



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

Member of FSE Engineering Holdings (Stock Code: 331)

**Proposed Road Improvement Works in
West Kowloon Reclamation Development – Phase 1
Quarterly Environmental Monitoring & Audit Report
01/02/2017 – 30/04/2017**

The Contents of this report have been certified by:

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Executive Summary

This is the quarterly Environmental Monitoring and Audit (EM&A) Report for Proposed Road Improvement Works in West Kowloon Reclamation Development – Phase 1. The project commenced on 6 February 2016. This report documents the finding of EM&A Works conducted from 1 February 2017 to 30 April 2017.

Environmental Monitoring and Audit Progress

Air Quality Monitoring

Noise Monitoring

Waste Management

Landscape and Visual Impact

Environmental Site Inspection

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

No exceedance of action level and limit level was recorded for TSP. Seventeen exceedances were recorded at NM4 for noise. No non-compliance, notification of summons and successful prosecution against the Project were received in this reporting period

EPD received a complaint by a driver referred from 1823 about muddy water from construction work near West Kowloon Highway (towards the direction of Olympic City) which flowed to the area of 3-way interchange junction of West Kowloon Highway and would endanger the road users and contaminate the vehicles passing by. Letter from EPD by fax was received on 11 April 2017. On the other hand, HyD/Works, the Employer of this contract, informed PB and VC on 23 March 2017 that a 1823 complaint regarding the captioned issue was received by HyD/Region on 23 March 2017.

ET had conducted a site investigation with the representatives of the Engineer and the Contractor on 27 March 2017 to resolve the concern and review the follow up actions and mitigation measures. The environmental complaint was concluded to be caused by an unexpected incident. The Complaint Investigation Report had been done and submitted to EPD on 27 April 2017. The details of the investigation report and complaint

log are shown in **Appendix G**.

Variation in Construction Method

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

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 6 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.

February 2017

- Portion I – Underground Investigation Works
- Portion I – Utilities Diversion Works
- Portion HA – Underground Investigation Works
- Portion HA – Utilities Diversion Works
- Portion HA – Piling Works
- Portion J – Utilities Diversion Works
- Portion J – Construction of Retaining Walls
- Portion Q – Road Works (excavation and utilities diversion)

March 2017

- Portion I – Underground Investigation Works
- Portion I – Utilities Diversion Works
- Portion HA – Underground Investigation Works
- Portion HA – Utilities Diversion Works
- Portion HA – Piling Works
- Portion J – Utilities Diversion Works
- Portion J – Construction of Retaining Walls
- Portion Q – Road Works (excavation and utilities diversion)

April 2017

- Portion I – Underground Investigation Works
- Portion I – Utilities Diversion Works
- Portion HA – Underground Investigation Works
- Portion HA – Utilities Diversion Works
- Portion HA – Piling Works
- Portion J – Utilities Diversion Works
- Portion J – Construction of Retaining Walls
- Portion Q – Road Works (excavation and utilities diversion)

1.3 Project Organization

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

2 EM&A Requirements for Monitoring Parameters

Air Quality Monitoring

According to the EM&A Manual Section 3.2 & 3.4, the construction air quality impact shall be evaluated by conducting 1-hr and 24-hr Total Suspended Particulates measurements. 1-hr TSP sampling shall be conducted at a frequency of at least 3 times in every 6 days. 24-hr TSP sampling shall be conducted at a frequency of at least once in every 6 days. The wind speed and wind direction shall be recorded in accordance with the EM&A Manual Section 3.4.3.

Noise Monitoring

According to the EM&A Manual Section 4.2 & 4.4, construction noise level shall be measured in terms of the A-weight equivalent continuous sound pressure level (Leq). Leq 30min shall be used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays. One set of 30-min measurement shall be carried out at each monitoring location every week.

Waste Management

According to the EM&A Manual Section 6.2, relevant licences/ permits shall be applied for waste disposal and handling. Waste disposal record/ recycling receipts shall be kept for tracking of waste movement.

Landscape and Visual

According to the EM&A Manual Section 7.2, inspection and audit for the implementation of mitigation measures shall be conducted once every two weeks by the Registered Landscape Architect. The adequacy of tree preservation, status of tree planting and removal shall also be monitored.

3 Air Quality Monitoring

3.1 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 3.1.1. The details of monitoring location plan are shown in **Appendix C**.

Table 3.1.1 Air Quality Monitoring Locations

ID 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	1-hr TSP
AM2	Garden Building	Ground Floor Face to Canton Road	1-hr TSP
AM3	The Cullinan I	Ground Floor Face to Nga Cheung Road	1-hr TSP
AM4	Lai Chack Middle School	Ground Floor Face to Canton Road	1-hr TSP
AM1	Marine Department New Yau Ma Tei Public Cargo Working Area Administrative Building	Rooftop Face to Hoi Po Road	24-hr TSP
AM2	Garden Building	Ground Floor Face to Canton Road	24-hr TSP
AM3-B	The Cullinan II (W Hong Kong)	Ground Floor Near to International Commerce Centre Roundabout on Nga Cheung Road and	24-hr TSP
AM4-A	Tsim Sha Tsui Fire Station	Ground Floor Face to Canton Road	24-hr TSP

3.2 Monitoring Results

1-hr TSP monitoring was conducted at four monitoring locations. The monitoring results are summarized in Table 3.2.1. 24-hr TSP monitoring was conducted at three monitoring locations. The monitoring results are summarized in Table 3.2.2. Detailed impact monitoring data of 1-hr TSP, 24-hr TSP and meteorological data are shown in **Appendix D**.

Table 3.2.1 Summary of average 1-hr TSP monitoring data

Month	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 ($\mu\text{g}/\text{m}^3$)
Feb 17	AM1	96	50 – 167	288	500
	AM2	89	65 – 114	299	500
	AM3	106	67 – 147	299	500
	AM4	78	56 – 116	303	500
Mar 17	AM1	123	39 – 190	288	500
	AM2	104	65 – 151	299	500
	AM3	129	68 – 183	299	500
	AM4	98	56 – 170	303	500
Apr 17	AM1	68	22 – 112	288	500
	AM2	73	41 – 101	299	500
	AM3	63	32 – 101	299	500
	AM4	57	26 – 90	303	500

Table 3.2.2 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 ($\mu\text{g}/\text{m}^3$)
Feb 17	AM1	78	42 – 100	157	260
	AM2	65	21 – 130	183	260
	AM3-B	94	62 – 151	177	260
	AM4-A	67	17 – 93	176	260
Mar 17	AM1	63	54 – 71	157	260
	AM2	74	56 – 132	183	260
	AM3-B	79	48 – 103	177	260
	AM4-A	80	35 – 174	176	260
Apr 17	AM1	51	25 – 93	157	260
	AM2	65	31 – 171	183	260
	AM3-B	75	42 – 114	177	260
	AM4-A	45	38 – 51	176	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, AM3-B and AM4-A. TSP level of AM2, AM4 and AM4-A may be affected by construction activities from other construction sites near Canton Road.

3.3 Baseline Review

The comparisons of baseline result, measured result and action and limit levels of 1-hr TSP monitoring and 24-hr TSP monitoring are shown in Table 3.3.1 and Table 3.3.2 for reviewing the baseline data.

Table 3.3.1 Comparisons of Baseline, Impact and Action & Limit Levels of 1-hr TSP

Location	Baseline Level ($\mu\text{g}/\text{m}^3$)	Established Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Average Impact Monitoring Level (reporting Quarter) ($\mu\text{g}/\text{m}^3$)
AM1	58	288	500	96
AM2	76	299	500	89
AM3	76	299	500	99
AM4	82	303	500	78

Table 3.3.2 Comparisons of Baseline, Impact and Action & Limit Levels of 24-hr TSP

Location	Baseline Level ($\mu\text{g}/\text{m}^3$)	Established Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Average Impact Monitoring Level (reporting Quarter) ($\mu\text{g}/\text{m}^3$)
AM1	42	157	260	64
AM2	81	183	260	68
AM3-B	72	177	260	83
AM4-A	70	176	260	64

The impact monitoring levels of 1-hr TSP and 24-hr TSP obtained from January 2017 to April 2017 were much lower than the action levels established by baseline monitoring data for AM1, AM2, AM3/AM3-B and AM4/AM4-A. The impact monitoring results presented that no dust impacts obviously caused by the construction site and affected by the background environmental conditions. The baseline results are still applicable and valid. Need not to repeat the measurement of baseline monitoring, unless the exceedance of action level of TSP is recorded.

4 Noise Monitoring

4.1 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 4.1.1. The details of monitoring location plan are shown in **Appendix C**.

Table 4.1.1 Noise Monitoring Locations

Identification No.	Noise Monitoring Location	Description	Measurement Type
NM1	Sorrento - Tower 1	Podium Level 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

4.2 Monitoring Results

Noise impact monitoring was conducted at five monitoring locations. The monitoring results are summarized in Table 4.2.1. Detailed impact monitoring data of noise are shown in **Appendix E**.

Table 4.2.1 Summary of average noise monitoring data

Monitoring Locations	Monitoring Date	Baseline Level (dB(A))	L _{Aeq} * ¹ (dB(A))	Action Level (dB(A))	Limit Level (dB(A))	Exceedance
NM1	1/02/2017	75.1	66.8	When one documented complaint is received	75 dB(A)	No
	6/02/2017		72.7			No
	11/02/2017		64.4			No
	17/02/2017		67.9			No
	23/02/2017		63.5			No
	1/3/2017		73.9			No
	7/3/2017		63.7			No
	13/3/2017		67.7			No
	18/3/2017		64.7			No
	24/3/2017		64.9			No
	30/3/2017		67.6			No
	5/4/2017		66.7			No
	10/4/2017		61.3			No
	13/4/2017		65.9			No
	19/4/2017		66.9			No
	22/4/2017		66.8			No
	28/4/2017		67.3			No
NM2	1/02/2017	66.5	67.2	When one documented complaint is received	70 dB(A) * ²	No
	6/02/2017		65.9		70 dB(A) * ²	No
	11/02/2017		67.6		70 dB(A) * ²	No
	17/02/2017		69.5		70 dB(A) * ²	No
	23/02/2017		65.1		70 dB(A) * ²	No
	1/3/2017		64.1		65 dB(A) * ³	No
	7/3/2017		64.9		65 dB(A) * ³	No
	13/3/2017		68.5		70 dB(A) * ²	No
	18/3/2017		63.1		70 dB(A) * ²	No
	24/3/2017		65.8		70 dB(A) * ²	No
	30/3/2017		66.7		70 dB(A) * ²	No
	5/4/2017		65.9		70 dB(A) * ²	No
	10/4/2017		65.8		70 dB(A) * ²	No
	13/4/2017		66.3		70 dB(A) * ²	No
	19/4/2017		65.0		70 dB(A) * ²	No

	22/4/2017		65.2		70 dB(A) * ²	No
	28/4/2017		64.8		70 dB(A) * ²	No
NM3	1/02/2017	74.5	74.3	When one documented complaint is received	75 dB(A)	No
	6/02/2017		74.5			No
	11/02/2017		74.3			No
	17/02/2017		74.7			No
	23/02/2017		74.5			No
	1/3/2017		74.4			No
	7/3/2017		74.2			No
	13/3/2017		74.9			No
	18/3/2017		74.9			No
	24/3/2017		74.3			No
	30/3/2017		74.7			No
	5/4/2017		74.0			No
	10/4/2017		74.5			No
	13/4/2017		72.7			No
	19/4/2017		73.8			No
	22/4/2017		72.8			No
	28/4/2017		74.8			No
NM4	1/02/2017	73.3	74.5	When one documented complaint is received	70 dB(A) * ²	Yes
	6/02/2017		73.5		70 dB(A) * ²	Yes
	11/02/2017		74.1		70 dB(A) * ²	Yes
	17/02/2017		74.6		70 dB(A) * ²	Yes
	23/02/2017		73.9		70 dB(A) * ²	Yes
	1/3/2017		73.5		70 dB(A) * ²	Yes
	7/3/2017		75.1		70 dB(A) * ²	Yes
	13/3/2017		75.8		70 dB(A) * ²	Yes
	18/3/2017		73.9		70 dB(A) * ²	Yes
	24/3/2017		74.3		70 dB(A) * ²	Yes
	30/3/2017		73.1		70 dB(A) * ²	Yes
	5/4/2017		74.9		70 dB(A) * ²	Yes
	10/4/2017		74.3		70 dB(A) * ²	Yes
	13/4/2017		74.6		70 dB(A) * ²	Yes
	19/4/2017		75.0		70 dB(A) * ²	Yes
	22/4/2017		74.7		70 dB(A) * ²	Yes
	28/4/2017		74.1		70 dB(A) * ²	Yes
NM5	1/02/2017	71.8	71.5	When one	75 dB(A)	No

	6/02/2017		72.0	documented complaint is received		No
	11/02/2017		71.7			No
	17/02/2017		69.9			No
	23/02/2017		71.4			No
	1/3/2017		71.5			No
	7/3/2017		72.3			No
	13/3/2017		72.6			No
	18/3/2017		72.6			No
	24/3/2017		71.5			No
	30/3/2017		71.2			No
	5/4/2017		70.8			No
	10/4/2017		71.5			No
	13/4/2017		71.3			No
	19/4/2017		71.0			No
	22/4/2017		72.1			No
	28/4/2017		70.8			No

Remark:

*¹ Measured result would be rounded down before comparison with the limit level

*² 70dB(A) for schools during normal teaching periods

*³ 65dB(A) for schools examination periods

In accordance with the established action and limited levels for impact monitoring, seventeen exceedances were recorded at NM4.

The noise source for causing exceedances at NM4 was from the traffic of Canton Road. The NM4 was directly affected by the noise generated from the traffic. The recorded monitoring results at the NM4 were near the baseline noise level. The exceedances were not caused by this project construction works.

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 be influenced by the construction activities from other construction sites near Nga Cheung Road. Noise level of NM2 may be influenced by construction activities from other construction sites near Hoi Ting Road. Noise levels of NM4 and NM5 may be influenced by the construction activities from other construction sites near Canton Road.

5 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 5.1. 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.

Table 5.1 Quantities of Waste Disposed from the Project

Reporting Month	Quantity						
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)					
		General Refuse	Mixed Waste	Chemical Waste	Recycled materials		
					Paper/ cardboard	Plastics	Metals
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)
Feb 2017	2721.53	13.08	0	0	0	0	0
Mar 2017	2504.26	5.55	0	0	0	0	0
Apr 2017	2006.4	10.43	0	0	0	0	0
Total	7232.19	29.06	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.

6 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.

Bi-weekly site inspections were conducted by representatives of the Engineer, Contractor and ET on 10 and 23 February 2017, 10 and 24 March 2017, 7 and 21 April 2017. The observations, reminders and recommendations made during the site inspections are summarized in Section 8.2.

The implementation status of the proposed mitigation measures for landscape and visual impacts is given in **Appendix F**.

7 Environmental Site Inspection

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 3, 6, 14, 21 and 28 February 2017, 6, 13, 20 and 27 March 2017, 3, 10, 19 and 24 April 2017. Observations were recorded and summarized in Section 8.2.

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

Updated status summary of the Environmental Mitigation Implementation Schedule is provided in **Appendix F**.

8 Environmental Non-Conformance

8.1 Summary of Environmental Exceedances

No exceedance of action level and limit level was recorded for TSP. Seventeen exceedances were recorded at NM4 for noise.

8.2 Summary of Environmental Non-Compliance

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

8.3 Summary of Environmental Complaint

EPD received a complaint by a driver referred from 1823 about muddy water from construction work near West Kowloon Highway (towards the direction of Olympic City) which flowed to the area of 3-way interchange junction of West Kowloon Highway and would endanger the road users and contaminate the vehicles passing by. Letter from EPD by fax was received on 11 April 2017. On the other hand, HyD/Works, the Employer of this contract, informed PB and VC on 23 March 2017 that a 1823 complaint regarding the captioned issue was received by HyD/Region on 23 March 2017.

ET had conducted a site investigation with the representatives of the Engineer and the Contractor on 27 March 2017 to resolve the concern and review the follow up actions and mitigation measures. The environmental complaint was concluded to be caused by an unexpected incident. The Complaint Investigation Report had been done and submitted to EPD on 27 April 2017. The details of the investigation report and complaint log are shown in **Appendix G**.

8.4 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 G**.

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. 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 maintain or replace the excavator.
- To arrange the chemicals waste collection by licensed collector and properly store the oil residue before disposal.
- To properly cover and store the cement materials for preventing dust pollutions and any damage/ contamination.
- To set up the barriers close to the noise source and between the source and receiver during operation of PME.
- To remove the mud in the perimeter channel.
- To provide labels for identification of sediment storage areas.
- To employ QPME or apply QPME label for the equipment as far as possible.
- To properly intercept the gullies by using sandbags.
- To use QPMEs for reducing the construction noise impact.
- To cover the container for maintain proper storage.
- To frequently remove the stagnant water.
- To allocate waste storage areas and regularly collect/ dispose the waste for keeping the site clean and tidy.
- To properly store the debris in designated area as construction materials and remove the unusable debris.
- To properly cover and protect the exposed slope.
- To collect/ direct the waste water to the treatment facilities and properly maintains the drainage system.
- To properly implement wheel washing for all vehicles leaving the site.

- To properly collect any general refuse such as plastic bottles and aluminium cans for maintaining a good housekeeping.
- To take extra care and necessary precaution to avoid the muddy water from leaving the site.
- To frequently remove the silt from the channels.
- To cover and properly store the debris or remove the debris from site for preventing dust pollution.
- To properly set up the wastewater collection system and temporary drainage system.
- To frequently implemented water spring to the exposed areas for dust control.
- To properly cover the dusty materials for preventing air pollution.
- To properly display the EP at the site entrance.
- To properly display the original copy of noise label and QPME label for the air compressor.
- To frequently remove the waste for enhancing the housekeep and keeping the site clean and tidy.
- To review the design of the container and make sure the ventilation conditions of the containers are fulfilled the requirements under EPD'S guideline.
- To review the site drainage system before wet season.
- To relocate the construction materials which were piled within the TPZ.
- To remove the ties
- To conduct crown pruning for the existing tree which next to T24.
- To remove the excess soil around B37 and B39.

9.3 Conclusions

This is the quarterly Environmental Monitoring and Audit (EM&A) Report presenting the EM&A works undertaken during 1 February 2017 to 30 April 2017 in accordance with the EM&A Manual.

No exceedance of action level and limit level was recorded for TSP. Seventeen exceedances were recorded at NM4 for noise.

No Non-compliance event, notification of summons and successful prosecution against the Project were received in this reporting period.

EPD received a complaint by a driver referred from 1823 about muddy water from construction work near West Kowloon Highway (towards the direction of Olympic

City) which flowed to the area of 3-way interchange junction of West Kowloon Highway and would endanger the road users and contaminate the vehicles passing by. Letter from EPD by fax was received on 11 April 2017. On the other hand, HyD/Works, the Employer of this contract, informed PB and VC on 23 March 2017 that a 1823 complaint regarding the captioned issue was received by HyD/Region on 23 March 2017.

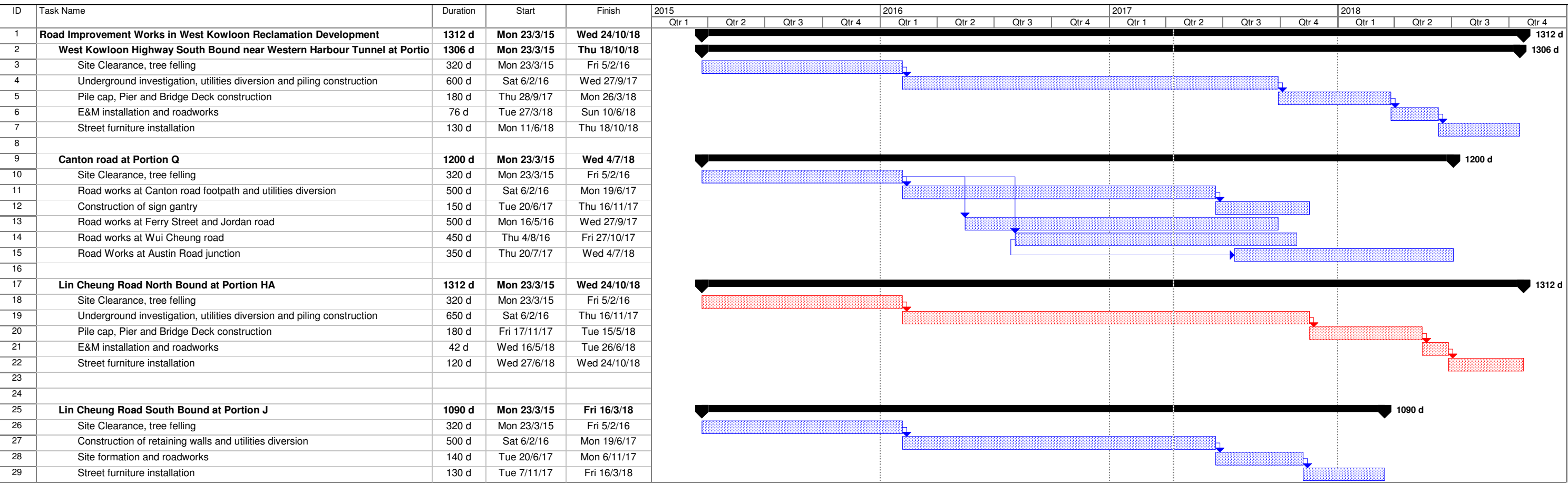
ET had conducted a site investigation with the representatives of the Engineer and the Contractor on 27 March 2017 to resolve the concern and review the follow up actions and mitigation measures. The environmental complaint was concluded to be caused by an unexpected incident. The Complaint Investigation Report had been done and submitted to EPD on 27 April 2017

13 nos. of environmental site inspections and 6 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





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
Scale	A3 1:5000	Status	PRELIMINARY	Approved	LC

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LOCATION PLAN

LEGEND:

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

Rev	Description	By	Date

Consultant

PARSONS BRINCKERHOFF

漢 CINETECH

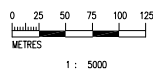
Project title
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 DESIGN AND CONSTRUCTION

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

Drawing no.	CE44/T/ST/EM04			Rev.	2
Drawn	MC	Date	AUG13	Checked	KS
Scale	A3 1:5000	Status	PRELIMINARY		

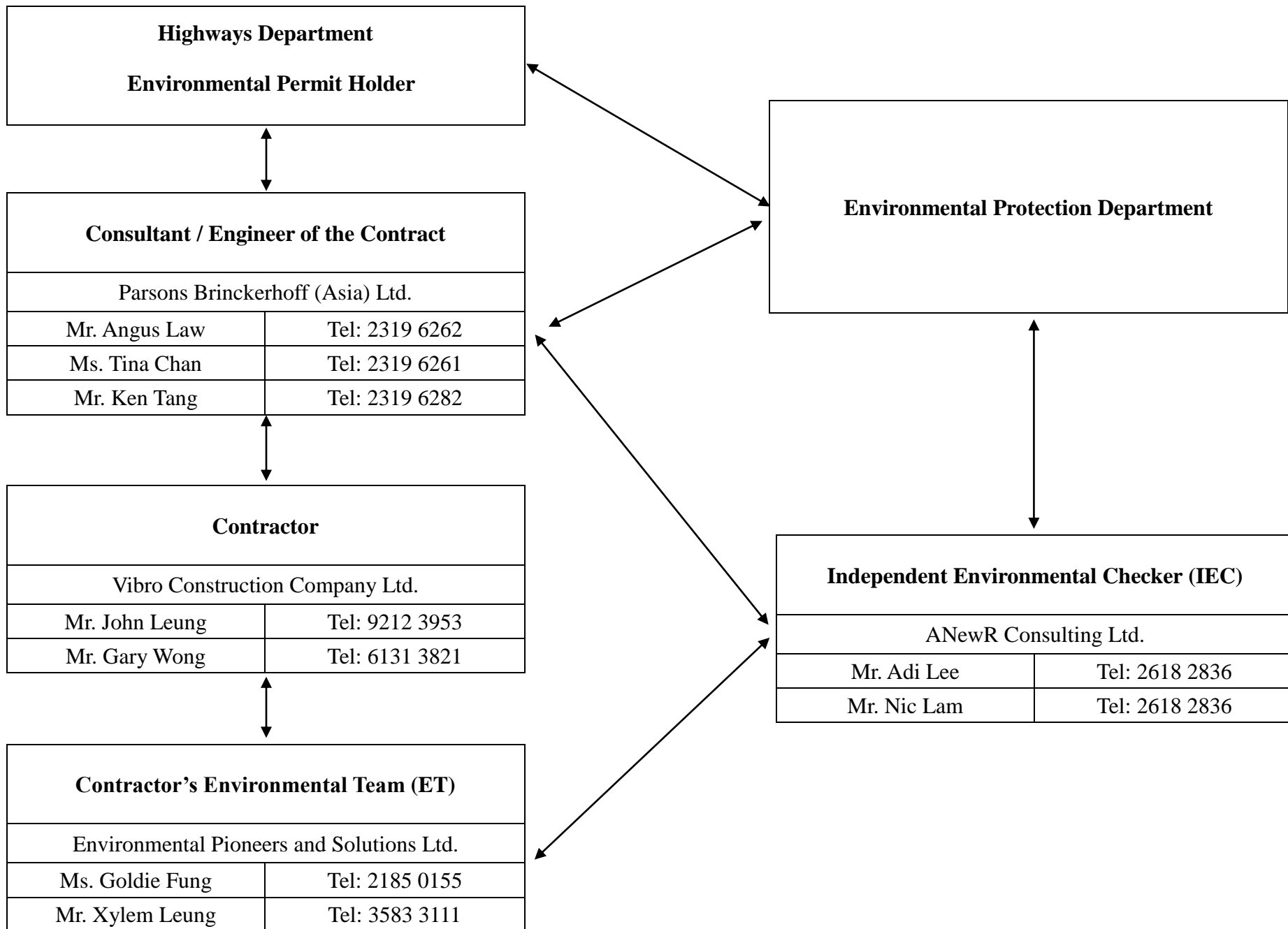
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路政署
HIGHWAYS DEPARTMENT
 主要工程管理部
 MAJOR WORKS PROJECT MANAGEMENT OFFICE



VICTORIA HARBOUR

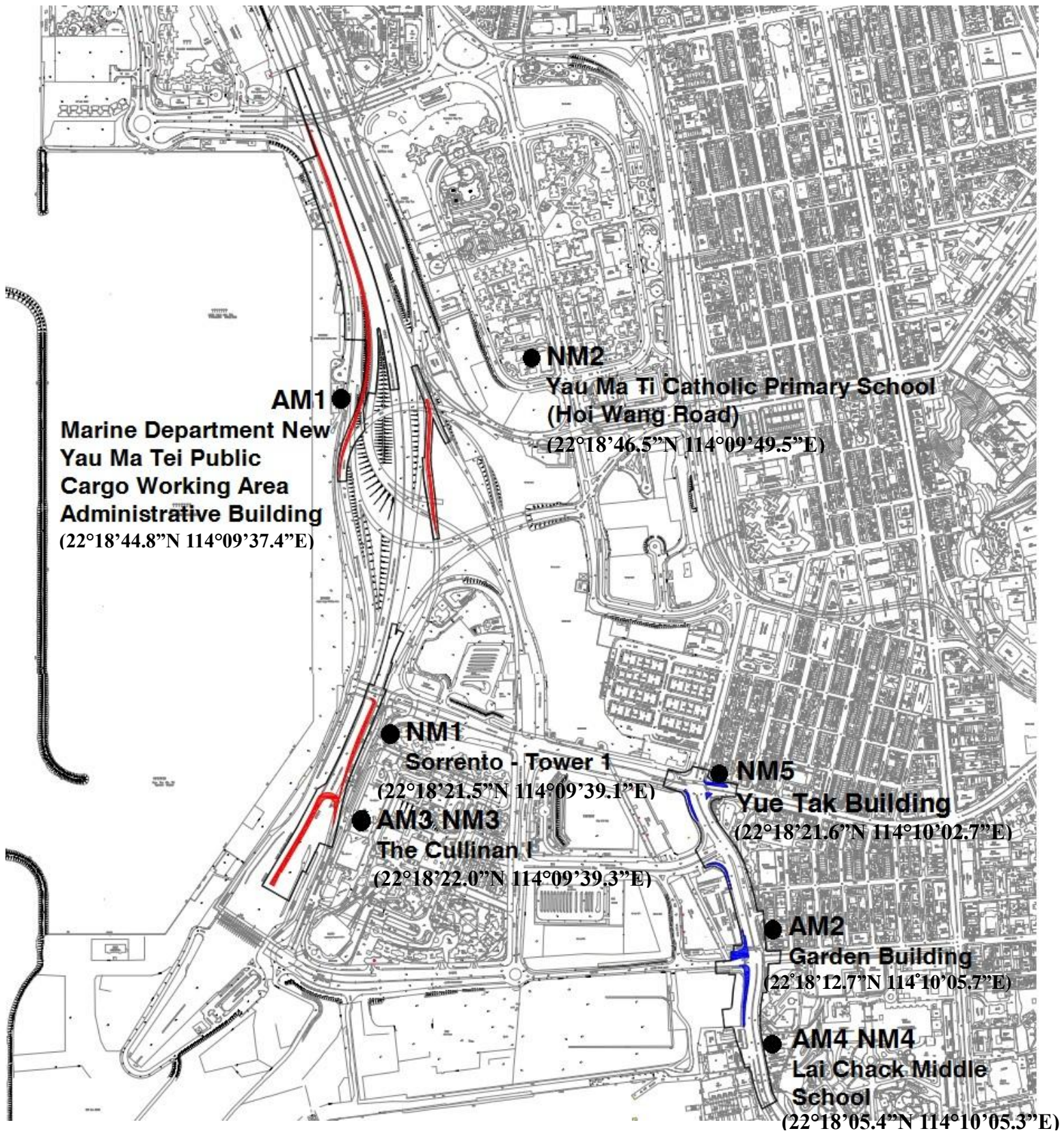
Appendix B: Project Organization Chart












↔ Line of communication

Appendix C: Monitoring Locations

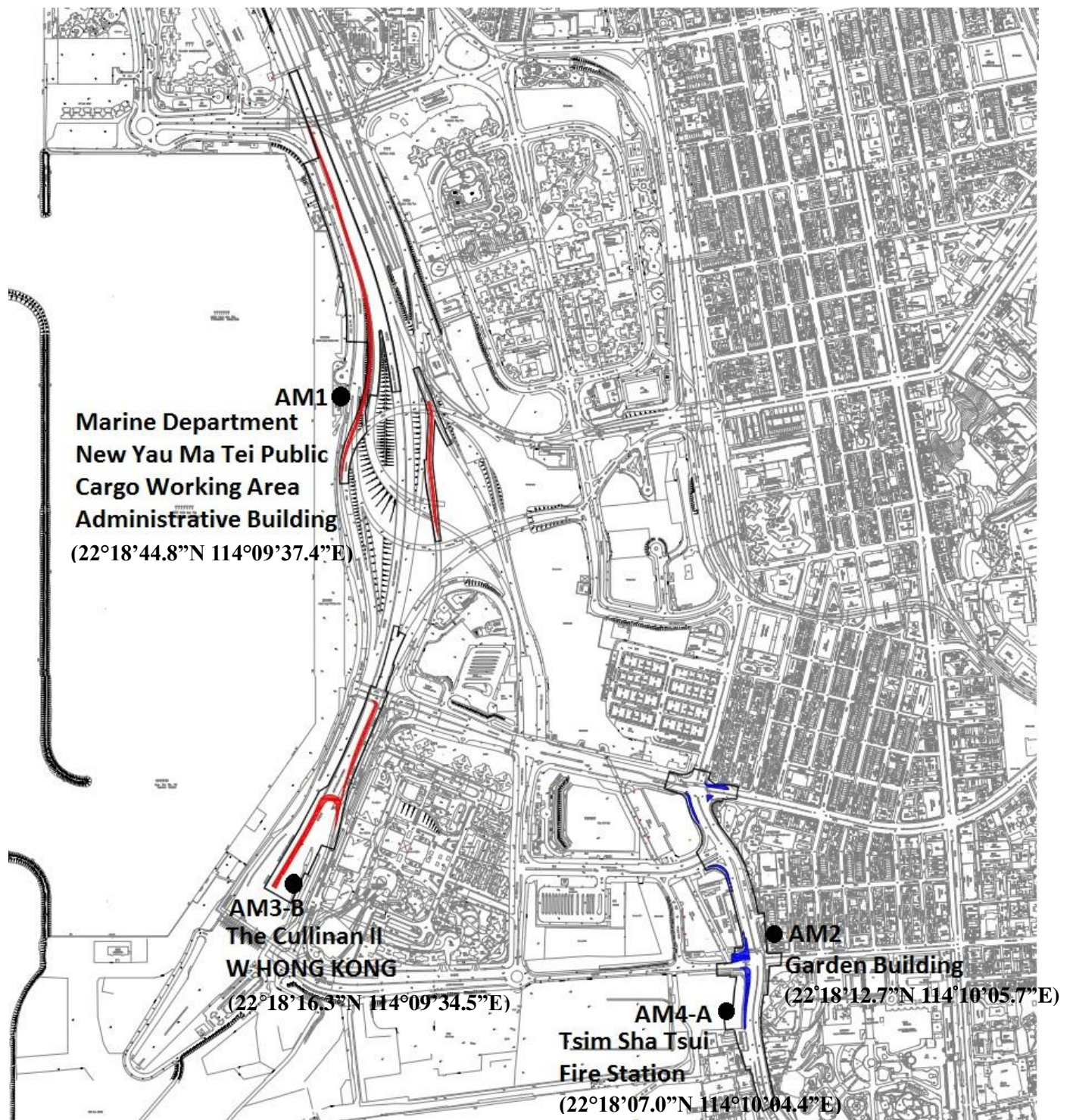
Locations for 1-hr TSP and Noise monitoring



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>AM2</p> <p>Garden Building</p>	
<p>AM3-B</p> <p>The Cullinan II (W Hong Kong)</p>	
<p>AM4-A</p> <p>Tsim Sha Tsui Fire Station</p>	

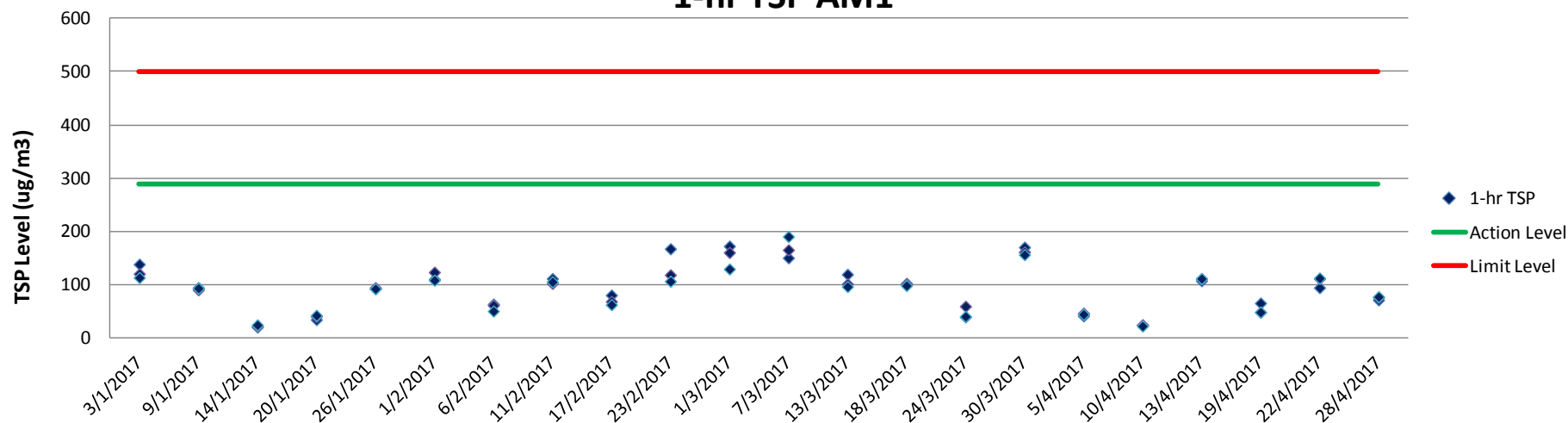
Appendix D: TSP Monitoring Data

1-hr TSP Monitoring Result for AM1

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading (µg/m ³)			
					1	2	3	1	2	3	Average
1/2/2017	Sunny	17.0	SE	0 - 5	13:32	14:33	15:34	110	123	108	114
6/2/2017	Sunny	16.0	SE	0 - 6.7	14:05	15:06	16:07	63	61	50	58
11/2/2017	Sunny	10.1	SE	0 - 4.2	15:19	16:20	17:21	111	102	105	106
17/2/2017	Sunny	16.0	W	0 - 2.2	13:48	14:49	15:50	80	68	62	70
23/2/2017	Overcast	13.9	W	0 - 3.6	10:16	11:17	12:18	167	118	106	130
1/3/2017	Sunny	15.0	NE	0 - 4.4	15:15	16:16	17:17	172	160	129	154
7/3/2017	Cloudy	16.4	SE	0.8 - 5.8	13:41	14:42	15:43	150	165	190	168
13/3/2017	Cloudy	19.3	SE	0 - 4.2	14:06	15:07	16:08	119	101	96	105
18/3/2017	Cloudy	16.9	SE	0.8 - 6.1	10:11	11:12	12:13	102	101	98	100
24/3/2017	Sunny	18.2	SE	0 - 7.5	9:26	10:27	11:28	39	59	40	46
30/3/2017	Overcast	20.6	SE	0.7 - 5.3	9:27	10:28	11:29	170	161	156	162
5/4/2017	Sunny	26.3	SE	<5m/s	14:04	15:05	16:06	41	46	44	44
10/4/2017	Overcast	27.3	SW	<5m/s	15:10	16:11	17:12	24	24	22	23
13/4/2017	Overcast	20.5	SE	<5m/s	15:46	16:47	17:48	107	111	111	110
19/4/2017	Sunny	28.0	NW	<5m/s	9:26	10:27	11:28	65	48	48	54
22/4/2017	Overcast	18.8	NE	<5m/s	15:18	16:19	17:20	94	111	112	106
28/4/2017	Overcast	24.4	SE	<5m/s	10:20	11:21	12:22	71	76	77	75

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

1-hr TSP AM1

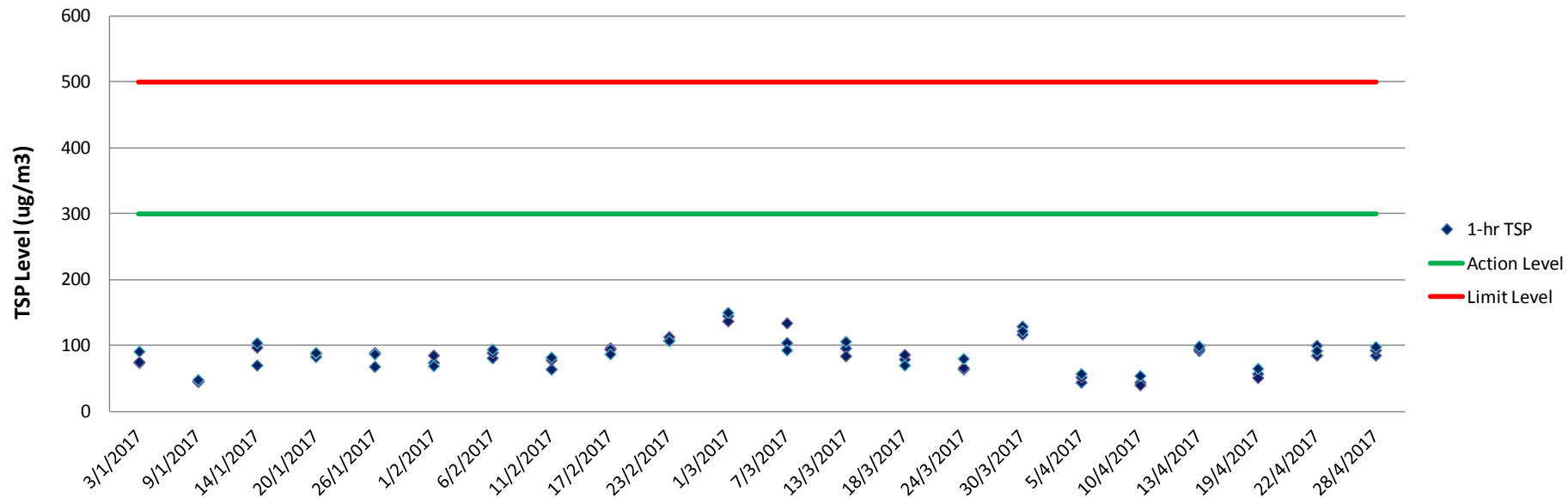


1-hr TSP Monitoring Result for AM2

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading (µg/m ³)			
					1	2	3	1	2	3	Average
1/2/2017	Sunny	17.0	SE	0 - 5	13:00	14:01	15:02	75	86	70	77
6/2/2017	Sunny	16.0	SE	0 - 6.7	13:02	14:03	15:04	82	90	95	89
11/2/2017	Sunny	10.1	SE	0 - 4.2	13:00	14:01	15:02	65	79	83	76
17/2/2017	Sunny	16.0	W	0 - 2.2	13:00	14:01	15:02	97	95	88	93
23/2/2017	Overcast	13.9	W	0 - 3.6	13:04	14:05	15:06	109	114	108	110
1/3/2017	Sunny	15.0	NE	0 - 4.4	13:00	14:01	15:02	146	138	151	145
7/3/2017	Cloudy	16.4	SE	0.8 - 5.8	13:00	14:01	15:02	105	135	94	111
13/3/2017	Cloudy	19.3	SE	0 - 4.2	13:05	14:06	15:07	97	85	107	96
18/3/2017	Cloudy	16.9	SE	0.8 - 6.1	13:05	14:06	15:07	80	87	71	79
24/3/2017	Sunny	18.2	SE	0 - 7.5	13:10	14:11	15:12	65	67	81	71
30/3/2017	Overcast	20.6	SE	0.7 - 5.3	13:13	14:14	15:15	130	118	123	124
5/4/2017	Sunny	26.3	SE	<5m/s	10:58	11:59	13:00	45	53	58	52
10/4/2017	Overcast	27.3	SW	<5m/s	10:55	11:56	12:57	45	41	55	47
13/4/2017	Overcast	20.5	SE	<5m/s	10:47	11:48	12:49	93	96	100	96
19/4/2017	Sunny	28.0	NW	<5m/s	10:53	11:54	12:55	58	52	66	59
22/4/2017	Overcast	18.8	NE	<5m/s	10:50	11:51	12:52	101	86	93	93
28/4/2017	Overcast	24.4	SE	<5m/s	10:30	11:31	12:32	86	94	99	93

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

1-hr TSP AM2

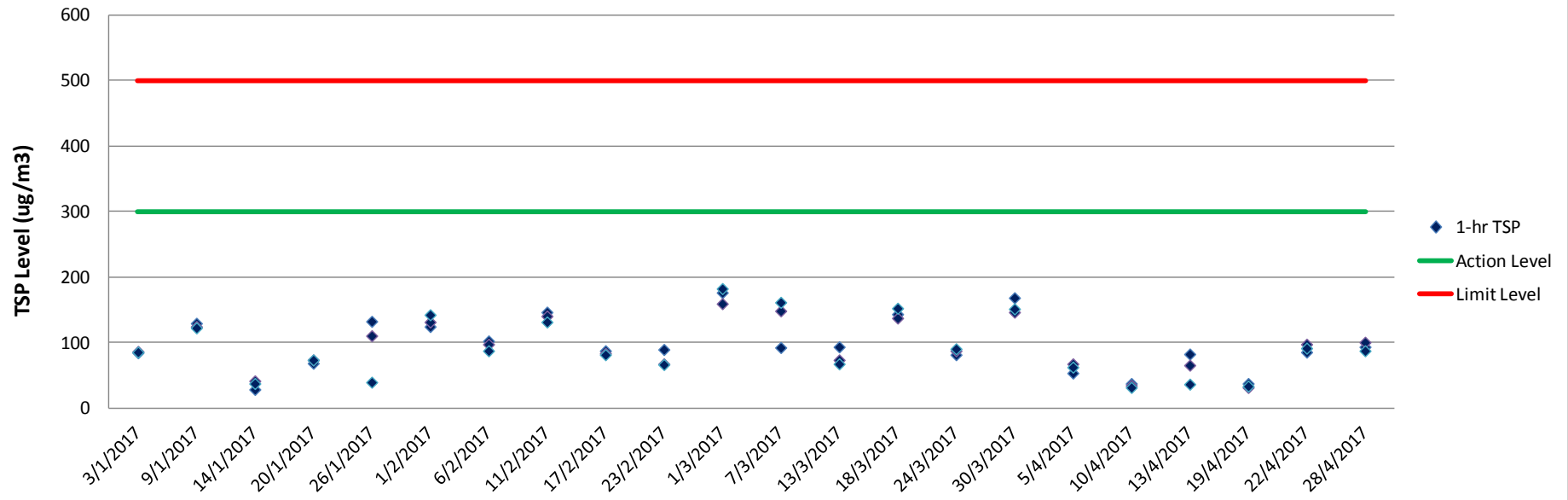


1-hr TSP Monitoring Result for AM3

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading (µg/m ³)			
					1	2	3	1	2	3	Average
1/2/2017	Sunny	17.0	SE	0 - 5	14:12	15:13	16:14	125	132	143	133
6/2/2017	Sunny	16.0	SE	0 - 6.7	14:53	15:54	16:55	103	98	88	96
11/2/2017	Sunny	10.1	SE	0 - 4.2	15:58	16:59	18:00	147	141	132	140
17/2/2017	Sunny	16.0	W	0 - 2.2	14:27	15:28	16:29	88	84	82	85
23/2/2017	Overcast	13.9	W	0 - 3.6	10:49	11:50	12:51	90	68	67	75
1/3/2017	Sunny	15.0	NE	0 - 4.4	15:08	16:09	17:10	177	160	183	173
7/3/2017	Cloudy	16.4	SE	0.8 - 5.8	14:22	15:23	16:24	93	149	162	135
13/3/2017	Cloudy	19.3	SE	0 - 4.2	14:44	15:45	16:46	94	74	68	79
18/3/2017	Cloudy	16.9	SE	0.8 - 6.1	10:53	11:54	12:55	144	138	153	145
24/3/2017	Sunny	18.2	SE	0 - 7.5	10:13	11:14	12:15	82	88	91	87
30/3/2017	Overcast	20.6	SE	0.7 - 5.3	10:07	11:08	12:09	169	147	152	156
5/4/2017	Sunny	26.3	SE	<5m/s	14:14	15:15	16:16	54	68	63	62
10/4/2017	Overcast	27.3	SW	<5m/s	15:53	16:54	17:55	38	35	32	35
13/4/2017	Overcast	20.5	SE	<5m/s	16:24	17:25	18:26	83	66	37	62
19/4/2017	Sunny	28.0	NW	<5m/s	9:58	10:59	12:00	38	32	34	35
22/4/2017	Overcast	18.8	NE	<5m/s	15:35	16:36	17:37	86	98	92	92
28/4/2017	Overcast	24.4	SE	<5m/s	11:00	12:01	13:02	94	101	88	94

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

1-hr TSP AM3

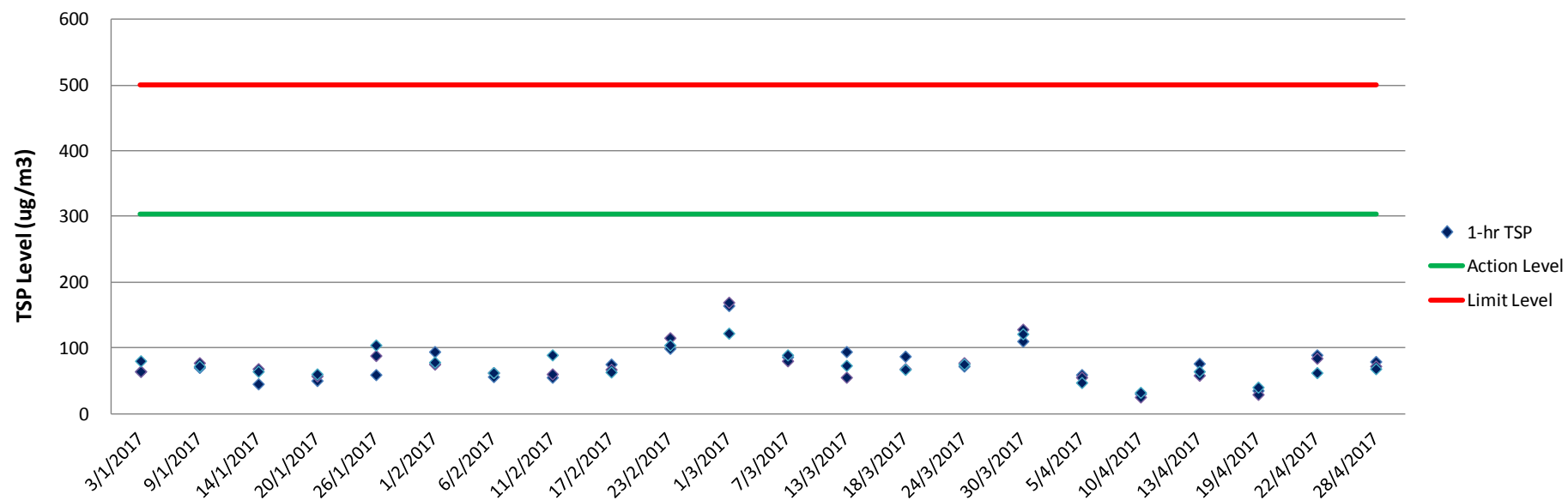


1-hr TSP Monitoring Result for AM4

Date	Weather	Temperature (°C) *	Wind Direction *	Wind Speed (m/s) *	Sampling Time			Reading (µg/m ³)			
					1	2	3	1	2	3	Average
1/2/2017	Sunny	17.0	SE	0 - 5	13:03	14:04	15:05	95	76	79	83
6/2/2017	Sunny	16.0	SE	0 - 6.7	13:05	14:06	15:07	57	63	63	61
11/2/2017	Sunny	10.1	SE	0 - 4.2	13:05	14:06	15:07	56	61	90	69
17/2/2017	Sunny	16.0	W	0 - 2.2	13:05	14:06	15:07	76	68	64	69
23/2/2017	Overcast	13.9	W	0 - 3.6	13:10	14:11	15:12	100	116	105	107
1/3/2017	Sunny	15.0	NE	0 - 4.4	13:05	14:06	15:07	165	170	123	153
7/3/2017	Cloudy	16.4	SE	0.8 - 5.8	13:07	14:08	15:09	87	81	90	86
13/3/2017	Cloudy	19.3	SE	0 - 4.2	13:00	14:01	15:02	95	56	74	75
18/3/2017	Cloudy	16.9	SE	0.8 - 6.1	13:00	14:01	15:02	88	69	68	75
24/3/2017	Sunny	18.2	SE	0 - 7.5	13:05	14:06	15:07	73	78	76	76
30/3/2017	Overcast	20.6	SE	0.7 - 5.3	13:10	14:11	15:12	111	129	122	121
5/4/2017	Sunny	26.3	SE	<5m/s	10:53	11:54	12:55	60	56	48	55
10/4/2017	Overcast	27.3	SW	<5m/s	10:50	11:51	12:52	31	26	33	30
13/4/2017	Overcast	20.5	SE	<5m/s	10:43	11:44	12:45	77	59	65	67
19/4/2017	Sunny	28.0	NW	<5m/s	10:50	11:51	12:52	36	30	41	36
22/4/2017	Overcast	18.8	NE	<5m/s	10:46	11:47	12:48	90	85	63	79
28/4/2017	Overcast	24.4	SE	<5m/s	10:26	11:27	12:28	80	73	69	74

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

1-hr TSP AM4

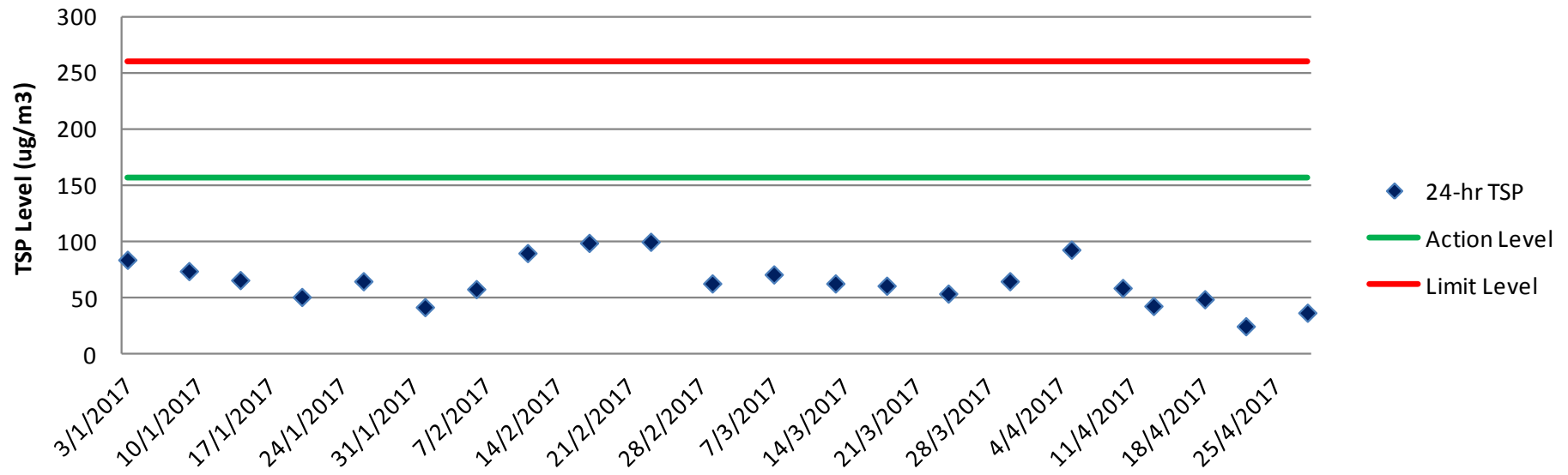


24-hr TSP Monitoring Result for AM1

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			
AM10201 202060	17.0 - 23.3	SE	0 - 5	1/2/2017	2.8440	2.9440	0.1000	55.0	2381.59	42
AM10206 202553	16.0 - 20.3	SE	0 - 6.7	6/2/2017	2.8216	2.9597	0.1381	55.0	2381.59	58
AM10211 202554	10.1 - 17.3	SE	0 - 4.2	11/2/2017	2.8189	3.0343	0.2154	55.0	2381.59	90
AM10217 202555	16.0 - 25.0	W	0 - 2.2	17/2/2017	2.8133	3.0497	0.2364	55.0	2381.59	99
AM10223 202569	13.9 - 19.9	W	0 - 3.6	23/2/2017	2.7911	3.0299	0.2388	55.0	2381.59	100
AM10301 202580	15.0 - 23.0	NE	0 - 4.4	1/3/2017	2.8123	2.9616	0.1493	55.0	2381.59	63
AM10307 202576	16.4 - 20.8	SE	0.8 - 5.8	7/3/2017	2.7985	2.9684	0.1699	55.0	2381.59	71
AM10313 202570	19.3 - 24.5	SE	0 - 4.2	13/3/2017	2.8040	2.9540	0.1500	55.0	2381.59	63
AM10318 202584	16.9 - 20.9	SE	0.8 - 6.1	18/3/2017	2.7955	2.9413	0.1458	55.0	2381.59	61
AM10324 202583	18.2 - 22.3	SE	0 - 7.5	24/3/2017	2.7967	2.9250	0.1283	55.0	2381.59	54
AM10330 202596	20.6 - 24.0	SE	0.7 - 5.3	30/3/2017	2.8087	2.9635	0.1548	55.0	2381.59	65
AM10405 202601	20.2 - 26.9	SE	0 - 3.8	5/4/2017	2.8125	3.0373	0.2248	56.0	2420.41	93
AM10410 202600	26.0 - 27.4	SW	0.8 - 5	10/4/2017	2.8238	2.9658	0.1420	56.0	2420.41	59
AM10413 202604	18.3 - 21.2	SE	0 - 3.1	13/4/2017	2.8138	2.9185	0.1047	56.0	2420.41	43
AM10419 202624	24.2 - 29.2	NW	0 - 5	19/4/2017	2.7837	2.9033	0.1196	56.0	2420.41	49
AM10422 202623	17.9 - 24.2	NE	0 - 4.2	22/4/2017	2.7913	2.8512	0.0599	56.0	2420.41	25
AM10428 202622	20.0 - 24.3	SE	0 - 3.8	28/4/2017	2.7983	2.8870	0.0887	56.0	2420.41	37

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

24-hr TSP AM1

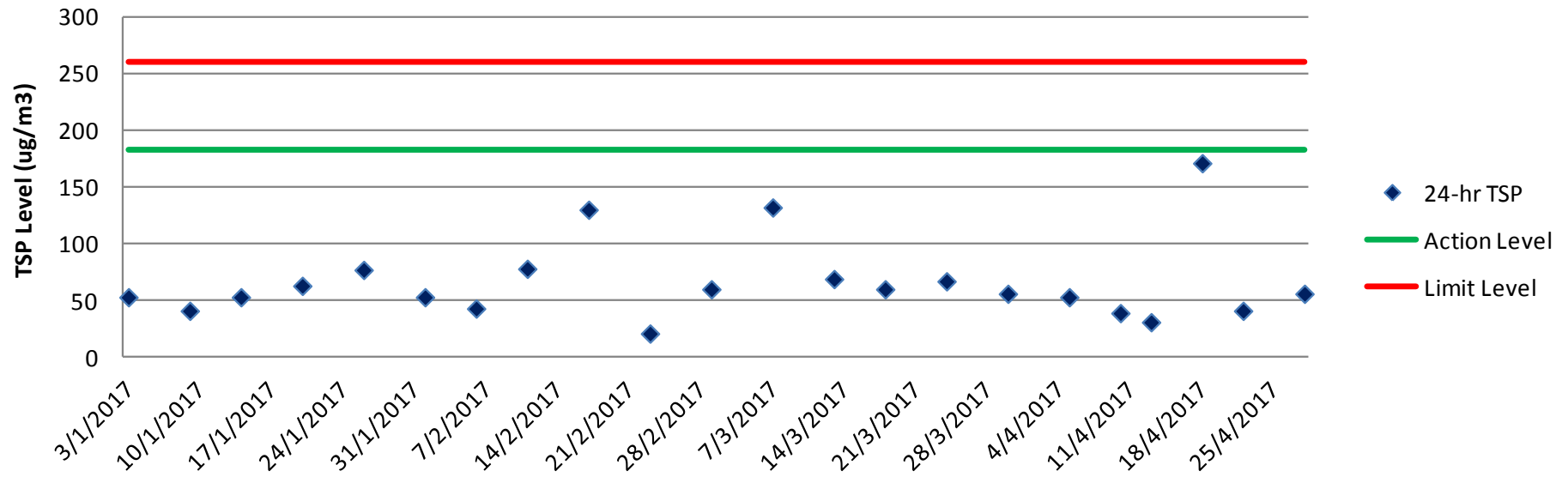


24-hr TSP Monitoring Result for AM2

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			
AM20201 202054	17.0 - 23.3	SE	0 - 5	1/2/2017	2.8344	2.9664	0.1320	58.0	2497.80	53
AM20206 202053	16.0 - 20.3	SE	0 - 6.7	6/2/2017	2.8454	2.9538	0.1084	58.0	2497.80	43
AM20211 202568	10.1 - 17.3	SE	0 - 4.2	11/2/2017	2.7969	2.9918	0.1949	58.0	2497.80	78
AM20217 202561	16.0 - 25.0	W	0 - 2.2	17/2/2017	2.7970	3.1216	0.3246	58.0	2497.80	130
AM20223 202564	13.9 - 19.9	W	0 - 3.6	23/2/2017	2.7970	2.8495	0.0525	58.0	2497.80	21
AM20301 202566	15.0 - 23.0	NE	0 - 4.4	1/3/2017	2.7992	2.9502	0.1510	58.0	2497.80	60
AM20307 202578	16.4 - 20.8	SE	0.8 - 5.8	7/3/2017	2.8048	3.1343	0.3295	58.0	2497.80	132
AM20313 202579	19.3 - 24.5	SE	0 - 4.2	13/3/2017	2.7922	2.9650	0.1728	58.0	2497.80	69
AM20318 202592	16.9 - 20.9	SE	0.8 - 6.1	18/3/2017	2.8137	2.9637	0.1500	58.0	2497.80	60
AM20324 202565	18.2 - 22.3	SE	0 - 7.5	24/3/2017	2.7925	2.9610	0.1685	58.0	2497.80	67
AM20330 202607	20.6 - 24.0	SE	0.7 - 5.3	30/3/2017	2.7975	2.9364	0.1389	58.0	2497.80	56
AM20405 202606	20.2 - 26.9	SE	0 - 3.8	5/4/2017	2.8078	2.9568	0.1490	58.0	2822.51	53
AM20410 202613	26.0 - 27.4	SW	0.8 - 5	10/4/2017	2.8036	2.9150	0.1114	58.0	2822.51	39
AM20413 202610	18.3 - 21.2	SE	0 - 3.1	13/4/2017	2.8000	2.8887	0.0887	58.0	2822.51	31
AM20419 202620	24.2 - 29.2	NW	0 - 5	19/4/2017	2.7830	3.2667	0.4837	58.0	2822.51	171
AM20422 202619	17.9 - 24.2	NE	0 - 4.2	22/4/2017	2.7743	2.8903	0.1160	58.0	2822.51	41
AM20428 202618	20.0 - 24.3	SE	0 - 3.8	28/4/2017	2.7890	2.9457	0.1567	58.0	2822.51	56

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

24-hr TSP AM2

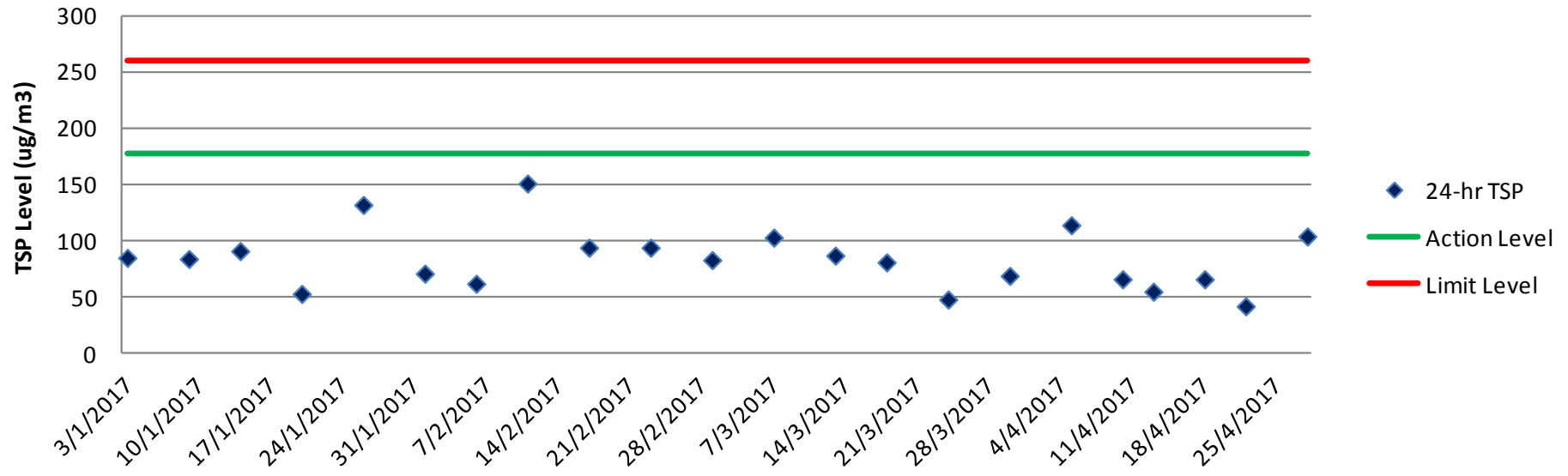


24-hr TSP Monitoring Result for AM3-B

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			
AM3-B0201 202061	17.0 - 23.3	SE	0 - 5	1/2/2017	2.8306	2.9962	0.1656	56.0	2320.73	71
AM3-B0206 202558	16.0 - 20.3	SE	0 - 6.7	6/2/2017	2.8078	2.9521	0.1443	56.0	2320.73	62
AM3-B0211 202557	10.1 - 17.3	SE	0 - 4.2	11/2/2017	2.8049	3.1556	0.3507	56.0	2320.73	151
AM3-B0217 202556	16.0 - 25.0	W	0 - 2.2	17/2/2017	2.8032	3.0207	0.2175	56.0	2320.73	94
AM3-B0223 202574	13.9 - 19.9	W	0 - 3.6	23/2/2017	2.7903	3.0088	0.2185	56.0	2320.73	94
AM3-B0301 202573	15.0 - 23.0	NE	0 - 4.4	1/3/2017	2.7978	2.9894	0.1916	56.0	2320.73	83
AM3-B0307 202572	16.4 - 20.8	SE	0.8 - 5.8	7/3/2017	2.7987	3.0376	0.2389	56.0	2320.73	103
AM3-B0313 202586	19.3 - 24.5	SE	0 - 4.2	13/3/2017	2.7866	2.9896	0.2030	56.0	2320.73	87
AM3-B0318 202585	16.9 - 20.9	SE	0.8 - 6.1	18/3/2017	2.7915	2.9797	0.1882	56.0	2320.73	81
AM3-B0324 202594	18.2 - 22.3	SE	0 - 7.5	24/3/2017	2.8120	2.9245	0.1125	56.0	2320.73	48
AM3-B0330 202593	20.6 - 24.0	SE	0.7 - 5.3	30/3/2017	2.8153	2.9752	0.1599	56.0	2320.73	69
AM3-B0405 202603	20.2 - 26.9	SE	0 - 3.8	5/4/2017	2.8316	3.0966	0.2650	56.0	2315.47	114
AM3-B0410 202602	26.0 - 27.4	SW	0.8 - 5	10/4/2017	2.8272	2.9808	0.1536	56.0	2315.47	66
AM3-B0413 202605	18.3 - 21.2	SE	0 - 3.1	13/4/2017	2.8093	2.9358	0.1265	56.0	2315.47	55
AM3-B0419 202625	24.2 - 29.2	NW	0 - 5	19/4/2017	2.7845	2.9383	0.1538	56.0	2315.47	66
AM3-B0422 202627	17.9 - 24.2	NE	0 - 4.2	22/4/2017	2.7932	2.8913	0.0981	56.0	2315.47	42
AM3-B0428 202626	20.0 - 24.3	SE	0 - 3.8	28/4/2017	2.8025	3.0435	0.2410	56.0	2315.47	104

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

24-hr TSP AM3-B

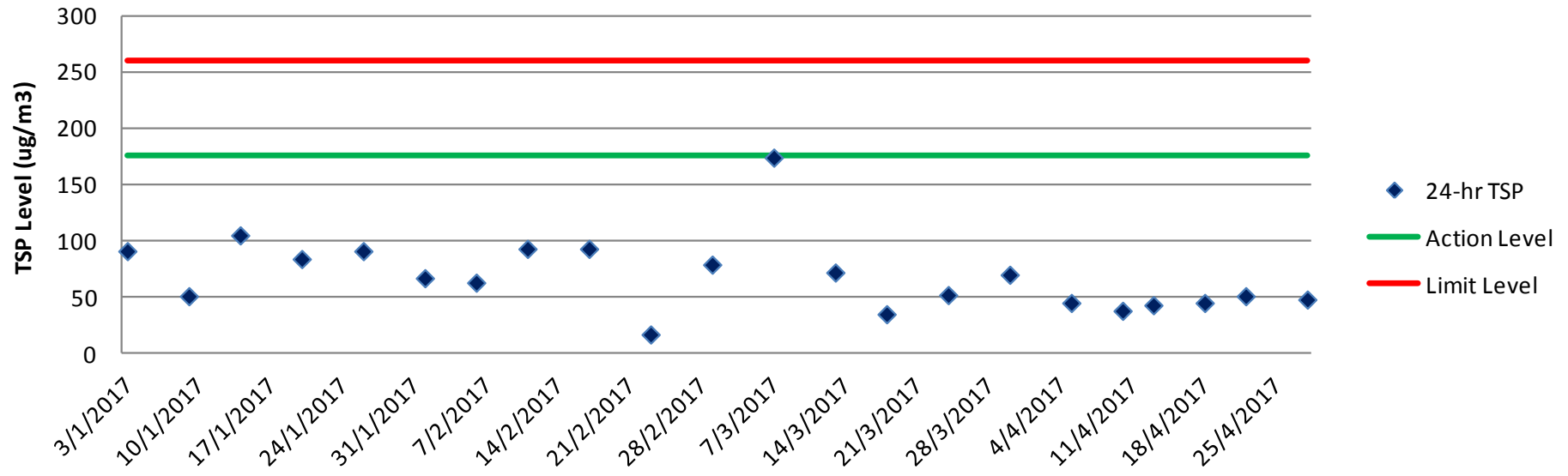


24-hr TSP Monitoring Result for AM4-A

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			
AM4-A0201 202051	17.0 - 23.3	SE	0 - 5	1/2/2017	2.8244	2.9753	0.1509	58.0	2263.54	67
AM4-A0206 202050	16.0 - 20.3	SE	0 - 6.7	6/2/2017	2.8441	2.9860	0.1419	58.0	2263.54	63
AM4-A0211 202562	10.1 - 17.3	SE	0 - 4.2	11/2/2017	2.7962	3.0068	0.2106	58.0	2263.54	93
AM4-A0217 202559	16.0 - 25.0	W	0 - 2.2	17/2/2017	2.7985	3.0099	0.2114	58.0	2263.54	93
AM4-A0223 202560	13.9 - 19.9	W	0 - 3.6	23/2/2017	2.8059	2.8436	0.0377	58.0	2263.54	17
AM4-A0301 202582	15.0 - 23.0	NE	0 - 4.4	1/3/2017	2.7925	3.0096	0.2171	60.0	2762.00	79
AM4-A0307 202581	16.4 - 20.8	SE	0.8 - 5.8	7/3/2017	2.7918	3.2722	0.4804	60.0	2762.00	174
AM4-A0313 202577	19.3 - 24.5	SE	0 - 4.2	13/3/2017	2.8032	3.0016	0.1984	60.0	2762.00	72
AM4-A0318 202575	16.9 - 20.9	SE	0.8 - 6.1	18/3/2017	2.7963	2.8921	0.0958	60.0	2762.00	35
AM4-A0324 202595	18.2 - 22.3	SE	0 - 7.5	24/3/2017	2.8147	2.9581	0.1434	60.0	2762.00	52
AM4-A0330 202587	20.6 - 24.0	SE	0.7 - 5.3	30/3/2017	2.7867	2.9814	0.1947	60.0	2762.00	70
AM4-A0405 202611	20.2 - 26.9	SE	0 - 3.8	5/4/2017	2.8019	2.9263	0.1244	60.0	2762.26	45
AM4-A0410 202567	26.0 - 27.4	SW	0.8 - 5	10/4/2017	2.8005	2.9061	0.1056	60.0	2762.26	38
AM4-A0413 202621	18.3 - 21.2	SE	0 - 3.1	13/4/2017	2.7841	2.9036	0.1195	60.0	2762.26	43
AM4-A0419 202588	24.2 - 29.2	NW	0 - 5	19/4/2017	2.7991	2.9242	0.1251	60.0	2762.26	45
AM4-A0422 202589	17.9 - 24.2	NE	0 - 4.2	22/4/2017	2.8009	2.9431	0.1422	60.0	2762.26	51
AM4-A0428 202591	20.0 - 24.3	SE	0 - 3.8	28/4/2017	2.8220	2.9554	0.1334	60.0	2762.26	48

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

24-hr TSP AM4-A



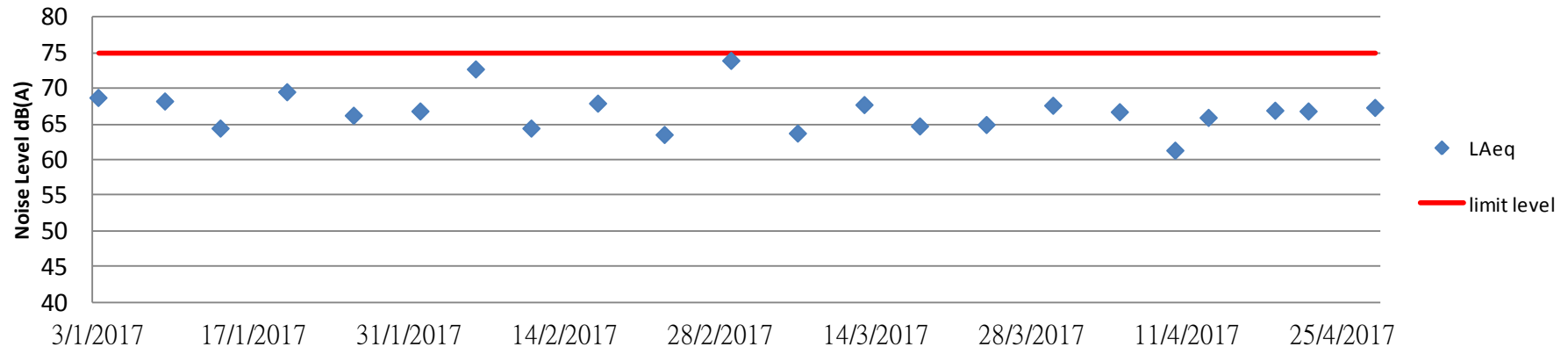
Appendix E: Noise Monitoring Data

Location	NM1				
Date	1/2/2017	6/2/2017	11/2/2017	17/2/2017	23/2/2017
Weather Condition	Sunny	Sunny	Sunny	Sunny	Sunny
Start Time	15:05	15:50	16:50	15:28	11:28
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	75.1				
L _{Aeq}	66.8	72.7	64.4	67.9	63.5
L ₁₀	68.8	74.1	65.8	69.5	65.0
L ₉₀	63.4	60.7	62.2	65.3	60.6

Location	NM1					
Date	1/3/2017	7/3/2017	13/3/2017	18/3/2017	24/3/2017	30/3/2017
Weather Condition	Sunny	Overcast	Overcast	Overcast	Sunny	Overcast
Start Time	16:10	15:50	15:34	11:32	16:19	11:00
Measurement Period	30min	30min	30min	30min	30min	30min
Baseline Level	75.1					
L _{Aeq}	73.9	63.7	67.7	64.7	64.9	67.6
L ₁₀	77.7	65.0	69.2	66.5	66.5	69.4
L ₉₀	66.0	61.8	65.2	61.2	62.7	65.3

Location	NM1					
Date	5/4/2017	10/4/2017	13/4/2017	19/4/2017	22/4/2017	28/4/2017
Weather Condition	Sunny	Overcast	Overcast	Sunny	Overcast	Overcast
Start Time	16:10	16:46	17:05	11:04	16:46	11:30
Measurement Period	30min	30min	30min	30min	30min	30min
Baseline Level	75.1					
L _{Aeq}	66.7	61.3	65.9	66.9	66.8	67.3
L ₁₀	68.4	62.3	67.4	67.0	68.5	68.4
L ₉₀	64.2	59.1	63.5	62.7	64.5	64.0

Noise - NM1

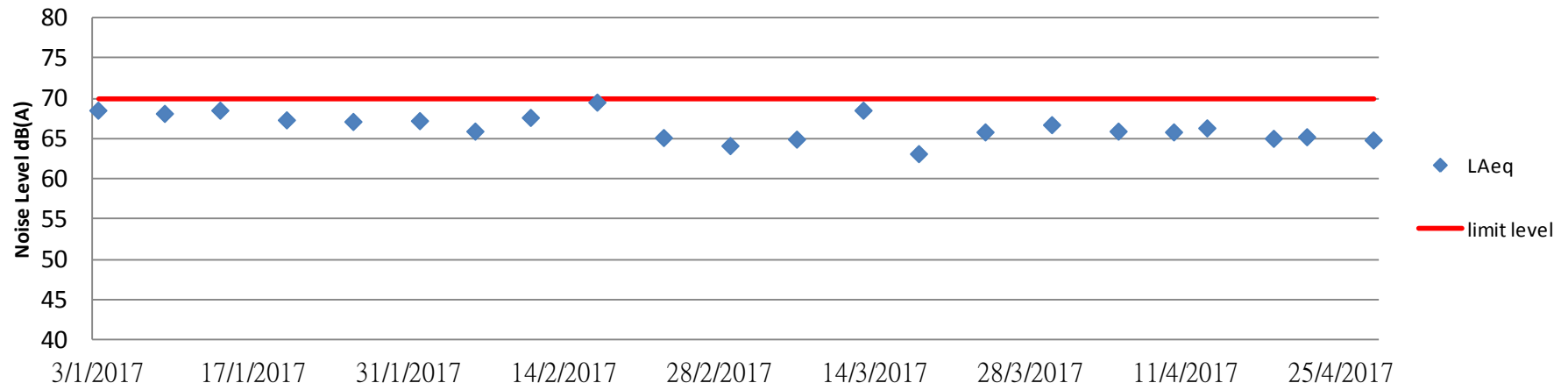


Location	NM2				
Date	1/2/2017	6/2/2017	11/2/2017	17/2/2017	23/2/2017
Weather Condition	Sunny	Sunny	Sunny	Sunny	Sunny
Start Time	9:00	9:00	9:00	9:00	9:00
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	66.5				
L _{Aeq}	67.2	65.9	67.6	69.5	65.1
L ₁₀	71.3	70.3	73.0	72.7	69.1
L ₉₀	62.5	63.0	61.8	61.3	61.0

Location	NM2					
Date	1/3/2017	7/3/2017	13/3/2017	18/3/2017	24/3/2017	30/3/2017
Weather Condition	Sunny	Overcast	Overcast	Overcast	Sunny	Overcast
Start Time	9:35	9:40	9:35	9:00	9:00	9:30
Measurement Period	30min	30min	30min	30min	30min	30min
Baseline Level	66.5					
L _{Aeq}	64.1	64.9	68.5	63.1	65.8	66.7
L ₁₀	66.6	67.2	71.5	65.9	69.5	68.5
L ₉₀	60.5	60.0	62.8	59.7	62.4	61.3

Location	NM2					
Date	5/4/2017	10/4/2017	13/4/2017	19/4/2017	22/4/2017	28/4/2017
Weather Condition	Sunny	Overcast	Overcast	Sunny	Overcast	Overcast
Start Time	9:35	9:40	9:35	9:35	9:35	9:35
Measurement Period	30min	30min	30min	30min	30min	30min
Baseline Level	66.5					
L _{Aeq}	65.9	65.8	66.3	65.0	65.2	64.8
L ₁₀	66.8	66.9	67.5	66.2	66.7	66.7
L ₉₀	62.9	62.5	62.3	63.3	62.1	61.9

Noise - NM2

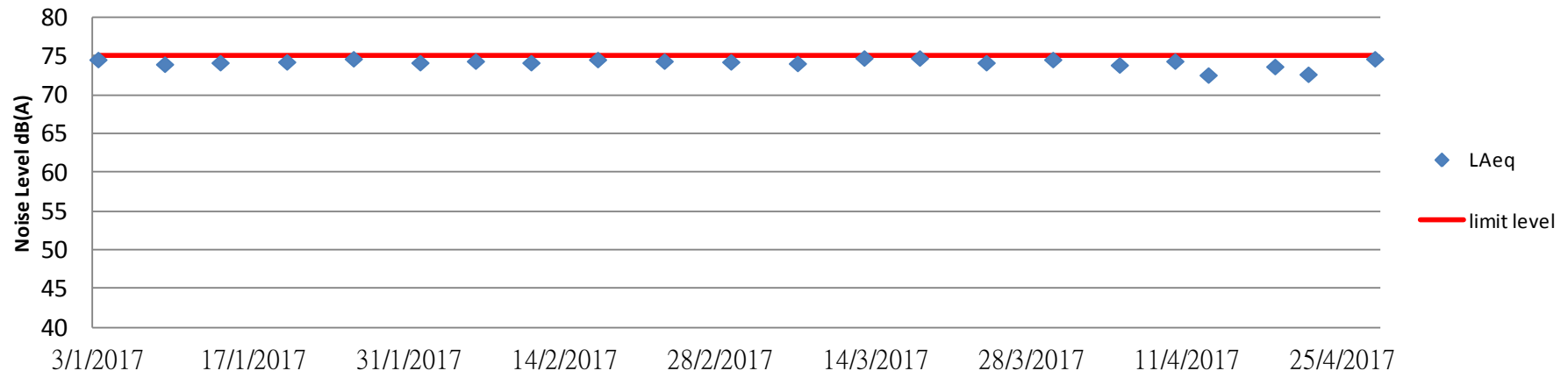


Location	NM3				
Date	1/2/2017	6/2/2017	11/2/2017	17/2/2017	23/2/2017
Weather Condition	Sunny	Sunny	Sunny	Sunny	Sunny
Start Time	14:18	15:00	16:07	14:40	10:45
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	74.5				
L _{Aeq}	74.3	74.5	74.3	74.7	74.5
L ₁₀	77.1	77.7	76.7	77.6	77.2
L ₉₀	68.4	69.0	70.6	69.5	70.1

Location	NM3					
Date	1/3/2017	7/3/2017	13/3/2017	18/3/2017	24/3/2017	30/3/2017
Weather Condition	Sunny	Overcast	Overcast	Overcast	Sunny	Overcast
Start Time	15:22	14:57	14:57	10:53	15:46	10:14
Measurement Period	30min	30min	30min	30min	30min	30min
Baseline Level	74.5					
L _{Aeq}	74.4	74.2	74.9	74.9	74.3	74.7
L ₁₀	77.7	77.0	78.1	77.8	77.4	77.6
L ₉₀	69.3	69.4	69.9	70.4	69.3	70.3

Location	NM3					
Date	5/4/2017	10/4/2017	13/4/2017	19/4/2017	22/4/2017	28/4/2017
Weather Condition	Sunny	Overcast	Overcast	Sunny	Overcast	Overcast
Start Time	15:37	15:58	16:25	10:14	16:04	10:38
Measurement Period	30min	30min	30min	30min	30min	30min
Baseline Level	74.5					
L _{Aeq}	74.0	74.5	72.7	73.8	72.8	74.8
L ₁₀	75.0	77.1	75.6	76.3	75.6	77.7
L ₉₀	71.8	69.6	68.1	68.6	68.6	69.9

Noise - NM3



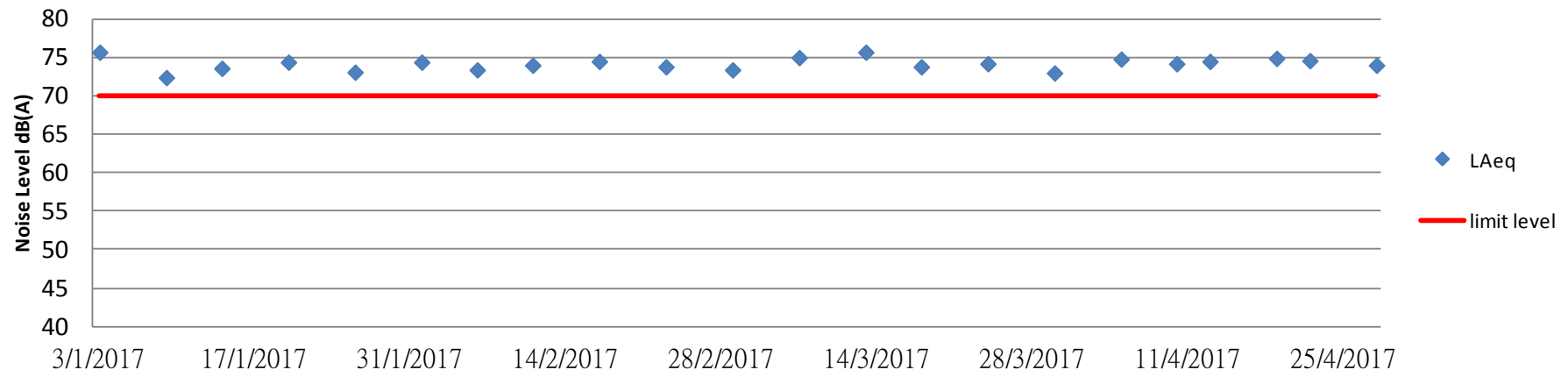
Location	NM4					NM4 (Re-measurement) *				
Date	1/2/2017	6/2/2017	11/2/2017	17/2/2017	23/2/2017	1/2/2017	6/2/2017	11/2/2017	17/2/2017	23/2/2017
Weather Condition	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny	Sunny
Start Time	13:00	13:00	13:00	13:00	13:00	13:31	13:31	13:31	13:31	13:31
Measurement Period	30min	30min	30min	30min	30min	30min	30min	30min	30min	30min
Baseline Level	73.3					73.3				
L _{Aeq}	74.5	73.5	74.1	74.6	73.9	74.2	74.1	73.7	74.3	74.5
L ₁₀	79.1	76.8	77.9	78.5	77.3	78.5	77.5	76.9	78.0	78.6
L ₉₀	69.5	70.0	69.8	70.2	69.6	70.1	70.2	70.5	71.5	70.3

Location	NM4						NM4 (Re-measurement) *					
Date	1/3/2017	7/3/2017	13/3/2017	18/3/2017	24/3/2017	30/3/2017	1/3/2017	7/3/2017	13/3/2017	18/3/2017	24/3/2017	30/3/2017
Weather Condition	Sunny	Overcast	Sunny	Overcast	Sunny	Overcast	Sunny	Overcast	Sunny	Overcast	Sunny	Overcast
Start Time	13:00	13:00	13:00	13:00	13:00	13:00	13:31	13:31	13:31	13:31	13:31	13:31
Measurement Period	30min	30min	30min	30min	30min	30min	30min	30min	30min	30min	30min	30min
Baseline Level	73.3						73.3					
L _{Aeq}	73.5	75.1	75.8	73.9	74.3	73.1	73.9	75.2	74.9	73.7	75.6	74.2
L ₁₀	75.4	78.1	78.7	76.4	77.4	75.1	75.9	78.4	77.6	75.0	78.2	76.4
L ₉₀	68.4	69.7	69.4	69.2	68.9	68.0	69.3	69.6	69.9	69.8	69.3	70.2

Location	NM4						NM4 (Re-measurement) *					
Date	5/4/2017	10/4/2017	13/4/2017	19/4/2017	22/4/2017	28/4/2017	5/4/2017	10/4/2017	13/4/2017	19/4/2017	22/4/2017	28/4/2017
Weather Condition	Sunny	Overcast	Overcast	Sunny	Overcast	Overcast	Sunny	Overcast	Overcast	Sunny	Overcast	Overcast
Start Time	13:00	13:00	13:00	13:00	13:00	13:00	13:31	13:31	13:31	13:31	13:31	13:31
Measurement Period	30min	30min	30min	30min	30min	30min	30min	30min	30min	30min	30min	30min
Baseline Level	73.3						73.3					
L _{Aeq}	74.9	74.3	74.6	75.0	74.7	74.1	74.3	74.9	75.1	74.7	73.6	75.6
L ₁₀	78.0	77.6	77.8	78.2	78.0	76.3	77.8	78.0	78.3	77.9	76.5	77.9
L ₉₀	67.5	68.0	67.7	67.7	67.5	67.3	66.9	67.3	67.5	67.6	68.1	68.0

* Repeat noise measurement when exceedance is recorded. The result is used to confirm the findings and it would not be showed on the graph plot

Noise - NM4

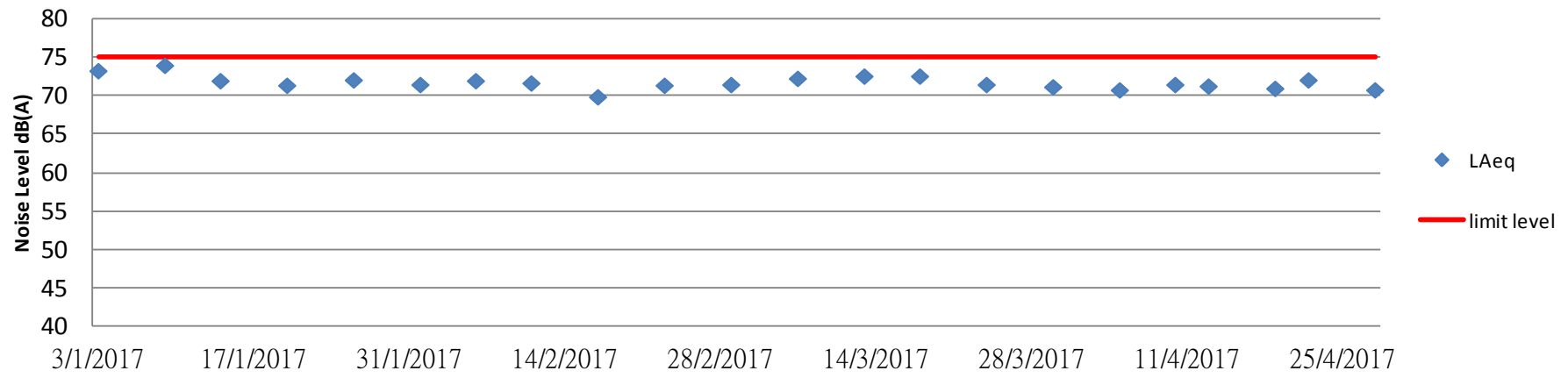


Location	NM5				
Date	1/2/2017	6/2/2017	11/2/2017	17/2/2017	23/2/2017
Weather Condition	Sunny	Sunny	Sunny	Sunny	Sunny
Start Time	14:15	14:15	14:15	14:15	14:15
Measurement Period	30min	30min	30min	30min	30min
Baseline Level	71.8				
L _{Aeq}	71.5	72.0	71.7	69.9	71.4
L ₁₀	74.6	75.7	74.9	73.8	74.8
L ₉₀	65.1	64.8	64.5	64.3	64.2

Location	NM5					
Date	1/3/2017	7/3/2017	13/3/2017	18/3/2017	24/3/2017	30/3/2017
Weather Condition	Sunny	Overcast	Overcast	Overcast	Sunny	Overcast
Start Time	14:15	14:15	14:15	14:15	14:15	14:30
Measurement Period	30min	30min	30min	30min	30min	30min
Baseline Level	71.8					
L _{Aeq}	71.5	72.3	72.6	72.6	71.5	71.2
L ₁₀	74.3	75.0	75.4	74.8	72.9	73.9
L ₉₀	67.1	65.8	67.3	67.3	68.1	65.3

Location	NM5					
Date	5/4/2017	10/4/2017	13/4/2017	19/4/2017	22/4/2017	28/4/2017
Weather Condition	Sunny	Overcast	Overcast	Sunny	Overcast	Overcast
Start Time	14:20	14:15	15:00	14:30	15:00	14:30
Measurement Period	30min	30min	30min	30min	30min	30min
Baseline Level	71.8					
L _{Aeq}	70.8	71.5	71.3	71.0	72.1	70.8
L ₁₀	73.9	74.5	74.1	73.9	75.0	73.5
L ₉₀	65.9	66.4	65.9	65.5	65.9	64.2

Noise - NM5



Appendix F: 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	✓
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	*
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						✓
		- Proved intercepting channels along crest/edge of excavation						✓
		- Carry out adequate surface protection measures well before the arrival of a rainstorm						*
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	✓

		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	*

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

		<p>felling within the site. Offsite planting may be required due to land constraint. 410 nos. of compensatory trees have been proposed</p>						
7.9.2.6	OM2	<p>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.</p>	<p>To soften hard landscape</p>	<p>HyD's Contractor</p>	<p>Whole construction site</p>	<p>Construction phase</p>	<p>ETWB TCW 36/2004</p>	<p>N/A</p>
7.9.2.6	OM3	<p>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)</p>	<p>To match with existing landscape character</p>	<p>HyD's Contractor</p>	<p>Whole construction site</p>	<p>Construction phase</p>	<p>ETWB TCW 36/2004</p>	<p>N/A</p>

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

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

Reporting Month	Number of Exceedance	Number of Non-Compliance	Number of Environmental Complaints	Number of Notification of Summons	Number of Successful Prosecutions
February 2016	0	0	0	0	0
March 2016	0	0	0	0	0
April 2016	0	0	2	0	0
May 2016	7	0	0	0	0
June 2016	11	0	0	0	0
July 2016	6	0	0	0	0
August 2016	6	0	0	0	0
September 2016	5	0	0	0	0
October 2016	6	1	0	0	0
November 2016	5	0	0	0	0
December 2016	5	0	0	0	0
January 2017	5	0	0	0	0
February 2017	5	0	0	0	0
March 2017	6	0	0	0	0
April 2017	6	0	1	0	0
Grand Total	73	1	3	0	0



Our ref.: KFMF0165-WKRI-20170323

26th April 2017

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/00009515-17
Date received:	23 rd April 2017
Incident location:	Lin Cheung Road Northbound
Description:	EPD received a complaint by a driver referred from 1823 about muddy water from construction work near West Kowloon Highway (towards the direction of Olympic City) which flowed to the area of 3-way interchange junction of West Kowloon Highway and would endanger the road users and contaminate the vehicles passing by. Letter from EPD by fax was received on 11 th April 2017. On the other hand, HyD/Works, the Employer of this contract, informed PB and VC on 23 rd March 2017 that a 1823 complaint regarding the captioned issue was received by HyD/Region on 23 rd March 2017.

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>



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/00009515-17

RECIPIENT

Name: Vibro Construction Company Limited

Details: EPD received a complaint by a driver referred from 1823 about muddy water from construction work near West Kowloon Highway (towards the direction of Olympic City) which flowed to the area of 3-way interchange junction of West Kowloon Highway and would endanger the road users and contaminate the vehicles passing by. Letter from EPD by fax was received on 11th April 2017. On the other hand, HyD/Works, the Employer of this contract, informed PB and VC on 23rd March 2017 that a 1823 complaint regarding the captioned issue was received by HyD/Region on 23rd March 2017.

Received Date: 23rd March 2017

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: Morning (09:30 – 10:30) of 23rd March 2017

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

INVESTIGATION RESULTS AND EVENT DESCRIPTION

1. Drilling operation for piling works were carried out near the roadside of Lin Cheung Road on 23rd March 2017.
2. During drilling operation, sheet-pile barriers had been erected at boundary of the drilling works area to prevent any underground water flowing away from the works area. (Figure 1.1)
3. At around 9:30am, drilling works passed the layer of existing rubble mound/ rockfill materials (at 35m below ground level). At that time, an unexpected large amount of underground water was suddenly spilled out. Then overflowed from the sheet-pile barriers to Lin Cheung Road Northbound.
4. Drilling works were suspended immediately.
5. The spilled out underground water was promptly pumped into the water treatment plant and water on the carriageway of Lin Cheung Road was cleared immediately.

6. The representatives of the Engineer and the Contractor had conducted a joint site investigation on 23rd March 2017 to review the cause of the incident and identify the follow up actions.
7. ET had conducted a site investigation with the representatives of the Engineer and the Contractor on 27th March 2017 to resolve the concern and review the follow up actions and mitigation measures. Details of the recommended enhancement for the mitigation measures are listed to Section of “Mitigation Measures and Recommendations” below.
8. Routine weekly site inspections were conducted on 3rd and 10th April 2017, observation of wastewater leakage was not noted during the site inspections.
9. The environmental complain was concluded to be caused by an unexpected incident.

MITIGATION MEASURES AND RECOMMENDATIONS

1. The following mitigation measures were implemented by the Contractor to enhance the prevention of water spilling out of site area.
 - Proper seal up of sheet-pile barriers were provided at piling area to collect the water. (Figure 2.1)
 - Additional cemented earthfill bunds were provided to seal up the gaps between sheet-pile barriers around the piling area to prevent leakage of water. (Figure 2.1)
 - Sandbags were used to encircle the piling areas as a second protection after sheet-pile barriers. (Figure 2.2)
 - Sump pumps were provided to direct the water and underground water to water treatment facilities and decrease the retention time of underground water storing inside the drilling/ piling areas.
 - Site drainage system was properly maintained to collect and direct water to water treatment facilities and to prevent surface run-off. (Figure 2.3)
 - Sand bags were placed around the gullies along West Kowloon Highway to avoid surface runoff draining into the public drainage system. (Figure 2.4)
2. The Contractor was reminded to enhance the environmental control measures and effectively implement the mitigation measures to avoid any leakage and surface run-off of wastewater.
 - Maintain sump pumps in operation for the collection of stagnant wastewater.
 - Provide sufficient sump pumps in operation and spare sump pumps for emergent use.
 - Provide spare sandbags for emergent use.
 - Check the sheet-pile barriers of the drilling/ piling areas for preventing leakage and crack.
 - Maintain the water treatment facilities.

Signature:



Goldie Fung, ET Leader

Date: 26th April 2017

Photo records

Figure 1.1

During drilling operation, sheet-pile barriers had been erected at boundary of the drilling works area to prevent any underground water flowing away from the works area.



Figure 2.1

Proper seal up of sheet-pile barriers were provided at piling area to collect the water. Additional cemented earthfill bunds were provided to seal up the gaps between sheet-pile barriers around the piling area to prevent leakage of water.



Figure 2.2

Sandbags were used to encircle the piling areas as a second protection after sheet-pile barriers.





Figure 2.3

Site drainage system was properly maintained to collect and direct water to water treatment facilities and to prevent surface run-off.



Figure 2.4

Sand bags were placed around the gullies along West Kowloon Highway to avoid surface runoff draining into the public drainage system.



COMPLAINT / CONCERN LOG

Ref: KFMF0165-WKRI-20170323

Log Ref	Event Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/Mitigation Action	File Closed
<p>Ref no.: KFMF0165-W KRI-20170323</p> <p>EPD complaint ref.: (6) in EP3/K03/RE/0 0009515-17</p>	Lin Cheung Road (Scheme HA of the Project)	A complaint received on 23 rd April 2017.	<p>EPD received a complaint by a driver referred from 1823 about muddy water from construction work near West Kowloon Highway (towards the direction of Olympic City) which flowed to the area of 3-way interchange junction of West Kowloon Highway and would endanger the road users and contaminate the vehicles passing by. Letter from EPD by fax was received on 11th April 2017. On the other hand, HyD/Works, the Employer of this contract, informed PB and VC on 23rd March 2017 that a 1823 complaint regarding the captioned issue was received by HyD/Region on 23rd March 2017.</p>	<p>Investigation Result:</p> <ol style="list-style-type: none"> 1. Drilling operation for piling works were carried out near the roadside of Lin Cheung Road on 23rd March 2017. 2. During drilling operation, sheet-pile barriers had been erected at boundary of the drilling works area to prevent any underground water flowing away from the works area. 3. At around 9:30am, drilling works passed the layer of existing rubble mound/ rockfill materials (at 35m below ground level). At that time, an unexpected large amount of underground water was suddenly spilled out. Then overflowed from the sheet-pile barriers to Lin Cheung Road Northbound. 4. Drilling works were suspended immediately. 5. The spilled out underground water was promptly pumped into the water treatment plant and water on the carriageway of Lin Cheung Road was cleared immediately. 6. The representatives of the Engineer and the Contractor had conducted a joint site investigation on 23rd March 2017 to review the cause of the incident and identify the follow up actions. 7. ET had conducted a site investigation with the representatives of the Engineer and the Contractor on 27th March 2017 to resolve the concern and review the follow up actions and mitigation measures. Details of the recommended enhancement for the mitigation measures are listed to Section of "Mitigation Measures and Recommendations" below. 	Yes

				<p>8. Routine weekly site inspections were conducted on 3rd and 10th April 2017, observation of wastewater leakage was not noted during the site inspections.</p> <p>9. The environmental complain was concluded to be caused by an unexpected incident.</p> <p>Mitigation Measures:</p> <p>1. The following mitigation measures were implemented by the Contractor to enhance the prevention of water spilling out of site area.</p> <ul style="list-style-type: none"> - Proper seal up of sheet-pile barriers were provided at piling area to collect the water. (Figure 2.1) - Additional cemented earthfill bunds were provided to seal up the gaps between sheet-pile barriers around the piling area to prevent leakage of water. (Figure 2.1) - Sandbags were used to encircle the piling areas as a second protection after sheet-pile barriers. (Figure 2.2) - Sump pumps were provided to direct the water and underground water to water treatment facilities and decrease the retention time of underground water storing inside the drilling/ piling areas. - Site drainage system was properly maintained to collect and direct water to water treatment facilities and to prevent surface run-off. (Figure 2.3) - Sand bags were placed around the gullies along West Kowloon Highway to avoid surface runoff draining into the public drainage system. <p>2. The Contractor was reminded to enhance the environmental control measures and effectively implement the mitigation measures to avoid any leakage and surface run-off of wastewater.</p> <ul style="list-style-type: none"> - Maintain sump pumps in operation for the collection of stagnant wastewater. 	
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				<ul style="list-style-type: none"> - Provide sufficient sump pumps in operation and spare sump pumps for emergent use. - Provide spare sandbags for emergent use. - Check the sheet-pile barriers of the drilling/ piling areas for preventing leakage and crack. - Maintain the water treatment facilities. 	
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Filed by Environmental Team Leader:_____



Date: 26th April 2017