network; and Avoid the sensitive façade of class room facing Road L2 and L4; and	N/A
	(ii) for the sensitive facades facing the To Kwa Wan direction, either setback the facades by about 5m to the northeast direction or do not provide the facades with openable window.	N/A
S7.8	(i) avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or	N/A
	(ii) provision of 17.5m high noise tolerant building fronting To Kwa Wan Road and restrict the height of the residential block(s) located at less than 55m away from To Kwa Wan Road to no more than 25m above ground	N/A
S7.8	(i) avoid any sensitive facades with openable window facing the slip road connecting Prince Edward Road East and San Po Kong or other alternative mitigation measures and at-source mitigation measures for the surrounding new local roads to minimise the potential traffic noise impacts from the slip road	^
S7.8	All the ventilation fans installed in the below will be provided with silencers or acoustics treatment.	
	(i) SPS	N/A
	(ii) ESS	N/A
	(iii) Tunnel Ventilation Shaft	N/A
	(iv) EFTS depot	N/A
S7.8	Installation of retractable roof or other equivalent measures	N/A
Construction Water Quality		
S8.8	The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including:	
	• Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply;	N/A
	• Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps;	N/A
	• An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and	
	• For all unmanned SPSs, a remote monitor system connecting SPSs with the control station through telemetry system should be provided so that swift actions could be taken in case of malfunction of unmanned facilities	N/A N/A

Appendix K – Summary of Implementation Schedule of Mitigation Measures for Construction Phase

S8.8	**Construction Phase** Marine-based Construction *Capital and Maintenance Dredging for Cruise Terminal* Mitigation measures for construction of the proposed cruise terminal should follow those recommended in the approved EIA for CT Dredging.	N/A
S8.8	*Fireboat Berth, Runway Opening and Road T2* Silt curtains should be deployed around the close grab dredger to minimize release of sediment and other contaminants for any dredging and filling activities in open water.	N/A
S8.8	Dredging at and near the seawall area for construction of the public landing steps cum fireboat berth should be carried out at a maximum production rate of 1,000m^3 per day using one grab dredger.	N/A
S8.8	The proposed construction method for runway opening should adopt an approach where the existing seawall at the runway will not be removed until completion of all excavation and dredging works for demolition of the runway. Thus, excavation of bulk fill and majority of the dredging works will be carried out behind the existing seawall, and the sediment plume can be effectively contained within the works area. As there is likely some accumulation of sediments alongside the runway, there will be a need to dredge the existing seabed after completion of all the demolition works. Dredging alongside the 600m opening should be carried out at a maximum production rate of 2,000m^3 per day using one grab dredger.	N/A
8.8	Dredging for Road T2 should be conducted at a maximum rate of 8,000m^3 per day (using four grab dredgers) whereas the sand filling should be conducted at a maximum rate of 2,000m3 per day (using two grab dredgers).	N/A
8.8	Silt screens shall be applied to seawater intakes at WSD seawater intake.	N/A

Appendix K – Summary of Implementation Schedule of Mitigation Measures for Construction Phase

S8.8	Land-based Construction *Construction Runoff* Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include: • use of sediment traps • adequate maintenance of drainage systems to prevent flooding and overflow	 ^ ^
S8.8	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	^
S8.8	Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles 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.	^
S8.8	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	*
S8.8	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
S8.8	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.	^
S8.8	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, 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.	
S8.8	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	N/A(1)
S8.8	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 located wheel washing bay should be provided at every site exit, and 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.	^
S8.8	*Drainage* It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea	^
S8.8	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	^
S8.8	All fuel tanks and storage areas should be provided with locks and be located 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 the coastal waters of the Victoria Harbour WCZ.	^
S8.8	*Sewage Effluent* Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	^

Appendix K – Summary of Implementation Schedule of Mitigation Measures for Construction Phase

S8.8	*Stormwater Discharges* Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	^
S8.8	*Debris and Litter* In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials, litter or wastes to marine waters does not occur	^
S8.8	*Construction Works at or in Close Proximity of Storm Culvert or Seafront* The proposed works should preferably be carried out within the dry season where the flow in the drainage channel /storm culvert/ nullah is low.	^
S8.8	The use of less or smaller construction plants may be specified to reduce the disturbance to the bottom sediment at the drainage channel /storm culvert / nullah.	^
S8.8	Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works	^
S8.8	Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.	^
S8.8	Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers.	^
S8.8	Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.	^
S8.8	Mitigation measures to control site runoff from entering the nearby water environment should be implemented to minimize water quality impacts. Surface channels should be provided along the edge of the waterfront within the work sites to intercept the runoff.	^
S8.8	Construction effluent, site run-off and sewage should be properly collected and/or treated.	^
S8.8	Any works site inside the storm water courses should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props to prevent adverse impact on the storm water quality.	N/A
S8.8	Silt curtain may be installed around the construction activities at the seafront to minimize the potential impacts due to accidental spillage of construction materials.	N/A
S8.8	Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert/drainage channel/sea.	N/A

Appendix K – Summary of Implementation Schedule of Mitigation Measures for Construction Phase

S8.8	Supervisory staff should be assigned to station on site to closely supervise and monitor the works	^
S8.8	Marine water quality monitoring and audit programme shall be implemented for the proposed sediment treatment operation.	N/A
Construction Waste Management		
S9.5	Good Site Practices It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during the dredging activities include: • Nomination of an approved person, such as a site manager, be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site. • Training of site personnel in proper waste management and chemical waste handling procedures. • Provision of sufficient waste disposal points and regular collection for disposal. • Appropriate measure to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. • A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	^ ^ ^ ^
S9.5	Waste Reduction Measures Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: • Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals • 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 • Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force • Any unused chemicals or those with remaining functional capacity should be recycled • Proper storage and site practices to minimise the potential for damage or contamination of construction materials	^ ^ ^ ^

Appendix K – Summary of Implementation Schedule of Mitigation Measures for Construction Phase

S9.5	Dredged Marine Sediment The basic requirements and procedures for dredged mud disposal are specified under the ETWB TCW No. 34/2002. The management of the dredging, use and disposal of marine mud is monitored by the MFC, while the licensing of marine dumping is required under the Dumping at Sea Ordinance and is the responsibility of the Director of Environmental Protection (DEP)	N/A
S9.5	The dredged marine sediments would be loaded onto barges and transported to the designated disposal sites allocated by the MFC depending on their level of contamination. Sediment classified as Category L would be suitable for Type 1 - Open Sea Disposal. Contaminated sediment would require either Type 1 – Open Sea Disposal (Dedicated Sites), Type 2 - Confined Marine Disposal, or Type 3 – Special Treatment / Disposal and must be dredged and transported with great care in accordance with ETWB TCW No. 34/2002. Subject to the final allocation of the disposal sites by MFC, the dredged contaminated sediment must be effectively isolated from the environment and disposed properly at the designated disposal site	N/A
S9.5	It will be the responsibility of the contractor to satisfy the appropriate authorities that the contamination levels of the marine sediment to be dredged have been analysed and recorded. According to the ETWB TCW No. 34/2002, this will involve the submission of a formal Sediment Quality Report to the DEP, prior to the dredging contract being tendered. The contractor for the dredging works should apply for allocation of marine disposal sites and all necessary permits from relevant authorities for the disposal of dredged sediment. During transportation and disposal of the dredged marine sediments requiring Type 1, Type 2, or Type 3 disposal, the following measures should be taken to minimise potential impacts on water quality: • Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved • Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic selfmonitoring devices as required under the Dumping at Sea Ordinance and as specified by the DEP • Barges or hopper barges should not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation	N/A N/A N/A
S9.5	Construction and Demolition Material Mitigation measures and good site practices should be incorporated into contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include: • Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for disposal, the	^

	transient stockpiles should be located away from waterfront or storm drains as far as possible	
	• Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric	^
	• Skip hoist for material transport should be totally enclosed by impervious sheeting	^
	• Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site	^
	• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores	^
	• The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle	^
	• All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet	^
	• The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading	^
	When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket System for Disposal of Construction and Demolition Materials” should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	^
S9.5	Chemical Waste After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*	^

Appendix K – Summary of Implementation Schedule of Mitigation Measures for Construction Phase

S9.5	General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem		*
Construction Landscape and Visual			
S13.9	CM1	All existing trees should be carefully protected during construction.	^
	CM2	Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.	^
	CM3	Control of night-time lighting.	N/A(1)
	CM4	Erection of decorative screen hoarding.	^

Remarks:

^	Compliance of mitigation measure
*	Recommendations were made during site audits but improved/rectified by the Contractor
#	Recommendations were made during site audits but has not yet been improved/rectified by the Contractor
●	Non-compliance but rectified by the Contractor
X	Non-compliance of mitigation measure
N/A	Not Applicable at this stage
N/A(1)	Not observed

APPENDIX L
SUMMARIES OF ENVIRONMENTAL COMPLAINT, WARNING, SUMMON AND NOTIFICATION OF SUCCESSFUL PROSECUTION

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area

Appendix L – Summary of environmental complaint, warning, summon and notification of successful prosecution

Complaint Log

EPD Complaint Ref No.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
17-34438	Dakota Drive and Olympic Avenue	23 October 2017	The complainant concerned about the dust emission when vehicle running on the dry surface outside Dakota Drive and Olympic Avenue. In addition, vehicles were not clear enough before leaving the construction site.	In accordance with the information gathered in the investigation, construction activities were conducted with proper mitigation measures to minimize the dust impact arise from the construction site to the vicinity of this Project. Regular water spraying was provided to haul roads and unpaved areas within the site areas to reduce the dust impact arise from the construction site to the vicinity of this Project. The Contractor had also ensured vehicles and plants were wheel washed to be cleaned of mud and debris before leaving the construction site area. Therefore, the complaint is considered as non-project related. The following recommendations were made to further enhance the mitigation measures: ● Where practicable, to provide sheltered area on the top and three sides for stockpiles of dusty materials, or perform frequent water spraying so as to maintain the entire surface wet; ● Frequent checking and repair the gaps or broken tarpaulin sheets; and ● To provide a hard-surfaced road between any cleaning facility and the public Road	Closed

Remarks: No complaint was received in the reporting month.

Contract No. KLN/2016/04
Environmental Monitoring Works for Contract No. KL/2015/02
Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area

Appendix L – Summary of environmental complaint, warning, summon and notification of successful prosecution

Warnings / Summons and Successful Prosecutions received

Log Ref.	Received Date	Details of Warning / Summons and Successful Prosecutions	Investigation/Mitigation Action	Status
N/A	N/A	N/A	N/A	N/A

Remarks: No warning/summon and prosecution was received in the reporting month.

APPENDIX M
SUMMARY OF WASTE GENERATION AND DISPOSAL RECORDS

Department: CEDD
Contract No.: KL/2015/02
Project : Kai Tak Development - Stage 5A Infrastructure at Former North Apron Area

Peako - Wo Hing Joint Venture

Monthly Summary Waste Flow Table for 2018

As at 1 November 2018

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 (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m³)
Jan	0	0	0	0	0	0	0	0	0	0	63
Feb	0	0	0	0	0	0	0	0	0	0	56
Mar	0	0	0	0	0	0	0	0	0	0	21
Apr	0	0	0	0	0	0	0	0	0	0	14
May	0	0	0	0	0	0	0	0	0	0	28
June	0	0	0	0	0	0	0	0	0	0	56
Sub-total	61614	0	0	0	61614	0	0	0	0	0	735
July	0	0	0	0	0	0	0	0	0	0	56
Aug	0	0	0	0	0	0	0	0	0	0	56
Sept	0	0	0	0	0	0	0	0	0	0	42
Oct	0	0	0	0	0	0	0	0	0	0	70
Nov											
Dec											
Total	61614	0	0	0	61614	0	0	0	0	0	959

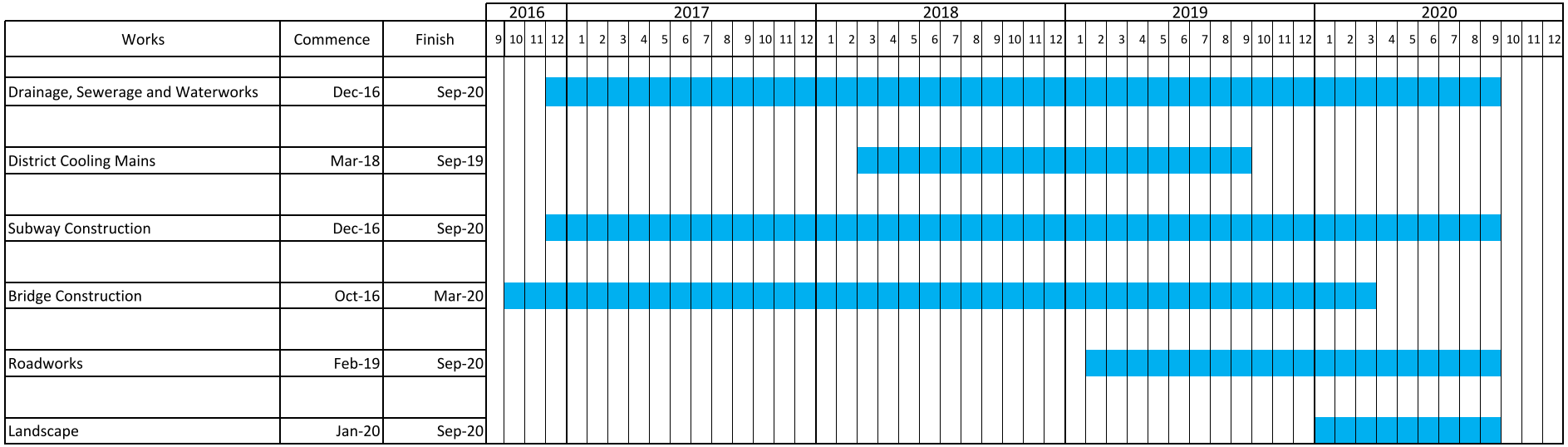
Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ Cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m³)
63000	0	0	0	63000	0	0	0	0	0	2000

Notes:
(1) The performance targets are given in PS clause 6(14).
(2) The waste flow table shall also include C & D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/ containers, plastic sheets/ foam from packaging material.
(4) The Contractor shall also submit the latest forcast of the total amount of C&D materials exected to be generated from the Works, together with a braskdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or excreeding 50,00 m³. (PS Cleuse 25.02A(7) refers).

APPENDIX N
CONSTRUCTION PROGRAMME

KL/2015/02

Construction Programme



Works	Commence	Finish
Drainage, Sewerage and Waterworks	Dec-16	Sep-20
District Cooling Mains	Mar-18	Sep-19
Subway Construction	Dec-16	Sep-20
Bridge Construction	Oct-16	Mar-20
Roadworks	Feb-19	Sep-20
Landscape	Jan-20	Sep-20