



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

豐盛創建環保科技集團附屬公司 Subsidiary of FSE Environmental Technologies Group
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Proposed Road Improvement Works in West Kowloon Reclamation Development – Phase 1

Environmental Monitoring & Audit Report

01/04/2016 – 30/04/2016

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Executive Summary

This is the third monthly Environmental Monitoring and Audit (EM&A) Report for Proposed Road Improvement Works in West Kowloon Reclamation Development – Phase 1. The project commenced on 6th February 2016. This report documents the finding of EM&A Works conducted from 1st April 2016 to 30th April 2016.

Environmental Monitoring and Audit Progress

Air Quality Monitoring

1-hr Total Suspended Particulates (TSP) monitoring and 24-hr TSP monitoring were carried out on 5th, 11th, 16th, 22nd and 28th of April 2016.

Noise Monitoring

30-min LEQ noise monitoring was carried out on 5th, 11th, 16th, 22nd and 28th of April 2016.

Waste Management

According to Contractor's waste flow data, 2676.73 tonnes of inert C&D materials and 87.72 tonnes of general refuse were generated and disposed of.

Landscape and Visual Impact

Bi-weekly inspections were conducted on 7th and 21st April 2016. Most of the necessary mitigation measures have been implemented. Details of the audit findings and implementation status are presented in Section 6.

Environmental Site Inspection

Joint weekly inspections were conducted by representatives of the Contract Administrator, Engineer, Contractor and ET on 5th, 13th, 18th and 25th April 2016. The representative of the IEC joined the site inspection on 18th April 2016. Details of the audit findings and implementation status are presented in Section 6.

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

Two complaints received on 7th and 8th April 2016 were referred from EPD on 21st April 2016 regarding tree cutting noise during mid-night and early morning from Lin Cheung Road, Mong

Kok.

No exceedance of action level and limit level was recorded for TSP and Noise. No Non-compliance event, notification of summons and successful prosecution against the Project were received in this reporting month.

Variation in Construction Method

No variation in construction method from the proposed construction programme was made and affected the EM&A.

Future Key Issues

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

- Portion I – UU Diversion Works
- Portion HA – Trial Trench Works
- Portion HA – Pre-drilling Works
- Portion HA – Drainage Works
- Portion J – ELS Works
- Portion J – Construction of Retaining Wall
- Portion J – Tree Felling Works
- Portion Q – Excavation Works
- Portion Q – Common Trench Excavation

1 Introduction

1.1 The Project

This is a road improvement project in West Kowloon Reclamation Development (WKRd) for completing the developments and the commissioning of the new transport facilities.

Apart from the additional traffic impacts arising from the major development and transport facilities in WKRd, several major junctions in the area are currently operating with insufficient capacity causing serious congestion to some existing major road corridors such as Jordan Road (JRD), Ferry Street (FST) and Canton Road (CRD).

To enhance the road network of the area, Transport Department commissioned the “West Kowloon Reclamation Development Traffic Study” which identified and recommended Core and Additional Schemes together with the improvement works at the junction of CRD/FST/JRD. Implementation of these schemes would enable most of the key road junctions in the study area to operate with spare capacity, and the traffic queue length would also be reduced avoiding blockage to the upstream junctions

The Environmental Team (ET), Environmental Pioneers & Solutions Limited (EPSL), was appointed by Vibro Construction Co. Ltd. to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Proposed Road Improvement Works in West Kowloon Reclamation Development – Phase 1. The project proponent is Highways Department. This is a Designated Project under the Environmental Impact Assessment Ordinance (Cap.499). The No. of Environment Permit is EP-455/2013.

The construction works and EM&A programme of this project was commenced on 6th February 2016. The construction programme and project layout plan are shown in **Appendix A**.

1.2 Construction Programme and Activities

A summary of the major construction activities undertaken in this reporting period is shown as follows.

- Portion I – UU Diversion Works
- Portion HA – Trial Trench Works
- Portion HA – Pre-drilling Works
- Portion HA – Drainage Works
- Portion J – ELS Works
- Portion J – Construction of Retaining Wall
- Portion J – Tree Felling Works
- Portion Q – Excavation Works
- Portion Q – Common Trench Excavation

1.3 Project Organization

The project organization chart and contact details are shown in **Appendix B**.

1.4 Status of Environmental Licences, Notification and Permits

A summary of the relevant permits, licences, and notifications on environmental protection for this Project is presented in Table 1.5.1.

Table 1.5.1 Summary of the Status of Environmental Licences, Notification and Permits

Permit / License No.	Valid Period		Status	Remark
	From	To		
Notification pursuant to Air Pollution Control (Construction Dust) Regulation				
Ref. No. 386894	23/03/2015	N/A	Valid	/
Effluent Discharge License				
WT00021818-2015	18/06/2015	30/06/2020	Valid	Portion I
WT00021822-2015	18/06/2015	30/06/2020	Valid	Portion HA
WT00021825-2015	18/06/2015	30/06/2020	Valid	Portion J
WT00021826-2015	18/06/2015	30/06/2020	Valid	Portion Q
WT00021903-2015	26/06/2015	30/06/2020	Valid	Works area 1
Waste Disposal (Charges for Disposal of Construction Waste) Regulation				
Billing Account No.7022012	31/03/2015	N/A	Valid	/

Registration of Chemical Waste Producer				
WPN5213-229-V2215-01	01/06/2015	N/A	Valid	/
Construction Noise Permit				
GW-RE1183-15	04/12/2015	03/06/2016	Valid	Portion HA
GW-RE0323-16	05/04/2016	14/04/2016	Cancelled at 8 April 16	Portion HA

2 Air Quality Monitoring

2.1 Monitoring Locations

According to the EM&A Manual Section 3.5, four impact monitoring locations have been established for air quality monitoring, which are summarized in Table 2.1.1.

Table 2.1.1 Air Quality Monitoring Locations

Identification No.	Monitoring Location	Description	Parameter
AM1	Marine Department New Yau Ma Tei Public Cargo Working Area Administrative Building	Ground Floor Face to Hoi Po Road	1hr-TSP 24-hr TSP
AM2	Garden Building	Ground Floor Face to Canton Road	1hr-TSP 24-hr TSP
AM3	The Cullinan I	Ground Floor Face to Nga Cheung Road	1hr-TSP 24-hr TSP
AM4	Lai Chack Middle School	Ground Floor Face to Canton Road	1hr-TSP 24-hr TSP

Due to the rejection from the representatives/ property management of the premises, high volume samplers are not feasible to be installed at AM3 and AM4 for the 24-hr TSP monitoring. Alternative locations AM3-A and AM4-A are proposed accordingly. Coordination with the representatives of premises for the installation of high volume sampler at AM4-A is in progress, which are summarized in Table 2.1.2. The details of monitoring location plan are shown in **Appendix C**.

Table 2.1.2 Air Quality Monitoring Locations

ID No.	Monitoring Location	Description	Coordinates	Parameter
AM1	Marine Department New Yau Ma Tei Public Cargo Working Area Administrative Building	Ground Floor Face to Hoi Po Road	22°18'44.8"N 114°09'37.4"E	1hr-TSP
AM2	Garden Building	Ground Floor Face to Canton Road	22°18'12.7"N 114°10'05.7"E	1hr-TSP

AM3	The Cullinan I	Ground Floor Face to Nga Cheung Road	22°18'22.0"N 114°09'39.3"E	1hr-TSP
AM4	Lai Chack Middle School	Ground Floor Face to Canton Road	22°18'05.4"N 114°10'05.3"E	1hr-TSP
AM1	Marine Department New Yau Ma Tei Public Cargo Working Area Administrative Building	Rooftop Face to Hoi Po Road	22°18'44.8"N 114°09'37.4"E	24-hr TSP
AM2	Garden Building	Ground Floor Face to Canton Road	22°18'12.7"N 114°10'05.7"E	24-hr TSP
AM3-A	International Commerce Centre (Works Area 4)	Ground Floor Near to International Commerce Centre Roundabout on Nga Cheung Road and	22°18'10.5"N 114°09'34.5"E	24-hr TSP
AM4-A	Kowloon Park*	N/A*	22°18'09.1"N 114°10'11.8"E	24-hr TSP*

*Remark: Coordination for the installation of high volume samplers is in progress.

2.2 Monitoring Frequency

For 1-hr TSP monitoring, the sampling frequency is at least three times in every six days when the highest dust impact occurs.

For 24-hr TSP monitoring, the sampling frequency is once in every six days when the highest dust impact occurs.

Monitoring was carried out on 5th, 11th, 16th, 22nd and 28th of April 2016.

2.3 Monitoring Equipment

1-hr TSP monitoring was carried out by the portable dust meters. A comparison test for the portable dust meters with the HVS was carried out to ensure the accuracy for direct reading of the portable dust meter. 24-hr TSP monitoring was carried out by the high volume samplers. The monitoring equipment is listed in Table 2.3.1 and Calibration Certificates of the equipment are shown in **Appendix D**.

Table 2.3.1 Air Quality Monitoring Equipment

Equipment	Manufacturer & Model No.	Serial No.	Latest Calibration Date	Next Calibration Date
Portable Dust Meter	TSI AM510	11510002	02/10/2015	01/10/2016
		11510003	02/10/2015	01/10/2016
		11510004	02/10/2015	01/10/2016
		11510005	02/10/2015	01/10/2016
High Volume Sampler	Tisch TE-5170	0001	24/03/2016	23/05/2016
		0002	24/03/2016	23/05/2016
		0003	19/03/2016	18/05/2016
Calibration Kit	Tisch TE-5028A	2137	11/02/2016	10/02/2017

2.4 Monitoring Methodology and Parameters

1-hr TSP and 24-hr TSP air quality monitoring has been carried out during the reporting period.

Measurements of 1-hr TSP monitoring were taken by a Dust Trak aerosol monitor or its equivalent that is a portable and battery-operated laser photometer capable of performing real time 1-hr TSP measurements.

Field monitoring procedures are as follows:

- The monitoring station was 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 was checked to ensure good functioning of the dust monitor.

- Zero Cal was conducted to the dust monitor to each test for ensuring more accurate data.
- Logging setup and Instrument setup such as log interval, test length, number of test and impactor adaptor will set as follows:
 - log interval : 1min
 - test length : 60mins
 - number of test : 3
 - Impactor adaptor: 10 μ (PM₁₀)
- Start the monitoring lasting 3 hours for each monitoring location
- At the end of the monitoring period, the Average, Maximum and Minimum of each TSP test shall be recorded. In addition on a standard record sheet.

Measurements of 24-hr TSP monitoring were taken by High Volume Samplers (HVSs).

HVSs fitted with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

Installation of HVSs:

- A horizontal platform with appropriate support to secure the samplers against gusty wind should be provided;
- No two samplers should be placed less than 2 meters apart;
- The distance between the sampler and an obstacle, such as buildings, must be 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 samplers;
- A minimum of 2 meters separation from any supporting structure, measured horizontally is required;
- No furnace or incinerator flue is nearby;
- Airflow around the sampler is unrestricted;
- The sampler is more than 20 meters from the dripline;
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring;
- Permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
- A secured supply of electricity is needed to operate the samplers.

Data of wind speed and wind direction was extracted from King's Park Meteorological Station of Hong Kong Observatory. The collection of wind data meets the prescribed criteria in S.3.4.3 of the EM&A Manual.

Other relevant data such as monitoring location, time, weather conditions and any other special phenomena at the construction site were recorded during the measurement period.

2.5 Maintenance and Calibration

Dust Trak aerosol monitors were calibrated by the manufacturer or a HOKLAS Laboratory for every year and on-site Zero Cal before every monitoring. HVSs were calibrated after installation and re-calibrated on bi-monthly basis.

2.6 Quality Assurance / Quality Control Results and Detection Limits

The portable dust meter was calibrated annually by the manufacturer or a HOKLAS laboratory. HVSs were first been calibrated after installation and repeated on bi-monthly basis. Calibration Kit for HVSs was calibrated annually by the manufacturer or a HOKLAS laboratory. The detection limits of the HVSs meet with the prescribed standard. Calibration details and current Calibration Certificates are shown in **Appendix D**.

2.7 Action and Limit Level for 1-hr TSP and 24-hr TSP

The Action and Limit levels for air quality impact monitoring results at all monitoring locations are summarized in Table 2.7.1, which would be applied for compliance assessment of air quality for this project. If the air quality monitoring results at any monitoring stations exceeded the criteria, the actions in accordance with the Event and Action Plan in Table 2.7.2 shall be taken.

Table 2.7.1 Established TSP Actions and Limit Level

Monitoring Locations	Monitoring Parameter	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM1	1-hr TSP	288	500
AM2		299	500
AM3		299	500

AM4	24-hr TSP	303	500
AM1		157	260
AM2		183	260
AM3-A		177	260

Table 2.7.2 Event and action Plan for Air Quality

Event	ET	IEC	WKCD	Contractor
Action Level				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and WKCD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	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.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and WKCD; 3. Advise the WKCD on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and WKCD; 8. 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 ET on the effectiveness of the proposed remedial measures; 5. Monitor the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial to WKCD within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

Event	ET	IEC	WKCD	Contractor
Limit Level				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform WKCD, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and WKCD informed of the results. 	<ol style="list-style-type: none"> 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 WKCD on the effectiveness of the proposed remedial measures; 5. Monitor the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify IEC, WKCD, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and WKCD to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and WKCD informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst WKCD, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the WKCD accordingly; 5. Monitor the implementation of remedial measures. 	<ol style="list-style-type: none"> 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. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the WKCD until the exceedance is abated.

2.8 Monitoring Results and Observations

24-hr TSP monitoring was conducted at four monitoring locations. The monitoring results are summarized in Table 2.8.1. 24-hr TSP monitoring was conducted at two monitoring locations. The monitoring results are summarized in Table 2.8.2. Detailed impact monitoring data of 1-hr TSP, 24-hr TSP and meteorological data are shown in **Appendix E**.

Table 2.8.1 Summary of average 1-hr TSP monitoring data

Monitoring Locations	Average 1-hr TSP ($\mu\text{g}/\text{m}^3$)	Range 1-hr TSP ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM1	84	38 – 124	288	500
AM2	61	54 – 70	299	500
AM3	82	26 – 152	299	500
AM4	75	56 – 95	303	500

Table 2.8.2 Summary of average 24-hr TSP monitoring data

Monitoring Locations	Average 24-hr TSP ($\mu\text{g}/\text{m}^3$)	Range 24-hr TSP ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM1	56	25 – 99	157	260
AM2	57	29 – 88	183	260
AM3-A	109	92 – 142	177	260

In accordance with the established action and limited levels for impact monitoring, there was no exceedance recorded in the reporting period.

During the monitoring period, vehicle emissions were identified as one of the dust sources for AM1, AM2, AM3, AM4 and AM3-A. TSP levels of AM2 and AM4 may affect by the construction activities from other construction sites near Canton Road. TSP level of AM3-A may affect by construction activities from other construction sites near Nga Cheung Road.

2.9 Monitoring Schedule for Next Reporting Month

The monitoring schedule for next reporting month is scheduled on 4th, 10th, 16th, 21st and 27th of May 2016.

3 Noise Monitoring

3.1 Monitoring Locations

According to the EM&A Manual Section 4.5, five impact monitoring locations have been established for noise impact monitoring during the construction phase of the project, which are summarized in Table 3.1.1. The details of monitoring location plan are shown in **Appendix C**.

Table 3.1.1 Noise Monitoring Locations

Identification No.	Noise Monitoring Location	Description	Measurement Type
NM1	Sorrento - Tower 1	Ground Floor Face to Nga Cheung Road	Façade
NM2	Yau Ma Ti Catholic Primary School (Hoi Wang Road)	Ground Floor Face to Hoi Ting Road	Façade
NM3	The Cullinan I	Ground Floor Face to Nga Cheung Road	Façade
NM4	Lai Chack Middle School	Ground Floor Face to Canton Road	Façade
NM5	Yue Tak Building	Ground Floor Face to Jordan Road	Façade

3.2 Monitoring Frequency

The regular monitoring for each location was performed on a weekly basis.

Monitoring was carried out on 5th, 11th, 16th, 22nd and 28th of April 2016.

3.3 Monitoring Equipment

Noise monitoring was conducted by using BSWA 806 which complied with the International Electrotechnical Commission Publications 61672:2002 (Type 1), 60651:1979 (Type 1) and 60804:1985 (Type 1) Specifications as referred to the Technical Memorandum to the Noise Control Ordinance. The equipment was calibrated and verified by certified laboratory to ensure they can perform to the same level of accuracy as stated in the manufacturer's specification. Before and after the baseline

measurement, the reading of sound level meter was checked with the acoustic calibrator and the measurements were accepted as valid if the calibration levels before and after the noise measurement agreed to within 1.0 dB. The measurement equipment is listed in Table 3.3.1 and Calibration Certificates of the equipment are shown in **Appendix D**.

Table 3.3.1 Equipment List for Noise Monitoring

Equipment	Manufacturer & Model No.	Precision Grade	Serial No.	Latest Calibration Date	Next Calibration Date
Sound level meter	SVANTEK 971	IEC61672 Type 1	34350	28/12/2015	27/12/2016
Acoustical calibrator	SVANTEK SV30A	IEC 942 Type 1	29085	28/12/2015	27/12/2016

3.4 Monitoring Methodology and Parameters

The construction noise level was measured in terms of the A-weighted equivalent continuous sound pressure level, L_{Aeq} . L_{Aeq} (30minutes) was used as the monitoring parameter for the impact monitoring in the time period between 0700 to 1900 hours on normal weekdays.

In case of non-compliance with the construction noise criteria, more frequent monitoring, as specified in the Action plan in Table 3.6.2, shall be carried out. This additional monitoring shall be carried out until the recorded noise levels are rectified or proved to be irrelevant to the construction activities.

Field monitoring procedures are as follows:

- The monitoring station was 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 was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time will set as follows:
 - frequency weighting : A
 - time weighting : Fast
- 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

considered invalid and repeat of noise measurement is required after re-calibration or repair of the equipment.

- The wind speed at the monitoring station shall be checked with the portable wind meter.
- 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 shall be recorded. In addition, site conditions and noise sources should be recorded on a standard record sheet.

3.5 Maintenance and Calibration

Monitoring equipment was calibrated by the HOKAS Laboratory for every year and on-site calibrated before and after every monitoring.

3.6 Quality Assurance / Quality Control Results and Detection Limits

The sound level meter and calibrator were calibrated annually by the HOKLAS laboratory. The detection limits of the sound level meter meet with the prescribed standard. Calibration details and current Calibration Certificates are shown in **Appendix D**.

3.7 Action and Limit Level for Construction Noise

The Action and Limit levels for construction noise are defined in Table 3.7.1. Should exceedance of the criteria occur, action in accordance with the Action Plan in Table 3.7.2 shall be carried out.

Table 3.7.1 Action and Limit Levels for Construction Noise at all Sensitive Receivers

Monitoring Locations	Building Type	Time Period	Action Level	Limit Level
NM1	Residential	Daytime 0700 – 1900 hrs on normal	When one documented complaint is	75 dB(A)
NM2	Education			70 dB(A) / 65dB(A)*

NM3	Residential	weekdays	received	75 dB(A)
NM4	Education			70 dB(A) / 65dB(A)*
NM5	Residential			75 dB(A)

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

Table 3.7.2 Event / Action Plan for Construction Noise

Event	ET	IEC	WKCD	Action Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify WKCD, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, WKCD and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the WKCD accordingly; 3. Advise the WKCD on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC and WKCD; 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 1. Inform IEC, WKCD, 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 WKCD on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and WKCD informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst WKCD, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the WKCD accordingly. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and WKCD 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 WKCD until the exceedance is abated.

3.8 Monitoring Results and Observations

Noise impact monitoring was conducted at five monitoring locations. The monitoring results are summarized in Table 3.8.1. Detailed impact monitoring data of noise are shown in **Appendix F1**.

Table 3.8.1 Summary of average noise monitoring data

Monitoring Locations	Monitoring Date	Baseline Level (dB(A))	L _{Aeq} (dB(A))	Corrected Noise Level (dB(A))* ¹	Action Level (dB(A))	Limit Level (dB(A))
NM1	5/4/2016	75.1	75.2	58.8	When one documented complaint is received	75 dB(A)
	11/4/2016		74.8	73.8		
	16/4/2016		74.3	N/A		
	22/4/2016		75.4	63.6		
	28/3/2016		77.5	73.8		
NM2	5/4/2016	66.5	70.1	67.6	When one documented complaint is received	70 dB(A) * ²
	11/4/2016		68.6	N/A		70 dB(A) * ²
	16/4/2016		71.5	69.8		70 dB(A) * ²
	22/4/2016		69.7	N/A		70 dB(A) * ²
	28/3/2016		69.5	N/A		70 dB(A) * ²
NM3	5/4/2016	74.5	74.7	N/A	When one documented complaint is received	75 dB(A)
	11/4/2016		72.6	N/A		
	16/4/2016		73.8	N/A		
	22/4/2016		74.5	N/A		
	28/3/2016		77.1	73.6		
NM4	5/4/2016	73.3	73.8	64.2	When one documented complaint is received	70 dB(A) * ²
	11/4/2016		73.5	60.0		70 dB(A) * ²
	16/4/2016		73.4	57.0		70 dB(A) * ²
	22/4/2016		67.6	N/A		70 dB(A) * ²
	28/3/2016		74.0	65.7		70 dB(A) * ²
NM5	5/4/2016	71.8	70.1	N/A	When one documented complaint is received	75 dB(A)
	11/4/2016		75.1	72.4		
	16/4/2016		70.8	N/A		
	22/4/2016		68.5	N/A		
	28/3/2016		69.6	N/A		

Remark:

*¹ Calculations refer to Section 3.5 of the Baseline environmental monitoring report. “N/A” for

measured noise level was within limit level and no noise correction was made.

^{*2} 70dB(A) for schools during normal teaching periods. School schedule is shown in **Appendix F2**.

^{*3} 65dB(A) for schools examination periods. School schedule is shown in **Appendix F2**.

In accordance with the established action and limited levels for impact monitoring, there was no exceedance recorded in the reporting period.

During the monitoring period, traffic noise was identified as one of the noise source for NM1, NM2, NM3, NM4 and NM5. Noise levels of NM1 and NM3 may influence by the construction activities from other construction sites near Nga Cheung Road. Noise level of NM2 may influence by construction activities from other construction sites near Hoi Ting Road. Noise levels of NM4 and NM5 may influence by the construction activities from other construction sites near Canton Road.

3.9 Monitoring Schedule for Next Reporting Month

The monitoring schedule for next reporting month is scheduled on 4th, 10th, 16th, 21st and 27th of May 2016.

4 Solid and Liquid Waste Management Status

With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in Table 4.1. During this reporting month, inert C&D materials and general refuse were generated and disposed. No mixed waste was generated. No chemical waste was generated and collected by licensed collector. No paper, plastic and metal was recycled. Detail of waste management data is presented in **Appendix G**.

Table 4.1 Quantities of Waste Disposed from the Project

Reporting Month	Quantity						
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)					
		General Refuse	Mixed Waste	Chemical Waste	Recycled materials		
					Paper/ cardboard	Plastics	Metals
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)
April 2016	2676.73	87.72	0	0	0	0	0
Notes:							
(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.							
(b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse and vegetative wastes. Steel metal generated from the Project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.							

Waste materials were generated during this reporting period, such as excavated waste, demolition waste and general refuse. Contractor handled, stored and disposed in accordance with good waste management practice and EPD's regulation and requirements.

5 Landscape and Visual Impact

In accordance with the EM&A Manual, the landscape and visual mitigation measures shall be implemented to minimize the landscape and visual impacts during the construction works. The proposed monitoring program for landscape and visual impact is detailed in Table 5.1.

Table 5.1 Proposed Monitoring Program

Stage	Monitoring Task	Frequency	Report	Approval
Construction stage	Mitigation measures implementation	Bi-weekly	Landscape and Visual Impact Assessment Checklist	Registered Landscape Architect & ET Leader

Bi-weekly site inspections were conducted by representatives of the Engineer, Contractor and ET on 7th and 21st April 2016. The observations, reminders and recommendations made during the site inspections are summarized in Section 6, Table 6.1.

The implementation status of the proposed mitigation measures for landscape and visual impacts is given in **Appendix H**. Should non-conformity on one occur, action in accordance with the Action Plan in Table 5.2 shall be carried out.

Table 5.2 Event / Action Plan for Landsscape and Visual Impact

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
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 2. Inform IEC and ER 3. Increase monitoring frequency 4. Discuss remedial actions with IEC, ER and Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring	1. Check monitoring 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. Supervise 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

6 Environmental Site Inspection

6.1 Site Audit

Site audit was carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

Joint weekly inspections were conducted by representatives of the Contract Administrator, Engineer, Contractor and ET on 5th, 13th, 18th and 25th April 2016. The representative of the IEC joined the site inspection on 18th April 2016. Observations were recorded and summarized in table 6.1.

No inspection was conducted by EPD during the reporting period.

During site inspection in the reporting month, no non-compliance was identified.

6.2 Implementation Status of Environmental Mitigation Measures

According to the EM&A Manual of the Project, the mitigation measures detailed in the documents shall be implemented during the construction phase. Updated status summary of the Environmental Mitigation Implementation Schedule is provided in **Appendix H**.

The observations, reminders and recommendations made during the audit sessions are summarized in table 6.1.

Table 6.1 Summary results of site inspections findings.

Date	Findings	Identification	Advice from ET	Action taken	Closing date
16 Mar 16	Wastewater collection system was not properly set up.	Reminder	Contractor was reminded to properly set up the wastewater collection system and properly protect the storm water drainage system. (Scheme HA)	Wastewater treatment facilities were set up.	13 Apr 16
21 Mar 16 29 Mar 16	Wastewater treatment facilities were not properly set up for treating wastewater before discharge. (Scheme HA).	Observation	Contractor was advised to appropriately set up the treatment facilities and preventing surface runoff.	Wastewater treatment facilities were set up.	13 Apr 16
5 Apr 16	The haul road was not keeping wet.	Reminder	Contractor was reminder to frequently conduct water spying to the haul road and exposed surface for dust suppression.	Water spying was conducted.	13 Apr 16
13 Apr 16	Chemical waste was not properly stored. (WA1)	Observation	Contractor was advised to store the chemical waste in appropriate containers with suitable labelling and put inside the chemical waste storage area.	Chemical waste was properly stored.	18 Apr 16
13 Apr 16	General waste and C&D waste were not sorted and properly stored. (WA1)	Observation	Contractor was advised to sort the waste with different categories and store in different containers.	Waste was sort in different types and properly stored.	18 Apr 16
13 Apr 16	Exposed slop was not entirely covered and protected. (Scheme J)	Observation	Contractor was advised to properly cover the slop and exposed area.	Exposed slop was properly covered and protected.	18 Apr 16
13 Apr 16	Muddy discharge was observed from the wastewater treatment tank. (Scheme HA)	Observation	Contractor was advised to enhance the wastewater treatment facilities to avoid muddy water.	The follow-up status will be reported in the next reporting period.	N/A
25 Apr 16	C&D waste was observed. (Scheme Q)	Observation	Contractor was advised to frequently collect the waste and keep the works area clean and tidy.	The follow-up status will be reported in the next reporting period.	N/A
Landscape and Visual Impact					
21 Mar 16	Construction works will be commenced close to the retained trees and to-be-transplanted trees.	Reminder	Contractor was reminder to provide TPZ with robust fence at the dripline of all retained and to-be-transplanted trees.	TPZ was provided.	7 Apr 16
7 Apr 16	Some TPZ for the to-be-transplanted trees were collapsed in Scheme HA.	Observation	Contractor was advised to provide and maintain the Tree Protection Zone (TPZ) for the retained trees in Scheme HA.	The follow-up status will be reported in the next reporting period.	N/A
7 Apr 16 21 Apr 16	Construction works were being started within Scheme J and Scheme HA.	Reminder	Contractor was reminded to provide TPZ with robust fence at the dripline of all retained and to-be-transplanted trees.	The follow-up status will be reported in the next reporting period.	N/A

Date	Findings	Identification	Advice from ET	Action taken	Closing date
			No works were allowed to undertake within the TPZ.		
21 Apr 16	Soil was piled under tree crown of WKI 230 and no TPZ was provided for WKI 230.	Observation	Contractor was advised to provide TPZ and properly protect all retained and to-be-transplanted trees.	The follow-up status will be reported in the next reporting period.	N/A

7 Environmental Non-Conformance

7.1 Summary of Environmental Exceedances

No exceedances of Action and Limit levels were recorded in the reporting month.

7.2 Summary of Environmental Non-Compliance

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

7.3 Summary of Environmental Complaint

Two complaints received on 7th and 8th April 2016 were referred from EPD on 21st April 2016 regarding tree cutting noise during mid-night and early morning from Lin Cheung Road, Mong Kok. The Contractor was informed by way of PB's letter dated on 25th April 2016. ET has conducted a site investigation with the representatives of the Engineer and the Contractor on 25th April 2016 to resolve the concern.

7.4 Summary of Notification of Summons and Successful Prosecution

There was no successful environmental prosecution or notification of summons received since the Project commencement.

The cumulative log for environmental exceedance, non-compliance, complaint and summon and successful prosecution since the commencement of the Project is presented in **Appendix I**.

8 Future Key Issues

The major construction activities in the coming month will include:

- Portion I – UU Diversion Works
- Portion HA – Trial Trench Works
- Portion HA – Pre-drilling Works
- Portion HA – Drainage Works
- Portion J – ELS Works
- Portion J – Construction of Retaining Wall
- Portion J – Tree Felling Works
- Portion Q – Excavation Works
- Portion Q – Common Trench Excavation

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, water quality and waste management. The Contractor has been reminded to properly implement dust, construction noise and water quality control measures as well as proper waste management in order to minimize the potential environmental impacts due to the construction works of the Project.

9 Comment, Recommendations and Conclusions

9.1 Comment

The recommended mitigation measures accordance with the EM&A Manual had been effectively implemented to minimize the environmental impacts due to the construction. The contractor had implemented the mitigation measures to control the dust and noise impacts. The measured TSP and noise level complied with the established action and levels. No dust and noise impacts obviously affected to the environment and sensitive receivers. The environmental performance during the reporting period was considered satisfactory.

9.2 Recommendations

According to the environmental audit performed in the reporting month, the following recommendation was made:

- To properly set up the wastewater collection system and properly protect the storm water drainage system;
- To appropriately set up the treatment facilities and preventing surface runoff;
- To frequently conduct water spraying to the haul road and exposed surface for dust suppression;
- To store the chemical waste in appropriate containers with suitable labelling and put inside the chemical waste storage area;
- To sort the waste with different categories and store in different containers;
- To properly cover the slop and exposed area;
- To enhance the wastewater treatment facilities to avoid muddy water;
- To frequently collect the waste and keep the works area clean and tidy;
- To provide TPZ with robust fence at the dripline of all retained and to-be-transplanted trees;
- To provide and maintain the Tree Protection Zone (TPZ) for the retained trees in Scheme HA;
- To lower noise impact for any coming tree felling works:
 - Use low-noise emission saws.
 - Reduce the percentage on-time for noisy powered mechanical equipment.
 - Apply for a CNP and fulfill the requirements and conditions of the CNP.

9.3 Conclusions

This is the monthly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during 1st April 2016 to 30th April 2016 in accordance with the EM&A Manual.

Two complaints received on 7th and 8th April 2016 were referred from EPD on 21st April 2016 regarding tree cutting noise during mid-night and early morning from Lin Cheung Road, Mong Kok. The Contractor was informed by way of PB's letter dated on 25th April 2016. ET has conducted a site investigation with the representatives of the Engineer and the Contractor on 25th April 2016 to resolve the concern.

No exceedance of action level and limit level was recorded for TSP and Noise. No Non-compliance event, notification of summons and successful prosecution against the Project were received in this reporting month.

4 nos. of environmental site inspections and 2 nos. of landscape and visual inspections were carried out in this reporting month. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

ET has reminded the contractor to provided environmental pollution control measures, waste management measures and good site practice

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

Appendix A: Construction Programme and Project Layout Plan

ID	Task Name	Duration	Start	Finish	2015				2016				2017			
					Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
1	Road Improvement Works in West Kowloon Reclamation Development	956 d	Mon 23/3/15	Thu 2/11/17												
2	West Kowloon Highway South Bound near Western Harbour Tunnel at Portion I	956 d	Mon 23/3/15	Thu 2/11/17												
3	Site Clearance, tree felling	320 d	Mon 23/3/15	Fri 5/2/16												
4	Underground investigation, utilities diversion and piling construction	250 d	Sat 6/2/16	Wed 12/10/16												
5	Pile cap, Pier and Bridge Deck construction	180 d	Thu 13/10/16	Mon 10/4/17												
6	E&M installation and roadworks	76 d	Tue 11/4/17	Sun 25/6/17												
7	Street furniture installation	130 d	Mon 26/6/17	Thu 2/11/17												
8																
9																
10	Canton road at Portion Q	956 d	Mon 23/3/15	Thu 2/11/17												
11	Site Clearance, tree felling	320 d	Mon 23/3/15	Fri 5/2/16												
12	Road works at Canton road footpath and utilities diversion	100 d	Sat 6/2/16	Sun 15/5/16												
13	Construction of sign gantry	50 d	Mon 16/5/16	Mon 4/7/16												
14	Road works at Ferry Street and Jordan road	236 d	Tue 5/7/16	Sat 25/2/17												
15	Road works at Wui Cheung road	250 d	Sun 26/2/17	Thu 2/11/17												
16																
17																
18	Lin Cheung Road North Bound at Portion HA	912 d	Mon 23/3/15	Tue 19/9/17												
19	Site Clearance, tree felling	320 d	Mon 23/3/15	Fri 5/2/16												
20	Underground investigation, utilities diversion and piling construction	250 d	Sat 6/2/16	Wed 12/10/16												
21	Pile cap, Pier and Bridge Deck construction	180 d	Thu 13/10/16	Mon 10/4/17												
22	E&M installation and roadworks	42 d	Tue 11/4/17	Mon 22/5/17												
23	Street furniture installation	120 d	Tue 23/5/17	Tue 19/9/17												
24																
25																
26	Lin Cheung Road South Bound at Portion J	730 d	Mon 23/3/15	Tue 21/3/17												
27	Site Clearance, tree felling	320 d	Mon 23/3/15	Fri 5/2/16												
28	Construction of retaining walls and utilities diversion	140 d	Sat 6/2/16	Fri 24/6/16												
29	Site formation and roadworks	140 d	Sat 25/6/16	Fri 11/11/16												
30	Street furniture installation	130 d	Sat 12/11/16	Tue 21/3/17												

Task



Critical Task



Progress



Milestone



Summary





LOCATION PLAN

LEGEND:

- AM1/NM1
(AIR MONITORING STATION/NOISE MONITORING STATION)
- WORKS BOUNDARY

Rev	Description	By	Date

Consultant
PARSONS BRINCKERHOFF

漢綠 **CINOTECH**

Project title
 AGREEMENT NO. CE 44/2011 (HY)
 PROPOSED ROAD IMPROVEMENT WORKS IN
 WEST KOWLOON RECLAMATION DEVELOPMENT
 – PHASE 1 INVESTIGATION,
 DESIGN AND CONSTRUCTION

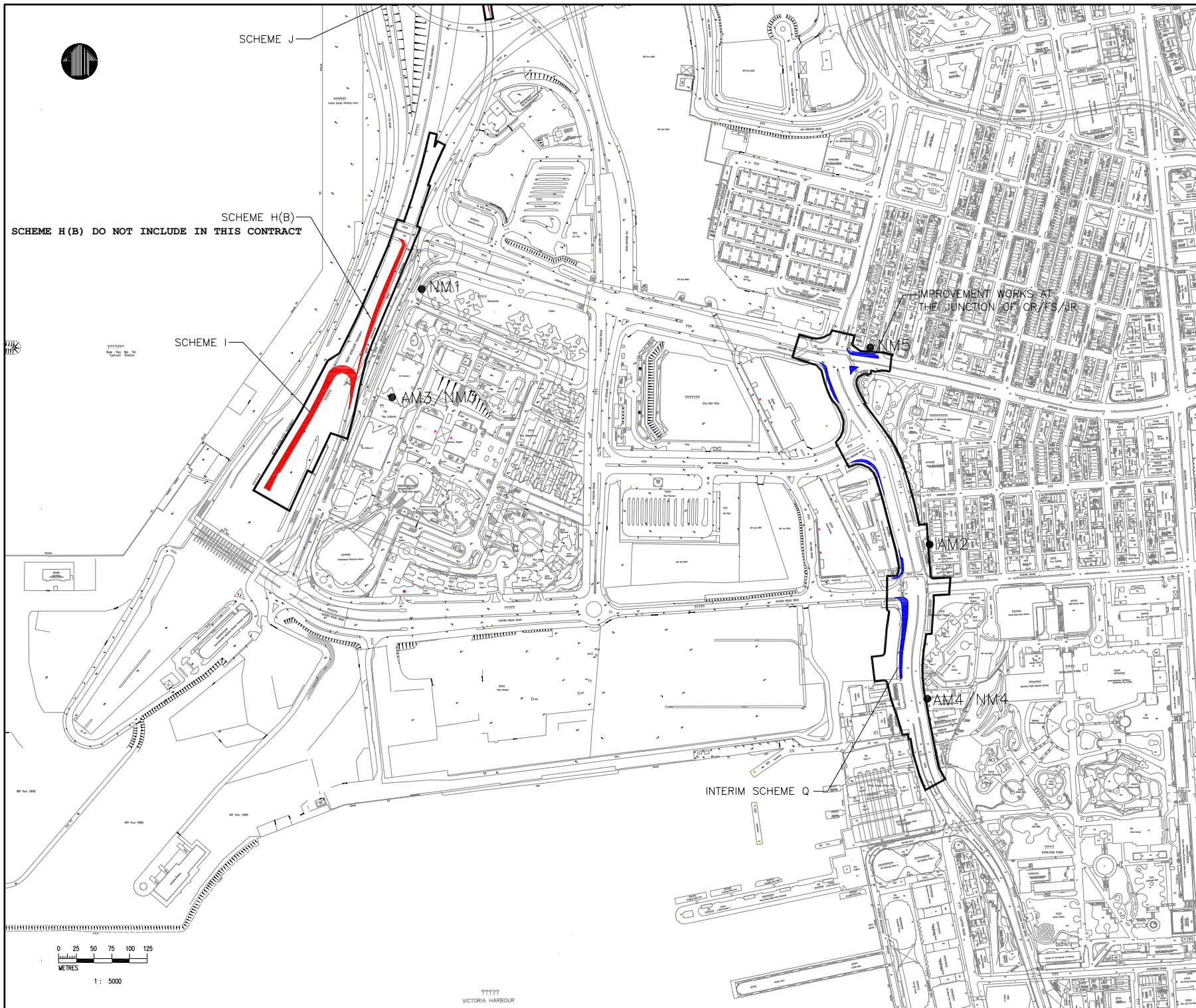
Drawing title
**LOCATION OF MONITORING
 STATIONS (PAGE 1 OF 2)**

Drawing no. CE44/T/ST/EM03				Rev. 2			
Drawn MC		Date AUG13		Checked KS		Approved LC	
Scale A3 1:5000				Status PRELIMINARY			

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路政署
HIGHWAYS DEPARTMENT
 主要工程管理部
 MAJOR WORKS PROJECT MANAGEMENT OFFICE



LOCATION PLAN

LEGEND:

- AM1/NM1
(AIR MONITORING STATION/NOISE MONITORING STATION)
- WORKS BOUNDARY

Rev	Description	By	Date

Consultant

**PARSONS
BRINCKERHOFF**

漢
臻 **CINOTECH**

Project title
AGREEMENT NO. CE 44/2011 (HY)
PROPOSED ROAD IMPROVEMENT WORKS IN
WEST KOWLOON RECLAMATION DEVELOPMENT
— PHASE 1 INVESTIGATION,
DESIGN AND CONSTRUCTION

Drawing title
**LOCATION OF MONITORING
STATIONS (PAGE 2 OF 2)**

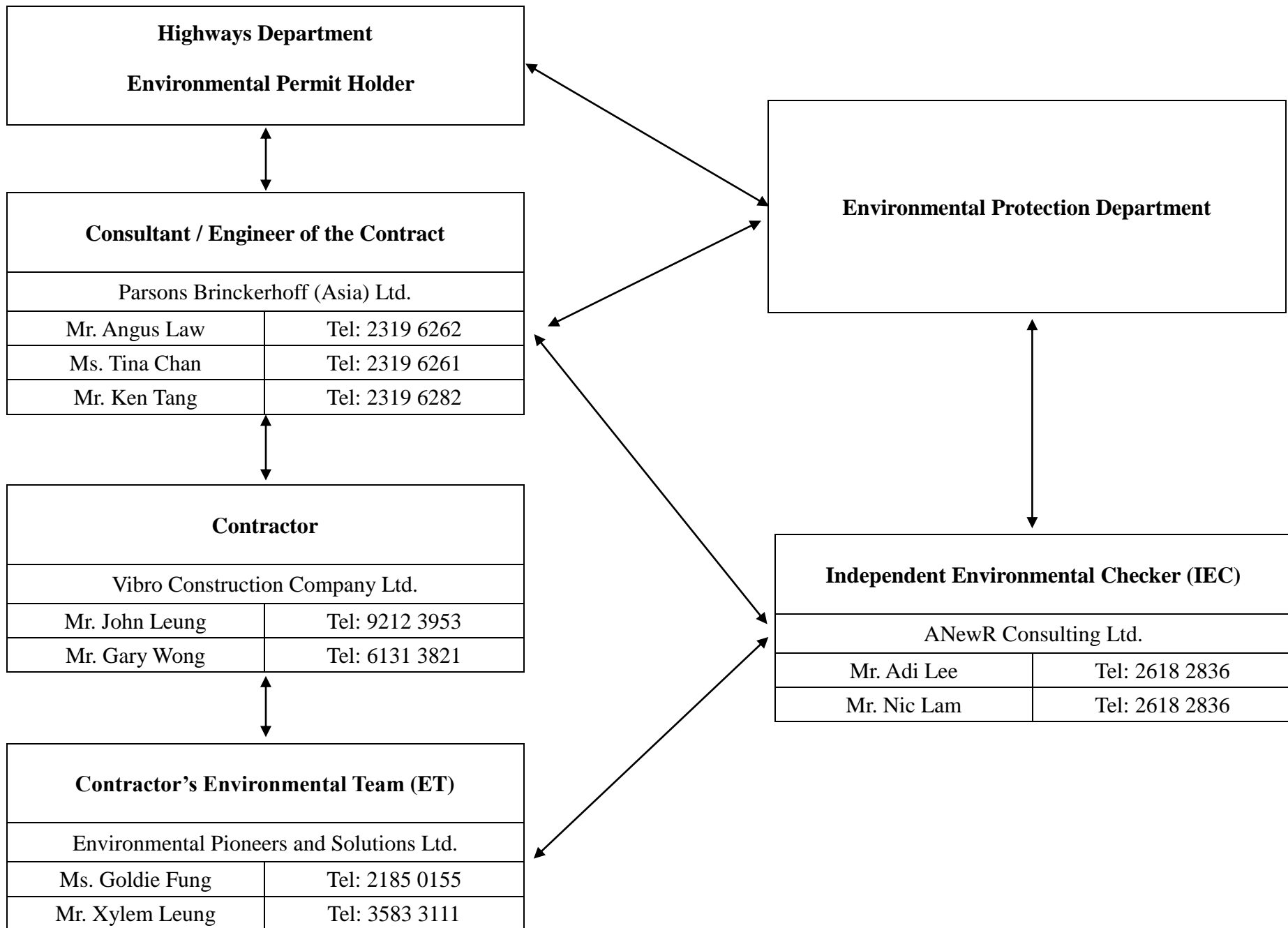
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Scale				A3 1:5000				Status		PRELIMINARY					

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**路政署
HIGHWAYS DEPARTMENT**
主要工程管理部
MAJOR WORKS PROJECT MANAGEMENT OFFICE

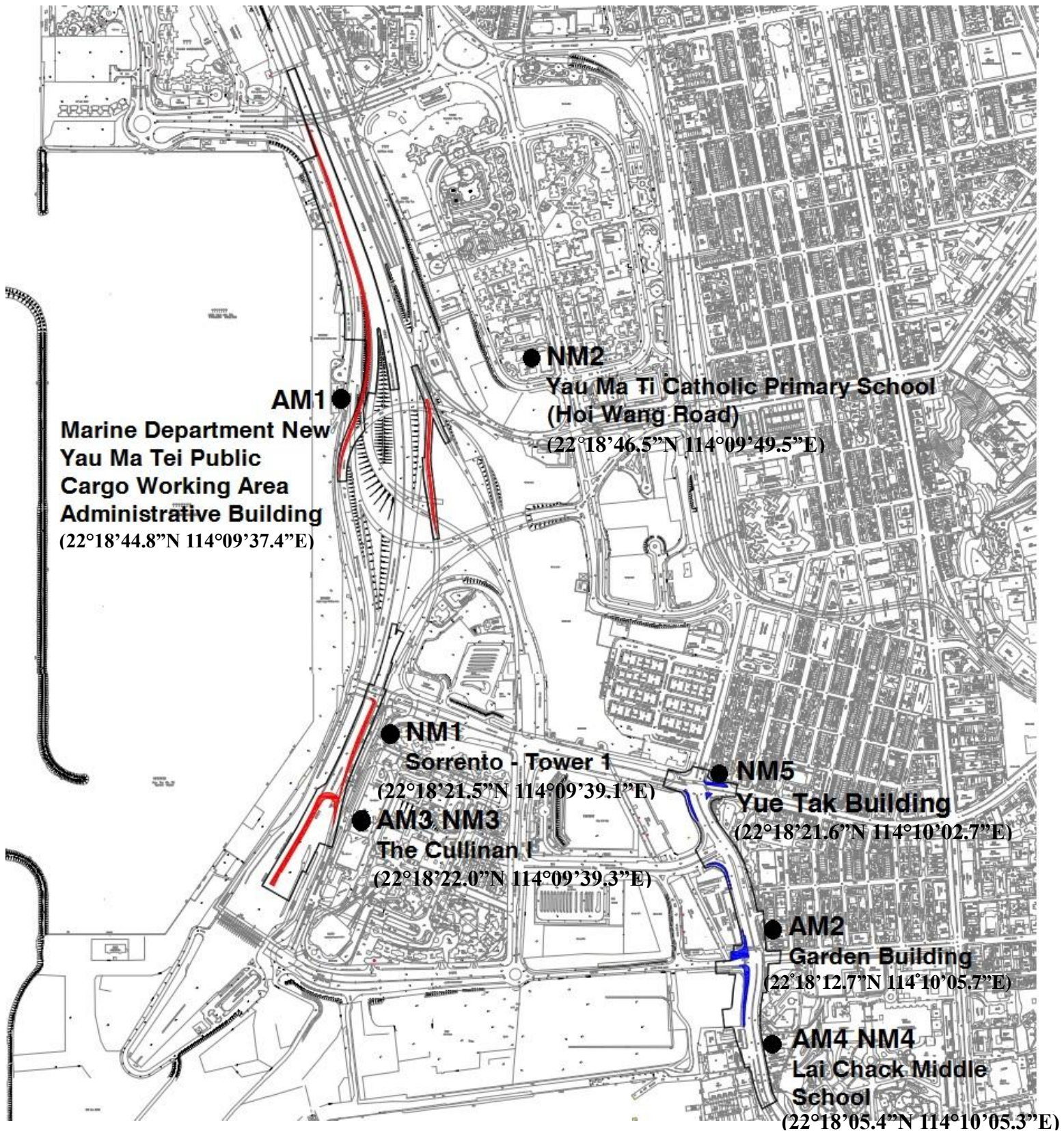
Appendix B: Project Organization Chart












↔ Line of communication

Appendix C: Monitoring Locations

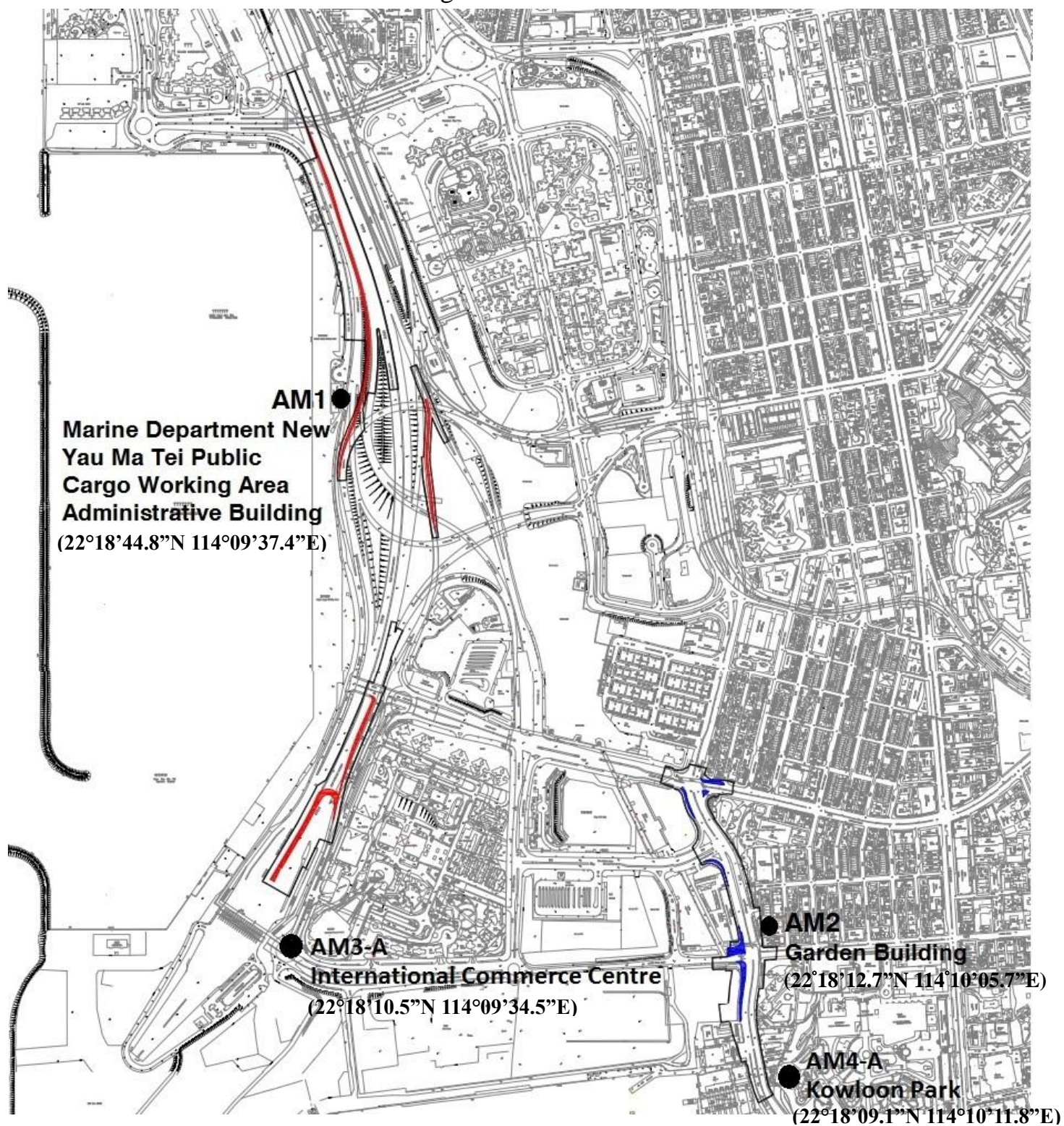
Locations for 1-hr TSP and Noise monitoring



Monitoring Location	Photo Record
<p>AM1</p> <p>Marine Department New Yau Ma Tei Public Cargo Working Area Administrative Building</p>	
<p>AM2</p> <p>Garden Building</p>	
<p>AM3</p> <p>The Cullinan I</p>	
<p>AM4</p> <p>Lai Chack Middle School</p>	

Monitoring Location	Photo Record
<p>NM1</p> <p>Sorrento - Tower 1</p>	
<p>NM2</p> <p>Yau Ma Ti Catholic Primary School (Hoi Wang Road)</p>	
<p>NM3</p> <p>The Cullinan I</p>	
<p>NM4</p> <p>Lai Chack Middle School</p>	
<p>NM5</p> <p>Yue Tak Building</p>	

Locations for 24-hr TSP monitoring



Monitoring Location	Photo Record
<p>AM1</p> <p>Marine Department New Yau Ma Tei Public Cargo Working Area Administrative Building</p>	 <p>A photograph showing a grey electrical control cabinet with a white door and a small display screen. It is situated on a paved rooftop area next to a white door. A date stamp '2016/01/07' is visible in the bottom right corner.</p>
<p>AM2</p> <p>Garden Building</p>	 <p>A photograph showing a grey electrical control cabinet with a white door and a small display screen. It is situated outdoors near a building entrance with a staircase. A date stamp '2016/05/18' is visible in the bottom right corner.</p>
<p>AM3-A</p> <p>International Commerce Centre (Contractor Work Area 4)</p>	 <p>A photograph showing a grey electrical control cabinet with a white door and a small display screen. It is situated in a construction area with red and white safety barriers. A date stamp '2015/12/17' is visible in the bottom right corner.</p>

Appendix D: Calibration Certification



CERTIFICATE OF CALIBRATION AND TESTING

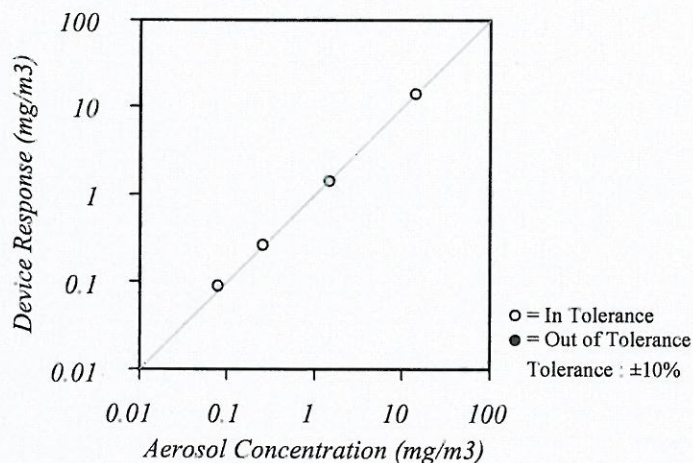
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

Environment Condition			Model	AM510
Temperature	74.2 (23.4)	°F (°C)	Serial Number	11510002
Relative Humidity	29	%RH		
Barometric Pressure	29.45 (997.3)	inHg (hPa)		

☒ As Left
☐ As Found

☒ In Tolerance
☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII01-01

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal	Cal Due
Photometer	E003433	09-09-15	03-09-16
DC Voltage(Keithley)	E002859	06-18-15	06-18-16
Temp/Humidity	E005409	04-16-15	04-16-16
Pressure	E003440	08-04-15	08-04-16

Measurement Variable	System ID	Last Cal	Cal Due
Flowmeter	E002371	03-02-15	03-02-16
Microbalance	M001324	01-05-15	01-05-17
Temp/Humidity	E005410	04-17-15	04-17-16

Linda Hillheimer

Calibrated

☒ Final Function Check

October 2, 2015

Date



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

豐盛創建環保科技集團附屬公司 Subsidiary of FSE Environmental Technologies Group

豐盛創建成員 Member of FSE Holdings

REPORT OF EQUIPMENT CALIBRATION

INSTRUMENT DESCRIPTION

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

Instrument:	TSP meter
Brand Name:	TSI
Model No.:	AM510
Serial No.:	11510002
Date of Issue:	27/10/2015
Date of Calibration:	12/10/2015
Date of Next Calibration:	11/10/2016

ISSUING ORGANISATION

Environmental Pioneers & Solutions Limited

Flat A 19/F. Chaiwan Industrial Centre
20 Lee Chung Street
Chai Wan, Hong Kong

Phone: 852 - 2556 9172

Fax: 852 - 2856 2010

Mr. Ip Wing Hong, John
Manager



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

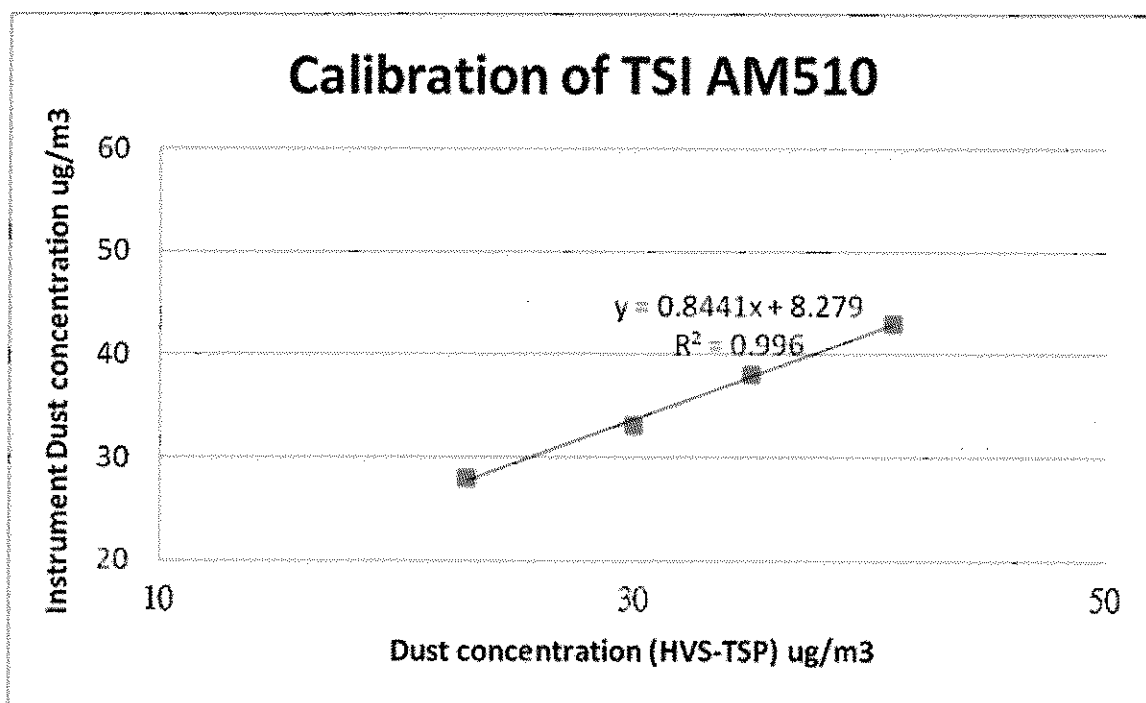
豐盛創建環保科技集團附屬公司 Subsidiary of FSE Environmental Technologies Group

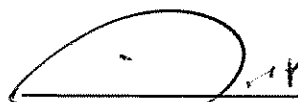
豐盛創建成員 Member of FSE Holdings

Brand Name: TSI
Model No.: AM510
Serial No.: 11510002
HVS No.: TE-5028A
HVS Calibration Kit No.: TISCH 2137
Date of Calibration: 12/10/2015
Date of next Calibration: 11/10/2016

Calibration Record

HVS - TSP	23	30	35	41
TSI AM510	28	33	38	43




Mr. Ip Wing Hong, John
Manager



CERTIFICATE OF CALIBRATION

Certificate No.: 15CA1228 01-02

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Type 1)
Manufacturer: SVANTEK
Type/Model No.: SV30A
Serial/Equipment No.: 29085
Adaptors used: -

Item submitted by

Customer: Environmental Pioneers & Solutions Ltd.
Address of Customer: Flat A, 8/F., Chai Wan Industrial Centre., 20 Lee Chung Street, Chaiwan, Hong Kong
Request No.: -
Date of receipt: 28-Dec-2015

Date of test: 28-Dec-2015

Reference equipment used in the calibration

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

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 55 ± 5 %
Air pressure: 1005 ± 5 hPa

Test specifications

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

Test results

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

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 04-Jan-2016

Company Chop:



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



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA1228 01-02

Page: 2 of 2

1, Measured Sound Pressure Level

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

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	(Output level in dB re 20 μ Pa) Estimated Expanded Uncertainty dB
1000	94.00	93.67	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz STF = 0.001 dB

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz Actual Frequency = 1000.0 Hz

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz TND = 0.4 %

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by:

Date:

Fung Chi Yip
28-Dec-2015

Checked by:

Date:

Lam Tze Wai
04-Jan-2016

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



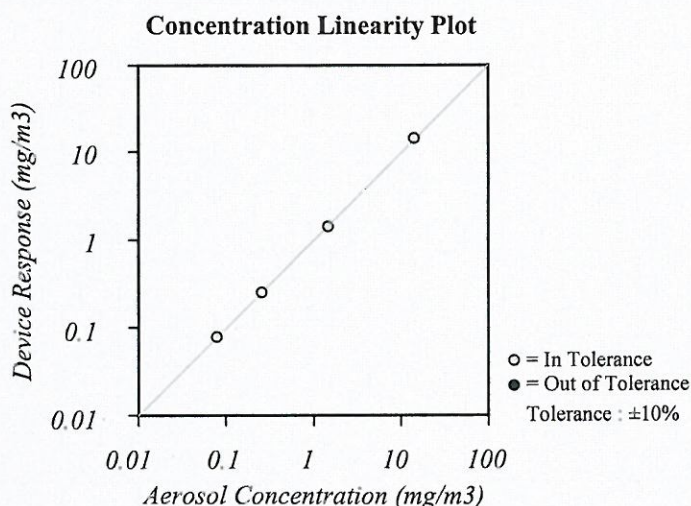
CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

Environment Condition			Model	AM510
Temperature	74.2 (23.4)	°F (°C)	Serial Number	11510003
Relative Humidity	29	%RH		
Barometric Pressure	29.45 (997.3)	mHg (hPa)		

☒ As Left
☐ As Found

☒ In Tolerance
☐ Out of Tolerance



System ID: DTII01-01

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal	Cal. Due
Photometer	E003433	09-09-15	03-09-16
DC Voltage(Keithley)	E002859	06-18-15	06-18-16
Temp/Humidity	E005409	04-16-15	04-16-16
Pressure	E003440	08-04-15	08-04-16

Measurement Variable	System ID	Last Cal.	Cal. Due
Flowmeter	E002371	03-02-15	03-02-16
Microbalance	M001324	01-05-15	01-05-17
Temp/Humidity	E005410	04-17-15	04-17-16

Linda Hill-Kramer

Calibrated

☒ Final Function Check

October 2, 2015

Date



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

豐盛創建環保科技集團附屬公司 Subsidiary of FSE Environmental Technologies Group

豐盛創建成員 Member of FSE Holdings

REPORT OF EQUIPMENT CALIBRATION

INSTRUMENT DESCRIPTION

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

Instrument:	TSP meter
Brand Name:	TSI
Model No.:	AM510
Serial No.:	11510003
Date of Issue:	27/10/2015
Date of Calibration:	12/10/2015
Date of Next Calibration:	11/10/2016

ISSUING ORGANISATION

Environmental Pioneers & Solutions Limited

Flat A 19/F. Chaiwan Industrial Centre
20 Lee Chung Street
Chai Wan, Hong Kong

Phone: 852 - 2556 9172

Fax: 852 - 2856 2010

Mr. Ip Wing Hong, John
Manager



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

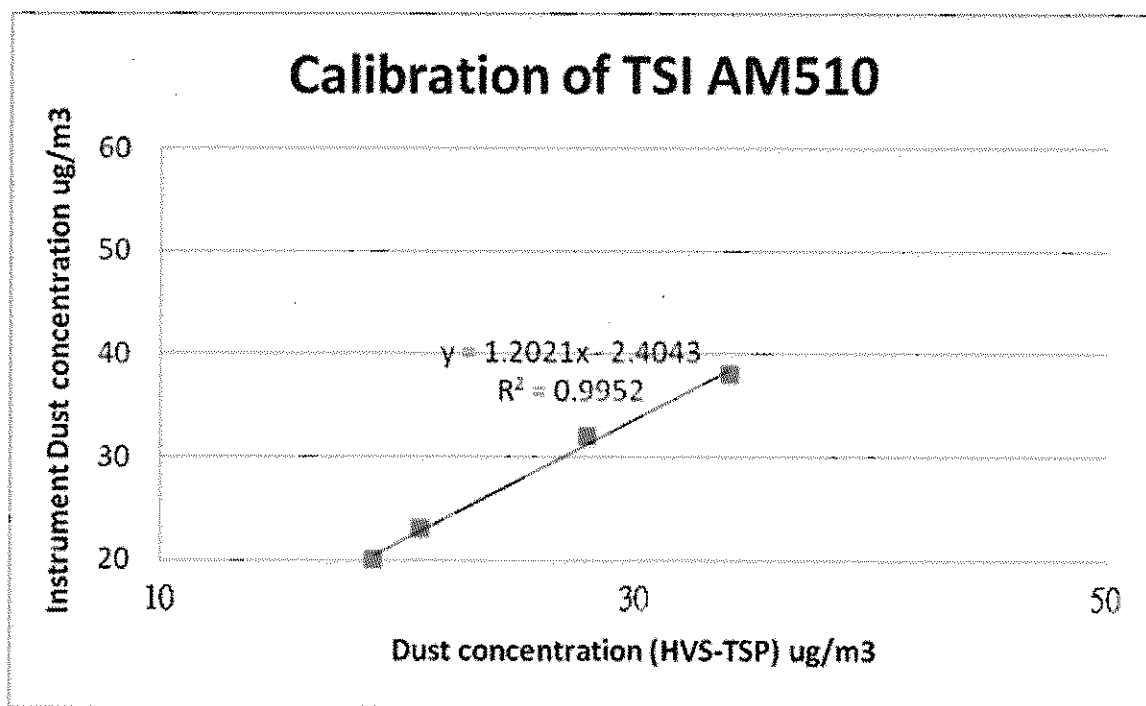
豐盛創建環保科技集團附屬公司 Subsidiary of FSE Environmental Technologies Group

豐盛創建成員 Member of FSE Holdings

Brand Name: TSI
Model No.: AM510
Serial No.: 11510003
HVS No.: TE-5028A
HVS Calibration Kit No.: TISCH 2137
Date of Calibration: 12/10/2015
Date of next Calibration: 11/10/2016

Calibration Record

HVS - TSP	19	21	28	34
TSI AM510	20	23	32	38



Mr. Ip Wing Hong, John
Manager



CERTIFICATE OF CALIBRATION AND TESTING

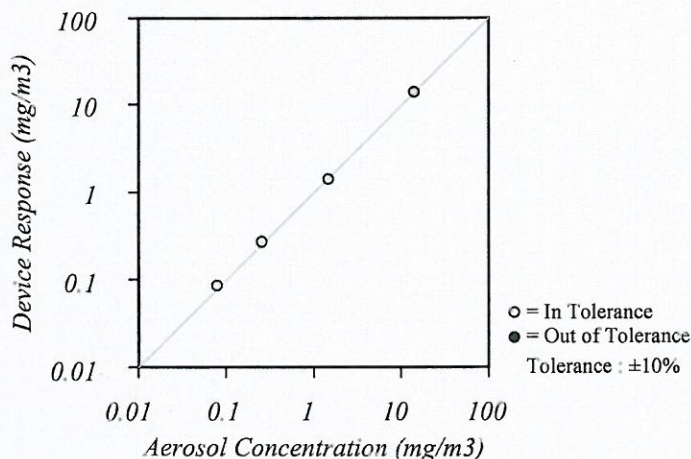
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

Environment Condition			Model	AM510
Temperature	74.2 (23.4)	°F (°C)	Serial Number	11510004
Relative Humidity	29	%RH		
Barometric Pressure	29.45 (997.3)	inHg (hPa)		

☒ As Left
☐ As Found

☒ In Tolerance
☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII01-01

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Photometer	E003433	09-09-15	03-09-16	Flowmeter	E002371	03-02-15	03-02-16
DC Voltage(Keithley)	E002859	06-18-15	06-18-16	Microbalance	M001324	01-05-15	01-05-17
Temp/Humidity	E005409	04-16-15	04-16-16	Temp/Humidity	E005410	04-17-15	04-17-16
Pressure	E003440	08-04-15	08-04-16				

Linda Hillshamer

Calibrated

☒ Final Function
Check

October 2, 2015

Date



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

豐盛創建環保科技集團附屬公司 Subsidiary of FSE Environmental Technologies Group

豐盛創建成員 Member of FSE Holdings

REPORT OF EQUIPMENT CALIBRATION

INSTRUMENT DESCRIPTION

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

Instrument:	TSP meter
Brand Name:	TSI
Model No.:	AM510
Serial No.:	11510004
Date of Issue:	27/10/2015
Date of Calibration:	13/10/2015
Date of Next Calibration:	12/10/2016

ISSUING ORGANISATION

Environmental Pioneers & Solutions Limited

Flat A 19/F. Chaiwan Industrial Centre
20 Lee Chung Street
Chai Wan, Hong Kong

Phone: 852 - 2556 9172

Fax: 852 - 2856 2010

Mr. Ip Wing Hong, John
Manager



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

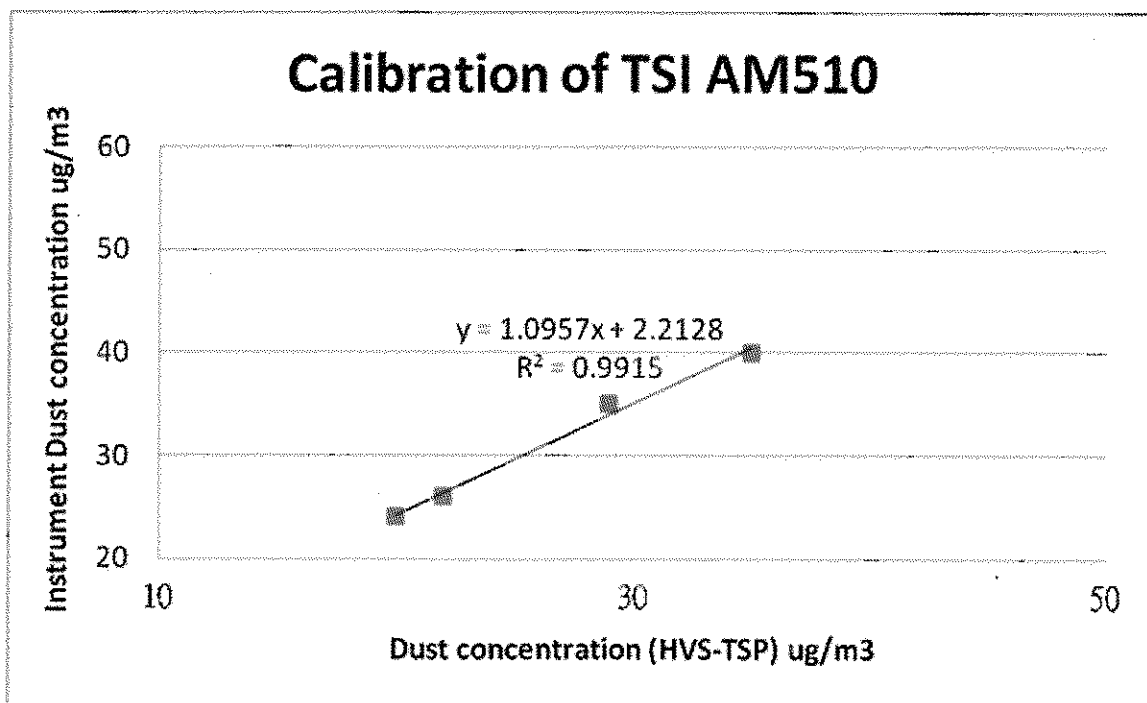
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豐盛創建成員 Member of FSE Holdings

Brand Name: TSI
Model No.: AM510
Serial No.: 11510004
HVS No.: TE-5028A
HVS Calibration Kit No.: TISCH 2137
Date of Calibration: 13/10/2015
Date of next Calibration: 12/10/2016

Calibration Record

HVS - TSP	20	22	29	35
TSI AM510	24	26	35	40



Mr. Ip Wing Hong, John
Manager



CERTIFICATE OF CALIBRATION AND TESTING

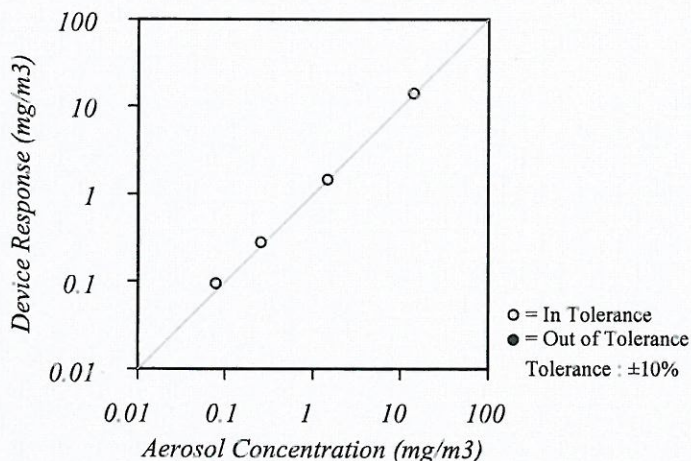
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

Environment Condition			Model	AM510
Temperature	74.2 (23.4)	°F (°C)	Serial Number	11510005
Relative Humidity	29	%RH		
Barometric Pressure	29.45 (997.3)	inHg (hPa)		

☒ As Left
☐ As Found

☒ In Tolerance
☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII01-01

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due
Photometer	E003433	09-09-15	03-09-16
DC Voltage(Keithley)	E002859	06-18-15	06-18-16
Temp/Humidity	E005409	04-16-15	04-16-16
Pressure	E003440	08-04-15	08-04-16

Measurement Variable	System ID	Last Cal.	Cal. Due
Flowmeter	E002371	03-02-15	03-02-16
Microbalance	M001324	01-05-15	01-05-17
Temp/Humidity	E005410	04-17-15	04-17-16

Handwritten Signature
Calibrated

☒ Final Function
Check

October 2, 2015

Date



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

豐盛創建環保科技集團附屬公司 Subsidiary of FSE Environmental Technologies Group

豐盛創建成員 Member of FSE Holdings

REPORT OF EQUIPMENT CALIBRATION

INSTRUMENT DESCRIPTION

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

Instrument: TSP meter
Brand Name: TSI
Model No.: AM510
Serial No.: 11510005
Date of Issue: 27/10/2015
Date of Calibration: 13/10/2015
Date of Next Calibration: 12/10/2016

ISSUING ORGANISATION

Environmental Pioneers & Solutions Limited

Flat A 19/F. Chaiwan Industrial Centre
20 Lee Chung Street
Chai Wan, Hong Kong

Phone: 852 - 2556 9172
Fax: 852 - 2856 2010

Mr. Ip Wing Hong, John
Manager



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

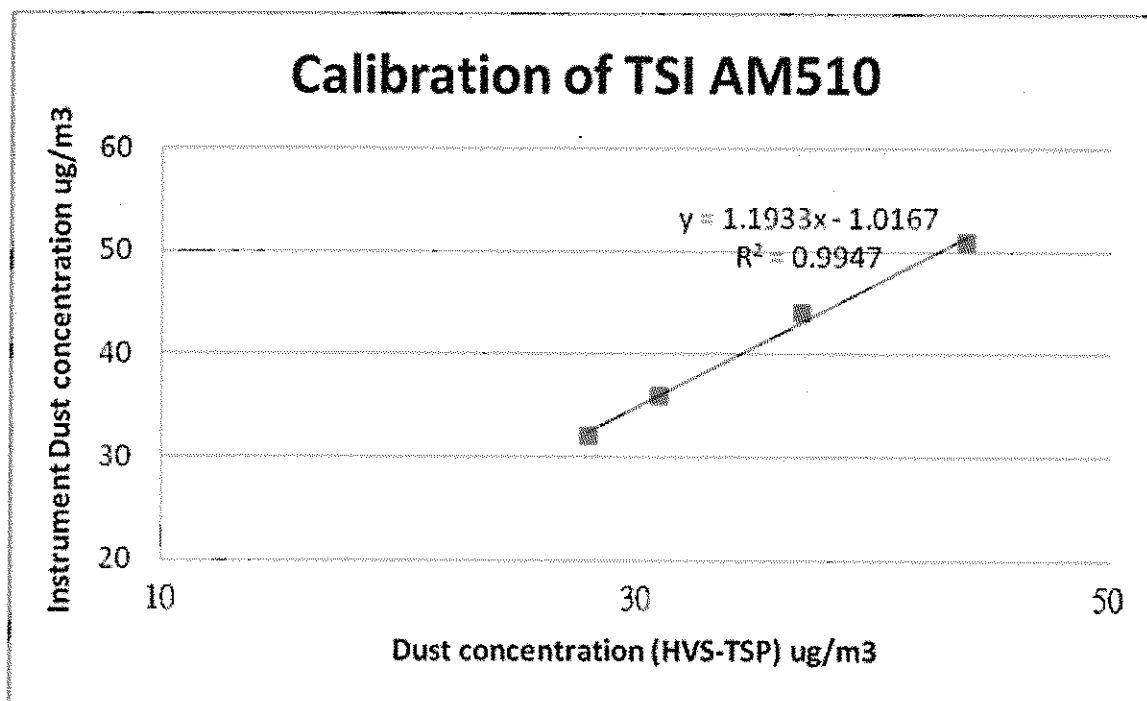
豐盛創建環保科技集團附屬公司 Subsidiary of FSE Environmental Technologies Group

豐盛創建成員 Member of FSE Holdings

Brand Name: TSI
Model No.: AM510
Serial No.: 11510005
HVS No.: TE-5028A
HVS Calibration Kit No.: TISCH 2137
Date of Calibration: 13/10/2015
Date of next Calibration: 12/10/2016

Calibration Record

HVS - TSP	28	31	37	44
TSI AM510	32	36	44	51



Mr. Ip Wing Hong, John
Manager

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5028A

Date - Feb 11, 2016 Rootmeter S/N 0438320 Ta (K) - 294
Operator Tisch Orifice I.D. - 2137 Pa (mm) - 758.19

PLATE OR VDC #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3380	4.2	1.50
2	NA	NA	1.00	1.0270	6.9	2.50
3	NA	NA	1.00	0.9420	8.2	3.00
4	NA	NA	1.00	0.8730	9.6	3.50
5	NA	NA	1.00	0.6630	16.5	6.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0055	0.7515	1.2316	0.9944	0.7432	0.7627
1.0019	0.9756	1.5900	0.9908	0.9648	0.9846
1.0002	1.0618	1.7417	0.9891	1.0500	1.0786
0.9983	1.1436	1.8813	0.9873	1.1309	1.1650
0.9891	1.4919	2.4632	0.9781	1.4754	1.5253
Qstd slope (m) = 1.66881			Qa slope (m) = 1.04498		
intercept (b) = -0.02897			intercept (b) = -0.01794		
coefficient (r) = 0.99983			coefficient (r) = 0.99983		
y axis = $\text{SQRT}[\text{H2O}(\text{Pa}/760)(298/\text{Ta})]$			y axis = $\text{SQRT}[\text{H2O}(\text{Ta}/\text{Pa})]$		

CALCULATIONS

$$\text{Vstd} = \text{Diff. Vol}[(\text{Pa} - \text{Diff. Hg})/760](298/\text{Ta})$$

$$\text{Qstd} = \text{Vstd}/\text{Time}$$

$$\text{Va} = \text{Diff Vol}[(\text{Pa} - \text{Diff Hg})/\text{Pa}]$$

$$\text{Qa} = \text{Va}/\text{Time}$$

For subsequent flow rate calculations:

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

$$\text{Qa} = 1/m\{[\text{SQRT}(\text{H2O}(\text{Ta}/\text{Pa}))] - b\}$$

**Tisch Environmental, Inc.
TSP Sampler Calibration
(Dickson recorder)**

SITE

Location: **YMT Public Cargo Working Area** Date: **24-Mar-16**
 Sampler: **TE-5170 MFC** Tech: **Andy Tsang**

CONDITIONS

Barometric Pressure (in Hg):	17.00	Corrected Pressure (mm Hg):	432
Temperature (deg F):	63	Temperature (deg K):	290
Average Press. (in Hg):	17.00	Corrected Average (mm Hg):	432
Average Temp. (deg F):	63	Average Temp. (deg K):	290

CALIBRATION ORIFICE

Make: Tisch	Qstd Slope: 2.01000
Model: TE-5028A	Qstd Intercept: -0.02003
Serial#: 9833620	Date Certified: 30-Jan-15

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	1.20	0.426	24.0	18.34	Slope = 36.7044
2	3.80	0.751	38.0	29.04	Intercept = 2.0532
3	4.80	0.843	42.0	32.09	Corr. coeff.= 0.9966
4	6.60	0.987	50.0	38.20	
5	8.00	1.085	56.0	42.79	# of Observations: 5

Calculations

$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta)) - b]$
 $IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$

Qstd = standard flow rate
 IC = corrected chart response
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pa = actual pressure during calibration (mm Hg)
 Tstd = 298 deg K
 Pstd = 760 mm Hg
 For subsequent calculation of sampler flow:
 $1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)] - b)$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure

Tisch Environmental, Inc.
TSP Sampler Calibration
(Dickson recorder)

SITE

Location: **Nga Cheung Road** Date: **24-Mar-16**
 Sampler: **TE-5170 MFC** Tech: **Andy Tsang**

CONDITIONS

Barometric Pressure (in Hg):	17.00	Corrected Pressure (mm Hg):	432
Temperature (deg F):	63	Temperature (deg K):	290
Average Press. (in Hg):	17.00	Corrected Average (mm Hg):	432
Average Temp. (deg F):	63	Average Temp. (deg K):	290

CALIBRATION ORIFICE

Make: Tisch	Qstd Slope: 2.01000
Model: TE-5028A	Qstd Intercept: -0.02003
Serial#: 9833620	Date Certified: 30-Jan-15

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	1.40	0.460	22.0	16.80	Slope = 54.8747
2	2.80	0.646	34.0	25.97	Intercept = -9.0610
3	3.60	0.731	40.0	30.55	Corr. coeff.= 0.9982
4	4.80	0.842	48.0	36.66	
5	6.60	0.986	60.0	45.83	# of Observations: 5

Calculations

$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta)) - b]$
 $IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$

Qstd = standard flow rate
 IC = corrected chart response
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pa = actual pressure during calibration (mm Hg)
 Tstd = 298 deg K
 Pstd = 760 mm Hg
 For subsequent calculation of sampler flow:
 $1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)] - b)$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure

Tisch Environmental, Inc.
TSP Sampler Calibration
(Dickson recorder)

SITE

Location: **Nga Cheung Road** Date: **19-Mar-16**
 Sampler: **TE-5170 MFC** Tech: **Andy Tsang**

CONDITIONS

Barometric Pressure (in Hg):	17.00	Corrected Pressure (mm Hg):	432
Temperature (deg F):	63	Temperature (deg K):	290
Average Press. (in Hg):	17.00	Corrected Average (mm Hg):	432
Average Temp. (deg F):	63	Average Temp. (deg K):	290

CALIBRATION ORIFICE

Make: Tisch	Qstd Slope: 2.01000
Model: TE-5028A	Qstd Intercept: -0.02003
Serial#: 9833620	Date Certified: 11-Feb-16

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	0.30	0.218	26.0	19.86	Slope = 63.9655
2	0.70	0.328	32.0	24.44	Intercept = 4.5476
3	1.00	0.390	38.0	29.02	Corr. coeff.= 0.9880
4	1.50	0.475	44.0	33.61	
5	2.20	0.574	56.0	42.77	# of Observations: 5

Calculations

$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta)) - b]$
 $IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$

Qstd = standard flow rate
 IC = corrected chart response
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pa = actual pressure during calibration (mm Hg)
 Tstd = 298 deg K
 Pstd = 760 mm Hg
 For subsequent calculation of sampler flow:
 $1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)] - b)$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure



CERTIFICATE OF CALIBRATION

Certificate No.: 15CA1228 01-01

Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	, Microphone
Manufacturer:	SVANTEK, Poland	, ACO, Japan
Type/Model No.:	971	, 7052E
Serial/Equipment No.:	34350 / EPS OE0032	, 54635
Adaptors used:	-	, -

Item submitted by

Customer Name: Environmental Pioneers & Solutions Ltd.
Address of Customer: Flat A, 8/F., Chai Wan Industrial Centre., 20 Lee Chung Street, Chaiwan, Hong Kong
Request No.: -
Date of receipt: 28-Dec-2015

Date of test: 28-Dec-2015

Reference equipment used in the calibration

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

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1005 ± 5 hPa

Test specifications

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

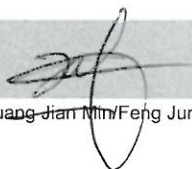
Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 04-Jan-2016

Company Chop:



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



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA1228 01-01

Page 2 of 2

1, Electrical Tests

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

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.6	
	Lin	Pass	1.0	
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	A	Pass	0.3	
	C	Pass	0.3	
Frequency weightings	Lin	Pass	0.3	
	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

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

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

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by:

Date:

Fung Chi Yip
23-Dec-2015

Checked by:

Date:

Lam Tze Wai
04-Jan-2016

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



Test Data for Sound Level Meter

Page 1 of 5

Sound level meter type: 971 Serial No. 34350 / EPS OE0032 Date 28-Dec-2015
Microphone type: 7052E Serial No. 54635

Report: 15CA1228 01-01

SELF GENERATED NOISE TEST

The noise test is performed in the most sensitive range of the SLM with the microphone replaced by an equivalent impedance.

Noise level in A weighting	11.9	dB
Noise level in C weighting	11.9	dB
Noise level in Lin (Z)	16.9	dB

LINEARITY TEST

The linearity is tested relative to the reference sound pressure level using a continuous sinusoidal signal of frequency 4 kHz. The measurement is made on the reference range for indications at 5 dB intervals starting from the 94 dB reference sound pressure level. And until within 5 dB of the upper and lower limits of the reference range, the measurements shall be made at 1 dB intervals. (SLM set to LEQ/SPL)

Reference/Expected level	Actual level		Tolerance	Deviation	
	non-integrated	integrated		non-integrated	integrated
dB	dB	dB	+/- dB	dB	dB
94.0	94.0	94.0	0.7	0.0	0.0
99.0	99.0	99.0	0.7	0.0	0.0
104.0	104.0	104.0	0.7	0.0	0.0
109.0	109.0	109.0	0.7	0.0	0.0
114.0	114.0	114.0	0.7	0.0	0.0
115.0	115.0	115.0	0.7	0.0	0.0
116.0	116.0	116.0	0.7	0.0	0.0
117.0	117.0	117.0	0.7	0.0	0.0
118.0	118.0	118.0	0.7	0.0	0.0
119.0	119.0	119.0	0.7	0.0	0.0
120.0	120.0	120.0	0.7	0.0	0.0
89.0	89.0	89.0	0.7	0.0	0.0
84.0	84.0	84.0	0.7	0.0	0.0
79.0	79.0	79.0	0.7	0.0	0.0
74.0	74.0	74.0	0.7	0.0	0.0
69.0	69.0	69.0	0.7	0.0	0.0
64.0	64.0	64.0	0.7	0.0	0.0
59.0	59.0	59.0	0.7	0.0	0.0
54.0	54.0	54.0	0.7	0.0	0.0
49.0	49.0	49.0	0.7	0.0	0.0
44.0	43.9	43.9	0.7	-0.1	-0.1
39.0	38.9	38.9	0.7	-0.1	-0.1
34.0	33.7	33.7	0.7	-0.3	-0.3
33.0	32.7	32.7	0.7	-0.3	-0.3



Test Data for Sound Level Meter

Page 2 of 5

Sound level meter type: 971 Serial No. 34350 / EPS OE0032 Date 28-Dec-2015
Microphone type: 7052E Serial No. 54635
Report: 15CA1228 01-01

32.0	31.6	31.6	0.7	-0.4	-0.4
31.0	30.5	30.5	0.7	-0.5	-0.5
30.0	29.6	29.6	0.7	-0.4	-0.4
29.0	28.5	28.5	0.7	-0.5	-0.5
28.0	27.3	27.3	0.7	-0.7	-0.7

Measurements for an indication of the reference SPL on all other ranges which include it

Other ranges	Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
40-140	94.0	94.0	0.7	0.0
25-120	94.0	94.0	0.7	0.0

Measurements on all level ranges for indications 2 dB below the upper limit and 2 dB above the lower limit

Ranges	Reference/Expected level	Actual level	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
40-140	42.0	42.0	0.7	0.0
	138.0	138.0	0.7	0.0
25-120	28.0	27.3	0.7	-0.7
	118.0	118.0	0.7	0.0

FREQUENCY WEIGHTING TEST

The frequency response of the weighting networks are tested at octave intervals over the frequency ranges 31.5 Hz to 12500 Hz. The signal level at 1000 Hz is set to give an indication of the reference SPL.

Frequency weighting A:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
Hz	dB	dB	dB	+	-	dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	54.6	54.7	1.5	1.5	0.1
63.1	94.0	67.8	67.9	1.5	1.5	0.1
125.9	94.0	77.9	77.9	1.0	1.0	0.0
251.2	94.0	85.4	85.4	1.0	1.0	0.0
501.2	94.0	90.8	90.8	1.0	1.0	0.0
1995.0	94.0	95.2	95.2	1.0	1.0	0.0
3981.0	94.0	95.0	95.1	1.0	1.0	0.1
7943.0	94.0	92.9	93.0	1.5	3.0	0.1
12590.0	94.0	89.7	89.6	3.0	6.0	-0.1

Frequency weighting C:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
Hz	dB	dB	dB	+	-	dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	91.0	91.1	1.5	1.5	0.1
63.1	94.0	93.2	93.1	1.5	1.5	-0.1



Test Data for Sound Level Meter

Page 3 of 5

Sound level meter type: 971 Serial No. 34350 / EPS OE0032 Date 28-Dec-2015
Microphone type: 7052E Serial No. 54635

Report: 15CA1228 01-01

125.9	94.0	93.8	93.8	1.0	1.0	0.0
251.2	94.0	94.0	94.0	1.0	1.0	0.0
501.2	94.0	94.0	94.0	1.0	1.0	0.0
1995.0	94.0	93.8	93.8	1.0	1.0	0.0
3981.0	94.0	93.2	93.2	1.0	1.0	0.0
7943.0	94.0	91.0	91.1	1.5	3.0	0.1
12590.0	94.0	87.8	87.7	3.0	6.0	-0.1

Frequency weighting Z:

Frequency	Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
Hz	dB	dB	dB	+	-	dB
1000.0	94.0	94.0	94.0	0.0	0.0	0.0
31.6	94.0	94.0	94.0	1.5	1.5	0.0
63.1	94.0	94.0	94.0	1.5	1.5	0.0
125.9	94.0	94.0	94.0	1.0	1.0	0.0
251.2	94.0	94.0	94.0	1.0	1.0	0.0
501.2	94.0	94.0	94.0	1.0	1.0	0.0
1995.0	94.0	94.0	94.0	1.0	1.0	0.0
3981.0	94.0	94.0	94.0	1.0	1.0	0.0
7943.0	94.0	94.0	94.0	1.5	3.0	0.0
12590.0	94.0	94.0	93.9	3.0	6.0	-0.1

TIME WEIGHTING FAST TEST

Time weighting F is tested on the reference range with a single sinusoidal burst of duration 200 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
dB	dB	dB	+	-	dB
81.0	80.0	80.0	1.0	1.0	0.0

TIME WEIGHTING SLOW TEST

Time weighting S is tested on the reference range with a single sinusoidal burst of duration 500 ms at a frequency 2000 Hz and an amplitude which produces an indication 4 dB below the upper limit of the primary indicator range when the signal is continuous. (Weight A, Maximum hold)

Ref. level	Expected level	Actual level	Tolerance(dB)		Deviation
dB	dB	dB	+	-	dB
81.0	76.9	76.9	1.0	1.0	0.0

PEAK RESPONSE TEST

The onset time of the peak detector is tested on the reference range by comparing the response to a 100 us rectangular test pulse with the response to a 10 ms reference pulse of the same amplitude. The amplitude of the 10 ms reference pulse is such as to produce an indication 1 dB below the upper limit of the primary indicator range.

Positive polarities: (Weighting Z, set the generator signal to single, Lzpeak)



Test Data for Sound Level Meter

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Sound level meter type: 971 Serial No. 34350 / EPS OE0032 Date 28-Dec-2015
Microphone type: 7052E Serial No. 54635

Report: 15CA1228 01-01

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
84.0	84.0	84.0	2.0	0.0

Negative polarities:

Ref. level	Response to 10 ms	Response to 100 us	Tolerance	Deviation
dB	dB	dB	+/- dB	dB
84.0	84.0	84.0	2.0	0.0

RMS ACCURACY TEST

The RMS detector accuracy is tested on the reference range for a crest factor of 3.

Test frequency: 2000 Hz
Amplitude: 2 dB below the upper limit of the primary indicator range.
Burst repetition frequency: 40 Hz
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz. (Set to INT)

	Ref. Level	Expected level	Tone burst signal	Tolerance	Deviation
Time weighting	dB	dB	indication(dB)	+/- dB	dB
Slow	83.0+6.6	83.0	83.0	0.5	0.0

TIME WEIGHTING IMPULSE TEST

Time weighting I is tested on the reference range (Set the SLM to LAImax)

Test frequency: 2000 Hz
Amplitude: The upper limit of the primary indicator range.

Single sinusoidal burst of duration 5 ms:

Ref. Level	Single burst indication		Tolerance	Deviation
dB	Expected (dB)	Actual (dB)	+/- dB	dB
85.0	76.2	76.1	2.0	-0.1

Repeated at 100 Hz

Ref. Level	Repeated burst indication		Tolerance	Deviation
dB	Expected (dB)	Actual (dB)	+/- dB	dB
85.0	82.3	82.2	1.0	-0.1

TIME AVERAGING TEST

This test compares the SLM reading for continuous sine signals with readings obtained from a sine tone burst sequence having the same RMS level. The test level is 30 dB below the upper limit of the linearity range and repeated for Type 1 SLM with 40 dB below the upper limit of the linearity.

Frequency of tone burst: 4000 Hz

Duration of tone burst: 1 ms

Repetition Time	Level of tone burst	Expected Leq	Actual Leq	Tolerance	Deviation	Remarks
msec	dB	dB	dB	+/- dB	dB	
1000	90.0	90.0	89.9	1.0	-0.1	60s integ.
10000	80.0	80.0	79.9	1.0	-0.1	6min. integ.

PULSE RANGE AND SOUND EXPOSURE LEVEL TEST



Test Data for Sound Level Meter

Page 5 of 5

Sound level meter type: 971 Serial No. 34350 / EPS OE0032 Date 28-Dec-2015
Microphone type: 7052E Serial No. 54635

Report: 15CA1228 01-01

The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range

Test frequency: 4000 Hz

Integration time: 10 sec

The integrating sound level meter set to Leq:

Duration	Rms level of	Expected	Actual	Tolerance	Deviation
msec	tone burst (dB)	dB	dB	+/- dB	dB
10	88.0	58.0	57.9	1.7	-0.1

The integrating sound level meter set to SEL:

Duration	Rms level of	Expected	Actual	Tolerance	Deviation
msec	tone burst (dB)	dB	dB	+/- dB	dB
10.0	88.0	68.0	68.0	1.7	0.0

OVERLOAD INDICATION TEST

For SLM capable of operating in a non-integrating mode.

Test frequency: 2000 Hz
Amplitude: 2 dB below the upper limit of the primary indicator range.
Burst repetition frequency: 40 Hz
Tone burst signal: 11 cycles of a sine wave of frequency 2000 Hz.

Level	Level reduced by	Further reduced	Difference	Tolerance	Deviation
at overload (dB)	1 dB	3 dB	dB	dB	dB
117.9	116.9	113.9	3.0	1.0	0.0

For integrating SLM, with the instrument indicating Leq.

For integrating SLM, with the instrument indicating Leq and set to the reference range. The test signal as follow
The test tone burst signal is superimposed on a baseline signal corresponding to the lower limit of reference range
Test frequency: 4000 Hz
Integration time: 10 sec
Single burst duration: 1 msec

Rms level	Level reduced by	Expected level	Actual level	Tolerance	Deviation
at overload (dB)	1 dB	dB	dB	dB	dB
124.5	123.5	83.5	83.4	2.2	-0.1

ACOUSTIC TEST

The acoustic test of the complete SLM is tested at the frequency 125 Hz and 8000 Hz using a B&K type 4226 Multifunction Acoustic Calibrator. The test is performed in A weighting.

Frequency	Expected level	Actual level	Tolerance (dB)		Deviation
Hz	dB	Measured (dB)	+	-	dB
1000	94.0	94.0	0.0	0.0	0.0
125	77.9	78.0	1.0	1.0	0.1
8000	92.9	92.6	1.5	3.0	-0.3

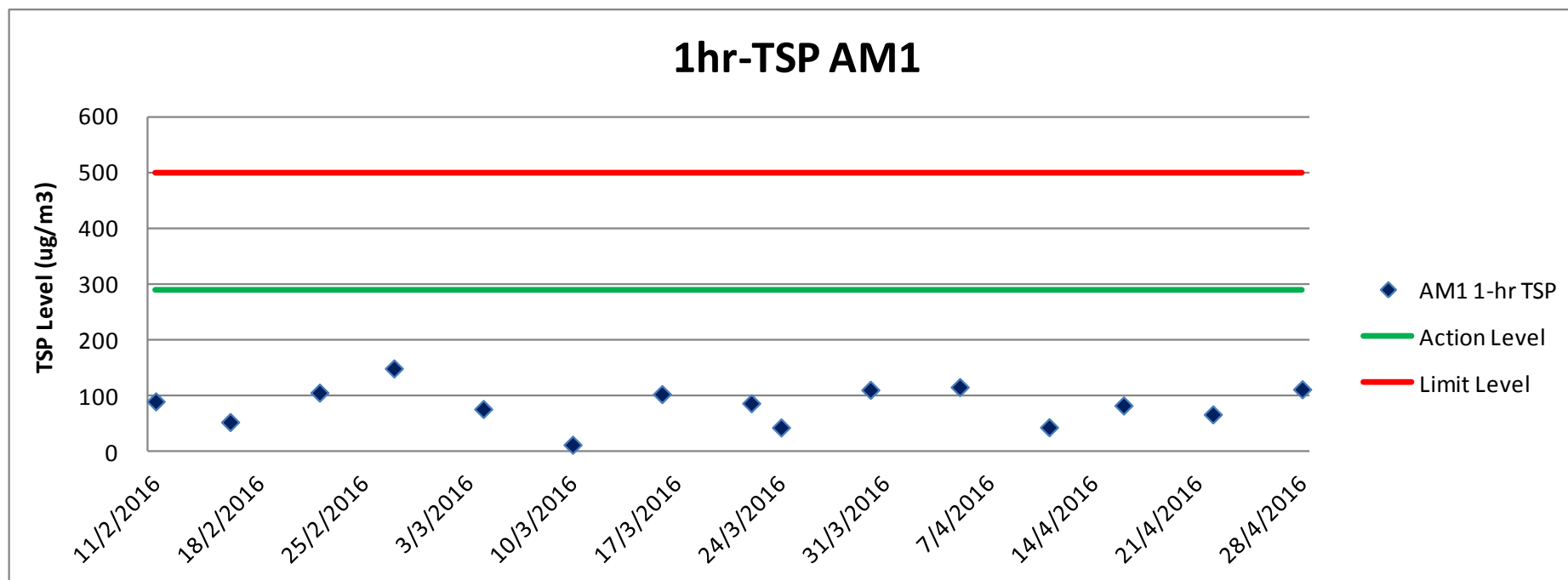
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Appendix E: TSP Monitoring Data

1-hr TSP Monitoring Result for AM1

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading (μ g/m³)			
					1	2	3	1	2	3	Average
5/4/2016	Cloudy	21.0 - 25.0	SE	0.0 - 5.0	12:59	14:00	15:01	124	116	108	116
11/4/2016	Overcast	21.0 - 24.0	SE	0.0 - 5.0	14:40	15:41	16:42	52	42	38	44
16/4/2016	Overcast	22.2 - 28.3	SW	0.0 - 5.0	10:22	11:23	12:24	85	86	78	83
22/4/2016	Overcast	20.8 - 26.2	SW	0.0 - 5.2	13:51	14:52	15:53	65	62	73	67
28/4/2016	Overcast	24.2 - 29.0	SE	0.0 - 5.2	9:38	10:39	11:40	104	111	121	112

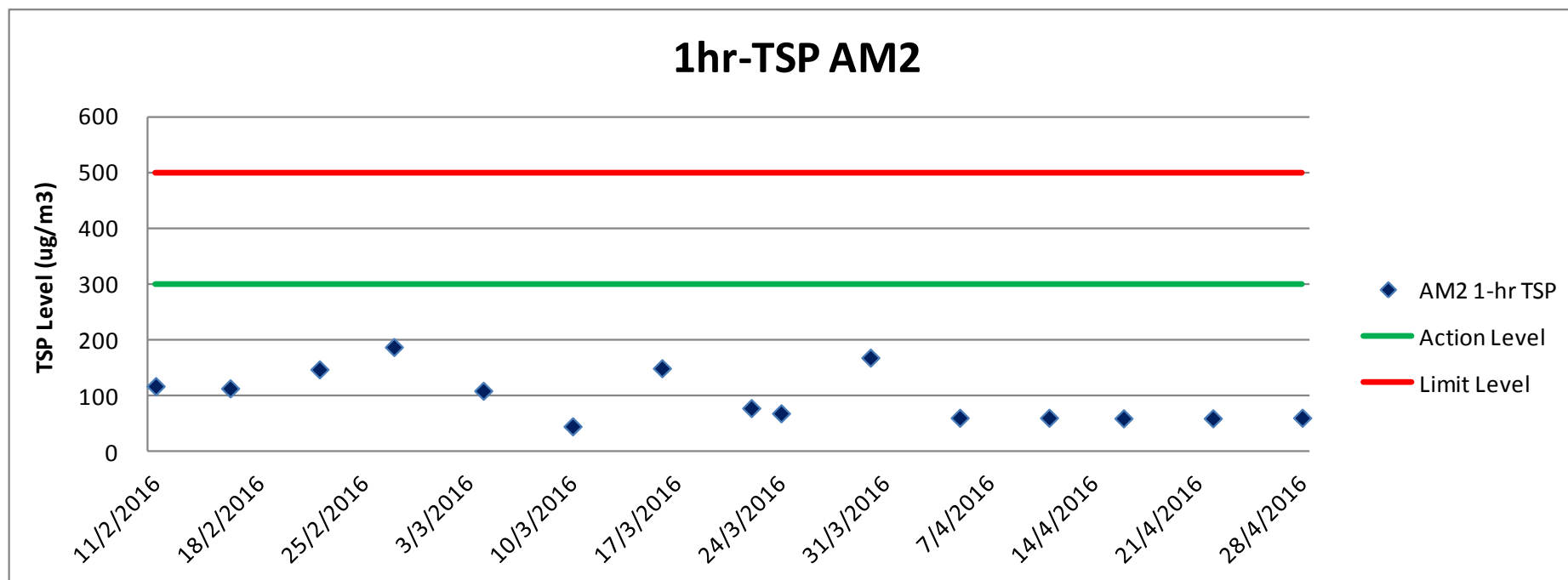
*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO



1-hr TSP Monitoring Result for AM2

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading ($\mu\text{g}/\text{m}^3$)			
					1	2	3	1	2	3	Average
5/4/2016	Cloudy	21.0 - 25.0	SE	0.0 - 5.0	10:56	11:57	12:58	56	58	70	61
11/4/2016	Overcast	21.0 - 24.0	SE	0.0 - 5.0	10:58	11:59	13:00	54	60	69	61
16/4/2016	Overcast	22.2 - 28.3	SW	0.0 - 5.0	10:54	11:55	12:56	56	61	62	60
22/4/2016	Overcast	20.8 - 26.2	SW	0.0 - 5.2	10:59	12:00	13:01	58	59	63	60
28/4/2016	Overcast	24.2 - 29.0	SE	0.0 - 5.2	10:58	11:59	13:00	59	63	62	61

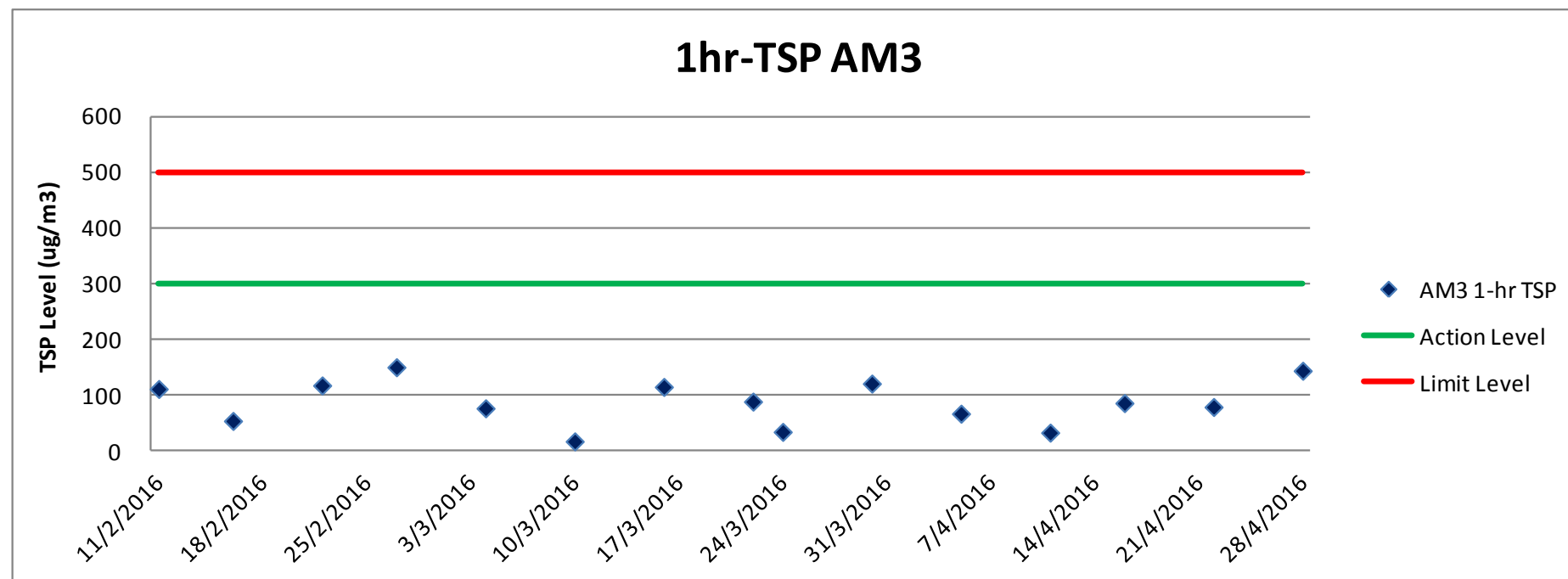
*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO



1-hr TSP Monitoring Result for AM3

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading ($\mu\text{g}/\text{m}^3$)			
					1	2	3	1	2	3	Average
5/4/2016	Cloudy	21.0 - 25.0	SE	0.0 - 5.0	13:34	14:35	15:36	74	67	59	67
11/4/2016	Overcast	21.0 - 24.0	SE	0.0 - 5.0	15:09	16:10	17:11	40	34	26	33
16/4/2016	Overcast	22.2 - 28.3	SW	0.0 - 5.0	10:57	11:58	12:59	95	82	80	86
22/4/2016	Overcast	20.8 - 26.2	SW	0.0 - 5.2	14:44	15:45	16:46	80	83	75	79
28/4/2016	Overcast	24.2 - 29.0	SE	0.0 - 5.2	10:17	11:18	12:19	140	140	152	144

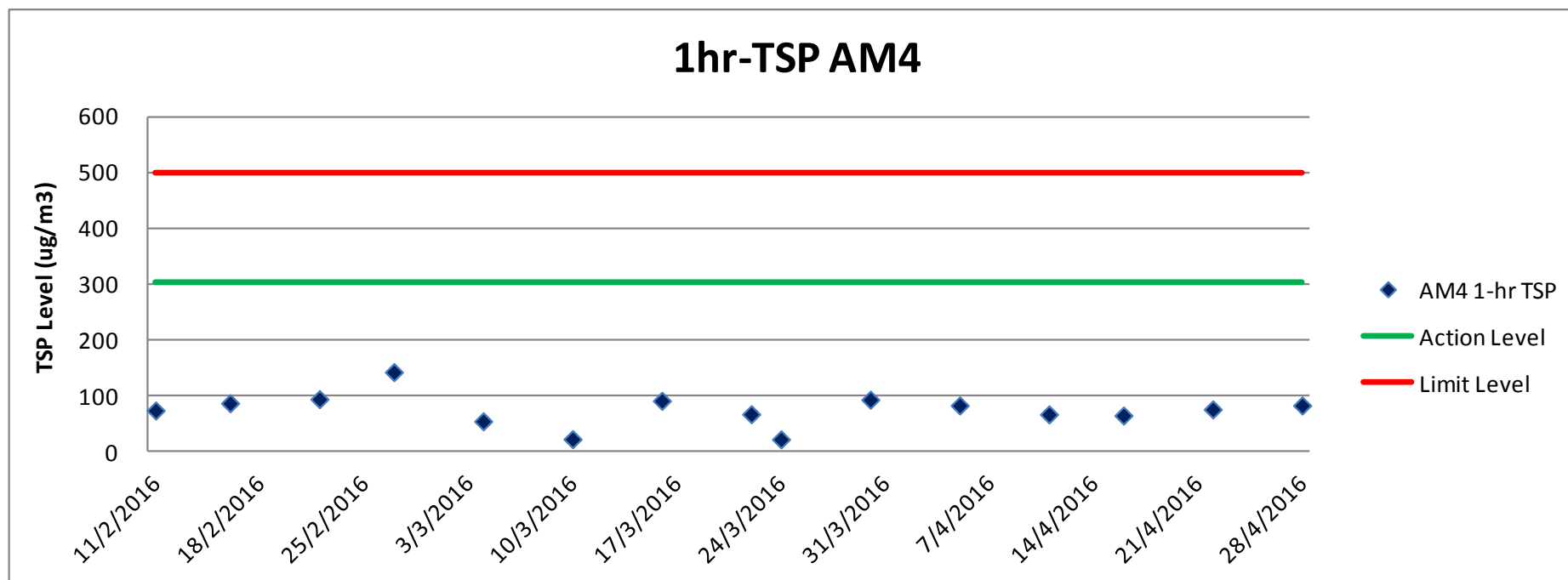
*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO



1-hr TSP Monitoring Result for AM4

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading ($\mu\text{g}/\text{m}^3$)			
					1	2	3	1	2	3	Average
5/4/2016	Cloudy	21.0 - 25.0	SE	0.0 - 5.0	10:52	11:53	12:54	90	80	78	83
11/4/2016	Overcast	21.0 - 24.0	SE	0.0 - 5.0	10:59	12:00	13:01	80	65	57	67
16/4/2016	Overcast	22.2 - 28.3	SW	0.0 - 5.0	10:56	11:57	12:58	78	60	56	65
22/4/2016	Overcast	20.8 - 26.2	SW	0.0 - 5.2	10:58	11:59	13:00	75	90	62	76
28/4/2016	Overcast	24.2 - 29.0	SE	0.0 - 5.2	10:56	11:57	12:58	65	89	95	83

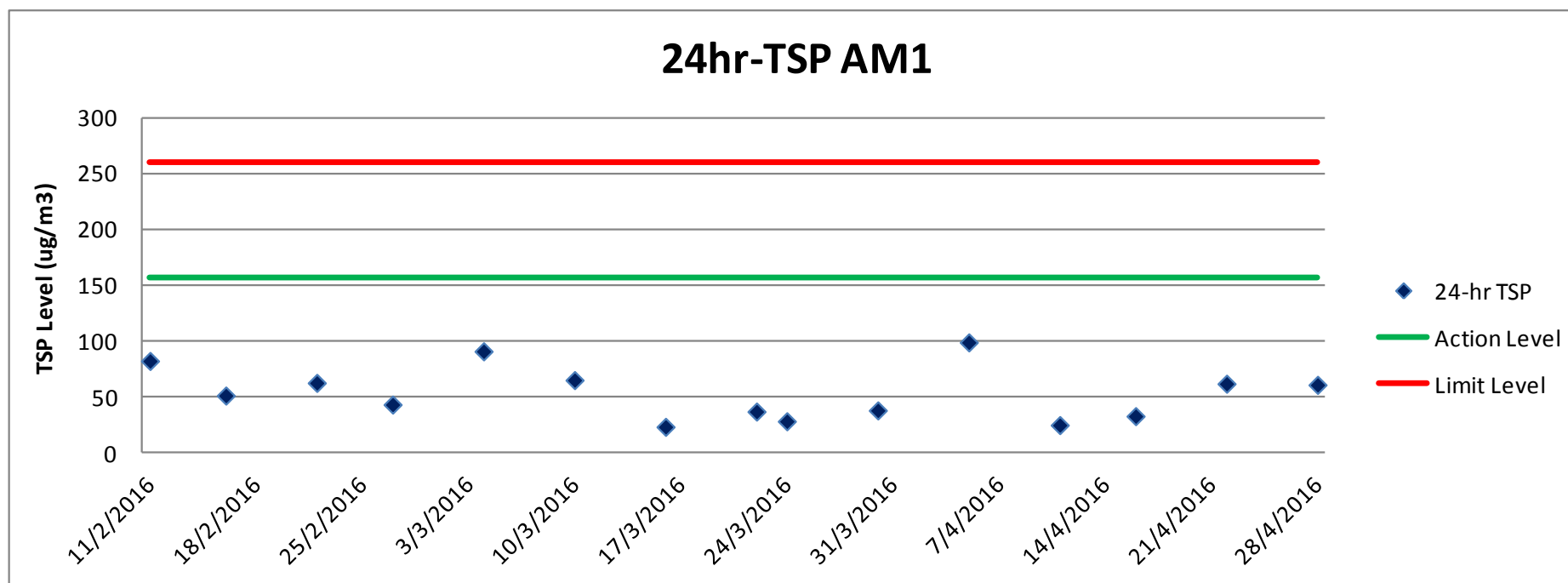
*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO



24-hr TSP Monitoring Result for AM1

Sampling ID & Paper No.	Temperature (°C) *	Wind Diection *	Wind Speed (m/s) *	Sampling Date	Wt. of paper (g)			Flow Rate (CFM)			Total Volume (m³)	TSP Concentration (µg/m³)
					Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Avg Flow Rate		
AM10405 200574	21.0 - 25.0	SE	0.0 - 5.0	05/04/16	2.8294	3.0564	0.2270	56	56	56.0	2283.47	99
AM10411 200599	21.0 - 24.0	SE	0.0 - 5.0	11/04/16	2.8422	2.8988	0.0566	56	56	56.0	2283.47	25
AM10416 200575	22.2 - 28.3	SW	0.0 - 5.0	16/04/16	2.8312	2.9063	0.0751	56	56	56.0	2283.47	33
AM10422 200600	20.8 - 26.2	SW	0.0 - 5.2	22/04/16	2.8521	2.9946	0.1425	56	56	56.0	2283.47	62
AM10428 200578	24.2 - 29.0	SE	0.0 - 5.2	28/04/16	2.8076	2.9479	0.1403	56	56	56.0	2283.47	61

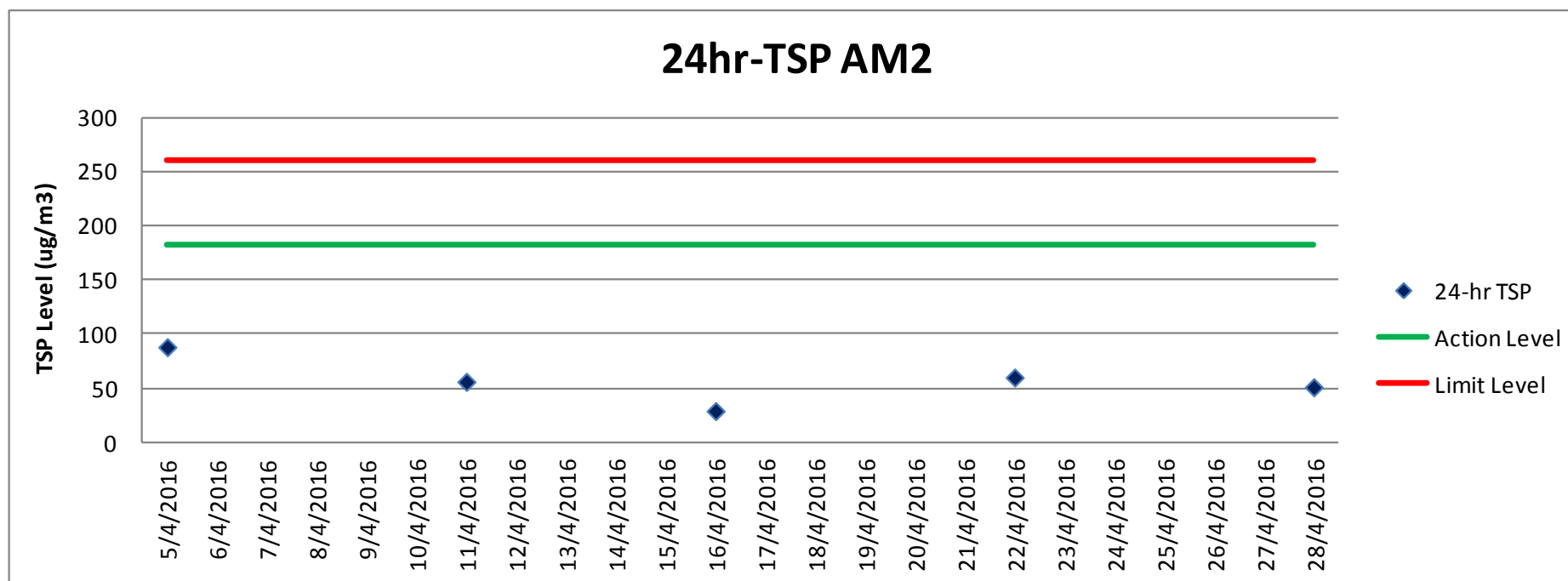
*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO



24-hr TSP Monitoring Result for AM2

Sampling ID & Paper No.	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Date	Wt. of paper (g)			Flow Rate (CFM)			Total Volume (m³)	TSP Concentration (µg/m³)
					Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Avg Flow Rate		
AM20405 200584	21.0 - 25.0	SE	0.0 - 5.0	05/04/16	2.7944	2.9919	0.1975	55	55	55.0	2242.69	88
AM20411 200579	21.0 - 24.0	SE	0.0 - 5.0	11/04/16	2.8181	2.9440	0.1259	55	55	55.0	2242.69	56
AM20416 200583	22.2 - 28.3	SW	0.0 - 5.0	16/04/16	2.7740	2.8401	0.0661	55	55	55.0	2242.69	29
AM20422 201031	20.8 - 26.2	SW	0.0 - 5.2	22/04/16	2.8601	2.9940	0.1339	55	55	55.0	2242.69	60
AM20428 200581	24.2 - 29.0	SE	0.0 - 5.2	28/04/16	2.8179	2.9314	0.1135	55	55	55.0	2242.69	51

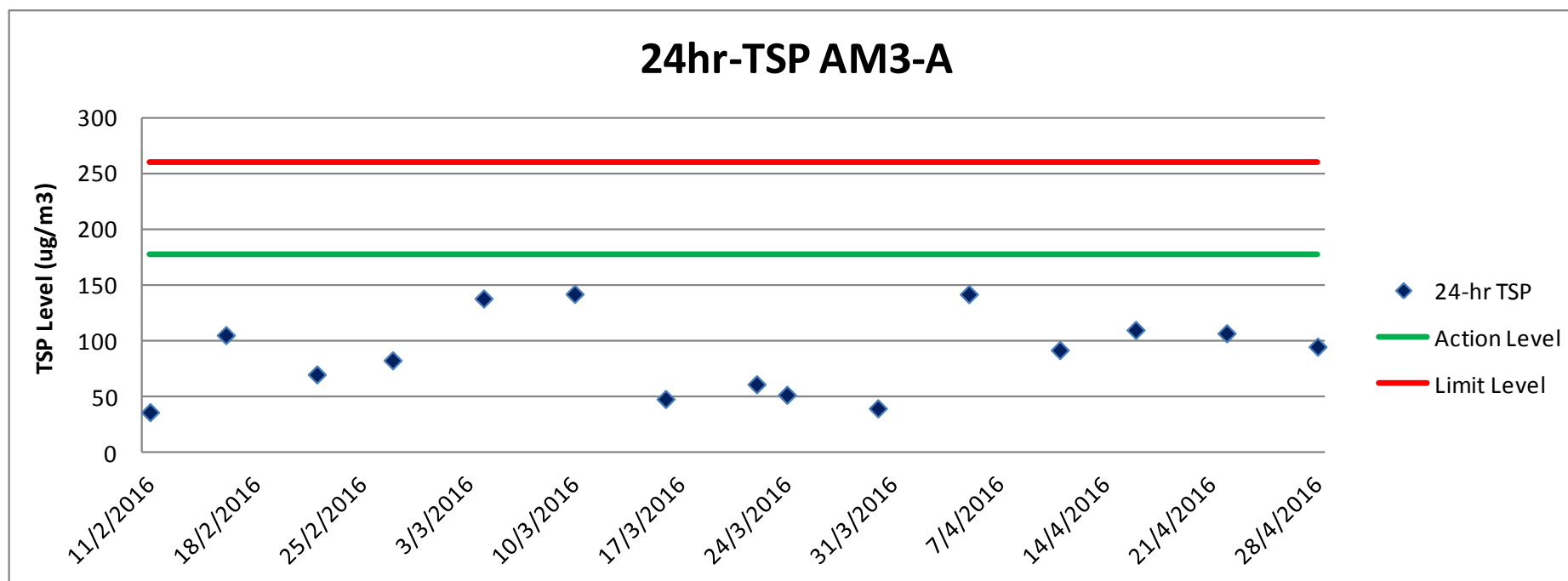
*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO



24-hr TSP Monitoring Result for AM3-A

Sampling ID & Paper No.	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Date	Wt. of paper (g)			Flow Rate (CFM)			Total Volume (m³)	TSP Concentration (µg/m³)
					Initial Wt.	Final Wt.	Wt. of dust	Initial	Final	Avg Flow Rate		
AM3-A0405 200572	21.0 - 25.0	SE	0.0 - 5.0	05/04/16	2.8173	3.1352	0.3179	55	55	55.0	2242.69	142
AM3-A0411 200601	21.0 - 24.0	SE	0.0 - 5.0	11/04/16	2.8474	3.0531	0.2057	55	55	55.0	2242.69	92
AM3-A0416 201022	22.2 - 28.3	SW	0.0 - 5.0	16/04/16	2.7948	3.0414	0.2466	55	55	55.0	2242.69	110
AM3-A0422 201027	20.8 - 26.2	SW	0.0 - 5.2	22/04/16	2.8378	3.0777	0.2399	55	55	55.0	2242.69	107
AM3-A0428 201028	24.2 - 29.0	SE	0.0 - 5.2	28/04/16	2.8185	3.0323	0.2138	55	55	55.0	2242.69	95

*Remark: Data of temperature, wind direction and wind speed was extracted from King's Park Meteorological Station of HKO





CERTIFICATE OF ANALYSIS

Client	: ENVIRONMENTAL PIONEERS & SOLUTION LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 2
Contact	: ANDY TSANG	Contact	: Fung Lim Chee, Richard	Work Order	: HK1616669
Address	: FLAT A, 8/F, CHAI WAN INDUSTRIAL CENTRE, 20 LEE CHUNG STREET, CHAI WAN HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: kytsang@fsenv.com.hk	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 2185 0159	Telephone	: +852 2610 1044		
Facsimile	: +852 2258 0568	Facsimile	: +852 2610 2021		
Project	: PROPOSED ROAD IMPROVEMENT WORKS IN WEST KOWLOON RECLAMATION DEVELOPMENT - PHASE 1	Quote number	: ----	Date Samples Received	: 28-APR-2016
Order number	: ----			Issue Date	: 04-MAY-2016
C-O-C number	: ----			No. of samples received	: 5
Site	: ----			No. of samples analysed	: 5

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 29-APR-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1616669

Samples were picked up from client by ALS Technichem (HK) staff in an ambient condition.

Sample(s) analysed and reported on an as received basis.

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics



Analytical Results

Sub-Matrix: FILTER (TSP/RSP)

Client sample ID

				AM10405 200574	AM10411 200599	AM10416 200575	AM10422 200600	AM10428 200578
				[05-APR-2016]	[11-APR-2016]	[16-APR-2016]	[22-APR-2016]	[28-APR-2016]
Compound	CAS Number	LOR	Unit	HK1616669-001	HK1616669-002	HK1616669-003	HK1616669-004	HK1616669-005
EA/ED: Physical and Aggregate Properties								
HK-TSP: Total Suspended Particulates	----	0.0010	g	0.2270	0.0566	0.0751	0.1425	0.1403
HK-TSP: Initial Weight	----	0.0010	g	2.8294	2.8422	2.8312	2.8521	2.8076
HK-TSP: Final Weight	----	0.0010	g	3.0564	2.8988	2.9063	2.9946	2.9479



CERTIFICATE OF ANALYSIS

Client	: ENVIRONMENTAL PIONEERS & SOLUTION LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 2
Contact	: ANDY TSANG	Contact	: Fung Lim Chee, Richard	Work Order	: HK1616673
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E-mail	: kytsang@fsenv.com.hk	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 2185 0159	Telephone	: +852 2610 1044		
Facsimile	: +852 2258 0568	Facsimile	: +852 2610 2021		
Project	: PROPOSED ROAD IMPROVEMENT WORKS IN WEST KOWLOON RECLAMATION DEVELOPMENT - PHASE 1	Quote number	: ----	Date Samples Received	: 28-APR-2016
Order number	: ----			Issue Date	: 04-MAY-2016
C-O-C number	: ----			No. of samples received	: 5
Site	: ----			No. of samples analysed	: 5

General Comments

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics



Analytical Results

Sub-Matrix: FILTER (TSP/RSP)

Client sample ID

Client sampling date / time

				AM20405 200584	AM20411 200579	AM20416 200583	AM20422 201031	AM20428 200581
				[05-APR-2016]	[11-APR-2016]	[16-APR-2016]	[22-APR-2016]	[28-APR-2016]
Compound	CAS Number	LOR	Unit	HK1616673-001	HK1616673-002	HK1616673-003	HK1616673-004	HK1616673-005
EA/ED: Physical and Aggregate Properties								
HK-TSP: Total Suspended Particulates	----	0.0010	g	0.1975	0.1259	0.0661	0.1339	0.1135
HK-TSP: Initial Weight	----	0.0010	g	2.7944	2.8181	2.7740	2.8601	2.8179
HK-TSP: Final Weight	----	0.0010	g	2.9919	2.9440	2.8401	2.9940	2.9314



CERTIFICATE OF ANALYSIS

Client	: ENVIRONMENTAL PIONEERS & SOLUTION LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 2
Contact	: ANDY TSANG	Contact	: Fung Lim Chee, Richard	Work Order	: HK1613847
Address	: FLAT A, 8/F, CHAI WAN INDUSTRIAL CENTRE, 20 LEE CHUNG STREET, CHAI WAN HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: kytsang@fsenv.com.hk	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 2185 0159	Telephone	: +852 2610 1044		
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Project	: PROPOSED ROAD IMPROVEMENT WORKS IN WEST KOWLOON RECLAMATION DEVELOPMENT - PHASE 1	Quote number	: ----	Date Samples Received	: 28-APR-2016
Order number	: ----			Issue Date	: 04-MAY-2016
C-O-C number	: ----			No. of samples received	: 5
Site	: ----			No. of samples analysed	: 5

General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1613847

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Signatories

Position

Authorised results for

Fung Lim Chee, Richard

General Manager

Inorganics



Analytical Results

Sub-Matrix: FILTER (TSP/RSP)

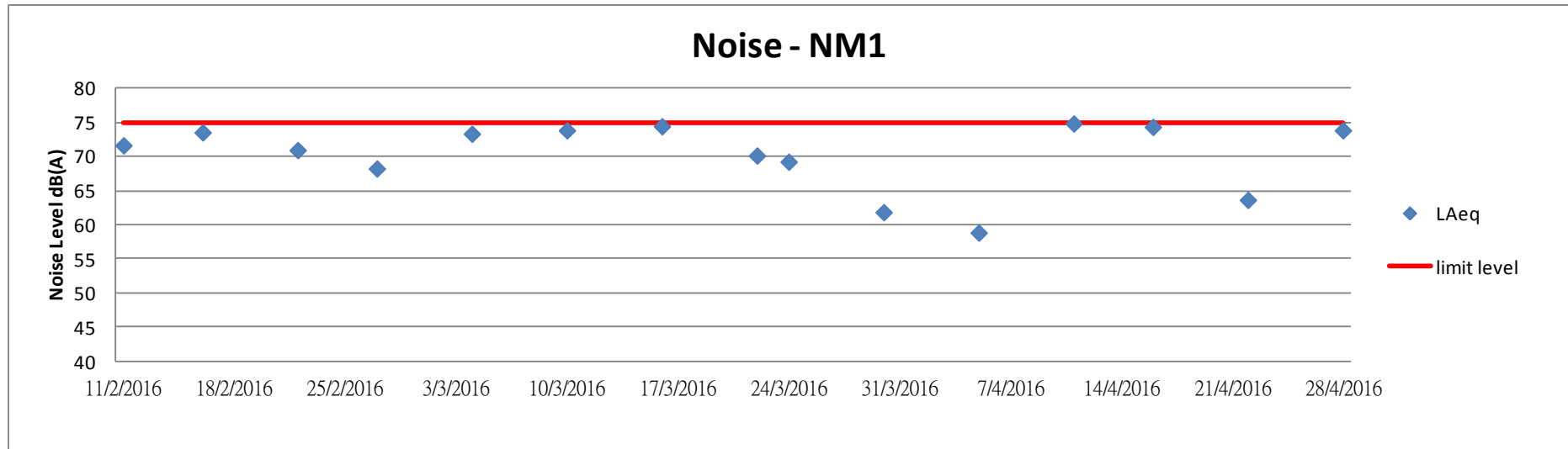
Client sample ID

				AM3-A0405 200572	AM3-A0411 200601	AM3-A0416 201022	AM3-A0422 201027	AM3-A0428 201028
Client sampling date / time				[05-APR-2016]	[11-APR-2016]	[16-APR-2016]	[22-APR-2016]	[28-APR-2016]
Compound	CAS Number	LOR	Unit	HK1613847-001	HK1613847-002	HK1613847-003	HK1613847-004	HK1613847-005
EA/ED: Physical and Aggregate Properties								
HK-TSP: Total Suspended Particulates	----	0.0010	g	0.3179	0.2057	0.2466	0.2399	0.2138
HK-TSP: Initial Weight	----	0.0010	g	2.8173	2.8474	2.7948	2.8378	2.8185
HK-TSP: Final Weight	----	0.0010	g	3.1352	3.0531	3.0414	3.0777	3.0323

Appendix F1: Noise Monitoring Data

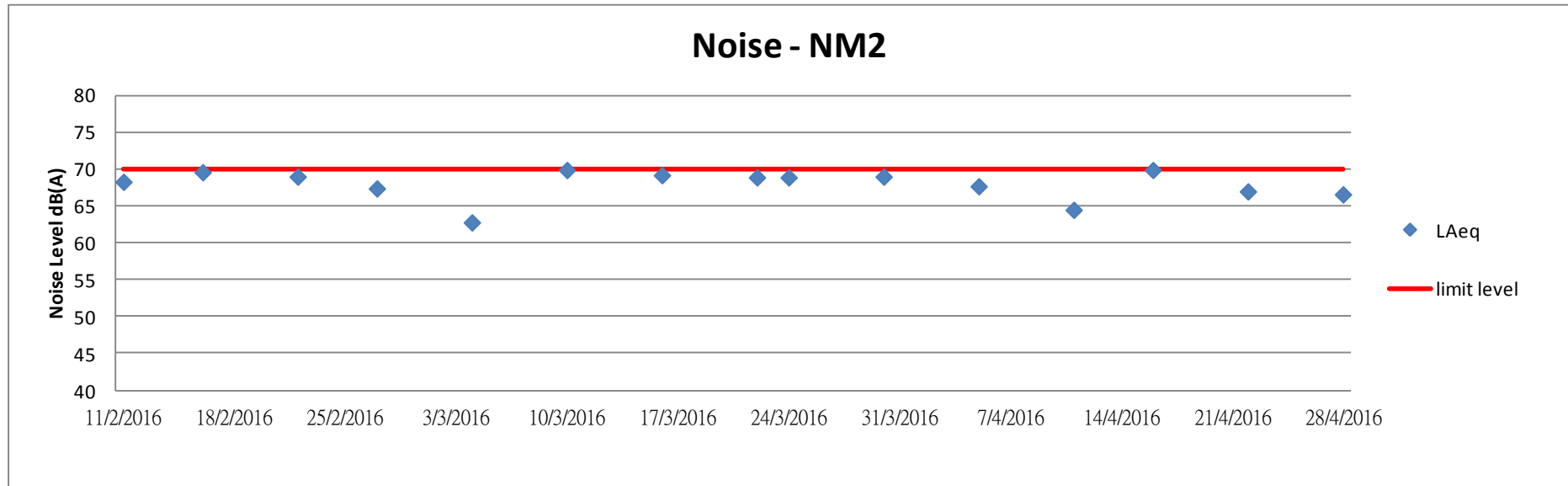
Noise Monitoring Result for NM1

Location	NM1				
Date	5/4/2016	11/4/2016	16/4/2016	22/4/2016	28/4/2016
Weather Condition	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Start Time	14:35	15:20	13:02	15:05	11:02
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	75.1				
L _{Aeq}	75.2	74.8	74.3	75.4	77.5
L ₁₀	78.1	77.7	77.1	78.4	81.1
L ₉₀	69.7	69.8	69.6	70.5	71.4
Baseline Corrected Level	58.8	<Baseline level	<Baseline level	63.6	73.8



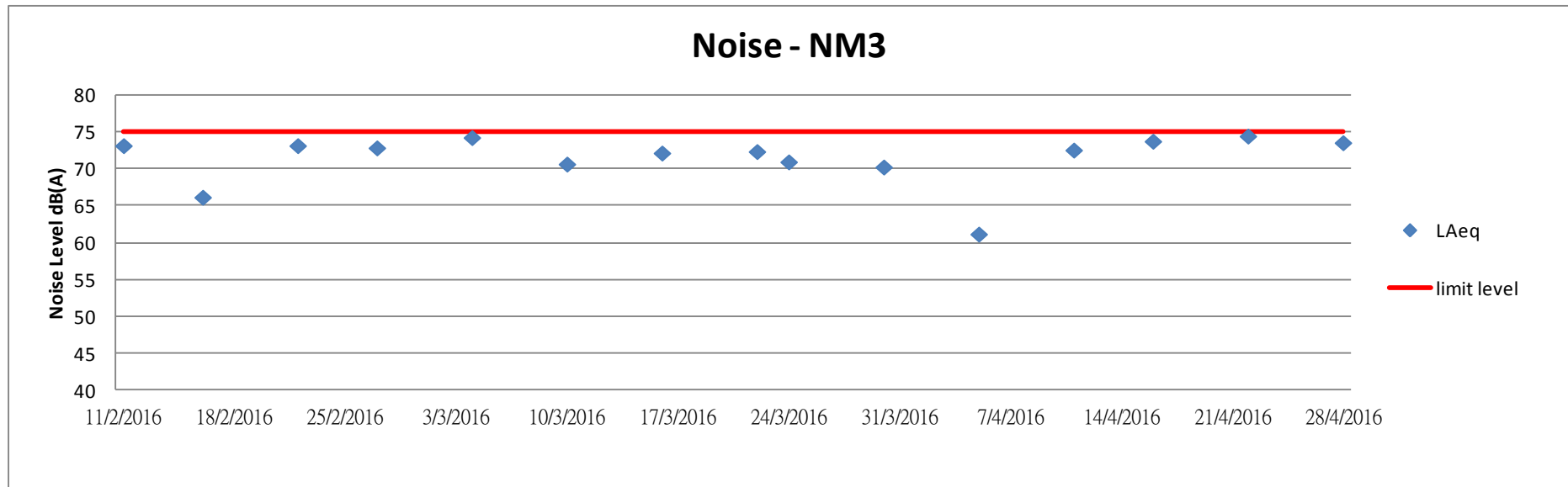
Noise Monitoring Result for NM2

Location	NM2				
Date	5/4/2016	11/4/2016	16/4/2016	22/4/2016	28/4/2016
Weather Condition	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Start Time	9:00	9:00	9:00	9:00	9:00
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	66.5				
L _{Aeq}	70.1	68.6	71.5	69.7	69.5
L ₁₀	71.6	70.1	78.5	72.1	73.4
L ₉₀	68.5	65.3	69.0	63.2	67.8
Baseline Corrected Level	67.6	64.4	69.8	66.9	66.5



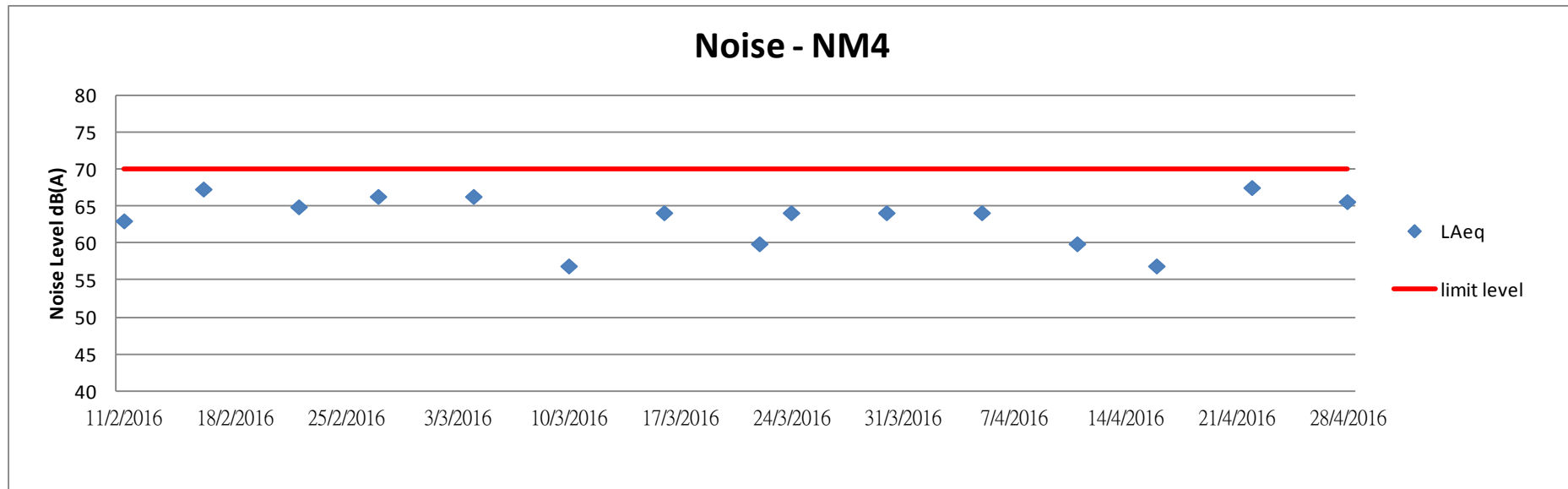
Noise Monitoring Result for NM3

Location	NM3				
Date	5/4/2016	11/4/2016	16/4/2016	22/4/2016	28/4/2016
Weather Condition	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Start Time	15:07	15:20	11:07	14:31	10:26
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	74.5				
L _{Aeq}	74.7	72.6	73.8	74.5	77.1
L ₁₀	77.2	75.7	76.7	74.5	78.8
L ₉₀	70.8	68.2	69.3	69.0	73.6
Baseline Corrected Level	61.2	<Baseline level	<Baseline level	<Baseline level	73.6



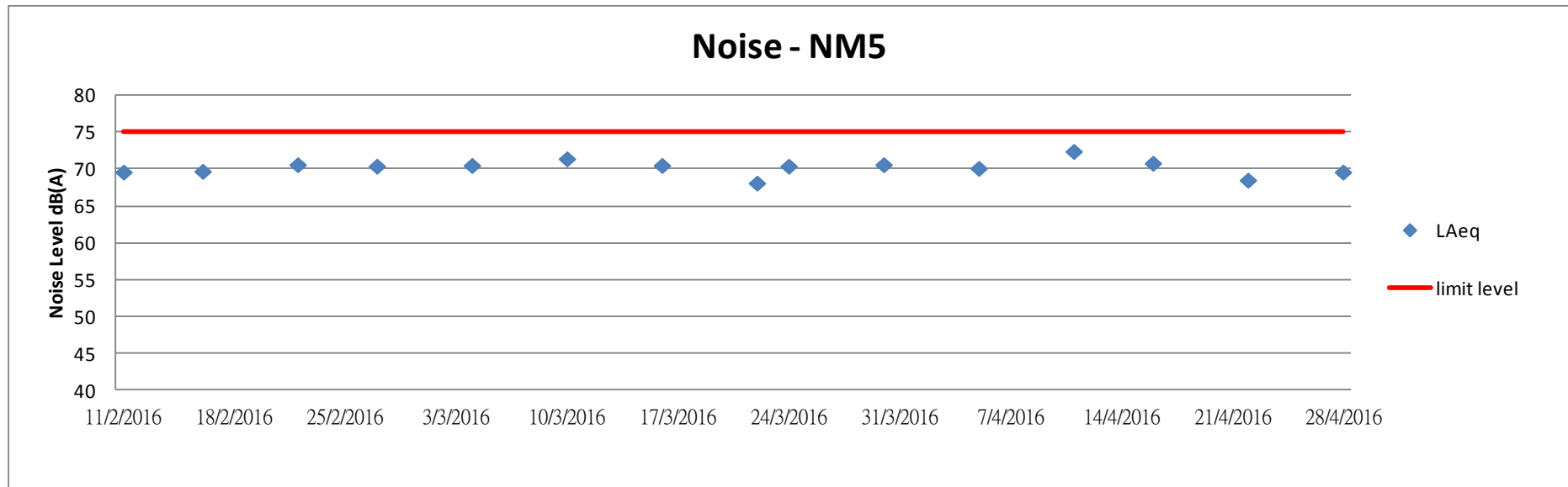
Noise Monitoring Result for NM4

Location	NM4				
Date	5/4/2016	11/4/2016	16/4/2016	22/4/2016	28/4/2016
Weather Condition	Cloudy	Cloudy	Cloudy	Cloudy	Sunny
Start Time	9:48	11:45	12:00	13:02	14:03
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	73.3				
L _{Aeq}	73.8	73.5	73.4	67.6	74.0
L ₁₀	75.5	75.7	81.4	69.9	81.6
L ₉₀	71	68.1	65.1	65.6	67.6
Baseline Corrected Level	64.2	60.0	57.0	<Baseline level	65.7



Noise Monitoring Result for NM5

Location	NM5				
Date	5/4/2016	11/4/2016	16/4/2016	22/4/2016	28/4/2016
Weather Condition	Cloudy	Cloudy	Cloudy	Cloudy	Sunny
Start Time	10:45	13:34	13:15	10:51	14:36
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	71.8				
L _{Aeq}	70.1	75.1	70.8	68.5	69.6
L ₁₀	72.5	78.5	78.4	70.2	71.2
L ₉₀	67.2	66.1	64.9	65.6	64.5
Baseline Corrected Level	<Baseline level	72.4	<Baseline level	<Baseline level	<Baseline level



Appendix F2: School Schedule

油蔴地天主教小學(海泓道)
二零一五至二零一六年度校曆表(九月至二月)

月份	周次	日	一	二	三	四	五	六	行事曆
九月	一			1 S	2 S	3	4 S	5	1/9 開學 3/9 額外公眾假期
	二	6	7 S	8 S	9 A	10 B	11 C	12	11/9 求恩禮
	三	13	14 D	15 E	16 F	17 A	18 B	19	
	四	20	21 C	22 D	23 E	24 F	25 A	26	
	五	27	28	29 B	30 C				27/9 教育日 28/9 中秋節翌日
十月					1	2 D	③		1/10 國慶 3/10 我和班主任有個約會/J6 升中面試講座
	六	4	5 E	6 F	7 A	8 B	9 C	10	
	七	11	12 D	13 E	14 F	15 A	16 B	17	
	八	18	19 S	20 C	21	22 D	23 E	24	19/10 水運會 21/10 重陽節 23/10 J6 升中座談會(1)
	九	25	26 F	27 A	28 B	29 C	30 D	31	30/10 九西水運會 第九周英文串字(J1 - J6)
十一月	十	1	2 E	3 F	4 S	5 S	6 S	7	5/11 - 10/11 J1 評估、J2 - 6 第一段考(J6 呈分試)
	十一	8	9 S	10 S	11 S	12 S	13 A	14	11/11 綠色旅行(J1 - 3) 12/11 綠色旅行(J4 - 6)
	十二	15	16 B	17 C	18 D	19 E	20 F	21	
	十三	22	23 A	24 B	25 C	26 D	27 E	28	
	十四	29	30 F						30/11 - 11/12 全方位學習周
十二月				1 A	2 B	3 C	4 D	5	3/12 九西陸運會
	十五	6	7 E	8 F	9 A	10 B	11 C	12	
	十六	13	14 D	15 E	16 F	17 A	18 S	①⑨	18/12 聖誕祈禱禮 19/12 家長日
		20	21	22	23	24	25	26	21/12/15 - 31/16 聖誕及新年假期 21/12 教師發展日(1)
		27	28	29	30	31			
一月						1	2		1/1 元旦
	十七	3	4 B	5 C	6 D	7 E	8 F	9	
	十八	10	11 A	12 B	13 C	14 D	15 E	16	
	十九	17	18 F	19 A	20 B	21 C	22 D	②③	18/1 下學期開始 23/1 家教會周年大會暨頒獎禮
	二十	24	25 E	26 F	27 A	28 S	29 B	30	28/1 陸運會
二月		31							
	廿一		1 C	2 D	3 S	4	5	6	3/2 送舊迎新大掃除 4/2 - 17/2 農曆新年假期
		7	8	9	10	11	12	13	8/2 - 10/2 初一至初三
	廿二	14	15	16	17	18 E	19 F	②④	20/2 新春團拜
	廿三	21	22 A	23 B	24 C	25 D	26 E	27	25/2 畢業照及班照 第廿三周英文串字(J1 - J6)
	廿四	28	29 F						

油蔴地天主教小學(海泓道)
二零一五至二零一六年度校曆表(三月至八月)

月份	周次	日	一	二	三	四	五	六	行事曆
三月	廿四			1 A	2 S	3 S	4 S	5	3/3 - 8/3 J1 - 6 第二段考(J6 呈分試)
	廿五	6	7 S	8 S	9 B	10 C	11 D	12	9/3 - 18/3 全方位學習周
	廿六	13	14 E	15 F	16 A	17 B	18 C	19	16/3 - 18/3 J5 教育營
	廿七	20	21 D	22 E	23 F	24	25	26	22/3 復活節祈禱聚會 24/3 - 4/4 復活節假期
		27	28	29	30	31			27/3 復活主日
四月							1	2	
	廿八	3	4	5 A	6 B	7 C	8 D	9	4/4 清明節
	廿九	10	11 E	12 F	13 A	14 B	15 C	①⑥	16/4 J6 升中座談會(2)
	三十	17	18 D	19 E	20 F	21 A	22 B	②③	23/4 成長見證日
	卅一	24	25 C	26 D	27 E	28 F	29 A	30	
五月	卅二	1	2	3 B	4 C	5 D	6 E	7	2/5 勞動節翌日 3/5 - 4/5 J3 TSA 說話及視訊評估 6/5 J5 升中座談會
	卅三	8	9 F	10 A	11 B	12 S	13 S	14	12/5 學藝薈萃耀油天綵排 13/5 學藝薈萃耀油天 14/5 佛誕
	卅四	15	16 C	17	18 D	19 E	20 F	21	17/5 天主教學校教師日
	卅五	22	23 A	24 B	25 C	26 D	27 E	28	第卅五周英文串字(J1 - J6)
	卅六	29	30 F	31 A					
六月					1 S	2 S	3 S	4	2/6 - 7/6 J1 - 6 期終考(J5 呈分試、J6 畢業試)
	卅七	5	6 S	7 S	8 B	9	10 C	11	9/6 端午節
	卅八	12	13 D	14 E	15 F	16 A	17 B	18	15/6 - 16/6 J3 TSA 紙筆評估
	卅九	19	20 C	21 D	22 E	23 F	24 A	25	25/6 聖保祿堂主保瞻禮
	四十	26	27	28 B	29 S	30 S			27/6 主保瞻禮假期 29/6 畢業禮綵排 30/6 畢業禮
七月							1	2	1/7 特別行政區成立日
	四一	3	4 S	5 S	6 S	7 S	8 S	9	5/7 升中派位 7/7 - 8/7 升中派位註冊 8/7 感恩禮
	四二	10	11 S	12 S	13 S	14	15	16	11/7 頒獎禮 12/7 J6 中一入學前測驗 14/7 教師發展日(2)
		17	18	19	20	21	22	23	14/7 - 31/8 暑假(2016年9月1日開課)
		24	25	26	27	28	29	30	
八月		31							
			1	2	3	4	5	6	備註:
		7	8	9	10	11	12	13	考試前夕(4/11, 2/3, 1/6) 半天上課
		14	15	16	17	18	19	20	12/5 - 13/5 學藝薈萃耀油天(半天上課)
		21	22	23	24	25	26	27	
		28	29	30	31				

麗澤中學

2015-2016 年 度 校 曆 表

2016 年 4 月

	周次	日	一	二	三	四	五	六
							1	2
B	32	3	4	5	6	7	8	9
A	33	10	11	12	13		15	16
B	34	17	18	19	20	21	22	23
A	35	24	25	26	27	28	29	30

全校活動及考試：

11/4 - 22/4 自由換穿夏季校服

20/4 第 5 次教師會議

21/4 宗教日

25/4 換穿夏季校服

29/4 中三級選科講座

學校假期：

24/3 - 6/4 復活節及清明節假期

備註： 學校活動  學校考試  公眾假期  學校假期  學校自訂假期

Appendix G: Waste Management Record

Monthly Summary Waste Flow Table for 2016 (year)

Month	<u>Actual Quantities of Inert C&D Materials Generated Monthly</u>					<u>Actual Quantities of Non-inert C&D Wastes Generated Monthly</u>					
	Total Quantity Generated	Hard Rocks & Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Mixed Waste Disposal at Sorting Facility	Metals	Paper / cardboard packaging	Plastics	Chemical Waste	Others (general refuse)
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)
Jan	--	--	--	--	--	--	--	--	--	--	--
Feb	521.76	0	0	0	521.76	0	0	0	0	0	38.34
Mar	1527.37	0	0	0	1527.37	0	0	0	0	0	188.63
Apr	2676.73	0	0	0	2676.73	0	0	0	0	0	87.72
May	--	--	--	--	--	--	--	--	--	--	--
June	--	--	--	--	--	--	--	--	--	--	--
Sub-total	4725.86	0	0	0	4725.86	0	0	0	0	0	314.69
July	--	--	--	--	--	--	--	--	--	--	--
Aug	--	--	--	--	--	--	--	--	--	--	--
Sept	--	--	--	--	--	--	--	--	--	--	--
Oct	--	--	--	--	--	--	--	--	--	--	--
Nov	--	--	--	--	--	--	--	--	--	--	--
Dec	--	--	--	--	--	--	--	--	--	--	--
Total	4725.86	0	0	0	4725.86	0	0	0	0	0	314.69
Grand Total	4725.86	0	0	0	4725.86	0	0	0	0	0	314.69

Appendix H: Environmental Mitigation Implementation Schedule

Implementation Schedule for Environmental Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to Implement the measure	Location of the measure	When to implement the measure	What requirements or standard for the measure to achieve	Implementation Status
Air Quality Impact (Construction Phase)								
4.8	A1	housekeeping to minimize dust generation, e.g. by properly handling and storing dusty materials	To minimize dust generation	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A2	Adopt dust control measures, such as dust suppression using water spray on exposed soil (at least 8 times per day), in areas with dusty construction activities and during material handling	To minimize dust generation due to erosion	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	*
4.8	A3	Store cement bags in shelter with 3 sides and the top covered by impervious materials if the stack exceeds 20 bags	To prevent leakage of cement	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	N/A
4.8	A4	Maintain a reasonable height when dropping excavated materials to limit dust generation	To minimize dust generation during movement of excavated materials	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A5	Limit vehicle speed within site to 10km/hr and confine vehicle movement in haul road	To minimize dust generation due to traffic movement	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓

4.8	A6	Minimize exposed earth after completion of work in a certain area by hydroseeding, vegetating, soil compacting or covering with bitumen	To minimize dust generation due to erosion	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A7	Provide wheel washing at site exit to clean the vehicle body and wheel	To prevent dust from being brought offsite	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A8	Hard pave the area at site exit with concrete, bitumen or hardcores	To prevent dust from being brought offsite	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A9	Cover materials on trucks before leaving the site to prevent debris from dropping during traffic movement or being blown away by wind	To prevent falling of debris during traffic movement and by wind	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A11	Regular maintenance of plant equipment to prevent black smoke emission	To minimize black smoke emission	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A12	Throttle down or switch off unused machines or machine in intermittent use	To minimize unnecessary emission	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓
4.8	A13	Carry out regular site inspection to audit the implementation of mitigation measures	To check the implementation status and effectiveness of mitigation measures	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM, APCO	✓

4.8	A14	Carry out air quality monitoring throughout the construction period	To monitor construction dust level	HyD's Contractor	At representative ASRs	Prior to and throughout construction phase	EIAO-TM	✓
Noise Impact (Construction Phase)								
3.8	N1	Adopt good site practice, such as regular maintenance of plant equipment, throttle down unused machines	To minimize construction noise level	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N2	Use Quality Powered Mechanical Equipment (QPME) which produces lower noise level (e.g. Excavator/Loader (EPD-01431), Asphalt Paver (EPD-01226), Road Roller (EPD-00244) and Mobile Crane (EPD-01477))	To minimize construction noise level	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	N/A
3.8	N3	Erect movable noise barrier at significant noise source(e.g. Concrete Pump, Concrete Lorry Mixer, Excavator/Loader, Road Sweeper, Asphalt Paver, Road Roller, Lorry, Breaker and Poker)	To lower noise transmission	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	N/A
3.8	N5	Regular maintenance of plant equipment to prevent noise emission due to impair	To prevent noise emission due to impair	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N6	Position mobile noisy equipment in location and direction away from NSR	To minimize noise transmission to NSR	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	N/A

3.8	N7	Use silencer or muffler on plant equipment and should be properly maintained	To minimize noise transmission	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N8	Throttle down or switch off unused machines or machine in intermittent use between work	To minimize noise production	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N9	Make good use of stockpiles or other structures for noise screening	To minimize noise transmission	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	N/A
3.8	N10	Avoid carrying out noisy activities at the same time	To minimize noise production	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N11	Reduce the percentage on-time for some noisy PMEs	To minimize noise production	HyD's Contractor	Whole construction site	Throughout construction phase	NCO,EIAO-TM	✓
3.8	N12	Carry out noise monitoring	To monitor construction noise level	HyD's Contractor	At representative NSRs	Prior to and throughout construction phase	EIAO-TM	✓
Water Impact (Construction Phase)								
5.8	W1	Recirculate settled water for ground boring and drilling during site investigation or rock/soil anchoring.	To minimize wastewater generation	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W2	Set up sedimentation tank for settling suspended solids in wastewater before discharge into storm drains. Sand/silt	To reduce the amount of suspended solid in wastewater	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	*

		removal facilities such as sand traps, silt traps and sedimentation basin should be provided with adequate capacity.						
5.8	W3	Pave the construction road between the wheel washing bay and the public road with backfall	To prevent soil and site runoff from leaving the site	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W4	Follow ProPECC PN 1/94 "Construction Site Drainage" as far as practicable	To minimize surface runoff and chance of erosion	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W5	Provide perimeter channels at site boundaries.	To stop offsite storm runoff from entering the site	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W6	Construct catchpits and perimeter channels prior to commencement of site formation works and earthworks.	To stop runoff from flowing across the site	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W7	Maintain silt removal facilities, channels, manholes before and after rainstorm.	To prevent failure that may lead to flooding	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	*
5.8	W8	Remove sediment from silt and grit at regular interval.	To prevent blockage the may lead to flooding	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W9	Consider environmental requirements when diverting or realigning drainage.	To ensure adequate hydraulic capacity of all drains	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓

5.8	W10	Maintain a minimum distance of 100m between discharge point of construction site runoff and the existing saltwater intakes. No effluent will be discharged into typhoon shelter. (for loations of seawater intakes, please refer to Figure 5.1 in EIA Report)	To prevent mixing	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W11	Arrange soil excavation works outside rainy seasons (April to September) as far as possible. If this cannot beachieved, the following measures should be implemented:	To minimize surface runoff and chance of erosion	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	
		-Cover temporary exposed slope surfaces with impermeable materials, e.g. tarpaulin						✓
		- Protect temporary access roads by crushed stone or gravel						N/A
		- Proved intercepting channels along crest/edge of excavation						N/A
		- Carry out adequate surface protection measures well before the arrival of a rainstorm						N/A
5.8	W12	Compact soil after earthwork. Provide permanent work or surface protection with appropriate drainage channels immediately after forming the final surfaces.	To prevent soil erosion under rainstorm	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W13	Prevent rainwater from entering trenches. Excavation of trenches should be dug and backfilled in short sections during rainy	To prevent soil erosion under rainstorm	HyD's Contractor	Whole Construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	N/A

		seasons. Remove silt in rainwater collected from the trenches or foundation excavations prior to discharge to storm drains.						
5.8	W14	Cover open stockpiles of construction materials (e.g. aggregates, sand and fill materials) with impermeable materials such as tarpaulin during rainstorms.	To prevent soil erosion under rainstorm	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W15	Cover and temporary seal manholes (including newly constructed ones) to prevent silt, construction materials or debris and surface runoff from entering foul sewers.	To prevent overloading of foul sewers	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W16	Remove waste from the site regularly.	To prevent waste accumulation	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
5.8	W17	Apply discharge license for effluent discharge. Treat the discharge to comply with the requirement in TM-DSS.	To ensure compliance with effluent discharge requirement	HyD's Contractor	Whole construction site	Throughout construction phase	WPCO,TM-DSS, EIAO-TM	✓
5.8	W18	Reuse treated effluent onsite, e.g. dust suppression, wheel washing and general cleaning.	To minimize wastewater generation	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
5.8	W19	Monitor effluent water quality.	To ensure compliance with effluent discharge requirement	HyD's Contractor	Whole construction site	Throughout construction phase	WPCO, EIAO-TM	✓
5.8	W20	Register as chemical waste producer if chemical waste will be generated.	To control chemical waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal (Chemical Waste) (General)	✓

							Regulation, EIAO-TM	
5.8	W21	Perform maintenance of vehicles and equipment that have oil leakage and spillage potential on hard standings within a bunded area with sumps and oil interceptors.	To prevent oil leakage or spillage	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal (Chemical Waste) (General) Regulation, EIAO-TM	✓
5.8	W22	<p>Dispose chemical waste in accordance to Waste Disposal Ordinance. Follow the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</i> ,examples as follows:</p> <ul style="list-style-type: none"> - Store chemical wastes with suitable containers to avoid leakage or spillage during storage, handling and transport - Label chemical waste containers according to the CoP to notify and warn the waste handlers - Store chemical wastes at designated safe location with adequate space 	To avoid accident in waste storage and handling	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	N/A

5.8	W23	Provide sufficient chemical toilets with regular maintenance by licensed chemical waste collector	To proper collection of taskforce waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
Water Impact (Operational Phase)								
5.8	W24	Direct surface runoff for silt removal through silt trap before flowing to public storm water drainage system	To remove silt in surface runoff	HyD	Whole construction site	Throughout construction phase	WPCO, EIAO-TM	✓
5.8	W25	Regularly maintain the silt traps	To prevent blockage	HyD	Whole construction site	Throughout construction phase	WPCO, EIAO-TM	✓
Waste Management (Construction Phase)								
6.5	WM1	Allocate an area for waste sorting and storage of C&D materials into the following categories for reuse, recycle or disposal: - excavated material suitable for reuse - inert C&D material for disposal offsite - non-inert C&D materials for disposal at landfills - chemical waste - general refuse	To minimize waste generation	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	#
6.5	WM2	Adopt good site practice as follows: - Provide training to workers on site cleanliness, waste management (waste	To proper handling of waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	#

		reduction, reuse and recycle) and chemical handling procedures - Provide sufficient waste collection points and regular removal - Cover waste materials with tarpaulin or in enclosure during transportation - Maintain drainage systems, sumps and oil interceptors - Sort out chemical waste for proper handling and treatment						
6.5	WM3	Adopt waste reduction measures as follows: - Allocate area/containers for sorting, recovering and storing waste for reuse, recycle or disposal (e.g. demolition debris and excavated materials, general refuse like aluminium cans) - Allocate area for proper storage of construction materials to prevent contamination - Minimize wastage through careful planning and avoiding over-purchase of construction materials	To minimize waste generation	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
6.5	WM4	Prepare and implement a site specific Waste Management Plan (WMP) as part of Environmental Management Plan (EMP) in accordance with ETWB TCW No. 19/25. Detail waste management method in the form of avoidance, reuse, recovery,	To provide guidance to waste management	HyD's Contractor	Whole construction site	Throughout construction phase	ETWB TCW No. 19/2005, EIAO-TM	✓

		recycling, storage, collection, treatment and disposal according to the recommendations on the EIA and EM&A Manual. It should be approved by the ER and						
6.5	WM5	Store waste materials properly as follows: - Avoid contamination by proper handling and storing waste - Prevent erosion by covering waste or applying water spray - Maintain and clean storage area regularly - Sort and stockpile different materials at designated location to enhance reuse	To properly store waste	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
6.5	WM6	Apply for relevant waste disposal permits in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28).	To properly dispose waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28), EIAO-TM	✓

6.5	WM7	Hire licensed waste disposal contractors for waste collection and removal. Dispose waste at licensed waste disposal facilities	To properly dispose waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
6.5	WM8	Implement trip-ticket system for recording the amount of waste generated, recycled and disposed, including chemical wastes	To monitor movement of waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal (Chemical Waste) (General) Regulation, Waste Disposal Ordinance, EIAO-TM	✓
6.5	WM9	Provide wheel washing bay at site exit to clean the vehicle body and wheel	To prevent dust from being brought offsite	HyD's Contractor	Whole construction site	Throughout construction phase	ProPECC PN 1/94, EIAO-TM	✓
6.5	WM10	Reduce water content in wet spoil generated from piling work by mixing with dry materials. Only dispose treated spoil with less than 25% dry density to Public Fill Reception Facilities	To minimize load to reception facilities	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
6.5	WM11	Dispose dry waste or waste with less than 70% water content by weight to landfill	To minimize load to reception facilities	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
6.5	WM12	Follow the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</i> as follows: - Store chemical wastes with suitable	To avoid accident in waste storage and handling	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓

		<p>containers. Seal and maintain the container to avoid leakage or spillage during storage, handling and transport</p> <ul style="list-style-type: none"> - Label chemical waste containers in both English and Chinese with instructions in accordance to Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation - The container capacity should be smaller than 450 litres unless agreed by the EPD 						
6.5	WM13	<p>Comply with the requirement of the chemical storage area:</p> <ul style="list-style-type: none"> - Store only chemical waste and label clearly the chemical characters of the waste - Have at least 3 sides enclosed and protected from rainfall with cover - Provide sufficient ventilation - Have impermeable floor and has bunds to contain 110% of the capacity of the largest container or 20% of the total volume of the stored waste in the area, whichever is larger - Adequately spaced incompatible materials 	To ensure proper storage of chemical waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
6.5	WM14	<p>Transfer used lubricants, waste oils and other chemicals to oil recycling companies, if possible, and empty oil drums for reuse or refill. No direct or indirect discharge is permitted</p>	To ensure proper disposal of chemical waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal (Chemical Waste) (General) Regulation, EIAO-TM	N/A

6.5	WM15	Hire licensed chemical waste disposal contractors for waste collection and removal. Dispose chemical waste at the approved CWTC at Tsing Yi or other licensed facility	To ensure proper disposal of chemical waste	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal (Chemical Waste) (General) Regulation, EIAO-TM	N/A
6.5	WM16	Hire reputable waste collector to separately collect and dispose general refuse from other wastes. Cover the waste to prevent being blown away	To ensure proper disposal of general refuse	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal (Chemical Waste) (General) Regulation, EIAO-TM	✓
6.5	WM17	Provide recycling bins for sorting out recyclables for collection by recycling companies. Non-recyclables should be removed to designated landfills every day by licensed collectors to prevent environmental and health nuisance.	To ensure proper recycling and disposal of general refuse	HyD's Contractor	Whole construction site	Throughout construction phase	Waste Disposal Ordinance, EIAO-TM	✓
6.5	WM18	Organize training and reminders to site staff on waste minimization through avoidance and reduction, reusing and recycling	To ensure proper management of general refuse	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM	✓
6.5	WM19	Carry out testing to verify sediment quantity and quality	To verify the categories of sediment to be disposed in accordance with ETWB TC(W) No. 34/2002	HyD's GI Contractor	Drillholes CB1 to 5 as shown in Sediment Sampling and Testing Plan	Throughout construction phase	ETWB TC(W) No. 34/2002	N/A

Landscape and Visual								
7.9.3	CM1	Shorten the construction period	To minimize duration of landscape and visual impact	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM	N/A
7.9.3	CM2	Limit work within site area without encroaching into the landscape resources offsite.	To minimize landscape and visual impact	HyD's Contractor	Whole construction site	Throughout construction phase	EIAO-TM	✓
7.9.3	CM3	Protect retained trees from damage during construction work according to the recommended in the detailed tree assessment report and the approval of Tree Removal Application under ETWB TCW No. 3/2006 Tree Preservation	To maintain and minimize damage to existing greenery	HyD's Contractor	Whole construction site	Throughout construction phase	ETWB TCW 3/2006, EIAOTM	#
7.9.3	CM4	Transplant unavoidably affected trees wherever possible in accordance with ETWB TCW No. 3/2006 Tree Preservation. Maintain transplanted trees to ensure healthy development during the establishment period	To minimize tree loss and ensure survival of transplanted trees	HyD's Contractor	Whole construction site	Throughout construction phase	ETWB TCW 3/2006, EIAOTM	N/A
7.9.2.6	OM1	Carry out compensatory planting in areas proposed in the Tree Survey and Landscape and Greening Study Report in accordance to ETWB TCW 3/2006, which will be subjected to refinement in detailed design stage. Compensatory planting of a ratio no less than 1:1 in terms of quality and quantity will be provided for any potential tree	To compensate for loss greenery	HyD's Contractor	Whole construction site/Offsite	Construction phase	ETWB TCW 3/2006, EIAOTM	N/A

		felling within the site. Offsite planting may be required due to land constraint. 410 nos. of compensatory trees have been proposed						
7.9.2.6	OM2	Provide vertical greening at piers of elevated roads and shrub planting near amenity planting strips to soften the hard landscape (e.g. climber and shrub for hiding central divider and enclosures). Early comments from the ACABAS and relevant departments, implementation and maintenance agents shall be sought at the earlier stage.	To soften hard landscape	HyD's Contractor	Whole construction site	Construction phase	ETWB TCW 36/2004	N/A
7.9.2.6	OM3	Match the design and materials of road structure with the surrounding environment and with the schematic theme paving of the future West Kowloon Reclamation Development and the Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS)	To match with existing landscape character	HyD's Contractor	Whole construction site	Construction phase	ETWB TCW 36/2004	N/A

Remarks:

- ✓ Compliance of mitigation measure
- X Non-compliance of mitigation measure
- Non-compliance but rectified by the contractor
- * Recommendation was made during site audit but improved/rectified by the contractor
- # Waiting for improving/rectifying by the contractor
- N/A Not Applicable

Appendix I: Cumulative Log for Environmental Exceedance, Complaints,
Notification of Summons and Successful Prosecutions

Cumulative Log for Environmental Exceedance, Complaints, Notification of Summons and Successful Prosecution

Reporting Month	Number of Exceedance	Number of Environmental Complaints	Number of Notification of Summons	Number of Successful Prosecutions
February 2016	0	0	0	0
March 2016	0	0	0	0
April 2016	0	2	0	0
Grand Total	0	2	0	0



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

豐盛創建環保科技集團附屬公司 Subsidiary of FSE Environmental Technologies Group
豐盛創建成員 Member of FSE Holdings

Our ref.: KFMF0165-WKRI-20160407

27th April 2016

Dear Sirs/Madams,

**Contract No. HY/2013/17 –
Road Improvement Works in West Kowloon Reclamation Development**

Complaint Investigation Report and Log

Based on the complaint incident received with details of:

EPD complaint ref.:	(6) in EP3/K03/RE/00007942-2016
PB's letter ref.:	WKRD/(HY/2013/17)/M45/625/17A01854
Date received:	7 th and 8 th April 2016
Incident location:	Lin Cheung Road, Mong Kok
Description:	Two complaints received on 7 th and 8 th April 2016 were referred from EPD on 21 st April 2016 regarding tree cutting noise during mid-night and early morning from Lin Cheung Road, Mong Kok. The Contractor was informed by way of PB's letter dated on 25 th April 2016.

Enclosed please find the complaint investigation report and log sheets of the incident as for your record.

Yours faithfully,

Goldie Fung
ET leader

Environmental Pioneers and Solutions Limited

Flat A, 19/F, Chaiwan Industrial Centre, 20 Lee Chung Street, Chai Wan, Hong Kong Tel: (852) 2556 9172 Fax: (852) 2856 2010
香港柴灣利眾街 20 號柴灣中心工業大廈 19 字樓 A 座 電話: (852) 2556 9172 傳真: (852) 2856 2010 <http://www.epsl.com.hk>



ISO 9001:2008
Certificate No.: CC 5832



ISO 14001:2004
Certificate No.: CC 5833



OHSAS 18001:2007
Certificate No.: CC 5860



Contract No. HY/2013/17 Road Improvement Works in West Kowloon Reclamation Development

Report for Complaint / Concern

EPD complaint ref.: (6) in EP3/K03/RE/00007942-2016

PB's letter ref.: WKRD/(HY/2013/17)/M45/625/17A01854

RECIPIENT

Name: Vibro Construction Company Limited

Details: Two complaints received on 7th and 8th April 2016 were referred from EPD on 21st April 2016 regarding tree cutting noise during mid-night and early morning from Lin Cheung Road, Mong Kok. The Contractor was informed by way of PB's letter dated on 25th April 2016.

Received Date: 7th and 8th April 2016

Received Time: N/A

COMPLAINANT

Name: N/A

Tel: N/A

Address: N/A

COMPLAINT

☒ Noise ☐ Air quality/Dust ☐ Water ☐ Odour ☐ Environment ☐ Traffic/Pedestrian

☐ Safety ☐ Others

Event Date and Time: mid-night and early morning of 7th April 2016 and 8th April 2016

Location: Lin Cheung Road (Scheme HA of the Project)

INVESTIGATION RESULTS, RECOMMENDATIONS & MITIGATION MEASURES

1. ET has conducted a site investigation with the representatives of the Engineer and the Contractor on 25th April 2016 to resolve the concern.
2. Findings of the investigation:
 - Under the contract, tree felling works were carried out as per the tree felling proposal approved by Lands Department.
 - Considering the safety of the road user, felling of trees, which are with leaning from and crowns over the carriageway, are required to be carried out at night during implementation of the temporary road closure for a section of Lin Cheung Road Northbound.
 - Prior to tree felling works at night, notification to affected residents (Charming Garden, Park Avenue and Island Harbourview) regarding the night works for tree felling was issued. (Figure.1)
 - Tree felling works were carried out from 5th April 2016 to 8th April 2016. (Figure.2)
 - All the tree felling activities have been carried out in accordance with the requirements of the Construction Noise Permit (CNP) (GW-RE0323-16). (Figure.3)
 - Tree felling works have been completed on 8th April 2016. (Figure.4)
 - The Contractor has requested for cancellation of the CNP to EPD on 8th April 2016. (Figure.5)

3. The Contractor was reminded to implement necessary mitigation measures to lower noise impact for any coming tree felling works.

- Use low-noise emission saws.
- Reduce the percentage on-time for noisy powered mechanical equipment.
- Apply for a CNP and fulfill the requirements and conditions of the CNP.

Signature:



Goldie Fung, ET Leader

Date: 27th April 2016

Figure.1.1 Notification for residents



NOTICE TO AFFECTED RESIDENT

Date: 31 March 2016

To: Charming Garden residents

I am writing to let you know that we will be carrying out **tree removal works** in the vicinity of **Road section of Lin Cheung Road (North Bound) outside Charming Garden, Mongkok, Kowloon** during the hours of **11:00 p.m. to 06:00 a.m.** from **5 April 2016** to **7 April 2016** and **11 April 2016** to **14 April 2016** respectively.

I wish to apologize for the inconvenience that this may cause you while I am sure you will understand that such works are an integral part of providing essential services to you and other residents in your neighborhood.

You may like to note that it is not possible for us to conduct the works during the day time hours due to traffic conditions on day time hours. Please be assured that we will carry out the works as quickly as possible with due regard to the noise intrusion which may result. We will also be adopting noise mitigation measures such as low noise electric chainsaws.

If you have any enquiries regarding the works, please feel free to contact the undersigned at 9212 3953.

RECEIVED
31 MAR 2016

Your truly,
VIBRO CONSTRUCTION CO., LTD.

Leung Kam Fai
Site Agent



c.c.

Environmental Protection Department
Parsons Brinckerhoff (Asia) Ltd.

Attn: Mr. Yip Ka Fan
Attn: Mr. Angus Law

Figure.1.2 Notification for residents



NOTICE TO AFFECTED RESIDENT

Date: 31 March 2016

To: Park Avenue residents


I am writing to let you know that we will be carrying out **tree removal works** in the vicinity of **Road section of Lin Cheung Road (North Bound) outside Charming Garden, Mongkok, Kowloon** during the hours of **11:00 p.m. to 06:00 a.m.** from **5 April 2016** to **7 April 2016** and **11 April 2016** to **14 April 2016** respectively.

I wish to apologize for the inconvenience that this may cause you while I am sure you will understand that such works are an integral part of providing essential services to you and other residents in your neighborhood.

You may like to note that it is not possible for us to conduct the works during the day time hours due to traffic conditions on day time hours. Please be assured that we will carry out the works as quickly as possible with due regard to the noise intrusion which may result. We will also be adopting noise mitigation measures such as low noise electric chainsaws.

If you have any enquiries regarding the works, please feel free to contact the undersigned at 9212 3953.

Your truly,
VIBRO CONSTRUCTION CO., LTD.



Leung Kam Fai
Site Agent



c.c.

Environmental Protection Department
Parsons Brinckerhoff (Asia) Ltd.

Attn: Mr. Yip Ka Fan
Attn: Mr. Angus Law

Figure.1.3 Notification for residents



NOTICE TO AFFECTED RESIDENT

Date: 31 March 2016

To: Island Harbourview residents

I am writing to let you know that we will be carrying out **free removal works** in the vicinity of **Road section of Lin Cheung Road (North Bound) outside Charming Garden, Mongkok, Kowloon** during the hours of **11:00 p.m. to 06:00 a.m.** from **5 April 2016** to **7 April 2016** and **11 April 2016** to **14 April 2016** respectively.

I wish to apologize for the inconvenience that this may cause you while I am sure you will understand that such works are an integral part of providing essential services to you and other residents in your neighborhood.

You may like to note that it is not possible for us to conduct the works during the day time hours due to traffic conditions on day time hours. Please be assured that we will carry out the works as quickly as possible with due regard to the noise intrusion which may result. We will also be adopting noise mitigation measures such as low noise electric chainsaws.

If you have any enquiries regarding the works, please feel free to contact the undersigned at 9212 3953.

Your truly,
VIBRO CONSTRUCTION CO., LTD.



Leung Kam Fai
Site Agent



c.c.
Environmental Protection Department
Parsons Brinckerhoff (Asia) Ltd.

Attn: Mr. Yip Ka Fan
Attn: Mr. Angus Law



33 MAR 2016

Figure.2 Tree cutting works in progress



Figure.3 Construction noise permit

本署檔案
OUR REF: (4) in EP631/K03/RE400300-16
來函檔案
YOUR REF: S1609/VC201501-G01/JL/KCL
電話
TEL NO: 2150 8017
圖文傳真
FAX NO: 2402 8275
網址
HOMEPAGE: <http://www.epd.gov.hk>

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
8/F., Cheung Sha Wan Government Offices
303 Cheung Sha Wan Road
Kowloon



環境保護署
環保法規管理科
區域辦事處(東)
九龍長沙灣道303號
長沙灣政府合署8樓

Registered Post

29 March 2016

To: VIBRO CONSTRUCTION COMPANY LIMITED
Floor 11, Chevalier Commercial Centre,
8, Wang Hoi Road,
Kowloon Bay, Kowloon

Dear Sirs,

**Notice of Issue of Construction Noise Permit pursuant to
section 8(6) of the Noise Control Ordinance (Cap. 400)**

I write to inform you that, under section 8(6) of the Noise Control Ordinance, the Authority has decided to issue a construction noise permit in respect of your application, which was received by the Authority on 22 March 2016, for the use of powered mechanical equipment for carrying out construction work at **Road section of Lin Cheung Road (North Bound) outside Charming Garden, Mongkok, Kowloon (Highways Department Contract No. : HY/2013/17).**

The construction noise permit No. **GW-RE0323-16** is enclosed.

Please note that a special condition concerning advance notification of work has been incorporated into this construction noise permit. Enclosed please find a form which you may use to notify the Authority prior to the commencement of construction work. You are strongly advised to read the conditions of the permit carefully and to ensure compliance with these conditions. Any breaching of the conditions may lead to cancellation of the permit, **subsequent prosecution action** and/or the Authority's refusal to issue further permit for the above construction site.

Yours faithfully,


(NG Ping Sum)
for Authority

Encl.

FORM 3
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

[reg.5(a)]

**CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED
MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT
CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR
THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK**

CONSTRUCTION NOISE PERMIT NO. GW-RE0323-16

To : VIBRO CONSTRUCTION COMPANY LIMITED

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:

Full address: Road section of Liu Cheung Road (North Bound) outside Charming Garden, Mongkok, Kowloon (Highways Department

Contract No.: HY2013/17 Lot No.: ---

The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. ***PART/WHOLE** of the site falls *** WITHIN/OUTSIDE** a designated area.

3. Powered Mechanical Equipment

- a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
CNP 202	Saw, chain, hand-held	Two

- b. Validity of the construction noise permit for the use of the powered mechanical equipment:

Date and time of commencement : 05 April 2016 at 2300 hours

Days and hours : 0000-2400 hours on general holidays (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.4.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].

This part of the permit expires on : 14 April 2016 at 0600 hours

- c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

- d. Other conditions imposed on the use of the powered mechanical equipment:

[The condition(s) imposed for this construction noise permit which is issued as a special case due to constraints on working hours to avoid causing serious interruption to road transport.]

1. The powered mechanical equipment listed above shall only be operated during the hours shown below:

Sunday to Thursday	0000 – 0600 hours <u>and</u> 2300 – 2400 hours
The powered mechanical equipment shall not be used more than <u>5 days</u> during the valid period of this Construction Noise Permit.	

2. All care shall be taken to ensure that the construction work is carried out as quickly as possible with due regard for the potential noise intrusion which may result.

3. The construction work in relation to this Construction Noise Permit shall only be carried out with prior notification of the location, the date and the time of the work to reach the Authority by email (email address: hotline_csw@epd.gov.hk), fax (fax no. 2402 8275) or by post at least 48 hours before commencing the work.

4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	Description of type of prescribed construction work
	Nil.

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement : 05 April 2016 at 2300 hours

Date and hours : 0000-2400 hours on general holidays (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday.

This part of the permit expires on : 14 April 2016 at 0600 hours

c. Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.

d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at both ends of road section on a standing sign board of adequate size for public information.

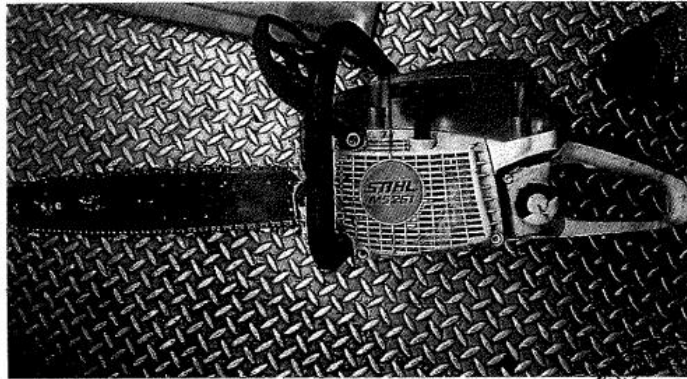
Dated this 29th day of March 2016

Signed :


(NG Ping Sum)
for Authority

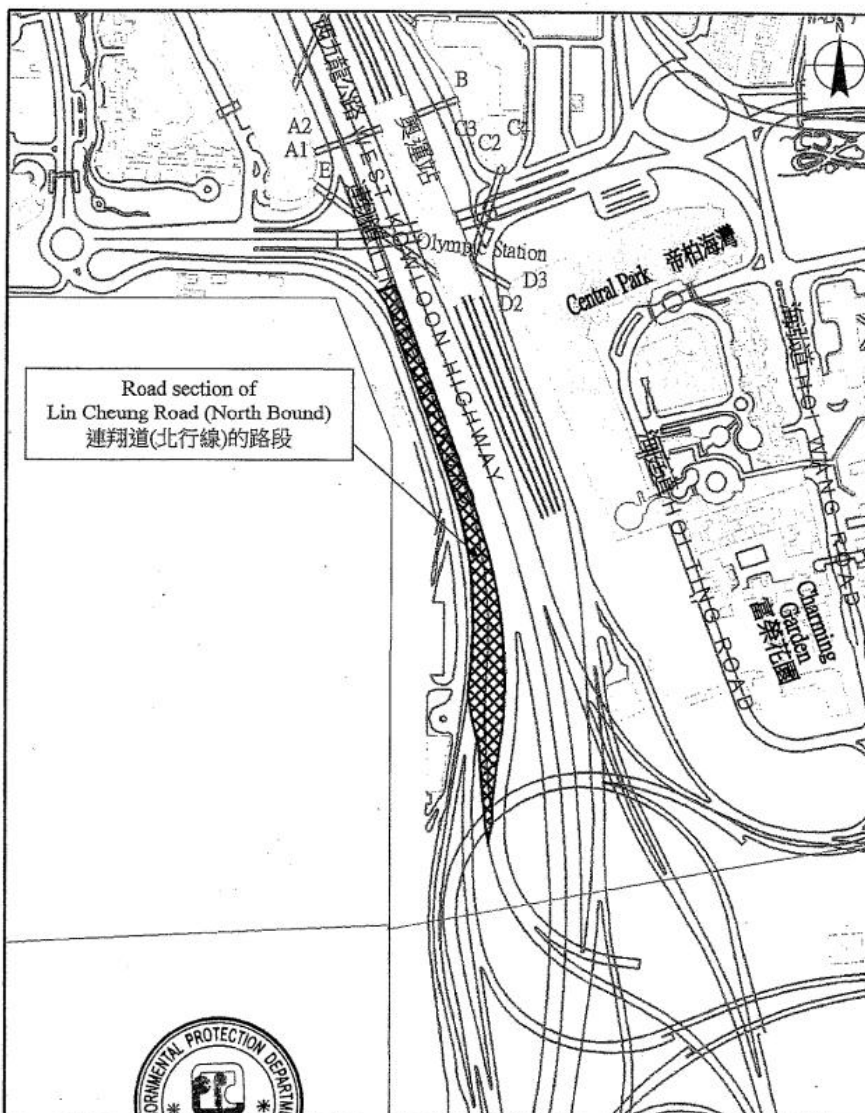
* Delete as necessary

Photograph attached to Construction Noise Permit No. GW-RE0323-16
建築噪音許可證編號 GW-RE0323-16 的照片



CNP 202 Saw, chain, hand-held
鏈鋸，手提型





Road section of
Lin Cheung Road (North Bound)
連翔道(北行線)的路段



環境保護署

Environmental Protection Department Noise Control Authority

噪音管制監督

圖例 Legend

建築地盤 Construction Site

建築噪音許可證編號 GW-RE0323-16 的附圖

比例 Scale 1:5,000

Plan attached to Construction Noise Permit No. GW-RE0323-16

0 25 50 100 150 Meters

Figure.4.1 Tree cutting works completed



Figure.4.2 Tree cutting works completed



Figure.5 Cancellation of Construction Noise Permit

本署檔案
OUR REF: (8) in EP631/K03/RE400300-16
來函檔案
YOUR REF:
電話
TEL NO: 2150 8017
圖文傳真
FAX NO: 2402 8275
網址
HOMEPAGE: <http://www.epd.gov.hk>

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
8/F., Cheung Sha Wan Government Offices
303 Cheung Sha Wan Road
Kowloon

環境保護署
環保法規管理科
區域辦事處(東)
九龍長沙灣道303號
長沙灣政府合署8樓

Site DMS VC201501
Rec'd on 12 APR 2016

2016B003354



Registered Post

11 April 2016

To: VIBRO CONSTRUCTION COMPANY LIMITED
Floor 11, Chevalier Commercial Centre,
8, Wang Hoi Road,
Kowloon Bay, Kowloon

Dear Sirs,

Cancellation of Construction Noise Permit

I refer to your E-mail dated 08 April 2016 requesting for cancellation of construction noise permit No. GW-RE0323-16 which was issued to you on 29 March 2016 for using powered mechanical equipment for carrying out general construction work at Road section of Lin Cheung Road (North Bound) outside Charming Garden, Mongkok, Kowloon (Highways Department Contract No.: HY/2013/17).

Pursuant to section 8(11)(a) of the Noise Control Ordinance, the Authority confirms that the CNP No. GW-RE0323-16 will be cancelled on **12 April 2016**.

Yours faithfully,



(NG Ping Sum)
for Authority


c.c. Divisional Commander of Police
Mong Kok Division
(Fax No.: 2789 2123)

COMPLAINT / CONCERN LOG

ET's ref.: KFMF0165-WKRI-20160407

Log Ref	Event Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/Mitigation Action	File Closed
<p>ET's Ref no.: KFMF0165-WKRI-20160407</p> <p>PB's Ref no.: WKRD/(HY/2013/17)/M45/625/17A01854</p> <p>EPD complaint ref.: (6) in EP3/K03/RE/00007942-2016</p>	Lin Cheung Road (Scheme HA of the Project)	Two complaints received on 7 th and 8 th April 2016.	Two complaints received on 7 th and 8 th April 2016 were referred from EPD on 21 st April 2016 regarding tree cutting noise during mid-night and early morning from Lin Cheung Road, Mong Kok. The Contractor was informed by way of PB's letter dated on 25 th April 2016.	<p>1. ET has conducted a site investigation with the representatives of the Engineer and the Contractor on 25th April 2016 to resolve the concern.</p> <p>2. Findings of the investigation:</p> <ul style="list-style-type: none"> - Under the contract, tree felling works were carried out as per the tree felling proposal approved by Lands Department. - Considering the safety of the road user, felling of trees, which are with leaning from and crowns over the carriageway, are required to be carried out at night during implementation of the temporary road closure for a section of Lin Cheung Road Northbound. - Prior to tree felling works at night, notification to affected residents (Charming Garden, Park Avenue and Island Harbourview) regarding the night works for tree felling was issued. - Tree felling works were carried out from 5th April 2016 to 8th April 2016. - All the tree felling activities have been carried out in accordance with the requirements of the Construction Noise Permit (CNP) (GW-RE0323-16). - Tree felling works have been completed on 8th April 2016. - The Contractor has requested for cancellation of the CNP to EPD on 8th April 2016. <p>3. The Contractor was reminded to implement necessary mitigation measures to lower noise impact for any coming tree felling works.</p> <ul style="list-style-type: none"> - Use low-noise emission saws. - Reduce the percentage on-time for noisy powered mechanical equipment. - Apply for a CNP and fulfill the requirements and 	Yes

				conditions of the CNP.	
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Filed by Environmental Team Leader: _____  _____

Date: 27th April 2016