Civil Engineering and Development Department

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

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

Monthly EM&A Report

February 2019

(Version 1.0)

Approved By	(Environmental Team Leader)

REMARKS:

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

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

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ANEWR

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Contract No. KL/2012/03
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Your reference:

Our reference: HKCEDD11/50/105607

Date: 12 March 2019

Attention: Mr Mickey Lee

BY EMAIL & POST
(email: RE3@ktd-5a.com)

Dear Sirs

Agreement No. EDO 08/2018
Independent Environmental Checker (IEC) for CEDD Contract No. KL/2012/03
Kai Tak Development – Stage 4 Infrastructure at Former North Apron Area
Verification of Monthly EM&A Report for February 2019

We refer to emails of 6, 8 and 12 March 2019 attaching a Monthly EM&A Report for February 2019 prepared by the ET.

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

Please do not hesitate to contact the undersigned or our Ms Hazel Chan on 2618 2831 should you have any queries.

Yours faithfully
ANEWR CONSULTING LIMITED

Adi Lee
Independent Environmental Checker

LYMA/CYYH/lhmh

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EXECUTIVE SUMMARY

Introduction

1. This is the 63rd Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Wellab Ltd. for "Contract No. KL/2012/03 - Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area" (Hereafter referred to as "the Project"). This contract comprises the construction of Schedule 2 Designated Projects (DP) Road D2 & Sewage Pumping Station PS2 and PS NPS which forms a part of the works under two Environmental Permits (EP), EP-337/2009 and EP-344/2009. The title of the designated projects under Environmental Permit No.: EP-344/2009 is "New sewage pumping stations serving Kai Tak Development" and under Environmental Permit No.: EP-337/2009 is "New distributor roads serving the planned Kai Tak Development". This report documents the findings of EM&A Works conducted from 1 to 28 February 2019.

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

Environmental Monitoring Works

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

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

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

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

1-hour & 24-hour TSP Monitoring

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

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

Construction Noise Monitoring

7. Construction noise monitoring at Station M8 – Po Leung Kuk Ngan Po Ling College was rejected by the premise owner on 12th November 2018. M8(A) – Po Leung Kuk Ngan Po Ling College (Site Boundary) was commenced on 21st November 2018 to carry out the monitoring works. The proposal for alternative station will be submitted to Environmental Protection Department (EPD) for approval. No Action/Limit Level exceedance was recorded.

Environmental Licenses and Permits

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

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

10. Water Discharge License (WT00020971-2015).

Key Information in the Reporting Month

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

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Reporting Changes	0	---	N/A	N/A	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---

Future Key Issues

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

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

1. INTRODUCTION

Background

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

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

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

1.4 Wellab Limited (Wellab) is commissioned by Kwan On Construction Co., Ltd. (the Contractor) on 1st January 2019 to undertake the role of the Environmental Team (ET) for the Contract No. KL/2012/03 - Stage 4 Infrastructure at Former North Apron Area. The construction work under KL/2012/03 comprises the construction of Road D2 & Sewage Pumping Station PS2 and PS NPS which forms a part of the works under two EPs (EP-337/2009 and EP-344/2009).

1.5 The construction commencement of this Contract was on 1st December 2013 for Road D2, Sewage Pumping Station PS2 and PS NPS. This is the 63rd Monthly EM&A report summarizing the EM&A works for the Project from 1 to 28 February 2019.

Project Organizations

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

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

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

Table 1.1 Key Project Contacts

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

Construction Activities undertaken during the Reporting Month

1.8 The site activities undertaken in the reporting month included:

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

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

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

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

Summary of EM&A Requirements

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

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

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

1.12 This report presents the implementation of the EM&A programme for the Project from 1 to 28 February 2019.

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

Table 1.3 Air Quality and Noise Monitoring Stations for this Project

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

Remarks:

- "Yes" – Monitoring station is the same as that stated in EM&A Manual
- No – Monitoring station is not the same as that stated in EM&A Manual. Request for carrying monitoring works at the monitoring stations stated in EM&A Manual was rejected by owner of premise. Alternative monitoring stations were proposed by the ET of Schedule 3 EIA and approved by the EPD.
- N/A – No alternative monitoring station is required.
- **AM3(B) – The permission of air quality monitoring works (24-hour TSP) at station AM3(A) was denied in November 2017, the monitoring works were resumed at the alternative station – AM3(B) in December 2017.
- *AM4(A) – EMSD Workshop was cancelled due to unsuccessful accessibility of the facility. 1-hr TSP monitoring was conducted at AM4(B) – Ma Tau Kuk Road (next to EMSD workshop) temporarily and 24-hr TSP monitoring was conducted at AM4(C) – New Pumping Station under Contract No. KL/2012/03.
- ^AM5(A) – Po Leung Kuk Ngan Po Ling College was cancelled because no permission was granted from the premise. Air quality monitoring was carried out at AM5 – CCC Kei To Secondary School.
- #Noise monitoring at M8 – Po Leung Kuk Ngan Po Ling College was cancelled because the permission to enter the premises was not granted. Noise monitoring was carried out at M8(A) – Po Leung Kuk Ngan Po Ling College (Site Boundary) temporarily.

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

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

Status of Compliance with Environmental Permits Conditions

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

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

EP Conditions	Submission	Submission Date	Remark
1.11	Notification of Commencement Date of Construction of Project	31 October 2013	For Road D2
2.3	Management Organization of Main Construction Companies	31 October 2013	For Contract No. KL/2012/03
2.4	Design Drawing(s) of the Project	28 October 2013	For Road D2
2.11	Landscape Mitigation Plan(s) for distributors road(s)	7 January 2014	For Road D2
2.12	As-built drawing(s) for the distributor road(s)	To be submitted at least one week before the commencement of operation of distributor road(s)	
3.2	Baseline Monitoring Report	26 November 2010 (Part I) 24 December 2010 (Part II)	/
3.3	Four hard copies and one electronic copy of the Monthly EM&A Report No. 62 (January 2019)	13 February 2019	Monthly EM&A Report for Contract No. KL/2012/03

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

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

EP Conditions	Submission	Submission Date	Remark
3.3	Four hard copies and one electronic copy of the Monthly EM&A Report No. 62 (January 2019)	13 February 2019	Monthly EM&A Report for Contract No. KL/2012/03

2. AIR QUALITY

Monitoring Requirements

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

Monitoring Locations

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

Table 2.1 Locations for Air Quality Monitoring

Monitoring Stations	Locations	Location of Measurement
AM2	Lee Kau Yan Memorial School	Rooftop (about 8/F) Area
AM2(A)	Ng Wah Catholic Secondary School	Rooftop (about 8/F) Area
AM3(A)	Holy Trinity Bradbury Centre	Rooftop (about 8/F) Area
AM3(B)	Hong Kong Family Planning Association	Rooftop (about 4/F) Area
AM4(C)	New Pumping Station	Rooftop (about 6/F) Area
AM5	CCC Kei To Secondary School	Rooftop (about 10/F) Area
#AM6	PA 15	Site 1B4 (Planned)

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

Monitoring Equipment

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

Table 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Calibrator	TE-5025A	1
1-hour TSP Dust Meter	Laser Dust Monitor – Model Hal-HPC300/ 301; Met One Instruments – AEROCET-831	3
HVS Sampler	TE-5170	4
Wind Anemometer	Davis Weather Monitor, Vantage Pro2	1

Monitoring Parameters, Frequency and Duration

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

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

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

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

1-hour TSP Monitoring

Measuring Procedures

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

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

during the monitoring period.

Maintenance/Calibration

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

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

24-hour TSP Monitoring

Instrumentation

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

Operating/Analytical Procedures

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

- A horizontal platform was provided with appropriate support to secure the samplers against gusty wind.
- No two samplers were placed less than 2 meters apart.
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
- A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
- No furnaces or incineration flues were nearby.
- Airflow around the sampler was unrestricted.
- The sampler was more than 20 meters from the drip line.
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

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

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

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

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

2.13 The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.

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

2.15 The timer was then programmed so that the TSP will be sampled for 24 hours. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).

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

2.17 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%.

Maintenance/Calibration

2.18 The following maintenance/calibration was required for the HVS:

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- High volume samplers were calibrated at bi-monthly intervals using G25A Calibration Kit throughout all stages of the air quality monitoring.
- Orifice Transfer Standards were calibrated at yearly intervals throughout all stages of the air quality monitoring.

Results, Observations and Action/Limit Level Exceedance

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

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

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

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

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

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

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

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

3. NOISE

Monitoring Requirements

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

Monitoring Locations

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

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

3.4 Construction noise monitoring at Station M8 – Po Leung Kuk Ngan Po Ling College was rejected by the premise owner on 12th November 2018. M8(A) – Po Leung Kuk Ngan Po Ling College (Site Boundary) was commenced on 21st November 2018 to carry out the monitoring works. The proposal for alternative station was submitted to Environmental Protection Department (EPD) for approval. No Action/Limit Level exceedance was recorded.

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Locations	Location of Measurement
*M6(A)	Oblate Primary School	Rooftop (about 7/F) Area
M7	CCC Kei To Secondary School	Rooftop (about 8/F) Area
^M8(A)	Po Leung Kuk Ngan Po Ling College (Site Boundary)	Ground Level (at a position 3m above the ground)
M9	Tak Long Estate	Car Park Building (about 2/F)
#M10	Site 1B4 (Planned)	-

Remarks:
* Alternative noise monitoring station for M6 – Holy Carpenter Primary School from 10th October 2014 onwards
^ Noise monitoring at M8 – Po Leung Kuk Ngan Po Ling College was cancelled because the permission to enter the premises was not granted. Noise monitoring was carried out at M8(A) – Po Leung Kuk Ngan Po Ling College (Site Boundary) temporarily from 21st November 2018.
\# The impact monitoring at these locations will only be carried out until existence of the sensitive receiver at the building.

Monitoring Equipment

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

Table 3.2 Noise Monitoring Equipment

Equipment	Model and Make	Qty.
Integrating Sound Level Meter	BSWA 801	2
Calibrator	SVANTEK SV30A	1

Monitoring Parameters, Frequency and Duration

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

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

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

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

Monitoring Methodology and QA/QC Procedures

- The Sound Level Meter was set on a tripod at a point 1m from the exterior of the sensitive receivers building façade and be at a position 1.2m above the ground (3m above the ground for Station M8(A)).
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels was adjusted with a correction of +3 dB(A).
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - time measurement : 30 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the L_{eq}, L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused temporarily during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Maintenance and Calibration

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

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

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

Results, Observations and Action/Limit Level Exceedance

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

3.11 The noise monitoring at alternative station M8(A) – Po Leung Kuk Ngan Po Ling College (Site Boundary) was commenced on 21st November 2018. The proposal for alternative station was submitted to Environmental Protection Department (EPD) for approval. No Action/Limit Level exceedance was recorded.

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

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

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

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

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

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

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

M9	59.9 (at 0700 – 1900 hrs on normal weekdays)	75 (at 0700 – 1900 hrs on normal weekdays)

(*) Noise Limit Level is 65 dB(A) during school examination periods.
(#) The Baseline Noise Level of Station M8 will be adopted for alternative Station M8(A) temporarily until the baseline checking was completed.

4. COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS

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

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

Station	Predicted 1-hr TSP conc.			
	Scenario1 (Mid 2009 to Mid 2013), µg/m3	Scenario2 (Mid 2013 to Late 2016), µg/m3	Reporting Month (Feb 2019), µg/m3	
			Average	Range
AM2 – Lee Kau Yan Memorial School	290	312	115.9	73.1 – 169.6
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	217	247	94.4	58.9 – 199.3
AM4(C) – New Pumping Station	N/A	N/A	125.9	100.6 – 151.9
AM5– CCC Kei To Secondary School	159	221	111.4	84.2 – 148.0

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

Station	Predicted 24-hr TSP conc.			
	Scenario1 (Mid 2009 to Mid 2013), µg/m3	Scenario2 (Mid 2013 to Late 2016), µg/m3	Reporting Month (Feb 2019), µg/m3	
			Average	Range
AM2(A) – Ng Wah Catholic Secondary School (Alternative station for Lee Kau Yan Memorial School)	145	169	50.3	38.4 – 62.1
AM3(B) – Family Planning Association of Hong Kong	N/A	N/A	65.7	52.8 – 90.4
AM4(C) – New Pumping Station	N/A	N/A	36.5	14.3 – 55.5
AM5 – CCC Kei To Secondary School	103	128	31.8	28.2 – 35.7

Table 4.3 Comparison of Noise Monitoring Data with EIA predictions

Stations	Predicted Mitigated Construction Noise Levels during Normal Working Hour ($L_{eq\ (30min)}$ dB(A))	Reporting Month (Feb 2019), $L_{eq\ (30min)}$ dB(A)
M6(A) - Oblate Primary School ^	N/A	56.1 – 66.5
M7 - CCC Kei To Secondary School	45 – 68	64.9 – 66.7
M8(A) - Po Leung Kuk Ngan Po Ling College (Site Boundary)*	44 - 70	65.5 – 69.1
M9 – Tak Long Estate	Not predicted in EIA Report	57.9 – 72.2

(^) Alternative noise monitoring station for M6 – Holy Carpenter Primary School from 10th October 2014 onwards.
(*) Noise monitoring at M8– Po Leung Kuk Ngan Po Ling College was cancelled due to no permission was granted from the premise. Noise monitoring was carried out at M8(A) – Po Leung Kuk Ngan Po Ling College (Site Boundary) temporarily from 21st November 2018..

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

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

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

5. LANDSCAPE AND VISUAL

Monitoring Requirements

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

Results and Observations

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

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

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

6. ENVIRONMENTAL AUDIT

Site Audits

6.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix I**.

6.2 Site audits were conducted on 8, 15 and 20 February 2019 in the reporting month. IEC site inspection was conducted on 20 February 2019. No non-compliance was observed during the site audits.

Status of Environmental Licensing and Permitting

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

Table 6.1 Summary of Environmental Licensing and Permit Status

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

Status of Waste Management

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

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

Implementation Status of Environmental Mitigation Measures

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

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

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	**--**
Air Quality	--	--	**--**
Noise	--	--	**--**
Waste/Chemical Management	--	--	**--**
Landscape and Visual	--	--	**--**
Permits /Licences	--	--	**--**

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

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	--	--	**--**
Air Quality	--	--	--
Noise	--	--	--
Waste/Chemical Management	--	--	--
Landscape and Visual	--	--	--
Permits /Licences	--	--	--

Summary of Mitigation Measures Implemented

6.7 The monthly IEC audit was carried out on 20th February 2019, the summary was shown as follows:

Follow up of last monthly audit:

- Drip-tray has been provided for the generator and the chemical container has been removed at PS2.
- Stockpile has been covered by geotextile sheet at PS2.

Observation(s) in the reporting month:

- No major environmental deficiency was observed during the site audit.

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

Implementation Status of Event Action Plans

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

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise

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

Landscape and visual

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

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

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

7. FUTURE KEY ISSUES

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

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

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

Key Issues for the Coming Month

7.3 Key environmental issues in the coming month include:

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

7.4 The tentative program of major site activities and the impact prediction and environmental mitigation measures for the coming two months, i.e. March 2019 and April 2019 are summarized as follows:

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

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

Monitoring Schedule for the Next Month

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

8. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

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

1-hr TSP Monitoring

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

24-hr TSP Monitoring

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

Construction Noise Monitoring

8.4 Construction noise monitoring at Station M8 – Po Leung Kuk Ngan Po Ling College was rejected by the premise owner on 12th November 2018. M8(A) – Po Leung Kuk Ngan Po Ling College (Site Boundary) was commenced on 21st November 2018 to carry out the monitoring works. The proposal for alternative station was submitted to Environmental Protection Department (EPD) for approval. No Action/Limit Level exceedance was recorded.

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

Complaints, Notification of any Summons and Prosecution Received

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

Recommendations

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

Air Quality Impact

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

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

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

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

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

Effectiveness of Environmental Management

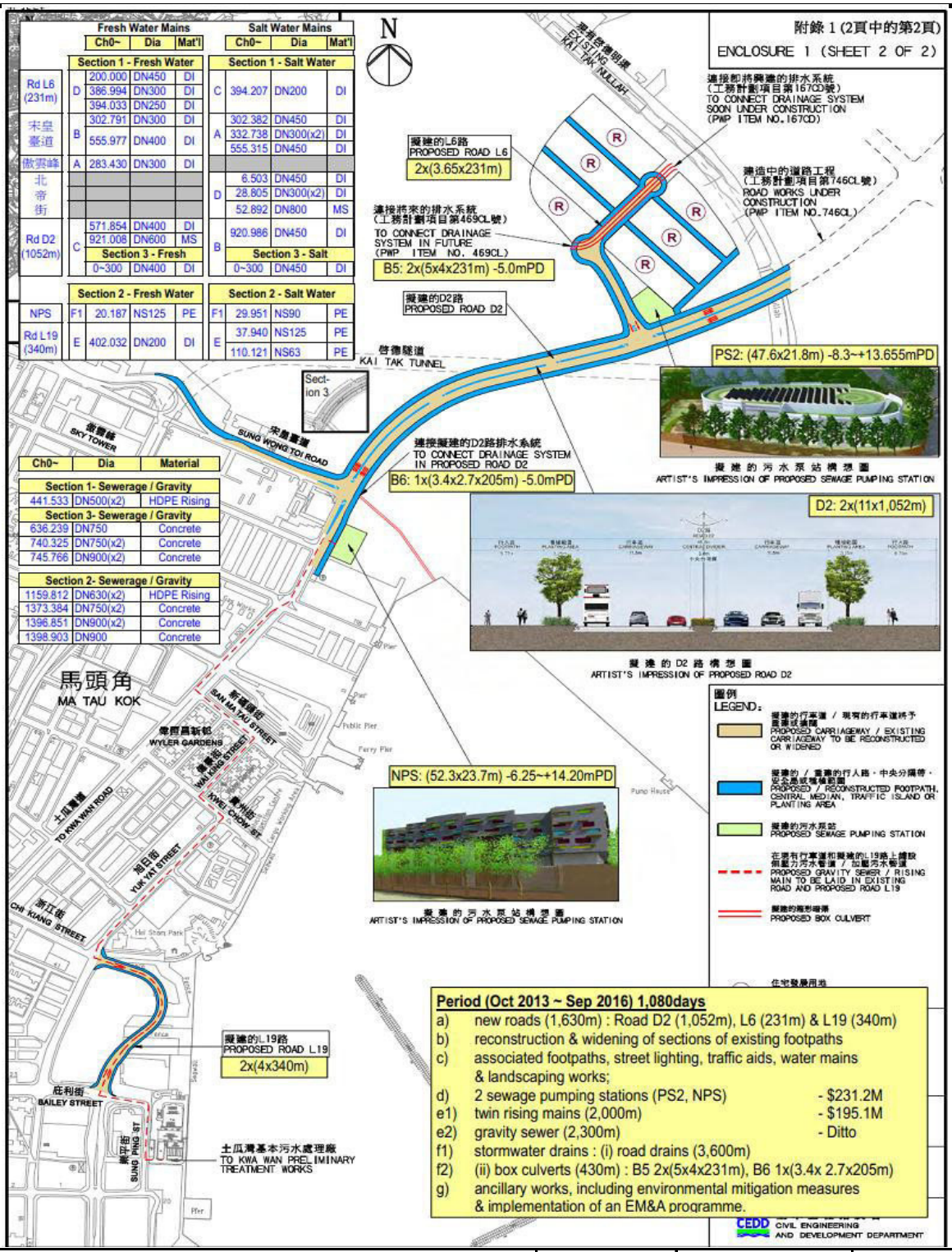
8.8 The above recommendations and the recommended mitigation measures in the EM&A Manual were carried out by the Contractor during construction. No non-compliance was recorded during the environmental site inspections as shown in **Appendix I**.

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

Table 8.1 Examples of Mitigation Measures for Environmental Recommendations

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

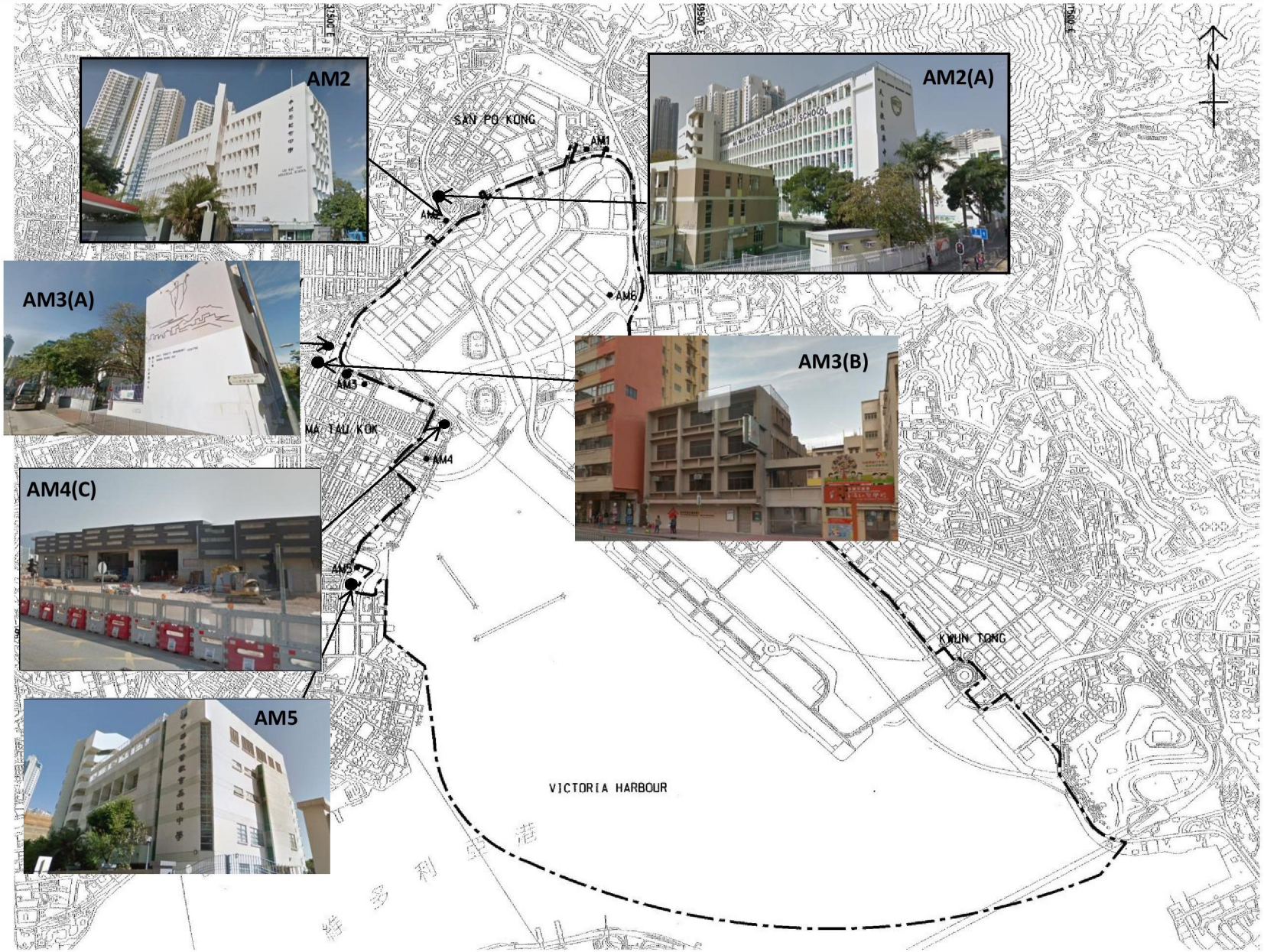
FIGURES



Period (Oct 2013 ~ Sep 2016) 1,080days

a) new roads (1,630m) : Road D2 (1,052m), L6 (231m) & L19 (340m)
b) reconstruction & widening of sections of existing footpaths
c) associated footpaths, street lighting, traffic aids, water mains & landscaping works;
d) 2 sewage pumping stations (PS2, NPS) - $231.2M
e1) twin rising mains (2,000m) - $195.1M
e2) gravity sewer (2,300m) - Ditto
f1) stormwater drains : (i) road drains (3,600m)
f2) (ii) box culverts (430m) : B5 2x(5x4x231m), B6 1x(3.4x 2.7x205m)
g) ancillary works, including environmental mitigation measures & implementation of an EM&A programme.

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



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

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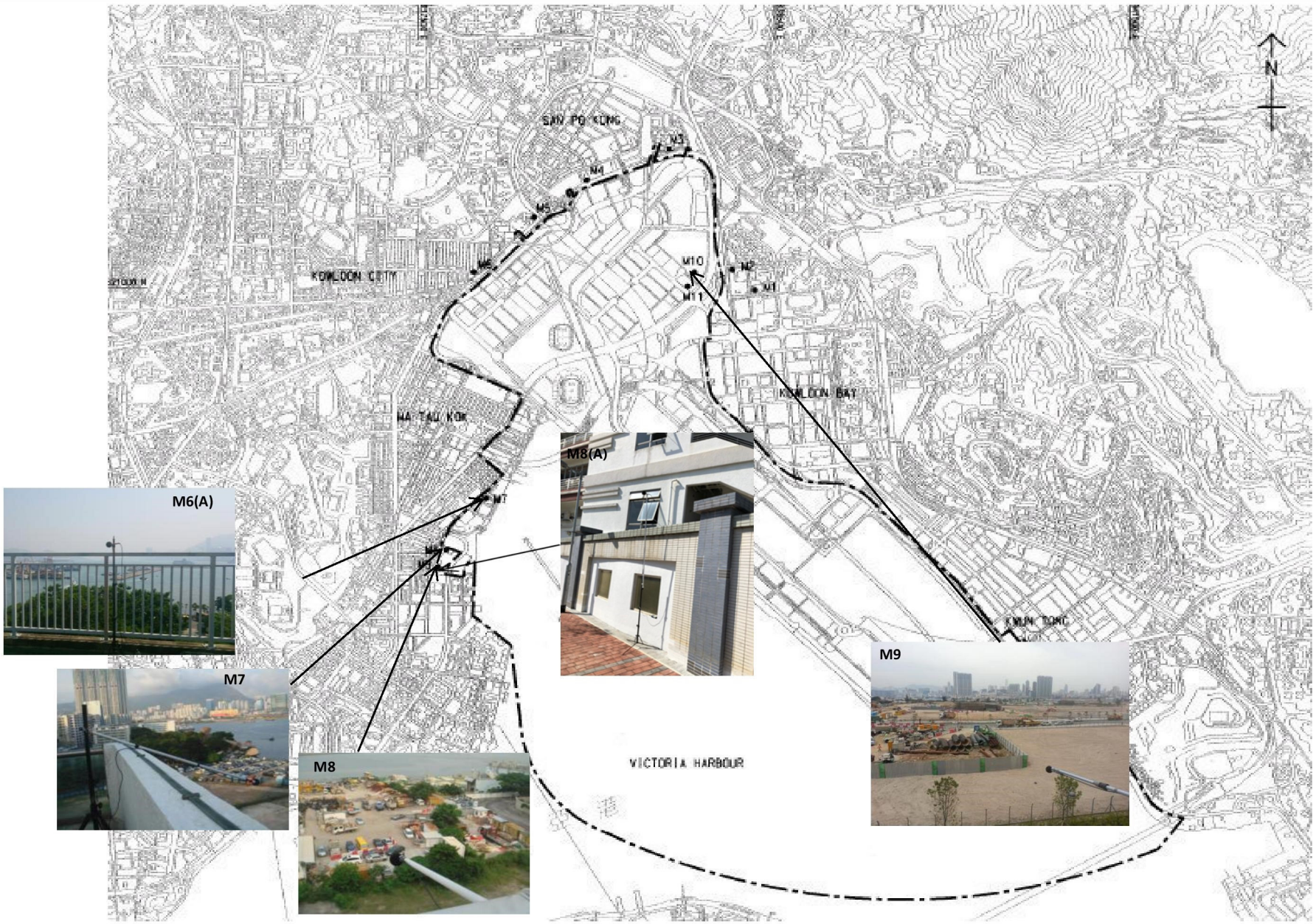
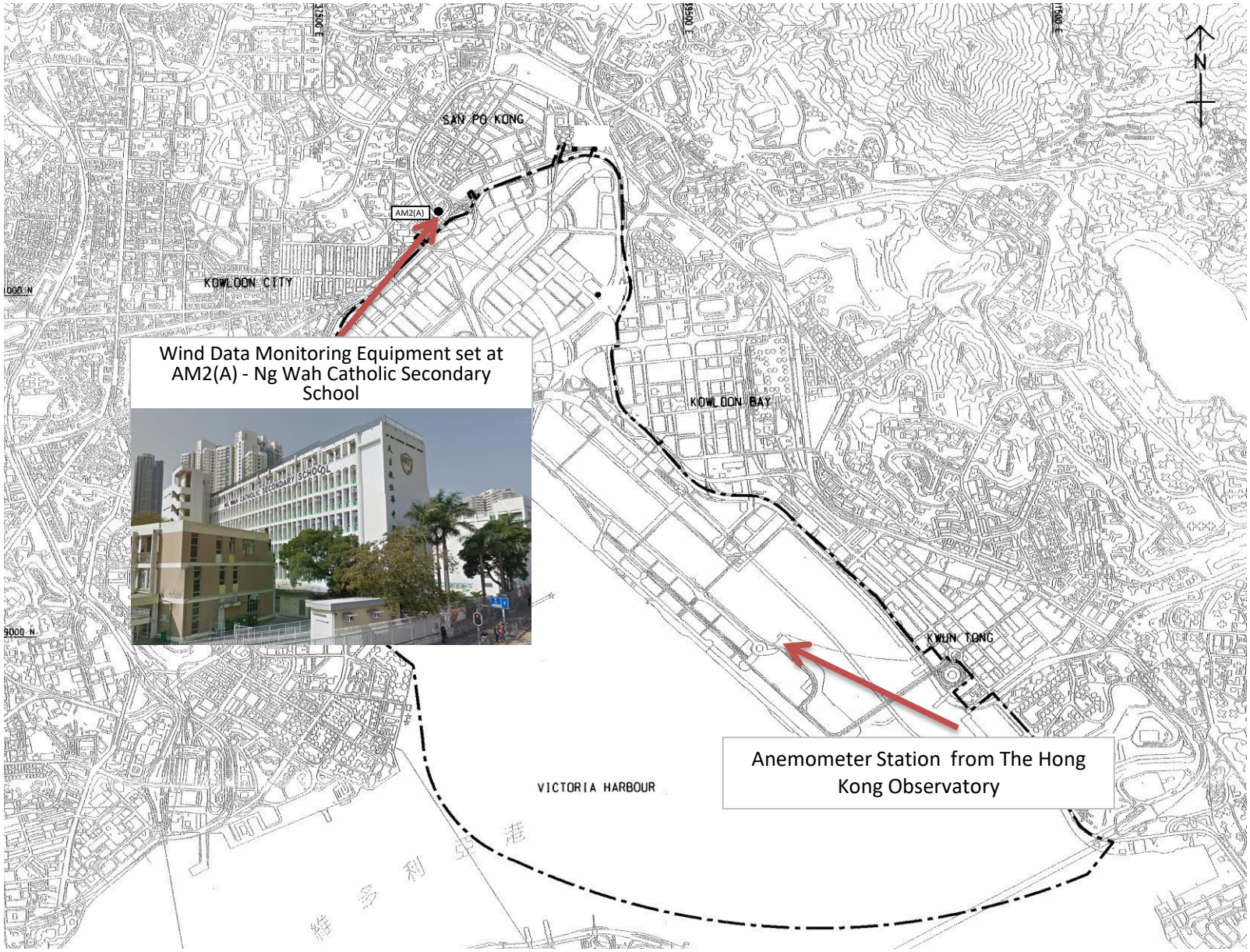
consulting . testing . research



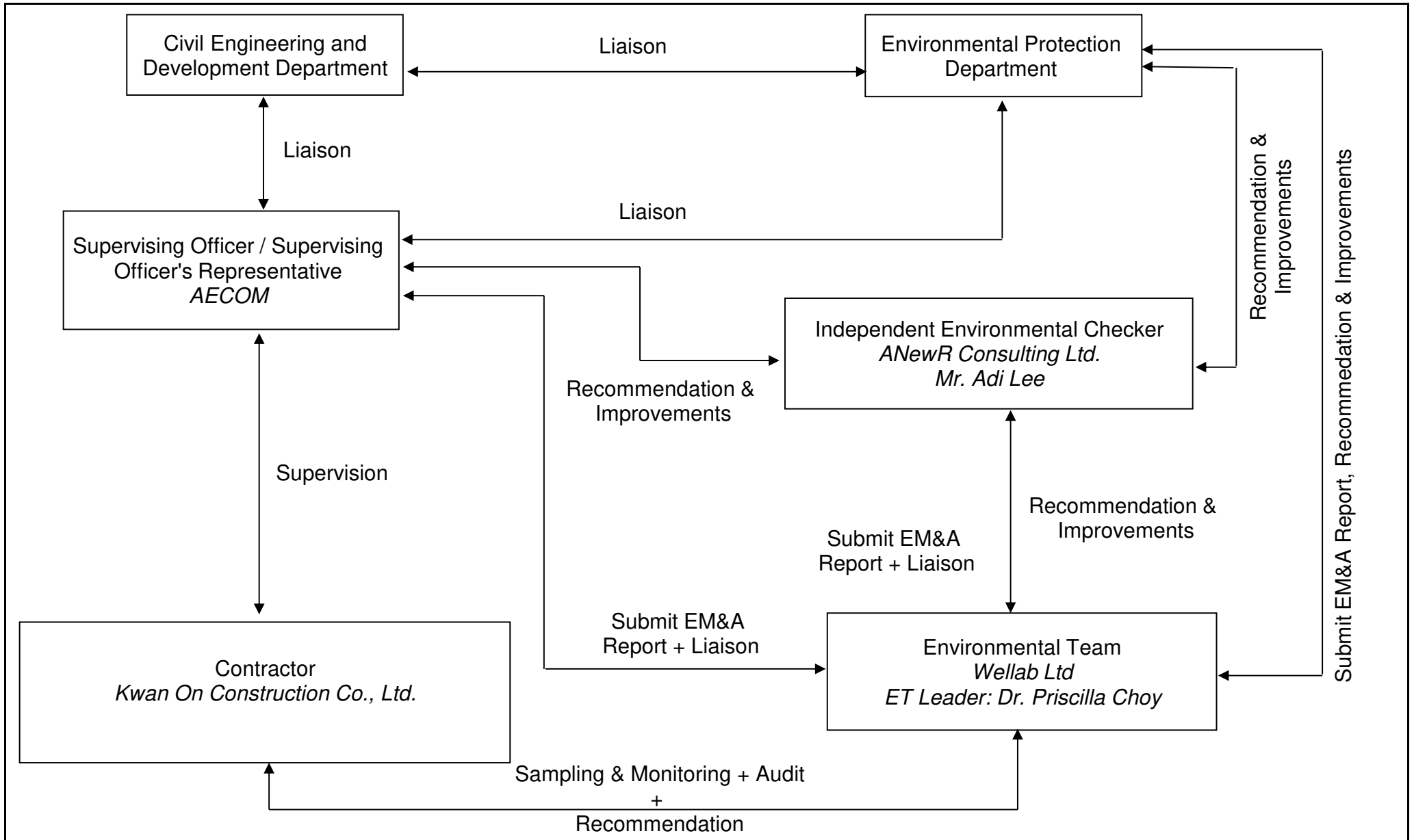
Title	Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Noise Monitoring Stations under this Project	Scale: N.T.S Date: Dec-16	Project No.: MA13056 Figure: 3

WELLAB 匯力
consulting . testing . research



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

WELLAB 匯力 consulting . testing . research



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

APPENDIX A
ACTION AND LIMIT LEVELS

Appendix A - Action and Limit Levels

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

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

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

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

Table A-3 Action and Limit Levels for Construction Noise

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

Remarks: If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed. *70dB(A) and 65dB(A) for schools during normal teaching periods and school examination periods, respectively.

APPENDIX B
COPIES OF CALIBRATION CERTIFCATES

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

TEST REPORT

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

Test Report No.:	30677B
Date of Issue:	2019-01-14
Date Received:	2019-01-11
Date Tested:	2019-01-11
Date Completed:	2019-01-14
Next Due Date:	2019-03-13
Page:	1 of 1

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

Certificate of Calibration

Item for Calibration:

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

Test Conditions:

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

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.211

****

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

PATRICK TSE
Laboratory Manager

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

TEST REPORT

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

Test Report No.:	30677C
Date of Issue:	2019-01-14
Date Received:	2019-01-11
Date Tested:	2019-01-11
Date Completed:	2019-01-14
Next Due Date:	2019-03-13
Page:	1 of 1

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

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23810
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-04

Test Conditions:

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

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.233

****

PREPARED AND CHECKED BY:
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Patrick Tse
PATRICK TSE
Laboratory Manager

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Technology Park, 18 On Lai Street,
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TEST REPORT

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

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

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

Certificate of Calibration

Item for Calibration:

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X24477
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-06

Test Conditions:

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

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.117

****

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

PATRICK TSE
Laboratory Manager

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

TEST REPORT

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

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

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

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Sound & Vibration Analyser
Manufacturer	: BSWA
Model No.	: BSWA 801
Serial No.	: 35924
Equipment No.	: N-13-01

Test conditions:

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

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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

PATRICK TSE
Laboratory Manager

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

TEST REPORT

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

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

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

Page: 1 of 1

Certificate of Calibration

Item for calibration:

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

Test conditions:

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

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
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Technology Park, 18 On Lai Street,
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TEST REPORT

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

Test Report No.:	29816
Date of Issue:	2018-09-29
Date Received:	2018-09-28
Date Tested:	2018-09-28
Date Completed:	2018-09-29
Next Due Date:	2019-09-28
Page:	1 of 1

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

Item for calibration:

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

Test conditions:

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

Methodology:

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

Results:

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

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

PATRICK TSE
Laboratory Manager

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. MA13056/13/0011

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

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

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

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

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

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.3	3.57	61.05	8.1	2.90
2	10.6	3.32	56.67	6.7	2.64
3	7.4	2.77	47.35	4.9	2.26
4	5.0	2.28	38.93	3.2	1.82
5	3.4	1.88	32.10	2.3	1.54

By Linear Regression of Y on X

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

Correlation coefficient* = 0.9988

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

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

Remarks:

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

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

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High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA13056/17/0003

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

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

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

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

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

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	11.8	3.50	59.81	7.9	2.86
2	9.9	3.21	54.79	6.6	2.62
3	8.2	2.92	49.86	5.2	2.32
4	5.6	2.41	41.21	3.6	1.93
5	3.2	1.82	31.15	2.2	1.51

By Linear Regression of Y on X

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

Correlation coefficient* = 0.9981

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

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

Remarks:

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

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

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. MA13056/62/0012

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

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

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

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

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

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	13.6	3.76	64.19	8.6	2.99
2	11.8	3.50	59.79	7.4	2.77
3	8.8	3.02	51.63	5.7	2.43
4	5.4	2.37	40.45	3.3	1.85
5	3.3	1.85	31.62	2.4	1.58

By Linear Regression of Y on X

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

Correlation coefficient* = **0.9973**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

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

Remarks:

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

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

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High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

File No. MA13056/59/0011

Station: AM5 - CCC Kei To Secondary School Operator: MH
Date: 11-Feb-19 Next Due Date: 10-Apr-19
Equipment No.: A-01-59 Serial No. 2354

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

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

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ **Y-axis**
1	12.3	3.57	61.07	8.0	2.88
2	10.9	3.36	57.49	6.9	2.68
3	7.9	2.86	48.95	5.4	2.37
4	5.4	2.37	40.47	3.6	1.93
5	3.5	1.91	32.58	2.2	1.51

By Linear Regression of Y on X

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

Correlation coefficient* = **0.9976**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

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

Remarks:

Conducted by: LEE MAN HEI Signature: Lei Date: 11/2/2019
Checked by: W.K. Tang Signature: Kwon Date: 11/2/2019

TISCH Environmental

RECALIBRATION DUE DATE:
February 13, 2019

Certificate of Calibration

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

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

Data Tabulation

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

Calculations

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

For subsequent flow rate calculations:

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

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

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

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

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

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

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Website: www.wellab.com.hk

TEST REPORT

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

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

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

Certificate of Calibration

Item for calibration:

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

Test conditions:

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

Test Specifications:

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

Methodology:

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

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

PATRICK TSE
Laboratory Manager

WELLAB LIMITED
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TEST REPORT

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

Results:

1. Performance check of anemometer

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

2. Performance check of wind direction sensor

Wind Direction (°)		Difference D (°)
Instrument Reading (W1)	Reference Value (W2)	D = W1 - W2
0	0	0
45	45	0
90	90	0
135.2	135	0.2
180.1	180	0.1
225.3	225	0.3
270	270	0
315.1	315	0.1
360	360	0

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

APPENDIX C
WEATHER INFORMATION

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
01-Feb-19	18.8	70	-
02-Feb-19	18.6	80	Trace
03-Feb-19	21.8	83	Trace
04-Feb-19	21.7	83	-
05-Feb-19	20.1	84	-
06-Feb-19	22.1	85	-
07-Feb-19	23.0	83	Trace
08-Feb-19	21.7	87	Trace
09-Feb-19	19.3	90	0.8
10-Feb-19	18.0	90	0.8
11-Feb-19	18.4	85	Trace
12-Feb-19	19.0	82	0.2
13-Feb-19	21.1	80	-
14-Feb-19	20.4	83	Trace
15-Feb-19	20.4	84	0.2
16-Feb-19	22.4	81	-
17-Feb-19	18.8	86	0.1
18-Feb-19	17.9	90	18.1
19-Feb-19	20.3	91	31

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
20-Feb-19	22.6	92	0.2
21-Feb-19	21.4	93	Trace
22-Feb-19	20.4	82	1.6
23-Feb-19	18.1	87	12.3
24-Feb-19	16.9	85	3.4
25-Feb-19	18.0	85	Trace
26-Feb-19	18.7	88	Trace
27-Feb-19	20.7	85	Trace
28-Feb-19	22.8	83	-

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

** Trace = rainfall less than 0.05 mm.

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

APPENDIX C –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

II. Mean Wind Speed and Wind Direction

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

II. Mean Wind Speed and Wind Direction

2-Feb-2019	12:00	1.8	ENE
2-Feb-2019	13:00	2.2	ENE
2-Feb-2019	14:00	2.7	ENE
2-Feb-2019	15:00	2.2	ENE
2-Feb-2019	16:00	2.2	ENE
2-Feb-2019	17:00	2.2	ENE
2-Feb-2019	18:00	3.6	ENE
2-Feb-2019	19:00	1.8	ENE
2-Feb-2019	20:00	1.8	ENE
2-Feb-2019	21:00	1.8	ENE
2-Feb-2019	22:00	1.3	ENE
2-Feb-2019	23:00	1.3	ENE
3-Feb-2019	00:00	1.3	ENE
3-Feb-2019	01:00	0.9	ENE
3-Feb-2019	02:00	1.3	ENE
3-Feb-2019	03:00	1.3	ENE
3-Feb-2019	04:00	0.9	ENE
3-Feb-2019	05:00	0.9	ENE
3-Feb-2019	06:00	0.4	SSE
3-Feb-2019	07:00	0.4	SSE
3-Feb-2019	08:00	0.4	NE
3-Feb-2019	09:00	0.4	ENE
3-Feb-2019	10:00	0.9	ENE
3-Feb-2019	11:00	0.9	ENE
3-Feb-2019	12:00	0.9	ENE
3-Feb-2019	13:00	1.8	ENE
3-Feb-2019	14:00	2.2	ENE
3-Feb-2019	15:00	2.2	ENE
3-Feb-2019	16:00	1.8	ENE
3-Feb-2019	17:00	2.2	ENE
3-Feb-2019	18:00	0.9	SE
3-Feb-2019	19:00	0.9	ENE
3-Feb-2019	20:00	0.9	ENE
3-Feb-2019	21:00	0.9	ENE
3-Feb-2019	22:00	0.4	ENE
3-Feb-2019	23:00	0.4	ENE
4-Feb-2019	00:00	0.4	E

II. Mean Wind Speed and Wind Direction

4-Feb-2019	01:00	0.4	E
4-Feb-2019	02:00	0.0	E
4-Feb-2019	03:00	0.0	---
4-Feb-2019	04:00	0.0	---
4-Feb-2019	05:00	0.0	---
4-Feb-2019	06:00	0.0	---
4-Feb-2019	07:00	0.0	---
4-Feb-2019	08:00	0.4	E
4-Feb-2019	09:00	0.9	ENE
4-Feb-2019	10:00	0.9	ENE
4-Feb-2019	11:00	0.9	ENE
4-Feb-2019	12:00	1.3	ENE
4-Feb-2019	13:00	2.7	ENE
4-Feb-2019	14:00	4.9	ENE
4-Feb-2019	15:00	4.0	ENE
4-Feb-2019	16:00	4.0	ENE
4-Feb-2019	17:00	2.2	ENE
4-Feb-2019	18:00	2.2	ENE
4-Feb-2019	19:00	1.8	NNE
4-Feb-2019	20:00	1.8	NNE
4-Feb-2019	21:00	1.8	NE
4-Feb-2019	22:00	1.8	NE
4-Feb-2019	23:00	1.3	NE
5-Feb-2019	00:00	1.3	NNE
5-Feb-2019	01:00	1.3	NNE
5-Feb-2019	02:00	0.9	NE
5-Feb-2019	03:00	0.4	SSW
5-Feb-2019	04:00	0.4	NNE
5-Feb-2019	05:00	0.9	NNE
5-Feb-2019	06:00	1.3	ENE
5-Feb-2019	07:00	1.8	ENE
5-Feb-2019	08:00	2.2	ENE
5-Feb-2019	09:00	1.3	ENE
5-Feb-2019	10:00	1.3	NE
5-Feb-2019	11:00	1.8	ENE
5-Feb-2019	12:00	1.8	NE
5-Feb-2019	13:00	1.3	NE

II. Mean Wind Speed and Wind Direction

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

II. Mean Wind Speed and Wind Direction

7-Feb-2019	03:00	0.4	NE
7-Feb-2019	04:00	0.0	NNE
7-Feb-2019	05:00	0.0	NNE
7-Feb-2019	06:00	0.4	SSE
7-Feb-2019	07:00	0.4	ESE
7-Feb-2019	08:00	0.4	SE
7-Feb-2019	09:00	0.9	ENE
7-Feb-2019	10:00	1.3	ENE
7-Feb-2019	11:00	2.7	ENE
7-Feb-2019	12:00	3.1	ENE
7-Feb-2019	13:00	4.0	ENE
7-Feb-2019	14:00	2.7	ENE
7-Feb-2019	15:00	2.7	ENE
7-Feb-2019	16:00	2.7	ENE
7-Feb-2019	17:00	2.2	ENE
7-Feb-2019	18:00	2.7	ENE
7-Feb-2019	19:00	1.8	ENE
7-Feb-2019	20:00	1.8	ENE
7-Feb-2019	21:00	1.3	ENE
7-Feb-2019	22:00	1.3	ENE
7-Feb-2019	23:00	1.3	ENE
8-Feb-2019	00:00	0.9	ENE
8-Feb-2019	01:00	0.4	ENE
8-Feb-2019	02:00	0.0	ENE
8-Feb-2019	03:00	0.4	ENE
8-Feb-2019	04:00	0.4	ENE
8-Feb-2019	05:00	0.0	ENE
8-Feb-2019	06:00	0.4	ENE
8-Feb-2019	07:00	0.4	ENE
8-Feb-2019	08:00	0.4	E
8-Feb-2019	09:00	0.9	ENE
8-Feb-2019	10:00	2.2	ENE
8-Feb-2019	11:00	2.7	ENE
8-Feb-2019	12:00	3.1	ENE
8-Feb-2019	13:00	1.3	NE
8-Feb-2019	14:00	1.3	NNE
8-Feb-2019	15:00	1.8	NE

II. Mean Wind Speed and Wind Direction

8-Feb-2019	16:00	1.3	NE
8-Feb-2019	17:00	1.3	NE
8-Feb-2019	18:00	1.8	NE
8-Feb-2019	19:00	1.3	NE
8-Feb-2019	20:00	1.3	ENE
8-Feb-2019	21:00	1.3	ENE
8-Feb-2019	22:00	1.8	ENE
8-Feb-2019	23:00	1.3	ENE
9-Feb-2019	00:00	1.3	NE
9-Feb-2019	01:00	1.3	ENE
9-Feb-2019	02:00	1.3	NNE
9-Feb-2019	03:00	1.3	ENE
9-Feb-2019	04:00	1.8	ENE
9-Feb-2019	05:00	1.3	ENE
9-Feb-2019	06:00	1.8	ENE
9-Feb-2019	07:00	1.8	ENE
9-Feb-2019	08:00	1.8	ENE
9-Feb-2019	09:00	1.8	ENE
9-Feb-2019	10:00	1.8	ENE
9-Feb-2019	11:00	1.3	ENE
9-Feb-2019	12:00	1.3	ENE
9-Feb-2019	13:00	1.8	ENE
9-Feb-2019	14:00	2.7	ENE
9-Feb-2019	15:00	2.2	ENE
9-Feb-2019	16:00	1.8	ENE
9-Feb-2019	17:00	1.8	ENE
9-Feb-2019	18:00	1.8	ENE
9-Feb-2019	19:00	1.3	ENE
9-Feb-2019	20:00	1.3	NE
9-Feb-2019	21:00	1.3	NE
9-Feb-2019	22:00	1.8	NNE
9-Feb-2019	23:00	1.3	ENE
10-Feb-2019	00:00	1.3	ENE
10-Feb-2019	01:00	1.8	ENE
10-Feb-2019	02:00	1.3	ENE
10-Feb-2019	03:00	0.9	ENE
10-Feb-2019	04:00	1.3	NNE

II. Mean Wind Speed and Wind Direction

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

II. Mean Wind Speed and Wind Direction

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

II. Mean Wind Speed and Wind Direction

13-Feb-2019	07:00	0.9	ENE
13-Feb-2019	08:00	0.4	ENE
13-Feb-2019	09:00	0.9	ENE
13-Feb-2019	10:00	1.3	ENE
13-Feb-2019	11:00	1.8	ENE
13-Feb-2019	12:00	1.3	ENE
13-Feb-2019	13:00	1.3	ENE
13-Feb-2019	14:00	1.3	ENE
13-Feb-2019	15:00	1.3	ENE
13-Feb-2019	16:00	3.1	ENE
13-Feb-2019	17:00	4.0	ENE
13-Feb-2019	18:00	2.7	ENE
13-Feb-2019	19:00	1.8	ENE
13-Feb-2019	20:00	0.9	NNE
13-Feb-2019	21:00	1.3	ENE
13-Feb-2019	22:00	0.9	ENE
13-Feb-2019	23:00	0.4	NNE
14-Feb-2019	00:00	0.0	ENE
14-Feb-2019	01:00	0.4	ENE
14-Feb-2019	02:00	0.4	NNE
14-Feb-2019	03:00	0.9	NNE
14-Feb-2019	04:00	0.9	ENE
14-Feb-2019	05:00	0.9	NNE
14-Feb-2019	06:00	1.3	ENE
14-Feb-2019	07:00	1.3	ENE
14-Feb-2019	08:00	0.9	ENE
14-Feb-2019	09:00	1.3	ENE
14-Feb-2019	10:00	1.3	NNE
14-Feb-2019	11:00	1.8	ENE
14-Feb-2019	12:00	1.8	ENE
14-Feb-2019	13:00	2.7	ENE
14-Feb-2019	14:00	3.1	ENE
14-Feb-2019	15:00	3.1	ENE
14-Feb-2019	16:00	2.2	ENE
14-Feb-2019	17:00	2.7	ENE
14-Feb-2019	18:00	2.7	ENE
14-Feb-2019	19:00	1.3	ENE

II. Mean Wind Speed and Wind Direction

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

II. Mean Wind Speed and Wind Direction

16-Feb-2019	09:00	0.4	SE
16-Feb-2019	10:00	0.9	ENE
16-Feb-2019	11:00	1.3	ENE
16-Feb-2019	12:00	3.1	ENE
16-Feb-2019	13:00	4.9	ENE
16-Feb-2019	14:00	4.9	ENE
16-Feb-2019	15:00	4.5	ENE
16-Feb-2019	16:00	4.5	ENE
16-Feb-2019	17:00	3.1	ENE
16-Feb-2019	18:00	1.3	ENE
16-Feb-2019	19:00	0.9	ENE
16-Feb-2019	20:00	0.9	E
16-Feb-2019	21:00	1.3	NE
16-Feb-2019	22:00	1.3	ENE
16-Feb-2019	23:00	1.3	NE
17-Feb-2019	00:00	1.3	NE
17-Feb-2019	01:00	1.3	NE
17-Feb-2019	02:00	1.8	NE
17-Feb-2019	03:00	1.8	NE
17-Feb-2019	04:00	1.3	ENE
17-Feb-2019	05:00	1.3	E
17-Feb-2019	06:00	1.3	NE
17-Feb-2019	07:00	1.8	NE
17-Feb-2019	08:00	1.3	ENE
17-Feb-2019	09:00	0.9	E
17-Feb-2019	10:00	1.3	ENE
17-Feb-2019	11:00	2.2	E
17-Feb-2019	12:00	2.2	E
17-Feb-2019	13:00	1.8	ENE
17-Feb-2019	14:00	1.8	NE
17-Feb-2019	15:00	1.8	NE
17-Feb-2019	16:00	1.8	NE
17-Feb-2019	17:00	1.3	NE
17-Feb-2019	18:00	1.8	E
17-Feb-2019	19:00	1.3	ENE
17-Feb-2019	20:00	1.3	NE
17-Feb-2019	21:00	1.3	E

II. Mean Wind Speed and Wind Direction

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

II. Mean Wind Speed and Wind Direction

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

II. Mean Wind Speed and Wind Direction

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

II. Mean Wind Speed and Wind Direction

22-Feb-2019	13:00	0.9	ENE
22-Feb-2019	14:00	2.7	E
22-Feb-2019	15:00	4.5	E
22-Feb-2019	16:00	4.0	E
22-Feb-2019	17:00	3.1	E
22-Feb-2019	18:00	2.7	E
22-Feb-2019	19:00	2.2	E
22-Feb-2019	20:00	2.7	E
22-Feb-2019	21:00	0.9	E
22-Feb-2019	22:00	0.4	NE
22-Feb-2019	23:00	0.9	SW
23-Feb-2019	00:00	0.4	SW
23-Feb-2019	01:00	0.4	WSW
23-Feb-2019	02:00	1.3	E
23-Feb-2019	03:00	1.3	NE
23-Feb-2019	04:00	1.8	NE
23-Feb-2019	05:00	1.3	NE
23-Feb-2019	06:00	1.3	NE
23-Feb-2019	07:00	1.8	ENE
23-Feb-2019	08:00	2.2	NE
23-Feb-2019	09:00	1.8	NE
23-Feb-2019	10:00	1.3	E
23-Feb-2019	11:00	2.2	E
23-Feb-2019	12:00	2.2	E
23-Feb-2019	13:00	1.8	E
23-Feb-2019	14:00	1.8	E
23-Feb-2019	15:00	1.8	NE
23-Feb-2019	16:00	1.8	NE
23-Feb-2019	17:00	0.9	WSW
23-Feb-2019	18:00	0.4	ENE
23-Feb-2019	19:00	0.9	S
23-Feb-2019	20:00	1.3	SSW
23-Feb-2019	21:00	0.9	SSW
23-Feb-2019	22:00	1.3	SW
23-Feb-2019	23:00	1.3	SSW
24-Feb-2019	00:00	1.3	WSW
24-Feb-2019	01:00	0.9	SSW

II. Mean Wind Speed and Wind Direction

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

II. Mean Wind Speed and Wind Direction

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

II. Mean Wind Speed and Wind Direction

27-Feb-2019	04:00	0.9	E
27-Feb-2019	05:00	1.8	E
27-Feb-2019	06:00	1.8	E
27-Feb-2019	07:00	1.8	E
27-Feb-2019	08:00	1.8	E
27-Feb-2019	09:00	2.7	E
27-Feb-2019	10:00	1.8	E
27-Feb-2019	11:00	1.8	E
27-Feb-2019	12:00	1.8	E
27-Feb-2019	13:00	1.3	NE
27-Feb-2019	14:00	1.3	NE
27-Feb-2019	15:00	1.3	NE
27-Feb-2019	16:00	1.3	NE
27-Feb-2019	17:00	1.3	E
27-Feb-2019	18:00	2.2	E
27-Feb-2019	19:00	1.3	E
27-Feb-2019	20:00	1.3	E
27-Feb-2019	21:00	0.9	E
27-Feb-2019	22:00	0.9	E
27-Feb-2019	23:00	0.4	S
28-Feb-2019	00:00	1.3	E
28-Feb-2019	01:00	1.3	E
28-Feb-2019	02:00	0.9	E
28-Feb-2019	03:00	0.4	ESE
28-Feb-2019	04:00	0.9	E
28-Feb-2019	05:00	0.9	E
28-Feb-2019	06:00	0.0	NE
28-Feb-2019	07:00	0.9	E
28-Feb-2019	08:00	0.4	SSW
28-Feb-2019	09:00	0.9	SE
28-Feb-2019	10:00	1.3	E
28-Feb-2019	11:00	1.3	E
28-Feb-2019	12:00	2.2	E
28-Feb-2019	13:00	2.2	E
28-Feb-2019	14:00	2.7	E
28-Feb-2019	15:00	3.1	E
28-Feb-2019	16:00	4.0	E

II. Mean Wind Speed and Wind Direction

28-Feb-2019	17:00	3.6	E
28-Feb-2019	18:00	3.6	E
28-Feb-2019	19:00	2.7	E
28-Feb-2019	20:00	1.8	E
28-Feb-2019	21:00	0.9	E
28-Feb-2019	22:00	0.4	NE
28-Feb-2019	23:00	0.4	NE

APPENDIX D
ENVIRONMENTAL MONITORING SCHEDULES

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area
Tentative Impact Air and Noise Monitoring Schedule for February 2019

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

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

As informed by Contractor, no construction works will be carried out during 4 Feb to 9 Feb 2019. The environmental monitoring works will be ceased within the period as no major dust and noise impacts would be anticipated due to the captioned Contract.

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

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

Contract No. KL/2012/03
Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area
Tentative Impact Air and Noise Monitoring Schedule for March 2019

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

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

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

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

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results

Location AM2 - Lee Kau Yan Memorial School			
Date	Time	Weather	Particulate Concentration (µg/m3)
11-Feb-19	9:00	Sunny	88.2
11-Feb-19	10:00	Sunny	89.1
11-Feb-19	11:00	Sunny	95.7
16-Feb-19	13:00	Cloudy	133.7
16-Feb-19	14:00	Cloudy	147.3
16-Feb-19	15:00	Cloudy	132.6
22-Feb-19	13:00	Sunny	73.1
22-Feb-19	14:00	Sunny	88.2
22-Feb-19	15:00	Sunny	93.6
28-Feb-19	13:00	Sunny	123.9
28-Feb-19	14:00	Sunny	169.6
28-Feb-19	15:00	Sunny	156.3
		Average	115.9
		Maximum	169.6
		Minimum	73.1

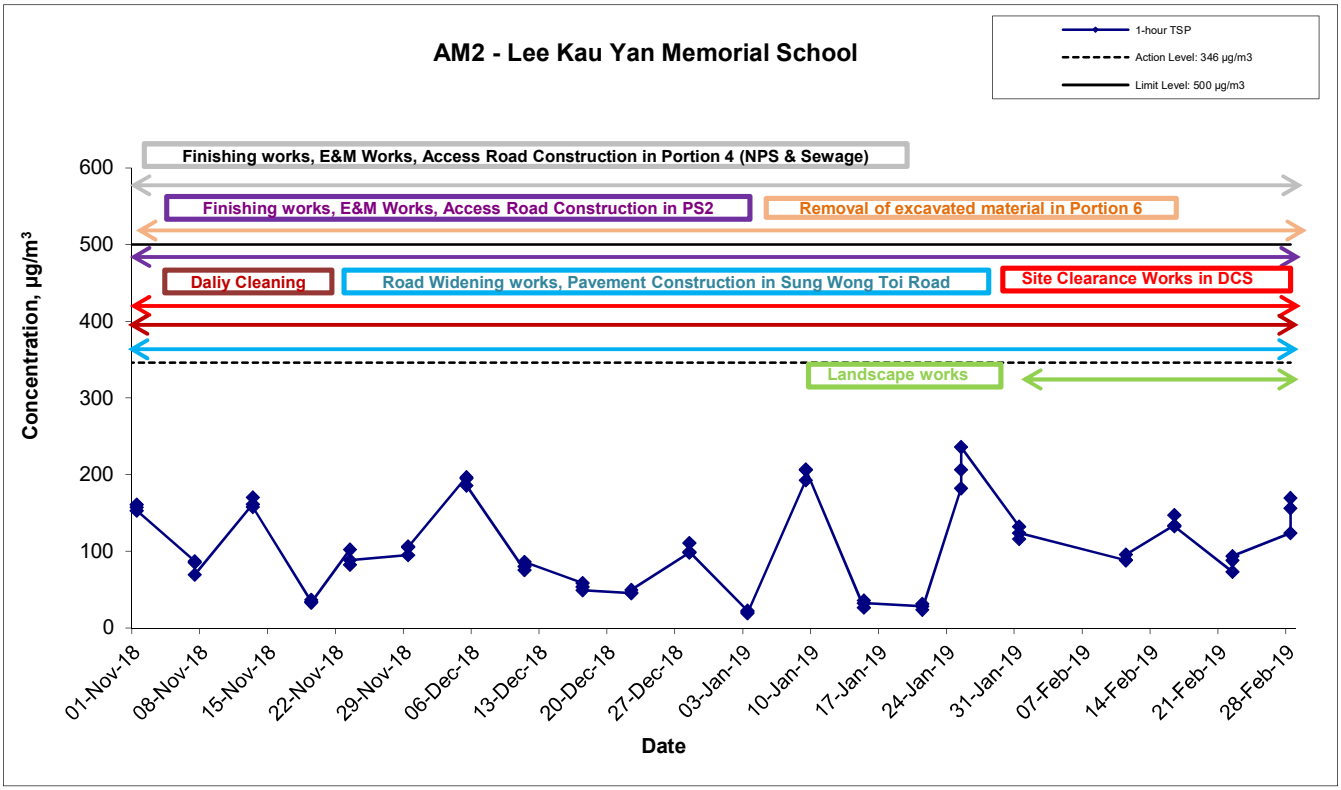
Location AM3(A) - Holy Trinity Bradury Centre			
Date	Time	Weather	Particulate Concentration (µg/m3)
11-Feb-19	13:00	Sunny	76.9
11-Feb-19	14:00	Sunny	97.8
11-Feb-19	15:00	Sunny	84.5
16-Feb-19	9:00	Cloudy	79.0
16-Feb-19	10:00	Cloudy	87.6
16-Feb-19	11:00	Cloudy	61.0
22-Feb-19	9:00	Sunny	59.9
22-Feb-19	10:00	Sunny	63.8
22-Feb-19	11:00	Sunny	58.9
28-Feb-19	9:00	Sunny	199.3
28-Feb-19	10:00	Sunny	146.7
28-Feb-19	11:00	Sunny	117.3
		Average	94.4
		Maximum	199.3
		Minimum	58.9

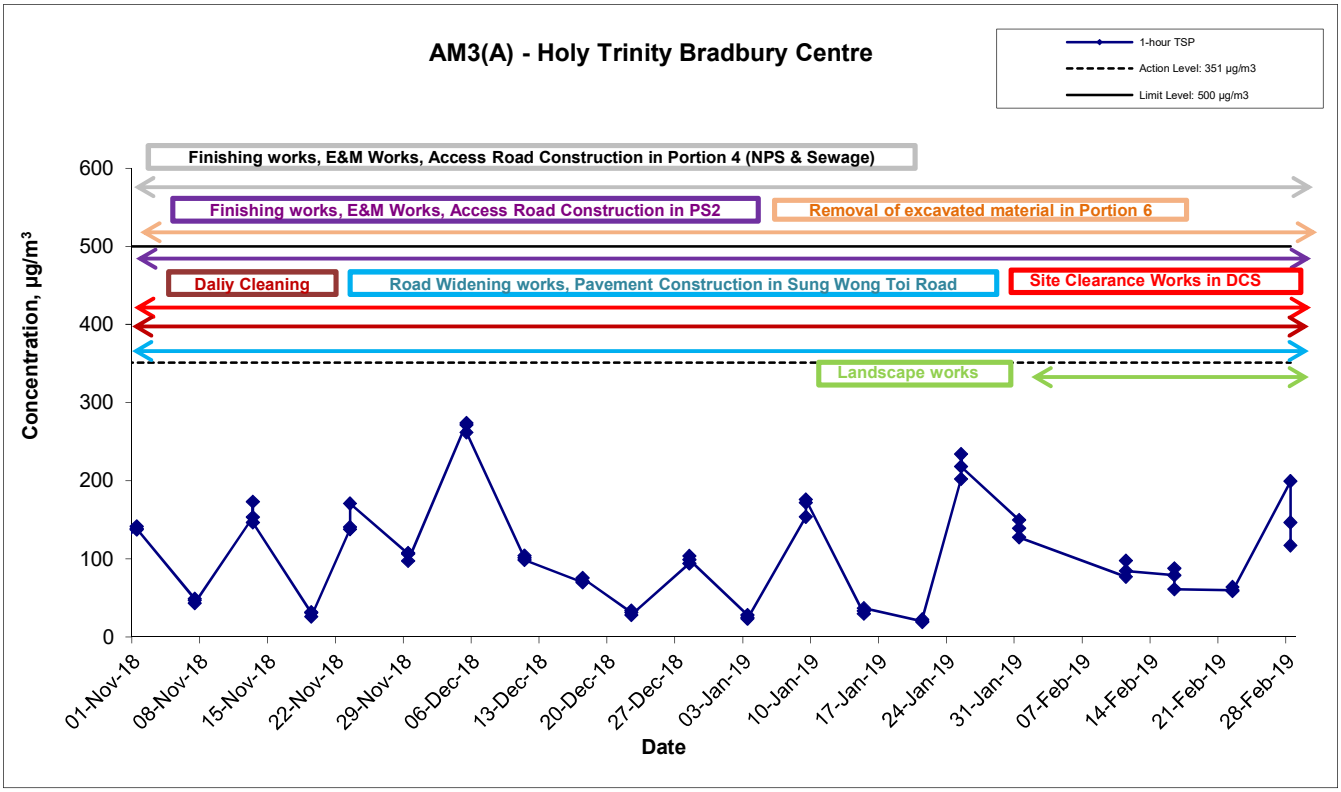
Appendix E - 1-hour TSP Monitoring Results

Location AM4(C) - New Pumping Station			
Date	Time	Weather	Particulate Concentration (μg/m3)
1-Feb-19	9:00	Cloudy	149.4
1-Feb-19	10:00	Cloudy	132.6
1-Feb-19	11:00	Cloudy	122.3
11-Feb-19	13:00	Cloudy	100.6
11-Feb-19	14:00	Cloudy	114.8
11-Feb-19	15:00	Cloudy	111.3
15-Feb-19	9:00	Cloudy	111.9
15-Feb-19	10:00	Cloudy	116.9
15-Feb-19	11:00	Cloudy	105.7
21-Feb-19	9:00	Cloudy	142.5
21-Feb-19	10:00	Cloudy	138.7
21-Feb-19	11:00	Cloudy	123.0
27-Feb-19	9:00	Sunny	151.9
27-Feb-19	10:00	Sunny	133.7
27-Feb-19	11:00	Sunny	132.6
		Average	125.9
		Maximum	151.9
		Minimum	100.6

Location AM5 - CCC Kei To Secondary School			
Date	Time	Weather	Particulate Concentration (μg/m3)
1-Feb-19	13:00	Cloudy	107.1
1-Feb-19	14:00	Cloudy	109.6
1-Feb-19	15:00	Cloudy	95.4
11-Feb-19	9:00	Cloudy	138.7
11-Feb-19	10:00	Cloudy	130.9
11-Feb-19	11:00	Cloudy	148.0
15-Feb-19	13:00	Cloudy	93.7
15-Feb-19	14:00	Cloudy	84.2
15-Feb-19	15:00	Cloudy	97.4
21-Feb-19	13:00	Cloudy	133.5
21-Feb-19	14:00	Cloudy	126.5
21-Feb-19	15:00	Cloudy	110.0
27-Feb-19	13:00	Sunny	91.3
27-Feb-19	14:00	Sunny	93.5
27-Feb-19	15:00	Sunny	110.6
		Average	111.4
		Maximum	148.0
		Minimum	84.2

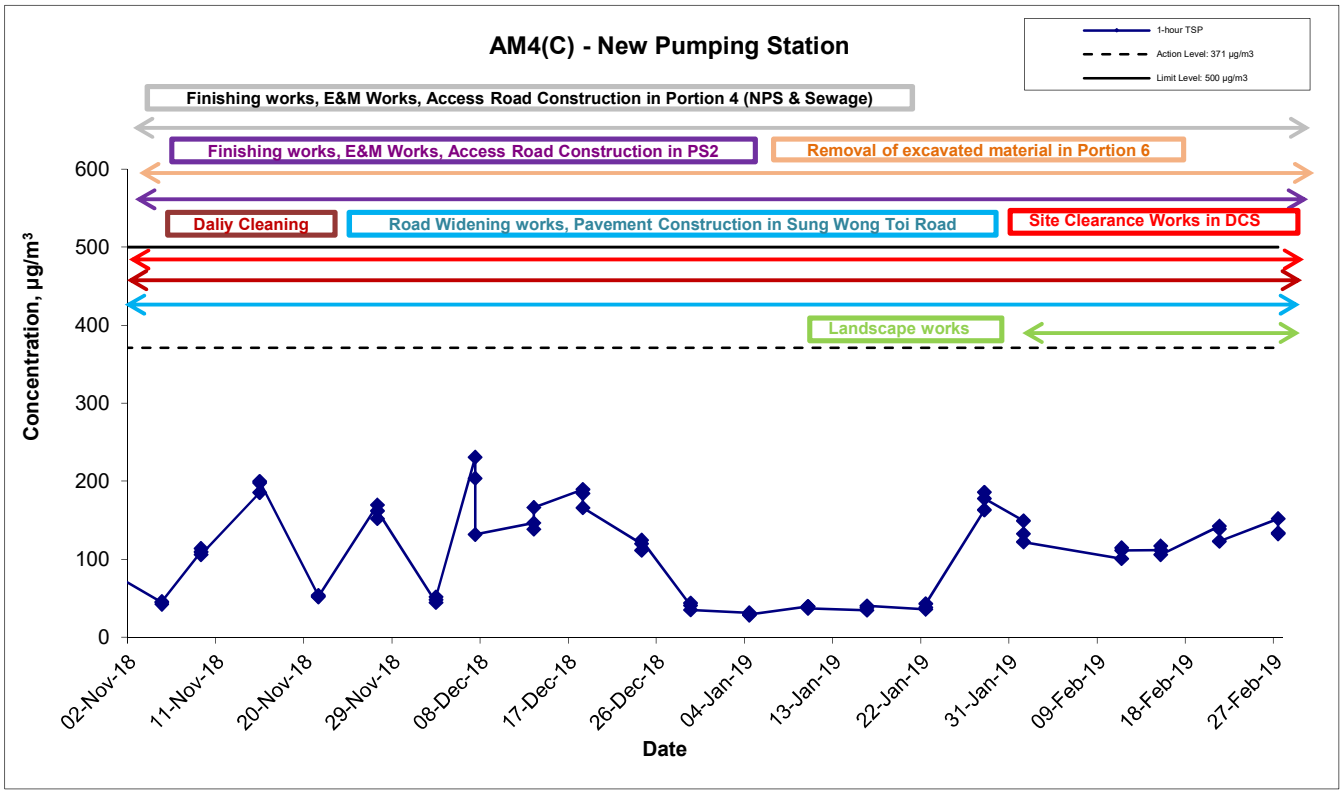
1-hr TSP Concentration Levels

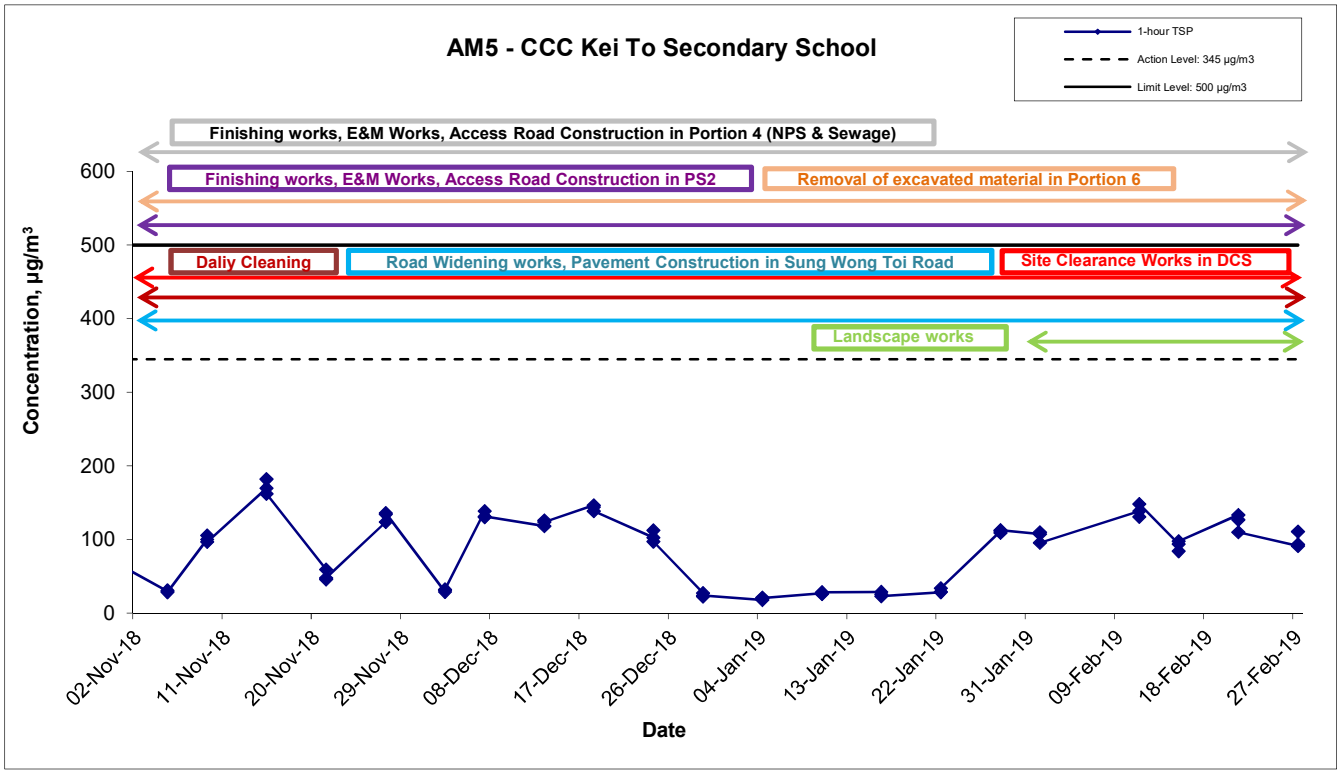




Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA13056	WELLAB 匯力 consulting . testing . research
	Date: Feb 19	Appendix: E	

1-hr TSP Concentration Levels





Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 1-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA13056	WELLAB 匯力 consulting . testing . research
	Date: Feb 19	Appendix: E	

APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - 24-hour TSP Monitoring Results

Location AM2(A) - Ng Wah Catholic Secondary School

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
11-Feb-19	Cloudy	291.8	772.2	2.9744	3.0507	0.0763	3662.4	3686.4	24.0	1.22	1.22	1.22	1755.3	43.5
15-Feb-19	Cloudy	292.5	769.0	2.9946	3.1033	0.1087	3710.4	3734.4	24.0	1.22	1.21	1.21	1749.5	62.1
21-Feb-19	Sunny	295.5	764.4	2.9862	3.0529	0.0667	3734.4	3758.4	24.0	1.21	1.20	1.20	1735.1	38.4
27-Feb-19	Sunny	295.5	762.3	2.9820	3.0811	0.0991	3806.4	3830.4	24.0	1.20	1.20	1.20	1732.6	57.2
													Min	38.4
													Max	62.1
													Average	50.3

Location AM3(B) - Hong Kong Family Planning Association

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
11-Feb-19	Cloudy	292.1	773.3	2.9716	3.0720	0.1004	1773.1	1797.1	24.0	1.22	1.21	1.21	1749.2	57.4
15-Feb-19	Cloudy	294.9	768.3	2.9854	3.0934	0.1080	1797.1	1821.1	24.0	1.21	1.20	1.21	1735.2	62.2
21-Feb-19	Sunny	295.0	766.7	2.9686	3.1252	0.1566	1821.1	1845.1	24.0	1.20	1.20	1.20	1733.1	90.4
27-Feb-19	Cloudy	294.6	765.1	2.9722	3.0637	0.0915	1869.1	1893.1	24.0	1.20	1.20	1.20	1732.5	52.8
													Min	52.8
													Max	90.4
													Average	65.7

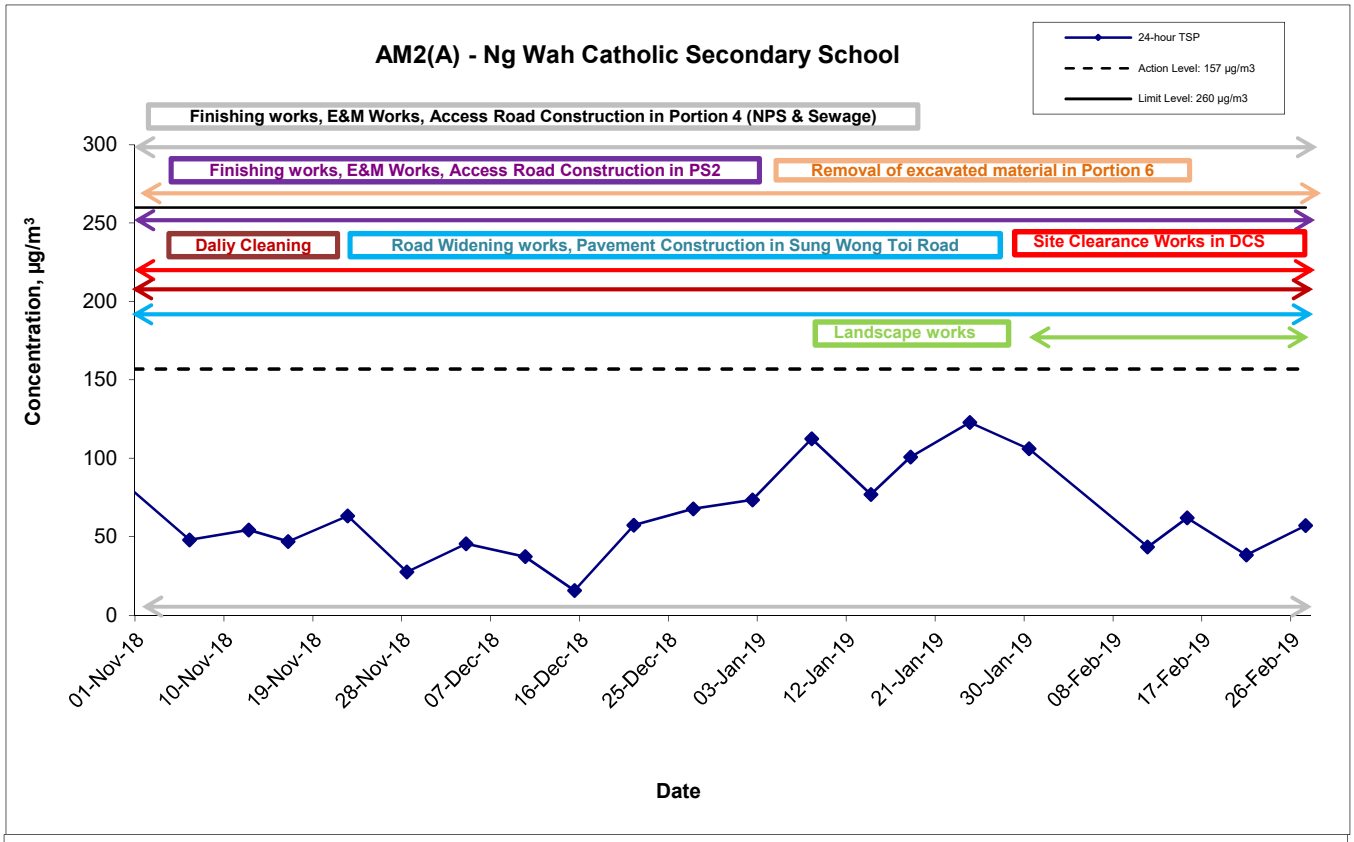
Location AM4(C) - New Pumping Station under Contract KL/2012/03

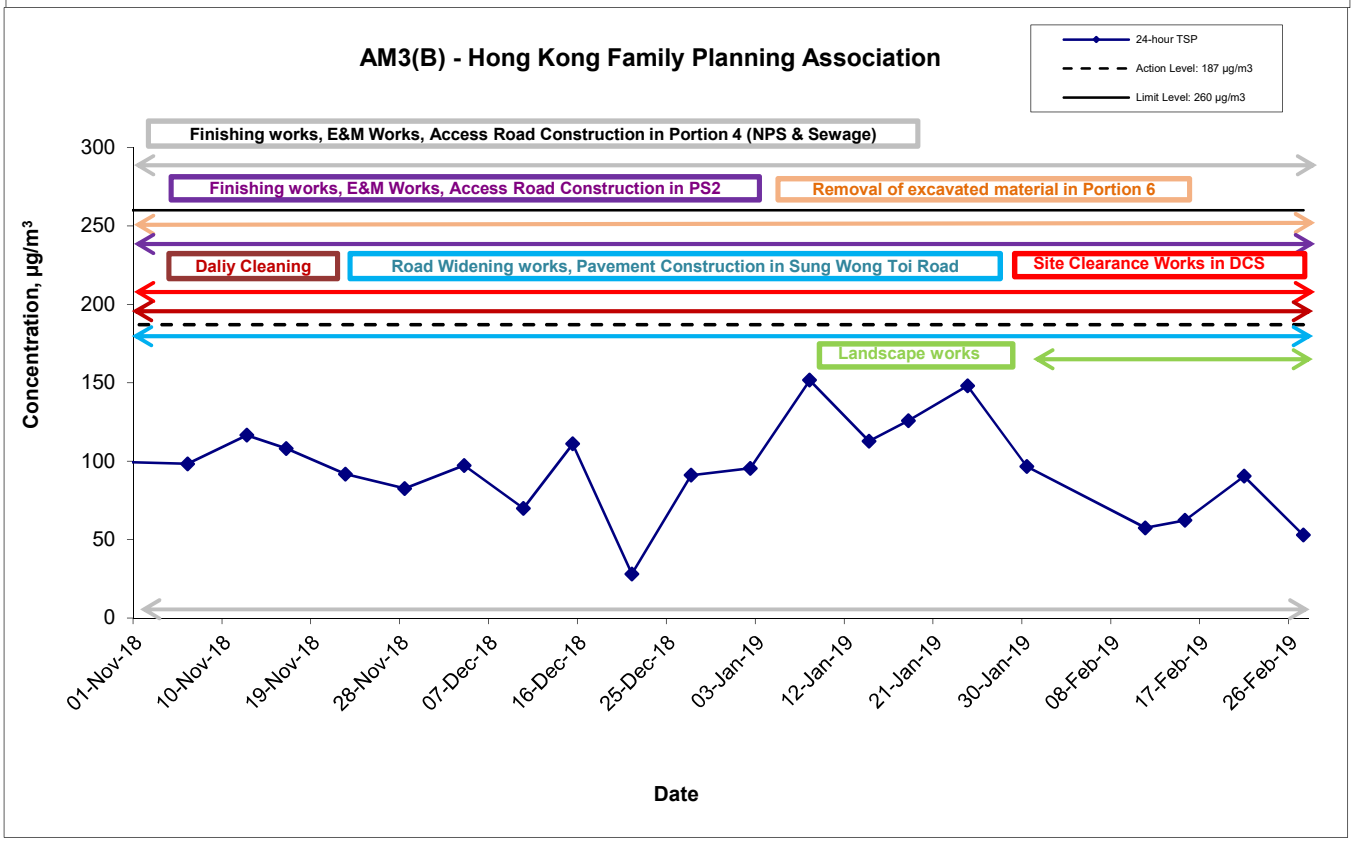
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
11-Feb-19	Cloudy	291.6	772.7	3.3522	3.4250	0.0728	2153.1	2177.1	24.0	1.22	1.22	1.22	1757.7	41.4
15-Feb-19	Cloudy	294.5	768.4	2.9723	2.9972	0.0249	2177.1	2201.1	24.0	1.21	1.21	1.21	1743.2	14.3
21-Feb-19	Cloudy	294.9	766.3	2.9897	3.0504	0.0607	2201.1	2225.1	24.0	1.21	1.21	1.21	1739.4	34.9
27-Feb-19	Cloudy	292.8	765.2	2.9948	3.0917	0.0969	2225.1	2249.1	24.0	1.21	1.21	1.21	1744.8	55.5
													Min	14.3
													Max	55.5
													Average	36.5

Location AM5 - CCC Kei To Secondary School

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. ($\mu g/m^3$)
				Initial	Final		Initial	Final		Initial	Final			
11-Feb-19	Cloudy	292.3	772.8	2.9755	3.0250	0.0495	2282.0	2306.0	24.0	1.22	1.22	1.22	1753.6	28.2
15-Feb-19	Sunny	294.6	768.1	2.9779	3.0282	0.0503	2306.0	2330.0	24.0	1.21	1.21	1.21	1741.3	28.9
21-Feb-19	Cloudy	295.3	766.4	2.9832	3.0452	0.0620	2330.0	2354.0	24.0	1.21	1.21	1.21	1737.3	35.7
27-Feb-19	Cloudy	296.2	762.7	2.9762	3.0354	0.0592	2354.0	2378.0	24.0	1.20	1.20	1.20	1730.5	34.2
													Min	28.2
													Max	35.7
													Average	31.8

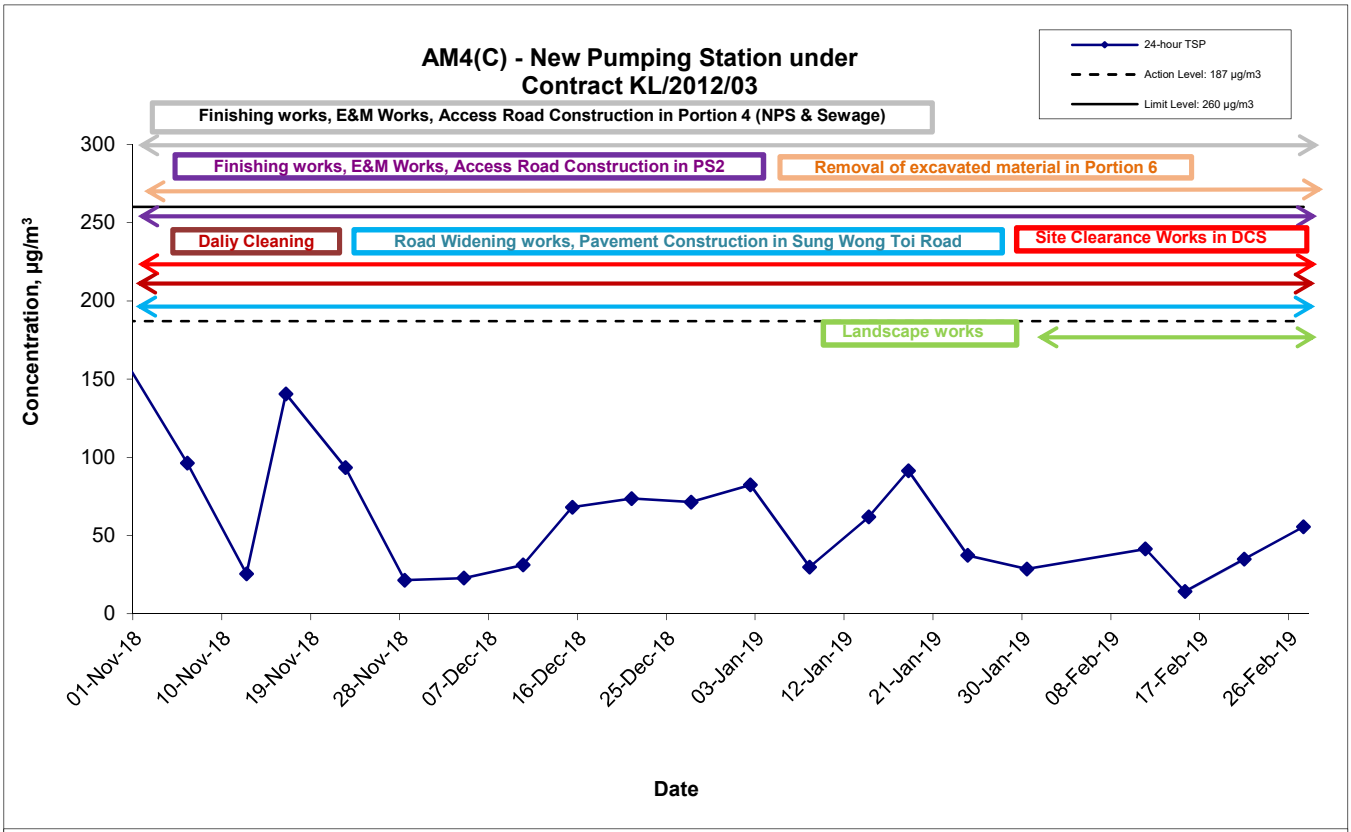
24-hr TSP Concentration Levels

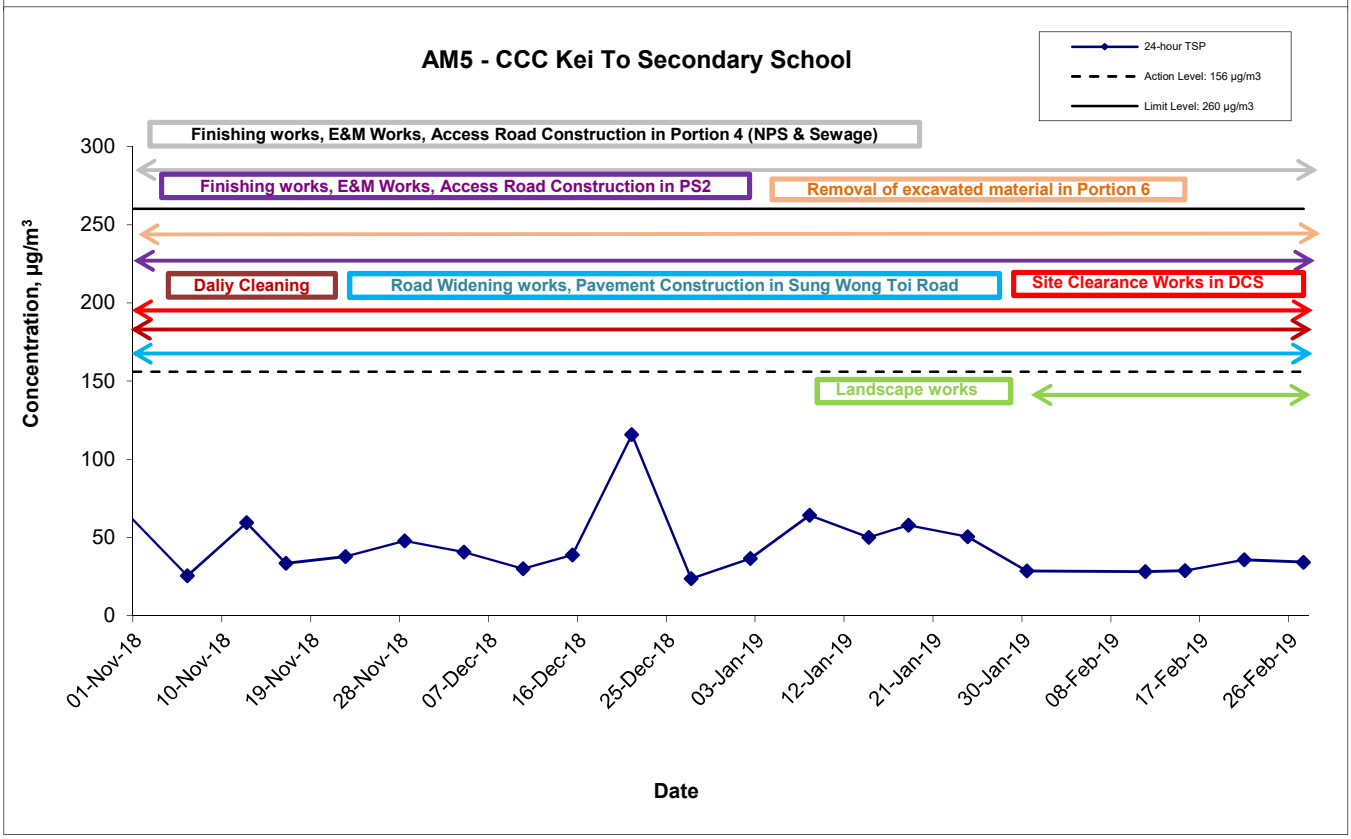




Title: Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S Date: Feb 19	Project No.: MA13056 Appendix: F	WELLAB 匯力 consulting . testing . research

24-hr TSP Concentration Levels





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

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix G - Noise Monitoring Results

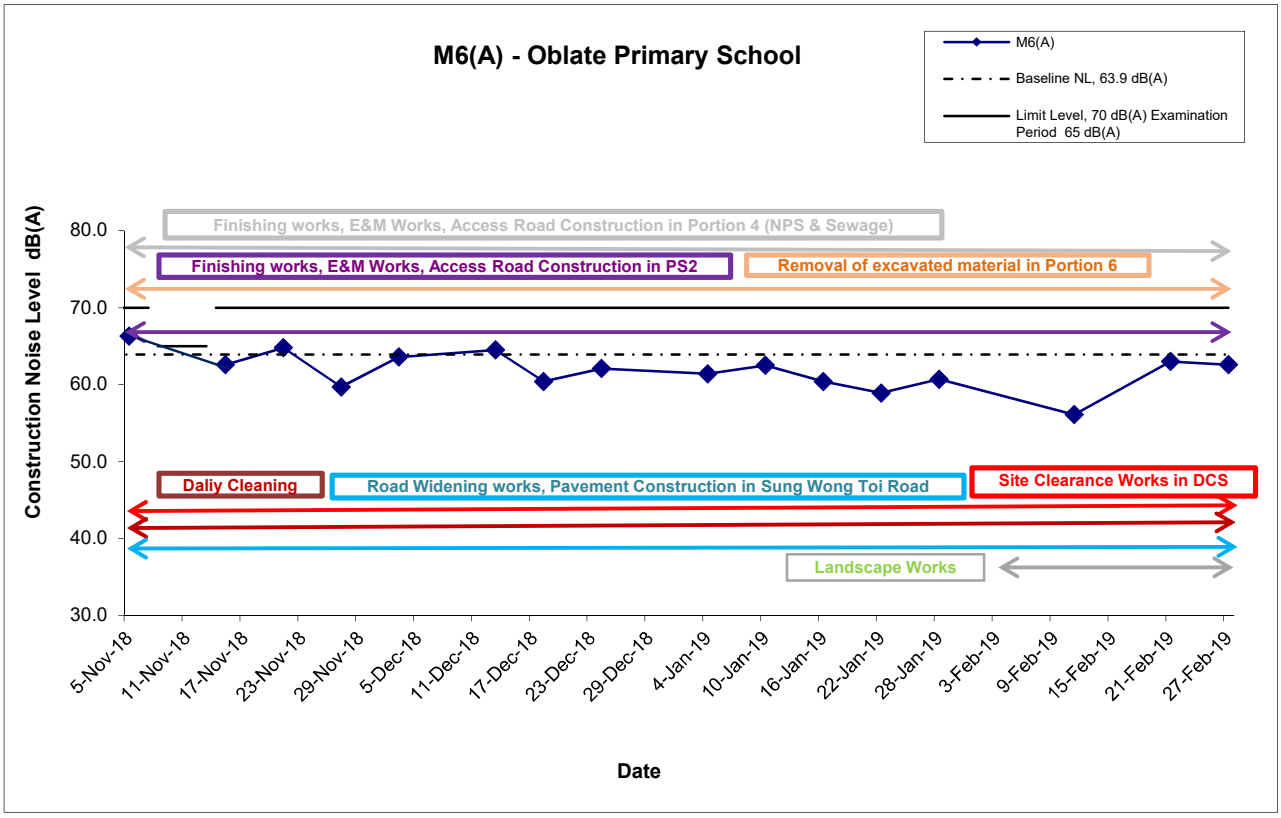
Location M6(A) - Oblate Primary School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
11-Feb-19	11:05	Cloudy	56.1	58.1	53.6	63.9	56.1 Measured ≦ Baseline
21-Feb-19	14:00	Cloudy	66.5	69.4	61.2		63.0
27-Feb-19	14:00	Sunny	62.6	65.3	58.7		62.6 Measured ≦ Baseline

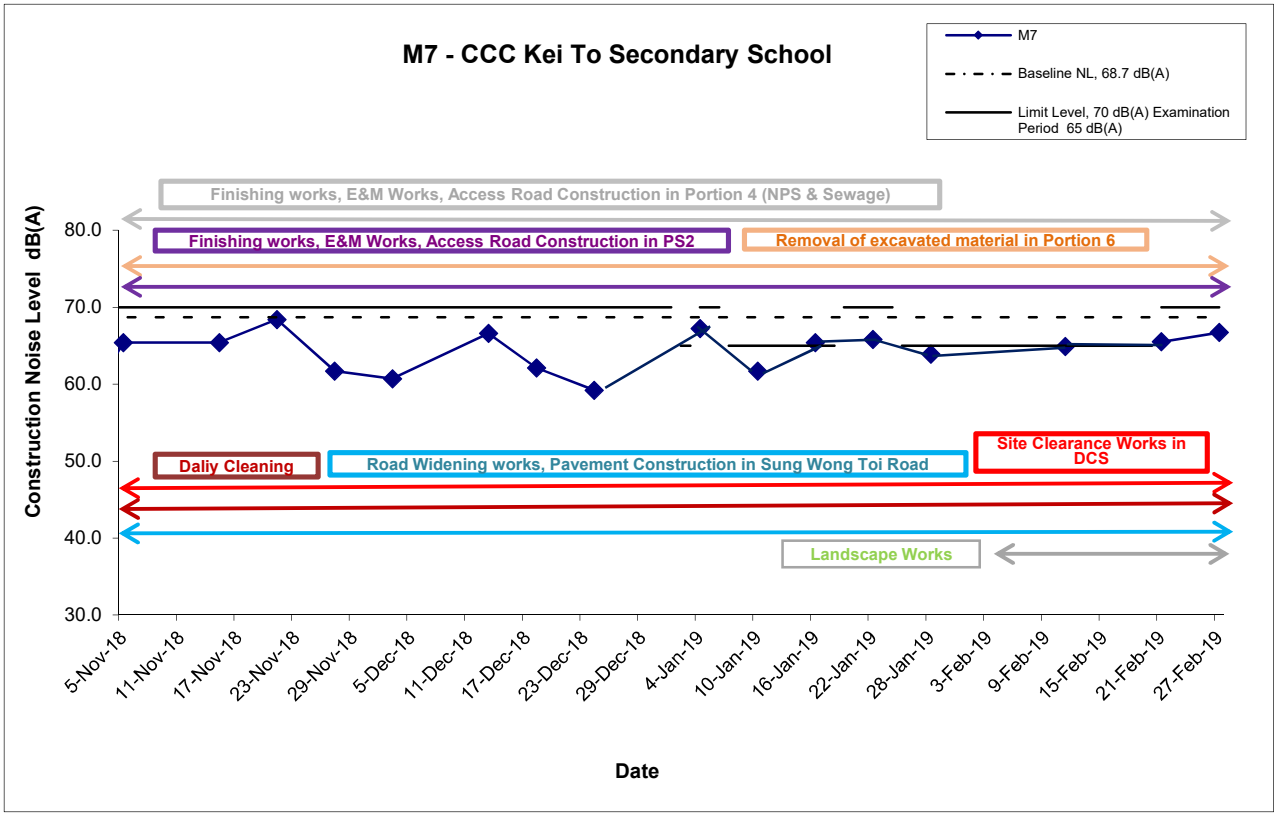
Location M7 - CCC Kei To Secondary School							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
11-Feb-19	9:30	Cloudy	64.9	70.0	56.2	68.7	64.9 Measured ≦ Baseline
21-Feb-19	13:05	Cloudy	65.5	69.1	58.1		65.5 Measured ≦ Baseline
27-Feb-19	13:05	Sunny	66.7	70.2	60.9		66.7 Measured ≦ Baseline

Location M8(A) - Po Leung Kuk Ngan Po Ling College							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
11-Feb-19	10:20	Cloudy	65.5	67.9	59.2	61.9	63.0
21-Feb-19	15:00	Cloudy	66.4	70.2	64.5		64.5
27-Feb-19	14:50	Sunny	69.1	72.5	64.3		68.2

Location M9 - Tak Long Estate							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
11-Feb-19	13:10	Cloudy	57.9	60.3	54.7	59.9	57.9 Measured ≦ Baseline
21-Feb-19	10:30	Cloudy	64.3	66.7	60.2		62.3
27-Feb-19	16:30	Sunny	72.2	75.4	68.3		71.9

Noise Levels

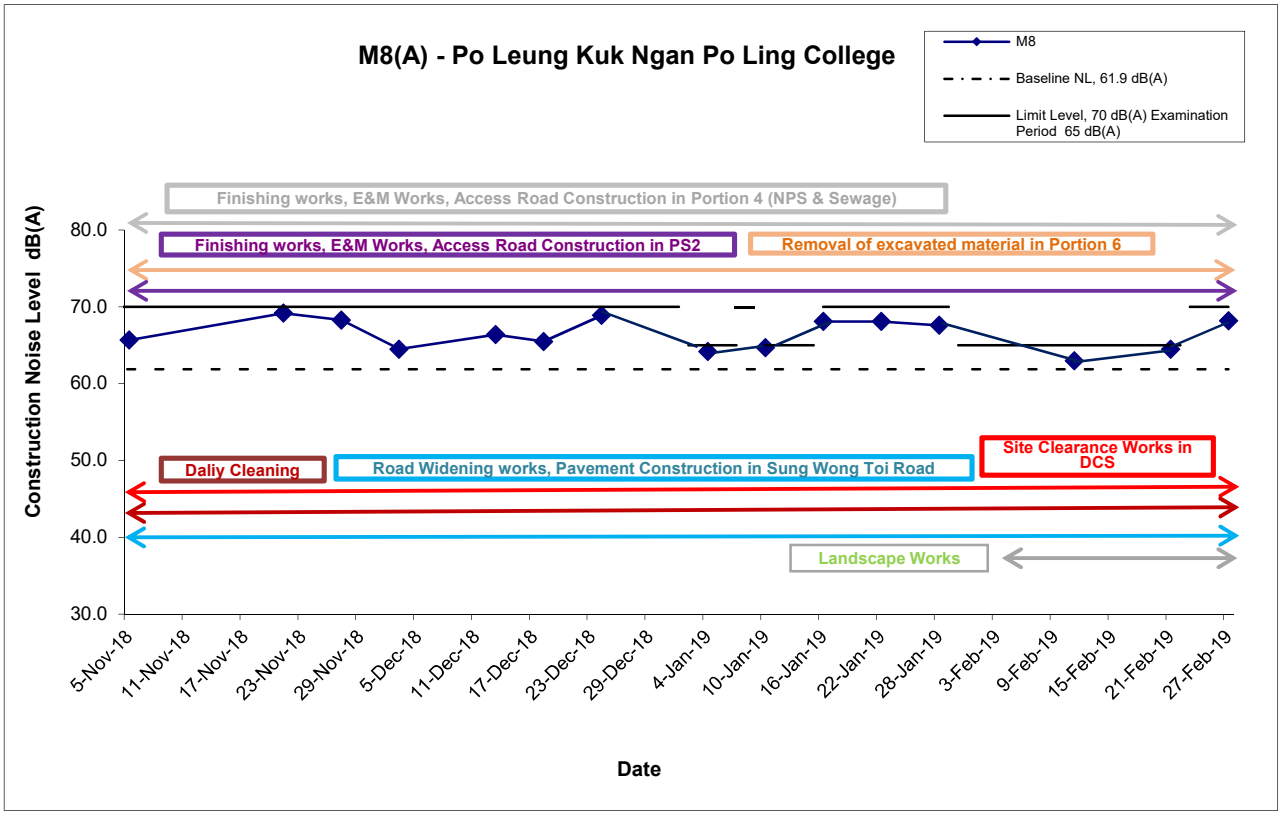


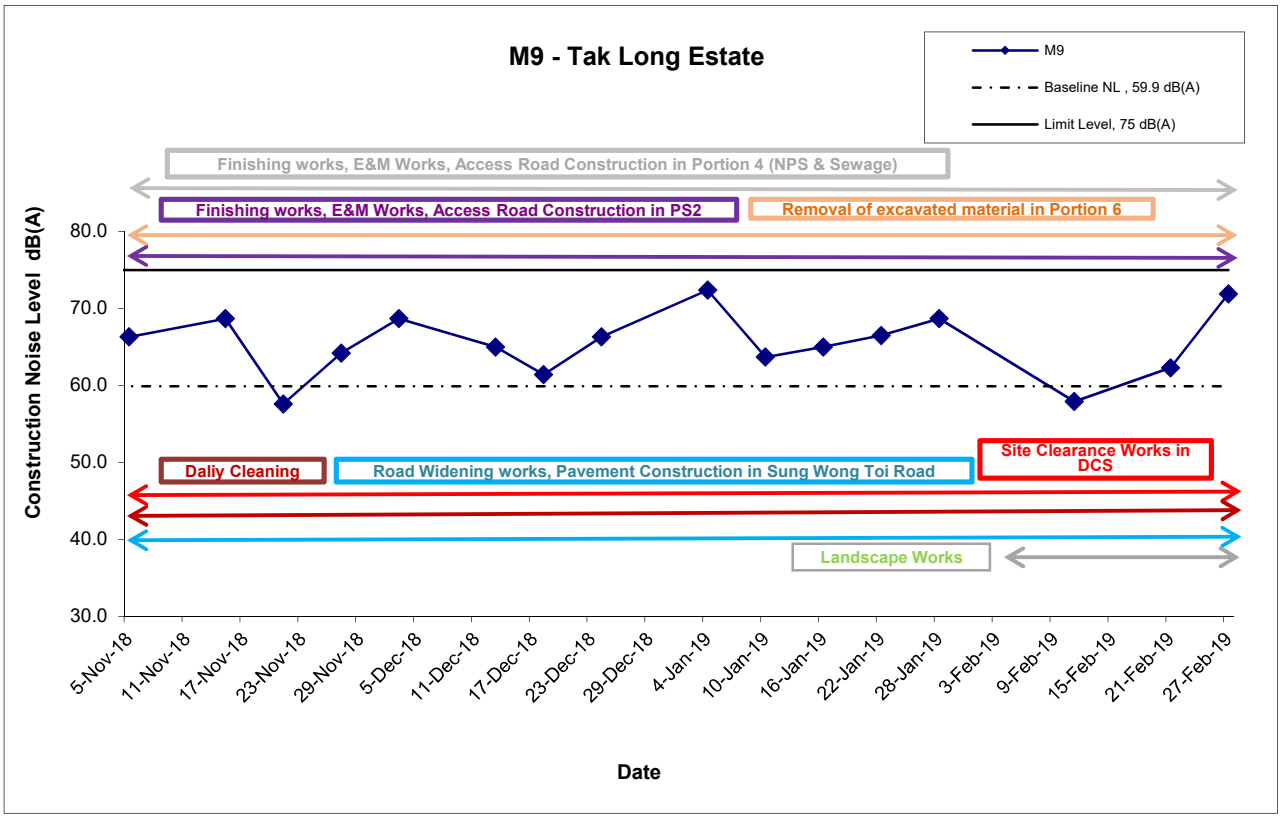


Remarks: The construction noise levels in the Tables in Appendix G were adopted for plotting the graphs

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

Noise Levels





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

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

APPENDIX H
SUMMARY OF EXCEEDANCE

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

Appendix H – Summary of Exceedance

Exceedance Report for Contract No. KL/2012/03

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

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

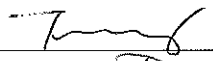
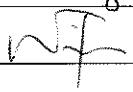
(C) Exceedance Report for Landscape and Visual
(NIL in the reporting month)

APPENDIX I
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190208
Date	8 February 2019
Time	10:00-12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 190131), no environmental deficiency was observed during site inspection.	

	Name	Signature	Date
Recorded by	Tommy Cheng		11 February 2019
Checked by	Dr. Priscilla Choy		11 February 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190215
Date	15 February 2019
Time	10:00-11:30

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

	Name	Signature	Date
Recorded by	Eric Chan		18 February 2019
Checked by	Dr. Priscilla Choy		18 February 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190220
Date	20 February 2019
Time	14:00-15:45

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

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

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190208
Date	8 February 2019
Time	10:00-12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	**Remarks/Observations**	**Related Item No.**
	B. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	D. Noise	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Visual and Landscape	
	• No environmental deficiency was identified during site inspection.	
	G. Permits /Licences	
	• No environmental deficiency was identified during site inspection.	
	H. Others	
	• Follow-up on previous audit session (Ref. No.: 190131), all environmental deficiencies were observed to be rectified/improved by contractor.	

	Name	Signature	Date
Recorded by	Tommy Cheng		2 February 2019
Checked by	Dr. Priscilla Choy		2 February 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190215
Date	15 February 2019
Time	10:00-11:30

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

	Name	Signature	Date
Recorded by	Eric Chan		18 February 2019
Checked by	Dr. Priscilla Choy		18 February 2019

Weekly Site Inspection Record Summary
Inspection Information

Checklist Reference Number	190220
Date	20 February 2019
Time	14:00-15:45

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

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

APPENDIX J
EVENT ACTION PLANS

Appendix J - Event Action Plans

Event/Action Plan for Air Quality

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

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

Appendix J - Event Action Plans

Event/Action Plan for Construction Noise

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

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

Appendix J - Event Action Plans

Event/Action Plan for Landscape and Visual

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

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

APPENDIX K
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

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

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

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

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

	Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	^
	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	^
	Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	^
	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	^
	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.	^
	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	^

	All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	^
	Drainage It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	^
	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	^
	All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ.	^
	Sewage Effluent Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	^
	Stormwater Discharges Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	N/A

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

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

Construction and Demolition Material

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

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

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

Chemical Waste

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

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

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

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

Contract No. KL/2012/03

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

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

Reporting Month: February 2019

Warnings / Summons and Successful Prosecutions received in the reporting month

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

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

Complaint Log

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

APPENDIX M
GENERATED WASTE QUANTITY

APPENDIX IV

Monthly Summary Waste Flow Table

(PS Clause 1.86)

Name of Department: CEDD

Contract No. : KL/2012/03

Monthly Summary Waste Flow Table for February 2019 (year) (in tons)

Month	Total Disposal Loads	Total Quantity Generated	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
			Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
	(No.s)	(in tons)	0	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)	(in tons)
2013 (Oct - Dec) Sub-Total	108	463.69	0	0	0	0	0	0	0	0	0	463.69
2014 (Jan – Dec) Sub-Total	24	16925.7	0	0	16798.93	83.66	1804.27	0	0	0	0	43.11
2015 (Jan – Dec) Sub-Total	284	81859.97	0	0	38291.91	43457.21	19920	0	0	0	0	310.26
2016 (Jan – Dec) Sub-Total	3369	50762.64	0	0	0	49894.67	4020	0	0	0	0	867.95
2017 (Jan – Dec) Sub-Total	2737	39615.16	0	0	0	38996.26	0	0	0	0	0	603.11
2018 (Jan – Dec) Sub-Total	566	7483.57	0	0	0	6803.57	0	0	0	0	0	680
Jan-19	27	237.51	0	0	0	0	0	0	0	0	0	237.51
Feb-19	8	23.03	0	0	0	0	0	0	0	0	0	23.03
Mar-19												
Apr-19												
May-19												
Jun-19												
Total	7123	197371.27	0	0	55090.84	139235.4	25744.27	0	0	0	0	3228.66

APPENDIX N
CONSTRUCTION PROGRAMME

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