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29th CONSOLIDATED MONTHLY EM&A REPORT

March 2019

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/0953

Prepared by	**:**	Wingo So
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EXECUTIVE SUMMARY

i. This is the 29th Consolidated Monthly EM&A Report which summaries the EM&A works undertaken by respective contract under EP-337/2009 within the period between 1 March and 31 March 2019.

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

Contract No. KL/2012/03:
- Daily Cleaning;
- E&M Work, Landscape Work in PS2;
- Maintenance platform in DCS;
- Landscape Work at Sung Wong Toi Road; and
- E&M Works, Landscape Work in NPS.

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 outfalls;
- Laying of sewer, drainage and pavement;
- Erection of noise barrier steel structure and panels
- Construction of Architectural features on Open Space

Contract No. KL/2014/03:
- Excavation and laying of drainage pipe and manhole;
- Excavation and ELS construction.
- Construction of SUS structure; and
- Construction of District Cooling System.

Contract No. KL/2015/02:
- Structural works and backfilling works for subway construction at PERE
- Backfilling works for subway SW6 from CH0 to CH45 and Staircase ST3
- Erection of underpinning frame at the existing Bridge K72
- Sheet piling works at SKLR playground (Stage 4)
- Construction of chain-link fence for land sale sites
- Filling work for slip road S15
- Drainage works at slip road S15
- DCS Works in Road D1, road L7, Portion 6, Portion 1
  Water mains laying works in Portion 4

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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.

Contract No. KL/2014/03

v. A Limit Level exceedance was recorded. Exceedance was recorded for construction noise Limit Level at KTD2b on 22 March 2019. No Action / Limit Level exceedance was recorded for construction noise at KTD1a and KER1b in the reporting month.

vi. On 22 March 2019, at KTD2b non-project related construction works were carried out during noise monitoring, noise was generated by the reverse circulation drill works from construction site of New Acute Hospital next to the monitoring location KTD2b, also vehicle noise source from Construction site of New Acute Hospital was observed during noise monitoring. Thus, it is considered that this exceedance is not project related. No exceedance is recorded in the following monitoring conducted on 28 March 2019.

Complaint, Notification of Summons and Successful Prosecution

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

Reporting Changes

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

Future Key Issues

ix. 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 29th Consolidated Monthly EM&A Report which summaries the EM&A works undertaken by respective contract under EP-337/2009 within the period between 1 March and 31 March 2019.

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. Mickey Lee		
IEC (ANewR)	IEC	Mr. Adi Lee	2618 2831	3007 8648
ET (Wellab)	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. Keith Chu	3579 2450	3579 4516
	Engineer	Ms. Adonia Yung	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	K.S Lee	2151 2091	3107 1388
	Audit Team	Ms. Betty Choi	2151 2072	

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. Kola Lam	5545 4625	
Contract No. KL/2015/02:				
Project Proponent (CEDD)	Senior Engineer	Mr. Ricky Chan	2116 3753	2116 0714
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	Mr. K.S Lee	2151 2091	3107 1388
	Audit Team Leader	Ms. Betty Choy	2151 2072	
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/2012/03:

- Daily Cleaning;
- E&M Work, Landscape Work in PS2;
- Maintenance platform in DCS;
- Landscape Work at Sung Wong Toi Road; and
- E&M Works, Landscape Work in NPS.

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 outfalls;
- Laying of sewer, drainage and pavement;
- Erection of noise barrier steel structure and panels
- Construction of Architectural features on Open Space

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Contract No. KL/2014/03:

- Excavation and laying of drainage pipe and manhole;
- Excavation and ELS construction.
- Construction of SUS structure; and
- Construction of District Cooling System.

Contract No. KL/2015/02:

- Structural works and backfilling works for subway construction at PERE
- Backfilling works for subway SW6 from CH0 to CH45 and Staircase ST3
- Erection of underpinning frame at the existing Bridge K72
- Sheet piling works at SKLR playground (Stage 4)
- Construction of chain-link fence for land sale sites
- Filling work for slip road S15
- Drainage works at slip road S15
- DCS Works in Road D1, road L7, Portion 6, Portion 1
- Water mains laying works in Portion 4

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.

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	17/12/2018	16/03/2019
	GW-RE0186-19	16/03/2019	15/06/2019
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	18/11/2017
		22/11/2017	18/02/2018
Construction Noise Permit	GW-RE0866-18	04/01/2018	03/06/2019
	GW-RE0036-19	21/01/2019	11/07/2019
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	-	-	-

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	99.9	65.6 – 132.8	346	500
	AM3(A)	90.0	55.0 – 121.9	351	
	AM4(C)	96.6	73.5 – 144.3	371	
	AM5	83.3	61.0 – 104.8	345	
24-hr TSP	AM2(A)	40.5	21.6 – 54.5	157	260
	AM3(B)	78.1	36.0 – 99.6	187	
	AM4(C)	50.0	40.3 – 59.7	187	
	AM5	56.9	40.6 – 76.9	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	81	52-114	177	260
	KTD2a	91	68-124	157	
	KER1b	85	48-130	172	
Contract No. KL/2015/02:					
1-hr TSP	AM2	139	78 – 210	346	500
24-hr TSP	AM2(A)	40	27 – 73	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.

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)	53.7 – 62.0		70*
M7	61.5 – 64.2		70*
M8(A)	59.5 – 69.5		70*
M9	58.9 – 59.3		75
Contract No. KL/2014/01:			
NA (No Construction noise monitoring is required for the Project.)			NA
Contract No. KL/2014/03:			
KTD1a	69-74		75
KTD2a	73-79		75
KER1b	69-74		75
Contract No. KL/2015/02:			
M3	63 – 70		70*
M4	68 – 76#		70*
M5(C)	62 – 75		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.

Contract No. KL/2014/03

2.1.11 A Limit Level exceedance was recorded. Exceedance was recorded for construction noise Limit Level at KTD2b on 22 March 2019. No Action / Limit Level exceedance was recorded for construction noise at KTD1a and KER1b in the reporting month.

2.1.12 On 22 March 2019, at KTD2b non-project related construction works were carried out during noise monitoring, noise was generated by the reverse circulation drill works from construction site of New Acute Hospital next to the monitoring location KTD2b, also vehicle noise source from Construction site of New Acute Hospital was observed during noise monitoring. Thus, it is considered that this exceedance is not project related. No exceedance is recorded in the following monitoring conducted on 28 March 2019.

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

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Landscape and Visual

2.1.14 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 1st, 8th, 12th, 20th and 29th March 2019 in the reporting month.
IEC site inspection was conducted on 12th March 2019.

Contract No. KL/2014/01:
Site audits were conducted by representatives of the Contractor, Supervising Officer and ET on 6, 13, 20 and 27 March 2019 in the reporting month. IEC joint site inspection was conducted on 27 March 2019. No non-compliance was observed during the site audits.

Contract No. KL/2014/03:
In the reporting month, four site inspections were carried out on 6, 13, 20 and 27 March 2019.
Two of them, held on 6 and 13 March 2019 was the joint inspections with the IEC, ER, the Contractor and the ET.

Contract No. KL/2015/02:
Site audits were conducted on 4, 13, 18 and 25 March 2019 in the reporting month. A joint site audit with the representative of IEC, ER, the Contractor and the ET was conducted on 13 March 2019.

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.

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.

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/2012/03:

- Daily Cleaning;
- E&M Work, GRC coping, Landscape Work in PS2;
- Maintenance platform in DCS; and
- E&M Works, Scaffold Platform Installation in NPS.

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;
- 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 SUS structure;
- Construction of socketed H-Pile;
- Excavation and ELS construction; and
- Construction of District Cooling System.

Contract No. KL/2015/02:

- Structural works and backfilling works for subway construction at PERE
- Backfilling works for subway SW6 from CH0 to CH45 and Staircase ST3
- Erection of underpinning frame and demolition of the exiting wall at the existing Bridge K72
- Sheet piling works at SKLR playground (Stage 4)
- Implementation of stage 2 TTA at PERE
- Drainage work and road pavement construction at slip road S15
- Preparation for Refurbishment of bridge K72
- Construction of chain-link fence for land sale sites
- DCS Works in Road D1, road L7, Portion 6, Portion 1
- Water mains laying works in road D1, L7

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;

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.

Contract No. KL/2014/03

7.1.3 A Limit Level exceedance was recorded. Exceedance was recorded for construction noise Limit Level at KTD2b on 22 March 2019. No Action / Limit Level exceedance was recorded for construction noise at KTD1a and KER1b in the reporting month.

7.1.4 On 22 March 2019, at KTD2b non-project related construction works were carried out during noise monitoring, noise was generated by the reverse circulation drill works from construction site of New Acute Hospital next to the monitoring location KTD2b, also vehicle noise source from Construction site of New Acute Hospital was observed during noise monitoring. Thus, it is considered that this exceedance is not project related. No exceedance is recorded in the following monitoring conducted on 28 March 2019.

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

7.1.6 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/2012/03
Kai Tak Development - Stage 4 Infrastructure at North Apron Area

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

March 2019

(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.

WELLAB 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

Attention: Mr Mickey Lee

Your reference:

Our reference: HKCEDD11/50/105671

Date: 10 April 2019

BY EMAIL & POST
(email: RE3@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 March 2019

We refer to emails of 4 and 10 April 2019 attaching a Monthly EM&A Report for March 2019 prepared by the ET.

We have no further comment and hereby verify the captioned 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 Ms Hazel Chan on 2618 2831 should you have any queries.

Yours faithfully
ANEWR CONSULTING LIMITED

Adi Lee
Independent Environmental Checker

LYMA/CYYH/lhmh

cc CEDD – Mr C K Choi (email: ckchoi@cedd.gov.hk)
Wellab – Dr Priscilla Choy (email: Priscilla.Choy@wellab.com.hk)

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EXECUTIVE SUMMARY

Introduction

1. This is the 64th Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Wellab 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 March 2019.

2. The major site activities undertaken in the reporting month included:
   - Daily Cleaning;
   - E&M Work, Landscape Work in PS2;
   - Maintenance platform in DCS;
   - Landscape work at Sung Wong Toi Road; and
   - E&M Works, Landscape Work in NPS.

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. 1-hour TSP monitoring at AM4(C) on 21st and 27th March 2019 was cancelled due to the permission problem, the monitoring works will be resumed on 2nd April 2019. No Action/Limit Level exceedance was recorded.

6. 24-hour TSP monitoring at AM4(C) on 15th, 21st and 27th March 2019 was cancelled due to power failure and technical problem. The monitoring works will be resumed on 12 April 2019. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

7. The proposal for alternative position of M8 (remark as M8(A)) was agreed by IEC on 20th March 2019 in accordance with the Section 2.3.9 of EM&A Manual of the Project and the Environmental Protection Department (EPD) has no major objection on the proposal. The Free Field noise measurement was adopted for Station M8(A) and its baseline reference noise level was adjusted with a correction of +3dB(A). 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:

- 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 machinery on-site; 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 Kuk, 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 Wellab Limited (Wellab) is commissioned by Kwan On Construction Co., Ltd. (the Contractor) on 1st January 2019 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 64th Monthly EM&A report summarizing the EM&A works for the Project from 1 to 31 March 2019.

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) – Wellab Limited (WL).
- 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	3106 2583	3579 4512
AECOM	Engineer's Representative	Mr. W. K. Leung	CRE	2798 0771	3013 8864
		Mr. Mickey Lee	RE		
Wellab	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;
- E&M Work, Landscape Work in PS2;
- Maintenance platform in DCS;
- Landscape Work at Sung Wong Toi Road; and
- E&M Works, Landscape Work in NPS.

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 March 2019.

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 AM3(B) – Family Planning Association of Hong Kong**
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	No	M8(A) – Po Leung Kuk Ngan Po Ling College (Site Broundary) #
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.
- **AM3(B) – The permission of air quality monitoring works (24-hour TSP) at station AM3(A) was denied in November 2017, the monitoring works were resumed at the alternative station – AM3(B) in December 2017.
- *AM4(A) – EMSD Workshop was cancelled due to unsuccessful accessibility of the facility. 1-hr TSP monitoring was conducted at AM4(B) – Ma Tau Kuk 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.
- # The proposal for alternative position of M8 (remark as M8(A)) was agreed by IEC on 20th March 2019 in accordance with the Section 2.3.9 of EM&A Manual of the Project and the Environmental Protection Department (EPD) has no major objection on the proposal. The Free Field noise measurement was adopted for Station M8(A) and its baseline reference noise level was adjusted with a correction of +3dB(A).

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. 63 (February 2019)	13 March 2019	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)	/

EP Conditions	Submission	Submission Date	Remark
3.3	Four hard copies and one electronic copy of the Monthly EM&A Report No. 63 (February 2019)	13 March 2019	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 Seven designated monitoring stations were selected for air quality monitoring programme. Impact dust monitoring was conducted at six of the air quality monitoring stations (AM2, AM2(A), AM3(A), AM3(B), 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
AM3(B)	Hong Kong Family Planning Association	Rooftop (about 4/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	Met One Instruments – AEROCET-831	4
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 1-hour TSP monitoring at AM4(C) on 21st and 27th March 2019 was cancelled due to the permission problem and will be resumed on 2nd April 2019. No Action/Limit Level exceedance was recorded.

2.20 24-hour TSP monitoring at AM4(C) on 15th, 21st and 27th March 2019 was cancelled due to power failure and will be resumed on 12th April 2019. 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(A) – Holy Trinity Bradbury Centre	Road Traffic Dust Exposed site area 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.

3.4 The proposal for alternative position of M8 (remark as M8(A)) was agreed by IEC on 20th March 2019 in accordance with the Section 2.3.9 of EM&A Manual of the Project and the Environmental Protection Department (EPD) has no major objection on the proposal. No Action/Limit Level exceedance was recorded.

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(A)	Po Leung Kuk Ngan Po Ling College (Site Boundary)	Ground Level (at a position 3m above the ground)
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 proposal for alternative position of M8 (remark as M8(A)) was agreed by IEC on 20th March 2019 in accordance with the Section 2.3.9 of EM&A Manual of the Project and the Environmental Protection Department (EPD) has no major objection on the proposal. The Free Field noise measurement was adopted for Station M8(A) and its baseline reference noise level was adjusted with a correction of +3dB(A).
# The impact monitoring at these locations will only be carried out until existence of the sensitive receiver at the building.

Monitoring Equipment

3.5 **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 977 & BSWA 801	3
Calibrator	SVANTEK SV30A & Brüel & Kjær 4231	2

Monitoring Parameters, Frequency and Duration

3.6 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 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) M8(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 (3m above the ground for Station M8(A)).
- 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

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

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

3.9 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

3.10 The construction noise monitoring at Station M8 – Po Leung Kuk Ngan Po Ling College was conducted on 5th November 2018 and cancelled on 15th November 2018. The college principal rejected our permission application on 12th November 2018.

3.11 The proposal for alternative position of M8 (remark as M8(A)) was agreed by IEC on 20th March 2019 in accordance with the Section 2.3.9 of EM&A Manual of the Project and the Environmental Protection Department (EPD) has no major objection on the proposal. The Free Field noise measurement was adopted for Station M8(A) and its baseline reference noise level was adjusted with a correction of +3dB(A). No Action/Limit Level exceedance was recorded.

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

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

3.14 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 Excavation works at the site (Contract No.: 1/WSD/14(K)) facing Po Leung Kuk Ngan Po Ling College
M8	Po Leung Kuk Ngan Po Ling College	
M8(A)	Po Leung Kuk Ngan Po Ling College (Site Boundary)	
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(A)[#]	61.9 (at 0700 – 1900 hrs on normal weekdays) 64.9 (at 0700 – 1900 hrs on normal weekdays) (adopted since 20 March 2019)	
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.
(#) The Baseline Noise Level of Station M8 was adopted for alternative Station M8(A) temporarily until the baseline checking was completed. Since 20 March 2019, The Free Field noise measurement was adopted for Station M8(A) and its baseline reference noise level was adjusted with a correction of +3dB(A).

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 (Mar 2019), µg/m3	
			Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	99.9	65.6 – 132.8
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	217	247	90.0	55.0 – 121.9
AM4(C) – New Pumping Station	N/A	N/A	96.6	73.5 – 144.3
AM5– CCC Kei To Secondary School	159	221	83.3	61.0 – 104.8

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 (Mar 2019), µg/m3	
			Average	Range
AM2(A) – Ng Wah Catholic Secondary School (Alternative station for Lee Kau Yan Memorial School)	145	169	40.5	21.6 – 54.5
AM3(B) – Family Planning Association of Hong Kong	N/A	N/A	78.1	36.0 – 99.6
AM4(C) – New Pumping Station	N/A	N/A	50.0	40.3 – 59.7
AM5 – CCC Kei To Secondary School	103	128	56.9	40.6 – 76.9

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 (Mar 2019), $L_{eq\ (30min)}$ dB(A)
M6(A) - Oblate Primary School ^	N/A	53.7 – 62.0
M7 - CCC Kei To Secondary School	45 – 68	61.5 – 64.2
M8(A) - Po Leung Kuk Ngan Po Ling College (Site Boundary)*	44 - 70	59.5 – 69.5
M9 – Tak Long Estate	Not predicted in EIA Report	58.9 – 59.3

(^) Alternative noise monitoring station for M6 – Holy Carpenter Primary School from 10th October 2014 onwards.
(*)The proposal for alternative position of M8 (remark as M8(A)) was agreed by IEC on 20th March 2019 in accordance with the Section 2.3.9 of EM&A Manual of the Project and the Environmental Protection Department (EPD) has no major objection on the proposal. The Free Field noise measurement was adopted for Station M8(A) and its baseline reference noise level was adjusted with a correction of +3dB(A).

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 station M7 in the reporting month was recorded within the prediction in the approved Environmental Impact Assessment (EIA) Report. The range of noise level monitoring at stations M8(A) in the reporting month was recorded within the prediction of M8 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 1st, 8th, 12th, 20th and 29th March 2019 in the reporting month. IEC site inspection was conducted on 12th March 2019. 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	--	--	**--**
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	8th March 2019	Reminder: General refuse should be collected and disposed properly.	The general refuse was cleared on 12th March 2019.
	29th March 2019	Reminder: General refuse/construction waste should be disposed properly.	The item will be followed up in the next reporting month.
Landscape and Visual	--	--	--
Permits /Licences	--	--	--

Summary of Mitigation Measures Implemented

6.7 The monthly IEC audit was carried out on 12th March 2019, the summary were recorded as follows:

Follow up of last monthly audit:
- No major environmental deficiency was observed during the previous site audit.

Observation(s) in the reporting month:
- No major environmental deficiency was observed during the site audit.

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;
- E&M Work, GRC coping, Landscape Work in PS2;
- Maintenance platform in DCS; and
- E&M Works, Scaffold Platform Installation in NPS.

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:

-
- 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 machinery on-site; and
- 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. April 2019 and May 2019 are summarized as follows:

Table 7.1 Summary of the tentative program of major site activities, the impact prediction and control measures for April 2019 and May 2019

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 1-hour TSP monitoring at AM4(C) on 21st and 27th March 2019 was cancelled due to the permission problem and will be resumed on 2nd April 2019. No Action/Limit Level exceedance was recorded. The average of 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 24-hour TSP monitoring at AM4(C) on 15th, 21st and 27th March 2019 was cancelled due to power failure and will be resumed on 12th April 2019. 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 proposal for alternative position of M8 (remark as M8(A)) was agreed by IEC on 20th March 2019 in accordance with the Section 2.3.9 of EM&A Manual of the Project and the Environmental Protection Department (EPD) has no major objection on the proposal. The Free Field noise measurement was adopted for Station M8(A) and its baseline reference noise level was adjusted with a correction of +3dB(A).No Action/Limit Level exceedance was recorded.

8.5 The range of noise level monitoring at station M7 in the reporting month was recorded within the prediction in the approved Environmental Impact Assessment (EIA) Report. The range of noise level monitoring at stations M8(A) in the reporting month was recorded within the prediction of M8 in the approved Environmental Impact Assessment (EIA) Report.

Complaints, Notification of any Summons and Prosecution Received

8.6 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

8.7 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

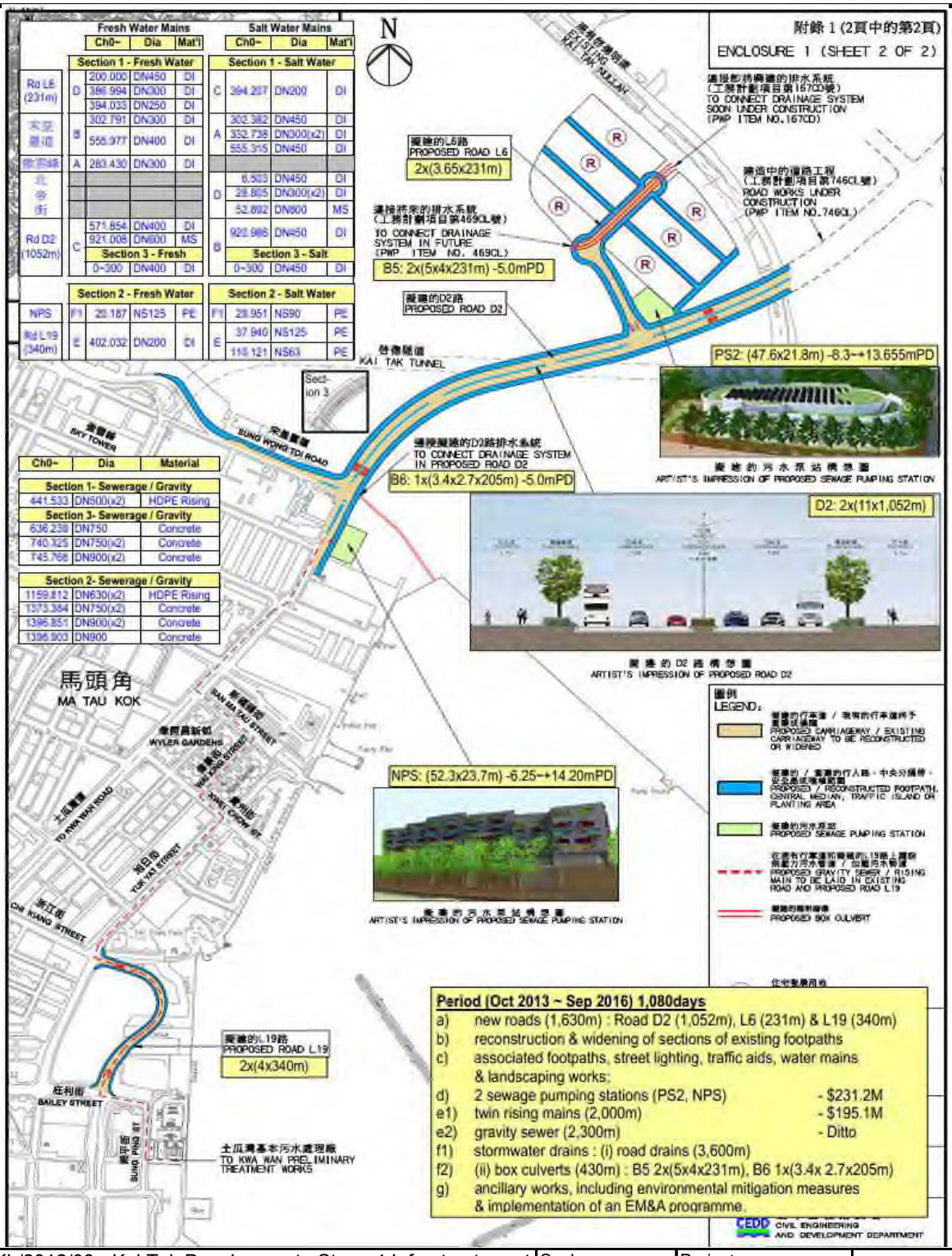
8.8 The above recommendations and the recommended mitigation measures in the EM&A Manual were carried out by the Contractor during construction. No non-compliance was recorded during the environmental site inspections as shown in **Appendix I**.

8.9 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.

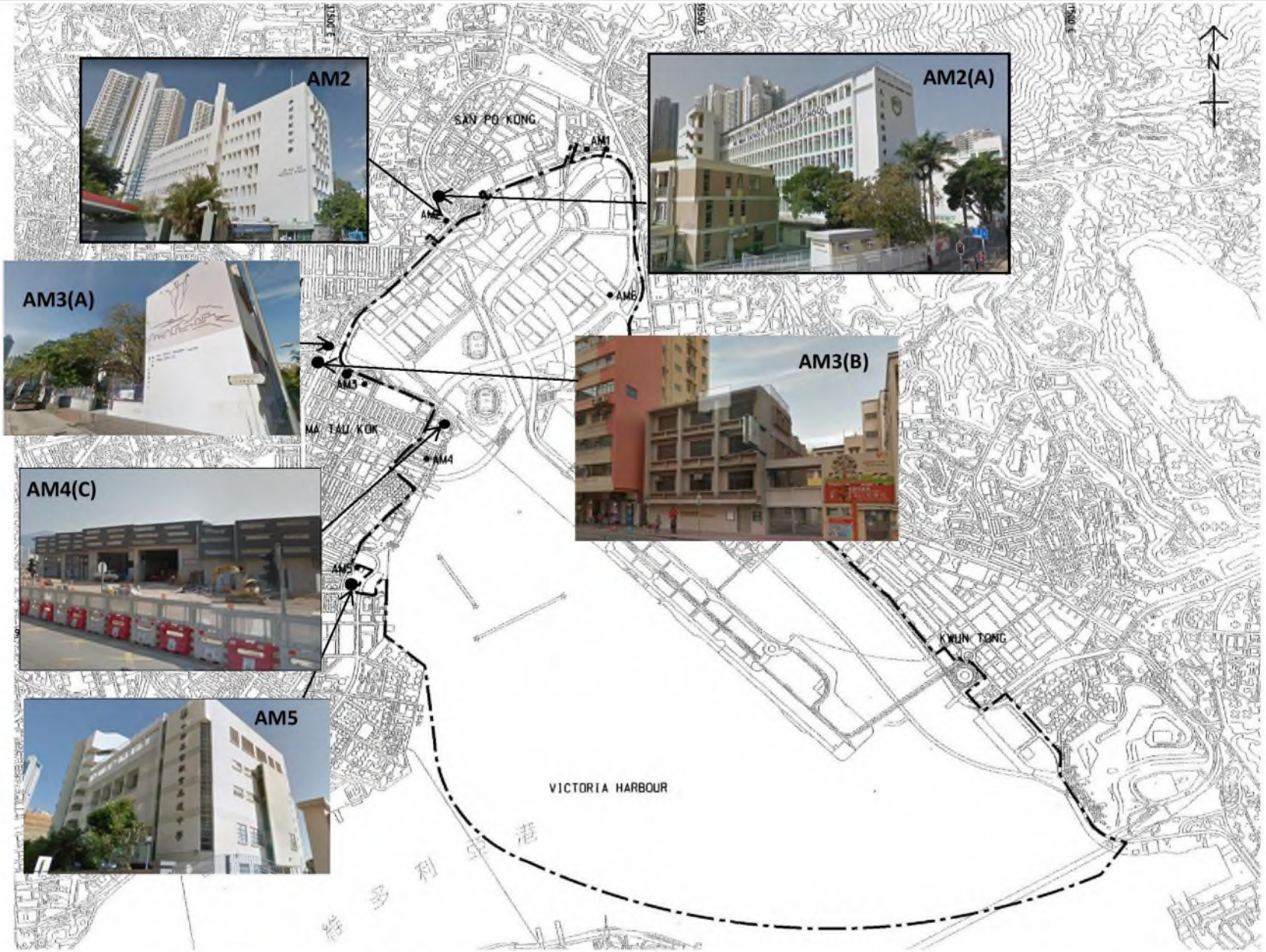
Table 8.1 Examples of Mitigation Measures for Environmental Recommendations

	
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	WELLAB 匯力 consulting . testing . research
	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

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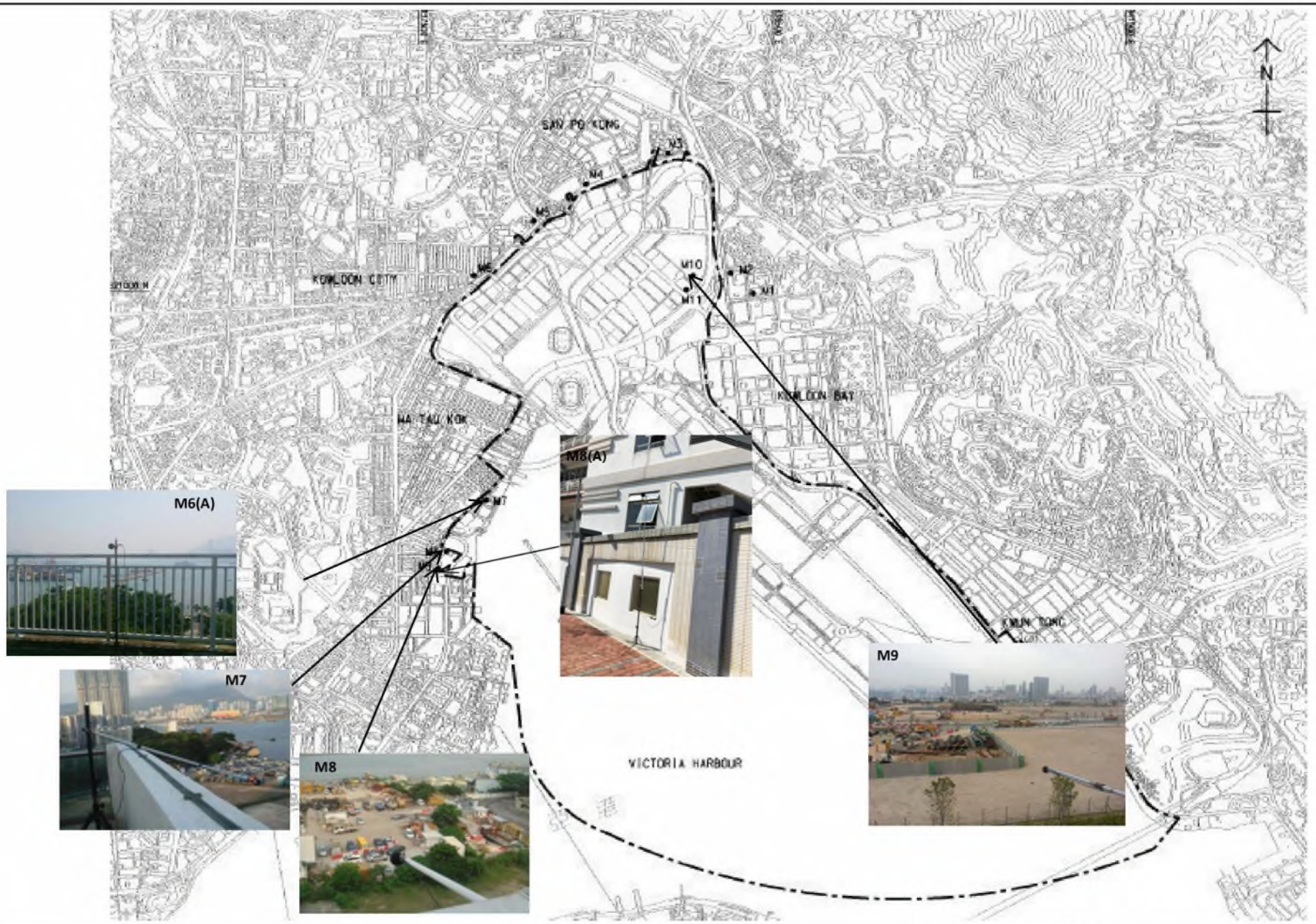

Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Noise Monitoring Stations under this Project	Scale: N.T.S Date: Dec-16	Project No.: MA13056 Figure: 3

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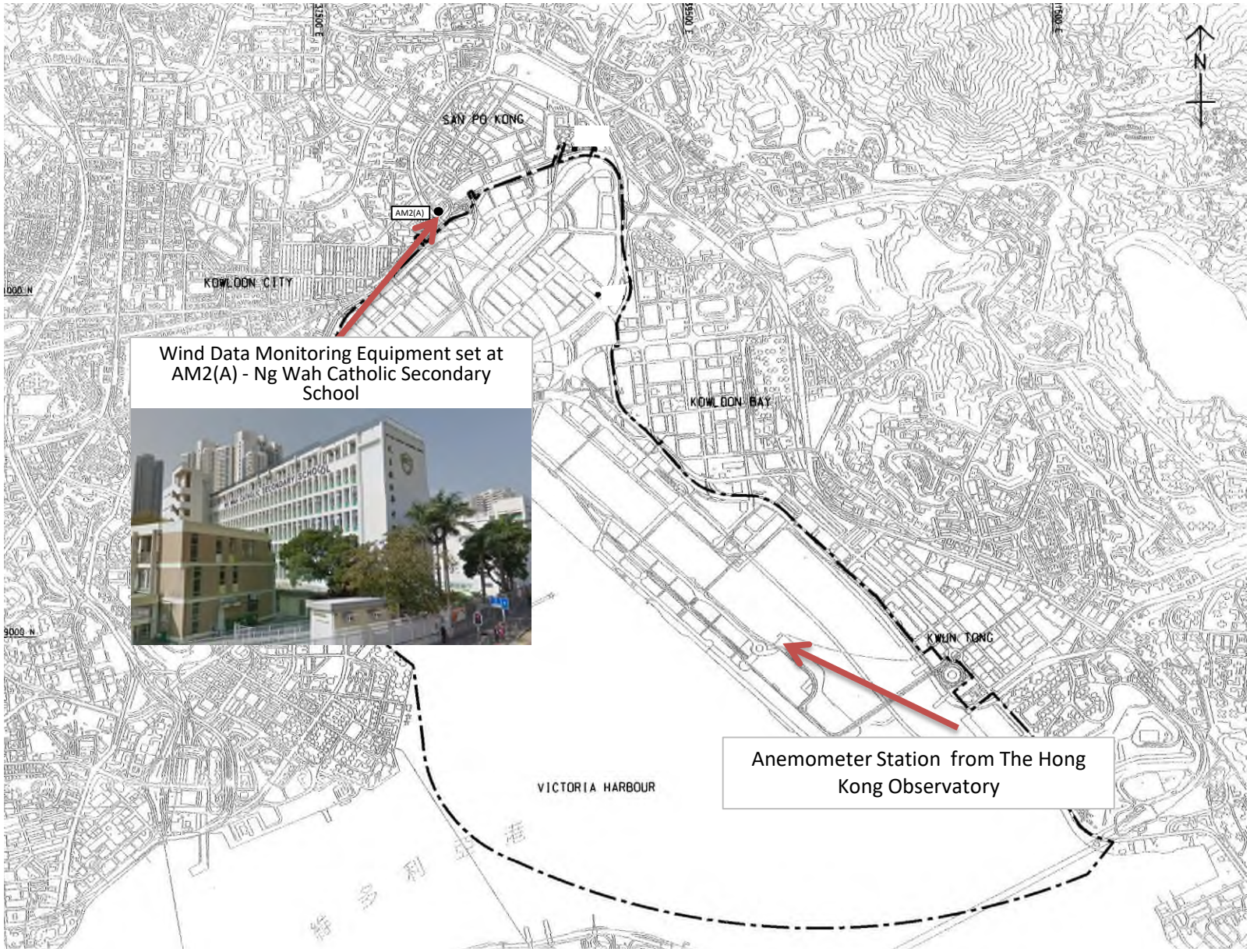

Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area	Scale: N.T.S	Project No.: MA13056
	Location of Wind Data Monitoring Equipment	Date: Aug-17	Figure: 4

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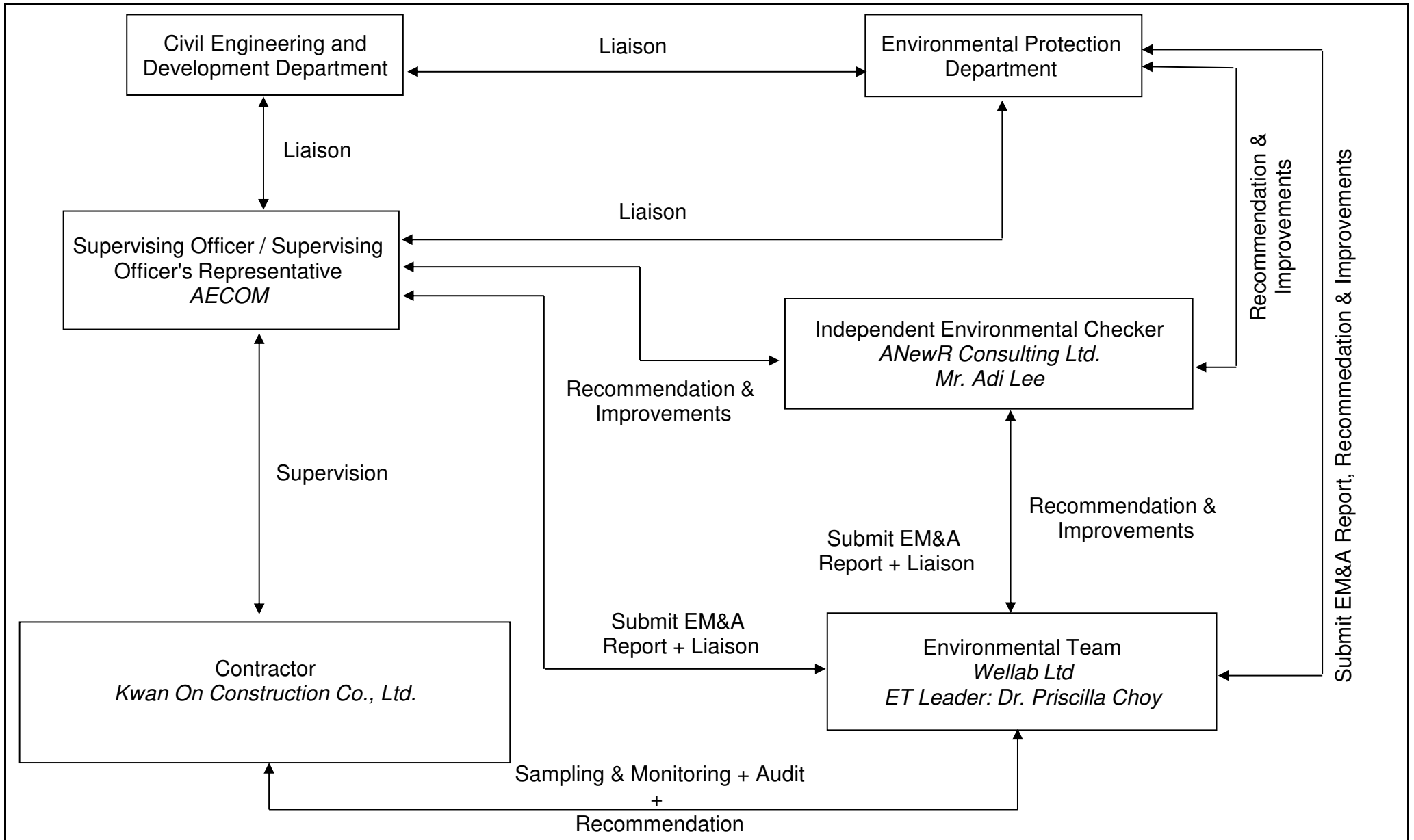


Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Management Structure	Scale: N.T.S Date: JAN-2019	Project No.: MA13056 Figure: 5	WELLAB 匯力 consulting . testing . research

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

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: **Wellab Limited**
(EM&A Department)
Room 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	31065
Date of Issue:	2019-03-11
Date Received:	2019-03-08
Date Tested:	2019-03-08
Date Completed:	2019-03-11
Next Due Date:	2019-05-10
Page:	1 of 1

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

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23807
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-01

Test Conditions:

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

Test Specifications & Methodology:

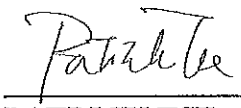
1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and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

Results:

Correlation Factor (CF)	1.164

****

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



PATRICK TSE
Laboratory Manager

WELLAB LIMITED
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Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	30677A
Date of Issue:	2019-01-14
Date Received:	2019-01-11
Date Tested:	2019-01-11
Date Completed:	2019-01-14
Next Due Date:	2019-03-13

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

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23808
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-02

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental 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)	1.159

****

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

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Laboratory Manager

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TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	31065A
Date of Issue:	2019-03-11
Date Received:	2019-03-08
Date Tested:	2019-03-08
Date Completed:	2019-03-11
Next Due Date:	2019-05-10
Page:	1 of 1

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

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23808
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-02

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental 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)	1.122

****

PREPARED AND CHECKED BY:
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Laboratory Manager

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TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	30677B
Date of Issue:	2019-01-14
Date Received:	2019-01-11
Date Tested:	2019-01-11
Date Completed:	2019-01-14
Next Due Date:	2019-03-13

Page: 1 of 1

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

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23809
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-03

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental 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)	1.211

****

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

PATRICK TSE
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Rms 1214, 1502, 1516, 1701 & 1716,
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TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	31065B
Date of Issue:	2019-03-11
Date Received:	2019-03-08
Date Tested:	2019-03-08
Date Completed:	2019-03-11
Next Due Date:	2019-05-10
Page:	1 of 1

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

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23809
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-03

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental 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)	1.178

****

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

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Laboratory Manager

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Shatin, N.T., Hong Kong.
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Website: www.wellab.com.hk

TEST REPORT

APPLICANT: **Wellab Limited**
(EM&A Department)
Room 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	30914
Date of Issue:	2019-02-25
Date Received:	2019-02-22
Date Tested:	2019-02-22
Date Completed:	2019-02-25
Next Due Date:	2019-04-24
Page:	1 of 1

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

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X24476
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-05

Test Conditions:

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

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental 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)	1.131

****

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

PATRICK TSE
Laboratory Manager

WELLAB 匯力 Testing & Research

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

Certificate of Calibration

Item for calibration:

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

Test conditions:

Room Temperatre	: 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

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

PATRICK TSE
Laboratory Manager

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Shatin, N.T., Hong Kong.
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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.:	30524A
Date of Issue:	2018-12-17
Date Received:	2018-12-15
Date Tested:	2018-12-15
Date Completed:	2018-12-17
Next Due Date:	2019-12-16

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	: 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

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

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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

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

Test Report No.:	30524C
Date of Issue:	2018-12-17
Date Received:	2018-12-15
Date Tested:	2018-12-15
Date Completed:	2018-12-17
Next Due Date:	2019-12-16
Page:	1 of 1

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	: 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

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

Patrick Tse

PATRICK TSE
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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
Page:	1 of 1

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

Item for calibration:

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

Test conditions:

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

TEST REPORT

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

Test Report No.:	29817
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.	: 24780
Equipment No.	: N-09-05

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

File No. MA13056/13/0011

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

Date: 11-Feb-19 Next Due Date: 10-Apr-19 Operator: MH

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

Ambient Condition			
Temperature, Ta (K)	291.8	Pressure, Pa (mmHg)	772.3

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	12.3	3.57	61.05	8.1	2.90
2	10.6	3.32	56.67	6.7	2.64
3	7.4	2.77	47.35	4.9	2.26
4	5.0	2.28	38.93	3.2	1.82
5	3.4	1.88	32.10	2.3	1.54

By Linear Regression of Y on X

Slope , mw = 0.0464 **Intercept, bw =** 0.0387

Correlation coefficient* = 0.9988

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.99**

Remarks:

Conducted by: LEE MAN HEI Signature: Date: 11/2/2019

Checked by: Li K. Tang Signature: Date: 11/2/2019

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High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA13056/17/0003

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

Date: 11-Feb-19 Next Due Date: 10-Apr-19

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

Ambient Condition			
Temperature, Ta (K)	291.4	Pressure, Pa (mmHg)	771.7

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	11.8	3.50	59.81	7.9	2.86
2	9.9	3.21	54.79	6.6	2.62
3	8.2	2.92	49.86	5.2	2.32
4	5.6	2.41	41.21	3.6	1.93
5	3.2	1.82	31.15	2.2	1.51

By Linear Regression of Y on X

Slope , mw = **0.0473** **Intercept, bw =** **0.0074**

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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **4.02**

Remarks:

Conducted by: Lee Man Hei Signature: [signature] Date: 11/2/2019

Checked by: Wk Tang Signature: [signature] Date: 11/2/2019

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. MA13056/62/0012

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

Date: 11-Feb-19 Next Due Date: 10-Apr-19

Equipment No.: A-01-62 Serial No. 2351

Ambient Condition			
Temperature, Ta (K)	291.3	Pressure, Pa (mmHg)	770.8

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	13.6	3.76	64.19	8.6	2.99
2	11.8	3.50	59.79	7.4	2.77
3	8.8	3.02	51.63	5.7	2.43
4	5.4	2.37	40.45	3.3	1.85
5	3.3	1.85	31.62	2.4	1.58

By Linear Regression of Y on X

Slope , mw = **0.0442** **Intercept, bw =** **0.1322**

Correlation coefficient* = **0.9973**

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.99**

Remarks:

Conducted by: LEE MAN HEI Signature: Lee Date: 11/2/2019

Checked by: WK Tang Signature: Kwoni Date: 11/2/2019

WELLAB 匯力
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High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA13056/59/0011

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

Date: 11-Feb-19 Next Due Date: 10-Apr-19

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

Ambient Condition			
Temperature, Ta (K)	291.5	Pressure, Pa (mmHg)	772.1

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	12.3	3.57	61.07	8.0	2.88
2	10.9	3.36	57.49	6.9	2.68
3	7.9	2.86	48.95	5.4	2.37
4	5.4	2.37	40.47	3.6	1.93
5	3.5	1.91	32.58	2.2	1.51

By Linear Regression of Y on X

Slope , mw = **0.0471** **Intercept, bw =** **0.0096**

Correlation coefficient* = **0.9976**

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.98**

Remarks:

Conducted by: LEE Man Hei Signature: hei Date: 11/2/2019

Checked by: WK Tang Signature: Kwoi Date: 11/2/2019

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

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TOLL FREE: (877)263-7610
FAX: (513)467-9009

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

TEST REPORT

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

Test Report No.:	29953A
Date of Issue:	2018-10-15
Date Received:	2018-10-12
Date Tested:	2018-10-12
Date Completed:	2018-10-15
Next Due Date:	2019-04-14

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

Certificate of Calibration

Item for calibration:

Description	: Weather Stations, Vantage Pro2
Manufacturer	: Davis Instruments
Model No.	: 6152
Serial No.	: BC180522050

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

WELLAB 匯力 Testing & Research

WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
Technology Park, 18 On Lai Street,
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TEST REPORT

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Date Tested:	2018-10-12
Date Completed:	2018-10-15
Next Due Date:	2019-04-14
Page:	2 of 2

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	90	0
135.2	135	0.2
180.1	180	0.1
225.3	225	0.3
270	270	0
315.1	315	0.1
360	360	0

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

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-Mar-19	20.8	89	0.4
02-Mar-19	21.5	87	Trace
03-Mar-19	21.5	87	6.3
04-Mar-19	20.9	82	10.2
05-Mar-19	22.2	88	30.3
06-Mar-19	20.5	92	45.5
07-Mar-19	17.9	93	29.6
08-Mar-19	16.5	92	11.5
09-Mar-19	17.8	95	14.5
10-Mar-19	17.7	87	4.6
11-Mar-19	18.4	81	7.6
12-Mar-19	20.1	77	-
13-Mar-19	20.8	71	-
14-Mar-19	20.4	83	6.4
15-Mar-19	18.7	81	0.4
16-Mar-19	20.2	65	-
17-Mar-19	20.9	77	-
18-Mar-19	21.7	82	-
19-Mar-19	23.4	84	-

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20-Mar-19	23.5	88	-
21-Mar-19	25.3	81	-
22-Mar-19	25.8	84	Trace
23-Mar-19	20.0	89	3.3
24-Mar-19	17.5	88	0.3
25-Mar-19	20.5	85	1.0
26-Mar-19	21.9	85	-
27-Mar-19	22.3	82	Trace
28-Mar-19	24.4	84	-
29-Mar-19	24.4	86	6.9
30-Mar-19	23.1	86	Trace
31-Mar-19	21.4	85	7.7

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

** Trace = rainfall less than 0.05 mm.

*** The level of precipitation indicate the total amount of rainfall for each date (24 hours).

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind Speed m/s	Direction
1-Mar-2019	00:00	0.4	NE
1-Mar-2019	01:00	0.9	NE
1-Mar-2019	02:00	0.9	NE
1-Mar-2019	03:00	0.9	NE
1-Mar-2019	04:00	0.9	E
1-Mar-2019	05:00	0.9	NE
1-Mar-2019	06:00	0.9	NE
1-Mar-2019	07:00	0.9	NE
1-Mar-2019	08:00	0.9	NE
1-Mar-2019	09:00	0.9	ENE
1-Mar-2019	10:00	0.9	ENE
1-Mar-2019	11:00	1.3	ENE
1-Mar-2019	12:00	1.3	ENE
1-Mar-2019	13:00	1.3	ESE
1-Mar-2019	14:00	1.3	ENE
1-Mar-2019	15:00	1.3	ENE
1-Mar-2019	16:00	1.3	ENE
1-Mar-2019	17:00	1.3	ENE
1-Mar-2019	18:00	1.3	ENE
1-Mar-2019	19:00	1.3	NE
1-Mar-2019	20:00	1.3	ENE
1-Mar-2019	21:00	1.8	ENE
1-Mar-2019	22:00	1.3	ENE
1-Mar-2019	23:00	1.3	E
2-Mar-2019	00:00	0.9	E
2-Mar-2019	01:00	0.9	E
2-Mar-2019	02:00	0.9	NE
2-Mar-2019	03:00	0.9	ENE
2-Mar-2019	04:00	1.3	E
2-Mar-2019	05:00	1.3	E
2-Mar-2019	06:00	1.3	E
2-Mar-2019	07:00	1.8	E
2-Mar-2019	08:00	2.2	E
2-Mar-2019	09:00	1.3	E
2-Mar-2019	10:00	1.3	E
2-Mar-2019	11:00	2.2	E

II. Mean Wind Speed and Wind Direction

2-Mar-2019	12:00	2.2	E
2-Mar-2019	13:00	2.7	E
2-Mar-2019	14:00	2.2	E
2-Mar-2019	15:00	2.2	E
2-Mar-2019	16:00	1.8	E
2-Mar-2019	17:00	0.9	ENE
2-Mar-2019	18:00	0.9	NE
2-Mar-2019	19:00	0.9	NE
2-Mar-2019	20:00	0.9	NE
2-Mar-2019	21:00	0.9	E
2-Mar-2019	22:00	0.9	E
2-Mar-2019	23:00	0.9	E
3-Mar-2019	00:00	0.4	E
3-Mar-2019	01:00	0.4	E
3-Mar-2019	02:00	0.4	E
3-Mar-2019	03:00	0.4	SSW
3-Mar-2019	04:00	0.4	ENE
3-Mar-2019	05:00	0.0	ENE
3-Mar-2019	06:00	0.0	ESE
3-Mar-2019	07:00	0.0	WSW
3-Mar-2019	08:00	0.9	E
3-Mar-2019	09:00	1.3	SSW
3-Mar-2019	10:00	0.9	SSW
3-Mar-2019	11:00	0.9	E
3-Mar-2019	12:00	0.9	E
3-Mar-2019	13:00	0.9	E
3-Mar-2019	14:00	1.8	E
3-Mar-2019	15:00	1.3	E
3-Mar-2019	16:00	1.3	E
3-Mar-2019	17:00	1.8	E
3-Mar-2019	18:00	1.8	E
3-Mar-2019	19:00	1.8	E
3-Mar-2019	20:00	0.4	S
3-Mar-2019	21:00	0.4	S
3-Mar-2019	22:00	0.4	E
3-Mar-2019	23:00	0.4	S
4-Mar-2019	00:00	0.4	S

II. Mean Wind Speed and Wind Direction

4-Mar-2019	01:00	0.9	S
4-Mar-2019	02:00	0.4	SW
4-Mar-2019	03:00	0.4	S
4-Mar-2019	04:00	0.4	WSW
4-Mar-2019	05:00	0.9	WSW
4-Mar-2019	06:00	0.4	WSW
4-Mar-2019	07:00	0.4	SSE
4-Mar-2019	08:00	0.9	WSW
4-Mar-2019	09:00	1.3	WSW
4-Mar-2019	10:00	1.3	ESE
4-Mar-2019	11:00	1.3	NE
4-Mar-2019	12:00	1.3	NE
4-Mar-2019	13:00	1.3	E
4-Mar-2019	14:00	2.2	E
4-Mar-2019	15:00	2.2	E
4-Mar-2019	16:00	1.3	ENE
4-Mar-2019	17:00	1.3	NE
4-Mar-2019	18:00	1.3	E
4-Mar-2019	19:00	1.3	ENE
4-Mar-2019	20:00	1.8	NE
4-Mar-2019	21:00	1.3	NE
4-Mar-2019	22:00	0.9	NE
4-Mar-2019	23:00	1.8	ENE
5-Mar-2019	00:00	1.8	NE
5-Mar-2019	01:00	0.9	ENE
5-Mar-2019	02:00	1.8	E
5-Mar-2019	03:00	2.2	E
5-Mar-2019	04:00	2.7	E
5-Mar-2019	05:00	2.7	E
5-Mar-2019	06:00	2.7	E
5-Mar-2019	07:00	2.2	E
5-Mar-2019	08:00	1.8	E
5-Mar-2019	09:00	0.9	NE
5-Mar-2019	10:00	0.9	E
5-Mar-2019	11:00	1.3	E
5-Mar-2019	12:00	3.1	E
5-Mar-2019	13:00	2.7	E

II. Mean Wind Speed and Wind Direction

5-Mar-2019	14:00	2.2	E
5-Mar-2019	15:00	2.2	E
5-Mar-2019	16:00	2.7	E
5-Mar-2019	17:00	2.2	E
5-Mar-2019	18:00	1.3	E
5-Mar-2019	19:00	0.9	E
5-Mar-2019	20:00	1.8	E
5-Mar-2019	21:00	1.8	E
5-Mar-2019	22:00	1.3	E
5-Mar-2019	23:00	2.2	E
6-Mar-2019	00:00	2.2	E
6-Mar-2019	01:00	1.8	E
6-Mar-2019	02:00	1.3	E
6-Mar-2019	03:00	2.7	E
6-Mar-2019	04:00	2.7	E
6-Mar-2019	05:00	2.2	E
6-Mar-2019	06:00	1.8	E
6-Mar-2019	07:00	2.2	E
6-Mar-2019	08:00	2.2	E
6-Mar-2019	09:00	2.2	E
6-Mar-2019	10:00	1.3	E
6-Mar-2019	11:00	1.3	E
6-Mar-2019	12:00	1.3	S
6-Mar-2019	13:00	0.9	SSW
6-Mar-2019	14:00	0.9	NE
6-Mar-2019	15:00	0.9	NE
6-Mar-2019	16:00	1.8	E
6-Mar-2019	17:00	1.3	E
6-Mar-2019	18:00	0.9	SSE
6-Mar-2019	19:00	0.9	E
6-Mar-2019	20:00	1.3	E
6-Mar-2019	21:00	0.9	S
6-Mar-2019	22:00	0.4	S
6-Mar-2019	23:00	0.9	E
7-Mar-2019	00:00	0.9	NE
7-Mar-2019	01:00	0.9	SW
7-Mar-2019	02:00	0.9	S

II. Mean Wind Speed and Wind Direction

7-Mar-2019	03:00	0.9	WSW
7-Mar-2019	04:00	0.9	E
7-Mar-2019	05:00	1.3	E
7-Mar-2019	06:00	0.9	SSW
7-Mar-2019	07:00	1.8	WSW
7-Mar-2019	08:00	1.8	WSW
7-Mar-2019	09:00	1.3	SW
7-Mar-2019	10:00	1.8	SW
7-Mar-2019	11:00	1.8	SW
7-Mar-2019	12:00	1.3	SSW
7-Mar-2019	13:00	0.9	SW
7-Mar-2019	14:00	0.4	S
7-Mar-2019	15:00	0.9	WSW
7-Mar-2019	16:00	0.9	NE
7-Mar-2019	17:00	0.9	WSW
7-Mar-2019	18:00	0.4	NE
7-Mar-2019	19:00	0.9	NE
7-Mar-2019	20:00	1.8	ENE
7-Mar-2019	21:00	1.8	ENE
8-Mar-2019	01:00	1.3	E
8-Mar-2019	02:00	0.9	SW
8-Mar-2019	03:00	0.9	ENE
8-Mar-2019	04:00	0.9	WSW
8-Mar-2019	05:00	0.9	SW
8-Mar-2019	06:00	0.4	ENE
8-Mar-2019	07:00	1.3	ENE
8-Mar-2019	08:00	1.3	NE
8-Mar-2019	09:00	1.8	E
8-Mar-2019	10:00	1.8	ENE
8-Mar-2019	11:00	1.8	ENE
8-Mar-2019	12:00	1.3	ENE
8-Mar-2019	13:00	1.3	ENE
8-Mar-2019	14:00	1.8	E
8-Mar-2019	15:00	1.3	E
8-Mar-2019	16:00	0.9	ESE
8-Mar-2019	17:00	1.3	ENE
8-Mar-2019	18:00	1.8	ENE

II. Mean Wind Speed and Wind Direction

8-Mar-2019	19:00	1.3	E
8-Mar-2019	20:00	1.3	E
8-Mar-2019	21:00	1.8	E
8-Mar-2019	22:00	1.8	E
8-Mar-2019	23:00	1.8	ENE
9-Mar-2019	00:00	1.8	E
9-Mar-2019	01:00	1.8	E
9-Mar-2019	02:00	1.3	E
9-Mar-2019	03:00	1.8	E
9-Mar-2019	04:00	1.8	E
9-Mar-2019	05:00	2.2	E
9-Mar-2019	06:00	2.2	E
9-Mar-2019	07:00	2.2	E
9-Mar-2019	08:00	3.1	E
9-Mar-2019	09:00	2.2	E
9-Mar-2019	10:00	3.1	E
9-Mar-2019	11:00	3.1	E
9-Mar-2019	12:00	1.8	E
9-Mar-2019	13:00	0.9	S
9-Mar-2019	14:00	0.9	E
9-Mar-2019	15:00	1.8	E
9-Mar-2019	16:00	1.8	E
9-Mar-2019	17:00	1.3	E
9-Mar-2019	18:00	2.2	E
9-Mar-2019	19:00	1.8	WSW
9-Mar-2019	20:00	0.4	WSW
9-Mar-2019	21:00	0.4	E
9-Mar-2019	22:00	0.4	WSW
9-Mar-2019	23:00	0.4	WSW
10-Mar-2019	00:00	0.9	N
10-Mar-2019	01:00	0.9	WSW
10-Mar-2019	03:00	0.9	WSW
10-Mar-2019	04:00	0.4	SW
10-Mar-2019	05:00	0.9	WSW
10-Mar-2019	06:00	0.9	SSW
10-Mar-2019	07:00	0.9	WSW
10-Mar-2019	08:00	0.4	WSW

II. Mean Wind Speed and Wind Direction

10-Mar-2019	09:00	0.9	WSW
10-Mar-2019	10:00	1.3	WSW
10-Mar-2019	11:00	0.9	E
10-Mar-2019	12:00	1.3	SW
10-Mar-2019	13:00	0.4	S
10-Mar-2019	14:00	1.3	WSW
10-Mar-2019	15:00	1.8	WSW
10-Mar-2019	16:00	1.3	SW
10-Mar-2019	17:00	1.3	SW
10-Mar-2019	18:00	1.3	WSW
10-Mar-2019	19:00	1.3	SSW
10-Mar-2019	20:00	1.3	WSW
10-Mar-2019	21:00	1.8	WSW
10-Mar-2019	22:00	1.8	WSW
10-Mar-2019	23:00	0.9	SSW
11-Mar-2019	00:00	1.3	WSW
11-Mar-2019	01:00	0.9	WSW
11-Mar-2019	02:00	0.9	WSW
11-Mar-2019	03:00	1.3	WSW
11-Mar-2019	04:00	1.3	WSW
11-Mar-2019	05:00	1.3	WSW
11-Mar-2019	06:00	0.9	WSW
11-Mar-2019	07:00	0.9	SSW
11-Mar-2019	08:00	0.4	E
11-Mar-2019	09:00	0.9	WSW
11-Mar-2019	10:00	1.3	WSW
11-Mar-2019	11:00	1.8	WSW
11-Mar-2019	12:00	0.9	WSW
11-Mar-2019	13:00	1.3	WSW
11-Mar-2019	14:00	1.8	WSW
11-Mar-2019	15:00	1.3	E
11-Mar-2019	16:00	2.2	E
11-Mar-2019	17:00	4.0	E
11-Mar-2019	18:00	3.1	E
11-Mar-2019	19:00	2.2	E
11-Mar-2019	20:00	1.3	E
11-Mar-2019	21:00	0.9	E

II. Mean Wind Speed and Wind Direction

11-Mar-2019	22:00	0.4	NNE
11-Mar-2019	23:00	0.0	NE
12-Mar-2019	00:00	0.4	ENE
12-Mar-2019	01:00	0.4	SSW
12-Mar-2019	02:00	0.9	WSW
12-Mar-2019	03:00	0.4	WSW
12-Mar-2019	04:00	0.0	SSE
12-Mar-2019	05:00	0.0	SSE
12-Mar-2019	06:00	0.0	SSE
12-Mar-2019	07:00	0.0	SSE
12-Mar-2019	08:00	0.0	---
12-Mar-2019	09:00	0.0	ENE
12-Mar-2019	10:00	0.4	E
12-Mar-2019	11:00	0.4	S
12-Mar-2019	12:00	1.3	E
12-Mar-2019	13:00	0.9	ENE
12-Mar-2019	14:00	1.3	NE
12-Mar-2019	15:00	1.8	NE
12-Mar-2019	16:00	2.7	E
12-Mar-2019	17:00	1.3	E
12-Mar-2019	18:00	1.3	ENE
12-Mar-2019	19:00	1.3	E
12-Mar-2019	20:00	1.3	E
12-Mar-2019	21:00	1.3	E
12-Mar-2019	22:00	0.9	E
12-Mar-2019	23:00	0.9	E
13-Mar-2019	00:00	0.9	E
13-Mar-2019	01:00	0.9	E
13-Mar-2019	02:00	0.9	SW
13-Mar-2019	03:00	0.0	WSW
13-Mar-2019	04:00	0.4	S
13-Mar-2019	05:00	0.4	S
13-Mar-2019	06:00	0.4	SSW
13-Mar-2019	07:00	1.8	E
13-Mar-2019	08:00	0.9	SSE
13-Mar-2019	09:00	0.9	E
13-Mar-2019	10:00	1.3	SSW

II. Mean Wind Speed and Wind Direction

13-Mar-2019	11:00	1.8	E
13-Mar-2019	12:00	1.8	ENE
13-Mar-2019	13:00	1.8	E
13-Mar-2019	14:00	1.8	E
13-Mar-2019	15:00	1.3	NE
13-Mar-2019	16:00	0.9	NE
13-Mar-2019	17:00	0.9	ENE
13-Mar-2019	18:00	1.3	E
13-Mar-2019	19:00	1.8	NE
13-Mar-2019	20:00	1.3	E
13-Mar-2019	21:00	1.3	E
13-Mar-2019	22:00	1.3	E
13-Mar-2019	23:00	0.9	NE
14-Mar-2019	00:00	0.9	SSE
14-Mar-2019	01:00	0.9	E
14-Mar-2019	02:00	1.8	E
14-Mar-2019	03:00	1.8	E
14-Mar-2019	04:00	1.8	E
14-Mar-2019	05:00	1.8	NE
14-Mar-2019	06:00	1.3	E
14-Mar-2019	07:00	1.3	E
14-Mar-2019	08:00	0.9	ENE
14-Mar-2019	09:00	0.9	NE
14-Mar-2019	10:00	0.9	ENE
14-Mar-2019	11:00	1.8	NE
14-Mar-2019	12:00	1.8	NE
14-Mar-2019	13:00	1.8	E
14-Mar-2019	14:00	1.3	E
14-Mar-2019	15:00	1.3	S
14-Mar-2019	16:00	0.9	E
14-Mar-2019	17:00	0.4	WSW
14-Mar-2019	18:00	0.4	ENE
14-Mar-2019	19:00	0.9	WSW
14-Mar-2019	20:00	0.9	WSW
14-Mar-2019	21:00	0.9	SW
14-Mar-2019	22:00	1.3	SW
14-Mar-2019	23:00	0.9	WSW

II. Mean Wind Speed and Wind Direction

15-Mar-2019	00:00	1.3	WSW
15-Mar-2019	01:00	0.4	WSW
15-Mar-2019	02:00	1.3	WSW
15-Mar-2019	03:00	0.4	SSW
15-Mar-2019	04:00	1.3	SW
15-Mar-2019	05:00	1.3	WSW
15-Mar-2019	06:00	0.9	SSW
15-Mar-2019	07:00	0.9	WSW
15-Mar-2019	08:00	0.9	S
15-Mar-2019	09:00	1.3	SW
15-Mar-2019	10:00	1.3	SW
15-Mar-2019	11:00	1.3	SSW
15-Mar-2019	12:00	0.9	SSW
15-Mar-2019	13:00	1.3	SSW
15-Mar-2019	14:00	1.3	SW
15-Mar-2019	15:00	0.9	SSW
15-Mar-2019	16:00	0.9	S
15-Mar-2019	17:00	0.9	SSW
15-Mar-2019	18:00	0.9	SSW
15-Mar-2019	19:00	0.9	SW
15-Mar-2019	20:00	0.9	SSW
15-Mar-2019	21:00	0.9	SW
15-Mar-2019	22:00	1.3	SSW
15-Mar-2019	23:00	0.9	SW
16-Mar-2019	00:00	0.9	SW
16-Mar-2019	01:00	1.3	SW
16-Mar-2019	02:00	0.9	SW
16-Mar-2019	03:00	0.9	SW
16-Mar-2019	04:00	0.9	WSW
16-Mar-2019	05:00	0.9	NE
16-Mar-2019	06:00	0.9	NE
16-Mar-2019	07:00	0.9	E
16-Mar-2019	08:00	0.9	E
16-Mar-2019	09:00	0.9	NE
16-Mar-2019	10:00	1.8	NE
16-Mar-2019	11:00	2.2	NE
16-Mar-2019	12:00	2.2	NE

II. Mean Wind Speed and Wind Direction

16-Mar-2019	13:00	1.8	NE
16-Mar-2019	14:00	1.8	NE
16-Mar-2019	15:00	1.8	NE
16-Mar-2019	16:00	2.2	NE
16-Mar-2019	17:00	2.2	NE
16-Mar-2019	18:00	1.8	NE
16-Mar-2019	19:00	1.3	ENE
16-Mar-2019	20:00	1.3	NE
16-Mar-2019	21:00	1.8	NE
16-Mar-2019	22:00	1.3	NE
16-Mar-2019	23:00	1.3	E
17-Mar-2019	00:00	0.9	NE
17-Mar-2019	01:00	0.9	NE
17-Mar-2019	02:00	0.9	ENE
17-Mar-2019	03:00	0.9	NE
17-Mar-2019	04:00	0.9	NE
17-Mar-2019	05:00	0.9	E
17-Mar-2019	06:00	0.9	NE
17-Mar-2019	07:00	0.9	NE
17-Mar-2019	08:00	0.9	NE
17-Mar-2019	09:00	1.3	NE
17-Mar-2019	10:00	1.3	E
17-Mar-2019	11:00	2.2	E
17-Mar-2019	12:00	2.2	E
17-Mar-2019	13:00	1.3	E
17-Mar-2019	14:00	1.3	E
17-Mar-2019	15:00	1.8	ENE
17-Mar-2019	16:00	1.8	E
17-Mar-2019	17:00	0.9	ENE
17-Mar-2019	18:00	0.9	SW
17-Mar-2019	19:00	0.9	S
17-Mar-2019	20:00	0.9	ENE
17-Mar-2019	21:00	1.3	E
17-Mar-2019	22:00	1.3	E
17-Mar-2019	23:00	0.9	NE
18-Mar-2019	00:00	0.9	NE
18-Mar-2019	01:00	0.9	ENE

II. Mean Wind Speed and Wind Direction

18-Mar-2019	02:00	0.4	SSW
18-Mar-2019	03:00	0.4	NE
18-Mar-2019	04:00	0.9	NE
18-Mar-2019	05:00	1.3	E
18-Mar-2019	06:00	1.8	E
18-Mar-2019	07:00	1.8	E
18-Mar-2019	08:00	0.9	E
18-Mar-2019	09:00	1.8	E
18-Mar-2019	10:00	1.8	E
18-Mar-2019	11:00	1.3	E
18-Mar-2019	12:00	1.3	NE
18-Mar-2019	13:00	1.3	E
18-Mar-2019	14:00	1.8	E
18-Mar-2019	15:00	2.2	E
18-Mar-2019	16:00	3.6	E
18-Mar-2019	17:00	3.6	E
18-Mar-2019	18:00	2.7	E
18-Mar-2019	19:00	2.7	E
18-Mar-2019	20:00	2.7	E
18-Mar-2019	21:00	0.9	E
18-Mar-2019	22:00	0.4	E
18-Mar-2019	23:00	0.4	E
19-Mar-2019	00:00	0.4	E
19-Mar-2019	01:00	0.4	S
19-Mar-2019	02:00	0.4	SSE
19-Mar-2019	03:00	0.0	ESE
19-Mar-2019	04:00	0.4	SE
19-Mar-2019	05:00	0.0	ENE
19-Mar-2019	06:00	0.4	ENE
19-Mar-2019	07:00	0.0	ENE
19-Mar-2019	08:00	0.0	ENE
19-Mar-2019	09:00	0.0	ESE
19-Mar-2019	10:00	0.9	E
19-Mar-2019	11:00	1.3	E
19-Mar-2019	12:00	1.3	E
19-Mar-2019	13:00	1.3	NE
19-Mar-2019	14:00	3.1	E

II. Mean Wind Speed and Wind Direction

19-Mar-2019	15:00	3.6	E
19-Mar-2019	16:00	2.2	E
19-Mar-2019	17:00	2.7	E
19-Mar-2019	18:00	2.7	E
19-Mar-2019	19:00	3.1	E
19-Mar-2019	20:00	3.1	E
19-Mar-2019	21:00	1.8	E
19-Mar-2019	22:00	1.8	E
19-Mar-2019	23:00	1.3	E
20-Mar-2019	00:00	1.3	E
20-Mar-2019	01:00	1.3	E
20-Mar-2019	02:00	1.8	E
20-Mar-2019	03:00	2.2	E
20-Mar-2019	04:00	1.8	E
20-Mar-2019	05:00	0.9	NE
20-Mar-2019	06:00	0.4	E
20-Mar-2019	07:00	0.9	NE
20-Mar-2019	08:00	0.9	NE
20-Mar-2019	09:00	1.3	E
20-Mar-2019	10:00	1.3	NE
20-Mar-2019	11:00	0.9	E
20-Mar-2019	12:00	1.3	E
20-Mar-2019	13:00	2.2	E
20-Mar-2019	14:00	3.1	E
20-Mar-2019	15:00	3.6	E
20-Mar-2019	16:00	2.7	E
20-Mar-2019	17:00	3.1	E
20-Mar-2019	18:00	2.7	E
20-Mar-2019	19:00	2.7	E
20-Mar-2019	20:00	2.2	E
20-Mar-2019	21:00	0.9	E
20-Mar-2019	22:00	0.9	E
20-Mar-2019	23:00	0.9	E
21-Mar-2019	00:00	0.4	E
21-Mar-2019	01:00	0.4	E
21-Mar-2019	02:00	0.4	E
21-Mar-2019	03:00	0.4	ESE

II. Mean Wind Speed and Wind Direction

21-Mar-2019	04:00	0.4	ESE
21-Mar-2019	05:00	0.4	NE
21-Mar-2019	06:00	0.4	NE
21-Mar-2019	07:00	0.4	NE
21-Mar-2019	08:00	0.4	ENE
21-Mar-2019	09:00	0.9	E
21-Mar-2019	10:00	0.9	E
21-Mar-2019	11:00	1.8	E
21-Mar-2019	12:00	1.8	E
21-Mar-2019	13:00	1.3	E
21-Mar-2019	14:00	3.1	E
21-Mar-2019	15:00	1.3	E
21-Mar-2019	16:00	1.3	WSW
21-Mar-2019	17:00	1.3	ESE
21-Mar-2019	18:00	3.1	E
21-Mar-2019	19:00	2.7	E
21-Mar-2019	20:00	2.7	E
21-Mar-2019	21:00	2.2	E
21-Mar-2019	22:00	2.7	E
21-Mar-2019	23:00	2.2	E
22-Mar-2019	00:00	1.8	E
22-Mar-2019	01:00	1.8	E
22-Mar-2019	02:00	1.3	E
22-Mar-2019	03:00	0.4	SE
22-Mar-2019	04:00	0.4	E
22-Mar-2019	05:00	0.9	WSW
22-Mar-2019	06:00	0.4	WSW
22-Mar-2019	07:00	0.4	WSW
22-Mar-2019	08:00	0.9	NE
22-Mar-2019	09:00	0.9	NE
22-Mar-2019	10:00	1.3	E
22-Mar-2019	11:00	1.3	E
22-Mar-2019	12:00	1.3	E
22-Mar-2019	13:00	1.8	E
22-Mar-2019	14:00	2.2	E
22-Mar-2019	15:00	2.2	E
22-Mar-2019	16:00	2.7	E

II. Mean Wind Speed and Wind Direction

22-Mar-2019	17:00	3.1	E
22-Mar-2019	18:00	3.1	E
22-Mar-2019	19:00	2.7	E
22-Mar-2019	20:00	1.8	E
22-Mar-2019	21:00	0.4	SE
22-Mar-2019	22:00	0.9	SW
22-Mar-2019	23:00	1.3	WSW
23-Mar-2019	00:00	0.9	WSW
23-Mar-2019	01:00	0.9	WSW
23-Mar-2019	02:00	1.3	SW
23-Mar-2019	03:00	0.9	NE
23-Mar-2019	04:00	1.8	E
23-Mar-2019	05:00	1.3	NE
23-Mar-2019	06:00	0.4	NE
23-Mar-2019	07:00	0.9	NE
23-Mar-2019	08:00	1.3	NE
23-Mar-2019	09:00	1.3	NE
23-Mar-2019	10:00	1.3	ENE
23-Mar-2019	11:00	1.3	NE
23-Mar-2019	12:00	1.8	ENE
23-Mar-2019	13:00	1.3	NE
23-Mar-2019	14:00	1.8	ENE
23-Mar-2019	15:00	1.8	NE
23-Mar-2019	16:00	1.8	NE
23-Mar-2019	17:00	1.8	NE
23-Mar-2019	18:00	1.3	NE
23-Mar-2019	19:00	1.3	NE
23-Mar-2019	20:00	1.3	ENE
23-Mar-2019	21:00	1.3	E
23-Mar-2019	22:00	1.3	E
23-Mar-2019	23:00	1.3	NE
24-Mar-2019	00:00	1.3	NE
24-Mar-2019	01:00	1.3	NE
24-Mar-2019	02:00	0.9	SW
24-Mar-2019	03:00	2.7	E
24-Mar-2019	04:00	1.3	E
24-Mar-2019	05:00	1.3	E

II. Mean Wind Speed and Wind Direction

24-Mar-2019	06:00	0.4	S
24-Mar-2019	07:00	1.3	E
24-Mar-2019	08:00	0.9	SSE
24-Mar-2019	09:00	0.9	WSW
24-Mar-2019	10:00	1.3	WSW
24-Mar-2019	11:00	0.9	WSW
24-Mar-2019	12:00	0.9	SSW
24-Mar-2019	13:00	1.3	WSW
24-Mar-2019	14:00	2.2	WSW
24-Mar-2019	15:00	1.3	WSW
24-Mar-2019	16:00	0.9	E
24-Mar-2019	17:00	1.8	E
24-Mar-2019	18:00	1.8	E
24-Mar-2019	19:00	0.9	E
24-Mar-2019	20:00	0.9	SSE
24-Mar-2019	21:00	0.9	S
24-Mar-2019	22:00	0.4	SSE
24-Mar-2019	23:00	1.3	E
25-Mar-2019	00:00	1.3	E
25-Mar-2019	01:00	0.9	E
25-Mar-2019	02:00	1.3	E
25-Mar-2019	03:00	0.4	ENE
25-Mar-2019	04:00	0.0	ENE
25-Mar-2019	05:00	0.4	ENE
25-Mar-2019	06:00	0.4	ENE
25-Mar-2019	07:00	0.4	SE
25-Mar-2019	08:00	0.9	E
25-Mar-2019	09:00	1.3	E
25-Mar-2019	10:00	1.8	E
25-Mar-2019	11:00	1.3	ENE
25-Mar-2019	12:00	1.8	E
25-Mar-2019	13:00	2.2	E
25-Mar-2019	14:00	1.8	NE
25-Mar-2019	15:00	1.3	NE
25-Mar-2019	16:00	1.8	NE
25-Mar-2019	17:00	1.8	E
25-Mar-2019	18:00	1.3	NE

II. Mean Wind Speed and Wind Direction

25-Mar-2019	19:00	1.3	NE
25-Mar-2019	20:00	1.3	NE
25-Mar-2019	21:00	1.3	NE
25-Mar-2019	22:00	0.9	NE
25-Mar-2019	23:00	0.4	S
26-Mar-2019	00:00	1.3	NE
26-Mar-2019	01:00	0.9	NE
26-Mar-2019	02:00	0.9	NE
26-Mar-2019	03:00	1.3	S
26-Mar-2019	04:00	2.2	E
26-Mar-2019	05:00	2.2	E
26-Mar-2019	06:00	1.3	E
26-Mar-2019	07:00	1.3	E
26-Mar-2019	08:00	1.3	E
26-Mar-2019	09:00	2.2	E
26-Mar-2019	10:00	1.3	E
26-Mar-2019	11:00	1.8	E
26-Mar-2019	12:00	1.8	E
26-Mar-2019	13:00	2.2	E
26-Mar-2019	14:00	2.2	E
26-Mar-2019	15:00	2.7	E
26-Mar-2019	16:00	1.8	E
26-Mar-2019	17:00	1.3	NE
26-Mar-2019	18:00	1.8	E
26-Mar-2019	19:00	1.8	E
26-Mar-2019	20:00	1.3	E
26-Mar-2019	21:00	1.3	E
26-Mar-2019	22:00	2.2	E
26-Mar-2019	23:00	1.8	E
27-Mar-2019	00:00	1.8	E
27-Mar-2019	01:00	1.8	E
27-Mar-2019	02:00	0.9	NE
27-Mar-2019	03:00	0.9	E
27-Mar-2019	04:00	0.4	E
27-Mar-2019	05:00	0.9	ENE
27-Mar-2019	06:00	0.4	ENE
27-Mar-2019	07:00	0.4	E

II. Mean Wind Speed and Wind Direction

27-Mar-2019	08:00	0.4	E
27-Mar-2019	09:00	0.9	E
27-Mar-2019	10:00	0.9	E
27-Mar-2019	11:00	2.2	E
27-Mar-2019	12:00	3.1	E
27-Mar-2019	13:00	2.7	E
27-Mar-2019	14:00	2.7	E
27-Mar-2019	15:00	2.2	E
27-Mar-2019	16:00	1.3	E
27-Mar-2019	17:00	1.3	E
27-Mar-2019	18:00	2.2	WSW
27-Mar-2019	19:00	0.9	WSW
27-Mar-2019	20:00	1.3	WSW
27-Mar-2019	21:00	0.9	WSW
27-Mar-2019	22:00	0.4	ENE
27-Mar-2019	23:00	2.2	WSW
28-Mar-2019	00:00	1.8	WSW
28-Mar-2019	01:00	1.3	WSW
28-Mar-2019	02:00	1.3	WSW
28-Mar-2019	03:00	0.4	WSW
28-Mar-2019	04:00	0.0	W
28-Mar-2019	05:00	0.9	WSW
28-Mar-2019	06:00	0.4	WSW
28-Mar-2019	07:00	1.3	WSW
28-Mar-2019	08:00	1.3	WSW
28-Mar-2019	09:00	1.8	WSW
28-Mar-2019	10:00	1.3	WSW
28-Mar-2019	11:00	1.8	WSW
28-Mar-2019	12:00	1.8	WSW
28-Mar-2019	13:00	1.3	WSW
28-Mar-2019	14:00	1.8	WSW
28-Mar-2019	15:00	1.8	SSW
28-Mar-2019	16:00	0.9	WSW
28-Mar-2019	17:00	1.3	SW
28-Mar-2019	18:00	1.3	WSW
28-Mar-2019	19:00	1.3	WSW
28-Mar-2019	20:00	0.4	WSW

II. Mean Wind Speed and Wind Direction

28-Mar-2019	21:00	0.9	WSW
28-Mar-2019	22:00	0.4	WSW
28-Mar-2019	23:00	0.4	WSW
29-Mar-2019	00:00	0.9	W
29-Mar-2019	01:00	0.0	W
29-Mar-2019	02:00	0.4	ENE
29-Mar-2019	03:00	0.4	W
29-Mar-2019	04:00	0.4	NE
29-Mar-2019	05:00	0.0	WSW
29-Mar-2019	06:00	0.4	E
29-Mar-2019	07:00	0.4	E
29-Mar-2019	08:00	0.0	E
29-Mar-2019	09:00	0.4	ESE
29-Mar-2019	10:00	1.3	E
29-Mar-2019	11:00	1.3	NE
29-Mar-2019	12:00	1.3	E
29-Mar-2019	13:00	0.9	E
29-Mar-2019	14:00	1.3	NE
29-Mar-2019	15:00	1.3	NE
29-Mar-2019	16:00	1.8	E
29-Mar-2019	17:00	1.8	NE
29-Mar-2019	18:00	1.3	E
29-Mar-2019	19:00	0.9	NE
29-Mar-2019	20:00	1.3	NE
29-Mar-2019	21:00	1.3	NE
29-Mar-2019	22:00	0.9	NE
29-Mar-2019	23:00	0.9	E
30-Mar-2019	00:00	1.3	E
30-Mar-2019	01:00	1.3	E
30-Mar-2019	02:00	1.3	E
30-Mar-2019	03:00	0.9	NE
30-Mar-2019	04:00	0.4	NE
30-Mar-2019	05:00	1.3	E
30-Mar-2019	06:00	1.3	NE
30-Mar-2019	07:00	1.8	E
30-Mar-2019	08:00	1.3	E
30-Mar-2019	09:00	1.8	ENE

II. Mean Wind Speed and Wind Direction

30-Mar-2019	10:00	1.8	NE
30-Mar-2019	11:00	1.8	E
30-Mar-2019	12:00	2.2	NE
30-Mar-2019	13:00	2.2	NE
30-Mar-2019	14:00	2.2	ENE
30-Mar-2019	15:00	1.8	ENE
30-Mar-2019	16:00	1.8	NE
30-Mar-2019	17:00	1.8	ENE
30-Mar-2019	18:00	1.3	ENE
30-Mar-2019	19:00	1.3	ENE
30-Mar-2019	20:00	1.8	NE
30-Mar-2019	21:00	1.8	NE
30-Mar-2019	22:00	1.3	E
30-Mar-2019	23:00	1.3	ENE
31-Mar-2019	00:00	1.3	ENE
31-Mar-2019	01:00	1.8	ENE
31-Mar-2019	02:00	1.3	NE
31-Mar-2019	03:00	2.2	NE
31-Mar-2019	04:00	1.3	ENE
31-Mar-2019	05:00	1.3	ENE
31-Mar-2019	06:00	1.3	NE
31-Mar-2019	07:00	1.3	NNE
31-Mar-2019	08:00	1.3	NNE
31-Mar-2019	09:00	1.3	E
31-Mar-2019	10:00	1.3	ENE
31-Mar-2019	11:00	1.3	NE
31-Mar-2019	12:00	1.8	ENE
31-Mar-2019	13:00	1.8	NE
31-Mar-2019	14:00	1.3	NE
31-Mar-2019	15:00	1.3	NNE
31-Mar-2019	16:00	1.3	NNE
31-Mar-2019	17:00	1.3	NNE
31-Mar-2019	18:00	0.9	ENE
31-Mar-2019	19:00	1.3	ENE
31-Mar-2019	20:00	1.3	NE
31-Mar-2019	21:00	1.3	NE
31-Mar-2019	22:00	0.9	NE

II. Mean Wind Speed and Wind Direction

31-Mar-2019	23:00	0.9	NE

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 March 2019

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

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)
1-hr TSP monitoring at AM4(C) on 21 and 27 March was cancelled.
24-hr TSP monitoringat AM4(C) on 15, 21 and 27 March was cancelled due to power failure.

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(A) - Po Leung Kuk Ngan Po Ling College (Site Boundary)
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 April 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Apr	2-Apr	3-Apr	4-Apr	**5-Apr**	6-Apr
		1 hr TSP X3 AM4(C), AM5 **Noise** M6(A) M7, M8(A), M9 **24-hr TSP** AM3(B), AM5	**1 hr TSP X3** AM2, AM3(A) **24-hr TSP** AM2(A)			
7-Apr	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr
	1 hr TSP X3 AM4(C), AM5 **24-hr TSP** AM3(B), AM5	**1 hr TSP X3** AM2, AM3(A) **24-hr TSP** AM2(A)			**1 hr TSP X3** AM4(C), AM5 **Noise** M6(A) M7, M8(A), M9 **24-hr TSP** AM3(B),AM4(C), AM5	
14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	**19-Apr**	**20-Apr**
	1 hr TSP X3 AM2, AM3(A) **24-hr TSP** AM2(A)		**1 hr TSP X3** AM2, AM3(A) **24-hr TSP** AM2(A),AM4(C)	**1 hr TSP X3** AM4(C), AM5 **Noise** M6(A) M7, M8(A), M9 **24-hr TSP** AM3(B), AM5		
21-Apr	**22-Apr**	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr
		1 hr TSP X3 AM2, AM3(A) **24-hr TSP** AM2(A),AM4(C)	**1 hr TSP X3** AM4(C), AM5 **Noise** M6(A) M7, M8(A), M9 **24-hr TSP** AM3(B), AM5			
28-Apr	29-Apr	30-Apr				
	1 hr TSP X3 AM2, AM3(A) **24-hr TSP** AM2(A),AM4(C)	**1 hr TSP X3** AM4(C), AM5 **Noise** M6(A) M7, M8(A), M9 **24-hr TSP** AM3(B), 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(A) - Po Leung Kuk Ngan Po Ling College (Site Boundary)
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)
6-Mar-19	9:00	Cloudy	106.1
6-Mar-19	10:00	Cloudy	111.9
6-Mar-19	11:00	Cloudy	98.7
12-Mar-19	14:00	Sunny	97.5
12-Mar-19	15:00	Sunny	65.6
12-Mar-19	16:00	Sunny	80.3
18-Mar-19	13:00	Cloudy	73.5
18-Mar-19	14:00	Cloudy	86.6
18-Mar-19	15:00	Cloudy	97.3
22-Mar-19	13:00	Cloudy	101.7
22-Mar-19	14:00	Cloudy	114.8
22-Mar-19	15:00	Cloudy	107.4
28-Mar-19	8:50	Fine	132.8
28-Mar-19	9:50	Fine	111.2
28-Mar-19	10:50	Fine	112.4
		Average	99.9
		Maximum	132.8
		Minimum	65.6

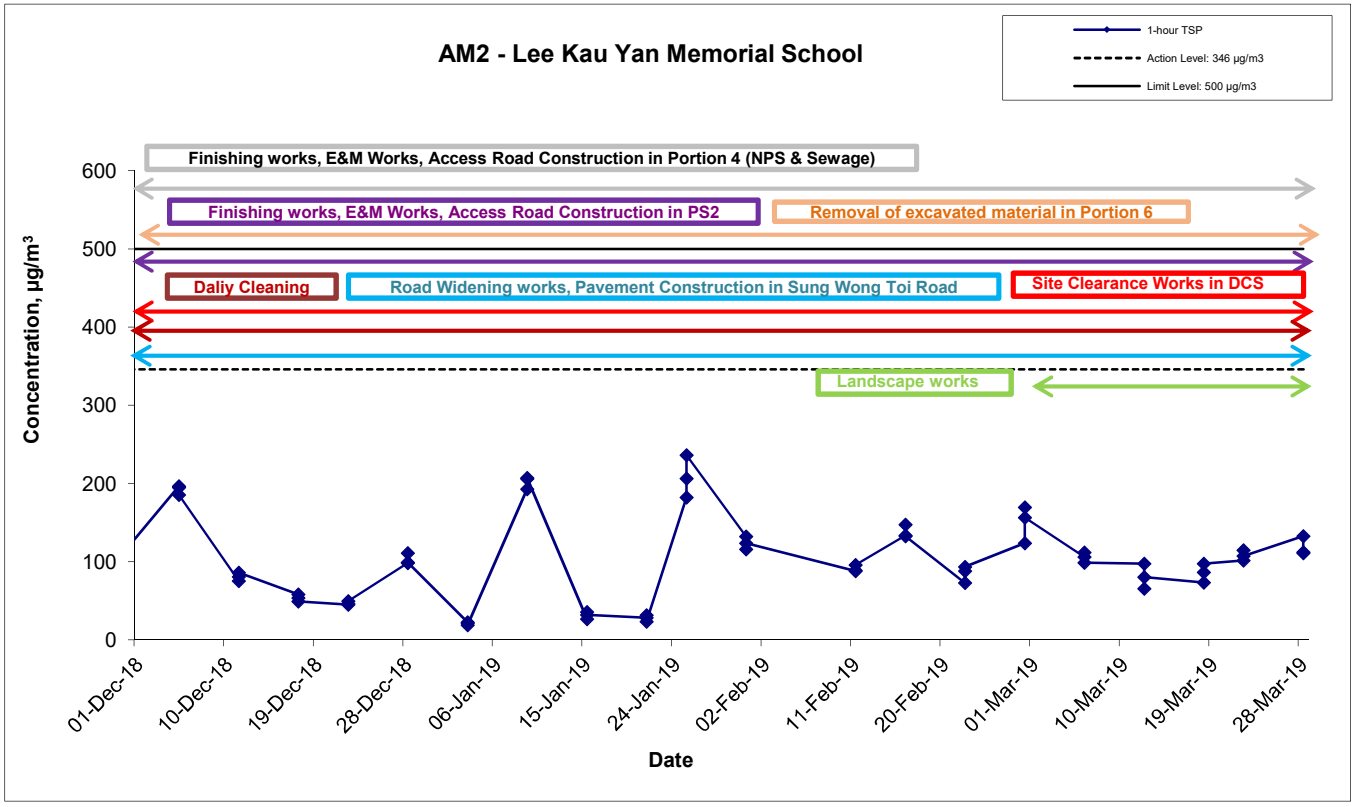
Location AM3(A) - Holy Trinity Bradury Centre			
Date	Time	Weather	Particulate Concentration (µg/m3)
6-Mar-19	13:00	Cloudy	94.2
6-Mar-19	14:00	Cloudy	109.4
6-Mar-19	15:00	Cloudy	101.0
12-Mar-19	9:00	Sunny	55.0
12-Mar-19	10:00	Sunny	75.4
12-Mar-19	11:00	Sunny	87.1
18-Mar-19	9:00	Cloudy	62.0
18-Mar-19	10:00	Cloudy	68.8
18-Mar-19	11:00	Cloudy	73.2
22-Mar-19	9:00	Cloudy	111.3
22-Mar-19	10:00	Cloudy	121.9
22-Mar-19	11:00	Cloudy	97.1
28-Mar-19	13:00	Fine	95.8
28-Mar-19	14:00	Fine	87.8
28-Mar-19	15:00	Fine	110.0
		Average	90.0
		Maximum	121.9
		Minimum	55.0

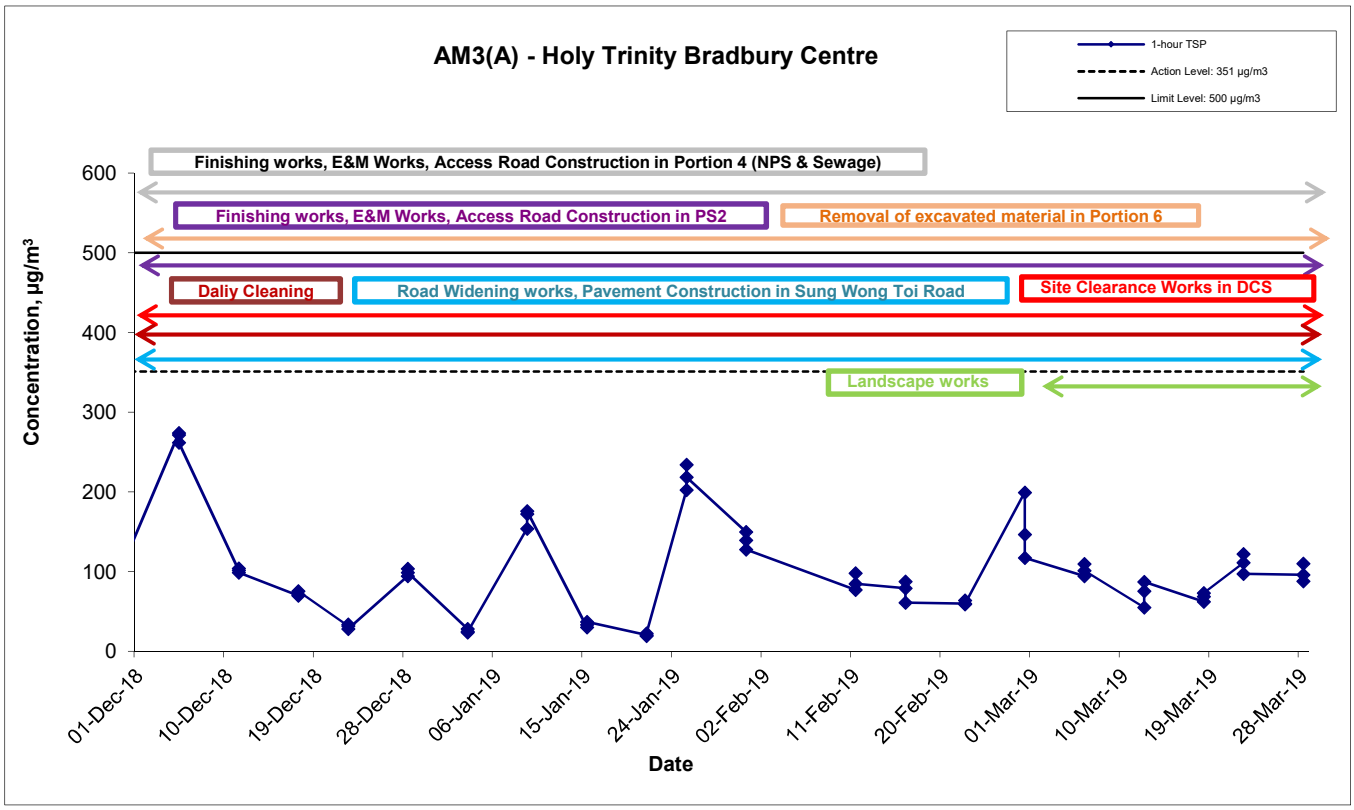
Appendix E - 1-hour TSP Monitoring Results

Location AM4(C) - New Pumping Station			
Date	Time	Weather	Particulate Concentration (μg/m3)
5-Mar-19	9:00	Cloudy	82.6
5-Mar-19	10:00	Cloudy	89.8
5-Mar-19	11:00	Cloudy	96.3
11-Mar-19	9:00	Cloudy	75.7
11-Mar-19	10:00	Cloudy	81.0
11-Mar-19	11:00	Cloudy	73.5
15-Mar-19	9:00	Cloudy	109.7
15-Mar-19	10:00	Cloudy	116.1
15-Mar-19	11:00	Cloudy	144.3
		Average	96.6
		Maximum	144.3
		Minimum	73.5

Location AM5 - CCC Kei To Secondary School			
Date	Time	Weather	Particulate Concentration (μg/m3)
5-Mar-19	14:00	Cloudy	91.1
5-Mar-19	15:00	Cloudy	98.2
5-Mar-19	16:00	Cloudy	83.9
11-Mar-19	13:00	Cloudy	71.9
11-Mar-19	14:00	Cloudy	66.8
11-Mar-19	15:00	Cloudy	61.0
15-Mar-19	13:15	Cloudy	95.7
15-Mar-19	14:15	Cloudy	104.8
15-Mar-19	15:15	Cloudy	91.2
21-Mar-19	9:00	Fine	80.3
21-Mar-19	10:00	Fine	83.0
21-Mar-19	11:00	Fine	72.2
27-Mar-19	13:00	Cloudy	87.7
27-Mar-19	14:00	Cloudy	79.6
27-Mar-19	15:00	Cloudy	81.8
		Average	83.3
		Maximum	104.8
		Minimum	61.0

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: Mar 19	Project No.: MA13056 Appendix: E

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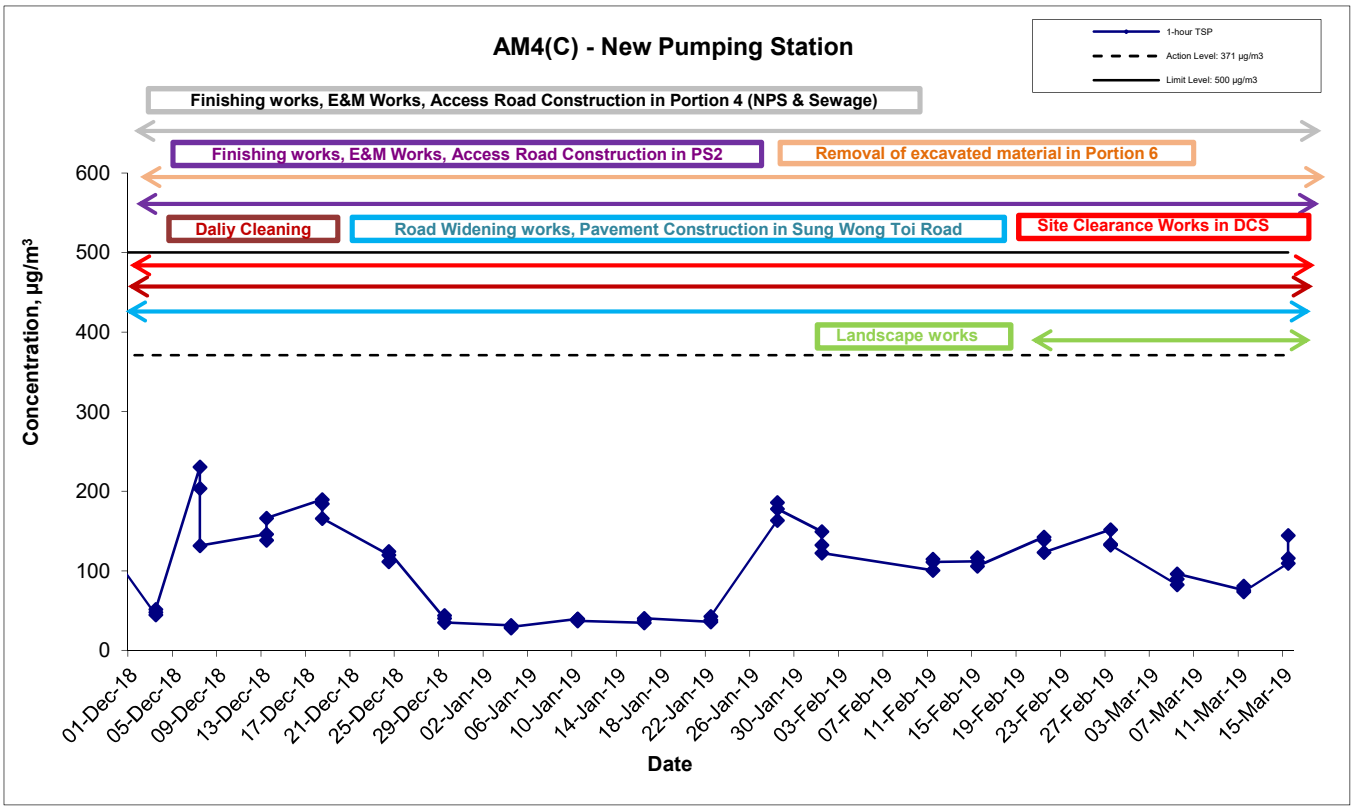
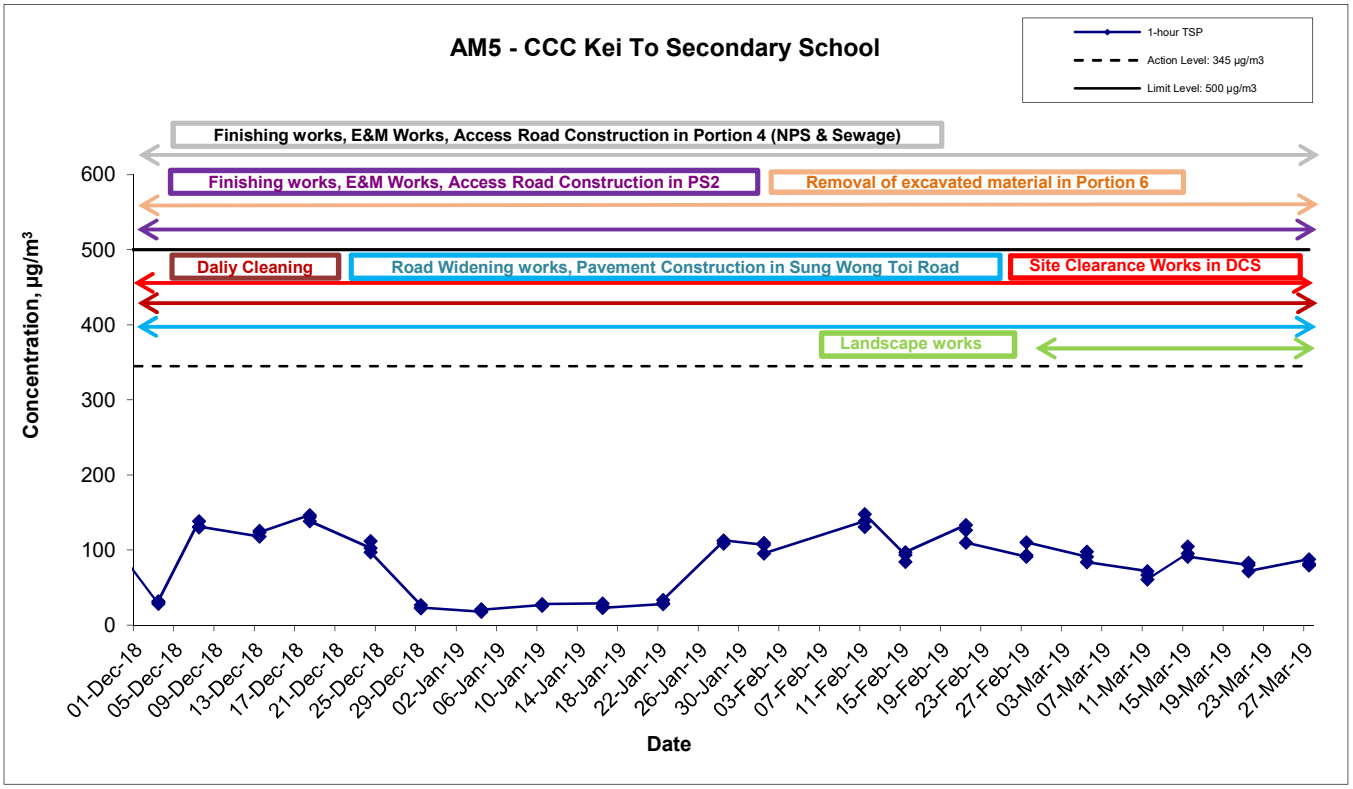
1-hr TSP Concentration Levels





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: Mar 19	Project No.: MA13056 Appendix: E

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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			
5-Mar-19	Cloudy	299.3	760.4	3.1433	3.2099	0.0666	3854.4	3878.4	24.0	1.19	1.19	1.19	1719.2	38.7
11-Mar-19	Cloudy	289.9	765.2	3.5118	3.5496	0.0378	3902.4	3926.4	24.0	1.22	1.22	1.22	1753.0	21.6
16-Mar-19	Cloudy	294.1	768.5	3.1232	3.1838	0.0606	3950.4	3974.4	24.0	1.21	1.21	1.21	1744.0	34.7
22-Mar-19	Cloudy	298.9	762.5	3.5265	3.6204	0.0939	3998.4	4022.4	24.0	1.20	1.20	1.20	1722.8	54.5
28-Mar-19	Sunny	297.7	763.4	3.5947	3.6860	0.0913	4022.4	4046.4	24.0	1.20	1.20	1.20	1727.4	52.9
													Min	21.6
													Max	54.5
													Average	40.5

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			
5-Mar-19	Cloudy	298.3	759.9	2.9910	3.1564	0.1654	1893.1	1917.1	24.0	1.19	1.19	1.19	1715.8	96.4
11-Mar-19	Cloudy	291.1	765.2	3.5098	3.6325	0.1227	1917.1	1941.1	24.0	1.21	1.21	1.21	1743.0	70.4
15-Mar-19	Cloudy	291.5	767.6	3.4849	3.6388	0.1539	1941.3	1965.3	24.0	1.21	1.21	1.21	1744.5	88.2
21-Mar-19	Cloudy	299.9	760.5	3.4787	3.5403	0.0616	1965.3	1989.3	24.0	1.19	1.19	1.19	1711.9	36.0
27-Mar-19	Sunny	296.5	766.8	3.4713	3.6435	0.1722	1989.3	2013.3	24.0	1.20	1.20	1.20	1728.9	99.6
													Min	36.0
													Max	99.6
													Average	78.1

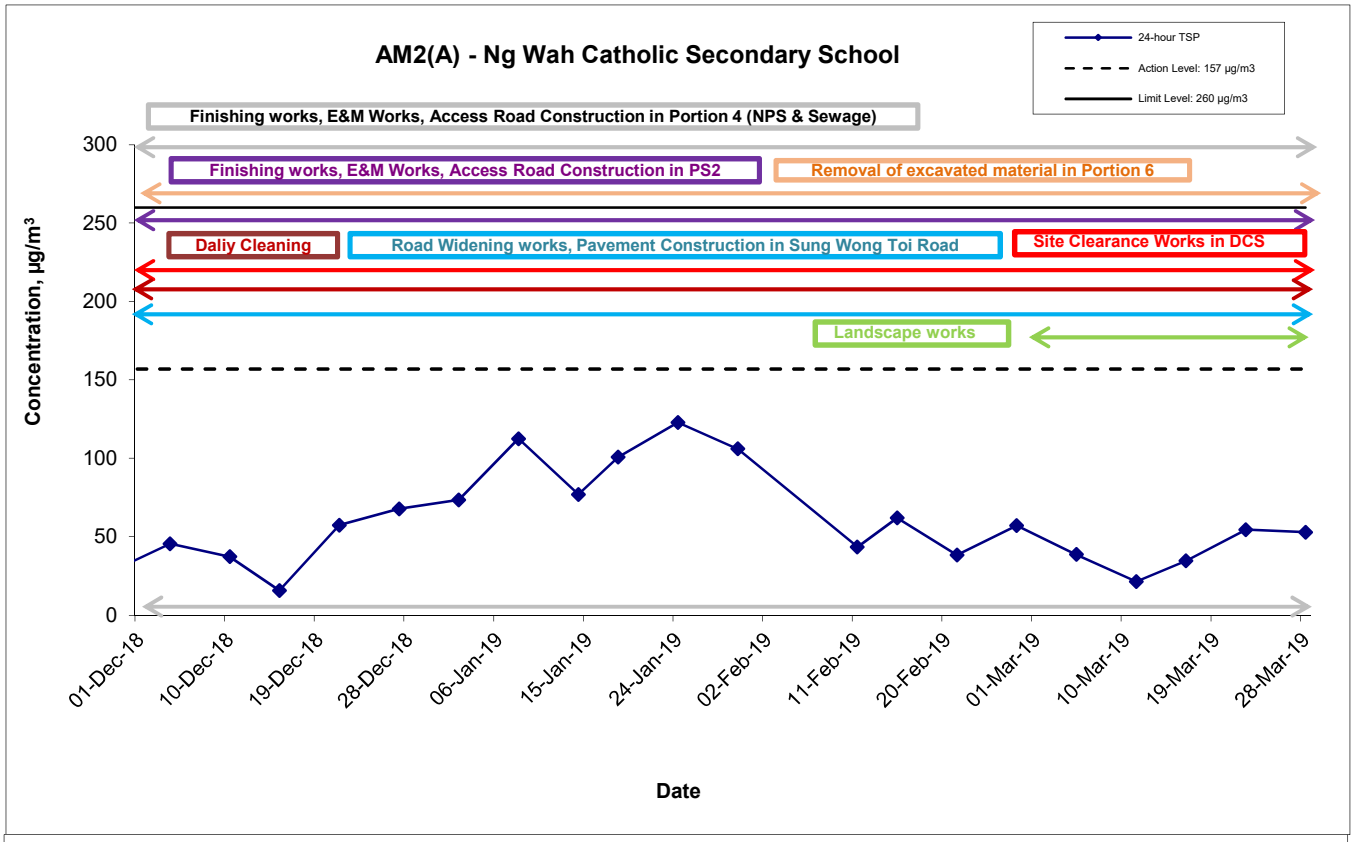
Location AM4(C) - New Pumping Station under Contract KL/2012/03

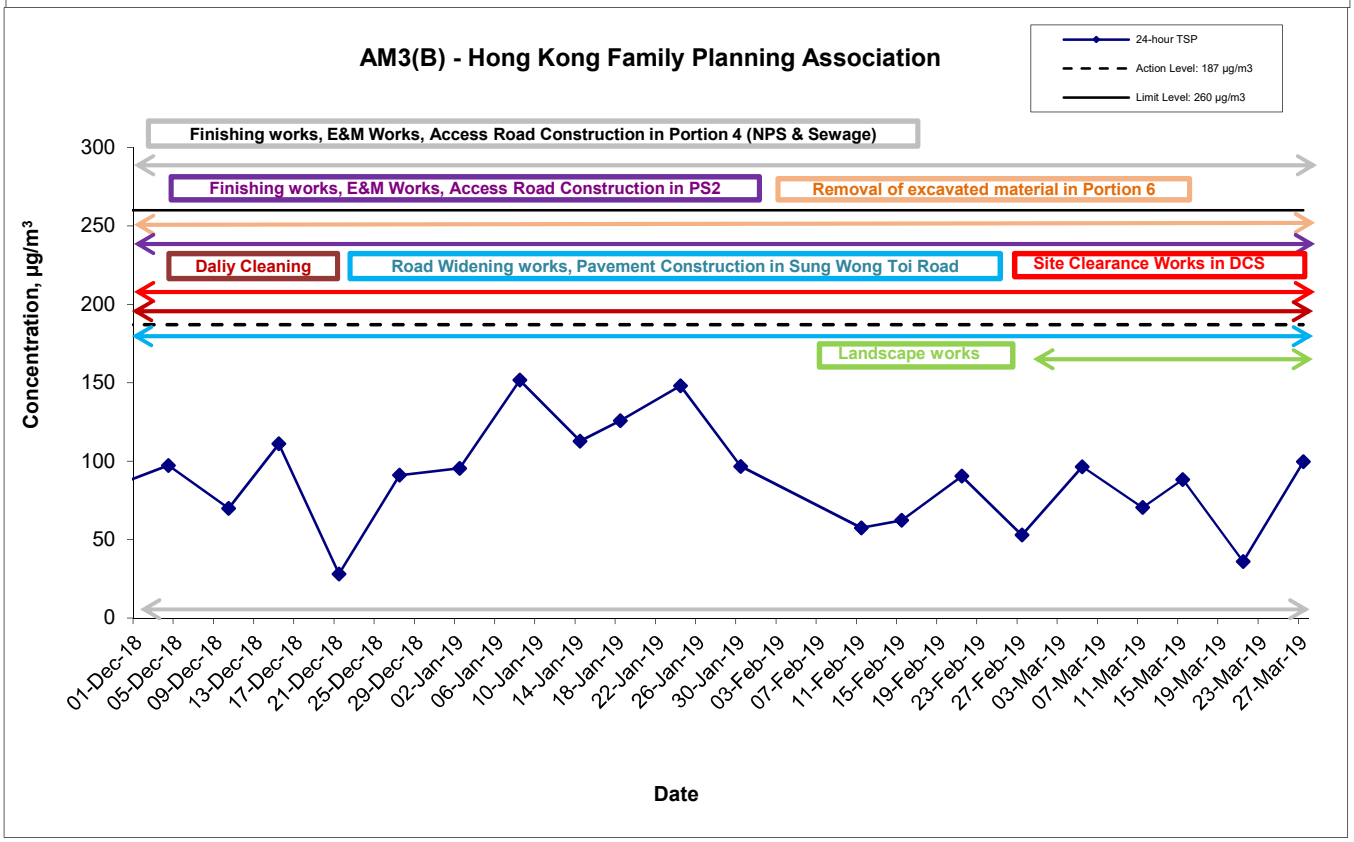
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
5-Mar-19	Cloudy	298.9	760.1	3.1453	3.2480	0.1027	2249.1	2273.1	24.0	1.19	1.19	1.19	1719.4	59.7
11-Mar-19	Cloudy	291.7	764.6	3.4902	3.5607	0.0705	2273.1	2297.1	24.0	1.21	1.21	1.21	1747.5	40.3
													Min	40.3
													Max	59.7
													Average	50.0

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			
5-Mar-19	Cloudy	299.3	760.4	3.1564	3.2771	0.1207	2378.0	2402.0	24.0	1.19	1.19	1.19	1718.8	70.2
11-Mar-19	Cloudy	293.3	763.5	3.4754	3.5465	0.0711	2402.0	2426.0	24.0	1.21	1.21	1.21	1740.0	40.9
15-Mar-19	Cloudy	290.9	767.0	3.5475	3.6821	0.1346	2449.2	2473.2	24.0	1.22	1.22	1.22	1751.2	76.9
21-Mar-19	Cloudy	299.4	762.0	3.4652	3.5616	0.0964	2473.2	2497.2	24.0	1.19	1.19	1.19	1720.4	56.0
27-Mar-19	Sunny	294.1	767.1	3.6009	3.6716	0.0707	2497.4	2521.4	24.0	1.21	1.21	1.21	1741.7	40.6
													Min	40.6
													Max	76.9
													Average	56.9

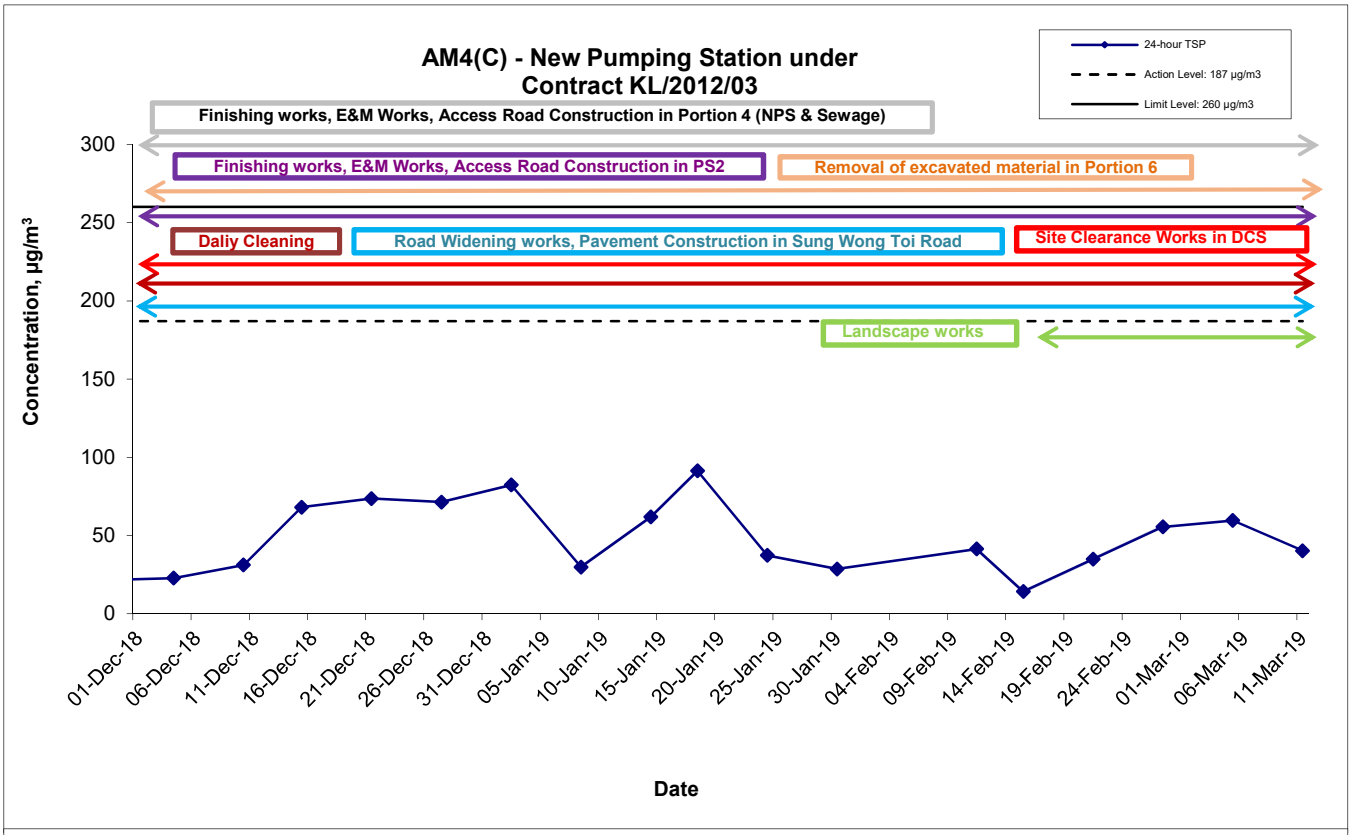
24-hr TSP Concentration Levels

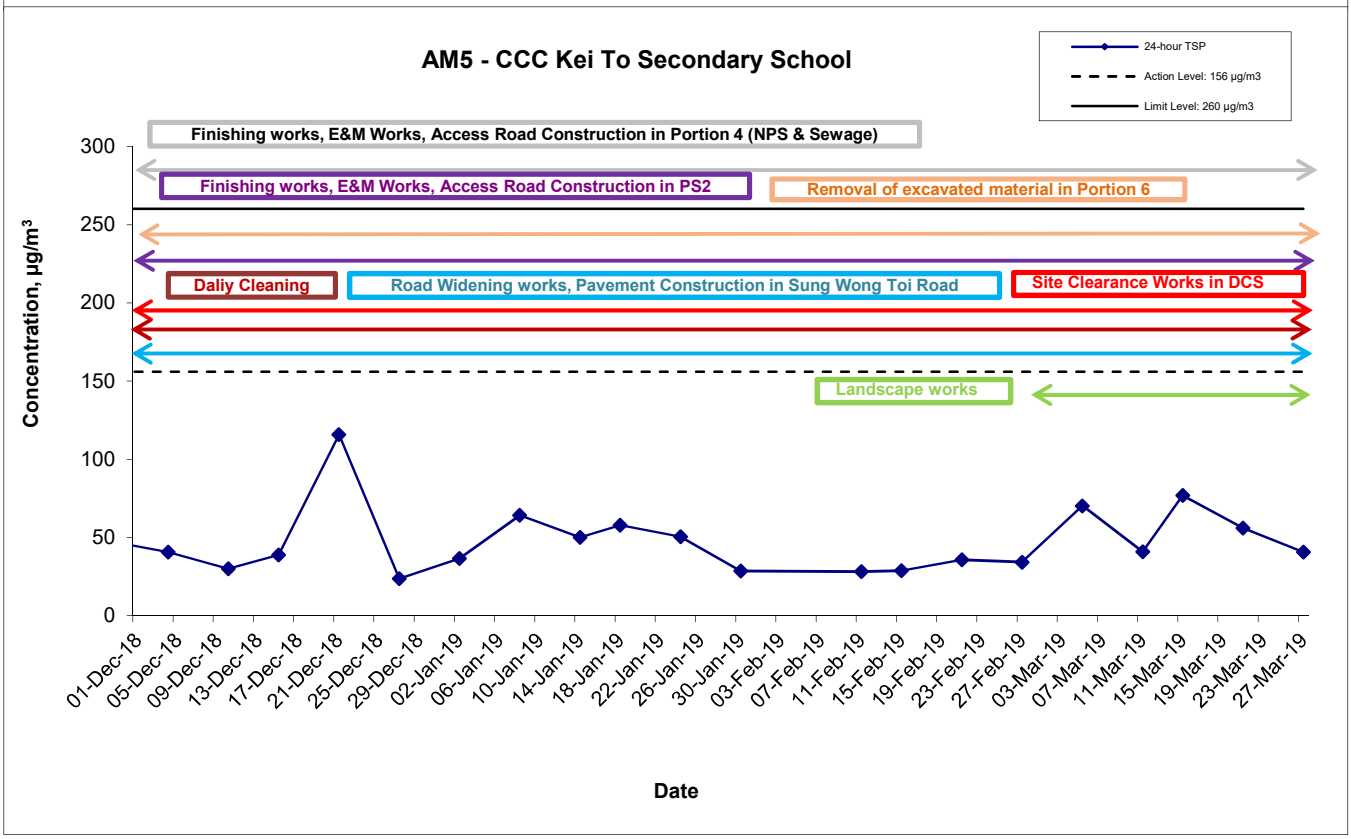




Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S Date: Mar 19	Project No.: MA13056 Appendix: F	WELLAB 匯力 consulting . testing . research

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: Mar 19	Project No.: MA13056 Appendix: F	WELLAB 匯力 consulting . testing . research

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}
5-Mar-19	13:00	Cloudy	64.3	65.6	58.5	63.9	53.7
15-Mar-19	14:40	Cloudy	64.5	65.8	59.3		55.6
21-Mar-19	13:00	Cloudy	62.0	63.9	59.0		62.0 Measured ≦ Baseline
27-Mar-19	15:00	Cloudy	59.2	61.0	53.4		59.2 Measured ≦ Baseline

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}
5-Mar-19	14:35	Cloudy	64.2	66.7	60.3	68.7	64.2 Measured ≦ Baseline
15-Mar-19	13:00	Cloudy	62.4	63.5	55.2		62.4 Measured ≦ Baseline
21-Mar-19	10:15	Cloudy	61.5	64.5	57.0		61.5 Measured ≦ Baseline
27-Mar-19	13:05	Cloudy	63.0	65.4	59.4		63.0 Measured ≦ Baseline

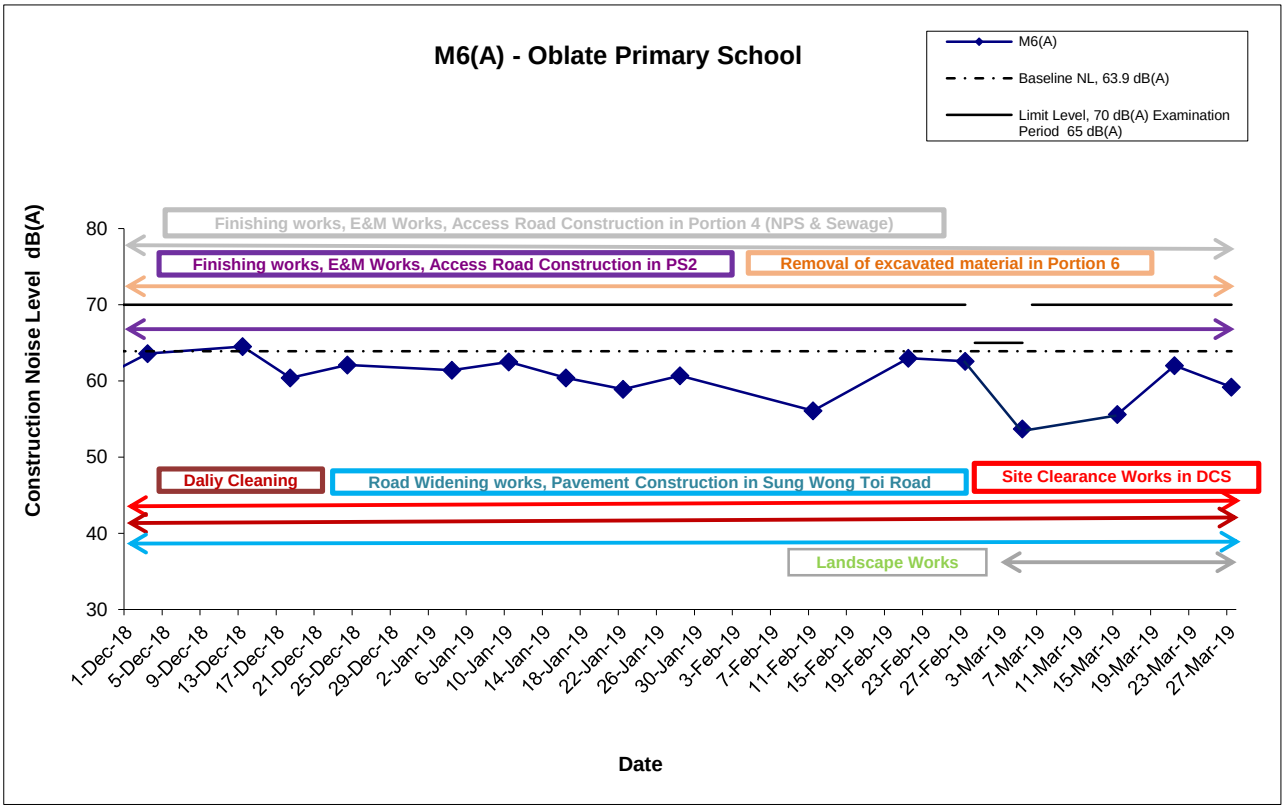
Location M8(A) - Po Leung Kuk Ngan Po Ling College							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
5-Mar-19	13:45	Cloudy	70.2	73.5	64.8	61.9	69.5
15-Mar-19	13:45	Cloudy	64.5	67.8	61.2		61.0

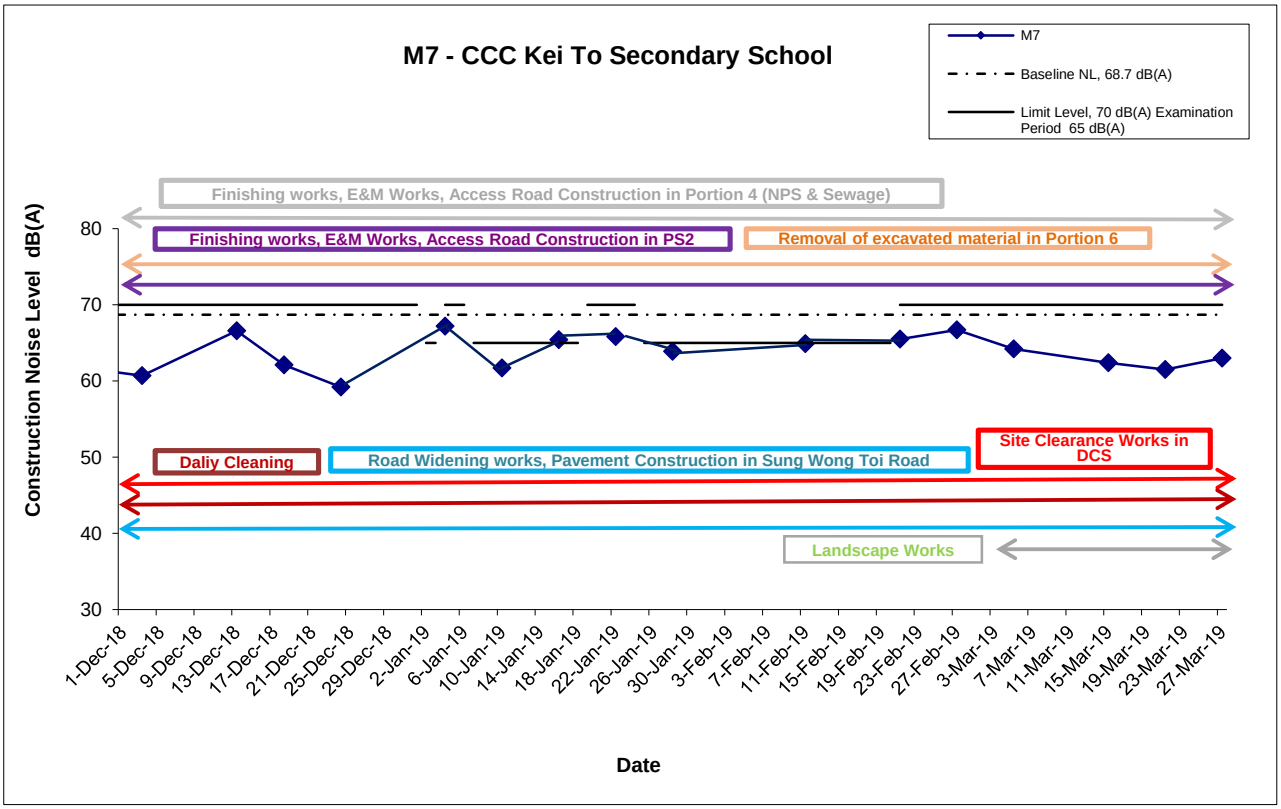
Location M8(A) - Po Leung Kuk Ngan Po Ling College							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
21-Mar-19	11:25	Cloudy	66.0	67.7	61.2	64.9	59.5
27-Mar-19	14:00	Cloudy	66.2	69.5	62.1		60.3

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}
5-Mar-19	15:00	Cloudy	59.3	61.2	57.3	59.9	59.3 Measured ≦ Baseline
15-Mar-19	10:00	Cloudy	58.9	61.1	57.1		58.9 Measured ≦ Baseline
21-Mar-19	15:00	Cloudy	58.9	60.6	56.8		58.9 Measured ≦ Baseline
27-Mar-19	16:00	Cloudy	58.9	62.1	53.2		58.9 Measured ≦ Baseline

The baseline reference noise level of M8(A) was adjusted with a correction of +3dB(A) as IEC agree the proposal for alternative position of M8 (remark as M8(A)) on 20 March 2019.

Noise Levels

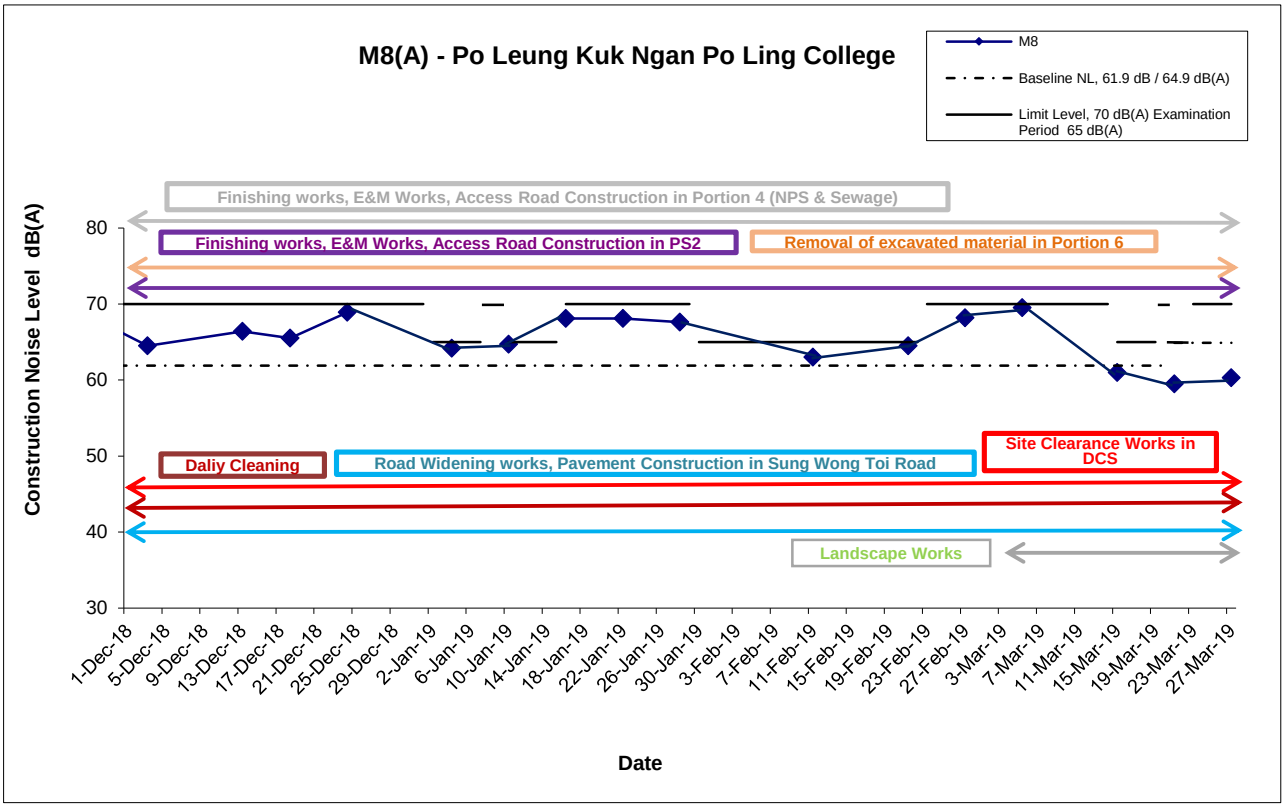


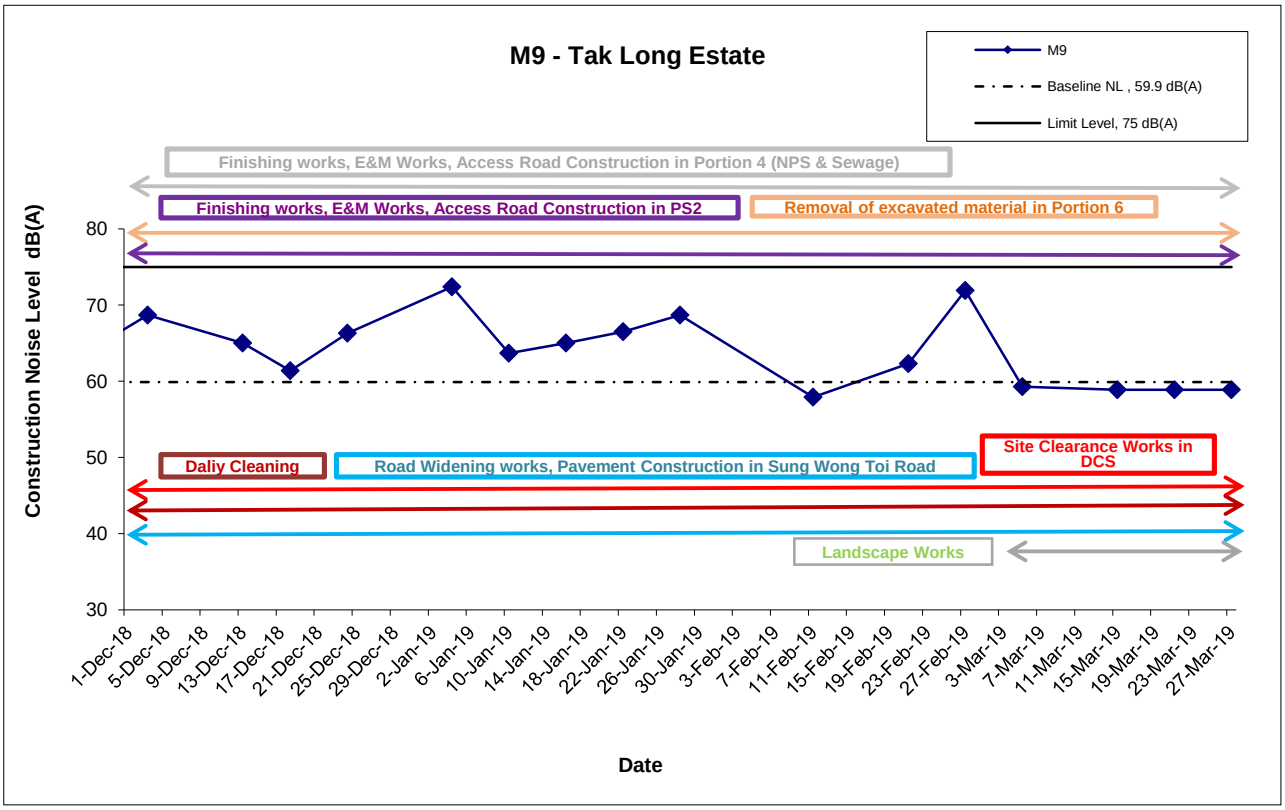


Remarks: The construction noise levels in the Tables in Appendix G were adopted for plotting the graphs

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	WELLAB 匯力 consulting . testing . research
		Date Mar 19	Appendix G	

Noise Levels





Remarks:
The construction noise levels in the Tables in Appendix G were adopted for plotting the graphs
The baseline reference noise level of M8(A) was adjusted with a correction of +3dB(A) as IEC agree the proposal for alternative position of M8 (remark as M8(A)) on 20 March 2019.

Title	Scale	Project No.
Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of Construction Noise Monitoring Results	N.T.S	MA13056
	Date: Mar 19	Appendix: G

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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	190301
Date	1 March 2019
Time	15:00-17:00

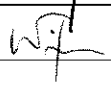
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• 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	
	• No environmental deficiency was identified during previous audit session.	

	Name	Signature	Date
Recorded by	Eric Chan		4 March 2019
Checked by	Dr. Priscilla Choy		4 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190308
Date	8 March 2019
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	
	• No environmental deficiency was identified during previous audit session.	

	Name	Signature	Date
Recorded by	Eric Chan		11 March 2019
Checked by	Dr. Priscilla Choy		11 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190312
Date	12 March 2019
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	
	• No environmental deficiency was identified during previous audit session.	

	Name	Signature	Date
Recorded by	Eric Chan		14 March 2019
Checked by	Dr. Priscilla Choy		14 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190320
Date	20 March 2019
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	
	• 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	
	• No environmental deficiency was identified during previous audit session.	

	Name	Signature	Date
Recorded by	Eric Chan		21 March 2019
Checked by	Dr. Priscilla Choy		21 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190329
Date	29 March 2019
Time	09:00-11:00

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	
	• No environmental deficiency was identified during previous audit session.	

	Name	Signature	Date
Recorded by	Eric Chan		1 April 2019
Checked by	Dr. Priscilla Choy		1 April 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190301
Date	1 March 2019
Time	15:00-17:00

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	
	• No environmental deficiency was identified during previous audit session.	

	Name	Signature	Date
Recorded by	Eric Chan		4 March 2019
Checked by	Dr. Priscilla Choy		4 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190308
Date	8 March 2019
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	
190308-R01	• General refuse should be collected and disposed properly.	E1iii
	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	
	• No environmental deficiency was identified during previous audit session.	

	Name	Signature	Date
Recorded by	Eric Chan		11 March 2019
Checked by	Dr. Priscilla Choy		11 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190312
Date	12 March 2019
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.190308), the environment deficiency was observed to be rectified by the contractor.	

	Name	Signature	Date
Recorded by	Eric Chan		14 March 2019
Checked by	Dr. Priscilla Choy		14 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190320
Date	20 March 2019
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	
	• 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	
	• No environmental deficiency was identified during previous site inspection.	

	Name	Signature	Date
Recorded by	Eric Chan		21 March 2019
Checked by	Dr. Priscilla Choy		21 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190329
Date	29 March 2019
Time	09:00-11:00

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	
190329-R01	• General refuse/construction waste on the roof of PS2 should be disposed properly.	E1iii
	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	
	• No environmental deficiency was identified during previous site inspection.	

	Name	Signature	Date
Recorded by	Eric Chan		1 April 2019
Checked by	Dr. Priscilla Choy		1 April 2019

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.	^ ^
Construction Waste Management	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.
	# Recommendation was made during site audit and to be 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: March 2019

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 March 2019 (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
2018 (Jan – Dec) Sub-Total	566	7483.57	0	0	0	6803.57	0	0	0	0	0	680
Jan-19	27	237.51	0	0	0	0	0	0	0	0	0	237.51
Feb-19	8	23.03	0	0	0	0	0	0	0	0	0	23.03
Mar-19	22	55.8	0	0	0	0	0	0	0	0	0	55.8
Apr-19												
May-19												
Jun-19												
Total	7145	197427.07	0	0	55090.84	139235.4	25744.27	0	0	0	0	3284.46

APPENDIX N
CONSTRUCTION PROGRAMME

		2019															
		February				March				April				May			
		7	14	21	28	7	14	21	31	7	14	21	30	7	14	21	31
1	Sung Wong Tai Road																
	Plumbing and Drainage																
	Base course																
	Asphalt laying																
	Road Marking																
	Planting	■	■	■	■												
	Resurfacing																
	Temp. Traffic Arrangement	■	■	■	■	■	■										
	Scraping and asphalt laying	■	■	■	■	■	■	■	■								
2	Pump Station NPS and PS2																
	NPS : FSI																
	Scada system test																
	Three days test																
	Recycle wood installation																
	Painting																
	Window Glass installation																
	External lighting & CCTV																
	Planting																
	Made good defects	■	■	■	■	■	■	■	■	■	■	■	■				
3	PS2 : FSI																
	Scada system test																
	Benching																
	Three days test																
	Fall arrest system																
	Cladding	■	■	■	■	■	■	■	■	■	■	■	■				
	Fence wall	■	■	■	■												
	External lighting & CCTV																
	Planting																
4	Landscaping (Patch up)									■	■	■	■				
5	Road L6 footpath					■	■	■	■								

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Appendix B

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

Civil Engineering and Development Department

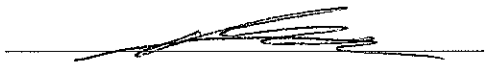
EP-337/2009 & EP-445/2013/A

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
March 2019

(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: 10-4-2019

10-4-2019

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 March 2019

Reference is made to the Environmental Team's submission of the draft Monthly EM&A Report (version 1.0) for March 2019 provided to Independent Environmental Checker (IEC) via email dated on 8 th April 2019 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

c.c.	CEDD	Mr. CHU Chi Hong, Keith	(By email: keithchchu@cedd.gov.hk)
	AECOM	Mr. Anthony Lok	(By email: anthony.lok@aecom-ktd.com)
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EXECUTIVE SUMMARY

Introduction

1. This is the 36th 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 March 2019.

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 outfalls;
   - Laying of sewer, drainage and pavement;
   - Erection of noise barrier steel structure and panels
   - Construction of Architectural features on Open Space

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, GW-RE0186-19)

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 36th Monthly EM&A report summarizing the EM&A works for the Project from 1 – 31 March 2019.

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. Keith Chu	Senior Engineer	3579 2450	3579 4516
		Ms. Adonia Yung	Engineer	3579 2124	
AECOM	Supervising Officer	Mr. Clive Cheng	CRE	3746 1801	2798 0783
Cinotech	Environmental Team	Mr. K S Lee	Environmental Team Leader	2151 2091	3107 1388
		Ms. Betty Choi	Audit Team Leader	2151 2072	
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 outfalls;
- Laying of sewer, drainage and pavement;
- Erection of noise barrier steel structure and panels
- Construction of Architectural features on Open Space

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, air quality monitoring station should be provided at the Air Sensitive Receivers (ASR) within 500 m from the boundary of this Project. Since the opening of the Centre of Excellence in Paediatrics (Children's Hospital) on 18 December 2019, the hospital is considered as the only relevant monitoring location and therefore the monitoring is required.

2.2 As the monitoring works for the hospital is covered by the Contract KL/2014/03 (Kai Tak Development Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway) at the monitoring station (KTD1a), the corresponding monitoring results for March 2019 should be accessed in the EM&A report for the reporting month. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Observations

2.3 No monitoring for air quality is required for this report.

2.4 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, construction noise monitoring station should be provided at the Noise Sensitive Receivers (NSR) within 300 m from the boundary of this Project. Since the opening of the Centre of Excellence in Paediatrics (Children's Hospital) on 18 December 2019, the hospital is considered as the only relevant monitoring location and therefore the monitoring is required.

3.2 As the monitoring works for the hospital is covered by the Contract KL/2014/03 (Kai Tak Development Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway) at the monitoring station (KTD1a), the corresponding monitoring results for March 2019 should be accessed in the EM&A report for the reporting month. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Observations

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

3.4 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 6, 13, 20 and 27 March 2019 in the reporting month. IEC joint site inspection was conducted on 27 March 2019. 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	17/12/18	16/03/19	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
GW-RE0186-19	16/03/19	15/06/19		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	27 February 2019	Reminder: Ponding within landscape deck at Urban Room B should be checked regularly.	The condition was observed to be improved/rectified by the contractor during the audit session on 6 March 2019.
	13 March 2019	Reminder: Ponding on the deck level should be cleared regularly after heavy rainfall.	The condition was observed to be improved/rectified by the contractor during the audit session on 20 March 2019.
Air Quality	20 March 2019	Reminder: The stockpile should be completely covered by impervious materials.	The condition was observed to be improved/rectified by the contractor during the audit session on 27 March 2019.
	20 March 2019	Reminder: Proper labels should be displayed on NRMMs.	The condition was observed to be improved/rectified by the contractor during the audit session on 27 March 2019.
Noise	--	--	--
Waste/ Chemical Management	27 February 2019	Reminder: The accumulation of general refuse near site office and T junction should be avoided.	The condition was observed to be improved/rectified by the contractor during the audit session on 6 March 2019.
Landscape and Visual	--	--	--
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;
- Erection of noise barrier steel structure and panels

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. April and May 2019 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 March 2019.

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

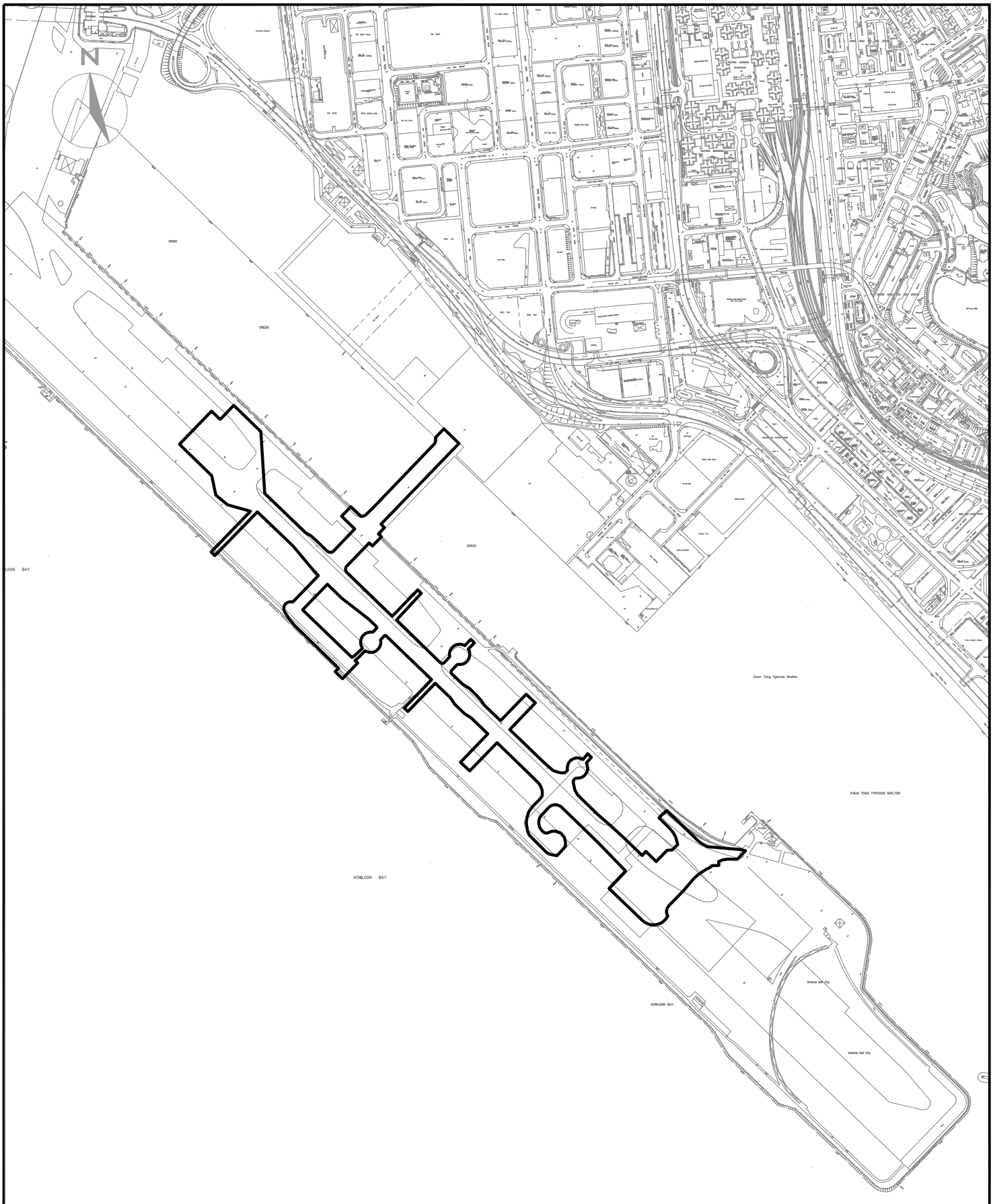
7.6 According to the environmental audit performed in the reporting month, the following recommendations were made:

Air Quality
- To properly cover the dusty stockpile to prevent dust generation.

Water Quality
- To avoid ponding within landscape deck.

Waste/ chemical management
- To avoid the accumulation of general refuse.

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 Air Quality Monitoring

Monitoring Station	Parameter	Action Level ($\mu g/ m^3$)	Limit Level[(1)(2)] ($\mu g/ m^3$)
KTD1a	24-hr TSP	177	260
KTD1a*	1-hr TSP	285	500

* 1-hr TSP monitoring should be required in case of complaints.

Table A-2 Action and Limit Levels for Construction Noise Monitoring

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: March 2019

(A) Exceedance Record for Construction Noise

(NIL in the reporting month)

(B) Exceedance Record for Landscape and Visual

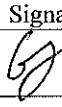
(NIL in the reporting month)

APPENDIX C
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190306
Date	6 March 2019 (Wednesday)
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	
	• 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.:190227): All environmental deficiencies identified in the previous site audit were rectified/improved by the Contractor.	

	Name	Signature	Date
Recorded by	Jeffrey Lo		7 March 2019
Checked by	Karina Chan		7 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190313
Date	13 March 2019 (Wednesday)
Time	14:00 – 16:00

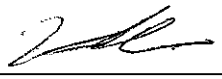
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
R-01	• Ponding on the deck level should be cleared regularly after heavy rainfall.	B8
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	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.:190306): No major environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Jeffrey Lo		14 March 2019
Checked by	Jennifer Mok		14 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190320
Date	20 March 2019 (Wednesday)
Time	14:00 – 16:15

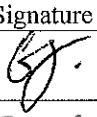
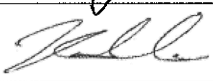
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
R-01	• The stockpile should be completely covered by impervious materials.	C7
R-02	• Proper labels should be displayed on NRMMs.	C19
	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.:190313): All environmental deficiencies identified in the previous audit were rectified/improved by the Contractor..	

	Name	Signature	Date
Recorded by	Jeffrey Lo		20 March 2019
Checked by	Karina Chan		20 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190327
Date	27 March 2019 (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.:190320): All environmental deficiencies identified in the previous audit were rectified/improved by the Contractor..	

	Name	Signature	Date
Recorded by	Jeffrey Lo		28 March 2019
Checked by	Karina Chan		28 March 2019

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.	# Recommendation was made during site audit but not yet 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: March 2019

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

Monthly Summary Waste Flow Table for 2019

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	3289.57	0	0	0	3289.57	0	0	0	0	0	269.42
Feb	21.88	0	0	0	21.88	0	0	0	0	0	145.98
Mar	10.18	0	0	0	10.18	0	0	0	0	0	394.09
Apr											
May											
June											
Sub-total	3321.63	0	0	0	3321.63	0	0	0	0	0	809.49
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total	3321.63	0	0	0	3321.63	0	0	0	0	0	809.49

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Appendix C

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

March 2019

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/1173A
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 : Toby K. H. Wan

Reviewed by : Alfred Y. S. Lam

Certified by :

Colin K. L. Yung
Environmental Team Leader
Fugro Technical Services Limited

RAMBOLL

Ref.: CEDKTDS3EM00_0_0380L.19

11 April 2019

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 March 2019

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for March 2019 (Report No. 0405/15/ED/1173A) we received by e-mail on 11 April 2019.

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
	Fugro	Attn.: Mr. Colin K. L. Yung	By email
	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 March and 31 March 2019. 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 SUS 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 at KTD1a, KTD2b and KER1b in the reporting month.

iv. A Limit Level exceedance was recorded. Exceedance was recorded for construction noise Limit Level at KTD2b on 22 March 2019. No Action / Limit Level exceedance was recorded for construction noise at KTD1a and KER1b in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

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

Reporting Changes

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

Future Key Issues

vii. 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 impacts.

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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 37th monthly EM&A Report which summarize the impact monitoring results and audit findings for the Project within the period between 1 March and 31 March 2019.

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. Kola Lam	55454625	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 SUS 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:

- 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	13 February 2019	18 May 2019
Construction Noise Permit	GW-RE0866-18	4 January 2019	3 June 2019
Construction Noise Permit	GW-RE0036-19	21 January 2019	11 July 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

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	438320/2154
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.

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**.

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	81	52-114	177	260
	KTD2b	91	68-124	157	
	KER1b	85	48-130	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 (μg/m^3)	24-hour TSP concentration in March 2019 (μg/m^3)	Average 24-hour TSP concentration in March 2019 (μg/m^3)
KTD1a	KTD3	126	52-114	81
KTD2b	-	-	68-124	91
KER1b	KTD6	169	48-130	85

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 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	1488269
2	Casella	CEL-63X Series	Integrating Sound Level Meter	1488306
3	Casella	CEL-120/1	Calibrator	4358250
4	Casella	CEL-120/1	Calibrator	4358251
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.

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	69-74	73-79	69-74	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 A Limit Level exceedance was recorded. Exceedance was recorded for construction noise Limit Level at KTD2b on 22 March 2019. No Action / Limit Level exceedance was recorded for construction noise at KTD1a and KER1b in the reporting month.

3.7.6 On 22 March 2019, at KTD2b non-project related construction works were carried out during noise monitoring, noise was generated by the reverse circulation drill works from construction

site of New Acute Hospital next to the monitoring location KTD2b, also vehicle noise source from Construction site of New Acute Hospital was observed during noise monitoring. Thus, it is considered that this exceedance is not project related. No exceedance is recorded in the following monitoring conducted on 28 March 2019.

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

3.7.8 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 March 2019
KTD1a	KTD1	74	74
KTD2b	KTD2	75	79
KER1b	KER1	75	74

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 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.

3.8.3 The discrepancy between the noise monitoring results and EIA Prediction in KTD2b is considered due to noise source from reverse circulation drill works and the vehicle from construction site of New Acute Hospital near the monitoring location.

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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, four weekly Landscape and Visual Site audits were carried out on 6, 13, 20 and 27 March 2019 and two of them 13 and 27 March 2019 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, four site inspections were carried out on 6, 13, 20 and 27 March 2019. Two of them, held on 6 and 13 March 2019 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 at KTD1a, KTD2b and KER1b in the reporting month.

7.1.2 A Limit Level exceedance was recorded. Exceedance was recorded for construction noise Limit Level at KTD2b on 22 March 2019. No Action / Limit Level exceedance was recorded for construction noise at KTD1a 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.**

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 (February 2019)	13/03/2019
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 (February 2019)	13/03/2019
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 (February 2019)	13/03/2019

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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 SUS structure;
- Construction of socketed H-Pile;
- Excavation and ELS construction; and
- 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 No Action / Limit Level exceedance was recorded for 24-hr TSP at KTD1a, KTD2b and KER1b in the reporting month.

10.1.2 A Limit Level exceedance was recorded. Exceedance was recorded for construction noise Limit Level at KTD2b on 22 March 2019. No Action / Limit Level exceedance was recorded for construction noise at KTD1a and KER1b in the reporting month.

10.1.3 On 22 March 2019, at KTD2b non-project related construction works were carried out during noise monitoring, noise was generated by the reverse circulation drill works from construction site of New Acute Hospital next to the monitoring location KTD2b, also vehicle noise source from Construction site of New Acute Hospital was observed during noise monitoring. Thus, it is considered that this exceedance is not project related. No exceedance is recorded in the following monitoring conducted on 28 March 2019.

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

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

10.1.6 Four weekly Landscape and Visual Site audits were carried out on 6, 13, 20 and 27 March 2019 and two of them 13 and 27 March 2019 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).

10.1.7 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:

<u>Air Quality Impact</u>

- Every main haul road should be kept clear of dusty materials.
- Open stockpiles should be avoided or covered.

<u>Construction Noise Impact</u>

- No specific observation was identified in the reporting month.

<u>Water Quality Impact</u>

- No specific observation was identified in the reporting month.

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Chemical and Waste Management

- All wastes generated at the site should be collected and cleaned up regularly.

Land Contamination

- No specific observation was identified in the reporting month.

Landscape and Visual Impact

- Open stockpiles should be avoided or covered.

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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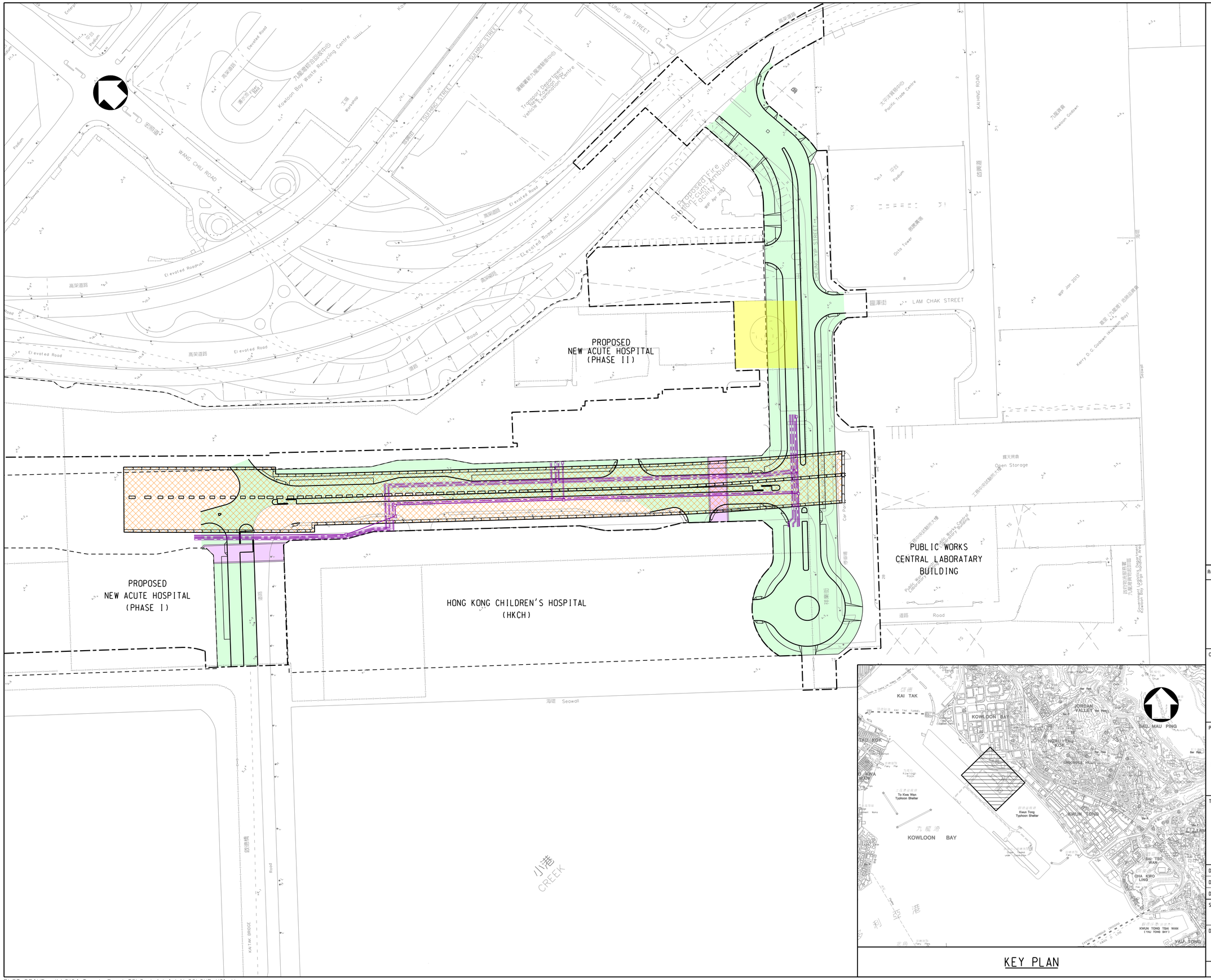
Figure 1

Project General Layout



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

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

KEY PLAN

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Figure 2

Air and Noise Monitoring Locations

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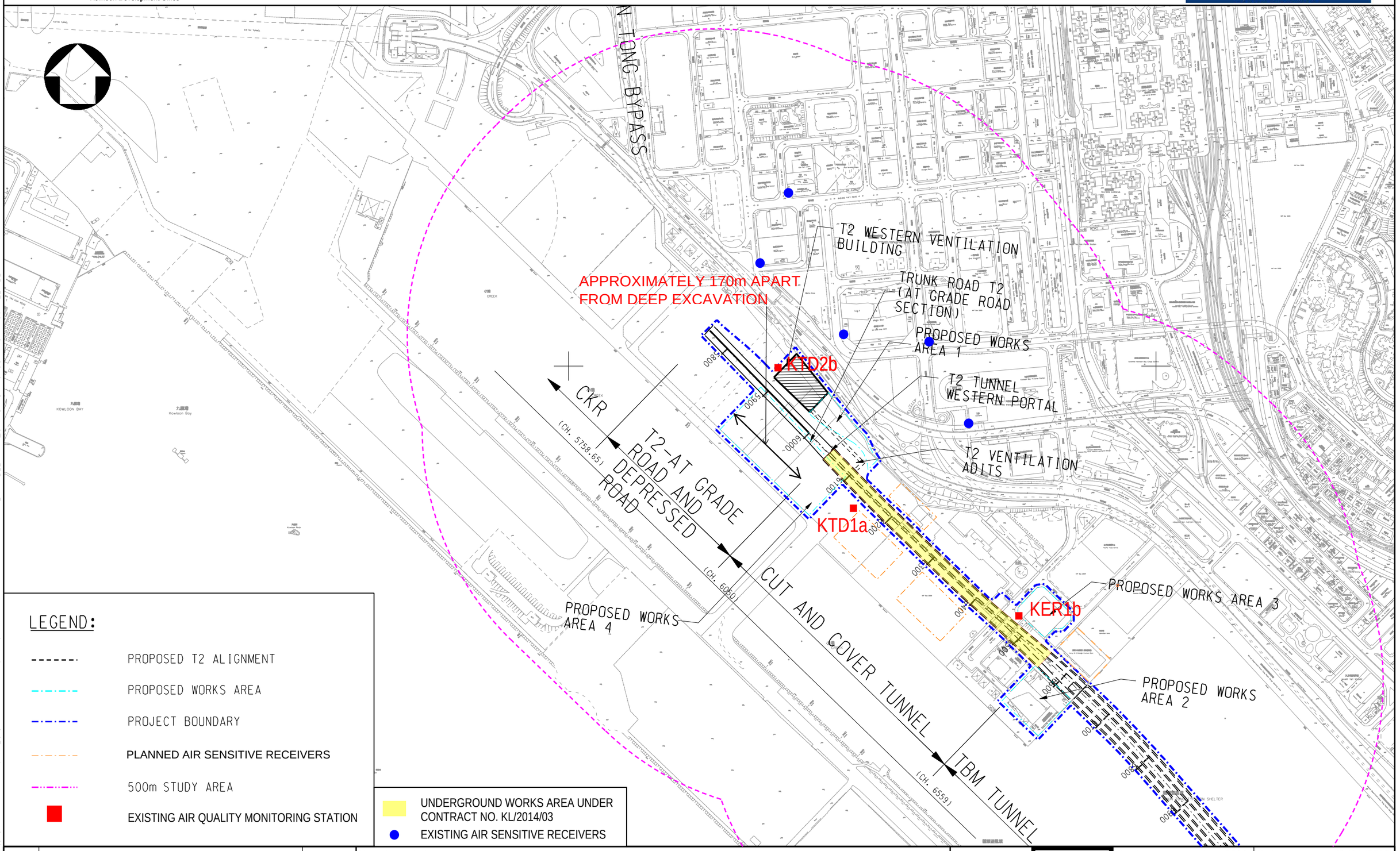
Kowloon Development Office

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

Drawing No.: FIGURE 2.1a (revised)

Rev.: --

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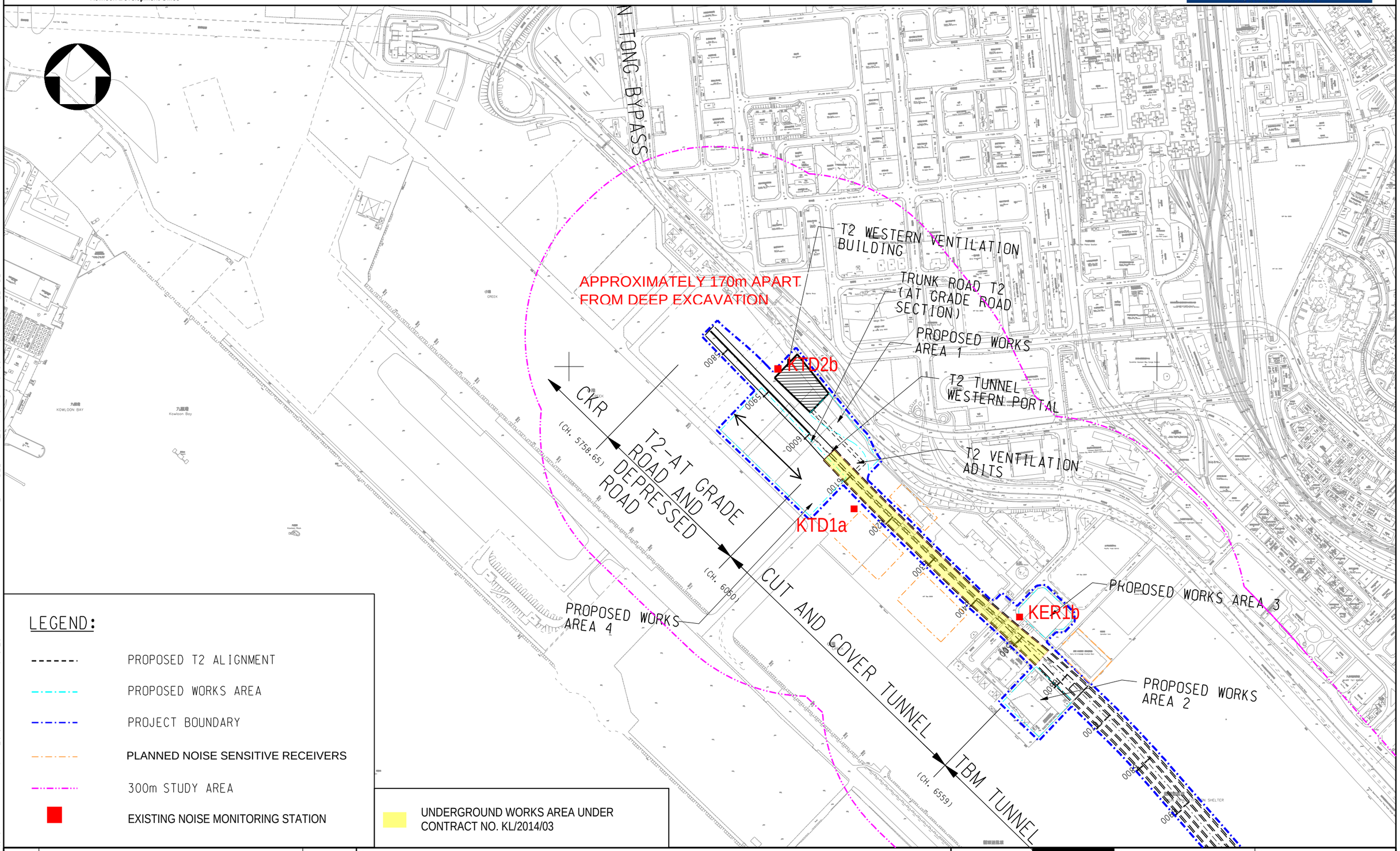
Kowloon Development Office

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 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
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Rev.: --

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Appendix A

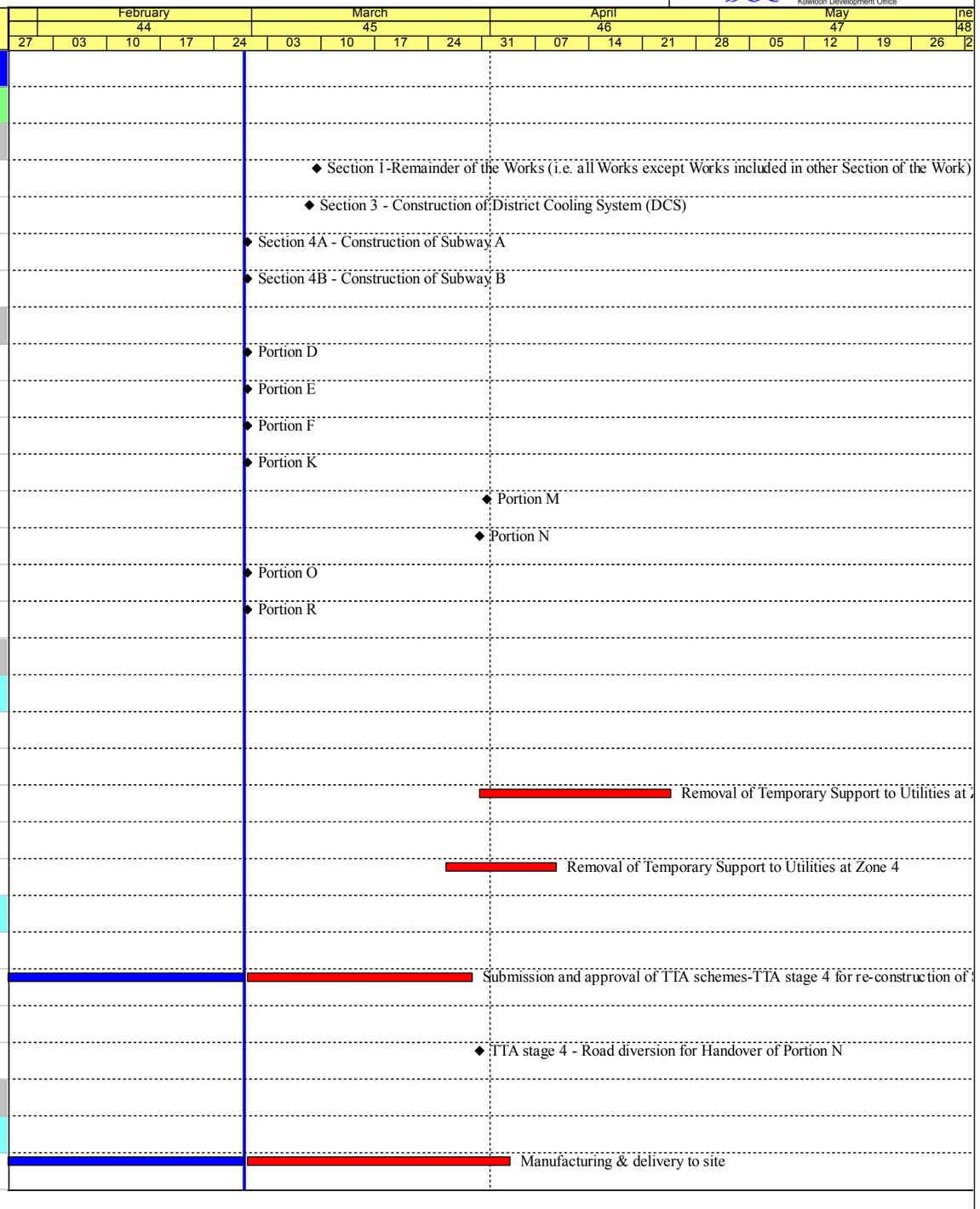
Construction Programme

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
KL/2014/03-Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway				
Project Key Dates				
Project Completion Date				
K-PK-PCD-1000	Section 1-Remainder of the Works (i.e. all Works except Works included in other Section of the Work)	0		09-Mar-19*
K-PK-PCD-1300	Section 3 - Construction of District Cooling System (DCS)	0		08-Mar-19*
K-PK-PCD-1400	Section 4A - Construction of Subway A	0		28-Feb-19*
K-PK-PCD-1500	Section 4B - Construction of Subway B	0		28-Feb-19*
Site Handover Date				
K-PK-SHD-1400	Portion D	0		28-Feb-19*
K-PK-SHD-1500	Portion E	0		28-Feb-19*
K-PK-SHD-1600	Portion F	0		28-Feb-19*
K-PK-SHD-1900	Portion K	0		28-Feb-19*
K-PK-SHD-2000	Portion M	0		31-Mar-19*
K-PK-SHD-2100	Portion N	0		30-Mar-19*
K-PK-SHD-2200	Portion O	0		28-Feb-19*
K-PK-SHD-2500	Portion R	0		28-Feb-19*
General Submission				
Temporary Utility Diversion Works				
Temporary Diversion for Watermain Works				
Laying Proposed (Fresh) Watermain				
K-PA-TUD-2152	Removal of Temporary Support to Utilities at Zone 1	25	30-Mar-19	24-Apr-19
Temporary Diversion for CLP Cable at CH6+560				
K-PA-TUD-4100	Removal of Temporary Support to Utilities at Zone 4	15	26-Mar-19	09-Apr-19
Temporary Traffic Management				
Temp Traffic Arrangement Schemes				
K-PA-TTA-8950	Submission and approval of TTA schemes-TTA stage 4 for re-construction of Shing Cheong Road	30	31-Dec-18 A	29-Mar-19
Implementation of Temporary Traffic Arrangement				
K-PA-TTA-4400	TTA stage 4 - Road diversion for Handover of Portion N	0		30-Mar-19
Materials Procurement (Major Materials)				
Water Works				
K-PA-MP-1050	Manufacturing & delivery to site	35	20-Aug-18 A	03-Apr-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 Mar 2019 - May 2019

Project ID :39 3MRP Mar - May 19
Layout : KL201403 3MRP

3 Months Rolling Programme

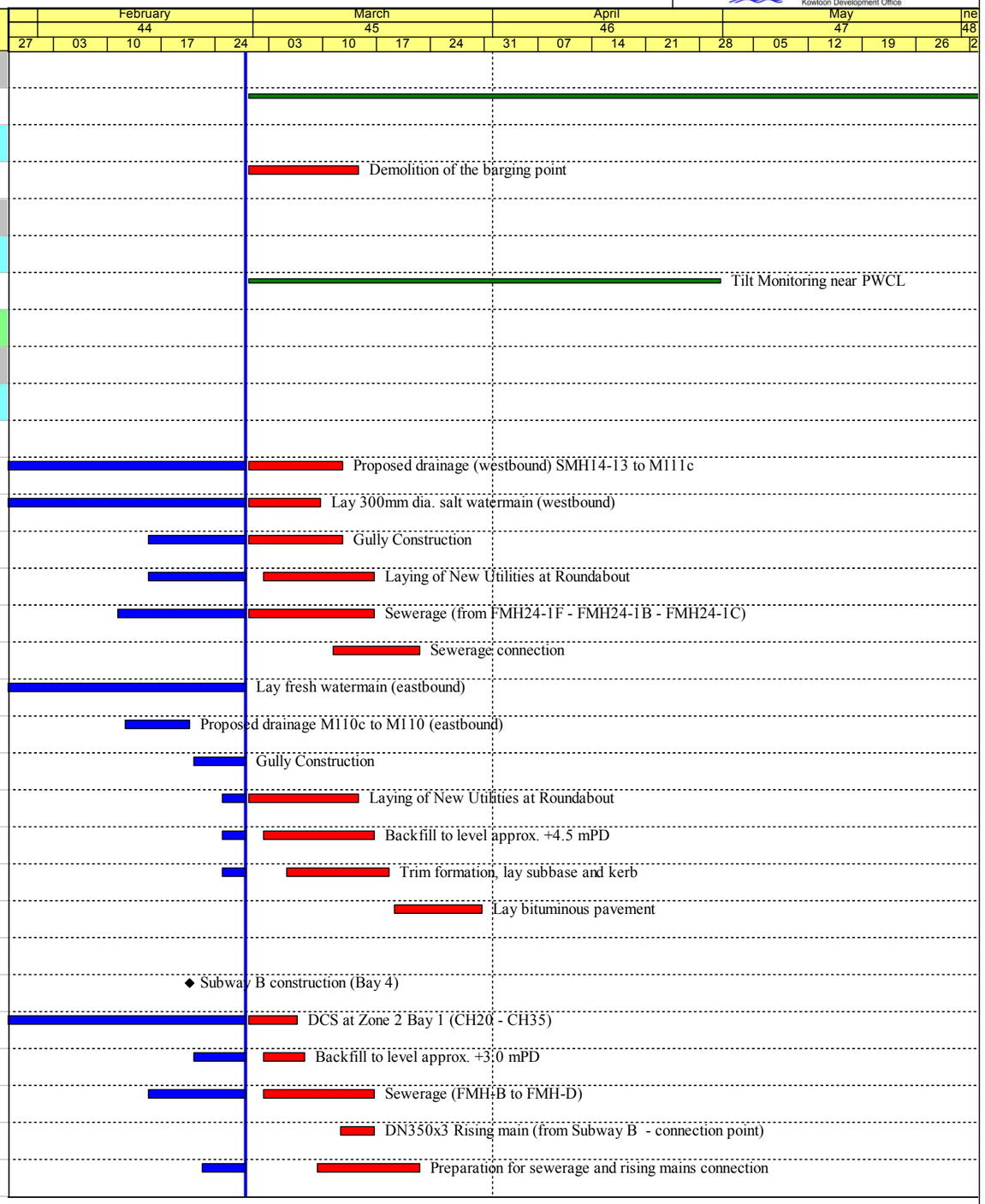
Date	Revision	Checked	Approved
28-Feb-19	Mar 19 - May 19		

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
Prelimiaries				
K-DR-PRE-1800	Submission of time-lapsed photographs and video	223	20-Feb-16 A	08-Oct-19
Barge Loading Facilities				
K-DR-PRE-1485	Demolition of the barging point	13	28-Feb-19	14-Mar-19
Instrumentation and Monitoring				
Tilt Monitoring Tile Plates				
K-IM-TMT-1000	Tilt Monitoring near PWCL	62	25-Apr-16 A	30-Apr-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				
SCR1045	Proposed drainage (westbound) SMH14-13 to M111c	11	14-Jan-19 A	12-Mar-19
SCR1050	Lay 300mm dia. salt watermain (westbound)	9	19-Jan-19 A	09-Mar-19
SCR1060	Gully Construction	11	15-Feb-19 A	12-Mar-19
SCR1085	Laying of New Utilities at Roundabout	13	15-Feb-19 A	16-Mar-19
SCR1135	Sewerage (from FMH24-1F - FMH24-1B - FMH24-1C)	15	11-Feb-19 A	16-Mar-19
SCR1137	Sewerage connection	11	11-Mar-19	22-Mar-19
SCR1139	Lay fresh watermain (eastbound)	0	26-Dec-18 A	28-Feb-19 A
SCR1160	Proposed drainage M110c to M110 (eastbound)	0	12-Feb-19 A	20-Feb-19 A
SCR1170	Gully Construction	0	21-Feb-19 A	28-Feb-19 A
SCR1180	Laying of New Utilities at Roundabout	13	25-Feb-19 A	14-Mar-19
SCR1182	Backfill to level approx. +4.5 mPD	13	25-Feb-19 A	16-Mar-19
SCR1190	Trim formation, lay subbase and kerb	12	25-Feb-19 A	18-Mar-19
SCR1200	Lay bituminous pavement	11	19-Mar-19	30-Mar-19
Shing Fung Road R & D Works (Stage 1)				
SCR1250	Subway B construction (Bay 4)	0		20-Feb-19 A
SCR1260	DCS at Zone 2 Bay 1 (CH20 - CH35)	6	15-Nov-18 A	06-Mar-19
SCR1262	Backfill to level approx. +3.0 mPD	5	21-Feb-19 A	07-Mar-19
SCR1265	Sewerage (FMH-B to FMH-D)	13	15-Feb-19 A	16-Mar-19
SCR1280	DN350x3 Rising main (from Subway B - connection point)	5	12-Mar-19	16-Mar-19
SCR1290	Preparation for sewerage and rising mains connection	12	22-Feb-19 A	22-Mar-19



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

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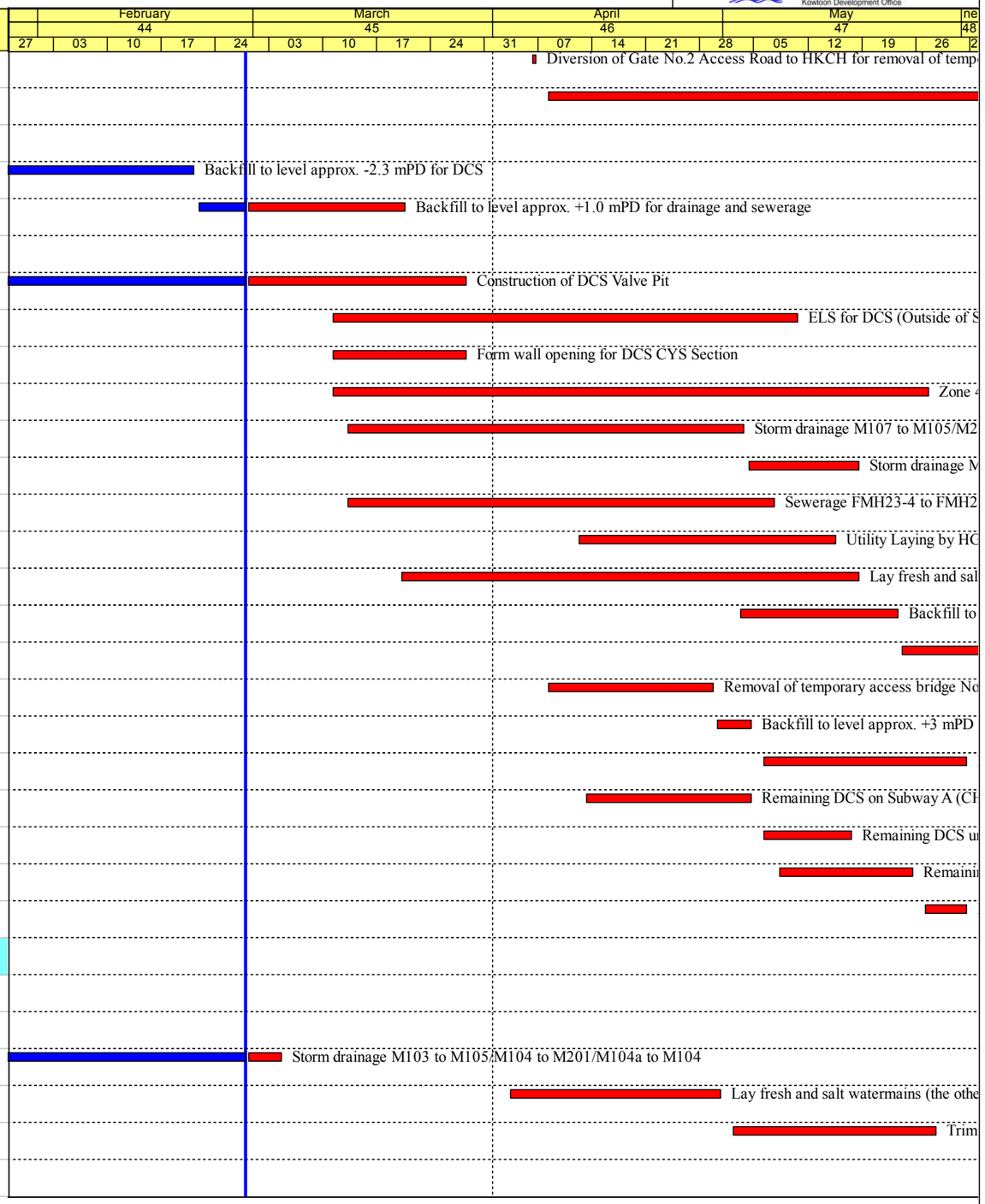
Activity ID	Activity Name	Rem Dur	Start	Finish
SCR1295	Lay fresh and salt watermains	15	02-Mar-19	19-Mar-19
SCR1300	Proposed drainage (westbound) SMH14-13 to SMH14-14	6	11-Mar-19	16-Mar-19
SCR1303	Lay new UU at roundabout	8	14-Mar-19	22-Mar-19
SCR1310	Backfill to formation	4	18-Mar-19	21-Mar-19
SCR1320	Trim formation, lay subbase and kerb	8	15-Mar-19	23-Mar-19
SCR1330	Lay bituminous pavement	6	25-Mar-19	30-Mar-19
SCR1340	Shift traffic away from Portion N and Handover portion N	0	30-Mar-19	
Zone 1 & 2 and Shing Fung Road R & D Works (Stage 2) CH410-CH340				
SCR1350	Removal of temporary decking and temporary road pavement	11	01-Apr-19	13-Apr-19
SCR1360	Additional DCS CH -6 to 0	44	01-Apr-19	28-May-19
SCR1380	Lay salt watermains	27	15-Apr-19	21-May-19
SCR1390	Salt watermain connection	17	22-May-19	12-Jun-19
SCR1400	Lay fresh watermains	44	15-Apr-19	12-Jun-19
SCR1420	Proposed drainage M112 to M118 and gullies	20	01-Apr-19	27-Apr-19
SCR1430	Lay new UU at roundabout	22	29-Apr-19	25-May-19
SCR1440	Trim formation, lay subbase and kerb	27	29-Apr-19	01-Jun-19
Zone 3 R & D Works (Stage 1) CH340 to CH270 - For shifting of gate no. 1				
SCR1660	Lay 300mm dia. salt watermain (westbound)	0	13-Feb-19 A	18-Feb-19 A
SCR1670	Lay new UU across Gate 1	3	04-Feb-19 A	02-Mar-19
SCR1680	Proposed drainage M110 to M109 (eastbound)	0	04-Feb-19 A	19-Feb-19 A
SCR1685	Backfilling to Formation	0	20-Feb-19 A	23-Feb-19 A
SCR1690	Proposed drainage M109d to M109c (eastbound)	0	21-Feb-19 A	25-Feb-19 A
SCR1695	Gully Construction	0	23-Feb-19 A	26-Feb-19 A
SCR1700	Lay 600mm dia. fresh watermain (eastbound)	0	23-Feb-19 A	28-Feb-19 A
SCR1702	Trim formation, lay subbase and kerb	6	28-Feb-19 A	09-Mar-19
SCR1705	Lay bituminous pavement	9	11-Mar-19	20-Mar-19
SCR1710	Permanent pavement and preparation works for road shifting	3	21-Mar-19	23-Mar-19
Zone 3 R & D Works (Stage 2) CH270 to 190				
SCR1820	Backfill to level approx. +4.5 mPD to formation level	7	02-Feb-19 A	07-Mar-19
SCR1830	Trim formation, lay subbase and kerb	12	08-Mar-19	21-Mar-19
SCR1840	Lay bituminous pavement	12	22-Mar-19	04-Apr-19

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
SCR1850	Diversion of Gate No.2 Access Road to HKCH for removal of temporary bridge No.2	1	06-Apr-19	06-Apr-19
SCR1860	Carry out and complete remaining works	135	08-Apr-19	27-Sep-19
	Zone 4 SUS			
SCR1890	Backfill to level approx. -2.3 mPD for DCS	0	14-Jan-19 A	21-Feb-19 A
SCR1900	Backfill to level approx. +1.0 mPD for drainage and sewerage	18	22-Feb-19 A	20-Mar-19
	Zone 4 R & D Works			
SCR1980	Construction of DCS Valve Pit	25	10-Aug-18 A	28-Mar-19
SCR1990	ELS for DCS (Outside of SUS)	48	11-Mar-19	10-May-19
SCR2000	Form wall opening for DCS CYS Section	16	11-Mar-19	28-Mar-19
SCR2010	Zone 4 DCS Works (CH270 - CH330 & CYS Section)	61	11-Mar-19	27-May-19
SCR2020	Storm drainage M107 to M105/M204 to M201	40	13-Mar-19	03-May-19
SCR2030	Storm drainage M202a to M202/M106c to M106 and gullies	12	04-May-19	18-May-19
SCR2040	Sewerage FMH23-4 to FMH23-3 and FMH23-1 to FMH23-2	43	13-Mar-19	07-May-19
SCR2042	Utility Laying by HGC, TGT, PCCW, HKBN, CT, PCCW, Wharf T&T, Towngas, CLP, ect	24	12-Apr-19	15-May-19
SCR2050	Lay fresh and salt watermains	46	20-Mar-19	18-May-19
SCR2060	Backfill to level approx. +4.5 mPD to formation level	17	03-May-19	23-May-19
SCR2070	Trim formation, lay subbase and kerb	16	24-May-19	13-Jun-19
SCR2090	Removal of temporary access bridge No.2 to HKCH	16	08-Apr-19	29-Apr-19
SCR2092	Backfill to level approx. +3 mPD to formation level	4	30-Apr-19	04-May-19
SCR2095	Remaining Fresh and Salt Watermain	22	06-May-19	01-Jun-19
SCR2099	Remaining DCS on Subway A (CH285-CH315)	15	13-Apr-19	04-May-19
SCR2100	Remaining DCS under temporary bridge No.2 (CH270-CH285)	10	06-May-19	17-May-19
SCR2105	Remaining storm drainage (both gate 2 and subway A)	15	08-May-19	25-May-19
SCR2130	Backfill to level approx. +4.0 mPD (formation level)	5	27-May-19	01-Jun-19
	Road D4-4 (Cheung Yip Street)			
	CH100 to CH150 Cheung Yip Street Cul de Sac			
	Cheung Yip Street Cul de Sac			
SCR2620	Storm drainage M103 to M105/M104 to M201/M104a to M104	4	07-Jan-19 A	04-Mar-19
SCR2635	Lay fresh and salt watermains (the other half of cul de sac)	20	03-Apr-19	30-Apr-19
SCR2640	Trim formation, lay subbase and kerb (the other half of cul de sac)	22	02-May-19	28-May-19
	CH220 - CH420 Southbound			



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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
	Part 2			
	Sewerage Works			
SCR3650	Excavation of Sewerage Pipe and FMH23-16A to FMH23-17 (Part 3)	10	25-Feb-19 A	11-Mar-19
SCR3660	Laying Sewerage Pipe and Construction of FMH23-17 (Part 3)	18	12-Mar-19	01-Apr-19
SCR3670	Backfilling Sewerage Pipe and FMH23-17 (Part 3)	5	02-Apr-19	08-Apr-19
	Road Works			
SCR3700	Temporary Road Diversion for Construction of Intersection of Lam Chek Street	3	09-Apr-19	11-Apr-19
SCR3710	Construction of Intersection of Lam Chek Street	16	12-Apr-19	04-May-19
SCR3720	Temporary Road Construction for Manhole M205 to M206	5	06-May-19	10-May-19
	Part 3			
	Laying of Drainage Pipe and Construction of Manhole			
SCR3680	Excavation of Drainage Pipe and Manhole (M205 to M206)	6	11-May-19	18-May-19
SCR3690	Laying Drainage Pipe and Construction Manhole	15	20-May-19	06-Jun-19
	Section 1A of the Works -Construction of Supporting Underground Structure			
	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)			
A2760	Demolition of Dwall (120mL)	12	21-Mar-19	01-Apr-19
	Bay 14 (Top Slab)			
A2860	Backfilling Works to S1 (3370m3) @400m3 (H)	0	20-Jan-19 A	19-Feb-19 A
A2870	Demolition of Dwall (100mL)	30	01-Apr-19	30-Apr-19
	Miscellaneous Works			
K-1A-MWS-1000	Miscellaneous works - Removal of SUS Flasework, Formwork and dismantling of struts inside SUS	5	03-Jan-19 A	14-Mar-19
K-1A-MWS-1005	Miscellaneous works - Construction of mass concrete and other remaining works	35	15-Jan-19 A	13-Apr-19
K-1A-MWS-1010	Miscellaneous works - SUS structure Defect works and Remedial works	90	16-Feb-19 A	12-Jul-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			
SCR2775	Installation of DCS at Zone 2 Bay 1 (CH20 - CH35)	0	15-Nov-18 A	27-Feb-19 A
SCR2780	Additional DCS CH -6 to 0	44	01-Apr-19	28-May-19
	Construction of DCS Works at Zone 3			

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

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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
SCR2790	Zone 3 DCS (3 x 900) (DP4 to DP5)	3	18-Dec-18 A	02-Mar-19
Construction of DCS Works at Zone 4				
SCR2321	Construction of DCS Valve Pit	14	10-Aug-18 A	15-Mar-19
SCR2323	ELS for DCS (Outside of SUS)	48	11-Mar-19	10-May-19
SCR2325	Form wall opening for DCS CYS Section	16	11-Mar-19	28-Mar-19
SCR2328	Zone 4 DCS Works (CH315 - CH336 & CYS Section)	81	11-Mar-19	21-Jun-19
SCR2329	Zone 4 DCS Works (CH270 - CH315)	25	13-Apr-19	17-May-19
Section 4A of the Works-Construction of Subway A (Subject to Excision)				
Bay 1 to Bay 3				
SCR1942	ELS for Subway A Bay 1 (east of D-wall)	0	23-Jan-19 A	18-Feb-19 A
SCR1950	Breaking through of D-wall at EB	0	23-Jan-19 A	25-Feb-19 A
SCR1952	Base slab of bay 1	6	27-Feb-19 A	06-Mar-19
SCR1955	Wall and top slab of bay 1,2 & 3	18	02-Mar-19	22-Mar-19
SCR1963	ELS for Subway A Bay 3 (Stage 2 - remaining works)	0	19-Jan-19 A	25-Feb-19 A
SCR1965	Breaking through of D-wall at WB	7	28-Jan-19 A	07-Mar-19
SCR1967	Base slab of bay 5	6	08-Mar-19	14-Mar-19
SCR1971	Wall and top slab of bay 4 and bay 5	14	15-Mar-19	30-Mar-19
SCR1973	Waterproofing works	5	01-Apr-19	06-Apr-19
SCR1975	Backfilling works from Bay 1 to Bay 5	5	08-Apr-19	12-Apr-19
SCR1978	Miscellaneous works of Subway A (internal remedial works)	70	13-Apr-19	12-Jul-19
Section 4B of the Works- Construction of Subway B (Subject to Excision)				
Bay 3 & 4				
K-4B-BAY-3370	Backfilling Works (Bay 4)	0	15-Feb-19 A	20-Feb-19 A
K-4B-BAY-3380	Miscellaneous works of Subway B (internal remedial works)	53	21-Feb-19 A	06-May-19
Section 5 of the Works-Completion of All Landscape Softworks				
K-05-LCS-1000	Procurement of plant species	90	28-Feb-19	28-May-19
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	236	04-Jan-16 A	21-Oct-19
Sections Completion Date				
K-PK-SCC-2400	Completion of Section 4B-Construction of Subway B	0		06-May-19

FUGRO TECHNICAL SERVICES LIMITED

Fugro Development Centre,
5 Lok Yi Street, Tai Lam,
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E-mail : matlab@fugro.com
Website : www.fugro.com

Appendix B

Project Organization Chart

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre,
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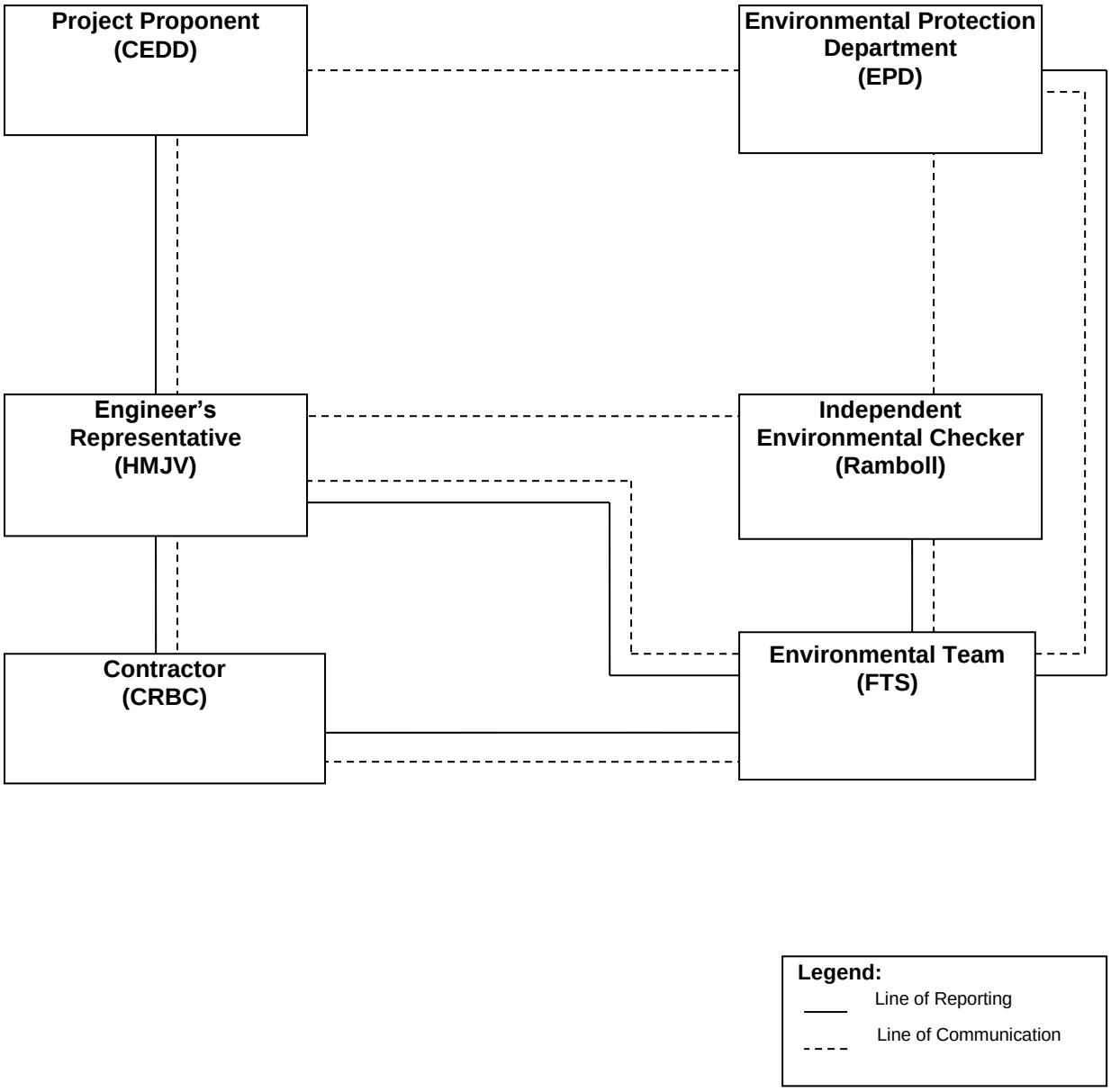

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Appendix C

Action and Limit Levels for Air Quality and Noise

FUGRO TECHNICAL SERVICES LIMITED
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Website : www.fugro.com

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

TISCH Environmental

RECALIBRATION DUE DATE:
October 17, 2019

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	October 17, 2018	**Rootsmeter S/N:** 438320	**Ta:** 294	°K	
Operator:	Jim Tisch		**Pa:** 755.7	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2154**			

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4590	3.2	2.00
2	3	4	1	1.0410	6.4	4.00
3	5	6	1	0.9310	7.9	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7320	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)
1.0035	0.6878	1.4197	0.9958	0.6825	0.8821
0.9993	0.9599	2.0078	0.9915	0.9525	1.2475
0.9973	1.0712	2.2448	0.9895	1.0629	1.3948
0.9961	1.1268	2.3543	0.9884	1.1180	1.4628
0.9909	1.3536	2.8394	0.9832	1.3432	1.7642
QSTD	**m=**	**2.13015**	**QA**	**m=**	**1.33386**
	b=	**-0.04186**		**b=**	**-0.02601**
	r=	**0.99996**		**r=**	**0.99996**

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

MATERIALAB CONSULTANTS LIMITED
Room 723 & 725, 7/F, Block B,
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1-15 Kwai Fung Crescent, Kwai Fong,
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Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07 — Date of Calibration: 29-Dec-18
Location : KTD2b — Next Calibration Date: 28-Mar-19
Brand: Tisch — Technician: Felix Fong
Model: TE-5170 S/N: 3838

CONDITIONS

Sea Level Pressure (hPa):	1026.1	Corrected Pressure (mm Hg):	770
Temperature (°C):	16	Temperature (K):	289

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.13015
Model:	TE-5025A	Qstd Intercept:	-0.04186
Calibration Date:	17-Oct-18	Expiry Date:	17-Oct-19
S/N:	2154		

CALIBRATIONS

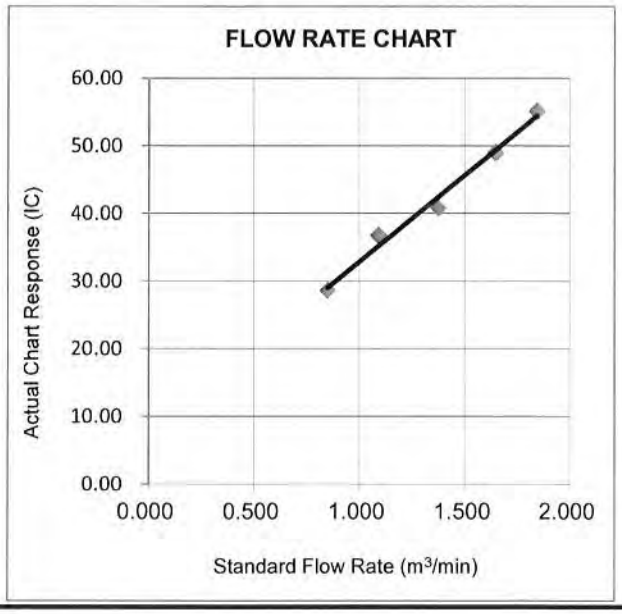
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	11.00	-3.50	14.500	1.845	54.00	55.15	Slope =	25.5771
13	10.50	-1.00	11.500	1.646	48.00	49.02	Intercept =	7.2498
10	8.00	0.00	8.000	1.376	40.00	40.85	Corr. coeff.=	0.9932
7	6.50	1.50	5.000	1.092	36.00	36.77		
5	5.50	2.50	3.000	0.850	28.00	28.60		

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: 1st January, 2019

CHOI KAM HO
Project Consultant

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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: 29-Dec-18
Location : KTD1a
Next Calibration Date: 28-Mar-19
Brand: Tisch
Technician: Felix Fong
Model: TE-5170 S/N: 4037

CONDITIONS

Sea Level Pressure (hPa):	1026.1	Corrected Pressure (mm Hg):	770
Temperature (°C):	16	Temperature (K):	289

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.13015
Model:	TE-5025A	Qstd Intercept:	-0.04186
Calibration Date:	17-Oct-18	Expiry Date:	17-Oct-19
S/N:	2154		

CALIBRATIONS

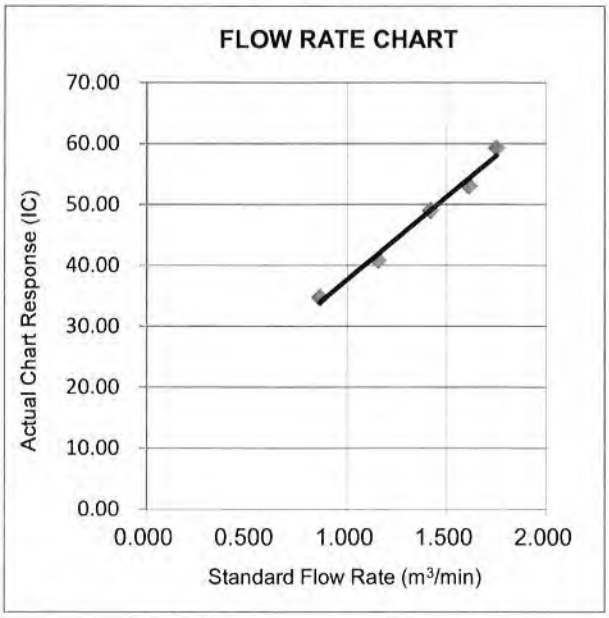
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	10.00	-3.00	13.000	1.749	58.00	59.27	Slope =	27.2293
13	9.50	-1.50	11.000	1.611	52.00	53.14	Intercept =	10.3971
10	8.50	0.00	8.500	1.418	48.00	49.05	Corr. coeff.=	0.9942
7	6.80	1.20	5.600	1.155	40.00	40.87		
5	5.20	2.10	3.100	0.864	34.00	34.74		

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



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Report Date: 1st January, 2019

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MaterialLab

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Project : Environmantal Monitoring Works For Contract No. KLN/2015/07
Date of Calibration: 29-Dec-18
Location : KER1b
Next Calibration Date: 28-Mar-19
Brand: Tisch
Technician: Felix Fong
Model: TE-5170 S/N: 3482

CONDITIONS

Sea Level Pressure (hPa):	1026.1	Corrected Pressure (mm Hg):	770
Temperature (°C):	16	Temperature (K):	289

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.13015
Model:	TE-5025A	Qstd Intercept:	-0.04186
Calibration Date:	17-Oct-18	Expiry Date:	17-Oct-19
S/N:	2154		

43755

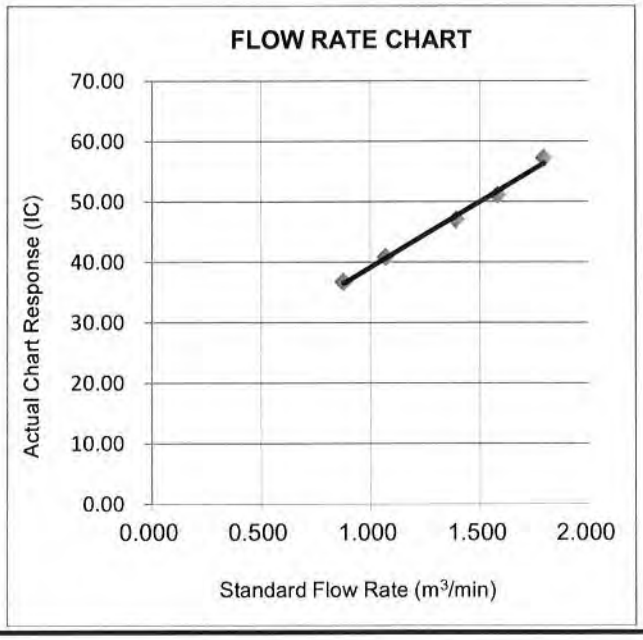
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m^3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION	
18	10.50	-3.20	13.700	1.795	56.00	57.22	Slope =	21.6783
13	9.00	-1.60	10.600	1.581	50.00	51.09	Intercept =	17.4679
10	8.40	0.20	8.200	1.393	46.00	47.01	Corr. coeff.=	0.9967
7	6.60	1.80	4.800	1.071	40.00	40.87		
5	5.40	2.20	3.200	0.878	36.00	36.79		

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: 1st January, 2019

Certificate of Conformity and Calibration

Instrument Model:-	**CEL-633A**		
Serial Number	1488269		
Firmware revision	V006-03		
Microphone Type:-	**CEL-251**	**Preamplifier Type:-**	**CEL-495**
Serial Number	2869	Serial Number	004065
Instrument Class/Type:-	1		

Applicable standards:-

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

Note:- The test sequences performed in this report are in accordance with the current Sound level meter *Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

Test Conditions:-	30 °C	**Test Engineer:-**	Chris Taylor
	58 %RH	**Date of Issue:-**	September 7, 2018
	1003 mBar		

Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2008 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

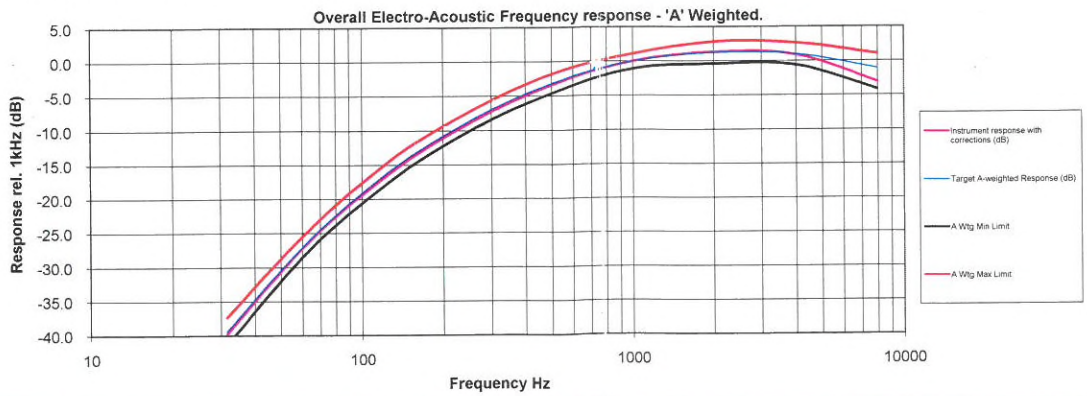
Test Summary:-

Self Generated Noise Test	**All Tests Pass**
Electrical Signal Test Of Frequency Weightings	**All Tests Pass**
Frequency & Time Weightings At 1 kHz	**All Tests Pass**
Level Linearity On The Reference Level Range	**All Tests Pass**
Toneburst Response Test	**All Tests Pass**
C-peak Sound Levels	**All Tests Pass**
Overload Indication	**All Tests Pass**
Acoustic Tests	**All Tests Pass**

Combined Electro-Acoustic Frequency Response - A Weighted

Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)

The following A-Weighted frequency response graph shows this instruments overall frequency response based upon the application of multi-frequency pressure field calibrations. The microphones Pressure to Free field correction coefficients are applied to pressure response. Reference level taken at 1kHz.



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Casella Australia
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Email: australia@casellasolutions.com

Tested to CEL-63X test sheet TP444 revision 01-00

Certificate of Conformity and Calibration

Instrument Model:-	**CEL-633A**		
Serial Number	1488306		
Firmware revision	V006-03		
Microphone Type:-	**CEL-251**	**Preamplifier Type:-**	**CEL-495**
Serial Number	2874	Serial Number	003930
Instrument Class/Type:-	**1**		

Applicable standards:-

IEC 61672: 2002 / EN 60651 (Electroacoustics - Sound Level Meters)
IEC 60651 1979 (Sound Level Meters), ANSI S1.4: 1983 (Specifications For Sound Level Meters)

Note:- The test sequences performed in this report are in accordance with the current Sound level meter *Standard - IEC61672. The combination of tests performed are considered to confirm the products electro-acoustic performance to all applicable standards including superceeded Sound Level Meter Standards - IEC60651 and IEC60804.*

Test Conditions:-	31 °C	**Test Engineer:-**	Chris Taylor
	51 %RH	**Date of Issue:-**	September 7, 2018
	1000 mBar		

Declaration of conformity:-

This test certificate confirms that the instrument specified above has been successfully tested to comply with the manufacturer's published specifications. Tests are performed using equipment traceable to national standards in accordance with Casella's ISO 9001:2008 quality procedures. This product is certified as being compliant to the requirements of the CE Directive.

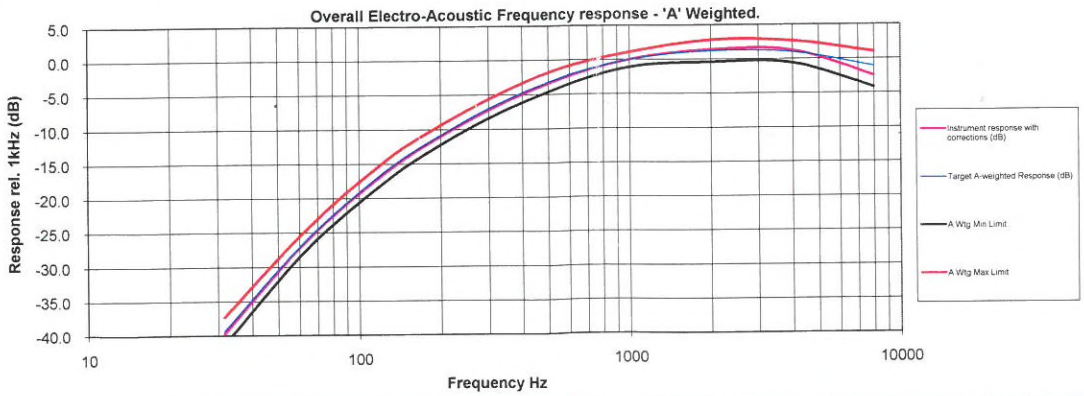
Test Summary:-

Self Generated Noise Test	**All Tests Pass**
Electrical Signal Test Of Frequency Weightings	**All Tests Pass**
Frequency & Time Weightings At 1 kHz	**All Tests Pass**
Level Linearity On The Reference Level Range	**All Tests Pass**
Toneburst Response Test	**All Tests Pass**
C-peak Sound Levels	**All Tests Pass**
Overload Indication	**All Tests Pass**
Acoustic Tests	**All Tests Pass**

Combined Electro-Acoustic Frequency Response - A Weighted

Combined Electro-Acoustic Frequency Response - A Weighted (IEC 61672-3:2006)

The following A-Weighted frequency response graph shows this instruments overall frequency response based upon the application of multi-frequency pressure field calibrations. The microphones Pressure to Free field correction coefficients are applied to pressure response. Reference level taken at 1kHz.



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Tested to CEL-63X test sheet TP444 revision 01-00

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MateriaLab

Report no.: 183057CA185248

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 CEL-120/1)
Serial No.	:	4358250
Equipment ID	:	N/A
Next Calibration Date	:	02-Jul-2019
Specification Limit	:	EN 60942: 2003 Type 1

Laboratory Information

Description	:	Reference Sound level meter
Equipment ID.	:	R-119-1
Date of Calibration :	03-Jul-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	0.0 dB	±0.4dB
114dB	0.1 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 : William Date : 10-7-2018 Certified by : Date : 14.7.2018

CA-R-297 (22/07/2009)

Chan Chun Wai (Manager)

** End of Report **

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MateriaLab

Report no.: 183057CA185228(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 CEL-120/1)
Serial No.	:	4358251
Equipment ID	:	N/A
Next Calibration Date	:	25-Jun-2019
Specification Limit	:	EN 60942: 2003 Type 1

Laboratory Information

Description	:	Reference Sound level meter
Equipment ID.	:	R-119-1
Date of Calibration :	26-Jun-2018	Ambient Temperature : 22 °C
Calibration Location :	Calibration Laboratory of MateriaLab	
Method Used	:	By direct comparison

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	-0.1 dB	±0.4dB
114dB	-0.1 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 : William Date : 28-6-2018 Certified by : [signature] Date : 4.7.2018

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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Website : www.fugro.com

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

Impact Monitoring Schedule (March 2019)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1	2
3	4	5 TSP Monitoring Noise Monitoring	6	7	8	9
10	11 TSP Monitoring Noise Monitoring	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
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.

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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 (April 2019)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
	1	2	3 TSP Monitoring Noise Monitoring	4	5	6
7	8	9 TSP Monitoring Noise Monitoring	10	11	12	13
14	15 TSP Monitoring Noise Monitoring	16	17	18 TSP Monitoring Noise Monitoring	19	20
21	22	23	24 TSP Monitoring Noise Monitoring	25	26	27
28	29	30 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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Project: **KL/2014/03 - Kai Tak Development – Stage 3 Infrastructure Works for Developments at the Southern Part of the Former Runway**

Impact Monitoring Schedule (May 2019)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			1	2	3	4
5	6 TSP Monitoring Noise Monitoring	7	8	9	10	11 TSP Monitoring Noise Monitoring
12	13	14	15	16	17 TSP Monitoring Noise Monitoring	18
19	20	21	22	23 TSP Monitoring Noise Monitoring	24	25
26	27	28	29 TSP Monitoring Noise Monitoring	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 (June 2019)

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						

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

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)
5-Mar-19	Fine	295.2	759.1	2.6720	2.8151	0.1431	24	1.19	1.18	1.19	1707.7	84		
11-Mar-19	Fine	295.6	761.2	2.6898	2.7780	0.0882	24	1.19	1.18	1.19	1708.4	52		
16-Mar-19	Fine	293.2	765.1	2.6312	2.7357	0.1045	24	1.20	1.18	1.19	1714.6	61	177	260
22-Mar-19	Cloudy	298.8	759.1	2.6842	2.9313	0.2471	24	1.50	1.51	1.50	2166.6	114		
28-Mar-19	Fine	297.4	759.5	2.6812	2.8910	0.2098	24	1.57	1.57	1.57	2262.7	93		
											Min	52		
											Max	114		
											Average	81		

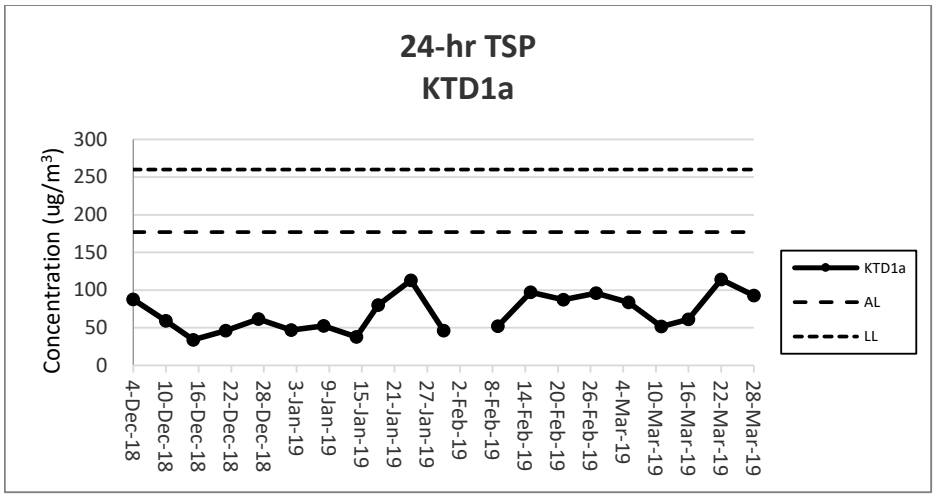
KTD 2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital)

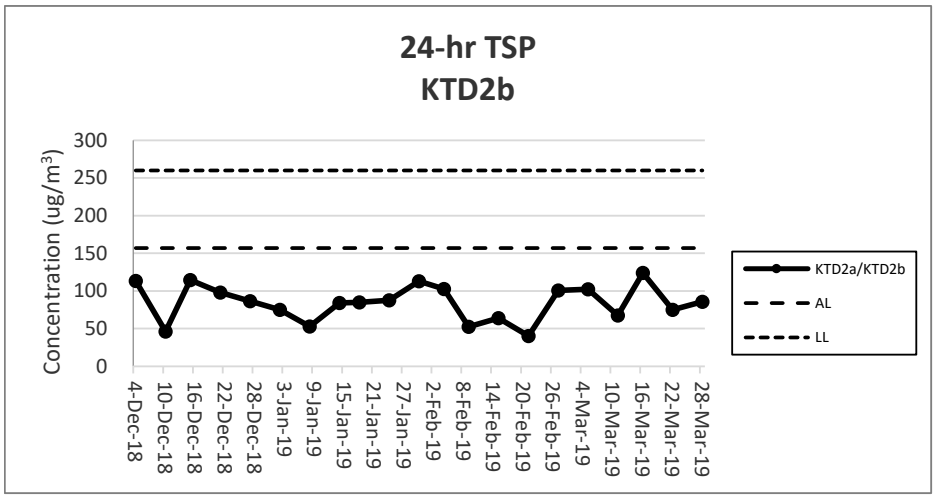
Start Date	Weather Condition	Air Temperature (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Sampling Time(hrs)	Flow Rate (m^3/min.)		Average flow (m^3/min.)	Total volume (m^3)	Conc. (ug/m^3)	Action Level	Limit Level
				Initial	Final			Initial	Final				(ug/m^3)	(ug/m^3)
5-Mar-19	Fine	295.2	759.1	2.6812	2.8588	0.1776	24	1.21	1.20	1.20	1733.9	102		
11-Mar-19	Fine	295.6	761.2	2.6752	2.7924	0.1172	24	1.21	1.20	1.20	1734.7	68		
16-Mar-19	Fine	293.2	765.1	2.6651	2.9339	0.2688	24	1.51	1.49	1.50	2167.0	124	157	260
22-Mar-19	Cloudy	298.8	759.1	2.6250	2.7705	0.1455	24	1.34	1.35	1.35	1938.7	75		
28-Mar-19	Fine	297.4	759.5	2.6708	2.8194	0.1486	24	1.20	1.20	1.20	1730.2	86		
											Min	68		
											Max	124		
											Average	91		

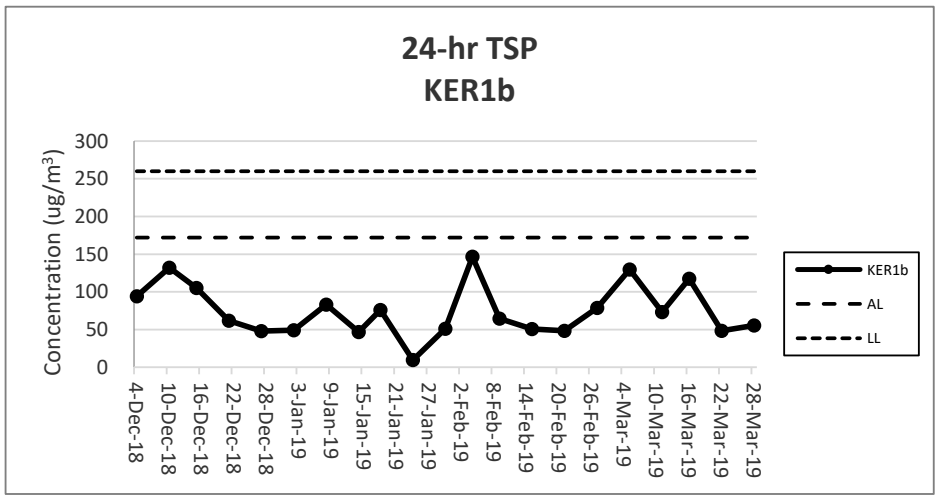
KER1b - Site Boundary at Cheung Yip Street

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)
5-Mar-19	Fine	295.2	759.1	2.6750	2.8584	0.1834	24	0.98	0.98	0.98	1412.4	130		
11-Mar-19	Fine	295.6	761.2	2.6823	2.7856	0.1033	24	0.98	0.98	0.98	1413.0	73		
16-Mar-19	Fine	293.2	765.1	2.6398	2.8484	0.2086	24	1.24	1.23	1.23	1777.0	117	172	260
22-Mar-19	Cloudy	298.8	759.1	2.6728	2.7539	0.0811	24	1.16	1.16	1.16	1673.7	48		
28-Mar-19	Fine	297.4	759.5	2.6975	2.7905	0.0930	24	1.16	1.16	1.16	1676.4	55		
											Min	48		
											Max	130		
											Average	85		

Note:
Underline: Exceedance of Action Level
Underline and Bold: Exceedance of Limit Level
Impact air monitoring was not conducted at KTD1a due to the site was closed on 4 February 2019.







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) Impact air monitoring was not conducted at KTD1a due to the site was closed on 4 February 2019.

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Appendix G

Noise Monitoring Data

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
05-Mar-19	8:57	74	76	73	0.2	Fine
11-Mar-19	9:17	73	75	72	0.2	Fine
16-Mar-19	11:06	69	72	66	1.0	Fine
22-Mar-19	9:17	73	77	67	0.2	Cloudy
28-Mar-19	9:34	71	74	69	0.3	Fine
	Max	74				
	Min	69				
	Limit Level	**75**				

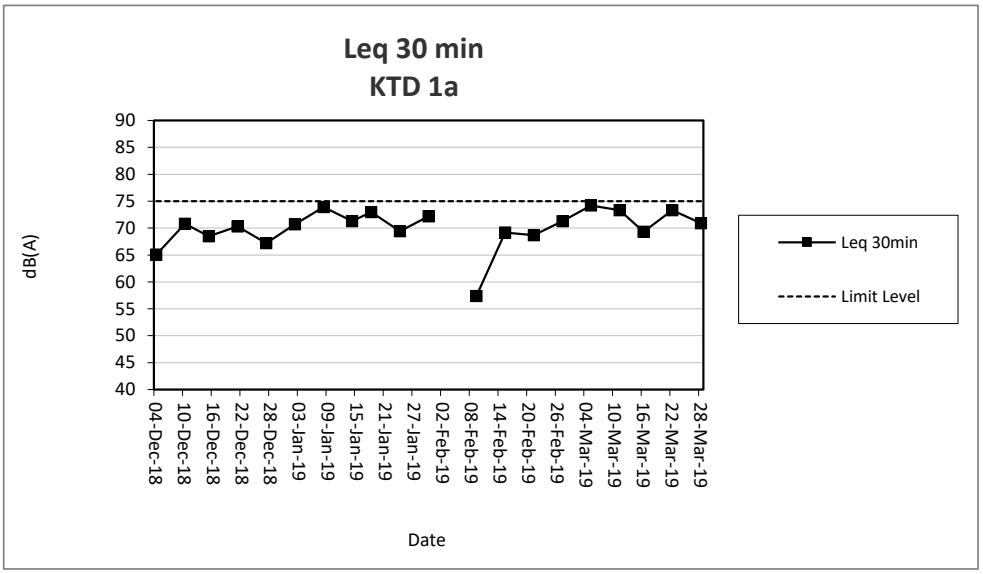
KTD 2b: G/IC Zone next to Kwun Tong Bypass (Next to the site of the New Acute Hospital)

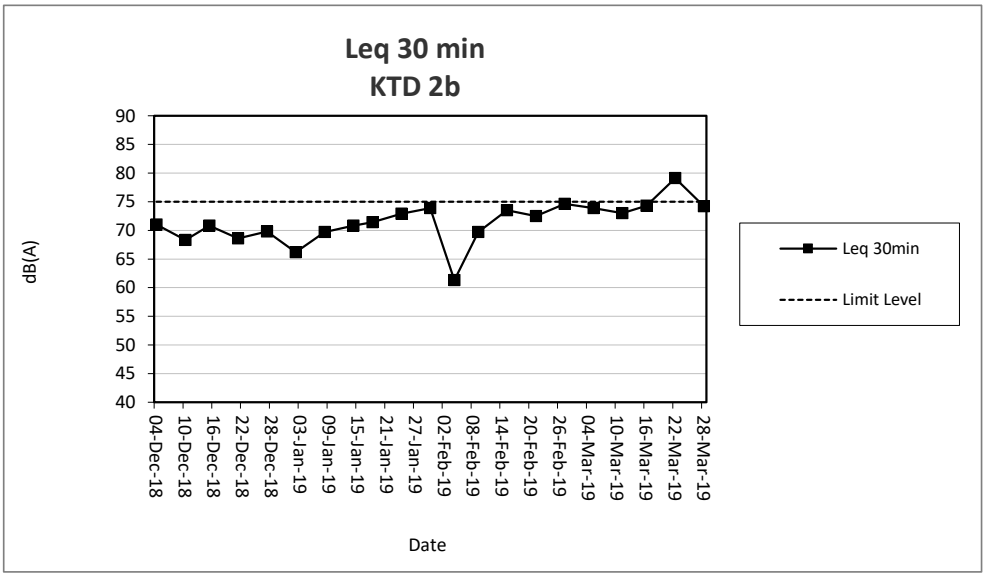
Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
05-Mar-19	9:41	74	76	73	0.3	Fine
11-Mar-19	9:59	73	74	71	0.1	Fine
16-Mar-19	10:18	74	77	72	2.0	Fine
22-Mar-19	10:02	79	80	78	0.3	Cloudy
28-Mar-19	10:45	74	79	73	0.2	Fine
	Max	79				
	Min	73				
	Limit Level	**75**				

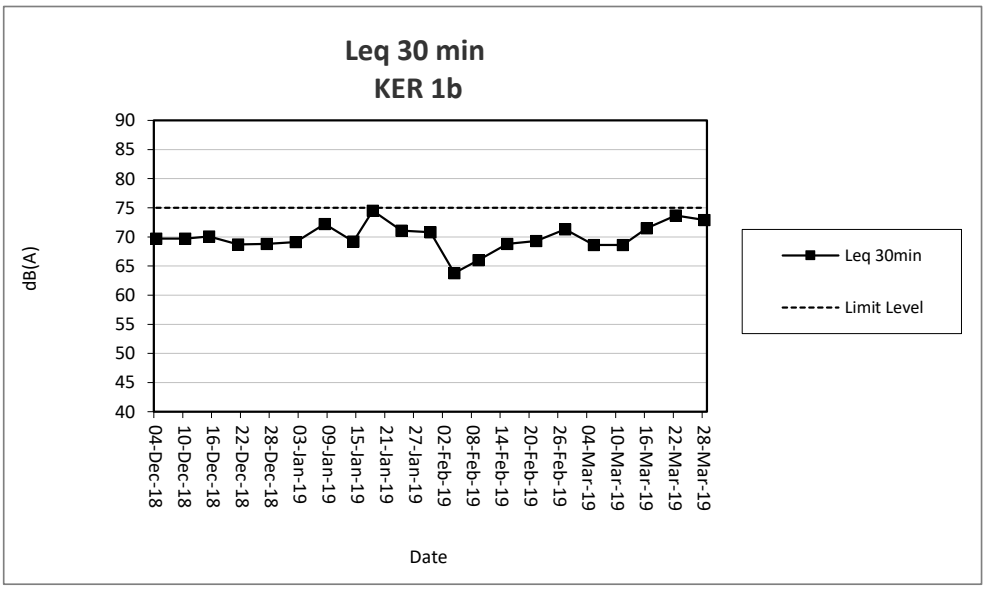
KER 1b: Site Boundary at Cheung Yip Street

Date	Start Time	Leq 30min dB(A)	L10 dB(A)	L90 dB(A)	Wind Speed (m/s)	Weather
05-Mar-19	10:42	69	72	68	0.2	Fine
11-Mar-19	10:42	69	70	64	0.3	Fine
16-Mar-19	9:38	72	74	67	0.8	Fine
22-Mar-19	8:30	74	76	72	0.3	Cloudy
28-Mar-19	8:30	73	74	72	0.4	Fine
	Max	74				
	Min	69				
	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) Impact noise monitoring was not conducted at KTD1a due to the site was closed on 4 February 2019.

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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	0.7291	Nil	Nil	Nil	0.7733	0.0589	Nil	Nil	Nil	Nil	0.0225
2018 Dec	-0.0931	Nil	Nil	Nil	0.3860	0.4791	Nil	Nil	Nil	Nil	0.0228
Total	79.0017	Nil	Nil	Nil	79.5783	0.5913	180.23	Nil	Nil	Nil	0.3614

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 2019

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)
2019 Jan	0.2485	Nil	Nil	Nil	0.7063	0.45774	Nil	Nil	Nil	Nil	0.0100
2019 Feb	0.2790	Nil	Nil	Nil	0.2790	Nil	Nil	Nil	Nil	Nil	0.0076
2019 Mar	0.7376	Nil	Nil	Nil	0.7376	Nil	Nil	Nil	Nil	Nil	0.0929
2019 Apr											
2019 May											
2019 Jun											
2019 Jul											
2019 Aug											
2019 Sep											
2019 Oct											
2019 Nov											
2019 Dec											
Total	1.2651	0	0	0	1.7229	0.45774	0	0	0	0	0.1106

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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		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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		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	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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		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	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)		
March 2019						
1	1016.1	22.4	20.8	19.6	89	0.4
2	1012.7	23.9	21.5	19.9	87	Trace
3	1011.3	23.5	21.5	20.0	87	6.3
4	1013.7	22.6	20.9	19.3	82	10.2
5	1012.1	26.7	22.2	17.7	88	30.3
6	1013.2	22.0	20.5	19.6	92	45.5
7	1015.8	20.5	17.9	15.5	93	29.6
8	1016.0	17.4	16.5	15.1	92	11.5
9	1012.2	18.7	17.8	17.0	95	14.5
10	1013.6	18.5	17.7	17.0	87	4.6
11	1014.9	22.6	18.4	15.5	81	7.6
12	1016.4	24.2	20.1	17.4	77	0.0
13	1017.8	22.9	20.8	19.1	71	0.0
14	1018.3	21.5	20.4	19.8	83	6.4
15	1020.6	20.0	18.7	17.3	81	0.4
16	1020.0	22.8	20.2	18.8	65	0.0
17	1018.9	22.7	20.9	19.7	77	0.0
18	1016.8	24.7	21.7	19.7	82	0.0
19	1014.8	27.4	23.4	20.7	84	0.0
20	1013.0	25.0	23.5	22.1	88	0.0
21	1011.4	27.2	25.3	23.4	81	0.0
22	1012.0	27.5	25.8	24.8	84	Trace
23	1017.1	25.0	20.0	17.4	89	3.3
24	1018.0	18.2	17.5	16.6	88	0.3
25	1016.8	23.3	20.5	17.9	85	1.0
29	1010.5	26.5	24.4	23.1	86	6.9
30	1013.3	24.0	23.1	22.5	86	Trace
31	1016.8	22.9	21.4	20.2	85	7.7

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	13 March 2019	Reminder: Every main haul road should be kept clear of dusty materials. (Portion I)	NA
	27 March 2019	Reminder: Open stockpiles should be avoided or covered. (Zone 4)	NA
Noise	NA		
Water Quality	NA		
Chemical and Waste Management	27 March 2019	Reminder: All wastes generated at the site should be collected and cleaned up regularly. (Zone 1)	NA
Land Contamination	NA		
Landscape and Visual Impact	27 March 2019	Reminder: Open stockpiles should be avoided or covered. (Zone 4)	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 D

Monthly EM&A Report
For
Contract No. KL/2015/02
Kai Tak Development - Stage 5A Infrastructure at Former North Apron Area

Civil Engineering and Development Department

EP-337/2009 – New Distributor Roads Serving the Planned KTD

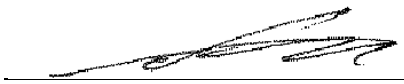
Contract No. KLN/2016/04
Environmental Monitoring Works for
Contract No. KL/2015/02
Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area

Monthly EM&A Report

March 2019

(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 9 April 2019
Our Ref. MCL/ED/0193/2019/C

Cinotech Consultants Limited
Rm 1710, Technology Park,
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Hong Kong

BY EMAIL

Attn.: Mr. K.S Lee

Dear Sir,

Contract No. KL/2015/02
Kai Tak Development –Stage 5A Infrastructure at Former North Apron
Verification of Monthly EM&A Report for March 2019

We refer to your emails dated 8 April 2019 regarding the Monthly EM&A Report for March 2019 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.: Mr. Ricky Chan
Attn.: Mr. Jeremy Yuen
AECOM – Attn.: Mr. Vincent Lee
Attn.: Mr. Teddy Shih

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EXECUTIVE SUMMARY

Introduction

1. This is the 27th 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 March 2019.

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 and backfilling works for subway construction at PERE
- Backfilling works for subway SW6 from CH0 to CH45 and Staircase ST3
- Erection of underpinning frame at the existing Bridge K72
- Sheet piling works at SKLR playground (Stage 4)
- Construction of chain-link fence for land sale sites
- Filling work for slip road S15
- Drainage works at slip road S15
- DCS Works in Road D1, road L7, Portion 6, Portion 1

- Water mains laying works in Portion 4

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	Mr. CHAN Wai Kit, Ricky	Senior Engineer	2116 3753	2116 0714
AECOM	Engineer's Representative	Mr. Vincent Lee	SRE	2798 0771	2210 6110
Cinotech	Environmental Team	Mr. K.S Lee	Environmental Team Leader	2151 2091	3107 1388
		Ms. Betty Choy	Audit Team Leader	2151 2072	
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:

- Structural works and backfilling works for subway construction at PERE
- Backfilling works for subway SW6 from CH0 to CH45 and Staircase ST3
- Erection of underpinning frame at the existing Bridge K72
- Sheet piling works at SKLR playground (Stage 4)
- Construction of chain-link fence for land sale sites
- Filling work for slip road S15
- Drainage works at slip road S15
- DCS Works in Road D1, road L7, Portion 6, Portion 1
- Water mains laying works in Portion 4

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 March 2019.

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 • Sibata Scientific Technology LD-5R	3
HVS Sampler	• TE-5170 c/w of TSP sampling inlet	1
Wind Anemometer	• Davis Instruments 6152	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

Measuring Procedures

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

(Equipment: Hal Technology; Model no. Hal-HPC300, Hal-HPC301)

- 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.

(Equipment: Sibata Scientific Technology; Model no. LD-5R)

- 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

2.7. 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

2.8. 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

2.9. 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.

2.10. Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m3/min. and 1.4 m3/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

2.11. For TSP sampling, fiberglass filters have a collection efficiency of > 99% for particles of 0.3μm diameter were used.

2.12. 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.

2.13. 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.

2.14. 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.

2.15. The shelter lid was closed and secured with the aluminium strip.

2.16. 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).

2.17. After sampling, the filter was removed and sent to the HOKLAS laboratory (Wellab Ltd.) for weighing. The elapsed time was also recorded.

2.18. 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

2.19. 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 through\hout all stages of the air quality monitoring.

Results and Observations

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

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

2.22. The weather information for the reporting month is summarized in **Appendix C.**

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

2.24. The summary of exceedance record in reporting month is shown in **Appendix H**. No exceedance was recorded for the air quality monitoring.

2.25. 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.

2.26. 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, and 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 959 & 957	4
Calibrator	• SVANTEK SV30A • Brüel & Kjær 4231	2

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	N/A(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(1) (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 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 (2): 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/m³	Scenario2 (Mid 2013 to Late 2016), µg/m³	Reporting Month (March 2019), µg/m³	
			Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	139	78 – 210

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/m³	Scenario2 (Mid 2013 to Late 2016), µg/m³	Reporting Month (March 2019), µg/m³	
			Average	Range
AM2(A) – Ng Wah Catholic Secondary School	145	169	40	27 – 73

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 (March 2019), $L_{eq\ (30min)}$ dB(A)
M3 – Cognitio College	47 – 75	64 – 80 (1)
M4 – Lee Kau Yan Memorial School	47 – 74	65 – 70
M5(C) – Mercy Grace's Home	Not predicted in EIA Report	62 – 69

Remarks:
(1) 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 from M3 were outside the ranges of the predicted mitigated constriction noise levels in the EIA Report. The results at M4 was within the range of the predicted mitigated construction 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 4, 13, 18 and 25 March 2019 in the reporting month. A joint site audit with the representative of IEC, ER, the Contractor and the ET was conducted on 13 March 2019. 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)			

Permit No.	Valid Period		Status
	From	To	
-	-	-	-

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.	Date	Observations and Recommendations	Follow-up/Rectification
Water Quality	N/A	N/A	--	--
Air Quality	N/A	N/A	--	--
Noise	N/A	N/A	--	--
Waste/ Chemical Management	190318-R1	18th Mar 2019	- Rubbish or general waste accumulating in portion 6 should be cleaned up.	25th Mar 2019: Contractor should clean up the rubbish in portion 6.
Landscape and Visual	N/A	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

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

Construction Noise

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

Landscape and visual

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

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

6.12. 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:

- Structural works and backfilling works for subway construction at PERE
- Backfilling works for subway SW6 from CH0 to CH45 and Staircase ST3
- Erection of underpinning frame and demolition of the exiting wall at the existing Bridge K72
- Sheet piling works at SKLR playground (Stage 4)
- Implementation of stage 2 TTA at PERE
- Drainage work and road pavement construction at slip road S15
- Preparation for Refurbishment of bridge K72
- Construction of chain-link fence for land sale sites
- DCS Works in Road D1, road L7, Portion 6, Portion 1
- Water mains laying works in road D1, L7

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

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

Complaint and Prosecution

8.2 No environmental complaint and environmental prosecution was received in the reporting month.

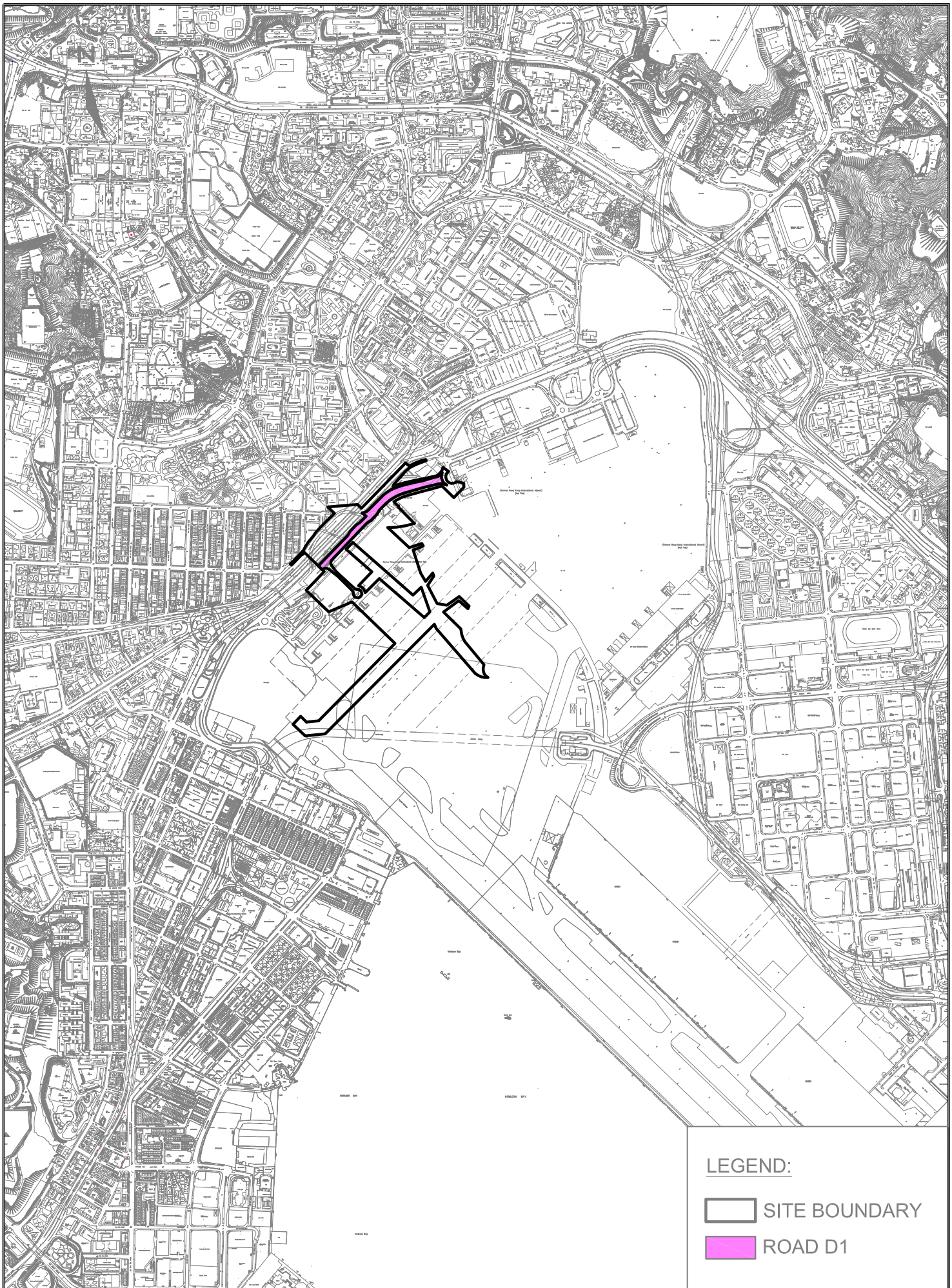
Recommendations

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

Waste / Chemical Management

- The Contractor is suggested to maintain the site cleaning frequency and reminded to prevent the waste accumulation.

FIGURES

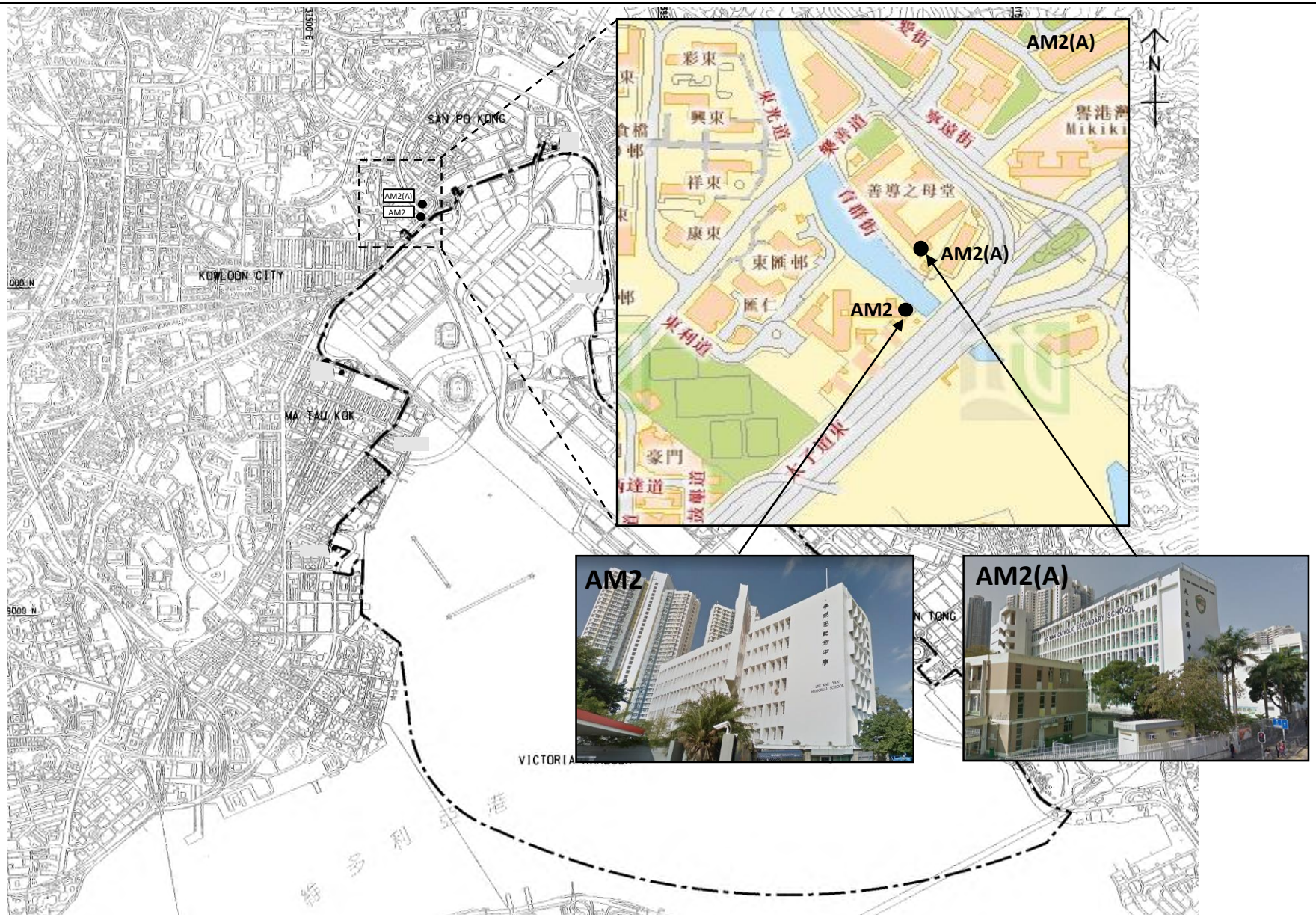


CINOTECH
Cinotech Consultants Limited

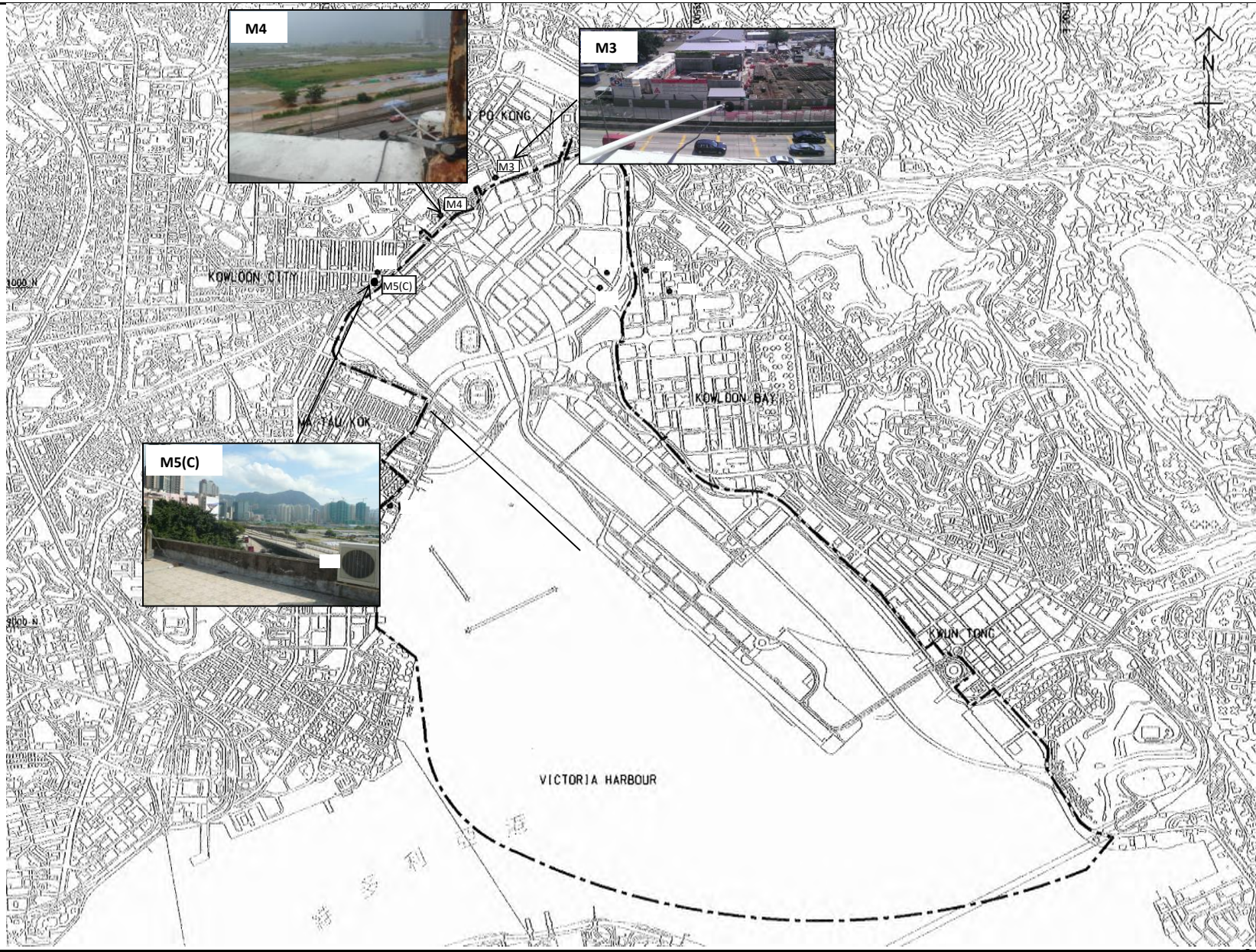
KL/2015/02 KAI TAK - STAGE 5A INFRASTRUCTURE AT FORMER NORTH APRON AREA

SITE LAYOUT PLAN

SCALE	1:1500@A4	DATE	DEC 2016
CHECK	KC	DRAWN	JW
JOB No.	MA16043	FIGURE NO. 1	REV -

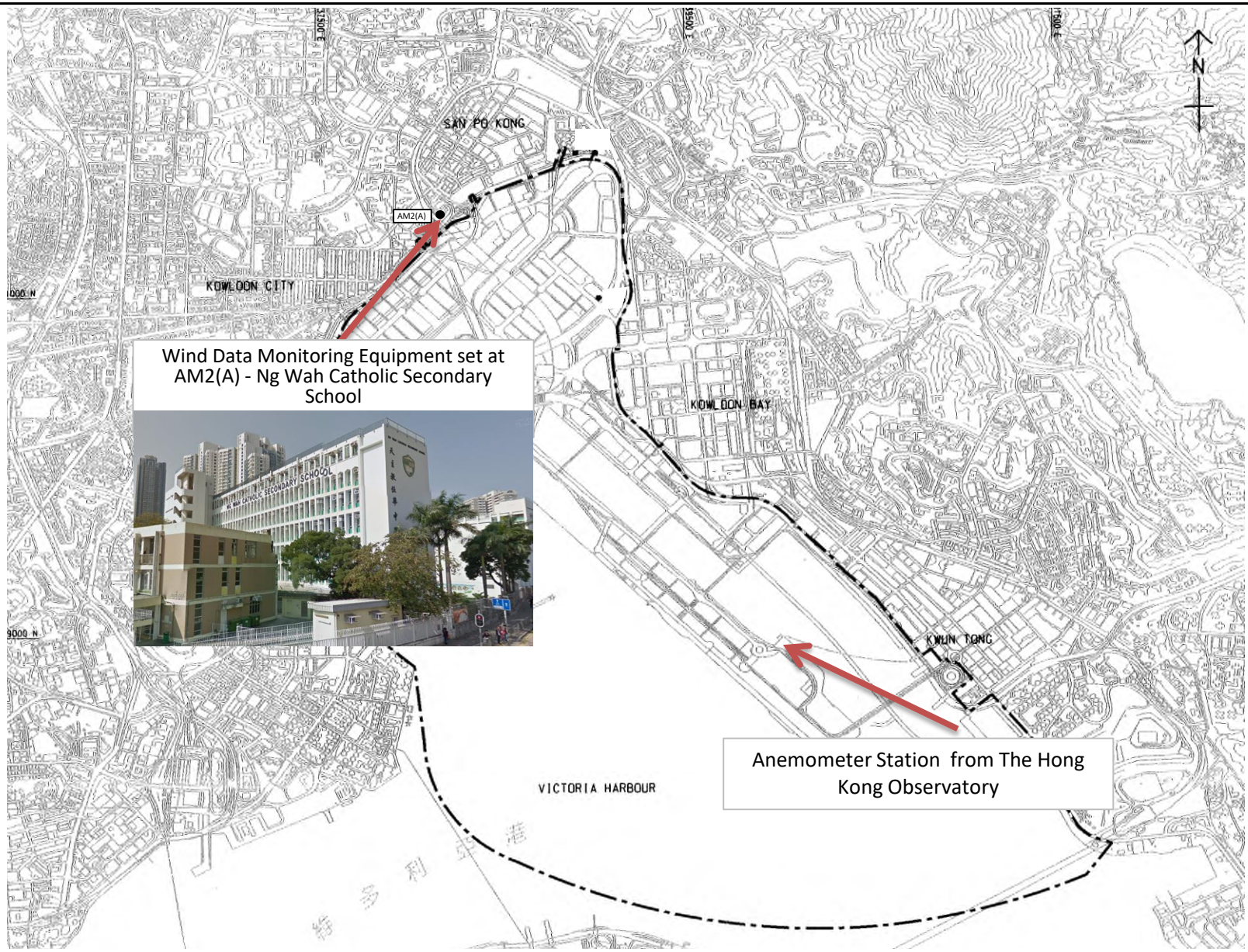


Title: Contract No. KLN/2016/04 Environmental Monitoring Works for Contract No. KL/2015/02 Kai Tak Development – Stage 5A Infrastructure at Former North Apron Area Location of Air Quality Monitoring Stations	Scale: N.T.S	Project No.: MA16043	CINOTECH
	Date: Aug-17	Figure: 2	



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, $\mu g/m^3$	Limit Level, $\mu g/m^3$
AM2	346	500

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

Location	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
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-1
COPIES OF CALIBRATION
CERTIFCATES (AIR)

Cerificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Handheld Particle Counter

Manufacturer: Hal Technology

Model No.: Hal -HPC300

Serial No.: 30117011019

Equipment No.: SA-01-03

High Volume Sampler No.: A-01-03

Tisch Calibration Orifice No.: 3607

Date of Calibration 26-Feb-19

Validity of Calibration Record 25-Apr-19

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor** Mass Concentration (µg/m3) **X-axis**	**HVS** Mass concentration (µg/m^3) **Y-axis**
1	37.4	87.1
2	43.2	89.1
3	51.3	91.5
Average	**44.0**	**89.2**

By Linear Regression of Y on X

Slope , mw = **0.3153** **Intercept, bw =** **75.3725**

Correlation coefficient* = **0.9991**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (µg/m^3)	89.2
Particaulate Concentration by Dust Meter (µg/m^3)	44.0
Measureing time, (min)	60

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (µg/m3)] **2.03**

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.

Those filter papers are weighted by HOKLAS laboratory (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

Cerificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator
Date of Calibration 13-Feb-19
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 12-Apr-19
Model No.: LD-5R
Serial No.: 8Y2374
Equipment No.: SA-01-04
Sensitivity 0.001 mg/m3
High Volume Sampler No.: A-01-03
Before Sensitivity Adjustment 652
Tisch Calibration Orifice No.: 3607
After Sensitivity Adjustment 652

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor** Mass Concentration (μg/m3) **X-axis**	**HVS** Mass concentration (μg/m^3) **Y-axis**
1	74	149.3
2	60	121.9
3	58	119.4
Average	**64**	**130**

By Linear Regression of Y on X

Slope , mw = **1.9013** **Intercept, bw =** **8.5158**

Correlation coefficient* = **0.9992**

Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (μg/m^3)	130
Particaulate Concentration by Dust Meter (μg/m^3)	64
Measureing time, (min)	60

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (μg/m3)] **2.0**

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.
Those filter papers are weighted by HOKLAS laboratory (Wellab Litimed)

Calibrated by: Wong Shing Kwai

Approved by: Henry Leung

Cerificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler

Description: Digital Dust Indicator
Date of Calibration 13-Feb-19
Manufacturer: Sibata Scientific Technology LTD.
Validity of Calibration Record 12-Apr-19
Model No.: LD-5R
Serial No.: 8Y2373
Equipment No.: SA-01-05
Sensitivity 0.001 mg/m3
High Volume Sampler No.: A-01-03
Before Sensitivity Adjustment 657
Tisch Calibration Orifice No.: 3607
After Sensitivity Adjustment 657

Calibration of 1 hr TSP		
Calibration Point	**Laser Dust Monitor** Mass Concentration (μg/m3) **X-axis**	**HVS** Mass concentration (μg/m^3) **Y-axis**
1	74	149.3
2	62	121.9
3	60	119.4
Average	**65**	**130**

By Linear Regression of Y on X

Slope , mw = **2.1872** **Intercept, bw =** **-12.6977**

Correlation coefficient* = **0.9984**

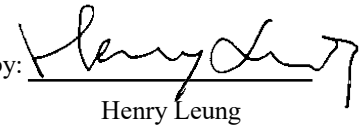
Set Correlation Factor	
Particaulate Concentration by High Volume Sampler (μg/m^3)	130
Particaulate Concentration by Dust Meter (μg/m^3)	65
Measureing time, (min)	60

Set Correlation Factor , SCF

SCF = [K=High Volume Sampler / Dust Meter, (μg/m3)] **2.0**

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.
Those filter papers are weighted by HOKLAS laboratory (Wellab Litimed)

Calibrated by: 
Wong Shing Kwai

Approved by: 
Henry Leung

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA16043/13/0009

Station: AM2(A) - Ng Wah Catholic Secondary School
Date: 7-Jan-19 Next Due Date: 6-Mar-19 Operator: SK
Equipment No.: A-01-13 Model No.: TE-5170 Serial No.: 1352

Ambient Condition			
Temperature, Ta (K)	291.5	Pressure, Pa (mmHg)	768.6

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	12.8	3.64	62.16	7.9	2.86
2	10.2	3.25	55.49	6.4	2.57
3	7.8	2.84	48.53	4.9	2.25
4	4.8	2.23	38.07	3.1	1.79
5	3.1	1.79	30.59	1.9	1.40

By Linear Regression of Y on X

Slope , mw = 0.0459 **Intercept, bw =** 0.0197

Correlation coefficient* = 0.9995

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.84**

Remarks:

Conducted by: SHING - WONG Signature: Date: 07-01-2019
Checked by: Henry Leung Signature: Date: 7 January 2019

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA16043/13/0010

Project No. AM2(A) - Ng Wah Catholic Secondary School

Date: 6-Mar-19 Next Due Date: 5-May-19 Operator: SK

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

Ambient Condition			
Temperature, Ta (K)	293.5	Pressure, Pa (mmHg)	760.1

Orifice Transfer Standard Information					
Serial No.	3607	Slope, mc	0.0588	Intercept, bc	-0.02422
Last Calibration Date:	8-Jan-19	**mc x Qstd + bc = [ΔH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	8-Jan-20	**Qstd = {[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	11.3	3.39	58.02	7.5	2.76
2	8.9	3.01	51.54	6.0	2.47
3	7.2	2.70	46.40	4.8	2.21
4	4.8	2.21	37.96	2.7	1.66
5	3.2	1.80	31.07	1.8	1.35

By Linear Regression of Y on X

Slope , mw = 0.0539 **Intercept, bw = -0.3382**

Correlation coefficient* = 0.9975

*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 x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.86**

Remarks:

Conducted by: SK Wong Signature: Date: 6 March 2019

Checked by: Henry Leung Signature: Date: 6 March 2019

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

TISCH Environmental

RECALIBRATION DUE DATE:
January 8, 2020

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	January 8, 2019	**Rootsmeter S/N:** 438320	**Ta:** 294	°K	
Operator:	Jim Tisch		**Pa:** 748.0	mm Hg	
Calibration Model #:	TE-5025A	**Calibrator S/N:** **3607**			

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4340	3.2	2.00
2	3	4	1	1.0190	6.3	4.00
3	5	6	1	0.9110	7.8	5.00
4	7	8	1	0.8650	8.7	5.50
5	9	10	1	0.7150	12.6	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)
0.9934	0.6927	1.4125	0.9957	0.6944	0.8866
0.9892	0.9708	1.9976	0.9916	0.9731	1.2538
0.9872	1.0837	2.2334	0.9896	1.0862	1.4018
0.9860	1.1399	2.3424	0.9884	1.1426	1.4703
0.9808	1.3718	2.8251	0.9832	1.3750	1.7732
QSTD	**m=**	**2.07879**	**QA**	**m=**	**1.30170**
	b=	**-0.02422**		**b=**	**-0.01520**
	r=	**0.99997**		**r=**	**0.99997**

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

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WELLAB LIMITED
Rms 1214, 1502, 1516, 1701 & 1716,
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

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

Test Report No.:	29953A
Date of Issue:	2018-10-15
Date Received:	2018-10-12
Date Tested:	2018-10-12
Date Completed:	2018-10-15
Next Due Date:	2019-04-14
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Weather Stations, Vantage Pro2
Manufacturer	: Davis Instruments
Model No.	: 6152
Serial No.	: BC180522050

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.
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TEST REPORT

Test Report No.:	29953A
Date of Issue:	2018-10-15
Date Received:	2018-10-12
Date Tested:	2018-10-12
Date Completed:	2018-10-15
Next Due Date:	2019-04-14
Page:	2 of 2

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	90	0
135.2	135	0.2
180.1	180	0.1
225.3	225	0.3
270	270	0
315.1	315	0.1
360	360	0

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

APPENDIX B-2
COPIES OF CALIBRATION CERTIFCATES (NOISE)

WELLAB LIMITED
Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/181221/1
Date of Issue:	2018-12-21
Date Received:	2018-12-19
Date Tested:	2018-12-19
Date Completed:	2018-12-21
Next Due Date:	2019-12-20

ATTN: **Mr. Henry Leung**

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 959
Serial No.	: 11275
Microphone No.	: 86553
Equipment No.	: N-08-01

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 55%

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 94.0 SPL	94.0	94.0 ± 0.1dB
At 114.0 SPL	114.0	114.0 ± 0.1dB

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

Patrick Tse

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
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Technology Park, 18 On Lai Street,
Shatin, N.T., Hong Kong.
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Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	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

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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
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Shatin, N.T., Hong Kong.
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Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	30293
Date of Issue:	2018-11-24
Date Received:	2018-11-23
Date Tested:	2018-11-23
Date Completed:	2018-11-24
Next Due Date:	2019-11-23

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

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 23852
Microphone No.	: 43690
Equipment No.	: N-08-11

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

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

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.:	30294
Date of Issue:	2018-11-24
Date Received:	2018-11-23
Date Tested:	2018-11-23
Date Completed:	2018-11-24
Next Due Date:	2019-11-23

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

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 23851
Equipment No.	: N-08-12

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

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

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.:	30289
Date of Issue:	2018-11-04
Date Received:	2018-11-03
Date Tested:	2018-11-03
Date Completed:	2018-11-04
Next Due Date:	2019-11-03

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	: 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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TEST REPORT

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

Test Report No.:	29817A
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.	: 10965
Equipment No.	: N-09-02

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

APPENDIX C
WEATHER INFORMATION

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation(mm)
1-Mar-19	20.8	89	0.4
2-Mar-19	21.5	87	Trace
3-Mar-19	21.5	87	6.3
4-Mar-19	20.9	82	10.2
5-Mar-19	22.2	88	30.3
6-Mar-19	20.5	92	45.5
7-Mar-19	17.9	93	29.6
8-Mar-19	16.5	92	11.5
9-Mar-19	17.8	95	14.5
10-Mar-19	17.7	87	4.6
11-Mar-19	18.4	81	7.6
12-Mar-19	20.1	77	0
13-Mar-19	20.8	71	0
14-Mar-19	20.4	83	6.4
15-Mar-19	18.7	81	0.4
16-Mar-19	20.2	65	0
17-Mar-19	20.9	77	0
18-Mar-19	21.7	82	0
19-Mar-19	23.4	84	0
20-Mar-19	23.5	88	0
21-Mar-19	25.3	81	0
22-Mar-19	25.8	84	Trace
23-Mar-19	20	89	3.3
24-Mar-19	17.5	88	0.3
25-Mar-19	20.5	85	1
26-Mar-19	21.9	85	0
27-Mar-19	22.3	82	Trace
28-Mar-19	24.4	84	0
29-Mar-19	24.4	86	6.9
30-Mar-19	23.1	86	Trace
31-Mar-19	21.4	85	7.7

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

** Trace = rainfall less than 0.05 mm.

*** The level of precipitation indicate the total amount of rainfall for each date (24 hours)

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

Date	Time	Wind speed(m/s)	Wind Direction
1-Mar-19	0:00	2.7	NE
1-Mar-19	1:00	4.9	ENE
1-Mar-19	2:00	4.9	ENE
1-Mar-19	3:00	5.8	NNW
1-Mar-19	4:00	6.3	NNE
1-Mar-19	5:00	5.8	NNE
1-Mar-19	6:00	4	NE
1-Mar-19	7:00	4	ENE
1-Mar-19	8:00	4.9	NE
1-Mar-19	9:00	4.9	ENE
1-Mar-19	10:00	6.3	E
1-Mar-19	11:00	5.4	ENE
1-Mar-19	12:00	6.3	NE
1-Mar-19	13:00	7.2	ESE
1-Mar-19	14:00	5.4	ENE
1-Mar-19	15:00	4.5	ENE
1-Mar-19	16:00	4.9	ESE
1-Mar-19	17:00	6.3	N
1-Mar-19	18:00	6.3	NE
1-Mar-19	19:00	5.8	NE
1-Mar-19	20:00	5.4	ESE
1-Mar-19	21:00	6.7	E
1-Mar-19	22:00	7.2	NE
1-Mar-19	23:00	5.4	NE
2-Mar-19	0:00	4	SE
2-Mar-19	1:00	3.6	E
2-Mar-19	2:00	5.4	NE
2-Mar-19	3:00	4.9	NE
2-Mar-19	4:00	4.9	E
2-Mar-19	5:00	4.5	E
2-Mar-19	6:00	5.4	NE
2-Mar-19	7:00	5.4	NE
2-Mar-19	8:00	4.9	ENE
2-Mar-19	9:00	5.4	E
2-Mar-19	10:00	5.8	E

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

2-Mar-19	11:00	6.3	E
2-Mar-19	12:00	7.2	E
2-Mar-19	13:00	7.2	ESE
2-Mar-19	14:00	6.7	NNE
2-Mar-19	15:00	6.3	NNE
2-Mar-19	16:00	5.4	SSE
2-Mar-19	17:00	4.9	NNE
2-Mar-19	18:00	4	E
2-Mar-19	19:00	4.5	NNE
2-Mar-19	20:00	3.6	ENE
2-Mar-19	21:00	4	NE
2-Mar-19	22:00	3.6	E
2-Mar-19	23:00	3.1	E
3-Mar-19	0:00	2.7	E
3-Mar-19	1:00	2.7	E
3-Mar-19	2:00	2.7	E
3-Mar-19	3:00	1.3	SSW
3-Mar-19	4:00	1.8	ENE
3-Mar-19	5:00	0.9	ENE
3-Mar-19	6:00	1.3	ESE
3-Mar-19	7:00	1.3	SSE
3-Mar-19	8:00	8.9	SSE
3-Mar-19	9:00	6.7	WSW
3-Mar-19	10:00	6.7	SW
3-Mar-19	11:00	4.5	WSW
3-Mar-19	12:00	3.6	E
3-Mar-19	13:00	6.3	ENE
3-Mar-19	14:00	4.9	E
3-Mar-19	15:00	4	E
3-Mar-19	16:00	4	NNE
3-Mar-19	17:00	4.5	E
3-Mar-19	18:00	3.6	E
3-Mar-19	19:00	4	E
3-Mar-19	20:00	3.1	E
3-Mar-19	21:00	2.2	S
3-Mar-19	22:00	2.7	E
3-Mar-19	23:00	1.8	E
4-Mar-19	0:00	1.8	SSE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

4-Mar-19	1:00	3.1	E
4-Mar-19	2:00	1.8	SSE
4-Mar-19	3:00	1.3	S
4-Mar-19	4:00	1.8	WSW
4-Mar-19	5:00	2.7	W
4-Mar-19	6:00	1.8	WSW
4-Mar-19	7:00	1.8	S
4-Mar-19	8:00	3.1	WSW
4-Mar-19	9:00	3.6	W
4-Mar-19	10:00	6.3	ENE
4-Mar-19	11:00	7.6	NE
4-Mar-19	12:00	5.8	NE
4-Mar-19	13:00	6.7	ESE
4-Mar-19	14:00	7.2	NNE
4-Mar-19	15:00	8	N
4-Mar-19	16:00	6.7	ENE
4-Mar-19	17:00	5.4	E
4-Mar-19	18:00	6.7	ENE
4-Mar-19	19:00	7.2	NNE
4-Mar-19	20:00	8.9	NE
4-Mar-19	21:00	5.8	NNE
4-Mar-19	22:00	5.4	SE
4-Mar-19	23:00	8.5	ENE
5-Mar-19	0:00	7.6	NE
5-Mar-19	1:00	4.5	E
5-Mar-19	2:00	6.3	ENE
5-Mar-19	3:00	7.6	NE
5-Mar-19	4:00	8.9	SE
5-Mar-19	5:00	9.4	NE
5-Mar-19	6:00	8	E
5-Mar-19	7:00	5.8	E
5-Mar-19	8:00	6.7	E
5-Mar-19	9:00	4	ENE
5-Mar-19	10:00	5.4	ENE
5-Mar-19	11:00	5.4	ESE
5-Mar-19	12:00	7.2	ENE
5-Mar-19	13:00	7.6	E
5-Mar-19	14:00	5.4	E

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

5-Mar-19	15:00	5.8	ENE
5-Mar-19	16:00	6.3	E
5-Mar-19	17:00	4.9	E
5-Mar-19	18:00	5.4	ENE
5-Mar-19	19:00	3.6	E
5-Mar-19	20:00	5.4	E
5-Mar-19	21:00	5.4	SE
5-Mar-19	22:00	4	E
5-Mar-19	23:00	4.5	E
6-Mar-19	0:00	5.4	E
6-Mar-19	1:00	4	E
6-Mar-19	2:00	4.5	NE
6-Mar-19	3:00	5.8	E
6-Mar-19	4:00	4.9	E
6-Mar-19	5:00	4.9	E
6-Mar-19	6:00	5.4	E
6-Mar-19	7:00	6.3	E
6-Mar-19	8:00	5.8	E
6-Mar-19	9:00	5.8	E
6-Mar-19	10:00	5.4	ENE
6-Mar-19	11:00	4.5	ESE
6-Mar-19	12:00	5.4	WSW
6-Mar-19	13:00	4.9	WSW
6-Mar-19	14:00	4.9	SW
6-Mar-19	15:00	4	WSW
6-Mar-19	16:00	6.3	ESE
6-Mar-19	17:00	4.5	E
6-Mar-19	18:00	4	E
6-Mar-19	19:00	3.6	E
6-Mar-19	20:00	4	E
6-Mar-19	21:00	2.2	SSW
6-Mar-19	22:00	2.2	S
6-Mar-19	23:00	4.5	E
7-Mar-19	0:00	5.4	ENE
7-Mar-19	1:00	3.6	WSW
7-Mar-19	2:00	4	SSW
7-Mar-19	3:00	4	WSW
7-Mar-19	4:00	4.5	E

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

7-Mar-19	5:00	4.5	SE
7-Mar-19	6:00	4	WSW
7-Mar-19	7:00	5.8	W
7-Mar-19	8:00	5.8	WSW
7-Mar-19	9:00	5.4	SW
7-Mar-19	10:00	6.7	WSW
7-Mar-19	11:00	5.8	WSW
7-Mar-19	12:00	7.2	SSE
7-Mar-19	13:00	4.9	WSW
7-Mar-19	14:00	2.7	W
7-Mar-19	15:00	4.5	ENE
7-Mar-19	16:00	4.5	WSW
7-Mar-19	17:00	3.1	WSW
7-Mar-19	18:00	2.2	SW
7-Mar-19	19:00	4.9	NE
7-Mar-19	20:00	7.6	NE
7-Mar-19	21:00	9.4	NW
7-Mar-19	22:00	7.4	NW
7-Mar-19	23:00	4.8	NW
8-Mar-19	0:00	5.1	ENE
8-Mar-19	1:00	5.4	ENE
8-Mar-19	2:00	4.5	ESE
8-Mar-19	3:00	4.9	E
8-Mar-19	4:00	4	ENE
8-Mar-19	5:00	5.8	ENE
8-Mar-19	6:00	5.8	ESE
8-Mar-19	7:00	5.8	ENE
8-Mar-19	8:00	7.2	NE
8-Mar-19	9:00	7.6	NE
8-Mar-19	10:00	7.6	NE
8-Mar-19	11:00	7.2	NE
8-Mar-19	12:00	5.8	NE
8-Mar-19	13:00	6.7	E
8-Mar-19	14:00	8	ENE
8-Mar-19	15:00	4.9	ENE
8-Mar-19	16:00	4.9	ENE
8-Mar-19	17:00	7.2	ESE
8-Mar-19	18:00	8.9	NE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

8-Mar-19	19:00	6.7	ESE
8-Mar-19	20:00	5.8	NNE
8-Mar-19	21:00	7.2	E
8-Mar-19	22:00	7.6	NE
8-Mar-19	23:00	8.5	ENE
9-Mar-19	0:00	8.9	NE
9-Mar-19	1:00	5.8	SE
9-Mar-19	2:00	8	NNE
9-Mar-19	3:00	6.3	ESE
9-Mar-19	4:00	5.8	NE
9-Mar-19	5:00	7.2	ESE
9-Mar-19	6:00	6.3	E
9-Mar-19	7:00	7.2	ESE
9-Mar-19	8:00	8.9	SSE
9-Mar-19	9:00	6.7	SE
9-Mar-19	10:00	8.5	ESE
9-Mar-19	11:00	7.2	E
9-Mar-19	12:00	4.9	E
9-Mar-19	13:00	3.1	E
9-Mar-19	14:00	4	E
9-Mar-19	15:00	4	E
9-Mar-19	16:00	4	E
9-Mar-19	17:00	4	ESE
9-Mar-19	18:00	6.3	WSW
9-Mar-19	19:00	7.2	W
9-Mar-19	20:00	2.2	SSW
9-Mar-19	21:00	2.7	E
9-Mar-19	22:00	2.2	WSW
9-Mar-19	23:00	2.7	WSW
10-Mar-19	0:00	3.1	WSW
10-Mar-19	1:00	5.8	WSW
10-Mar-19	2:00	4.9	WSW
10-Mar-19	3:00	4	WSW
10-Mar-19	4:00	4.5	W
10-Mar-19	5:00	3.6	W
10-Mar-19	6:00	4.5	W
10-Mar-19	7:00	5.4	W
10-Mar-19	8:00	3.6	W

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

10-Mar-19	9:00	4.5	W
10-Mar-19	10:00	5.4	W
10-Mar-19	11:00	3.6	WSW
10-Mar-19	12:00	3.6	WSW
10-Mar-19	13:00	3.1	W
10-Mar-19	14:00	5.8	W
10-Mar-19	15:00	5.4	W
10-Mar-19	16:00	4.9	WSW
10-Mar-19	17:00	7.6	WNW
10-Mar-19	18:00	4.9	WSW
10-Mar-19	19:00	5.4	W
10-Mar-19	20:00	6.7	W
10-Mar-19	21:00	5.4	WSW
10-Mar-19	22:00	5.8	WSW
10-Mar-19	23:00	6.7	WSW
11-Mar-19	0:00	4	WSW
11-Mar-19	1:00	4.9	WSW
11-Mar-19	2:00	3.1	WSW
11-Mar-19	3:00	5.4	WSW
11-Mar-19	4:00	7.6	W
11-Mar-19	5:00	6.3	WSW
11-Mar-19	6:00	3.6	WSW
11-Mar-19	7:00	5.8	W
11-Mar-19	8:00	2.2	E
11-Mar-19	9:00	4.5	WSW
11-Mar-19	10:00	5.4	WSW
11-Mar-19	11:00	4.5	WSW
11-Mar-19	12:00	4	W
11-Mar-19	13:00	5.4	WSW
11-Mar-19	14:00	6.7	WSW
11-Mar-19	15:00	4	WSW
11-Mar-19	16:00	5.4	E
11-Mar-19	17:00	7.2	E
11-Mar-19	18:00	6.7	E
11-Mar-19	19:00	6.3	SSE
11-Mar-19	20:00	4.9	ENE
11-Mar-19	21:00	3.6	ENE
11-Mar-19	22:00	2.7	W

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

11-Mar-19	23:00	1.3	NE
12-Mar-19	0:00	1.8	S
12-Mar-19	1:00	1.3	SSW
12-Mar-19	2:00	1.8	WSW
12-Mar-19	3:00	1.3	WSW
12-Mar-19	4:00	0.9	SSE
12-Mar-19	5:00	0.9	SSE
12-Mar-19	6:00	0.9	SSE
12-Mar-19	7:00	1.3	SSE
12-Mar-19	8:00	0	---
12-Mar-19	9:00	1.3	SW
12-Mar-19	10:00	1.8	NE
12-Mar-19	11:00	5.4	ENE
12-Mar-19	12:00	6.3	NNE
12-Mar-19	13:00	4	ENE
12-Mar-19	14:00	4.9	NE
12-Mar-19	15:00	5.8	NNE
12-Mar-19	16:00	7.6	NE
12-Mar-19	17:00	5.8	E
12-Mar-19	18:00	5.8	NNE
12-Mar-19	19:00	6.3	NE
12-Mar-19	20:00	5.4	E
12-Mar-19	21:00	4.5	E
12-Mar-19	22:00	4.5	NE
12-Mar-19	23:00	4	NE
13-Mar-19	0:00	4.5	ENE
13-Mar-19	1:00	4	E
13-Mar-19	2:00	3.1	WSW
13-Mar-19	3:00	0.9	WSW
13-Mar-19	4:00	2.2	SW
13-Mar-19	5:00	1.8	SSE
13-Mar-19	6:00	3.1	E
13-Mar-19	7:00	4.9	E
13-Mar-19	8:00	4.5	ENE
13-Mar-19	9:00	4.5	E
13-Mar-19	10:00	4.5	WSW
13-Mar-19	11:00	5.8	E
13-Mar-19	12:00	6.3	NNE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

13-Mar-19	13:00	5.8	E
13-Mar-19	14:00	6.3	NE
13-Mar-19	15:00	7.2	NE
13-Mar-19	16:00	4	NNE
13-Mar-19	17:00	4.5	NE
13-Mar-19	18:00	6.3	NE
13-Mar-19	19:00	6.7	NNW
13-Mar-19	20:00	4	E
13-Mar-19	21:00	5.8	NE
13-Mar-19	22:00	7.6	E
13-Mar-19	23:00	6.7	NNE
14-Mar-19	0:00	4.5	N
14-Mar-19	1:00	5.4	E
14-Mar-19	2:00	7.6	NNE
14-Mar-19	3:00	6.7	N
14-Mar-19	4:00	7.6	SSE
14-Mar-19	5:00	6.7	NNE
14-Mar-19	6:00	6.3	NE
14-Mar-19	7:00	7.6	NE
14-Mar-19	8:00	5.8	ENE
14-Mar-19	9:00	5.8	N
14-Mar-19	10:00	4.9	SW
14-Mar-19	11:00	8	E
14-Mar-19	12:00	8	ENE
14-Mar-19	13:00	6.3	ENE
14-Mar-19	14:00	5.4	S
14-Mar-19	15:00	4	WSW
14-Mar-19	16:00	3.6	E
14-Mar-19	17:00	1.8	SW
14-Mar-19	18:00	2.2	SW
14-Mar-19	19:00	3.6	WSW
14-Mar-19	20:00	3.6	WSW
14-Mar-19	21:00	3.6	W
14-Mar-19	22:00	3.6	SW
14-Mar-19	23:00	5.8	W
15-Mar-19	0:00	4	S
15-Mar-19	1:00	4	SW
15-Mar-19	2:00	6.3	WSW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

15-Mar-19	3:00	4	S
15-Mar-19	4:00	4.9	WSW
15-Mar-19	5:00	5.4	WSW
15-Mar-19	6:00	7.6	WSW
15-Mar-19	7:00	6.7	WSW
15-Mar-19	8:00	7.2	WSW
15-Mar-19	9:00	8	WSW
15-Mar-19	10:00	8	WSW
15-Mar-19	11:00	6.3	WSW
15-Mar-19	12:00	4.5	WSW
15-Mar-19	13:00	5.8	WSW
15-Mar-19	14:00	4.5	SW
15-Mar-19	15:00	4.5	SW
15-Mar-19	16:00	4.9	SW
15-Mar-19	17:00	4.9	S
15-Mar-19	18:00	6.3	WSW
15-Mar-19	19:00	4.9	WSW
15-Mar-19	20:00	4.9	WSW
15-Mar-19	21:00	4	WSW
15-Mar-19	22:00	3.6	WSW
15-Mar-19	23:00	4.5	WSW
16-Mar-19	0:00	4	WSW
16-Mar-19	1:00	4	SW
16-Mar-19	2:00	3.6	WSW
16-Mar-19	3:00	4	WSW
16-Mar-19	4:00	3.6	WSW
16-Mar-19	5:00	3.6	ENE
16-Mar-19	6:00	4.9	NNE
16-Mar-19	7:00	4	E
16-Mar-19	8:00	4	NE
16-Mar-19	9:00	6.3	ENE
16-Mar-19	10:00	11.2	NNE
16-Mar-19	11:00	7.2	NNE
16-Mar-19	12:00	8.9	NE
16-Mar-19	13:00	8	S
16-Mar-19	14:00	6.3	NE
16-Mar-19	15:00	8	NE
16-Mar-19	16:00	9.8	N

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

16-Mar-19	17:00	9.8	NNE
16-Mar-19	18:00	6.3	NE
16-Mar-19	19:00	5.8	NE
16-Mar-19	20:00	5.8	NE
16-Mar-19	21:00	7.6	NNE
16-Mar-19	22:00	5.8	E
16-Mar-19	23:00	7.2	E
17-Mar-19	0:00	5.8	ESE
17-Mar-19	1:00	4	NE
17-Mar-19	2:00	5.8	NE
17-Mar-19	3:00	4.9	NNE
17-Mar-19	4:00	5.4	NE
17-Mar-19	5:00	4.9	NE
17-Mar-19	6:00	4.5	NE
17-Mar-19	7:00	6.7	NE
17-Mar-19	8:00	6.3	ESE
17-Mar-19	9:00	7.2	ENE
17-Mar-19	10:00	4.9	NE
17-Mar-19	11:00	9.4	ESE
17-Mar-19	12:00	7.2	ESE
17-Mar-19	13:00	5.8	E
17-Mar-19	14:00	5.4	ENE
17-Mar-19	15:00	8.5	NNE
17-Mar-19	16:00	7.6	NE
17-Mar-19	17:00	5.4	NE
17-Mar-19	18:00	3.6	WSW
17-Mar-19	19:00	3.1	ENE
17-Mar-19	20:00	3.6	ESE
17-Mar-19	21:00	4.9	ESE
17-Mar-19	22:00	4.5	NE
17-Mar-19	23:00	4	ENE
18-Mar-19	0:00	4.5	E
18-Mar-19	1:00	5.4	E
18-Mar-19	2:00	5.4	NNE
18-Mar-19	3:00	4	S
18-Mar-19	4:00	5.4	NE
18-Mar-19	5:00	6.3	NE
18-Mar-19	6:00	5.8	ESE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

18-Mar-19	7:00	5.4	NE
18-Mar-19	8:00	4	ENE
18-Mar-19	9:00	5.4	E
18-Mar-19	10:00	5.8	ENE
18-Mar-19	11:00	4.9	E
18-Mar-19	12:00	6.3	ENE
18-Mar-19	13:00	4.5	E
18-Mar-19	14:00	5.8	E
18-Mar-19	15:00	4.9	E
18-Mar-19	16:00	6.3	E
18-Mar-19	17:00	5.8	E
18-Mar-19	18:00	5.8	E
18-Mar-19	19:00	4.9	E
18-Mar-19	20:00	4.9	E
18-Mar-19	21:00	3.1	ENE
18-Mar-19	22:00	2.7	E
18-Mar-19	23:00	1.8	E
19-Mar-19	0:00	2.2	ENE
19-Mar-19	1:00	1.3	SSE
19-Mar-19	2:00	1.3	SSE
19-Mar-19	3:00	1.3	SSE
19-Mar-19	4:00	1.3	ESE
19-Mar-19	5:00	0.9	ENE
19-Mar-19	6:00	1.8	ENE
19-Mar-19	7:00	0.9	ENE
19-Mar-19	8:00	0.9	ENE
19-Mar-19	9:00	0.9	E
19-Mar-19	10:00	1.8	E
19-Mar-19	11:00	3.1	E
19-Mar-19	12:00	3.1	E
19-Mar-19	13:00	3.6	E
19-Mar-19	14:00	7.2	E
19-Mar-19	15:00	7.2	E
19-Mar-19	16:00	7.2	E
19-Mar-19	17:00	6.7	ENE
19-Mar-19	18:00	6.7	ENE
19-Mar-19	19:00	6.3	ESE
19-Mar-19	20:00	6.3	E

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

19-Mar-19	21:00	5.4	ENE
19-Mar-19	22:00	4.5	E
19-Mar-19	23:00	4.5	E
20-Mar-19	0:00	3.6	E
20-Mar-19	1:00	4.9	NNE
20-Mar-19	2:00	5.4	E
20-Mar-19	3:00	6.7	E
20-Mar-19	4:00	5.8	E
20-Mar-19	5:00	4.5	E
20-Mar-19	6:00	4	NE
20-Mar-19	7:00	4.9	NE
20-Mar-19	8:00	3.6	NNE
20-Mar-19	9:00	4.9	ENE
20-Mar-19	10:00	4	NE
20-Mar-19	11:00	4.5	E
20-Mar-19	12:00	4.9	E
20-Mar-19	13:00	5.8	NE
20-Mar-19	14:00	6.3	E
20-Mar-19	15:00	6.7	E
20-Mar-19	16:00	5.8	E
20-Mar-19	17:00	4.9	E
20-Mar-19	18:00	4.9	E
20-Mar-19	19:00	4.5	E
20-Mar-19	20:00	4.9	ENE
20-Mar-19	21:00	3.1	ESE
20-Mar-19	22:00	3.1	ESE
20-Mar-19	23:00	3.1	E
21-Mar-19	0:00	1.8	E
21-Mar-19	1:00	1.8	E
21-Mar-19	2:00	1.8	E
21-Mar-19	3:00	1.8	ENE
21-Mar-19	4:00	1.8	ESE
21-Mar-19	5:00	1.8	ENE
21-Mar-19	6:00	2.2	NNE
21-Mar-19	7:00	1.8	NE
21-Mar-19	8:00	1.3	ENE
21-Mar-19	9:00	1.8	ENE
21-Mar-19	10:00	3.6	E

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

21-Mar-19	11:00	4	E
21-Mar-19	12:00	5.4	E
21-Mar-19	13:00	4.9	E
21-Mar-19	14:00	6.7	ENE
21-Mar-19	15:00	4.9	E
21-Mar-19	16:00	5.8	SW
21-Mar-19	17:00	5.8	E
21-Mar-19	18:00	6.7	E
21-Mar-19	19:00	5.4	E
21-Mar-19	20:00	5.4	NE
21-Mar-19	21:00	5.4	E
21-Mar-19	22:00	6.3	E
21-Mar-19	23:00	6.3	E
22-Mar-19	0:00	4.9	E
22-Mar-19	1:00	4.9	ENE
22-Mar-19	2:00	4	ENE
22-Mar-19	3:00	2.7	E
22-Mar-19	4:00	2.7	E
22-Mar-19	5:00	3.6	WSW
22-Mar-19	6:00	3.1	W
22-Mar-19	7:00	1.8	NNE
22-Mar-19	8:00	4	E
22-Mar-19	9:00	3.1	E
22-Mar-19	10:00	3.6	E
22-Mar-19	11:00	3.6	E
22-Mar-19	12:00	4.5	E
22-Mar-19	13:00	4	E
22-Mar-19	14:00	4.9	NE
22-Mar-19	15:00	4.9	E
22-Mar-19	16:00	5.8	E
22-Mar-19	17:00	5.8	E
22-Mar-19	18:00	6.3	ENE
22-Mar-19	19:00	5.4	E
22-Mar-19	20:00	4	E
22-Mar-19	21:00	3.6	WSW
22-Mar-19	22:00	4.9	W
22-Mar-19	23:00	5.8	WSW
23-Mar-19	0:00	4	WSW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

23-Mar-19	1:00	6.7	WSW
23-Mar-19	2:00	4	WSW
23-Mar-19	3:00	4.9	E
23-Mar-19	4:00	11.2	N
23-Mar-19	5:00	5.4	NNE
23-Mar-19	6:00	3.1	WNW
23-Mar-19	7:00	5.4	NE
23-Mar-19	8:00	6.7	NE
23-Mar-19	9:00	7.2	NNE
23-Mar-19	10:00	6.3	NE
23-Mar-19	11:00	7.2	NE
23-Mar-19	12:00	8	N
23-Mar-19	13:00	5.8	E
23-Mar-19	14:00	8	NE
23-Mar-19	15:00	6.7	SSE
23-Mar-19	16:00	7.2	ENE
23-Mar-19	17:00	8.5	NE
23-Mar-19	18:00	4.9	NNE
23-Mar-19	19:00	4.9	NNE
23-Mar-19	20:00	6.7	ENE
23-Mar-19	21:00	5.8	NNE
23-Mar-19	22:00	5.8	NE
23-Mar-19	23:00	5.8	NE
24-Mar-19	0:00	5.4	E
24-Mar-19	1:00	6.3	ENE
24-Mar-19	2:00	3.6	SSW
24-Mar-19	3:00	7.6	E
24-Mar-19	4:00	5.4	E
24-Mar-19	5:00	5.4	E
24-Mar-19	6:00	1.8	SSW
24-Mar-19	7:00	4.5	E
24-Mar-19	8:00	2.7	E
24-Mar-19	9:00	4	WSW
24-Mar-19	10:00	4.5	WSW
24-Mar-19	11:00	4.5	WSW
24-Mar-19	12:00	4.9	S
24-Mar-19	13:00	5.8	W
24-Mar-19	14:00	6.7	SW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

24-Mar-19	15:00	4.9	W
24-Mar-19	16:00	4	WSW
24-Mar-19	17:00	4	E
24-Mar-19	18:00	3.6	E
24-Mar-19	19:00	3.1	E
24-Mar-19	20:00	3.1	SSE
24-Mar-19	21:00	3.6	ENE
24-Mar-19	22:00	2.2	SSE
24-Mar-19	23:00	3.6	E
25-Mar-19	0:00	3.6	E
25-Mar-19	1:00	3.1	E
25-Mar-19	2:00	3.6	E
25-Mar-19	3:00	1.3	SSE
25-Mar-19	4:00	1.8	ENE
25-Mar-19	5:00	1.3	ENE
25-Mar-19	6:00	1.8	ENE
25-Mar-19	7:00	1.3	E
25-Mar-19	8:00	3.6	E
25-Mar-19	9:00	4	N
25-Mar-19	10:00	6.3	E
25-Mar-19	11:00	6.3	ENE
25-Mar-19	12:00	5.8	E
25-Mar-19	13:00	6.7	NE
25-Mar-19	14:00	6.7	NE
25-Mar-19	15:00	7.6	NE
25-Mar-19	16:00	6.3	NE
25-Mar-19	17:00	6.3	E
25-Mar-19	18:00	4.9	E
25-Mar-19	19:00	5.8	NNE
25-Mar-19	20:00	5.4	NE
25-Mar-19	21:00	5.4	ENE
25-Mar-19	22:00	4.9	NE
25-Mar-19	23:00	4	NNE
26-Mar-19	0:00	5.8	NE
26-Mar-19	1:00	6.3	NE
26-Mar-19	2:00	4.9	ENE
26-Mar-19	3:00	4.9	E
26-Mar-19	4:00	4.9	E

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

26-Mar-19	5:00	5.4	E
26-Mar-19	6:00	5.4	E
26-Mar-19	7:00	4.9	NE
26-Mar-19	8:00	4.9	NE
26-Mar-19	9:00	6.3	E
26-Mar-19	10:00	5.8	ENE
26-Mar-19	11:00	6.3	NE
26-Mar-19	12:00	5.4	E
26-Mar-19	13:00	5.4	NNE
26-Mar-19	14:00	5.4	E
26-Mar-19	15:00	5.8	E
26-Mar-19	16:00	4.9	E
26-Mar-19	17:00	5.4	N
26-Mar-19	18:00	5.4	ENE
26-Mar-19	19:00	5.8	E
26-Mar-19	20:00	5.4	SSE
26-Mar-19	21:00	4.5	E
26-Mar-19	22:00	4.5	E
26-Mar-19	23:00	4	E
27-Mar-19	0:00	4	E
27-Mar-19	1:00	3.6	E
27-Mar-19	2:00	4	ENE
27-Mar-19	3:00	2.7	E
27-Mar-19	4:00	2.2	E
27-Mar-19	5:00	3.1	E
27-Mar-19	6:00	1.3	ENE
27-Mar-19	7:00	1.8	E
27-Mar-19	8:00	2.2	E
27-Mar-19	9:00	3.1	E
27-Mar-19	10:00	3.1	E
27-Mar-19	11:00	4.5	E
27-Mar-19	12:00	5.8	E
27-Mar-19	13:00	4.9	E
27-Mar-19	14:00	4.9	E
27-Mar-19	15:00	4.9	NE
27-Mar-19	16:00	4	E
27-Mar-19	17:00	4	E
27-Mar-19	18:00	5.8	WSW

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

27-Mar-19	19:00	4.9	WSW
27-Mar-19	20:00	4.9	SW
27-Mar-19	21:00	4	WSW
27-Mar-19	22:00	3.1	WSW
27-Mar-19	23:00	4.5	SW
28-Mar-19	0:00	4.5	SW
28-Mar-19	1:00	4	WSW
28-Mar-19	2:00	4	WSW
28-Mar-19	3:00	2.7	WSW
28-Mar-19	4:00	1.3	W
28-Mar-19	5:00	4.9	WSW
28-Mar-19	6:00	2.2	SW
28-Mar-19	7:00	4	W
28-Mar-19	8:00	4.5	SW
28-Mar-19	9:00	4	WSW
28-Mar-19	10:00	3.6	WSW
28-Mar-19	11:00	4.9	W
28-Mar-19	12:00	4.5	SW
28-Mar-19	13:00	6.3	SW
28-Mar-19	14:00	7.6	WSW
28-Mar-19	15:00	5.8	ENE
28-Mar-19	16:00	4.5	SW
28-Mar-19	17:00	4.9	ENE
28-Mar-19	18:00	4.5	WSW
28-Mar-19	19:00	5.8	WSW
28-Mar-19	20:00	3.6	WSW
28-Mar-19	21:00	5.8	WSW
28-Mar-19	22:00	3.1	W
28-Mar-19	23:00	1.8	W
29-Mar-19	0:00	3.1	WSW
29-Mar-19	1:00	1.3	W
29-Mar-19	2:00	1.3	ENE
29-Mar-19	3:00	1.3	W
29-Mar-19	4:00	1.3	NE
29-Mar-19	5:00	1.8	SW
29-Mar-19	6:00	1.3	WSW
29-Mar-19	7:00	1.3	E
29-Mar-19	8:00	0.9	E

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

29-Mar-19	9:00	1.3	ESE
29-Mar-19	10:00	5.8	E
29-Mar-19	11:00	6.7	N
29-Mar-19	12:00	5.8	E
29-Mar-19	13:00	4.9	NE
29-Mar-19	14:00	7.6	E
29-Mar-19	15:00	5.4	NNE
29-Mar-19	16:00	5.8	NE
29-Mar-19	17:00	6.7	NE
29-Mar-19	18:00	5.4	NE
29-Mar-19	19:00	6.3	NE
29-Mar-19	20:00	6.3	NNE
29-Mar-19	21:00	7.2	ENE
29-Mar-19	22:00	4.5	NE
29-Mar-19	23:00	4.9	NE
30-Mar-19	0:00	5.8	NE
30-Mar-19	1:00	4.5	E
30-Mar-19	2:00	4.9	E
30-Mar-19	3:00	5.4	E
30-Mar-19	4:00	2.7	NNE
30-Mar-19	5:00	5.4	NE
30-Mar-19	6:00	6.7	NE
30-Mar-19	7:00	7.2	E
30-Mar-19	8:00	8.5	NNE
30-Mar-19	9:00	8	NE
30-Mar-19	10:00	7.2	ENE
30-Mar-19	11:00	7.2	N
30-Mar-19	12:00	7.6	NE
30-Mar-19	13:00	8.9	NNE
30-Mar-19	14:00	8.5	NE
30-Mar-19	15:00	8	NE
30-Mar-19	16:00	6.7	ENE
30-Mar-19	17:00	8	NNE
30-Mar-19	18:00	7.2	SE
30-Mar-19	19:00	5.4	ENE
30-Mar-19	20:00	6.3	NE
30-Mar-19	21:00	7.6	NNE
30-Mar-19	22:00	6.3	NNE

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

30-Mar-19	23:00	5.4	NNE
31-Mar-19	0:00	4.5	NE
31-Mar-19	1:00	6.7	E
31-Mar-19	2:00	8.9	ENE
31-Mar-19	3:00	8.5	NNE
31-Mar-19	4:00	6.3	NE
31-Mar-19	5:00	4.9	NE
31-Mar-19	6:00	6.7	N
31-Mar-19	7:00	5.8	NE
31-Mar-19	8:00	7.2	NE
31-Mar-19	9:00	5.8	NNE
31-Mar-19	10:00	7.2	N
31-Mar-19	11:00	7.2	NE
31-Mar-19	12:00	6.7	ENE
31-Mar-19	13:00	6.7	NNE
31-Mar-19	14:00	7.2	N
31-Mar-19	15:00	6.7	NNE
31-Mar-19	16:00	5.4	NNE
31-Mar-19	17:00	5.4	E
31-Mar-19	18:00	5.8	NNE
31-Mar-19	19:00	6.3	NNE
31-Mar-19	20:00	6.7	NE
31-Mar-19	21:00	4.9	N
31-Mar-19	22:00	6.3	NNE
31-Mar-19	23:00	4.5	NE

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 March 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Mar	2-Mar
3-Mar	4-Mar	5-Mar	6-Mar	7-Mar	8-Mar	9-Mar
	1-hr TSP x 3 [AM2] **24-hr TSP [AM2(A)]**	**Noise [M3, M4 & M5(C)]**			**1-hr TSP x 3 [AM2]**	**24-hr TSP [AM2(A)]**
10-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	16-Mar
	Noise [M3, M4 & M5(C)]			**1-hr TSP x 3 [AM2]**	**24-hr TSP [AM2(A)]**	
17-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar	23-Mar
			1-hr TSP x 3 [AM2]	**24-hr TSP [AM2(A)]** **Noise [M3, M4* & M5(C)]**		
24-Mar	25-Mar	26-Mar	27-Mar	28-Mar	29-Mar	30-Mar
		1-hr TSP x 3 [AM2]	**24-hr TSP [AM2(A)]** **Noise [M3, M4 & M5(C)]**			
31-Mar						

* The noise level limit is 65dB(A) during the exam period

Air Quality Monitoring Station

AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School

Noise Monitoring Station

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 April 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	6-Apr
		1-hr TSP x 3 [AM2] **24-hr TSP [AM2(A)]**	**Noise [M3, M4 & M5(C)]**			
7-Apr	8-Apr	9-Apr	10-Apr	11-Apr	12-Apr	13-Apr
	1-hr TSP x 3 [AM2] **24-hr TSP [AM2(A)]**	**Noise [M3, M4 & M5(C)]**			**1-hr TSP x 3 [AM2]**	**24-hr TSP [AM2(A)]**
14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr
	Noise [M3, M4 & M5(C)]			**1-hr TSP x 3 [AM2]** **24-hr TSP [AM2(A)]**		
21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr
			1-hr TSP x 3 [AM2] **24-hr TSP [AM2(A)]**	**Noise [M3*, M4 & M5(C)]**		
28-Apr	29-Apr	30-Apr	1-May	2-May	3-May	4-May
		1-hr TSP x 3 [AM2] **24-hr TSP [AM2(A)]**		**Noise [M3, M4 & M5(C)]**		

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)
* The noise level limit is 65dB(A) during the exam period

Air Quality Monitoring Station

AM2 - Lee Kau Yan Memorial School
AM2(A) - Ng Wah Catholic Secondary School

Noise Monitoring Station

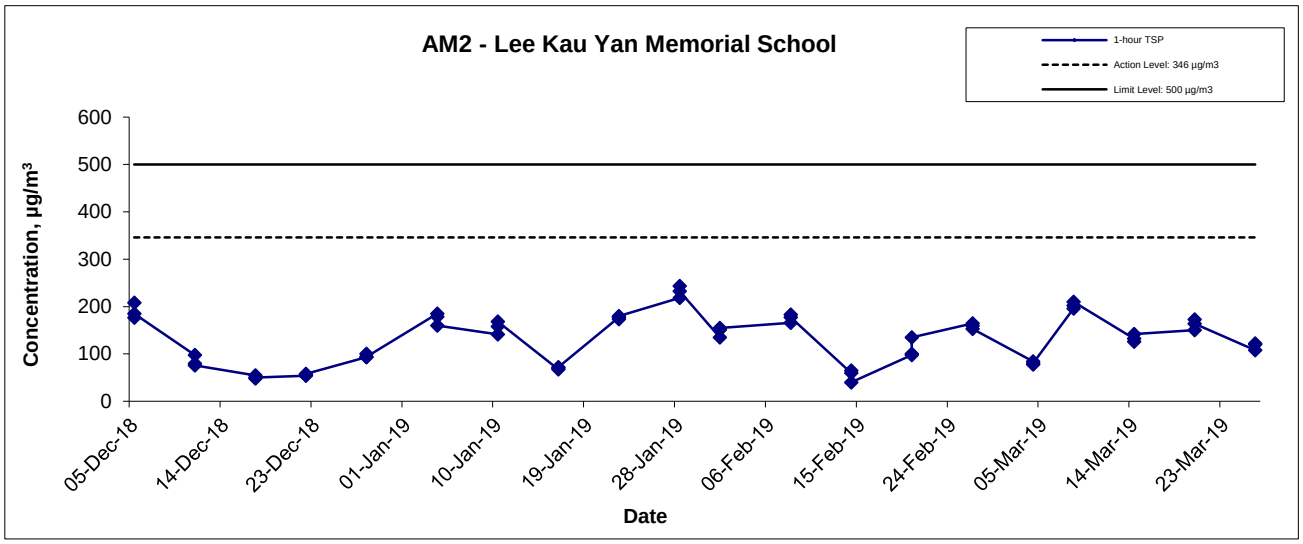
M3 - Cognitio College
M4 - Lee Kau Yan Memorial School
M5(C) - Mercy Grace's Home

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results in March 2019

Location AM2 - Lee Kau Yan Memorial School			
Date	Time	Weather	Particulate Concentration (µg/m3)
4-Mar-19	13:30	Sunny	84
4-Mar-19	14:30	Sunny	78
4-Mar-19	15:30	Sunny	80
8-Mar-19	13:00	Rainy	196
8-Mar-19	14:00	Rainy	202
8-Mar-19	15:00	Rainy	210
14-Mar-19	9:00	Cloudy	132
14-Mar-19	10:00	Cloudy	126
14-Mar-19	11:00	Cloudy	142
20-Mar-19	10:00	Fine	150
20-Mar-19	11:00	Fine	173
20-Mar-19	13:00	Fine	164
26-Mar-19	14:45	Fine	108.0
26-Mar-19	15:45	Fine	120.0
26-Mar-19	16:45	Fine	122.0
		Average	139.1
		Maximum	210.0
		Minimum	78.0

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: Mar 19	Project No.: MA16043 Appendix: E	CINOTECH

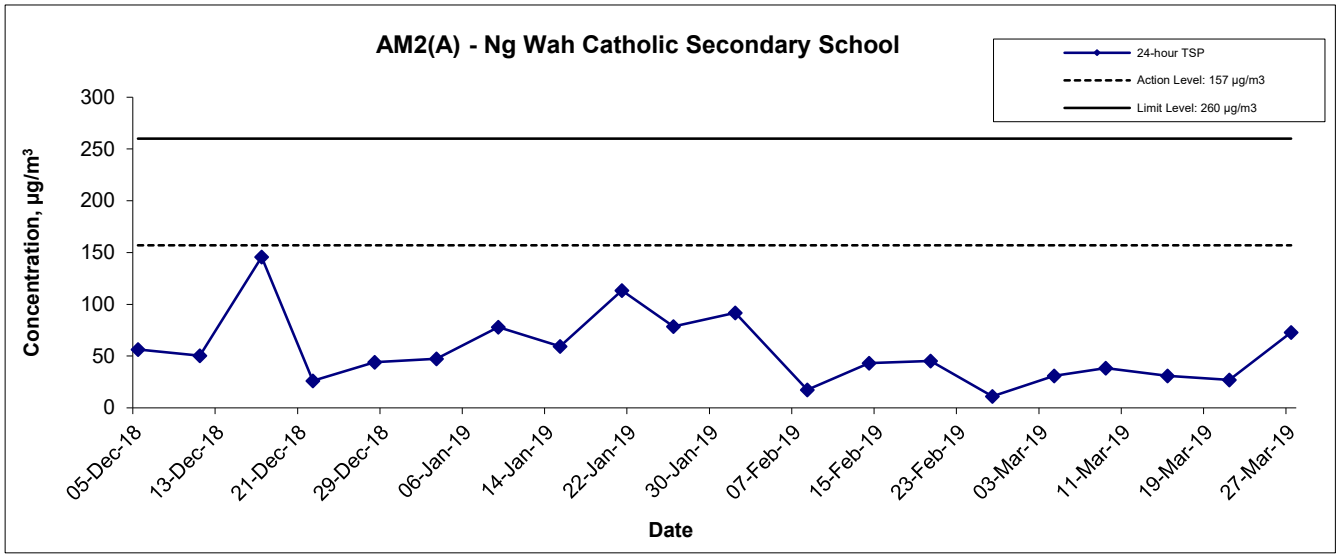
APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - 24-hour TSP Monitoring Results in March 2019

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 (m3/min)	Total vol. (m3)	Conc. (µg/m3)
				Initial	Final		Initial	Final		Initial	Final			
4-Mar-19	Sunny	759.9	759.9	2.9901	3.0438	0.0537	3830.4	3854.4	24.0	1.20	1.20	1.20	1732.4	31
9-Mar-19	Sunny	759.9	759.9	2.9826	3.0496	0.0670	3902.4	3926.4	24.0	1.22	1.22	1.22	1755.6	38
15-Mar-19	Sunny	765.5	765.5	2.9779	3.0317	0.0538	3926.4	3950.4	24.0	1.22	1.22	1.22	1756.7	31
21-Mar-19	Sunny	759.0	759.0	3.5069	3.5535	0.0466	3974.4	3998.4	24.0	1.21	1.20	1.20	1735.2	27
27-Mar-19	Sunny	761.4	761.4	3.4813	3.6088	0.1275	4022.4	4046.4	24.0	1.21	1.22	1.21	1749.5	73
													Min	27
													Max	73
													Average	40

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: Mar 19	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}	
5-Mar-19	13:05	Cloudy	73	74	71	71	68	
11-Mar-19	13:00	Sunny	80	82	78	80	64	
21-Mar-19	13:05	Sunny	80	81	78	80	66	
27-Mar-19	13:05	Sunny	80	81	78	80	80	Measured ≦ Baseline

Location M4 - Lee Kau Yan Memorial School

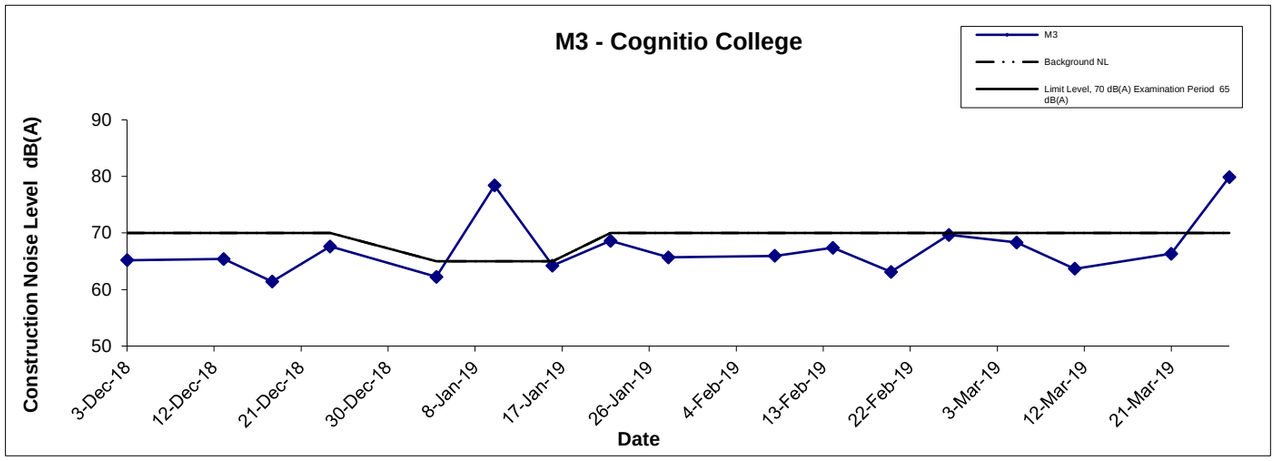
Date	Time	Weather	Unit: dB (A) (30-min)					
			Measured Noise Level			Baseline Level	Construction Noise Level	
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	
5-Mar-19	14:40	Sunny	70	71	69	77	70	Measured ≦ Baseline
11-Mar-19	14:33	Sunny	77	80	77		68	
21-Mar-19	14;40	Sunny	77	78	75		65	
27-Mar-19	15:00	Sunny	77	79	75		69	

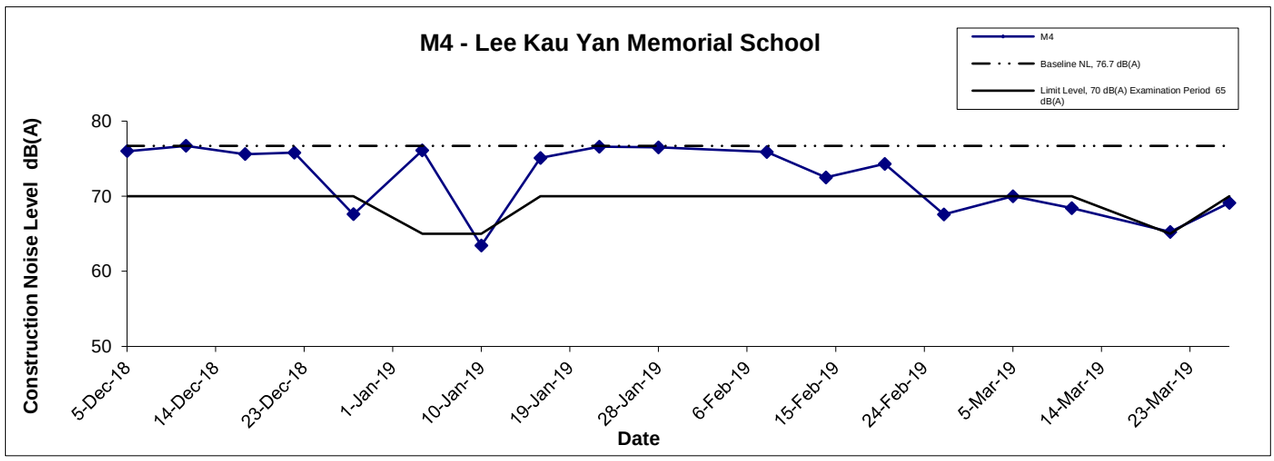
Location M5(C) - Mercy Grace's Home

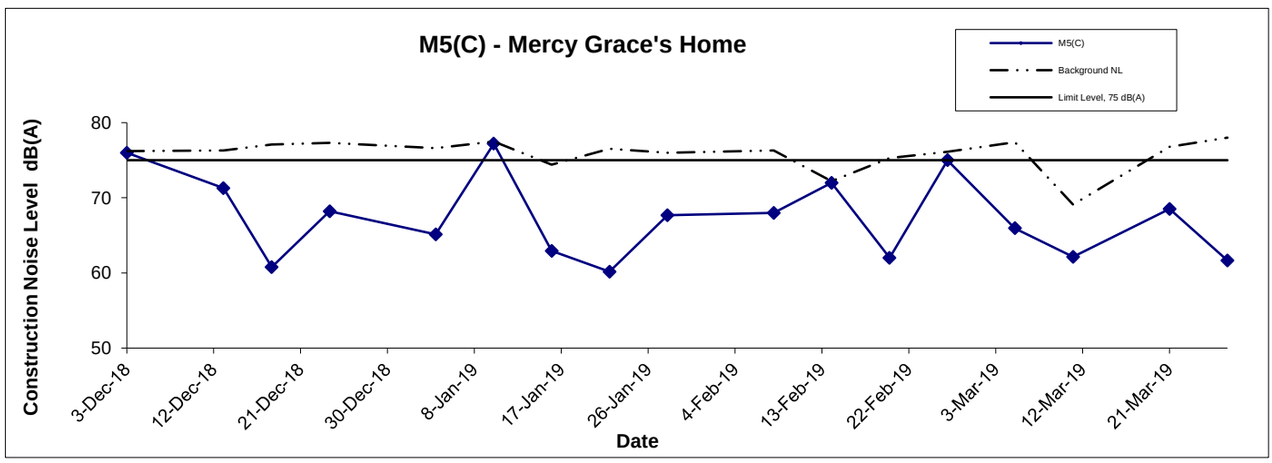
Date	Time	Weather	Unit: dB (A) (30-min)					
			Measured Noise Level			Background Noise	Construction Noise Level	
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	
5-Mar-19	15:20	Sunny	78	79	76	77	66	
11-Mar-19	13:00	Sunny	70	71	67	69	62	
21-Mar-19	15:50	Sunny	77	79	75	77	69	
27-Mar-19	16:00	Sunny	78	79	76	78	62	

*All data has been presented as nearest integers

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 Date: Mar 19	Project No.: MA16043 Appendix: G	CINOTECH

APPENDIX H
SUMMARY OF EXCEEDANCE

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)

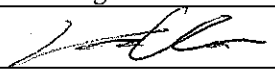
(C) Exceedance Report for Landscape and Visual
(NIL in the reporting month)

APPENDIX I
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190304
Date	04 March 2019
Time	14:00 – 15:00

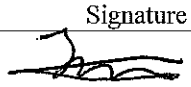
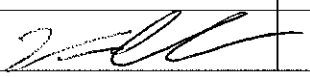
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• 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	
	- Following up on the previous site audit : All environmental deficiencies were rectified/improved by the Contractor	

	Name	Signature	Date
Recorded by	Karina Chan		04 March 2019
Checked by	Mr. K.S Lee		04 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190313
Date	13 March 2019
Time	09:30 – 11:00

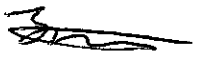
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• 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	
	- Following up on the previous site audit : All environmental deficiencies were rectified/improved by the Contractor	

	Name	Signature	Date
Recorded by	Tommy Lam		13 March 2019
Checked by	Karina Chan		13 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190318
Date	18 March 2019
Time	14:10 – 15:22

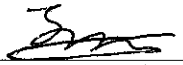
Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
190318-R1	• Rubbish or general waste accumulating in portion 6, should be cleaned up.	E1
	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 : All environmental deficiencies were rectified/improved by the Contractor	

	Name	Signature	Date
Recorded by	Tommy Lam		18 March 2019
Checked by	Karina Chan		18 March 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190325
Date	25 March 2019
Time	14:15 – 15:15

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	
190318-R1	- Following up on the previous site audit: Contractor should clean up the rubbish in portion 6.	E1

	Name	Signature	Date
Recorded by	Tommy Lam		25 March 2019
Checked by	Karina Chan		25 March 2019

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

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 2019

As at 1 April 2019

Month	Quantities of Inert C & D Materials Generated Monthly						Quantities of C & D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken	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	0.154
Feb	0	0	0	0	0	0	0	0	0	0	0.035
Mar	0	0	0	0	0	0	0	0	0	0	0.035
Apr	-	-	-	-	-	-	-	-	-	-	-
May	-	-	-	-	-	-	-	-	-	-	-
June	-	-	-	-	-	-	-	-	-	-	-
Sub-total	66.537	0	0	0	66.537	0	0	0	0	0	1.456
July	-	-	-	-	-	-	-	-	-	-	-
Aug	-	-	-	-	-	-	-	-	-	-	-
Sept	-	-	-	-	-	-	-	-	-	-	-
Oct	-	-	-	-	-	-	-	-	-	-	-
Nov	-	-	-	-	-	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-	-
Total	66.537	0	0	0	66.537	0	0	0	0	0	1.456

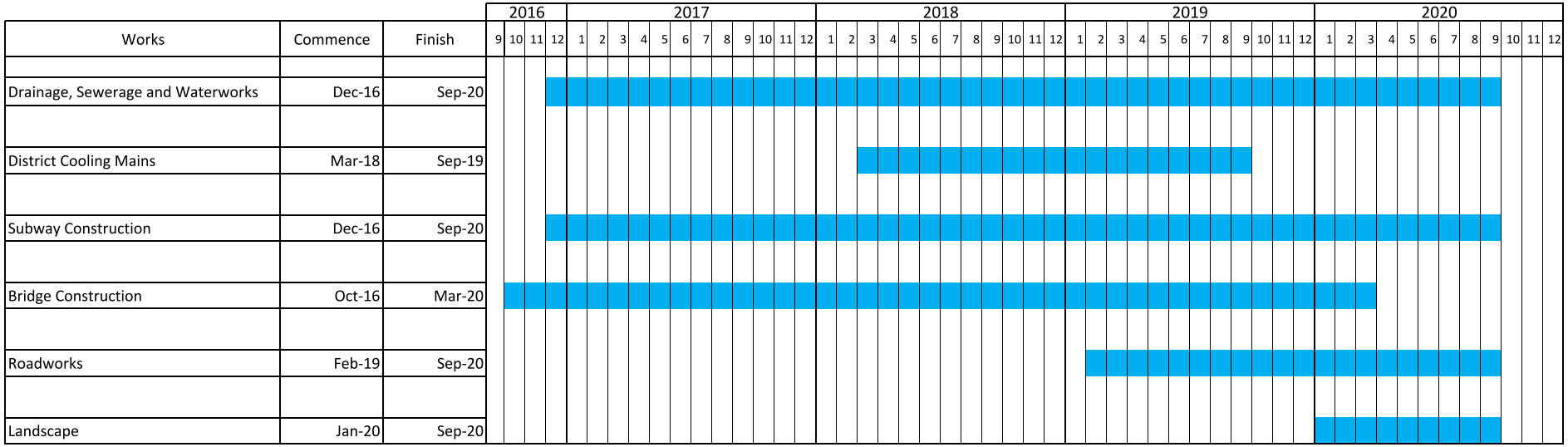
Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ Cardboard packaging	Plastics (see Note 3)	Chemical 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	67	0	0	0	0	0	2

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 breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 5,000 m³.
(5) The total general refuse generated before Jan 2019 is 1232 m³ for this project and this value accounts for the sub-total and total general refuse as shown in this (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