CONTRACT NO: NE/2017/03

DEVELOPMENT OF ANDERSON ROAD QUARRY SITE - ROAD IMPROVEMENT WORKS

BASELINE MONITORING REPORT

CLIENTS:

Civil Engineering and Development Department

PREPARED BY:

Lam Environmental Services Limited

11/F Centre Point
181-185 Gloucester Road
Wanchai, H.K.

Telephone: (852) 2882-3939
Facsimile: (852) 2882-3331
E-mail: info@lamenviro.com
Website: http://www.lamenviro.com

CERTIFIED BY:

Derek LO
Environmental Team Leader

DATE:
17 December 2018

ANEWR

Civil Engineering and Development Department
East Development Office
Suite 1213, Chinachem Golden Plaza
77 Mody Road
Tsimshatsui
Hong Kong

Your reference:

Our reference: HKCEDD12/50/105421

Date: 17 December 2018

Attention: Mr Leung Siu Kau, Kelvin

BY EMAIL & POST
(email: kelvinleung@cedd.gov.hk)

Dear Sirs

Agreement No. EDO/04/2017
Independent Environmental Checker (IEC) for Development of Anderson Road Quarry Site – Road Improvement Works
Baseline Monitoring Report

We refer to the emails on 8, 13, 21 November 2018 and 5 December 2018 from the Environmental Team, Lam Environmental Services Limited attaching a Baseline Monitoring Report for the captioned project.

We have no further comment and hereby verify the abovementioned Baseline Monitoring Report in accordance with Clause 3.3 of Environmental Permit No. EP-513/2016.

Should you have any queries, please do not hesitate to contact the undersigned or our Ms Angie Chan on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

Adi Lee
Independent Environmental Checker

LYMA/LHHN/CWA/lhmh

cc AECOM – Mr Brad C W Chan (email: c3-srec4@arqaecom.com)
Lam Environmental Services Limited – Mr Derek Lo (email: dereklo@lamenviro.com)

ANewR Consulting Limited
Unit 517, 5/F, Tower A, Regent Centre
63 Wo Yi Hop Road, Kwai Chung, Hong Kong
Tel: (852) 2618 2831 Fax: (852) 3007 8648
Email: info@anewr.com
Web: www.anewr.com

ISO 9001 : 2015
Certificate No.: CC 3988

Table of Contents

LIST OF FIGURES

LIST OF APPENDIXES

Executive Summary

i. This is the Baseline Monitoring Report to report the baseline monitoring findings for the Project of Development of Anderson Road Quarry Site -Road Improvement Works.

ii. During the baseline monitoring, the baseline air quality and noise monitoring were conducted at EIGHT designated air quality monitoring stations and FIVE designated noise monitoring stations for consecutive 14 days in accordance with the EM&A Manual. The baseline water monitoring shall be carried out at FOUR designated monitoring stations, three days per week, for at least 4 weeks prior to the commencement of construction works.

iii. Due to adverse weather condition, the baseline air and noise monitoring on certain days were rescheduled.

iv. This report presents the baseline air quality and noise monitoring findings and information record during the period from 13 August 2018 to 29 August 2018 and 13 August 2018 to 2 September 2018 respectively, while that for the baseline water quality monitoring were recorded during the period from 13 August 2018 to 7 September 2018. No construction activities under the Project were undertaken during the baseline monitoring period.

Air Quality Monitoring

v. Air quality monitoring was conducted and recorded in terms of 1-hour Total Suspended Particulates (TSP). The average 1-hour TSP levels established at the EIGHT air quality monitoring stations are summarized as shown in **Table I**. The average results and Action & Limit levels of baseline 1-hour TSP levels are summarized as shown in **Table II**.

Table I Summary of Averaged 1-hour TSP Levels

Monitoring Station ID	Monitoring Station	1-hour TSP Level in µg/m^3	
		Average (µg/m^3)	Range (µg/m^3)
NCWBR_AMS-1	Shun Lee Fire Station	52.9	13.4 - 127.2
NCWBR_AMS-2	Shun Lee Estate Lee Hang House	49.8	14.8 – 106.3
NCWBR_AMS-3	Shun Lee Disciplined Services Quarters (Block 6)	58.3	6.3 - 126.1
NCWBR_AMS-4	Sienna Garden	48.6	10.6 – 99.3
NCWBR_AMS-5	Shun Chi Court Shun Fung House	30.8	2.6 – 76.0
LTR_AMS-1	St Edward's Catholic Primary School	34.0	7.8 - 113.6
LTR_AMS-2	Environmental Protection Department's Restored Landfill Site Office	47.8	4.8 - 110.7
LTR_AMS-3	Po Tat Estate Tat Kai House	54.0	11.9 - 138.2

Table II Summary of Averaged Results and Action & Limit Levels of Baseline 1-hour TSP Levels

Monitoring Station	1-hour TSP Level in µg/m³		Action Level (µg/m³)	Limit Level (µg/m³)
	Average	Range		
NCWBR_AMS-1	52.9	13.4 - 127.2	284.4	500.0
NCWBR_AMS-2	49.8	14.8 – 106.3	282.4	500.0
NCWBR_AMS-3	58.3	6.3 - 126.1	287.9	500.0
NCWBR_AMS-4	48.6	10.6 – 99.3	281.6	500.0
NCWBR_AMS-5	30.8	2.6 – 76.0	270.0	500.0
LTR_AMS-1	34.0	7.8 - 113.6	272.1	500.0
LTR_AMS-2	47.8	4.8 - 110.7	281.1	500.0
LTR_AMS-3	54.0	11.9 - 138.2	285.1	500.0

Noise Monitoring

vi. The baseline noise levels established at FIVE monitoring stations are summarized as shown in **Table III.** The averaged results and Action & Limit levels of baseline noise levels are summarized as shown in **Table IV to VI.**

Table III Summary of Averaged Baseline Noise Levels

Monitoring Station	0700-1900 hrs on normal weekdays		0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days		2300-0700 hrs of all days	
	$L_{eq\ (30min)}$, dB(A)		$L_{eq\ (5min)}$, dB(A)			
	Average	Range	Average	Range	Average	Range
NMC01	69.3	67.8 – 70.5	69.0	61.2 – 71.8	66.6	60.6 – 71.6
NMC02	72.0	70.3 – 73.1	66.3	63.3 – 69.6	68.6	62.4 – 71.9
NMC03	78.2	77.1 – 79.5	77.9	73.3 – 82.1	73.8	65.8 – 79.7
NMC04	66.6	63.7 – 70.3	64.0	61.9 – 71.8	62.1	58.7 – 66.0
NMC05	61.8	59.2 – 64.8	59.8	56.5 – 73.7	57.9	53.6 – 62.0

Remark: Each of the daily 30 minutes sampling period include six consecutive $L_{eq\ (5min)}$ reading

Table IV Summary of Results and Action & Limit Levels of Baseline Noise Levels (0700-1900 hrs on normal week days)

Monitoring Station	Time Period	Parameter	Average	Range	Action Level	Limit Level dB(A)
NMC01	0700-1900 hrs on normal weekdays	$L_{eq, 30min}$	69.3	67.8 – 70.5	When one documented complaint is received	65 / 70
NMC02			72.0	70.3 – 73.1		75
NMC03			78.2	77.1 – 79.5		75
NMC04			66.6	63.7 – 70.3		75
NMC05			61.8	59.2 – 64.8		75

Remark: Limit level of NMC01 reduce to 65 dB (A) during examination periods if any.

Table V Summary of Results and Action & Limit Levels of Baseline Noise Levels (0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days)

Monitoring Station	Time Period	Parameter	Average	Range	Action Level	Limit Level dB(A)
NMC01	0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days	$L_{eq, 5min}$	69.0	61.2 – 71.8	When one documented complaint is received	60 / 65 / 70 *
NMC02			66.3	63.3 – 69.6		
NMC03			77.9	73.3 – 82.1		
NMC04			64.0	61.9 – 71.8		
NMC05			59.8	56.5 – 73.7		

Remark: Construction noise during restricted hours is under the control of Noise Control Ordinance and Limit Level to be selected based on Area Sensitivity Rating

* Limit Level for restricted hour monitoring shall act as reference level only. Investigation would be conducted on CNP compliance if exceedance recorded during restricted hour noise monitoring period.

Table VI Summary of Results and Action & Limit Levels of Baseline Noise Levels (2300-0700 hrs of all days)

Monitoring Station	Time Period	Parameter	Average	Range	Action Level	Limit Level dB(A)
NMC01	2300-0700 hrs of all days	$L_{eq, 5min}$	66.6	60.6 – 71.6	When one documented complaint is received	45 / 50 / 55 *
NMC02			68.6	62.4 – 71.9		
NMC03			73.8	65.8 – 79.7		
NMC04			62.1	58.7 – 66.0		
NMC05			57.9	53.6 – 62.0		

Remark: Construction noise during restricted hours is under the control of Noise Control Ordinance and Limit Level to be selected based on Area Sensitivity Rating

* Limit Level for restricted hour monitoring shall act as reference level only. Investigation would be conducted on CNP compliance if exceedance recorded during restricted hour noise monitoring period.

Water Quality Monitoring

vii. The averaged results and Action & Limit levels of baseline water quality level at FOUR stations are summarized as shown in **Table VII** and **Table VIII**.

Table VII Summary of Average Results of Baseline Water Quality

Monitoring Station	pH		DO (mg/L)		Turbidity (NTU)		SS (mg/L)	
	Average	Range	Average	Range	Average	Range	Average	Range
E	7.30	6.59 – 7.95	6.48	6.02 – 6.83	24.73	7.92 – 129.90	22.55	3.25 – 175.80
F	6.94	6.28 – 8.38	6.44	5.40 – 6.82	16.46	5.46 – 78.54	9.69	1.80 – 50.95
H	7.48	6.57 – 8.51	6.23	4.83 – 7.10	184.92	7.62 – 648.48	589.76	2.95 – 5650.25
I	7.38	6.69 – 8.43	6.20	5.42 – 6.72	132.79	7.69 – 894.00	102.28	2.15 – 748.50

*Remarks: The value of <1.0mg/L represents the recorded suspended solid level is under the minimum laboratory reporting limit of 1.0mg/L.

Table VIII Summary of Action & Limit Level of Baseline Water Quality

Monitoring Station	Surface pH		Surface DO (mg/L)		Surface Turbidity (NTU)		Surface SS (mg/L)	
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
E	-	-	-	-	-	-	-	-
F	6.6-8.4	6.5-8.5	5.8	5.5	24.4	32.7	17.0	23.8
H	-	-	-	-	-	-	-	-
I	6.6-8.4	6.5-8.5	5.5	5.4	206.9	214.2	172.8	201.4

*Remarks:
The value of 1.0mg/L was taken as the value for measurement with suspended solid level of <1.0mg/L for Action and Limit level calculation.
It is recommended that upstream monitoring station (monitoring station E and H) would be taken as control reference for exceedance investigation only. Action and limit level would not be establish using the baseline data.

1 Introduction

1.1 Background

1.1.1. Development of Anderson Road Quarry Site (ARQ) project is to provide land and the associated infrastructures for the proposed land uses at the existing Anderson Road Quarry Site at the North-eastern of East Kowloon according to the final Recommended Outline Development Plan. ARQ project involved three major infrastructures work contracts namely Contract 1, 2 and 3.

1.1.2. The scope of works under Contract 3 – Road Improvement Works and Pedestrian Connectivity Facilitates Work Phase 2A (Contract No. NE/2017/03) comprises as below and the location of the Project is shown **Figure 1.1**.

(i) Road Improvement Works (RIW) –

a) RIW 1- at junction of New Clear Water Bay Road and Shun Lee Tsuen Road including the road widening works at New Clear Water Bay Road, modification of existing subway structure and provision of noise mitigation measures;

b) RIW 2- at junction of Clear Water Bay Road and On Sau Road, including the provision of U-turn facility and noise mitigation measures; and

c) RIW 3- at junction of Sau Mau Ping Road and Lin Tak Road, construction of bridge above Tseung Kwan O Road, provision of loading and unloading bays along Lin Tak Road and noise mitigation measures.

(ii) Construction of elevated walkways, escalators and lift towers with associated staircases and lifts for pedestrian connectivity facilities;

(iii) Bus-bus interchange public toilet;

(iv) Associated landscaping works, and

(v) Provision of Barrier-Free Access Facilities at Subway KS27.

1.1.3. In accordance with Clause 3.3 stated in the Environmental Permit (no.: EP-513/2016), Four hard copy and one electronic copy of the Baseline Monitoring Report shall be submitted to the Director at least 2 weeks before the commencement of construction of the project.

1.1.4. In accordance with Section 11.2.1 of the Project Environmental Monitoring and Audit (EM&A) Manual, the Baseline Environmental Monitoring Report should be prepared and submitted within 10 working days after completion of the baseline monitoring works.

1.2 Purpose of Baseline Monitoring Report

1.2.1. The purpose of the baseline monitoring is to review the baseline conditions of air quality, noise level and water quality along the Project boundary, and to establish baseline levels for air quality, noise and water quality in accordance with the EM&A Manual. These levels would be used as the basis for assessing environmental impact and compliance during construction stage of the corresponding component the Project

1.2.2. This baseline monitoring report presents the baseline monitoring requirements, methodologies, monitoring results and determination of the action and limit levels for each monitoring parameter at EIGHT designated air quality monitoring stations, FIVE designated noise monitoring stations and FOUR designated water quality monitoring stations as described in the EM&A Manual.

2 Air Quality Monitoring

2.1 Monitoring Requirements

2.1.1 In accordance with the Project EM&A Manual, baseline 1-hour TSP levels at EIGHT air quality monitoring stations should be established by conducting baseline 1-hour TSP monitoring for at least consecutive 14 days prior to the commencement of the construction work. The 1-hour TSP sampling shall be done at least three times per day at each monitoring station.

2.1.2 The baseline air quality monitoring at EIGHT monitoring stations were conducted during the baseline monitoring period from 13 August 2018 to 29 August 2018 and the relevant findings are summarized in this report. The baseline monitoring schedule is shown in **Appendix A**.

2.1.3 Due to hoisting of typhoon signal No. 3, the baseline air quality monitoring on 14 August 2018 was rescheduled to 27 August 2018.

2.1.4 Due to EPD security concern and unable to access the monitoring station LTR_AMS-2 (EPD Landfill Site Office) on Public Holiday. The baseline air quality monitoring at LTR_AMS-2 on 19 and 26 August 2018 was rescheduled to 28 and 29 August 2018 respectively.

2.1.5 The baseline air quality monitoring of these days were rescheduled until having 14 days baseline monitoring data.

2.2 Monitoring Equipment

2.2.1 The 1-hour TSP air quality monitoring was performed by using portable direct reading dust meters at each designated monitoring station. The brand and model of the equipment are given in **Table 2.1**.

Table 2.1 Air Quality Monitoring Equipment

Equipment	Brand and model	Series Number
Portable direct reading dust meter	Met One BT- 645	R22586 X19295 X19296 X19297 X19298 X19299
	Met One AEROCET 831	W14016 W15448 W15449 W16848

Remark: Portable direct reading dust meter Met One 831 W15449 started to use on 20 August 2018.

2.2.2 The calibration certificate and certificate of comparison check with High Volume Sampler of the air quality monitoring equipment listed in **Table 2.1** can refer to **Appendix B**.

2.3 Monitoring Locations

2.3.1 Given some of the original proposed air quality monitoring locations were either rejected or not favourable for monitoring, fine adjusted monitoring location was therefore proposed (which is (a) at the site boundary or such locations close to the major dust emission source; (b) close to the sensitive receptors; and (c) take into account the prevailing meteorological conditions) based on the procedure under S1.5 of Appendix D2 of the General Technical Requirements of Environmental Monitoring. The detail and information of the monitoring stations for baseline air quality monitoring conducted are presented in **Table 2.2** and shown in **Figures 2.1 and 2.2.**

Table 2.2 Baseline Air Quality Monitoring Stations Location

Monitoring Station ID	Monitoring Location	Level (in terms of no. of floor)
NCWBR_AMS-1 [1]	Shun Lee Fire Station	2/F Roof
NCWBR_AMS-2 [2]	Shun Lee Estate Lee Hang House	G/F
NCWBR_AMS-3 [3]	Shun Lee Disciplined Services Quarters (Block 6)	4/F podium
NCWBR_AMS-4 [4]	Sienna Garden	G/F
NCWBR_AMS-5 [5]	Shun Chi Court Shun Fung House	Roof
LTR_AMS-1 [6]	St Edward's Catholic Primary School	G/F
LTR_AMS-2	Environmental Protection Department's Restored Landfill Site Office	G/F
LTR_AMS-3	Po Tat Estate Tat Kai House	3/F podium

Remarks 1: NCWBR_AMS-1 recommended under EM&A manual is surrounded by boundary wall and occupied by planter and emergency vehicle parking area inside the Fire Station which is considered as not representative / suitable for air quality monitoring and not feasible for installation of monitoring equipment. A fine adjusted monitoring location was therefore proposed, where is at the roof of the Fire Station.

Remarks 2: As advised by the management office of Shun Lee Estate Lee Hang House, the permission of access could not be obtained from designated monitoring locations proposed in the EM&A manual, a fine adjustment of location at the boundary of Shun Lee Estate Lee Hang House was therefore proposed.

Remarks 3: The management office of Shun Lee Disciplined Services Quarters prefers conducting the monitoring at the podium level at 4/F facing New Clear Water Road, where can minimize the disturbance to the residents. A fine adjustment of location was therefore proposed for baseline monitoring.

Remarks 4: The recommended monitoring location NCWBR_AMS-4 under EM&A manual is behind the boundary and fence wall which is considered as not representative / suitable for air quality monitoring for the upper floors of the Sienna Garden. A fine adjustment of monitoring location was therefore proposed to represent Sienna Garden.

Remarks 5: The recommended monitoring location NCWBR_AMS-5 under EM&A manual is located at the edge of roof top without proper fencing and protection. Due to the safety concern on working at height, a fine adjustment of location was therefore proposed.

Remarks 6: As permission of access could not be obtained from St. Edward's Catholic Primary School for conducting monitoring at the recommended monitoring location under EM&A manual, a fine adjustment of location at the boundary of St. Edward's Catholic Primary School was therefore proposed.

2.4 Monitoring Parameters, Frequency and Duration

2.4.1 The monitoring parameters, frequency and duration of air quality monitoring are summarized in **Table 2.3**

Table 2.3 Air Quality Monitoring Parameters, Frequency and Duration

Monitoring Period	Duration	Sampling Parameter	Frequency
Baseline Monitoring	At least 14 consecutive days prior to the commissioning of the construction works	1-hour TSP	3 times per day

2.5 Monitoring Methodology

2.5.1 Measuring Procedures

(a) Check the calibration period of portable direct reading dust meter prior to monitoring (The direct reading dust meter was calibrated at 2-years interval and checked with High Volume Sampler (HVS) yearly, details refer to Section 2.5.2)

(b) Record the site condition near / around the monitoring stations.

(c) Install the portable direct reading dust meter to the monitoring location.

(d) Slide the power switch to turn the power on.

(e) Check of portable direct reading dust meter to ensure the equipment operation in normal condition.

(f) Select the period of measurement to 60mins.

(g) Check and set the correct time.

(h) Select the appropriate unit display for the equipment.

(i) Slide the power switch to turn the power off when the monitoring period ended (3 times 1 hour TSP monitoring per day).

(j) Uninstall the portable direct reading dust meter

(k) Collected the sampled data for analysis.

(l) Remark: Procedures (c) to (h) may be different subject to the brands and models of portable direct reading dust meter

2.5.2 Maintenance and Calibration

(a) The direct reading dust meter was calibrated at 2-years interval and checked with High Volume Sampler (HVS) yearly to determine the accuracy and validity of the results measured.

(b) Checking of direct reading dust meter will be carried out in order to determine the conversion factor between the direct reading dust meter and the standard equipment, HVS. The comparison check is to be considered valid based on correlation coefficient checked by HOKLAS laboratory

2.5.3 Wind data

Hong Kong Observatory (HKO) meteorological information is widely accepted to be used in various environmental monitoring practices within HKSAR due to its professional quality and precision. Therefore, the daily wind data including Prevailing Wind Direction (degrees) and Mean Wind Speed (km/h) were obtained from HKO Automatic Weather Station to serve as the representative data for meteorological condition during monitoring, given the overall Project location is divided into three separate works section and the air quality monitoring stations are located at different elevated ground. The representative wind data from Tate's Cairn HKO Automatic Weather Station and Tseung Kwan O HKO Automatic Weather Station were obtained covering the 1-hr TSP monitoring periods. The wind data were extracted and shown in **Appendix D**.

2.6 Results and Observations

2.6.1 The baseline 1-hour TSP monitoring were carried out from 13 August 2018 to 29 August 2018 for consecutive 14 days and the weather were mostly sunny with traces of rainfall. Major dust sources were from nearby traffic emissions.

2.6.2 The baseline monitoring results for 1-hour TSP are summarized in **Table 2.4** respectively. Detailed air quality monitoring results are presented in **Appendix C**.

Table 2.4 Summary of 1-hour TSP Baseline Monitoring Results

Parameter	Monitoring Location	Average (μg/m^3)	Range (μg/m^3)
1-hour TSP Level in μg/m^3	NCWBR_AMS-1	52.9	13.4 - 127.2
	NCWBR_AMS-2	49.8	14.8 - 106.3
	NCWBR_AMS-3	58.3	6.3 – 126.1
	NCWBR_AMS-4	48.6	10.6 – 99.3
	NCWBR_AMS-5	30.8	2.6 – 76.0
	LTR_AMS-1	34.0	7.8 - 113.6
	LTR_AMS-2	47.8	4.8 - 110.7
	LTR_AMS-3	54.0	11.9 – 138.2

2.7 Action and Limit Levels

2.7.1 The Action and Limit Levels for air quality impact monitoring were based on the criteria adopted from the EM&A Manual as presented in **Table 2.5**.

Table 2.5 Derivation of Action and Limit Levels for Air Quality

Parameters	Action Level	Limit Level
1-hour TSP Level in μg/m^3	For baseline level ≤ 384μg/m^3, Action level = (baseline level * 1.3 + Limit level)/2; For baseline level > 384μg/m^3, Action level = Limit level	500 μg/m^3

2.7.2 The derived Action and Limit levels are presented in **Table 2.6.**

Table 2.6 Derived Action and Limit Levels for Air Quality

Parameter	Monitoring Station	Action Level (μg/m^3)	Limit Level (μg/m^3)
1-hour TSP Level in μg/m^3	NCWBR_AMS-1	284.4	500.0
	NCWBR_AMS-2	282.4	500.0
	NCWBR_AMS-3	287.9	500.0
	NCWBR_AMS-4	281.6	500.0
	NCWBR_AMS-5	270.0	500.0
	LTR_AMS-1	272.1	500.0

	LTR_AMS-2	281.1	500.0
	LTR_AMS-3	285.1	500.0

3 NOISE MONITORING

3.1 Monitoring Requirements

3.1.1 In accordance with the EM&A Manual, the baseline noise monitoring at FIVE monitoring stations shall be carried out daily for a period of at least two weeks

3.1.2 The baseline noise monitoring at FIVE monitoring stations were conducted during the monitoring period from 13 August 2018 to 2 September 2018 and the relevant findings are summarized in this report. The baseline monitoring schedule is shown in **Appendix A**.

3.1.3 Due to hoisting of typhoon signal No. 3, the baseline noise monitoring on 14 August 2018 (all time period) was rescheduled to 27 August 2018. The baseline noise monitoring on 27 August 2018 (1900-2300 hours and 2300-0700 hours of next day) was further rescheduled to 30 August 2018 due to the adverse weather condition.

3.1.4 Due to adverse weather condition, the baseline noise monitoring on 22 August 2018 from 1900-2300 hours was rescheduled to 28 August 2018. The baseline noise monitoring on 28 August 2018 was further rescheduled to 31 August 2018 due to the adverse weather condition.

3.1.5 Due to adverse weather condition, the baseline noise monitoring at NMC04 and NMC05 on 23 August 2018 from 1900-2300 hours was rescheduled to 29 August 2018. The baseline noise monitoring at NMC04 and NMC05 on 29 August 2018 from 1900-2300 hours was further rescheduled to 1 September 2018 due to the adverse weather condition.

3.1.6 Due to adverse weather condition, the baseline noise monitoring on 26 August 2018 (2300-0700 hours of next day) was rescheduled to 1 September 2018.

3.2 Monitoring Equipment

3.2.1 Noise monitoring was performed using sound level meter at the designated monitoring locations. The sound level meters shall comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator shall be deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.1**.

Table 3.1 Noise Monitoring Equipment

Equipment	Brand and Model	Series Number
Integrated Sound Level Meter	Larson Davis LxT	0003737 0004796
	B&K2238	2160277
	HONGLIM HLES-01	201692136
Acoustic Calibrator	Rion NC-73	10707358
Acoustic Calibrator	Larson Davis CAL200	13098 13128 13437

3.2.2 The calibration certificates of the noise monitoring equipment are attached in **Appendix B**.

3.3 Monitoring Locations

3.3.1 Given some of the original proposed noise monitoring locations were not favourable for monitoring, fine adjusted monitoring location was therefore proposed (which is still within the boundary of the designated noise sensitive receivers). In accordance with the EM&A Manual, the noise monitoring stations for baseline noise monitoring is presented in **Table 3.2** and shown in **Figures 3.1 and 3.2**.

Table 3.2 Baseline Noise Monitoring Stations

Monitoring Station ID	Monitoring Location	Measurement Type	Level (in terms of no. of floor)
NMC01 [1]	Kei Shun Special School	Façade	G/F
NMC02	Shun Lee Disciplined Services Quarters Block 6	Façade	3/F podium
NMC03 [2]	Sienna Garden Block 6	Free-field	G/F
NMC04 [3]	Po Tat Estate Tat Kai House	Free-field	3/F podium
NMC05	Hong Wah Court Block B Yee Hong House	Façade	G/F

Remarks 1: The recommended monitoring location NMC01 under EM&A manual would not be accessible for baseline noise monitoring from 1900 to 0700 hours of next day. The fine adjusted location located between the recommended monitoring location and proposed construction site was proposed, which is accessible from 1900 to 0700 hours of next day.

Remarks 2: The recommended monitoring location NMC03 under EM&A manual is behind the boundary and fence wall which is considered as not representative / suitable for noise quality monitoring for the upper floors of the Sienna Garden. A fine adjustment of monitoring location was therefore proposed to represent the boundary condition of Sienna Garden.

Remarks 3: The recommended monitoring location NMC04 under EM&A manual is located at semi-enclosed/enclosed area. As such, it was considered as not suitable for noise monitoring. A fine adjustment of monitoring location was therefore proposed at the open area of 3/F Podium of Po Tat Estate Tat Kai House for baseline monitoring.

3.4 Monitoring Parameters, Frequency and Duration

3.4.1 The monitoring parameters, frequency and duration of noise monitoring are summarized in **Table 3.3**.

Table 3.3 Baseline Noise Monitoring Parameters, Frequency and Duration

Monitoring Period	Duration	Measurement Parameter	Measurement Period	Frequency
Baseline Monitoring	Consecutive days of at least 2 weeks before commencement of major construction works	A-weighted levels L_{eq}, L_{10} and L_{90} Including 30 minutes (six consecutive Leq(5min) readings) for (i), (ii) and (iii)	(i) between 0700 and 1900 hours; (ii) between 1900 and 2300 hours; and (iii) between 2300 to 0700 hours of next day	Daily

3.5 Monitoring Methodology

3.5.1 Monitoring Procedure

(a) The monitoring station shall normally be at a point 1m from the exterior of the sensitive receiver's building façade and be at a position 1.2m above the ground.

(b) Façade measurements were made at the monitoring locations. For free-field measurement, a correction factor of +3 dB (A) would be applied.

(c) The battery condition was checked to ensure the correct functioning of the meter.

(d) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

(i) Frequency weighting: A time weighting: Fast

(ii) Time measurement: Daily measurement of A-weighted levels L_{eq}, L_{10} and L_{90} shall be conducted for at least two weeks. Daily measurement periods should include: (i) between 0700 and 1900 hours; (ii) between 1900 and 2300 hours; and (iii) between 2300 to 0700 hours of next day. Each of the daily sampling periods shall include 30 minutes (six consecutive Leq(5min) readings).

(e) Prior and after to the noise measurement, the meter was checked using the acoustic calibrator for 94dB (A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than ±1 dB (A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.

3.5.2 Maintenance and Calibration

(a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.

(b) The sound level meter and calibrator were calibrated at yearly intervals.

3.6 Results and Observations

3.6.1 The baseline noise monitoring were carried out from 13 August 2018 to 2 September 2018 for recording over two weeks monitoring data and the weather were mostly sunny with traces of rainfall. During the baseline monitoring period, no construction activities were observed. The major noise source was traffic noise around the monitoring stations (especially Clear Water Bay Road near NMC03).

3.6.2 The baseline noise monitoring results are summarized in **Table 3.4** respectively. Detailed noise monitoring results are presented in **Appendix E**.

Table 3.4 Summary of Baseline Noise Monitoring Results

Monitoring Station	0700-1900 hrs on normal weekdays		0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days		2300-0700 hrs of all days	
	$L_{eq\ (30min)}$, dB(A)		$L_{eq\ (5min)}$, dB(A)			
	Average	Range	Average	Range	Average	Range
NMC01	69.3	67.8 – 70.5	69.0	61.2 – 71.8	66.6	60.6 – 71.6
NMC02	72.0	70.3 – 73.1	66.3	63.3 – 69.6	68.6	62.4 – 71.9
NMC03	78.2	77.1 – 79.5	77.9	73.3 – 82.1	73.8	65.8 – 79.7
NMC04	66.6	63.7 – 70.3	64.0	61.9 – 71.8	62.1	58.7 – 66.0
NMC05	61.8	59.2 – 64.8	59.8	56.5 – 73.7	57.9	53.6 – 62.0

Remark: Each of the daily 30 minutes sampling period include six consecutive $L_{eq\ (5min)}$ reading

3.7 Action and Limit Levels

3.7.1 The Action and Limit Levels of noise monitoring have been set in accordance with the criteria specified in the updated EM&A Manual as shown in **Table 3.5** below.

3.7.2 Not used

Table 3.5 Action and Limit Levels for Construction Noise

Monitoring Station	Action Level	Limit Level (dB(A))		
		0700-1900 hrs on normal weekdays	0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days [2]	2300-0700 hrs of all days [2]
NMC01	When one documented complaint is received	65 / 70 [1]	60 / 65 / 70 [3]	45 / 50 / 55 [3]
NMC02		75		
NMC03		75		
NMC04		75		
NMC05		75		

Remark 1: Limit level of NMC01 - Kei Shun Special School reduce to 65 dB (A) during examination periods if any.
Remark 2: Construction noise during restricted hours is under the control of Noise Control Ordinance Limit Level to be selected based on Area Sensitivity Rating.
Remark 3: Limit Level for restricted hour monitoring shall act as reference level only. Investigation would be conducted on CNP compliance if exceedance recorded during restricted hour noise monitoring period.

4 WATER QUALITY MONITORING

4.1 Monitoring Requirements

4.1.1 In accordance with the Project EM&A Manual, baseline water monitoring shall be carried out at FOUR designated monitoring stations, three days per week, for at least 4 weeks prior to the commencement of construction works. Temporal and spatial variations should be taken into account. The interval between 2 sets of monitoring should not be less than 36 hours. Replicate in-situ measures should be carried out in each sampling event. The levels of dissolved oxygen (DO), turbidity and pH shall be measured in situ while suspended solids (SS) is determined by laboratory analysis at all the designated monitoring stations.

4.1.2 The baseline water quality monitoring was conducted during the baseline monitoring period from 13 August 2018 to 7 September 2018 and the relevant findings are summarized in this report.

4.2 Monitoring Equipment

4.2.1 Water quality monitoring was performed using multifunctional meter and weatherproof turbidity-measuring instrument at the monitoring locations. They are capable of measuring:

- a dissolved oxygen level in the range of 0-20mg/L and 0-200% saturation (Detection Limit: 0.01mg/L and 0.1%)
- a temperature of 0-45 degree Celsius (Detection Limit: 0.1 degree Celsius)
- turbidity level between 0-1000NTU (Detection Limit: 0.01NTU)
- salinity in the range of 0-70ppt (Detection Limit: 0.01ppt)
- pH value in range of 0.0 – 14.0 (Detection Limit: 0.01units)

4.2.2 Brand and model of the equipment are given in **Table 4.1**.

Table 4.1 Water Quality Monitoring Equipment

Equipment	Brand and model	Series Number
Multifunctional Meter	YSI Professional Plus	14K100322 17F100236
Turbid meter	Xin Rui WGZ-3B	1403009 1309192

4.2.3 Due to low water level as mentioned in Section 6.4.3 of the EIA report, bucket sampler (Approximate 1L) will be use instead of water sampler in order to obtain surface water sample without disturb the stream sediment and collect representative results.

4.2.4 The calibration certificates of the water quality monitoring equipment are attached in **Appendix B**.

4.3 Monitoring Locations

4.3.1 The water quality monitoring stations for baseline water quality monitoring is presented in **Table 4.2** and shown in **Figures 4.1 and 4.2**.

Table 4.2 Details of Baseline Water Quality Monitoring Stations

Inland Water	Stations	Description	Easting	Northing
Channelized nullah across the Project site	E	Upstream Control Station	841329	821753
	F	Downstream Impact Station	841469	821635
Ma Yau Tong Stream	H	Upstream Control Station	843008	819880
	I	Downstream Impact Station	842652	819573

4.4 Monitoring Parameters, Frequency and Duration

4.4.1 The monitoring parameters, frequency and duration of water quality monitoring are summarized in **Table 4.3**.

4.4.2 The levels of DO, turbidity and pH shall be measured in situ while SS is determined by laboratory analysis at all the designated monitoring stations.

4.4.3 In association with the water quality parameters, other relevant data shall also be recorded, such as monitoring location / position, time, water temperature, salinity, DO saturation, weather conditions, and any special phenomena underway near the monitoring station.

Table 4.3 Water Quality Monitoring Parameters, Frequency

Monitoring Period	Duration	Sampling Parameter	Frequency	Remarks
Baseline Monitoring	at least 4 weeks prior to the commencement of construction works	Dissolved oxygen (DO), turbidity, suspended solids (SS) level and pH	three days per week	Replicate in-situ measures for DO, pH and Turbidity.

4.5 Monitoring Methodology

4.5.1 Monitoring Procedure

(a) The condition near the monitoring stations shall be observed and recorded on the data log sheet.
(b) Check of sensors and electrodes with certified standard solutions before each use.
(c) Wet bulb calibration for a DO meter should be carried out before measurement.
(d) Sample would be taken using bucket sampler at surface level.
(e) Transfer the sampled water carefully into cleaned water bottles (2x 500ml) provided by the laboratory at the spot after the collection of the water sample for the subsequent laboratory Suspended Solid testing.
(f) Transfer the sampled water from the bucket sampler to the rinsed water container for in-situ measurement (In case of the in-situ measurement cannot be carried at spot due to safety and adverse weather condition, sampled water from the bucket

sampler will be transfer to cleaned water bottles provided by laboratory. Then, In-situ measurement will be conducted at a safe location which sampled water inside cleaned water bottle will be transfer to the rinsed water container for in-situ measurement) In-situ measurement shall be measured in duplicate.

(g) Parameters including Water Temperature (℃), pH (units), Salinity (ppt), DO (mg/L), DO saturation (%) will be measured by the Multifunctional Meter and Turbidity (NTU) will be measured by turbid meter. (Water Temperature and Salinity will be measured as reference parameters)

(h) Record the result on the data log sheet and record any special finding during / after in-situ measurement.

(i) The water sample bottles will store in a cool box, which shall be delivered to HOKLAS laboratory (Pilot Testing Limited) for further testing to determine the level of SS.

4.5.2 Maintenance and Calibration

(a) The responses of sensors and electrodes of the water quality monitoring equipment were cleaned and checked at regular intervals.

(b) DO meter (Multifunctional Meter) and turbid meter was certified by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at three monthly intervals.

4.5.3 Laboratory measurement

Analysis of suspended solid will be conducted by a HOKLAS accredited laboratory, which is Pilot Testing Limited.

4.6 Results and Observations

4.6.1 The baseline water quality monitoring was carried out from 13 August 2018 to 7 September 2018 and the weather was mostly sunny with traces of rainfall. During the baseline monitoring period, no construction activities were observed.

4.6.2 The baseline water quality monitoring results are summarized in **Table 4.4** respectively. Detailed water quality monitoring results are presented in **Appendix F**.

Table 4.4 Summary of Baseline Water Quality Monitoring Results

Monitoring Station	pH		DO (mg/L)		Turbidity (NTU)		SS (mg/L)	
	Average	Range	Average	Range	Average	Range	Average	Range
E	7.30	6.59 – 7.95	6.48	6.02 – 6.83	24.73	7.92 – 129.90	22.55	3.25 – 175.80
F	6.94	6.28 – 8.38	6.44	5.40 – 6.82	16.46	5.46 – 78.54	9.69	1.80 – 50.95
H	7.48	6.57 – 8.51	6.23	4.83 – 7.10	184.92	7.62 – 648.48	589.76	2.95 – 5650.25
I	7.38	6.69 – 8.43	6.20	5.42 – 6.72	132.79	7.69 – 894.00	102.28	2.15 – 748.50

Remarks: The value of <1.0mg/L represents the recorded suspended solid level is under the minimum laboratory reporting limit of 1.0mg/L.

4.7 Action and Limit Levels

4.7.1 The Action and Limit Levels of water quality monitoring have been set in accordance with the derivation criteria specified in EM&A Plan as shown in **Table 4.5** below.

Table 4.5 Action and Limit Levels for Water Quality Monitoring

Parameters	Action Level	Limit Level
Surface DO in mg/L	5 percentile (%-ile) of baseline data	4 mg/L or 1%-ile of baseline data
Surface SS in mg/L	95 %-ile of baseline data or 120% of control station's SS on the same day of measurement	25 mg/L or 99 %-ile of baseline or 130% of control station's SS on the same day of measurement
Surface Turbidity in NTU	95 %-ile of baseline data or 120% of control station's turbidity on the same day of measurement	99 %-ile of baseline or 130% of control station's turbidity on the same day of measurement
Surface pH	Beyond the range 6.6 to 8.4	Beyond the range of 6.5 to 8.5

4.7.2 Further review the baseline water quality monitoring data, the action and limit level will be derived with the following justification:

- The turbidity and SS level recorded during baseline period at upstream monitoring stations (Monitoring Station E and H) were higher than downstream monitoring stations (Monitoring Station F and I) in general (**Table 4.6**, **Table 4.7**, **Table 4.8** and **Table 4.9** refers). The usage of the 120% or 130% of control station's (Upstream monitoring station) turbidity and SS on the same day of measurement to establish the action and limit level is not realistic in this case. As such, it is recommended that upstream monitoring station (Monitoring Station E and H) would be taken as control reference for exceedance investigation only. Action and limit level would not be established for upstream monitoring station (Monitoring Station E and H).
- Having further reviewed the baseline water quality monitoring data, it was observed the turbidity and SS level recorded on 5 September 2018 (Maximum Turbidity and SS) at Monitoring Station F and 27 August 2018 (Maximum Turbidity and SS) at Monitoring Station I were out of the normal range as compared with other data recorded during the baseline monitoring period. As such, the SS and turbidity data recorded on those dates would take as outliers to set the Action and Limit Level in order to establish the representative action and limit levels.
- The establishment of DO limit level using 1%-ile of baseline data was 5.5mg/L (for Monitoring Station F) and 5.4mg/L (for Monitoring Station I) which was would be stricter than using 4mg/L to set up DO limit level and would be a better limit level to safeguard the water quality monitoring.
- After the exclusion of abnormal data, the establishment of SS limit level using 99%-ile of baseline data was 23.8 mg/L at Monitoring Station F which would be stricter than using 25mg/L as SS limit level and would be better limit level to safeguard the water quality.
- After the exclusion of abnormal data, the establishment of SS action level using 95%-ile of baseline data at Monitoring Station I was 176.3mg/L. As such, the adoption of

25 mg/L as limit level is not realistic (Action Level > Limit Level) in this case.

- According to Table 6.1 of EIA Report of the Project (AEIAR-195/2016) - Summary of Water Quality Objectives for Victoria Harbour WCZ, the SS annual median for inland water shall not exceed 25 mg/L due to human activity. Since the average SS level recorded for Station F on 17 August 2018 was about 25.6mg/L which was around the range stated under the WQO, the data was considered as normal.
- According to Table 6.4 of EIA Report of the Project (AEIAR-195/2016), - Summary of Water Quality Monitoring Data for Ma Yau Tong Stream (Wet Season), the maximum Turbidity and SS level recorded was 255.5NTU and 201.5mg/L respectively. Given the data recorded for Station I on 17 August 2018 and 20 August 2018 was similar to EIA report's data, (i.e. 17 August 2018 - Turbidity: 197.6NTU, SS: 137.1mg/L; 20 August 2018 - Turbidity: 216.1NTU, SS: 208.5mg/L), the data was considered as normal.

4.7.3 The action and limit level were derived and presented in **Table 4.10**.

Table 4.6 Comparison of turbidity level at upstream and downstream monitoring station (Channelized nullah across the Project site)

Date	Monitoring Station		Comparison
	Monitoring Station E (Upstream)	Monitoring Station F (Downstream)	
	Turbidity (NTU)		
13/8/2018	8.43	5.47	Upstream>Downstream
15/8/2018	21.71	9.72	Upstream>Downstream
17/8/2018	129.90	34.79	Upstream>Downstream
20/8/2018	14.00	8.87	Upstream>Downstream
22/8/2018	8.84	7.09	Upstream>Downstream
24/8/2018	15.87	5.46	Upstream>Downstream
27/8/2018	20.00	6.78	Upstream>Downstream
29/8/2018	18.26	12.19	Upstream>Downstream
31/8/2018	7.99	14.07	Downstream>Upstream
3/9/2018	7.92	6.85	Upstream>Downstream
5/9/2018	34.46	78.54	Downstream>Upstream
7/9/2018	9.39	7.73	Upstream>Downstream

Table 4.7 Comparison of SS level at upstream and downstream monitoring station (Channelized nullah across the Project site)

Date	Monitoring Station		Comparison
	Monitoring Station E (Upstream)	Monitoring Station F (Downstream)	
	SS (mg/L)		
13/8/2018	6.55	3.65	Upstream>Downstream
15/8/2018	5.70	3.00	Upstream>Downstream
17/8/2018	175.80	25.55	Upstream>Downstream
20/8/2018	8.35	6.25	Upstream>Downstream

22/8/2018	5.65	2.85	Upstream>Downstream
24/8/2018	10.30	2.95	Upstream>Downstream
27/8/2018	5.55	5.35	Upstream>Downstream
29/8/2018	3.25	3.60	Downstream>Upstream
31/8/2018	4.30	8.45	Downstream>Upstream
3/9/2018	8.95	1.80	Upstream>Downstream
5/9/2018	31.85	50.95	Downstream>Upstream
7/9/2018	4.30	1.85	Upstream>Downstream

Table 4.8 Comparison of turbidity level at upstream and downstream monitoring station (Ma Yau Tong Stream)

Date	Monitoring Station		Comparison
	Monitoring Station H (Upstream)	Monitoring Station I (Downstream)	
	Turbidity (NTU)		
13/8/2018	193.43	64.32	Upstream>Downstream
15/8/2018	61.46	26.65	Upstream>Downstream
17/8/2018	423.80	197.63	Upstream>Downstream
20/8/2018	392.95	216.08	Upstream>Downstream
22/8/2018	53.26	49.15	Upstream>Downstream
24/8/2018	310.00	82.27	Upstream>Downstream
27/8/2018	648.48	894.00	Downstream>Upstream
29/8/2018	69.32	13.57	Upstream>Downstream
31/8/2018	23.66	13.23	Upstream>Downstream
3/9/2018	21.65	17.99	Upstream>Downstream
5/9/2018	13.40	10.93	Upstream>Downstream
7/9/2018	7.62	7.69	Downstream>Upstream

Table 4.9 Comparison of SS level at upstream and downstream monitoring station (Ma Yau Tong Stream)

Date	Monitoring Station		Comparison
	Monitoring Station H (Upstream)	Monitoring Station I (Downstream)	
	SS (mg/L)		
13/8/2018	120.2	39.6	Upstream>Downstream
15/8/2018	24.1	11.5	Upstream>Downstream
17/8/2018	459.6	137.1	Upstream>Downstream
20/8/2018	439.1	208.5	Upstream>Downstream
22/8/2018	23.0	10.8	Upstream>Downstream
24/8/2018	254.5	44.0	Upstream>Downstream
27/8/2018	5650.3	748.5	Upstream>Downstream
29/8/2018	59.7	6.5	Upstream>Downstream
31/8/2018	23.2	9.6	Upstream>Downstream
3/9/2018	17.4	6.9	Upstream>Downstream
5/9/2018	3.0	2.4	Upstream>Downstream
7/9/2018	3.4	2.2	Upstream>Downstream

Table 4.10 Derived Action and Limit levels

Monitoring Station	Surface pH		Surface DO (mg/L)		Surface Turbidity (NTU)		Surface SS (mg/L)	
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
E	-	-	-	-	-	-	-	-
F	Beyond the range 6.6-8.4	Beyond the range 6.5-8.5	5.8	5.5	24.4	32.7	17.0	23.8
H	-	-	-	-	-	-	-	-
I	Beyond the range 6.6-8.4	Beyond the range 6.5-8.5	5.5	5.4	206.9	214.2	172.8	201.4

*Remarks:
The value of 1.0mg/L was taken as the value for measurement with suspended solid level of <1.0mg/L for Action and Limit level calculation.
It is recommended that upstream monitoring station (monitoring station E and H) would be taken as control reference for exceedance investigation only. Action and limit level would not be established using the baseline data.

5 Revision for inclusion into EM&A Manual

5.1.1 With respect to fine adjustment of monitoring locations were proposed in the baseline monitoring report, the fine adjusted air and noise monitoring locations are recommended in the EM&A manual. It is also recommended that the air and noise monitoring station condition should be regularly reviewed and fine adjustment or relocation may be needed in order to obtain respective impact monitoring results. The fine adjustment or relocation of monitoring location shall be addressed in the updated EM&A manual during impact monitoring.

6 Comment and Conclusions

Comment

Water Quality of Seasonal Changes

6.1.1 The nature of monitoring streams is for rainwater drainage. The catchment areas of those streams are widely ranged and collected the rainwater and nature surface runoff across the stream catchment area at Clear Water Bay Road and Ma Yau Tong Stream.

6.1.2 For impact water quality monitoring during wet season, it is anticipated the water quality monitoring results may be similar to the baseline condition with a wide range of recorded Turbidity and SS. As such, it is recommended that the water quality monitoring shall act as an alarm system to review the site condition. Review of site drainage and inspection along site boundary shall be conducted by Contractor / RSS / ET to ensure no surface runoff or seepage into the monitoring stream and cause contamination. Monitoring condition during adverse weather shall also be recorded to avoid false alarm.

6.1.3 For impact water quality monitoring during dry season, the water quality monitoring may not be feasible due to the extremely shallow of water at the monitoring station. In case the situation was not feasible for monitoring due to insufficient water flow, it is recommended that inspection around the monitoring station to be conducted by ET to record the stream condition.

Air Quality of Seasonal Changes

6.1.4 Baseline air quality monitoring was conducted during typical Hong Kong wet season. The baseline data collected therefore represent the baseline air quality of the wet season immediately prior to commencement of the Project. It is therefore recommended that the interpretation of the air quality monitoring data should take into account the influence of the seasonal changes, and the baseline conditions should be regularly reviewed.

Other noise sources

6.1.5 Baseline noise monitoring was conducted prior to the construction works start. During the baseline monitoring period, no construction activities were observed. The major noise source was traffic noise around the monitoring stations (especially Clear Water Bay Road near NMC03). It is possible that other noise sources would be identified during the impact monitoring period such as other development project, road works or public activities around the monitoring locations. It is recommended that the noise monitoring station condition should be regularly reviewed and fine adjustment or relocation may be needed in order to obtain respective impact monitoring results.

6.1.6 Not used

Conclusion

6.1.7 In accordance with the Project EM&A Manual and EP, baseline monitoring has been undertaken prior to commencement of the construction works of the Contract for the following baseline monitoring components: Air Quality; Noise and Water Quality.

6.1.8 As highlighted under Tables 2.2 and 3.2, several fine adjustments of locations were proposed for baseline monitoring. Nevertheless, given the fine adjusted location with similar pollution sources and prevailing meteorological condition to the original locations recommended in the EM&A manual, it is considered to be representative for the air and noise sensitive receiver identified in EIA manual.

6.1.9 The baseline air quality monitoring was conducted at eight (8) monitoring locations from 13 to 29 August 2018. Overall, the baseline air quality monitoring results are considered representative to the ambient air quality conditions of the respective sensitive receivers. The Action and Limit Levels for air quality (for 1-hour TSP levels) were established based on the baseline monitoring results.

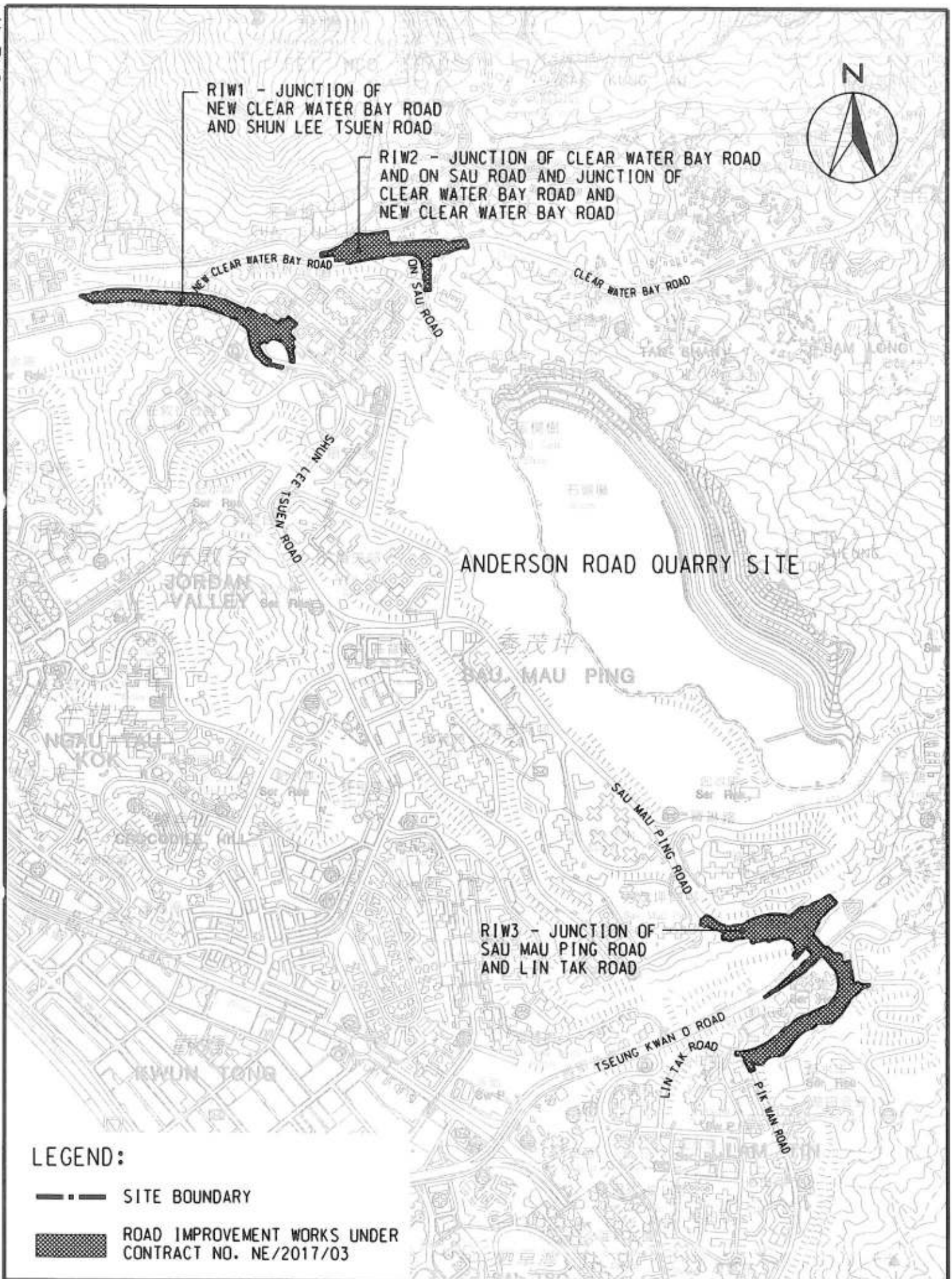
6.1.10 Baseline noise monitoring was conducted at five (5) designated monitoring stations from 13 August 2018 to 2 September 2018. The major noise sources identified at the monitoring station are the noise from traffic noise. The baseline monitoring results are considered representative of the ambient noise level.

6.1.11 Baseline water quality monitoring was conducted at four (4) monitoring stations from 13 August 2018 to 7 September 2018. No observable pollution source was recorded at the monitoring stations and the baseline monitoring results are thus considered representative of the ambient water quality levels. Action and Limit Levels were established for DO, SS and turbidity based on the baseline monitoring results.

Figure 1.1

Project Layout

ENCLOSURE A



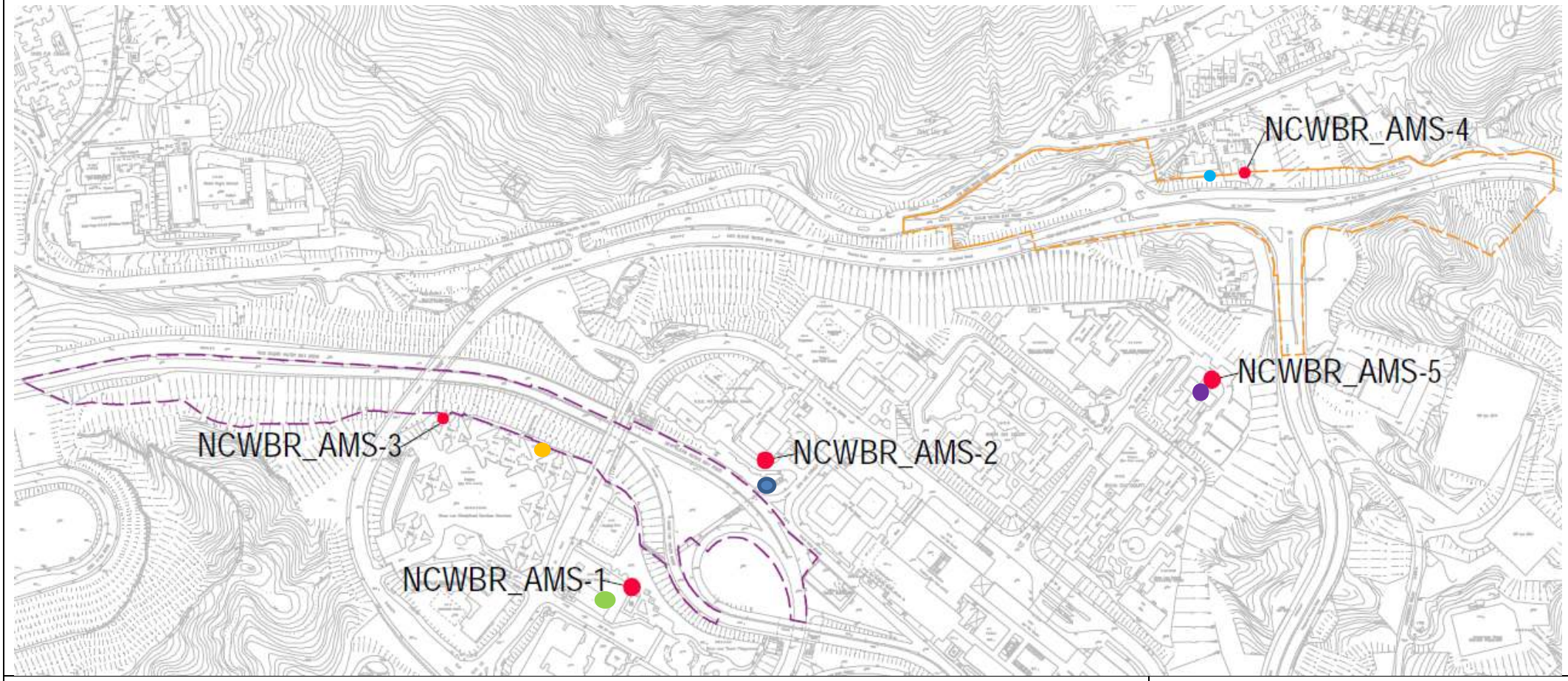
GENERAL LAYOUT PLAN OF
ROAD IMPROVEMENT WORKS
UNDER CONTRACT NO. NE/2017/03

Figure 1.1
Project Layout

P:\Projects\60328348\DRAWING\SKETCH\SK0175.dgn

Figure 2.1 & 2.2

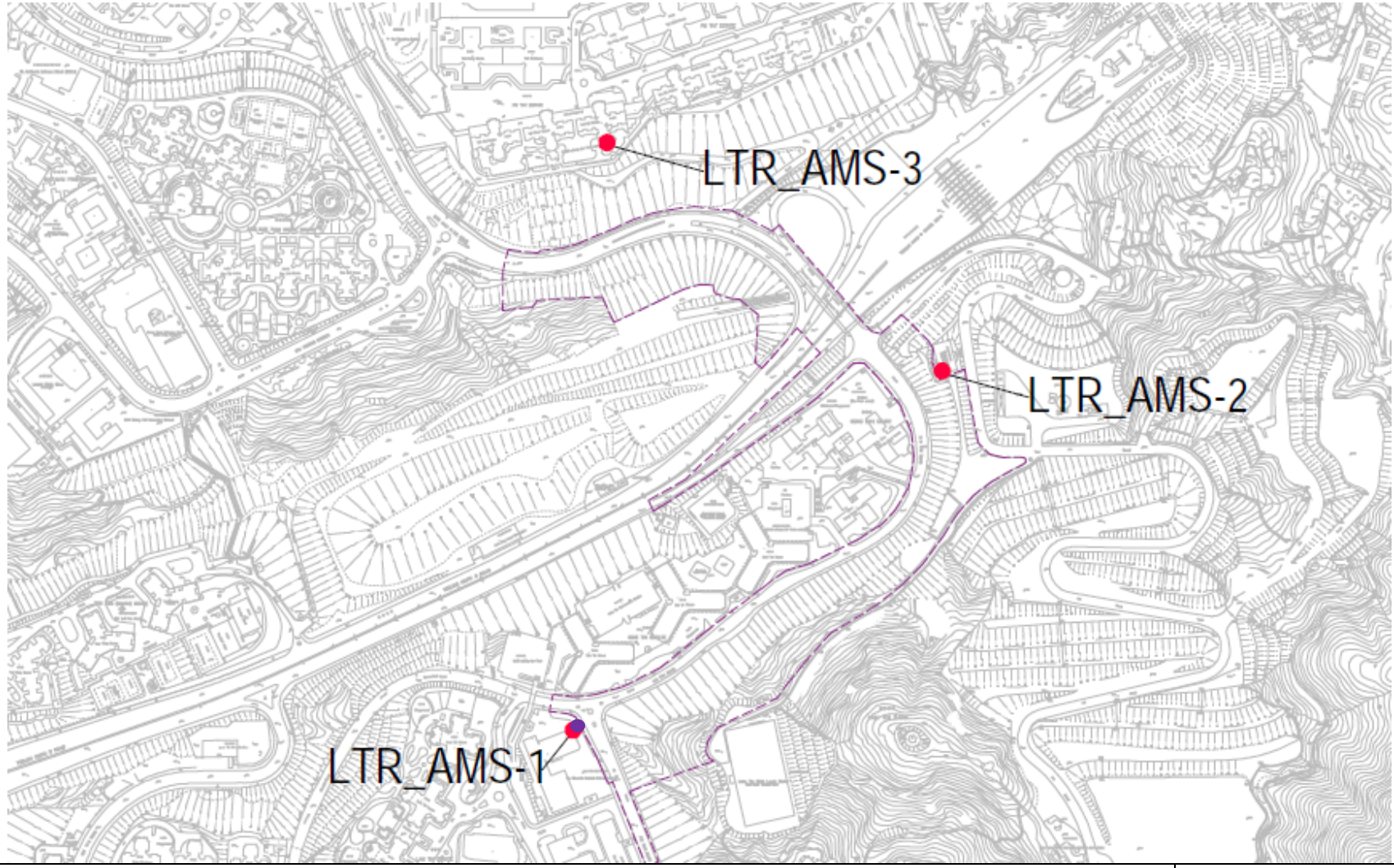
Location of Baseline Air Quality Monitoring Stations



Monitoring Station ID	EIA ID	Location	Finely adjusted monitoring location
NCWBR RIW			
NCWBR_AMS-1	ASLF-1	Shun Lee Fire Station	
NCWBR_AMS-2	ASLE-21	Shun Lee Estate Lee Hang House	
NCWBR_AMS-3	ASLD-10	Shun Lee Disciplined Services Quarters (Block 6)	
NCWBR_AMS-4	AFNS-3	Sienna Garden	
NCWBR_AMS-5	ASCC-05	Shun Chi Court Shun Fung House	

The location proposed in the EM&A represents Shun Lee Disciplined Services Qurtaters Block 3 instead of Block 6.

Figure 2.1
Location of Air Quality Monitoring Station
(for Road Improvement Work 1 & 2)

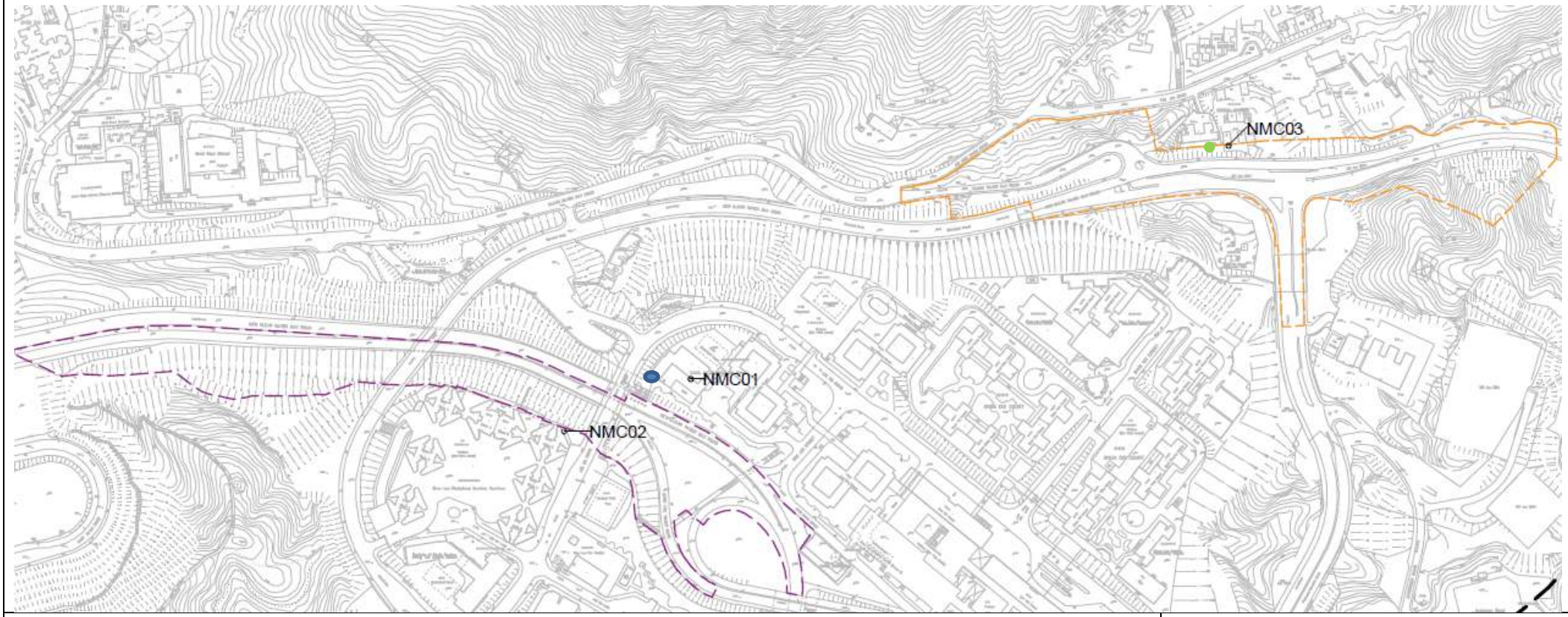


Monitoring Station ID	EIA ID	Location	Finely adjusted monitoring location
LTR RIW			
LTR_AMS-1	ASECP-2	St Edward's Catholic Primary School	
LTR_AMS-2	AEPD-01	Environmental Protection Department's Restored Landfill Site Office	
LTR_AMS-3	APTE-14	Po Tat Estate Tat Kai House	

Figure 2.2
Location of Air Quality Monitoring Station (for Road Improvement Work 3)

Figure 3.1 & 3.2

Location of Baseline Noise Monitoring Stations



Monitoring Location ID	Description	Finely adjusted monitoring location
Noise Monitoring Station (Construction Phase)		
NMC01	Kei Shun Special School	
NMC02	Shun Lee Disciplined Services Quarters Block 6	
NMC03	Sienna Garden Block 6	

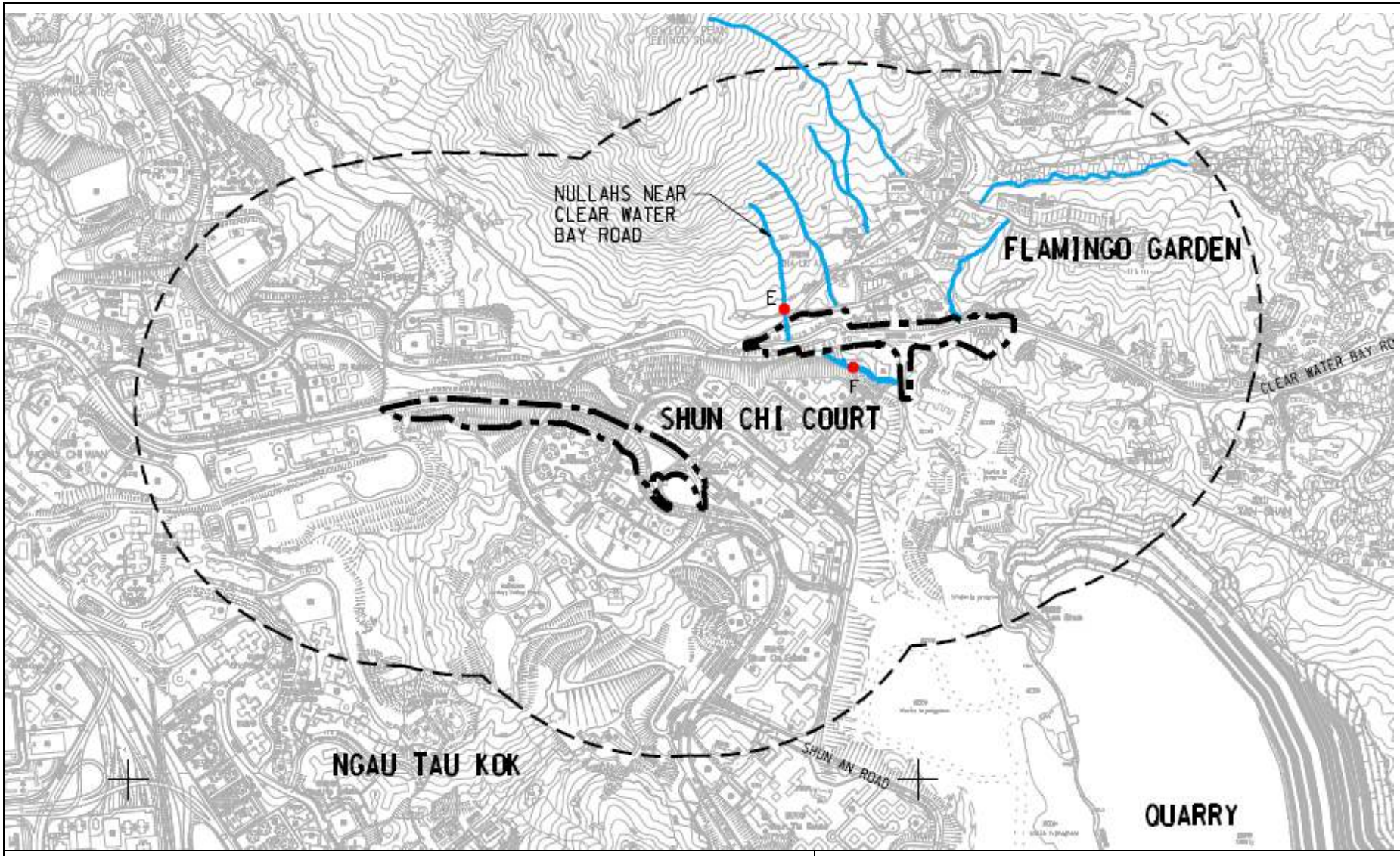
Figure 3.1
Location of Noise Monitoring Station
(Construction Phase)
(for Road Improvement Work 1 & 2)

Monitoring Location ID	Description	Finely adjusted monitoring location
NMC04	Po Tat Estate Tat Kai House	●
NMC05	Hong Wah Court Block B Yee Hong House	

Figure 3.2
Location of Noise Monitoring Station
(Construction Phase)
(for Road Improvement Work 3)

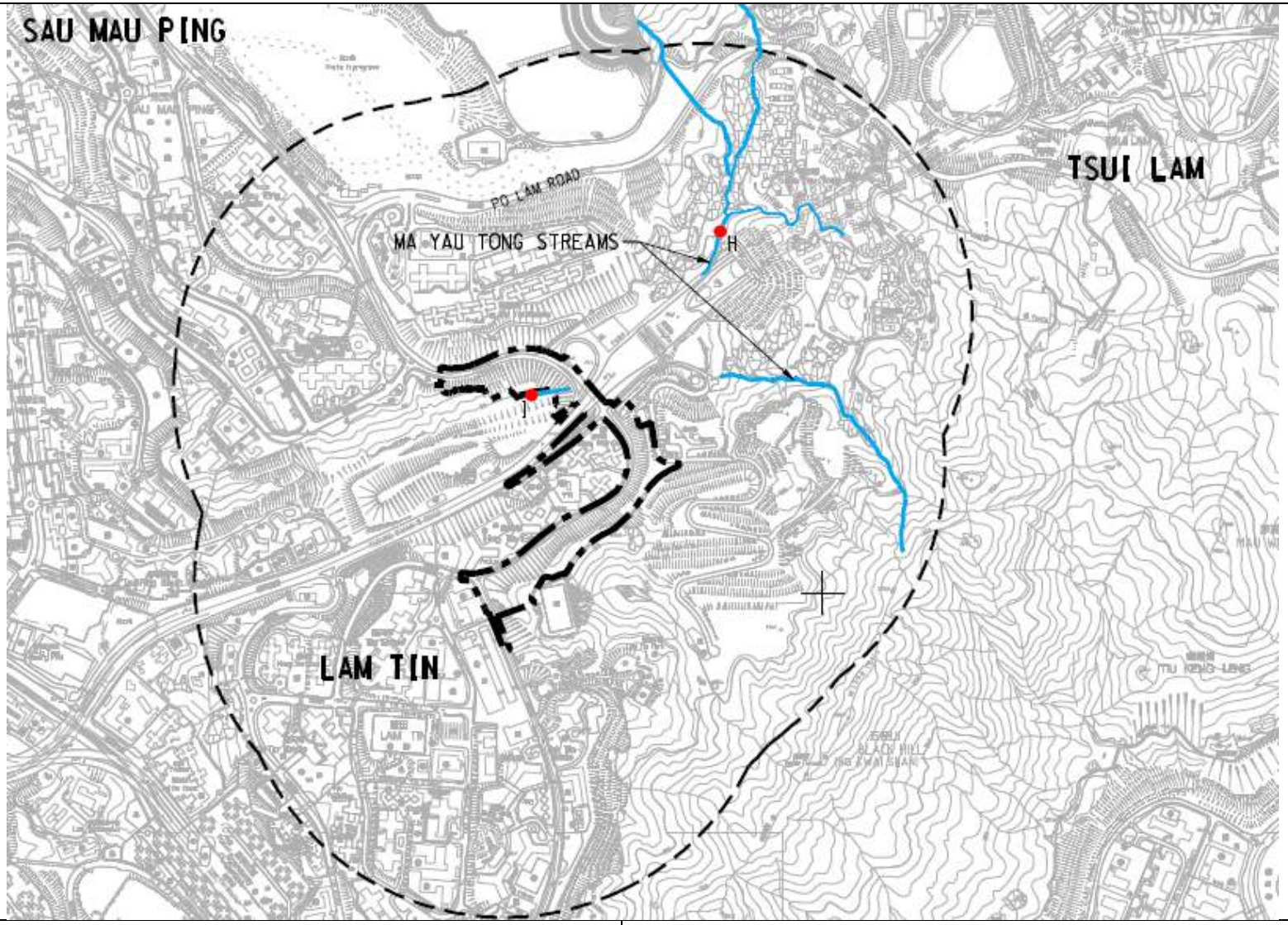
Figure 4.1 & 4.2

Location of Baseline Water Quality Monitoring Stations



Inland Water	Stations	Description
Channelized nullah across the Project site	E	Upstream Control Station
	F	Downstream Impact Station

Figure 4.1
Location of Water Quality Monitoring Station
(for Road Improvement Work 1 & 2)



Inland Water	Stations	Description
Ma Yau Tong Stream	H	Upstream Control Station
	I	Downstream Impact Station

Figure 4.2
Location of Water Quality Monitoring Station
(for Road Improvement Work 3)

Appendix A

Baseline Monitoring Schedule for Air Quality, Noise and Water Quality Monitoring

Contract No. NE/2017/03
DEVELOPMENT OF
ANDERSON ROAD QUARRY SITE - ROAD IMPROVEMENT WORKS
Baseline Water Quality, Air Quality and Noise Monitoring Schedule
August - September 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
5-Aug	6-Aug	7-Aug	8-Aug	9-Aug	10-Aug	11-Aug
12-Aug	13-Aug WQM AQM NM 07:00-19:00 19:00-23:00 23:00-07:00	14-Aug AQM * NM 07:00-19:00 * 19:00-23:00 * 23:00-07:00 * * Cancelled due to hoisting of typhoon signal No. 3	15-Aug WQM AQM NM 07:00-19:00 19:00-23:00 23:00-07:00	16-Aug AQM NM 07:00-19:00 19:00-23:00 23:00-07:00	17-Aug WQM AQM NM 07:00-19:00 19:00-23:00 23:00-07:00	18-Aug AQM NM 07:00-19:00 19:00-23:00 23:00-07:00
19-Aug AQM @ NM 07:00-19:00 19:00-23:00 23:00-07:00 @ LTR_AMS-2 (EPD Landfill Site Office) not accessible due to security concern	20-Aug WQM AQM NM 07:00-19:00 19:00-23:00 23:00-07:00	21-Aug AQM NM 07:00-19:00 19:00-23:00 23:00-07:00	22-Aug WQM AQM NM 07:00-19:00 19:00-23:00 * 23:00-07:00 * * Cancelled due to heavy rain and hoisting of Thunderstorm Warning during monitoring	23-Aug AQM NM 07:00-19:00 19:00-23:00 ** 23:00-07:00 ** Cancelled due to heavy rain (for NMC04 and NMC05 only)	24-Aug WQM AQM NM 07:00-19:00 19:00-23:00 23:00-07:00	25-Aug AQM NM 07:00-19:00 19:00-23:00 23:00-07:00
26-Aug AQM @ NM 07:00-19:00 19:00-23:00 23:00-07:00 * @ LTR_AMS-2 (EPD Landfill Site Office) not accessible due to security concern * Cancelled due to hoisting of Red Rainstorm Signals during monitoring	27-Aug WQM AQM ^ NM 07:00-19:00 ^ 19:00-23:00 * 23:00-07:00 * ^ rescheduled for 14 Aug * Cancelled due to heavy rain and hoisting of Thunderstorm Warning during monitoring	28-Aug AQM ^ NM 19:00-23:00 * 23:00-07:00 * ^ rescheduled for 19 Aug (for LTR_AMS-2 only) * Cancelled due to heavy rain and hoisting of Thunderstorm Warning during monitoring	29-Aug WQM AQM ^ NM 19:00-23:00 * 23:00-07:00 * ^ rescheduled for 26 Aug (for LTR_AMS-2 only) * Cancelled due to hoisting of Red and Amber Rainstorm Signals during monitoring	30-Aug NM 19:00-23:00 # 23:00-07:00 # # rescheduled for 14 Aug	31-Aug WQM NM 19:00-23:00 # 23:00-07:00 # # rescheduled for 22 Aug	1-Sep NM 19:00-23:00 # 23:00-07:00 ## # rescheduled for 23 Aug (for NMC04 and NMC05 only) ## rescheduled for 26 Aug
2-Sep NM 00:00-07:00##	3-Sep WQM	4-Sep	5-Sep WQM	6-Sep	7-Sep WQM	8-Sep

Remark:

1. WQM: Water Quality Monitoring
2. AQM: Air Quality Monitoring
3. NM: Noise Monitoring

Note: For AQM and NM, in case there is adverse weather conditions such as Typhoon Signal No. 3 and above or rain storm warning on the scheduled monitoring date causing unsuitable environment for sampling, the monitoring will be temporarily suspended and postponed to the next day until having 14 days baseline monitoring data.

Updated on 30.8.2018

Appendix B

Calibration Certificates of the Monitoring Equipment

Met One Instruments, Inc.
1600 NW Washington Blvd, Grants Pass, OR
TEL (541) 471-7111 Fax (541) 471-7116

Certificate of Calibration

BT-645

Particulate Monitor

Recommended calibration interval is 24 months from first day of use.

Unit Info

Model:	*BT-645*	81865 Firmware Rev:	*1.1.0*
Serial Number:	*R22586*	81113	*0.2.4*
Calibrated By:	*Kevin Ricks* T21	Cal. Date:	*12/9/16*
Quality Inspector:	T26	Date:	DEC 14 2016
Calibration Hz/µg/m³:	*6.99*		

Final Test

Flow (2.0 L/M): Pass

Ambient T (C) *23*

RH, % *41*

Serial Communication: Pass

BT-645 Conc.: *401* Standard Conc: *400*

Calibration Standards

Standards	Manufacturer	Model	SN	Cal Due
RMS Multimeter	Fluke	289 Multimeter	23740018	4/26/2017
RH &TEMPERATURE	Met One Instruments	083E-1-6	R20313	9/13/2017
Primary Flow Meter	BIOS	Defender-510	133419	3/18/2017
Digital Dust Indicator	SIBATA	LD-3	476795	3/11/2017

The standards used for this calibration have accuracy equal to or greater than the instrument tested. These standards are on record and traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated, all instruments are calibrated to meet the manufacturer's published specifications. The Calibration system complies with MIL-STD-45662A.

Met One Instruments
1600 Washington Blvd
Grants Pass, OR 97526
(541) 471-7111
(541) 471-7116 (Fax)
Service@metone.com

Calibration Certificate

The calibration results on this report certify that this instrument complies with the product specifications at the time of calibration. Calibration was performed according to accepted industry methods using equipment, procedures, and standards that are traceable to NIST and ASTM and JIS.

Recommended calibration interval is 12 months from the first day of use.

Instrument Model# *Aerocet 831* **Instrument Serial#** *W14016*

Date of Calibration *4/19/2018* **Sensor #** *16206*

Darleen Best AT — 4/21

Calibration Technician **Quality Check**

Temperature *23* °C **Relative Humidity** *31* %

Test Procedure: *Aerocet 831-6100*

PSL Size (µm)	Test Results	Test Spec.	Lot# NIST	Expiration
0.3	Pass	± 10%	183039	03/31/2020
0.5	Pass	± 10%	180556	02/28/2020
1.0	Pass	± 10%	169240	5/31/2019
2.5	Pass	± 10%	181944	3/31/2020
4.0	Pass	± 10%	REF	NA
5.0	Pass	± 10%	REF	NA
7.0	Pass	± 10%	REF	NA
10.0	Pass	± 10%	REF	NA

Standards	Model	SN	Cal Due
Particle Counter	GT-526	M1762	7/31/2018
Flowmeter	DCL-M	103751	1/29/2019
DMM	289	27720071	6/15/2018
RH/TEMP SENSOR	083E-1-6	R20313	9/18/2018

This calibration certificate shall not be reproduced except in full, without the written approval of Met One Instruments Inc.

Met One Instruments
1600 Washington Blvd
Grants Pass, OR 97526
(541) 471-7111
(541) 471-7116 (Fax)
Service@metone.com

Calibration Certificate

The calibration results on this report certify that this instrument complies with the product specifications at the time of calibration. Calibration was performed according to accepted industry methods using equipment, procedures, and standards that are traceable to NIST and ISO.

Recommended calibration interval is 12 months from the first day of use.

Instrument Model# Aerocet 831 Instrument Serial# W15448

Date of Calibration 6/14/2018 Sensor # 16438

Darleen Best
Calibration Technician

Quality Check

Temperature 23.5 °C Relative Humidity 38 %

Test Procedure: Aerocet 831-6100

PSL Size (µm)	Test Results	Test Spec.	Lot# NIST	Expiration
0.3	Pass	± 10%	183039	03/31/2020
0.5	Pass	± 10%	180556	02/28/2020
1.0	Pass	± 10%	169240	5/31/2019
2.5	Pass	± 10%	REF	NA
4.0	Pass	± 10%	REF	NA
5.0	Pass	± 10%	REF	NA
7.0	Pass	± 10%	REF	NA
10.0	Pass	± 10%	REF	NA

Standards	Model	SN	Cal Due
Particle Counter	GT-526	M1762	7/31/2018
Flowmeter	DCL-M	103751	1/29/2019
DMM	289	27720071	6/15/2018
RH/TEMP SENSOR	083E-1-6	R20313	9/18/2018

This calibration certificate shall not be reproduced except in full, without the written approval of Met One Instruments Inc.

Met One Instruments
1600 Washington Blvd
Grants Pass, OR 97526
(541) 471-7111
(541) 471-7116 (Fax)
Service@metone.com

Calibration Certificate

The calibration results on this report certify that this instrument complies with the product specifications at the time of calibration. Calibration was performed according to accepted industry methods using equipment, procedures, and standards that are traceable to NIST and ASTM and JIS.

Recommended calibration interval is 12 months from the first day of use.

Instrument Model# Aerocet 831 **Instrument Serial#** W15449

Date of Calibration 8/18/2017 **Sensor #** 16439

Daisy Jones JP4 — Calibration Technician

JT21 — Quality Check

Temperature 24 °C **Relative Humidity** 40 %

Test Procedure: Aerocet 831-6100

PSL Size (µm)	Test Results	Test Spec.	Lot# NIST	Expiration
0.3	Pass	± 10%	183039	03/31/2020
0.5	Pass	± 10%	180556	02/28/2020
1.0	Pass	± 10%	169240	5/31/2019
2.5	Pass	± 10%	REF	NA
4.0	Pass	± 10%	REF	NA
5.0	Pass	± 10%	REF	NA
7.0	Pass	± 10%	REF	NA
10.0	Pass	± 10%	REF	NA

Standards	Model	SN	Cal Due
Particle Counter	GT-526	M1760	9/28/2017
Dry Cal	Defender 510 high flow	133419	3/6/2018
DMM	189 Multimeter	83410061	2/21/2018
RH/TEMP SENSOR	083E-1-6	R20313	9/13/2017

This calibration certificate shall not be reproduced except in full, without the written approval of Met One Instruments Inc.

Met One Instruments
1600 Washington Blvd
Grants Pass, OR 97526
(541) 471-7111
(541) 471-7116 (Fax)
Service@metone.com

Calibration Certificate

The calibration results on this report certify that this instrument complies with the product specifications at the time of calibration. Calibration was performed according to accepted industry methods using equipment, procedures, and standards that are traceable to NIST and ISO.

Recommended calibration interval is 12 months from the first day of use.

Instrument Model# *Aerocet 831* **Instrument Serial#** *W16848*

Date of Calibration *8/3/2018* **Sensor #** *16574*

Darleen Best AT25

Calibration Technician **Quality Check**

Temperature *23.5* °C **Relative Humidity** *41* %

Test Procedure: *Aerocet 831-6100*

PSL Size (µm)	Test Results	Test Spec.	Lot# NIST	Expiration
0.3	Pass	± 10%	183039	03/31/2020
0.5	Pass	± 10%	180556	02/28/2020
1.0	Pass	± 10%	169240	5/31/2019
2.5	Pass	± 10%	REF	NA
4.0	Pass	± 10%	REF	NA
5.0	Pass	± 10%	REF	NA
7.0	Pass	± 10%	REF	NA
10.0	Pass	± 10%	REF	NA

Standards	Model	SN	Cal Due
Particle Counter	GT-526	M1760	10/9/2018
Flowmeter	DCL-M	103751	1/29/2019
DMM	289	32270055	9/21/2018
RH/TEMP SENSOR	083E-1-6	R20313	9/18/2018

This calibration certificate shall not be reproduced except in full, without the written approval of Met One Instruments Inc.

Met One Instruments, Inc.
1600 NW Washington Blvd, Grants Pass, OR
TEL (541) 471-7111 Fax (541) 471-7116

Certificate of Calibration

BT-645

Particulate Monitor

Recommended calibration interval is 24 months from first day of use.

Unit Info

Model: *BT-645* **81865-1 Firmware Rev:** *1.1.0*

Serial Number: *X19295* *1.0.1*

Calibrated By: *R. von Krohn* **Cal. Date:** *7/27/2018*

Quality Inspector: [signature] **Date:** 7-27-2018

Calibration Hz/µg/m³: *5.9*

Final Test

Flow (2.0 L/M): Pass

Ambient T (C) *24.8*

RH, % *39*

Serial Communication: Pass

BT-645 Conc.: *400.12* Standard Conc: *399.67*

Calibration Standards

Standards	Manufacturer	Model	SN	Cal Due
DMM Multimeter	Fluke	189 Multimeter	94060816	8/28/2018
RH &TEMPERATURE	Met One Instruments	083E-1-35	R17149	July 28, 2018
BAROMETRIC PRESSURE	Met One Instruments	092	P22757	April 2, 2019
Primary Flow Meter	BIOS	DC-Lite	R537	May 29, 2019
LD-3B	SIBATA	LD-3B	6X7759	Nov 17, 2018

The standards used for this calibration have accuracy equal to or greater than the instrument tested. These standards are on record and traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated, all instruments are calibrated to meet the manufacturer's published specifications. The Calibration system complies with MIL-STD-45662A.

Met One Instruments, Inc.
1600 NW Washington Blvd, Grants Pass, OR
TEL (541) 471-7111 Fax (541) 471-7116

Certificate of Calibration

BT-645

Particulate Monitor

Recommended calibration interval is 24 months from first day of use.

Unit Info

Model: *BT-645* **81865-1 Firmware Rev:** *1.1.0*

Serial Number: *X19296* *1.0.1*

Calibrated By: *R. von Krohn* **Cal. Date:** *7/27/2018*

Quality Inspector: RVK **Date:** 7-27-2018

Calibration Hz/µg/m³: *6.1*

Final Test

Flow (2.0 L/M): Pass

Ambient T (C) *24.8*

RH, % *39*

Serial Communication: Pass

BT-645 Conc.: *416.59* Standard Conc: *412.22*

Calibration Standards

Standards	Manufacturer	Model	SN	Cal Due
DMM Multimeter	Fluke	189 Multimeter	94060816	8/28/2018
RH &TEMPERATURE	Met One Instruments	083E-1-35	R17149	July 28, 2018
BAROMETRIC PRESSURE	Met One Instruments	092	P22757	April 2, 2019
Primary Flow Meter	BIOS	DC-Lite	R537	May 29, 2019
LD-3B	SIBATA	LD-3B	6X7759	Nov 17, 2018

The standards used for this calibration have accuracy equal to or greater than the instrument tested. These standards are on record and traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated, all instruments are calibrated to meet the manufacturer's published specifications. The Calibration system complies with MIL-STD-45662A.

Met One Instruments, Inc.
1600 NW Washington Blvd, Grants Pass, OR
TEL (541) 471-7111 Fax (541) 471-7116

Certificate of Calibration

BT-645

Particulate Monitor

Recommended calibration interval is 24 months from first day of use.

Unit Info

Model: *BT-645* **81865-1 Firmware Rev:** *1.1.0*

Serial Number: *X19297* *1.0.1*

Calibrated By: *R. von Krohn* **Cal. Date:** *7/27/2018*

Quality Inspector: R Von **Date:** 7-27-2018

Calibration Hz/µg/m³: *5.8*

Final Test

Flow (2.0 L/M): Pass

Ambient T (C) *24.8*

RH, % *39*

Serial Communication: Pass

BT-645 Conc.: *421.14* Standard Conc: *413.04*

Calibration Standards

Standards	Manufacturer	Model	SN	Cal Due
DMM Multimeter	Fluke	189 Multimeter	94060816	8/28/2018
RH &TEMPERATURE	Met One Instruments	083E-1-35	R17149	July 28, 2018
BAROMETRIC PRESSURE	Met One Instruments	092	P22757	April 2, 2019
Primary Flow Meter	BIOS	DC-Lite	R537	May 29, 2019
LD-3B	SIBATA	LD-3B	6X7759	Nov 17, 2018

The standards used for this calibration have accuracy equal to or greater than the instrument tested. These standards are on record and traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated, all instruments are calibrated to meet the manufacturer's published specifications. The Calibration system complies with MIL-STD-45662A.

Met One Instruments, Inc.
1600 NW Washington Blvd, Grants Pass, OR
TEL (541) 471-7111 Fax (541) 471-7116

Certificate of Calibration

BT-645

Particulate Monitor

Recommended calibration interval is 24 months from first day of use.

Unit Info

Model: *BT-645* **81865-1 Firmware Rev:** *1.1.0*

Serial Number: *X19298* *1.0.1*

Calibrated By: *R. von Krohn* **Cal. Date:** *7/27/2018*

Quality Inspector: *RvK* **Date:** *7-27-2018*

Calibration Hz/µg/m³: *7.7*

Final Test

Flow (2.0 L/M): Pass

Ambient T (C) *24.8*

RH, % *39*

Serial Communication: Pass

BT-645 Conc.: *413.48* Standard Conc: *412.22*

Calibration Standards

Standards	Manufacturer	Model	SN	Cal Due
DMM Multimeter	Fluke	189 Multimeter	94060816	8/28/2018
RH &TEMPERATURE	Met One Instruments	083E-1-35	R17149	July 28, 2018
BAROMETRIC PRESSURE	Met One Instruments	092	P22757	April 2, 2019
Primary Flow Meter	BIOS	DC-Lite	R537	May 29, 2019
LD-3B	SIBATA	LD-3B	6X7759	Nov 17, 2018

The standards used for this calibration have accuracy equal to or greater than the instrument tested. These standards are on record and traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated, all instruments are calibrated to meet the manufacturer's published specifications. The Calibration system complies with MIL-STD-45662A.

Met One Instruments, Inc.
1600 NW Washington Blvd, Grants Pass, OR
TEL (541) 471-7111 Fax (541) 471-7116

Certificate of Calibration

BT-645

Particulate Monitor

Recommended calibration interval is 24 months from first day of use.

Unit Info

Model: *BT-645* **81865-1 Firmware Rev:** *1.1.0*

Serial Number: *X19299* *1.0.1*

Calibrated By: *R. von Krohn* **Cal. Date:** *7/27/2018*

Quality Inspector: R. von Krohn **Date:** 7-27-2018

Calibration Hz/µg/m³: *5.81*

Final Test

Flow (2.0 L/M): Pass

Ambient T (C) *24.8*

RH, % *39*

Serial Communication: Pass

BT-645 Conc.: *413.52* Standard Conc: *412.22*

Calibration Standards

Standards	Manufacturer	Model	SN	Cal Due
DMM Multimeter	Fluke	189 Multimeter	94060816	8/28/2018
RH &TEMPERATURE	Met One Instruments	083E-1-35	R17149	July 28, 2018
BAROMETRIC PRESSURE	Met One Instruments	092	P22757	April 2, 2019
Primary Flow Meter	BIOS	DC-Lite	R537	May 29, 2019
LD-3B	SIBATA	LD-3B	6X7759	Nov 17, 2018

The standards used for this calibration have accuracy equal to or greater than the instrument tested. These standards are on record and traceable to NIST to the extent allowed by the institute's calibration facility. Unless otherwise stated, all instruments are calibrated to meet the manufacturer's published specifications. The Calibration system complies with MIL-STD-45662A.

PILOT TESTING

REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME	:	PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	:	15/5/2018
REPORT NO.	:	HK1810475

PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE	:	Portable Dust Monitor
MANUFACTURER	:	MET ONE INSTRUMENTS
MODEL NO.	:	BT 645
SERIAL NO.	:	R22586
EQUIPMENT NO.	:	---
PERFORMANCE CHECK / CALIBRATION DATE	:	13/5/2018

STANDARD EQUIPMENT

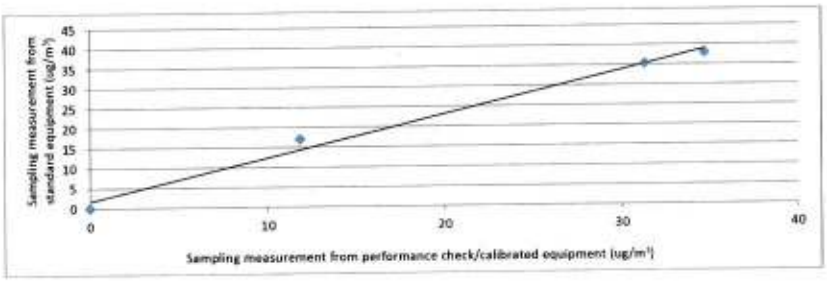
	:	
TYPE	:	HIGH VOLUME AIR SAMPLER
MANUFACTURER	:	TISCH
MODEL NO.	:	TE-5170
EQUIPMENT REF NO.	:	PTL_HV002
LAST CALIBRATION DATE	:	27/4/2018

EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Trial no. in 1-hr period	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in ug/m³ (Standard equipment) (Y - Axis)	Concentration in ug/m³ (Performance Check / Calibrated equipment) (X - Axis)
Zero Check[1]	13/5/2018,2:00:00 PM	28	1011	0	0
1	13/5/2018,3:36:00 PM	28	1011	38	35
2	13/5/2018,4:42:00 PM	28	1011	35	31
3	13/5/2018,5:35:00 PM	28	1011	17	12

Linear Regression of Y on X

Slope (K- factor)	:	1.1000
Correlation Coefficient	:	0.9942
Validity of Performance Check / Calibration Record	:	13/5/2019



Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.

2. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.

3. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: MA Ching Him, Jackey Signature: _____ Date: 13/5/2018

Checked by: Wong Po Yan, Pauline Signature: _____ Date: 15/5/2018

PILOT TESTING

REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME	:	PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	:	13/5/2018
REPORT NO.	:	HK1810447

PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE	:	AEROSOL MASS MONITOR
MANUFACTURER	:	MET ONE INSTRUMENTS
MODEL NO.	:	AEROCET - 831
SERIAL NO.	:	W14016
EQUIPMENT NO.	:	---
PERFORMANCE CHECK / CALIBRATION DATE	:	11/5/2018

STANDARD EQUIPMENT

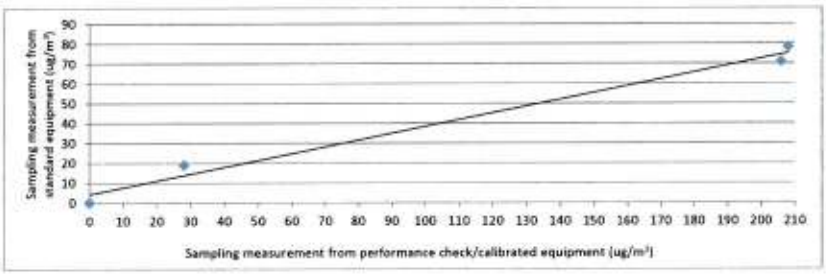
TYPE	:	HIGH VOLUME AIR SAMPLER
MANUFACTURER	:	TISCH
MODEL NO.	:	TE-5170
EQUIPMENT REF NO.	:	PTL_HV002
LAST CALIBRATION DATE	:	27/4/2018

EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Trial no. in 1-hr period	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in ug/m^3 (Standard equipment) (Y - Axis)	Concentration in ug/m^3 (Performance Check / Calibrated equipment) (X - Axis)
Zero Check[1]	11/5/2018,9:00:00 AM	24	1014	0	0
1	11/5/2018,10:05:00 AM	24	1014	78	208
2	11/5/2018,11:29:00 AM	24	1014	71	206
3	11/5/2018,12:35:00 AM	24	1014	19	28

Linear Regression of Y on X

Slope (K- factor)	:	0.3400
Correlation Coefficient	:	0.9925
Validity of Performance Check / Calibration Record	:	11/5/2019



Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.

2. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.

3. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: MA Ching Him, Jackey Signature: _____ Date: 11/5/2018

Checked by: Wong Po Yan, Pauline Signature: _____ Date: 13/5/2018

PILOT TESTING

REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME	:	PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	:	27/6/2018
REPORT NO.	:	HK1810626

PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE	:	AEROSOL MASS MONITOR
MANUFACTURER	:	MET ONE INSTRUMENTS
MODEL NO.	:	AEROCET - 831
SERIAL NO.	:	W15448
EQUIPMENT NO.	:	---
PERFORMANCE CHECK / CALIBRATION DATE	:	26/6/2018

STANDARD EQUIPMENT

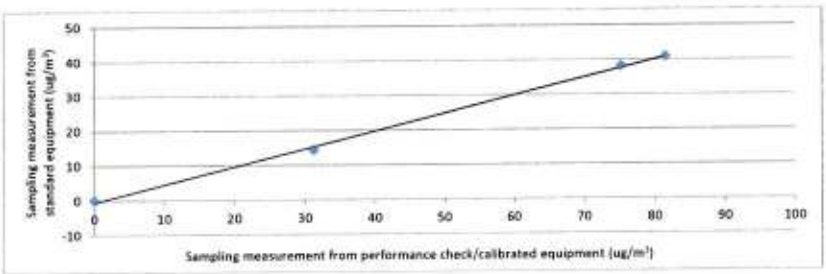
TYPE	:	HIGH VOLUME AIR SAMPLER
MANUFACTURER	:	TISCH
MODEL NO.	:	TE-5170
EQUIPMENT REF NO.	:	PTL_HV002
LAST CALIBRATION DATE	:	27/4/2018

EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Trial no. in 1-hr period	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in ug/m^3 (Standard equipment) (Y - Axis)	Concentration in ug/m^3 (Performance Check / Calibrated equipment) (X - Axis)
Zero Check[1]	26/6/2018,8:15:00 AM	29.2	1011	0	0
1	26/6/2018,9:59:00 AM	29.2	1011	38	75
2	26/6/2018,11:06:00 AM	29.2	1011	41	82
3	26/6/2018,12:11:00 PM	29.2	1011	14	31

Linear Regression of Y on X

Slope (K- factor)	:	0.5100
Correlation Coefficient	:	0.9994
Validity of Performance Check / Calibration Record	:	26/6/2019



Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.

2. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.

3. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: Lau, Natalie Signature: _____ Date: 26/6/2018

Checked by: Wong Po Yan, Pauline Signature: _____ Date: 27/6/2018

REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME	:	PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	:	11/9/2017
REPORT NO.	:	HK1710715

PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE	:	AEROSOL MASS MONITOR
MANUFACTURER	:	MET ONE INSTRUMENTS
MODEL NO.	:	AEROCET - 831
SERIAL NO.	:	W15449
EQUIPMENT NO.	:	---
PERFORMANCE CHECK / CALIBRATION DATE	:	31/8/2017

STANDARD EQUIPMENT

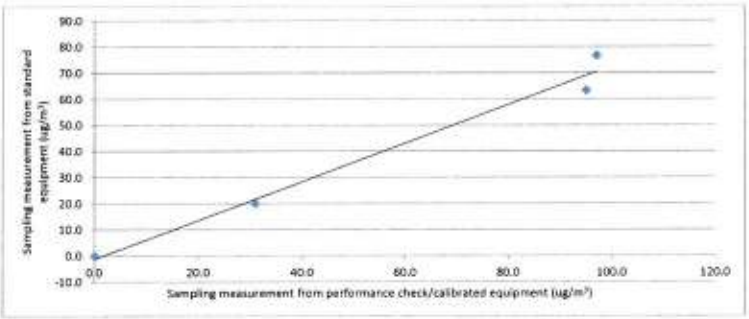
TYPE	:	HIGH VOLUME AIR SAMPLER
MANUFACTURER	:	TISCH
MODEL NO.	:	TE-5170
EQUIPMENT REF NO.	:	PTL_HV002
LAST CALIBRATION DATE	:	31/7/2017

EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Trial no. in 1-hr period	Time	Mean Temp (C)	Mean Pressure (hPa)	Concentration in ug/m^3 (Standard equipment) (Y - Axis)	Concentration in ug/m^3 (Performance Check / Calibrated equipment) (X - Axis)
Zero Check[1]	31/8/2017,11:15:00 AM	29	1007	0	0
1	31/8/2017,1:23:00 PM	29	1007	77	97
2	31/8/2017,2:27:00 PM	29	1007	63	95
3	31/8/2017,3:29:00 PM	29	1007	20	31

Linear Regression of Y on X

Slope (K- factor)	:	0.7400
Correlation Coefficient	:	0.9904
Validity of Performance Check / Calibration Record	:	31/8/2018



Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.

2. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.

3. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: MA Ching Him, Jackey Signature: Date: 31/8/2017

Checked by: Wong Po Yan, Pauline Signature: Date: 11/9/2017

REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME	:	PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	:	16/8/2018
REPORT NO.	:	HK1810819

PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE	:	AEROSOL MASS MONITOR
MANUFACTURER	:	MET ONE INSTRUMENTS
MODEL NO.	:	AEROCET - 831
SERIAL NO.	:	W16848
EQUIPMENT NO.	:	---
PERFORMANCE CHECK / CALIBRATION DATE	:	15/8/2018

STANDARD EQUIPMENT

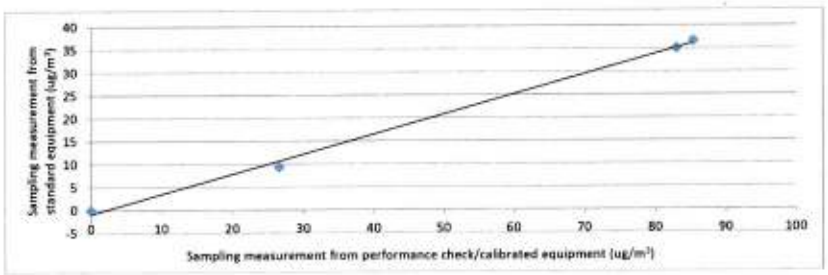
TYPE	:	HIGH VOLUME AIR SAMPLER
MANUFACTURER	:	TISCH
MODEL NO.	:	TE-5170
EQUIPMENT REF NO.	:	PTL_HV002
LAST CALIBRATION DATE	:	25/7/2018

EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Trial no. in 1-hr period	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in ug/m^3 (Standard equipment) (Y - Axis)	Concentration in ug/m^3 (Performance Check / Calibrated equipment) (X - Axis)
Zero Check[1]	15/8/2018,9:05:00 AM	28.2	999	0	0
1	15/8/2018,10:20:00 AM	28.2	999	37	85
2	15/8/2018,11:22:00 AM	28.2	999	35	83
3	15/8/2018,12:29:00 PM	28.2	999	9	27

Linear Regression of Y on X

Slope (K- factor)	:	0.4400
Correlation Coefficient	:	0.9988
Validity of Performance Check / Calibration Record	:	15/8/2019



Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.

2. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.

3. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: Lau, Natalie Signature: _____ Date: 15/8/2018

Checked by: Wong Po Yan, Pauline Signature: _____ Date: 16/8/2018

Room B12, Block B, 5/F, Tonic Industrial Centre, 19 Lam Hing Street, Kowloon Bay, Kowloon
Tel: (852) 2527 6691 Email: info@pilot-testing.com

PILOT TESTING

REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME	:	PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	:	16/8/2018
REPORT NO.	:	HK1810826

PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE	:	PARTICULATE MONITOR
MANUFACTURER	:	MET ONE INSTRUMENTS
MODEL NO.	:	BT 645
SERIAL NO.	:	X19295
EQUIPMENT NO.	:	---
PERFORMANCE CHECK / CALIBRATION DATE	:	16/8/2018

STANDARD EQUIPMENT

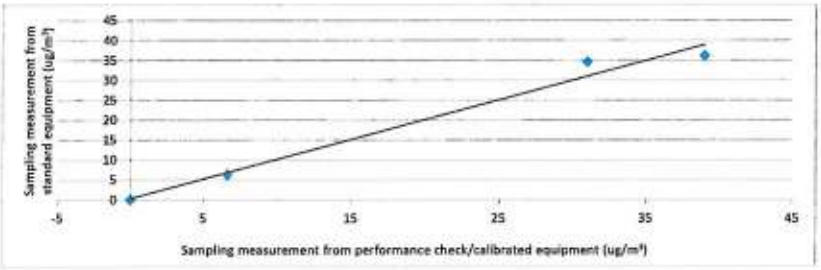
TYPE	:	HIGH VOLUME AIR SAMPLER
MANUFACTURER	:	TISCH
MODEL NO.	:	TE-5170
EQUIPMENT REF NO.	:	PTL_HV002
LAST CALIBRATION DATE	:	25/7/2018

EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Trial no. in 1-hr period	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in ug/m^3 (Standard equipment) (Y - Axis)	Concentration in ug/m^3 (Performance Check / Calibrated equipment) (X - Axis)
Zero Check[1]	16/8/2018,8:30:00 AM	27.8	1000	0	0
1	16/8/2018,2:16:00 PM	27.8	1000	36	39
2	16/8/2018,3:21:00 PM	27.8	1000	35	31
3	16/8/2018,4:24:00 PM	27.8	1000	6	7

Linear Regression of Y on X

Slope (K- factor)	:	1.0000
Correlation Coefficient	:	0.9901
Validity of Performance Check / Calibration Record	:	16/8/2019



Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.

2. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.

3. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: Lau, Natalie Signature: Date: 16/8/2018

Checked by: Wong Po Yan, Pauline Signature: Date: 16/8/2018

Room B12, Block B, 5/F, Tonic Industrial Centre, 19 Lam Hing Street, Kowloon Bay, Kowloon
Tel: (852) 2527 6691 Email: info@pilot-testing.com

PILOT TESTING

REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME	:	PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	:	16/8/2018
REPORT NO.	:	HK1810827

PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE	:	PARTICULATE MONITOR
MANUFACTURER	:	MET ONE INSTRUMENTS
MODEL NO.	:	BT 645
SERIAL NO.	:	X19296
EQUIPMENT NO.	:	---
PERFORMANCE CHECK / CALIBRATION DATE	:	16/8/2018

STANDARD EQUIPMENT :

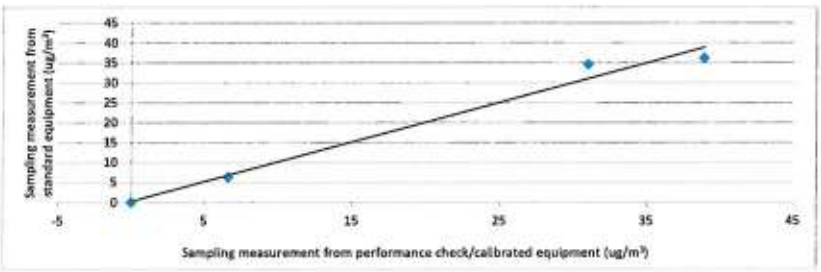
TYPE	:	HIGH VOLUME AIR SAMPLER
MANUFACTURER	:	TISCH
MODEL NO.	:	TE-5170
EQUIPMENT REF NO.	:	PTL_HV002
LAST CALIBRATION DATE	:	25/7/2018

EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Trial no. in 1-hr period	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in ug/m^3 (Standard equipment) (Y - Axis)	Concentration in ug/m^3 (Performance Check / Calibrated equipment) (X - Axis)
Zero Check[1]	16/8/2018,8:30:00 AM	27.8	1000	0	0
1	16/8/2018,2:16:00 PM	27.8	1000	36	39
2	16/8/2018,3:21:00 PM	27.8	1000	35	31
3	16/8/2018,4:24:00 PM	27.8	1000	6	7

Linear Regression of Y on X

Slope (K- factor)	:	1.0000
Correlation Coefficient	:	0.9904
Validity of Performance Check / Calibration Record	:	16/8/2019



Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.

2. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.

3. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: Lau, Natalie Signature: _____ Date: 16/8/2018

Checked by: Wong Po Yan, Pauline Signature: _____ Date: 16/8/2018

REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME	:	PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	:	22/8/2018
REPORT NO.	:	HK1810828

PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE	:	PARTICULATE MONITOR
MANUFACTURER	:	MET ONE INSTRUMENTS
MODEL NO.	:	BT 645
SERIAL NO.	:	X19297
EQUIPMENT NO.	:	---
PERFORMANCE CHECK / CALIBRATION DATE	:	17/8/2018

STANDARD EQUIPMENT

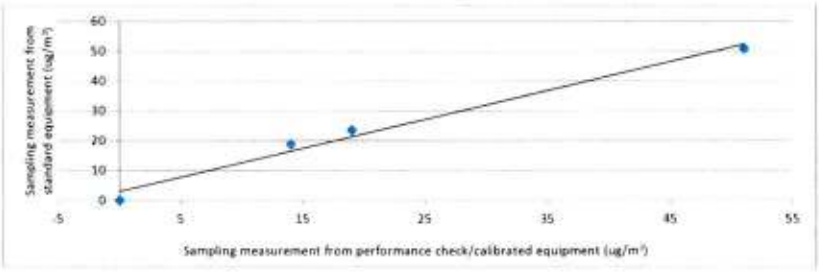
TYPE	:	HIGH VOLUME AIR SAMPLER
MANUFACTURER	:	TISCH
MODEL NO.	:	TE-5170
EQUIPMENT REF NO.	:	PTL_HV002
LAST CALIBRATION DATE	:	25/7/2018

EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Trial no. in 1-hr period	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in ug/m^3 (Standard equipment) (Y - Axis)	Concentration in ug/m^3 (Performance Check / Calibrated equipment) (X - Axis)
Zero Check[1]	17/8/2018,7:20:00 AM	28	1005	0	0
1	17/8/2018,8:24:00 PM	28	1005	51	51
2	17/8/2018,9:26:00 PM	28	1005	24	19
3	17/8/2018,10:28:00 PM	28	1005	19	14

Linear Regression of Y on X

Slope (K- factor)	:	1.0000
Correlation Coefficient	:	0.9921
Validity of Performance Check / Calibration Record	:	17/8/2019



Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.

2. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.

3. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: Lau, Natalie Signature: Date: 17/8/2018

Checked by: Wong Po Yan, Pauline Signature: Date: 22/8/2018

PILOT TESTING

REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME	:	PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	:	22/8/2018
REPORT NO.	:	HK1810829

PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE	:	PARTICULATE MONITOR
MANUFACTURER	:	MET ONE INSTRUMENTS
MODEL NO.	:	BT 645
SERIAL NO.	:	X19298
EQUIPMENT NO.	:	---
PERFORMANCE CHECK / CALIBRATION DATE	:	17/8/2018

STANDARD EQUIPMENT

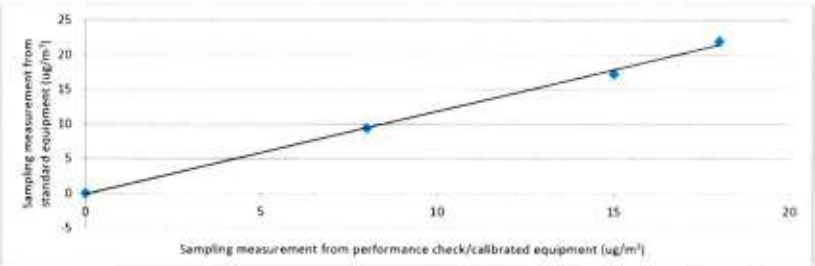
TYPE	:	HIGH VOLUME AIR SAMPLER
MANUFACTURER	:	TISCH
MODEL NO.	:	TE-5170
EQUIPMENT REF NO.	:	PTL_HV002
LAST CALIBRATION DATE	:	25/7/2018

EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Trial no. in 1-hr period	Time	Mean Temp (C)	Mean Pressure (hPa)	Concentration in ug/m^3 (Standard equipment) (Y - Axis)	Concentration in ug/m^3 (Performance Check / Calibrated equipment) (X - Axis)
Zero Check[1]	17/8/2018,4:50:00 PM	28	1005	0	0
1	17/8/2018,5:52:00 PM	28	1005	22	18
2	17/8/2018,6:58:00 PM	28	1005	17	15
3	17/8/2018,8:00:00 PM	28	1005	9	8

Linear Regression of Y on X

Slope (K- factor)	:	1.2000
Correlation Coefficient	:	0.9988
Validity of Performance Check / Calibration Record	:	17/8/2019



Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.

2. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.

3. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: Lau, Natalie Signature: Date: 17/8/2018

Checked by: Wong Po Yan, Pauline Signature: Date: 22/8/2018

REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME	:	PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	:	22/8/2018
REPORT NO.	:	HK1810830

PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE	:	PARTICULATE MONITOR
MANUFACTURER	:	MET ONE INSTRUMENTS
MODEL NO.	:	BT 645
SERIAL NO.	:	X19299
EQUIPMENT NO.	:	---
PERFORMANCE CHECK / CALIBRATION DATE	:	17/8/2018

STANDARD EQUIPMENT

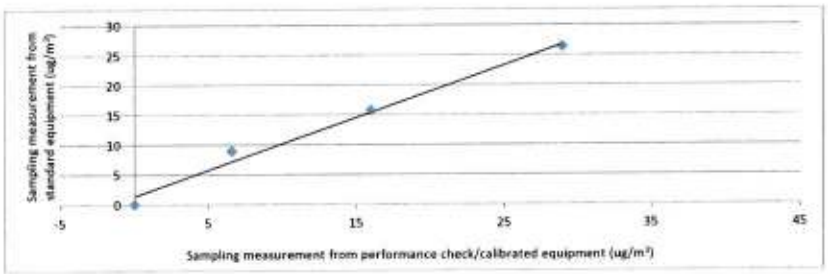
TYPE	:	HIGH VOLUME AIR SAMPLER
MANUFACTURER	:	TISCH
MODEL NO.	:	TE-5170
EQUIPMENT REF NO.	:	PTL_HV002
LAST CALIBRATION DATE	:	25/7/2018

EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Trial no. in 1-hr period	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in ug/m^3 (Standard equipment) (Y - Axis)	Concentration in ug/m^3 (Performance Check / Calibrated equipment) (X - Axis)
Zero Check[1]	17/8/2018,11:30:00 AM	27.2	1000	0	0
1	17/8/2018,1:34:00 PM	27.2	1000	26	29
2	17/8/2018,2:40:00 PM	27.2	1000	16	16
3	17/8/2018,3:45:00 PM	27.2	1000	9	7

Linear Regression of Y on X

Slope (K- factor)	:	0.9000
Correlation Coefficient	:	0.9928
Validity of Performance Check / Calibration Record	:	17/8/2019



Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.
2. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
3. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: Lee, Ray Signature: Ray Date: 17/8/2018

Checked by: Wong Po Yan, Pauline Signature: Date: 22/8/2018

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

Certificate No.: 18CA0322 01 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	Larson Davis	,	PCB
Type/Model No.:	LxT1	,	377B02
Serial/Equipment No.:	0003737	,	171529
Adaptors used:	-	,	-

Item submitted by

Customer Name:	Lam Geotechnics Ltd.
Address of Customer:	-
Request No.:	-
Date of receipt:	22-Mar-2018

Date of test: 28-Mar-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	08-Sep-2018	CIGISMEC
Signal generator	DS 360	61227	01-Apr-2018	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

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

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Jun Qi **Date:** 06-Apr-2018 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

© Soils & Materials Engineering Co. Ltd

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 18CA0322 01 Page 2 of 2

1, Electrical Tests

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

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	2.1
	Lin	Pass	1.6	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	N/A	N/A	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

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

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

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by: Fung Chi Yip Date: 28-Mar-2018

Checked by: Lam Tze Wai Date: 06-Apr-2018

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

© Soils & Materials Engineering Co. Ltd.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

Certificate No.: 18CA0510 04 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone	Preamp
Manufacturer:	Larson Davis	PCB	PCB
Type/Model No.:	LxT1	377B02	PRMLxT1L
Serial/Equipment No.:	0004796	155507	042621
Adaptors used:	-	-	-

Item submitted by

Customer Name:	Lam Geotechnics Ltd
Address of Customer:	-
Request No.:	-
Date of receipt:	10-May-2018

Date of test: 11-May-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	08-Sep-2018	CIGISMEC
Signal generator	DS 360	61227	23-Apr-2019	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

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

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi Date: 11-May-2018 Company Chop: SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

© Soils & Materials Engineering Co. Ltd.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 18CA0510 04 Page 2 of 2

1, Electrical Tests

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

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	2.1
	Lin	Pass	1.6	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

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

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

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by: Fung Chi Yip Date: 11-May-2018

Checked by: Shek Kwong Tai Date: 11-May-2018

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

© Soils & Materials Engineering Co., Ltd

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

Certificate No.: 18CA0322 02 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	Honglim Co., Ltd.	,	-
Type/Model No.:	HLES-01	,	CDM101
Serial/Equipment No.:	201692136	,	05866
Adaptors used:	-	,	-

Item submitted by

Customer Name:	Lam Environmental Service Ltd.
Address of Customer:	-
Request No.:	-
Date of receipt:	22-Mar-2018

Date of test: 28-Mar-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	08-Sep-2018	CIGISMEC
Signal generator	DS 360	33873	25-Apr-2018	CEPREI
Signal generator	DS 360	61227	01-Apr-2018	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1000 ± 5 hPa

Test specifications

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

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Jun Qi **Date:** 06-Apr-2018 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

© Soils & Materials Engineering Co., Ltd.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 18CA0322 02 Page 2 of 2

1, Electrical Tests

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

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	2.1
	Lin	N/A	N/A	
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	N/A	N/A	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	N/A	N/A	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	N/A	N/A	
	Repeated at frequency of 100 Hz	N/A	N/A	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

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

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

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by: Fung Chi Yip Date: 28-Mar-2018

Checked by: Lam Tze Wai Date: 06-Apr-2018

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

© Soils & Materials Engineering Co., Ltd.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

Certificate No.: 17CA1020 01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2160277	,	1830284
Adaptors used:	-	,	-

Item submitted by

Customer Name:	Lam Environmental Service Ltd.
Address of Customer:	-
Request No.:	-
Date of receipt:	20-Oct-2017

Date of test: 24-Oct-2017

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	08-Sep-2018	CIGISMEC
Signal generator	DS 360	33873	25-Apr-2018	CEPREI
Signal generator	DS 360	61227	01-Apr-2018	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1010 ± 5 hPa

Test specifications

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

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 24-Oct-2017 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

© Soils & Materials Engineering Co., Ltd.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028 - CAL) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation. Such terms of accreditation stipulate that the results shall be traceable to the International System of Units (S.I.) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

(Continuation Page)

1, Electrical Tests

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

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

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

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

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by: Lai Sheng Jie
Date: 24-Oct-2017

Checked by: Fung Chi Yip
Date: 24-Oct-2017

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

© Soils & Materials Engineering Co., Ltd

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028 - CAL) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation. Such terms of accreditation stipulate that the results shall be traceable to the International System of Units (S.I.) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

Certificate No.: 17CA1110 02 **Page:** 1 of 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Rion Co., Ltd.
Type/Model No.:	NC-73
Serial/Equipment No.:	10707358
Adaptors used:	-

Item submitted by

Curstomer:	Lam Geotechnics Ltd.
Address of Customer:	-
Request No.:	-
Date of receipt:	10-Nov-2017

Date of test: 14-Nov-2017

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	11-Apr-2018	SCL
Preamplifier	B&K 2673	2239857	05-May-2018	CEPREI
Measuring amplifier	B&K 2610	2346941	03-May-2018	CEPREI
Signal generator	DS 360	61227	01-Apr-2018	CEPREI
Digital multi-meter	34401A	US36087050	25-Apr-2018	CEPREI
Audio analyzer	8903B	GB41300350	21-Apr-2018	CEPREI
Universal counter	53132A	MY40003662	22-Apr-2018	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1010 ± 5 hPa

Test specifications

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

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

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

Approved Signatory: Huang ~~Jian Min~~/Feng Jun Qi **Date:** 15-Nov-2017 **Company Chop:**

SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

© Soils & Materials Engineering Co., Ltd.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028 - CAL) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation. Such terms of accreditation stipulate that the results shall be traceable to the International System of Units (S.I.) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 17CA1110 02 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

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

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	93.93	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz **STF = 0.008 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz **Actual Frequency = 991.5 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz **TND = 0.3 %**

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by: Lai Sheng Jie **Checked by:** Fung Chi Yip

Date: 14-Nov-2017 **Date:** 15-Nov-2017

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

© Soils & Materials Engineering Co., Ltd.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028 - CAL) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation. Such terms of accreditation stipulate that the results shall be traceable to the International System of Units (S.I.) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

Certificate No.: 18CA0309 02 **Page:** 1 of 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Larson Davis
Type/Model No.:	CAL200
Serial/Equipment No.:	13098
Adaptors used:	-

Item submitted by

Curstomer:	Lam Environmental Service Ltd.
Address of Customer:	-
Request No.:	-
Date of receipt:	09-Mar-2018

Date of test: 12-Mar-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	11-Apr-2018	SCL
Preamplifier	B&K 2673	2239857	05-May-2018	CEPREI
Measuring amplifier	B&K 2610	2346941	03-May-2018	CEPREI
Signal generator	DS 360	61227	01-Apr-2018	CEPREI
Digital multi-meter	34401A	US36087050	25-Apr-2018	CEPREI
Audio analyzer	8903B	GB41300350	21-Apr-2018	CEPREI
Universal counter	53132A	MY40003662	22-Apr-2018	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1000 ± 5 hPa

Test specifications

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

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

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

Approved Signatory: Feng Jun Qi **Date:** 12-Mar-2018 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

© Soils & Materials Engineering Co., Ltd.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

(Continuation Page)

1, Measured Sound Pressure Level

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

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.0	93.81	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz **STF = 0.011 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz **Actual Frequency = 1000.0 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz **TND = 0.6 %**

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by: Fung Chi Yip **Date:** 12-Mar-2018

Checked by: Lam Tze Wai **Date:** 12-Mar-2018

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

© Soils & Materials Engineering Co. Ltd

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are traceable to the International System of Units (SI) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

Certificate No.: 17CA1124 02 **Page:** 1 of 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Larson Davis
Type/Model No.:	CAL200
Serial/Equipment No.:	13128
Adaptors used:	-

Item submitted by

Curstomer:	Lam Environmental Service Ltd.
Address of Customer:	-
Request No.:	-
Date of receipt:	24-Nov-2017

Date of test: 30-Nov-2017

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	11-Apr-2018	SCL
Preamplifier	B&K 2673	2239857	05-May-2018	CEPREI
Measuring amplifier	B&K 2610	2346941	03-May-2018	CEPREI
Signal generator	DS 360	61227	01-Apr-2018	CEPREI
Digital multi-meter	34401A	US36087050	25-Apr-2018	CEPREI
Audio analyzer	8903B	GB41300350	21-Apr-2018	CEPREI
Universal counter	53132A	MY40003662	22-Apr-2018	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

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

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

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

Approved Signatory: Feng Jun Qi **Date:** 30-Nov-2017 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

© Soils & Materials Engineering Co. Ltd

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028 - CAL) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation. Such terms of accreditation stipulate that the results shall be traceable to the International System of Units (S.I.) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

(Continuation Page)

1, Measured Sound Pressure Level

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

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.0	94.01	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz **STF = 0.010 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz **Actual Frequency = 999.5 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz **TND = 0.5 %**

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by: Fung Chi Yip **Date:** 30-Nov-2017

Checked by: Lam Tze Wai **Date:** 30-Nov-2017

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

© Soils & Materials Engineering Co., Ltd.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028 - CAL) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation. Such terms of accreditation stipulate that the results shall be traceable to the International System of Units (S.I.) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

Certificate No.: 17CA1020 02 **Page:** 1 **of** 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Larson Davis
Type/Model No.: CAL200
Serial/Equipment No.: 13437
Adaptors used: -

Item submitted by

Curstomer: Lam Geotechnics Ltd.
Address of Customer: -
Request No.: -
Date of receipt: 20-Oct-2017

Date of test: 23-Oct-2017

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	11-Apr-2018	SCL
Preamplifier	B&K 2673	2239857	05-May-2018	CEPREI
Measuring amplifier	B&K 2610	2346941	03-May-2018	CEPREI
Signal generator	DS 360	61227	01-Apr-2018	CEPREI
Digital multi-meter	34401A	US36087050	25-Apr-2018	CEPREI
Audio analyzer	8903B	GB41300350	21-Apr-2018	CEPREI
Universal counter	53132A	MY40003662	22-Apr-2018	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 50 ± 10 %
Air pressure: 1000 ± 5 hPa

Test specifications

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

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

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

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 24-Oct-2017 **Company Chop:**

SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

© Soils & Materials Engineering Co. Ltd

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028 - CAL) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation. Such terms of accreditation stipulate that the results shall be traceable to the International System of Units (S.I.) or recognised measurement standards. This certificate shall not be reproduced except in full.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港黃竹坑道37號利達中心12樓
12/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel: (852) 2873 6860
Fax: (852) 2555 7533

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 17CA1020 02 Page: 2 of 2

1, Measured Sound Pressure Level

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

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	(Output level in dB re 20 μPa) Estimated Expanded Uncertainty dB
1000	94.0	93.90	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz **STF = 0.011 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz **Actual Frequency = 1000.2 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz **TND = 0.6 %**

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by: Lai Sheng Jie **Checked by:** Fung Chi Yip

Date: 23-Oct-2017 **Date:** 24-Oct-2017

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

© Soils & Materials Engineering Co., Ltd.

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (Reg. No. HOKLAS 028 - CAL) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS Directory of Accredited Laboratories. The results shown in this certificate were determined by this laboratory in accordance with its terms of accreditation. Such terms of accreditation stipulate that the results shall be traceable to the International System of Units (S.I.) or recognised measurement standards. This certificate shall not be reproduced except in full.

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

Information supplied by customer:

CONTACT:	**MR. SAM LAM**	**WORK ORDER:**	**HK1810696**
CLIENT:	**LAM GEOTECHNICS LIMITED**		
DATE RECEIVED:	**16/07/2018**		
DATE OF ISSUE:	**19/07/2018**		
ADDRESS:	**11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD, WANCHAI, HONG KONG**		
PROJECT:	---		

METHOD OF PERFORMANCE CHECK/ CALIBRATION:
Ref: APHA22nd ed 2130B

COMMENTS
It is certified that the item under performance check/calibration has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.

Scope of Test:	Turbidity
Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1309192
Equipment No.:	---
Date of Calibration:	19/07/2018

Remarks:
This is the Final Report. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Approved Signatory: _____ Issue Date: 19/07/2018

Ms. Wong Po Yan, Pauline
Assistant Laboratory Manager

This report may not be reproduced except with prior written approval from Pilot Testing Limited.

Address: No.B12, 5th Floor, Block B, Tonic Industrial Centre, No.19 Lam Hing Street, Kowloon Bay, Kowloon
Phone +852 2527 6691 | Email info@pilot-testing.com

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: HK1810696
DATE OF ISSUE: 19/07/2018
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1309192
Equipment No.:	---
Date of Calibration:	19/07/2018
Date of next Calibation:	19/10/2018

Parameters:
Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	4.21	5.3%
10	9.75	-2.5%
40	41.05	2.6%
100	99.97	0.0%
400	421	5.3%
1000	1002	0.2%
	Tolerance Limit (±)	10%

Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.

This report may not be reproduced except with prior written approval from Pilot Testing Limited.
Address: No.B12, 5th Floor, Block B, Tonic Industrial Centre, No.19 Lam Hing Street, Kowloon Bay, Kowloon
Phone +852 2527 6691 | Email info@pilot-testing.com

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

Information supplied by customer:

CONTACT: MR. SAM LAM **WORK ORDER: HK1810527**
CLIENT: LAM GEOTECHNICS LIMITED
DATE RECEIVED 31/05/2018
DATE OF ISSUE: 04/06/2018
ADDRESS: 11/F, CENTRE POINT, 181-185, GLOUCESTER ROAD, WANCHAI, HONG KONG
PROJECT: ---

METHOD OF PERFORMANCE CHECK/ CALIBRATION:
Ref: APHA22nd ed 2130B

COMMENTS
It is certified that the item under performance check/calibration has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.

Scope of Test:	Turbidity
Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1403009
Equipment No.:	---
Date of Calibration:	1/6/2018

Remarks:
This is the Final Report. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Approved Signatory: _____ Issue Date: 04/06/2018
Ms. Wong Po Yan, Pauline
Assistant Laboratory Manager

This report may not be reproduced except with prior written approval from Pilot Testing Limited.

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

WORK ORDER: HK1810527
DATE OF ISSUE: 04/06/2018
CLIENT: LAM GEOTECHNICS LIMITED

Equipment Type:	Turbidimeter
Brand Name:	Xin Rui
Model No.:	WGZ-3B
Serial No.:	1403009
Equipment No.:	---
Date of Calibration:	1/6/2018
Date of next Calibation:	1/9/2018

Parameters:
Turbidity

Method Ref: APHA 22nd ed. 2130B

Expected Reading (NTU)	Display Reading (NTU)	Tolerance
0	0.00	---
4	3.82	-4.5%
10	9.99	-0.1%
40	37.7	-5.7%
100	100	0.0%
400	414	3.5%
1000	926	-7.4%
	Tolerance Limit (±)	10%

Remark: "Displayed Reading" presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.

This report may not be reproduced except with prior written approval from Pilot Testing Limited.

Address: No.B12, 5th Floor, Block B, Tonic Industrial Centre, No.19 Lam Hing Street, Kowloon Bay, Kowloon
Phone +852 2527 6691 | Email info@pilot-testing.com

EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT

Report No.	:	HK1810678
Project Name	:	EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT
Date of Issue	:	12/7/2018
Customer	:	LAM ENVIRONMENTAL SERVICES LIMITED
Address	:	11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG
Calibration Job No.	:	HK1810678
Test Item No.	:	HK1810678-01
Test Item Details		
Test Item Description	:	Sonde
Manufacturer	:	YSI
Model No.	:	Professional Plus
Serial No.	:	14K100322
Performance Method	:	Checked according to in-house method CAL005 (References: Temperature (Section 6 of International Accreditation New Zealand Technical Gu No. 3 Second edition March 2008: Working Thermometer Calibration Procedure), pH value (APHA 21e 4500H:B), Salinity (Refer to Conductivity APHA 19e 2510B) , Dissolved oxygen (APHA 19e 4500-O,C))
Test Item Receipt Date	:	10/7/2018
Test Item Calibration Date	:	11/7/2018

Notes :
1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
2. Results relate to item(s) as received.
3. ± indicates the tolerance limit
4. N/A = Not applicable
5. APHA - American Public Health Association, American Water Works Association and Water Environment Federation, Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF. USA
6. DO, pH, salinity and temperature performance check was conducted by Pilot Testing Limited.
7. Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

Approved Signatory : 

Ms. Wong Po Yan, Pauline
(Assistant Laboratory Manager)

Issue Date: 12/7/2018

PILOT TESTING

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1810678
DATE OF ISSUE: 12/7/2018
CLIENT: LAM ENVIRONMENTAL SERVICES LIMITED

Equipment Type	Sonde
Manufacturer	YSI
Model No.	Professional Plus
Serial No.	14K100322
Date of Calibration	11-Jul-18
Date of next Calibation	11-Oct-18

Parameters:

Temperature (Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No.3 Second edition March 2008: Working Thermometer Calibration Procedure)

Reference Reading (°C)	Display Reading (°C)	Deviation (°C)
7.1	7.0	-0.1
13.8	13.9	0.1
27.0	26.8	-0.2
	Tolerance Limit	±2.0

pH Value (Method Ref: APHA21e, 4500H:B)

Expected Reading (pH unit)	Reference Reading (pH unit)	Display Reading (pH unit)	Deviation (pH unit)
4.0	4.08	4.04	-0.04
7.0	7.02	7.16	0.14
10.0	10.00	10.01	0.01
	Tolerance Limit		±0.20

Conductivity (Method Ref: APHA 19e, 2510)

KCl concentration (mol/L)	Reference Reading (ms/cm)	Display Reading (ms/cm)	Deviation (%)
0.0000	0.00	0.00	--
0.1000	12.8	12.8	-0.62
0.2000	23.7	23.7	0.17
0.5000	57.3	56.9	-0.70
	Tolerance Limit		±2.0

Dissolved Oxygen (DO) (Method Ref: APHA 19e, 4500-O, C)

Reference DO reading (mg/L)	DO reading od DO probe (mg/L)	Deviation (mg/L)
7.22	7.14	-0.08
6.69	6.75	0.06
5.80	5.93	0.13
	Tolerance Limit	±0.20

Remarks:
(1) Maxium tolerance and calibration frequency stated in the report, unless otherewise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.
(2) Displayed reading presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.
(3) Because of high sensitivity and ease of measurement, the conductivity method (accoridng to APHA 19e 2510) is used to determine salinity.

- End of Report -

EQUIPMENT PERFORMANCE CHECK / CALIBRATION REPORT

Report No.	:	HK1810585
Project Name	:	EQUIPMENT PERFORMANCE CHECK/CALIBRATION REPORT
Date of Issue	:	22/6/2018
Customer	:	LAM ENVIRONMENTAL SERVICES LIMITED
Address	:	11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG
Calibration Job No.	:	HK1810585
Test Item No.	:	HK1810585-01
Test Item Details		
Test Item Description	:	Sonde
Manufacturer	:	YSI
Model No.	:	Professional Plus
Serial No.	:	17F100236
Performance Method	:	Checked according to in-house method CAL005 (References: Temperature (Section 6 of International Accreditation New Zealand Technical Gu No. 3 Second edition March 2008: Working Thermometer Calibration Procedure), pH value (APHA 21e 4500H:B), Salinity (Refer to Conductivity APHA 19e 2510B) , Dissolved oxygen (APHA 19e 4500-O,C))
Test Item Receipt Date	:	15/6/2018
Test Item Calibration Date	:	21/6/2018

Notes :
1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
2. Results relate to item(s) as received.
3. ± indicates the tolerance limit
4. N/A = Not applicable
5. APHA - American Public Health Association, American Water Works Association and Water Environment Federation, Standard Methods for the Examination of Water and Wastewater, APHA-AWWA-WEF, USA
6. DO, pH, salinity and temperature performance check was conducted by Pilot Testing Limited.
7. Because of high sensitivity and ease of measurement, the conductivity method (according to APHA 19e 2510) is used to determine salinity.

Approved Signatory : 

Ms. Wong Po Yan, Pauline
(Assistant Laboratory Manager)

Issue Date: 22/6/2018

PILOT TESTING

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1810585
DATE OF ISSUE: 22/6/2018
CLIENT: LAM ENVIRONMENTAL SERVICES LIMITED

Equipment Type	Sonde
Manufacturer	YSI
Model No.	Professional Plus
Serial No.	17F100236
Date of Calibration	21-Jun-18
Date of next Calibation	21-Sep-18

Parameters:

Temperature (Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No.3 Second edition March 2008: Working Thermometer Calibration Procedure)

Reference Reading (°C)	Display Reading (°C)	Deviation (°C)
8.8	8.8	0.0
15.9	15.9	0.0
25.4	25.5	0.1
	Tolerance Limit	±2.0

pH Value (Method Ref: APHA21e, 4500H:B)

Expected Reading (pH unit)	Reference Reading (pH unit)	Display Reading (pH unit)	Deviation (pH unit)
4.0	4.02	4.01	-0.01
7.0	7.01	6.94	-0.07
10.0	9.97	9.98	0.01
	Tolerance Limit		±0.20

Conductivity (Method Ref: APHA 19e, 2510)

KCl concentration (mol/L)	Reference Reading (ms/cm)	Display Reading (ms/cm)	Deviation (%)
0.0000	0.00	0.00	--
0.1000	12.7	12.7	-0.16
0.2000	24.6	24.5	-0.53
0.5000	57.1	56.2	-1.58
	Tolerance Limit		±2.0

Dissolved Oxygen (DO) (Method Ref: APHA 19e, 4500-O, C)

Reference DO reading (mg/L)	DO reading od DO probe (mg/L)	Deviation (mg/L)
7.14	7.28	0.14
6.76	6.69	-0.07
4.48	4.58	0.10
	Tolerance Limit	±0.20

Remarks:
(1) Maxium tolerance and calibration frequency stated in the report, unless otherewise stated, the internal acceptance criteria of Pilot Testing Limited will be followed.
(2) Displayed reading presents the figures shown on item under calibration/checking regardless of equipment precision or significant figures.
(3) Because of high sensitivity and ease of measurement, the conductivity method (accoridng to APHA 19e 2510) is used to determine salinity.

- End of Report -

Appendix C

Baseline Air Quality Monitoring Data

1hr TSP Monitoring Results at NCWBR_AMS-1 Shun Lee Fire Station

Day	Date	Time	Mass Conc. (ug/m^3)
1	13-Aug-18	8:19	20.1
		9:20	17.8
		10:21	20.7
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3	
3	15-Aug-18	8:43	43.1
		9:44	33.2
		10:45	33.8
4	16-Aug-18	12:40	48.5
		13:41	37.3
		14:42	38.8
5	17-Aug-18	8:50	46.7
		9:51	16.5
		10:52	19.2
6	18-Aug-18	8:21	52.8
		9:22	49.8
		10:23	48.4
7	19-Aug-18	8:52	13.4
		9:53	18.0
		10:54	26.1
8	20-Aug-18	9:12	127.2
		10:13	87.0
		11:14	76.9
9	21-Aug-18	10:09	96.8
		13:00	48.8
		14:01	48.5
10	22-Aug-18	9:47	90.3
		10:48	55.8
		13:00	67.3
11	23-Aug-18	9:46	67.1
		10:47	62.1
		11:48	70.9
12	24-Aug-18	8:56	76.2
		9:57	66.1
		10:58	90.1
13	25-Aug-18	9:18	75.2
		10:19	73.9
		11:20	89.6
14	26-Aug-18	10:09	29.4
		11:10	31.0
		12:10	37.0
15	27-Aug-18	8:56	73.1
		9:57	51.0
		10:58	45.2
		Average	52.9
		Max	127.2
		Min	13.4

1hr TSP Monitoring Results at NCWBR_AMS-2 Shun Lee Estate Lee Hang House

Day	Date	Time	Mass Conc. (ug/m^3)
1	13-Aug-18	9:03	15.6
		10:04	14.8
		11:05	15.9
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3	
3	15-Aug-18	8:16	51.5
		9:17	33.4
		10:18	28.9
4	16-Aug-18	12:44	33.7
		13:45	23.6
		14:46	27.3
5	17-Aug-18	9:12	31.3
		10:13	23.6
		11:14	19.7
6	18-Aug-18	8:29	33.7
		9:30	27.4
		10:31	25.5
7	19-Aug-18	8:37	27.2
		9:38	23.4
		10:39	37.9
8	20-Aug-18	13:00	86.1
		14:01	90.8
		15:02	89.6
9	21-Aug-18	12:58	47.8
		13:59	52.5
		15:00	47.2
10	22-Aug-18	9:06	106.3
		10:07	65.0
		13:00	76.5
11	23-Aug-18	9:04	72.2
		10:05	59.2
		11:06	68.5
12	24-Aug-18	8:29	72.3
		9:30	70.7
		10:31	86.0
13	25-Aug-18	9:07	76.6
		10:08	79.5
		11:09	84.5
14	26-Aug-18	10:13	33.0
		11:14	37.3
		12:15	38.8
15	27-Aug-18	9:39	60.5
		10:40	48.9
		11:41	47.7
		Average	49.8
		Max	106.3
		Min	14.8

1hr TSP Monitoring Results at NCWBR_AMS-3 Shun Lee Disciplined Services Quarters (Block 6)

Day	Date	Time	Mass Conc. (ug/m^3)
1	13-Aug-18	8:35	9.2
		9:36	12.3
		10:37	21.7
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3	
3	15-Aug-18	8:44	25.7
		9:45	23.7
		10:46	20.6
4	16-Aug-18	12:39	24.2
		13:40	22.4
		14:41	24.1
5	17-Aug-18	8:59	14.8
		10:00	6.3
		11:01	8.6
6	18-Aug-18	8:29	32.6
		9:30	29.4
		10:31	25.6
7	19-Aug-18	10:09	76.6
		11:10	79.9
		12:11	68.4
8	20-Aug-18	10:38	126.1
		11:39	110.0
		12:40	95.4
9	21-Aug-18	12:13	102.5
		13:14	69.2
		14:15	92.3
10	22-Aug-18	9:54	118.6
		10:55	85.7
		13:00	90.2
11	23-Aug-18	10:19	74.2
		11:20	77.4
		12:21	77.4
12	24-Aug-18	8:55	78.4
		9:56	71.2
		10:57	102.3
13	25-Aug-18	12:48	111.4
		13:49	109.0
		14:50	96.5
14	26-Aug-18	10:20	42.6
		13:24	41.8
		14:25	42.0
15	26-Aug-18	10:13	33.0
		11:14	37.3
		12:15	38.8
		Average	58.3
		Max	126.1
		Min	6.3

1hr TSP Monitoring Results at NCWBR_AMS-4 Sienna Garden

Day	Date	Time	Mass Conc. (ug/m^3)
1	13-Aug-18	12:16	13.5
		13:17	10.6
		14:18	13.1
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3	
3	15-Aug-18	13:00	26.0
		14:01	25.2
		15:02	25.1
4	16-Aug-18	8:13	24.9
		9:14	18.0
		10:15	31.1
5	17-Aug-18	13:00	20.2
		14:01	19.2
		15:02	17.9
6	18-Aug-18	12:10	20.7
		13:11	23.1
		14:12	25.5
7	19-Aug-18	12:42	36.7
		13:43	28.4
		14:44	16.8
8	20-Aug-18	9:42	89.5
		10:43	70.3
		11:44	61.7
9	21-Aug-18	11:54	99.3
		12:55	49.0
		13:56	55.6
10	22-Aug-18	10:18	82.8
		11:19	64.6
		12:20	60.9
11	23-Aug-18	10:43	78.7
		11:44	63.8
		12:45	35.6
12	24-Aug-18	9:20	80.6
		10:21	84.3
		12:04	87.5
13	25-Aug-18	9:17	96.2
		10:18	78.6
		11:19	90.0
14	26-Aug-18	8:51	40.9
		9:52	29.8
		10:54	31.4
15	27-Aug-18	9:23	91.9
		10:24	61.2
		11:25	63.2
		Average	48.6
		Max	99.3
		Min	10.6

1hr TSP Monitoring Results at NCWBR_AMS-5 Shun Chi Court Shun Fung House

Day	Date	Time	Mass Conc. (ug/m^3)
1	13-Aug-18	9:04	16.0
		10:05	10.1
		11:06	13.7
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3	
3	15-Aug-18	8:39	24.1
		9:40	15.8
		10:41	34.0
4	16-Aug-18	16:52	10.4
		17:53	8.4
		18:54	10.3
5	17-Aug-18	9:25	26.0
		10:26	41.1
		11:27	10.4
6	18-Aug-18	8:18	7.9
		9:19	2.6
		10:20	2.9
7	19-Aug-18	8:43	13.9
		9:44	17.0
		10:45	28.7
8	20-Aug-18	13:41	46.6
		14:42	54.7
		15:43	52.5
9	21-Aug-18	12:39	33.4
		13:40	21.7
		14:41	19.2
10	22-Aug-18	9:31	23.4
		10:32	15.2
		13:00	16.8
11	23-Aug-18	9:31	48.0
		10:32	46.4
		11:33	46.3
12	24-Aug-18	9:07	49.3
		10:08	52.8
		11:09	69.0
13	25-Aug-18	9:00	71.9
		10:01	57.4
		11:02	76.0
14	26-Aug-18	10:21	25.7
		11:22	28.6
		12:23	30.6
15	27-Aug-18	8:47	39.3
		9:48	41.2
		10:49	34.3
		Average	30.8
		Max	76.0
		Min	2.6

1hr TSP Monitoring Results at LTR_AMS-1 St.Edward's Catholic Primary School

Day	Date	Time	Mass Conc. (ug/m^3)
1	13-Aug-18	12:52	7.8
		13:53	9.2
		14:54	12.2
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3	
3	15-Aug-18	13:00	15.7
		14:01	17.7
		15:02	19.1
4	16-Aug-18	8:54	19.5
		9:55	22.5
		10:56	43.5
5	17-Aug-18	13:19	18.5
		14:20	15.2
		15:21	11.1
6	18-Aug-18	12:41	17.0
		13:42	18.7
		14:43	19.1
7	19-Aug-18	12:33	30.1
		13:34	24.0
		14:35	16.1
8	20-Aug-18	13:57	113.6
		14:58	97.5
		15:59	108.4
9	21-Aug-18	13:10	30.5
		14:11	29.6
		15:12	19.6
10	22-Aug-18	10:51	36.1
		11:52	30.2
		12:53	21.2
11	23-Aug-18	11:18	45.5
		12:19	39.5
		13:20	37.2
12	24-Aug-18	9:30	47.9
		10:31	60.7
		11:32	68.5
13	25-Aug-18	10:02	59.7
		11:03	71.3
		12:04	47.6
14	26-Aug-18	9:15	16.2
		10:16	21.5
		11:17	22.7
15	27-Aug-18	9:34	19.7
		10:35	22.2
		11:36	24.7
		Average	34.0
		Max	113.6
		Min	7.8

1hr TSP Monitoring Results at LTR_AMS-2 EPD's Restored Landfill Site Office

Day	Date	Time	Mass Conc. (ug/m^3)
1	13-Aug-18	14:38	9.6
		15:39	8.0
		16:40	7.2
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3	
3	15-Aug-18	13:00	11.0
		14:01	8.7
		15:02	10.3
4	16-Aug-18	8:58	20.2
		9:59	12.6
		11:00	20.7
5	17-Aug-18	13:27	6.1
		14:28	5.7
		15:29	4.8
6	18-Aug-18	12:51	28.5
		13:52	31.4
		14:53	34.2
7	19-Aug-18	Not accessible due to security concern	
8	20-Aug-18	13:11	72.6
		14:12	79.8
		15:13	82.5
9	21-Aug-18	13:00	59.5
		14:01	60.9
		15:02	37.7
10	22-Aug-18	10:40	81.7
		11:41	70.0
		12:42	46.0
11	23-Aug-18	11:42	88.1
		12:43	84.8
		13:44	85.0
12	24-Aug-18	9:19	66.4
		10:20	89.8
		11:21	100.7
13	25-Aug-18	9:53	91.2
		10:54	110.7
		11:55	73.6
14	26-Aug-18	Not accessible due to security concern	
15	27-Aug-18	9:25	43.9
		10:26	39.9
		11:27	48.0
16	28-Aug-18	8:55	44.0
		9:56	34.3
		10:57	43.9
17	29-Aug-18	9:13	49.8
		10:14	52.5
		11:15	50.0
		Average	47.8
		Max	110.7
		Min	4.8

1hr TSP Monitoring Results at LTR_AMS-3 Po Tat Estate Tak Kai House

Day	Date	Time	Mass Conc. (ug/m^3)
1	13-Aug-18	13:37	23.5
		14:38	27.8
		15:39	38.6
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3	
3	15-Aug-18	13:00	33.1
		14:01	31.0
		15:02	43.1
4	16-Aug-18	8:33	56.2
		9:34	32.6
		10:35	74.8
5	17-Aug-18	13:36	36.9
		14:37	24.4
		15:38	23.6
6	18-Aug-18	12:29	39.5
		13:30	44.7
		14:31	49.7
7	19-Aug-18	12:33	28.4
		13:34	21.0
		14:35	11.9
8	20-Aug-18	10:00	80.8
		11:01	80.3
		12:02	70.0
9	21-Aug-18	13:00	44.4
		14:01	49.7
		15:02	29.1
10	22-Aug-18	13:00	38.8
		14:01	68.3
		15:02	59.1
11	23-Aug-18	11:06	75.9
		12:07	72.3
		13:08	73.7
12	24-Aug-18	11:30	115.3
		12:31	125.1
		13:32	138.2
13	25-Aug-18	9:58	108.6
		13:41	88.1
		14:42	80.2
14	26-Aug-18	9:11	27.9
		10:12	33.1
		11:13	35.1
15	27-Aug-18	10:00	49.1
		11:01	45.7
		12:02	38.3
		Average	54.0
		Max	138.2
		Min	11.9

Appendix D

Wind Data

Daily Extract of Wind Data at Tate's Cairn Hong Kong Observatory monitoring station

(August 2018)

Day	Prevailing Wind Dtrection (degrees)	Mean Wind Speed (km/h)
13	100	25.1
14	90	30.7
15	120	19.5
16	180	19.1
17	180	9.8
18	200	15.0
19	190	15.3
20	310	11.6
21	180	8.6
22	270	12.6
23	270	19.9
24	220#	16.6#
25	320	18.6
26	340	10.5
27	180	12.5
28	190	17.4
29	190	20.6

*** unavailable

data incomplete

Daily Extract of Wind Data at Tseung Kwan O Hong Kong Observatory monitoring station

(August 2018)

Day	Prevailing Wind Dtrection (degrees)	Mean Wind Speed (km/h)
13	60	6.7
14	20	7.0
15	100	5.3
16	100	4.0
17	220	2.4
18	180	2.8
19	190	4.0
20	190	2.5
21	190	3.8
22	280	3.8
23	290	4.7
24	220	2.5
25	220	4.2
26	290	4.2
27	190	3.7
28	290	2.5
29	200	3.7

*** unavailable

data incomplete

Appendix E

Baseline Noise Monitoring Data

Monitoring Station	Time Period	Parameter	Average	Max	Min
NMC01	From 0700-1900 hrs on normal weekdays	$L_{eq, 30min}$	69.3	70.5	67.8
NMC02			72.0	73.1	70.3
NMC03			78.2	79.5	77.1
NMC04			66.6	70.3	63.7
NMC05			61.8	64.8	59.2

Monitoring Station	Time Period	Parameter	Average	Max	Min
NMC01	From 0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days	$L_{eq, 5min}$	69.0	71.8	61.2
NMC02			66.3	69.6	63.3
NMC03			77.9	82.1	73.3
NMC04			64.0	71.8	61.9
NMC05			59.8	73.7	56.5

Monitoring Station	Time Period	Parameter	Average	Max	Min
NMC01	From 2300-0700 hrs of all days	$L_{eq, 5min}$	66.6	71.6	60.6
NMC02			68.6	71.9	62.4
NMC03			73.8	79.7	65.8
NMC04			62.1	66.0	58.7
NMC05			57.9	62.0	53.6

Location: NMC01 - Kei Shun Special School

Parameter

Time Period: From 0700-1900 hrs on normal weekdays

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$	$L_{eq\ (30min)}$
1	13-Aug-18	09:25	70.3	73.0	62.5	70.4
		09:30	70.2	73.1	62.5	
		09:35	70.2	73.0	62.4	
		09:40	71.0	73.5	66.0	
		09:45	70.3	73.0	62.5	
		09:50	70.6	73.0	66.0	
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3				
3	15-Aug-18	09:15	70.4	73.0	65.5	70.5
		09:20	70.6	73.0	66.5	
		09:25	70.1	72.0	66.0	
		09:30	70.4	72.5	66.0	
		09:35	70.3	72.0	66.0	
		09:40	70.9	73.5	66.0	
4	16-Aug-18	14:31	68.8	72.0	64.0	70.3
		14:36	72.1	74.5	66.0	
		14:41	69.7	72.0	64.5	
		14:46	70.0	72.5	66.0	
		14:51	70.1	72.5	65.5	
		14:56	70.4	72.5	65.0	
5	17-Aug-18	15:49	69.7	72.1	64.3	69.3
		15:54	69.2	72.2	65.3	
		15:59	68.8	71.4	62.7	
		16:04	69.6	72.2	64.4	
		16:09	69.2	71.8	64.4	
		16:14	69.4	71.8	65.6	
6	18-Aug-18	09:55	69.7	72.1	64.9	68.8
		10:00	66.6	71.6	61.7	
		10:05	68.1	70.9	63.3	
		10:10	70.0	72.2	65.7	
		10:15	68.6	71.4	63.2	
		10:20	68.7	71.6	63.3	
7	19-Aug-18	Public Holiday				
8	20-Aug-18	16:48	68.8	71.0	64.4	68.9
		16:53	68.3	70.4	63.8	
		16:58	68.6	71.0	64.4	
		17:03	69.5	72.4	64.2	
		17:08	69.2	72.0	63.6	
		17:13	68.9	71.2	64.6	
9	21-Aug-18	15:41	68.4	70.9	63.0	68.5
		15:46	69.0	71.5	64.8	
		15:51	69.2	71.8	64.8	
		15:56	68.2	70.8	64.8	
		16:01	67.4	69.8	63.4	
		16:06	68.7	71.0	64.1	
10	22-Aug-18	15:41	69.1	71.7	63.8	68.7
		15:46	69.3	71.6	63.9	
		15:51	68.2	71.0	63.5	
		15:56	68.9	71.5	64.1	
		16:01	68.4	70.9	62.9	
		16:06	68.4	71.0	64.2	
11	23-Aug-18	09:30	68.7	71.4	61.6	68.5
		09:35	68.9	71.0	65.0	
		09:40	68.1	70.6	62.4	
		09:45	67.9	70.6	62.6	
		09:50	68.7	71.2	64.0	
		09:55	68.8	71.0	64.4	
12	24-Aug-18	08:00	69.9	72.4	65.9	70.4
		08:05	70.2	72.1	66.4	
		08:10	70.0	71.9	67.4	
		08:15	70.8	72.2	66.3	
		08:20	71.3	73.4	66.7	
		08:25	70.3	72.8	65.9	
13	25-Aug-18	11:36	68.1	71.0	61.8	67.8
		11:41	67.6	70.4	62.6	
		11:46	68.1	70.8	63.3	
		11:51	67.5	69.8	62.2	
		11:56	68.1	70.4	64.2	
		12:01	67.3	70.0	62.6	
14	26-Aug-18	Public Holiday				
15	27-Aug-18	13:41	69.5	72.4	64.6	69.1
		13:46	69.1	72.2	64.2	
		13:51	68.4	71.0	63.4	
		13:56	67.6	70.4	62.6	
		14:01	69.3	72.3	62.6	
		14:06	70.0	72.2	63.9	

Location: NMC02 - Shun Lee Disciplined Services Quarters(Block 6)

Time Period: From 0700-1900 hrs on normal weekdays

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$	$L_{eq\ (30min)}$
1	13-Aug-18	09:40	72.7	74.5	69.0	72.5
		09:45	73.2	74.9	68.9	
		09:50	72.0	74.2	68.8	
		09:55	72.6	74.8	68.5	
		10:00	72.3	74.1	68.8	
		10:05	72.1	74.3	68.3	
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3				
3	15-Aug-18	09:05	72.7	75.3	69.1	72.5
		09:10	71.8	74.7	67.1	
		09:15	72.5	74.6	68.1	
		09:20	72.3	74.6	67.8	
		09:25	72.8	74.8	68.8	
		09:30	72.6	74.5	69.0	
4	16-Aug-18	14:32	71.5	74.5	64.5	73.1
		14:37	74.2	77.2	66.5	
		14:42	71.7	74.9	66.2	
		14:47	72.2	75.0	66.7	
		14:52	75.1	75.9	68.6	
		14:57	72.9	75.1	67.9	
5	17-Aug-18	12:15	72.2	74.4	68.1	72.1
		12:20	72.6	75.0	67.8	
		12:25	71.9	74.4	68.5	
		12:30	72.5	75.0	68.3	
		12:35	72.4	75.1	67.6	
		12:40	71.1	73.6	66.6	
6	18-Aug-18	08:50	72.3	75.0	68.2	72.5
		08:55	71.9	75.0	67.8	
		09:00	73.1	76.1	68.5	
		09:05	72.9	75.4	68.1	
		09:10	72.9	75.4	68.2	
		09:12	71.4	73.8	66.4	
7	19-Aug-18	Public Holiday				
8	20-Aug-18	16:40	71.6	73.7	68.3	71.7
		16:45	71.5	73.8	66.5	
		16:50	71.5	74.2	66.8	
		16:55	71.6	73.8	67.6	
		17:00	71.9	74.3	66.8	
		17:05	72.0	74.5	68.1	
9	21-Aug-18	14:29	71.5	73.8	65.8	72.3
		14:34	71.7	74.6	66.6	
		14:39	74.3	74.8	66.4	
		14:44	71.8	74.4	66.4	
		14:49	72.2	74.2	67.2	
		14:54	71.6	74.6	65.4	
10	22-Aug-18	16:00	71.7	74.6	66.6	71.4
		16:05	71.1	73.4	67.4	
		16:10	70.5	72.6	66.6	
		16:15	72.0	74.2	69.0	
		16:20	72.0	74.0	67.4	
		16:25	71.2	74.0	65.2	
11	23-Aug-18	13:07	71.1	73.4	65.8	71.2
		13:12	69.1	71.4	64.2	
		13:17	72.0	74.8	68.0	
		13:22	71.7	73.8	67.8	
		13:27	71.6	74.2	64.4	
		13:32	71.4	74.0	65.2	
12	24-Aug-18	08:45	72.8	75.1	68.5	72.8
		08:50	73.8	76.2	68.8	
		08:55	72.8	75.2	68.0	
		09:00	72.2	75.2	68.0	
		09:05	72.4	74.7	68.8	
		09:10	72.6	74.8	68.9	
13	25-Aug-18	09:04	70.8	73.8	65.6	71.3
		09:09	71.0	72.8	67.4	
		09:14	71.7	74.2	66.0	
		09:19	71.4	74.2	66.2	
		09:24	70.8	72.8	66.6	
		09:29	72.1	74.4	66.6	
14	26-Aug-18	Public Holiday				
15	27-Aug-18	13:42	71.1	73.8	66.0	70.3
		13:47	68.9	71.4	64.2	
		13:52	70.1	72.8	65.0	
		13:57	71.0	72.8	66.6	
		14:02	70.6	72.6	67.0	
		14:07	69.9	72.0	65.4	

Location: NMC03 - Sienna Garden Block 6

Time Period: From 0700-1900 hrs on normal weekdays

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$	$L_{eq\ (30min)}$
1	13-Aug-18	10:35	79.5	83.0	64.5	78.8
		10:40	77.5	81.5	63.5	
		10:45	79.2	83.5	64.0	
		10:50	78.6	82.5	62.0	
		10:55	79.4	83.5	60.0	
		11:00	78.5	82.0	65.5	
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3				
3	15-Aug-18	09:55	78.9	82.5	62.5	78.7
		10:00	79.9	83.5	68.0	
		10:05	78.0	82.0	60.5	
		10:10	77.1	82.0	63.5	
		10:15	79.5	83.5	64.0	
		10:20	78.3	82.0	64.0	
4	16-Aug-18	11:15	78.6	83.0	64.5	78.9
		11:20	78.5	83.0	65.0	
		11:25	79.3	84.0	64.5	
		11:30	77.4	81.5	63.5	
		11:35	79.8	83.0	64.5	
		11:40	79.5	83.0	65.5	
5	17-Aug-18	15:35	77.8	82.0	62.5	79.1
		15:40	78.6	83.0	59.0	
		15:45	80.1	84.0	63.0	
		15:50	79.8	83.5	63.5	
		15:55	78.9	83.0	61.0	
		16:00	79.2	83.5	62.5	
6	18-Aug-18	09:30	79.6	84.0	66.5	79.5
		09:35	79.5	84.0	66.0	
		09:40	78.5	82.5	63.0	
		09:45	78.6	82.0	64.0	
		09:50	80.2	84.3	64.5	
		09:55	80.2	84.4	66.6	
7	19-Aug-18	Public Holiday				
8	20-Aug-18	11:42	75.7	80.4	62.2	77.5
		11:47	76.1	80.4	62.4	
		11:52	77.4	81.9	61.2	
		11:57	77.7	81.7	63.4	
		12:02	77.1	80.2	62.5	
		12:07	79.9	81.5	64.4	
9	21-Aug-18	14:20	80.2	82.7	66.3	78.5
		14:25	77.5	80.8	65.1	
		14:30	79.2	82.3	67.4	
		14:35	77.3	81.3	65.8	
		14:40	78.4	82.3	62.9	
		14:45	77.7	81.4	64.9	
10	22-Aug-18	12:47	76.6	80.1	62.1	77.3
		12:52	76.0	80.1	62.7	
		12:57	76.3	80.7	63.1	
		13:02	78.8	82.7	64.8	
		13:07	77.7	80.9	62.4	
		13:12	77.9	81.7	67.0	
11	23-Aug-18	12:20	77.5	80.8	62.4	77.1
		12:25	76.7	81.2	63.6	
		12:30	76.6	80.8	60.4	
		12:35	77.9	81.6	62.0	
		12:40	75.7	79.4	62.6	
		12:45	77.8	82.0	62.6	
12	24-Aug-18	09:30	79.3	83.1	66.0	78.6
		09:35	77.8	81.9	63.2	
		09:40	78.1	82.1	66.3	
		09:45	77.7	81.8	60.0	
		09:50	79.4	83.4	65.3	
		09:55	78.8	82.5	66.5	
13	25-Aug-18	11:44	77.2	81.0	65.4	77.2
		11:49	77.4	81.9	63.0	
		11:54	77.5	80.8	67.0	
		11:59	74.9	80.4	66.0	
		12:04	77.0	80.8	62.1	
		12:09	78.4	82.3	63.3	
14	26-Aug-18	Public Holiday				
15	27-Aug-18	11:47	75.0	79.6	61.0	77.3
		11:52	77.7	82.3	62.6	
		11:57	76.2	80.3	60.8	
		12:02	76.1	80.1	61.6	
		12:07	77.6	81.3	62.1	
		12:12	79.5	82.2	61.2	

*Additional 3dB(A) shall be made on the result to the free field meaurement

Location: NMC04 - Po Tat Estate Tat Kai House

Time Period: From 0700-1900 hrs on normal weekdays

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$	$L_{eq\ (30min)}$
1	13-Aug-18	14:27	63.8	65.5	61.0	64.0
		14:32	63.4	65.5	61.0	
		14:37	63.7	66.0	61.0	
		14:42	64.2	66.5	61.5	
		14:47	64.7	66.5	61.0	
		14:52	64.1	66.5	61.5	
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3				
3	15-Aug-18	10:47	71.0	73.0	66.5	70.3
		10:52	70.4	71.5	66.0	
		10:57	69.7	72.0	65.0	
		11:02	70.2	72.5	65.5	
		11:07	70.1	72.5	65.0	
		11:12	70.0	72.5	66.0	
4	16-Aug-18	10:05	65.7	67.0	64.0	66.2
		10:10	67.3	68.0	64.5	
		10:15	65.4	66.5	64.0	
		10:20	66.0	67.0	65.0	
		10:25	65.5	66.5	64.0	
		10:30	67.1	68.5	64.0	
5	17-Aug-18	13:50	66.8	68.5	64.0	68.0
		13:55	68.6	71.5	65.5	
		14:00	68.8	72.0	65.5	
		14:05	67.3	68.0	65.0	
		14:10	68.7	71.0	66.0	
		14:15	67.2	68.5	65.5	
6	18-Aug-18	12:35	64.0	65.0	63.1	63.7
		12:40	63.7	64.9	62.3	
		12:45	63.8	64.9	62.7	
		12:50	63.2	64.6	62.0	
		12:55	63.7	64.6	62.8	
		13:00	63.6	64.6	62.4	
7	19-Aug-18	Public Holiday				
8	20-Aug-18	14:35	65.3	66.6	63.8	64.8
		14:40	63.9	65.1	62.7	
		14:45	65.4	65.9	63.3	
		14:50	64.5	65.7	62.7	
		14:55	65.2	66.3	64.0	
		15:00	64.6	66.4	62.7	
9	21-Aug-18	12:45	63.9	64.8	62.2	64.1
		12:50	64.2	65.6	62.4	
		12:55	63.4	64.2	61.6	
		13:00	63.8	64.8	62.4	
		13:05	64.1	65.6	61.8	
		13:10	65.2	66.4	63.4	
10	22-Aug-18	13:44	65.8	66.9	64.2	65.6
		13:49	65.7	67.1	64.0	
		13:54	65.4	66.7	63.5	
		13:59	65.5	66.9	63.5	
		14:04	65.8	67.0	64.2	
		14:09	65.3	67.4	64.1	
11	23-Aug-18	14:47	68.1	69.8	63.6	67.0
		14:52	67.8	69.2	65.0	
		14:57	67.1	68.8	63.4	
		15:02	66.6	68.2	63.4	
		15:07	66.4	67.6	64.4	
		15:12	65.3	67.6	63.4	
12	24-Aug-18	10:10	69.0	70.8	64.2	68.4
		10:15	69.1	71.2	63.4	
		10:20	69.5	71.6	63.4	
		10:25	69.4	71.4	63.7	
		10:30	65.9	68.8	62.6	
		10:35	66.3	70.0	63.2	
13	25-Aug-18	10:02	67.1	69.6	62.6	67.3
		10:07	68.2	69.8	64.2	
		10:12	67.3	69.6	62.4	
		10:17	67.4	69.0	63.2	
		10:22	66.5	68.8	62.0	
		10:27	67.2	69.0	62.4	
14	26-Aug-18	Public Holiday				
15	27-Aug-18	10:05	70.7	73.2	63.4	69.9
		10:10	69.9	72.4	63.1	
		10:15	70.2	72.6	63.4	
		10:20	67.5	71.8	63.0	
		10:25	69.3	72.0	63.2	
		10:30	70.8	72.6	65.2	

*Additional 3dB(A) shall be made on the result to the free field meaurement

Location: NMC05 - Hong Wah Court Block B Yee Hong House

Time Period: From 0700-1900 hrs on normal weekdays

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$	$L_{eq\ (30min)}$
1	13-Aug-18	16:05	63.2	65.0	60.0	63.4
		16:10	63.5	65.0	60.5	
		16:15	62.8	64.5	60.5	
		16:20	64.5	65.5	59.5	
		16:25	62.0	63.0	59.5	
		16:30	64.2	66.5	60.5	
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3				
3	15-Aug-18	10:56	63.3	65.1	60.0	64.5
		11:01	63.7	65.3	60.6	
		11:06	64.4	66.6	60.4	
		11:11	63.4	65.1	60.1	
		11:16	65.0	66.9	62.5	
		11:21	66.5	68.8	62.5	
4	16-Aug-18	09:19	61.7	63.0	59.5	62.0
		09:24	61.6	63.0	59.5	
		09:29	60.8	62.0	59.5	
		09:34	62.7	64.0	60.5	
		09:39	62.8	64.0	61.0	
		09:44	62.1	63.5	61.0	
5	17-Aug-18	14:56	61.7	62.3	59.4	61.5
		14:41	60.3	61.4	58.3	
		14:46	61.6	63.8	59.3	
		14:51	63.2	66.2	59.0	
		14:56	60.5	62.1	58.6	
		15:01	60.8	62.5	59.0	
6	18-Aug-18	12:30	60.1	61.5	55.5	60.3
		12:35	60.5	62.0	58.5	
		12:40	60.7	61.5	58.0	
		12:45	60.0	61.0	58.5	
		12:50	59.9	61.0	58.0	
		12:55	60.7	92.0	58.5	
7	19-Aug-18	Public Holiday				
8	20-Aug-18	14:45	61.4	63.4	57.4	61.7
		14:50	62.3	64.6	58.0	
		14:55	60.4	61.6	58.6	
		15:00	62.2	63.1	59.4	
		15:05	61.8	63.5	58.4	
		15:10	61.7	63.3	59.0	
9	21-Aug-18	11:54	60.5	61.2	58.0	59.2
		11:59	58.7	60.2	56.8	
		12:04	58.6	59.8	57.4	
		12:09	58.6	59.8	57.4	
		12:14	59.0	60.2	57.2	
		12:19	59.3	60.4	57.6	
10	22-Aug-18	15:40	61.0	62.6	58.5	60.6
		15:45	60.5	62.1	58.6	
		15:50	61.0	62.3	58.9	
		15:55	59.8	61.1	58.3	
		16:00	60.7	62.0	58.8	
		16:05	60.7	62.0	59.3	
11	23-Aug-18	11:29	61.7	62.4	58.4	59.7
		11:34	59.6	60.8	58.0	
		11:39	59.5	60.8	58.0	
		11:44	58.9	59.8	57.2	
		11:49	58.8	59.8	57.4	
		11:54	59.1	60.2	57.8	
12	24-Aug-18	13:42	58.9	60.4	57.0	61.8
		13:47	59.8	62.2	57.4	
		13:52	62.0	63.6	58.8	
		13:57	62.2	63.8	59.8	
		14:02	63.0	65.6	58.1	
		14:07	63.2	65.2	57.8	
13	25-Aug-18	10:49	60.9	63.2	58.0	61.7
		10:54	61.0	64.0	58.2	
		10:59	60.9	63.8	57.4	
		11:04	63.3	64.2	62.0	
		11:09	62.6	64.0	59.4	
		11:14	61.0	64.4	57.6	
14	26-Aug-18	Public Holiday				
15	27-Aug-18	09:47	62.9	66.8	58.4	64.8
		09:52	66.3	62.9	60.2	
		09:57	65.6	67.1	60.3	
		10:02	65.0	66.5	59.6	
		10:07	65.1	67.0	58.5	
		10:12	62.8	67.0	57.1	

Location: NMC01 - Kei Shun Special School

Parameter

Time Period: From 0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$
1	13-Aug-18	19:12	71.3	73.5	65.0
		19:17	70.8	73.0	65.5
		19:22	69.6	72.0	61.5
		19:27	69.2	72.0	62.5
		19:32	69.9	72.5	65.0
		19:37	69.2	72.0	62.0
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3			
3	15-Aug-18	19:00	71.5	73.5	67.0
		19:05	70.2	72.5	66.5
		19:10	70.4	72.5	66.0
		19:15	69.6	72.0	63.0
		19:20	70.3	72.5	65.5
		19:25	69.8	72.0	65.5
4	16-Aug-18	21:32	69.1	71.5	65.0
		21:37	70.1	72.5	64.5
		21:42	69.6	72.0	63.5
		21:47	68.9	72.0	67.0
		21:52	71.0	74.0	65.5
		21:57	70.4	73.0	65.0
5	17-Aug-18	19:02	71.8	74.0	67.5
		19:07	70.6	72.5	67.0
		19:12	71.0	75.0	67.5
		19:17	70.8	74.5	66.5
		19:22	71.5	76.0	66.0
		19:27	71.0	74.5	67.0
6	18-Aug-18	19:21	68.9	72.0	62.5
		19:26	68.6	71.0	63.5
		19:31	70.4	72.5	65.5
		19:36	69.1	71.0	64.0
		19:41	69.9	72.0	65.0
		19:46	69.7	72.0	66.5
7	19-Aug-18	08:50	70.3	73.0	65.5
		08:55	69.8	72.5	65.5
		09:00	70.1	72.5	65.0
		09:05	70.9	73.0	66.0
		09:10	69.5	71.5	65.0
		09:15	69.6	71.7	65.1
		19:31	68.9	71.0	64.0
		19:36	69.2	71.5	64.0
		19:41	69.5	72.0	65.5
		19:46	69.0	71.0	62.5
		19:51	68.1	70.5	63.0
		19:56	68.1	71.0	63.0
8	20-Aug-18	19:35	69.2	71.2	64.8
		19:40	68.3	70.6	61.0
		19:45	67.7	70.0	61.6
		19:50	68.1	71.0	63.0
		19:55	68.6	71.0	63.2
		20:00	68.7	71.0	64.6
9	21-Aug-18	19:47	69.5	71.8	65.9
		19:52	68.6	71.1	63.7
		19:57	68.9	71.1	64.6
		20:02	68.2	71.1	62.2
		20:07	68.5	70.7	64.3
		20:12	68.1	70.6	63.3
10	22-Aug-18	Cancelled due to adverse weather			
11	23-Aug-18	19:32	68.4	70.8	64.8
		19:37	67.8	70.6	63.2
		19:42	68.3	70.6	63.4
		19:47	68.5	71.0	63.0
		19:52	67.8	70.0	62.2
		19:57	69.9	70.4	63.2
12	24-Aug-18	19:26	68.0	70.6	63.4
		19:31	68.3	70.8	63.4
		19:36	68.3	70.6	64.6
		19:41	68.6	71.0	64.8
		19:46	69.1	71.2	65.2
		19:51	67.3	69.8	62.2
13	25-Aug-18	19:02	68.7	71.0	63.8
		19:07	69.4	71.7	63.5
		19:12	61.2	70.2	61.6
		19:17	67.6	70.9	61.8
		19:22	67.8	69.8	64.6
		19:27	67.9	70.8	61.4
14	26-Aug-18	11:10	68.1	71.1	63.0
		11:15	67.5	69.9	62.6
		11:20	68.5	71.1	63.6
		11:25	67.6	70.7	63.0
		11:30	68.0	70.4	63.8
		11:35	68.3	71.3	63.9
		19:43	67.3	69.7	62.0
		19:48	68.3	71.0	62.7
		19:53	68.1	70.7	62.8
		19:58	68.9	70.9	61.1
		20:03	67.6	70.0	63.2
		20:08	68.2	71.1	62.7
15	27-Aug-18	Cancelled due to adverse weather			
16	28-Aug-18	Cancelled due to adverse weather			
17	29-Aug-18	Cancelled due to adverse weather			
18	30-Aug-18	19:41	69.6	72.1	65.2
		19:46	69.1	71.7	63.6
		19:51	68.5	71.0	63.5
		19:56	69.2	71.5	65.4
		20:01	68.0	70.6	63.0
		20:06	68.7	71.3	63.6
19	31-Aug-18	21:18	68.3	71.7	59.8
		21:23	68.1	70.5	63.4
		21:28	68.1	70.7	64.0
		21:33	68.5	70.7	65.4
		21:38	69.1	71.3	65.4
		21:43	68.3	70.7	63.6

Location: NMC02 - Shun Lee Disciplined Services Quarters(Block 6)

Time Period: From 0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$
1	13-Aug-18	19:36	71.5	74.0	65.7
		19:41	72.0	74.7	67.3
		19:46	71.0	73.6	65.4
		19:51	72.3	75.4	66.8
		19:56	71.0	73.8	63.9
		20:01	72.7	75.3	68.0
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3			
3	15-Aug-18	19:15	72.0	74.3	67.1
		19:20	71.4	73.6	67.9
		19:25	71.4	73.8	67.6
		19:30	71.7	74.3	66.9
		19:35	70.6	73.3	65.5
		19:40	70.3	73.3	64.1
4	16-Aug-18	22:20	70.5	72.9	65.3
		22:25	71.6	73.8	66.3
		22:30	71.3	73.6	64.9
		22:35	70.6	73.7	65.2
		22:40	70.2	72.7	65.6
		22:45	69.3	71.9	64.5
5	17-Aug-18	22:20	69.1	71.5	64.9
		22:25	70.6	73.3	65.5
		22:30	70.0	72.9	65.3
		22:35	71.0	73.8	67.2
		22:40	69.9	72.3	64.4
		22:45	69.5	72.0	64.3
6	18-Aug-18	19:25	70.2	72.6	66.0
		19:30	71.7	74.2	66.5
		19:35	70.0	72.1	66.2
		19:40	71.3	73.4	66.5
		19:45	71.2	73.3	67.7
		19:50	70.8	73.0	67.4
7	19-Aug-18	09:15	71.2	73.3	67.2
		09:20	72.3	74.7	67.1
		09:25	69.8	72.5	64.3
		09:30	70.7	73.4	66.7
		09:35	72.1	74.7	67.9
		09:40	71.9	74.5	67.9
		19:37	70.2	72.3	66.1
		19:42	69.9	71.9	66.6
		19:47	70.1	72.6	64.0
		19:52	68.9	71.1	64.5
		19:57	70.0	72.8	65.2
		20:02	70.5	72.2	67.1
8	20-Aug-18	19:45	69.3	72.0	64.5
		19:50	69.5	72.2	65.0
		19:55	70.8	72.6	67.6
		20:00	71.1	73.6	67.2
		20:05	69.7	72.5	64.6
		20:10	69.8	72.4	64.5
9	21-Aug-18	19:50	72.6	74.1	68.1
		19:55	72.4	74.7	66.8
		20:00	72.6	75.7	66.6
		20:05	71.7	74.0	67.7
		20:10	71.5	73.4	68.1
		20:15	71.0	73.8	65.9
10	22-Aug-18	Cancelled due to adverse weather			
11	23-Aug-18	19:39	71.7	74.4	68.2
		19:44	72.6	75.9	66.9
		19:49	71.6	73.8	67.2
		19:54	71.4	73.7	66.6
		19:59	72.9	74.7	69.1
		20:04	71.9	75.0	65.9
12	24-Aug-18	19:31	72.5	75.0	69.6
		19:36	72.3	74.5	68.4
		19:41	72.1	74.4	68.9
		19:46	72.7	74.7	68.4
		19:51	70.8	73.0	66.5
		19:56	71.2	73.9	67.3
13	25-Aug-18	19:10	70.8	73.6	65.5
		19:15	72.1	74.7	67.5
		19:20	71.7	74.5	66.3
		19:25	71.0	73.4	67.6
		19:30	71.7	74.4	67.6
		19:35	71.2	73.4	68.0
14	26-Aug-18	10:30	68.4	70.5	64.3
		10:35	69.3	72.5	64.5
		10:40	67.8	69.7	64.6
		10:45	67.6	69.8	63.3
		10:50	68.6	70.1	64.6
		10:55	68.2	70.9	63.5
		19:00	73.2	73.6	66.0
		19:05	72.5	75.2	68.0
		19:10	71.8	73.9	67.9
		19:15	71.6	74.1	66.4
		19:20	71.4	73.9	66.0
		19:25	71.8	73.9	68.0
15	27-Aug-18	Cancelled due to adverse weather			
16	28-Aug-18	Cancelled due to adverse weather			
17	29-Aug-18	Cancelled due to adverse weather			
18	30-Aug-18	19:31	70.0	72.0	65.2
		19:35	69.8	72.0	65.6
		19:41	72.3	74.6	67.6
		19:46	71.2	73.6	66.8
		20:01	68.0	70.6	66.4
		19:56	71.1	73.0	67.0
19	31-Aug-18	21:27	70.6	72.8	66.6
		21:32	70.3	72.6	65.4
		21:37	70.7	73.2	66.6
		21:42	70.4	72.8	66.4
		21:47	69.8	72.4	65.4
		21:52	70.7	73.0	66.4

Location: NMC03 - Sienna Garden Block 6

Time Period: From 0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$
1	13-Aug-18	20:26	81.8	83.0	65.0
		20:31	81.3	84.5	62.5
		20:36	78.6	82.5	62.5
		20:41	79.1	93.0	64.5
		20:46	77.7	81.5	63.0
		20:51	79.1	83.5	62.0
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3			
3	15-Aug-18	20:03	79.5	83.5	65.0
		20:08	78.9	82.5	67.0
		20:13	79.7	84.0	65.5
		20:18	80.3	84.5	66.5
		20:23	80.8	85.0	67.0
		20:28	80.4	84.5	67.0
4	16-Aug-18	19:02	79.3	85.0	65.0
		19:07	79.7	83.5	65.5
		19:12	78.4	82.0	67.0
		19:17	80.3	83.0	66.5
		19:22	79.8	83.0	66.0
		19:27	80.2	84.0	65.5
5	17-Aug-18	19:40	79.5	83.0	65.5
		19:45	79.7	83.0	65.5
		19:50	79.8	83.5	65.0
		19:55	79.5	83.5	65.0
		20:00	80.0	84.0	66.0
		20:05	80.2	84.0	66.0
6	18-Aug-18	20:16	81.1	81.3	61.0
		20:21	78.3	81.5	62.5
		20:26	78.7	82.5	65.5
		20:31	77.1	81.0	60.0
		20:36	77.0	80.5	62.5
		20:41	76.1	80.0	63.0
7	19-Aug-18	08:55	77.3	80.5	63.0
		09:00	77.6	82.0	64.0
		09:05	78.0	82.0	63.5
		09:10	77.9	81.5	63.5
		09:15	78.4	82.5	64.0
		09:20	80.0	83.0	63.5
		20:25	77.1	81.0	64.0
		20:30	76.3	80.0	63.5
		20:35	77.6	80.5	63.0
		20:40	76.9	81.0	61.0
		20:45	76.9	80.5	62.5
		20:50	77.3	81.5	63.0
8	20-Aug-18	21:28	76.9	81.0	64.0
		21:33	77.3	81.6	62.8
		21:38	76.2	80.4	63.2
		21:43	76.0	80.4	62.0
		21:48	76.7	80.8	63.2
		21:53	77.5	81.2	61.6
9	21-Aug-18	20:40	77.6	81.8	60.6
		20:45	75.5	79.9	60.1
		20:50	78.4	81.9	61.5
		20:55	77.3	81.4	61.4
		21:00	76.5	80.8	64.5
		21:05	75.7	80.0	57.9
10	22-Aug-18	Cancelled due to adverse weather			
11	23-Aug-18	20:29	77.3	81.0	61.6
		20:34	76.6	80.6	64.0
		20:39	78.8	81.2	62.8
		20:44	77.1	81.0	64.2
		20:49	82.1	85.8	74.2
		20:54	80.7	85.0	70.4
12	24-Aug-18	20:18	78.4	81.8	61.4
		20:23	76.4	81.8	63.0
		20:28	76.1	79.8	61.8
		20:33	77.3	79.8	59.6
		20:38	76.7	80.0	60.2
		20:43	74.2	79.0	58.4
13	25-Aug-18	19:57	77.3	81.0	63.0
		20:02	76.0	80.0	60.0
		20:07	78.3	81.0	60.4
		20:12	76.3	80.0	63.0
		20:17	74.2	78.6	62.6
		20:22	77.5	81.0	63.4
14	26-Aug-18	11:50	78.1	81.7	59.6
		11:55	76.5	80.6	62.7
		12:00	78.3	82.5	62.3
		12:05	78.1	82.5	62.4
		12:10	79.3	81.8	63.5
		12:15	77.3	81.5	52.2
		19:38	78.8	81.0	60.4
		19:43	77.3	80.6	61.8
		19:48	75.4	79.6	60.8
		19:53	75.1	79.4	60.0
		19:58	76.9	80.8	61.6
		20:03	79.6	81.0	62.6
15	27-Aug-18	Cancelled due to adverse weather			
16	28-Aug-18	Cancelled due to adverse weather			
17	29-Aug-18	Cancelled due to adverse weather			
18	30-Aug-18	20:29	75.8	80.0	60.6
		20:34	75.7	79.6	62.8
		20:39	76.0	80.0	60.4
		20:44	74.8	79.0	59.6
		20:49	73.3	77.8	60.2
		20:54	76.5	80.4	61.2
19	31-Aug-18	22:13	77.5	81.4	65.8
		22:18	78.7	81.6	62.5
		22:23	77.7	81.7	66.2
		22:28	78.7	82.8	61.4
		22:33	78.3	82.0	65.3
		22:38	77.6	81.9	60.4

*Additional 3dB(A) shall be made on the result to the free field meaurement

Location: NMC04 - Po Tat Estate Tat Kai House

Time Period: From 0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$
1	13-Aug-18	21:24	63.0	64.0	61.8
		21:29	63.9	66.0	61.7
		21:34	63.9	65.4	61.4
		21:39	63.6	64.8	61.8
		21:44	63.4	64.5	62.1
		21:49	64.3	65.5	61.8
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3			
3	15-Aug-18	20:55	65.8	67.3	63.0
		21:00	65.6	67.1	63.8
		21:05	65.1	66.6	63.9
		21:10	64.3	65.8	62.1
		21:15	64.1	65.1	62.9
		21:20	63.7	65.1	61.8
4	16-Aug-18	19:51	63.7	64.5	62.5
		19:56	64.3	65.5	62.5
		20:01	65.7	67.5	63.5
		20:06	65.5	67.0	63.0
		20:11	65.4	67.0	63.5
		20:16	65.9	67.0	64.0
5	17-Aug-18	20:38	67.3	69.0	64.4
		20:43	71.2	74.0	67.4
		20:48	70.1	73.1	65.9
		20:53	71.8	74.7	67.0
		20:58	70.2	72.3	66.8
		21:03	70.7	73.4	66.2
6	18-Aug-18	21:55	63.6	64.6	52.1
		22:00	63.3	64.8	51.9
		22:05	63.6	64.6	52.5
		22:10	63.6	64.5	62.3
		22:15	63.5	64.4	62.4
		22:20	63.5	64.7	61.9
7	19-Aug-18	09:45	63.1	64.0	62.0
		09:50	63.3	64.0	62.0
		09:55	63.4	64.5	62.5
		10:00	63.0	65.0	62.0
		10:05	63.8	64.5	62.5
		10:10	63.4	64.5	62.0
		22:15	63.9	65.8	62.0
		22:20	64.6	66.8	62.0
		22:25	63.1	64.5	61.5
		22:30	64.1	63.6	61.9
		22:35	63.2	64.1	61.9
		22:40	63.5	64.6	62.0
8	20-Aug-18	22:22	62.7	63.4	61.7
		22:27	63.0	64.0	61.6
		22:32	62.8	63.9	61.6
		22:37	63.4	64.8	62.1
		22:42	63.2	64.5	61.3
		22:47	62.3	63.4	60.7
9	21-Aug-18	19:00	64.0	65.4	62.2
		19:05	63.7	64.7	61.7
		19:10	62.7	63.7	61.3
		19:15	63.6	64.6	62.0
		19:20	63.1	64.0	61.8
		19:25	63.2	64.6	61.6
10	22-Aug-18	Cancelled due to adverse weather			
11	23-Aug-18	Cancelled due to adverse weather			
12	24-Aug-18	22:15	62.3	63.3	61.3
		22:20	63.3	64.8	61.2
		22:25	63.7	64.8	61.6
		22:30	62.7	63.9	61.3
		22:35	63.3	64.4	61.7
		22:40	63.1	64.0	61.9
13	25-Aug-18	20:47	65.4	66.6	63.1
		20:52	63.7	65.2	62.9
		20:57	62.7	63.7	61.5
		21:02	63.2	64.7	61.7
		21:07	62.3	63.2	61.3
		21:12	63.1	64.3	61.6
14	26-Aug-18	09:14	62.4	63.4	61.1
		09:19	63.1	64.0	61.5
		09:24	64.0	65.1	61.9
		09:29	62.3	63.5	60.3
		09:34	61.9	62.8	60.7
		09:39	63.1	64.6	61.7
		20:38	64.7	66.3	62.4
		20:43	63.3	64.6	62.0
		20:48	63.7	65.1	62.2
		20:53	63.4	64.6	62.1
		20:58	63.3	64.4	61.9
		21:03	64.1	65.4	62.2
15	27-Aug-18	Cancelled due to adverse weather			
16	28-Aug-18	Cancelled due to adverse weather			
17	29-Aug-18	Cancelled due to adverse weather			
18	30-Aug-18	22:11	63.1	63.8	61.8
		22:16	62.1	63.2	58.8
		22:21	62.5	63.2	61.6
		22:26	62.6	63.6	61.2
		22:31	63.2	64.6	61.4
		22:36	62.6	63.6	61.4
19	31-Aug-18	19:24	63.6	64.8	62.3
		19:29	63.4	64.4	62.2
		19:34	64.0	65.1	62.5
		19:39	64.6	66.2	63.0
		19:44	63.2	64.4	61.8
		19:49	64.4	65.6	63.1
20	01-Sep-18	21:49	64.0	65.0	62.5
		21:34	62.7	63.9	61.5
		21:39	63.9	64.0	61.8
		21:44	64.0	65.9	61.8
		21:49	62.7	64.0	61.6
		21:54	62.9	64.1	61.7

*Additional 3dB(A) shall be made on the result to the free field meaurement

Location: NMC05 - Hong Wah Court Block B Yee Hong House

Time Period: From 0700-2300 hrs on holidays (including Sundays); and 1900-2300 hrs on all days

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$
1	13-Aug-18	21:30	61.1	63.0	58.0
		21:35	60.3	61.5	58.0
		21:40	62.0	64.0	58.5
		21:45	63.0	65.5	58.5
		21:50	64.0	67.5	58.0
		21:55	66.0	69.5	59.0
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3			
3	15-Aug-18	20:55	62.8	65.0	59.5
		21:00	63.6	66.5	59.0
		21:05	59.9	61.0	57.5
		21:10	59.9	61.5	57.5
		21:15	60.0	61.5	58.0
		21:20	60.6	62.5	57.5
4	16-Aug-18	20:35	59.7	61.0	57.5
		20:40	59.8	61.0	58.0
		20:45	59.1	60.0	57.0
		20:50	59.3	60.5	57.0
		20:55	59.6	61.5	57.5
		21:00	58.8	59.5	57.5
5	17-Aug-18	20:40	59.9	61.0	58.0
		20:45	60.4	61.0	58.0
		20:50	60.5	61.0	58.0
		20:55	59.3	60.5	57.5
		21:00	61.1	61.5	58.0
		21:05	59.9	61.5	58.0
6	18-Aug-18	22:02	59.3	60.0	58.0
		22:07	59.7	61.0	57.5
		22:12	59.1	60.0	57.5
		22:17	59.6	61.0	57.5
		22:22	59.5	61.0	57.5
		22:27	59.7	61.5	57.0
7	19-Aug-18	10:40	59.8	61.5	57.5
		10:45	59.7	61.0	58.0
		10:50	59.8	61.0	58.0
		10:55	59.8	61.5	58.0
		11:00	59.6	60.5	58.0
		11:05	59.4	60.5	58.0
		22:24	60.4	61.5	58.5
		22:29	59.4	60.5	57.5
		22:34	60.3	61.5	58.5
		22:39	59.6	61.0	58.0
		22:44	60.9	62.0	58.0
		22:49	59.6	60.5	58.0
8	20-Aug-18	22:22	58.6	59.8	57.2
		22:27	58.6	59.8	57.2
		22:32	58.2	59.2	56.8
		22:37	58.4	59.4	57.0
		22:42	58.5	60.4	56.4
		22:47	58.8	60.8	56.6
9	21-Aug-18	19:00	62.0	64.1	58.4
		19:05	64.2	67.1	59.1
		19:10	73.7	76.0	58.6
		19:15	68.7	72.4	58.7
		19:20	61.6	64.1	57.8
		19:25	64.3	65.6	57.9
10	22-Aug-18	Cancelled due to adverse weather			
11	23-Aug-18	Cancelled due to adverse weather			
12	24-Aug-18	22:25	58.6	60.0	56.4
		22:30	58.0	58.8	56.6
		22:35	56.9	59.9	56.8
		22:40	58.8	60.4	56.8
		22:45	57.6	58.6	56.2
		22:50	58.2	59.4	56.4
13	25-Aug-18	20:50	57.9	59.4	55.8
		20:55	57.8	59.0	55.4
		21:00	58.2	59.8	56.0
		21:05	58.7	60.1	56.4
		21:10	58.2	59.9	56.0
		21:15	58.0	59.6	56.2
14	26-Aug-18	12:50	58.7	60.1	57.3
		12:55	60.3	61.1	57.3
		13:00	58.0	58.9	56.5
		13:05	59.6	61.3	57.2
		13:10	59.0	60.3	56.9
		13:15	59.0	60.6	57.2
		20:43	57.2	58.4	55.6
		20:48	56.5	57.4	55.2
		20:53	57.3	58.6	55.8
		20:58	61.9	58.2	55.6
		21:03	57.6	58.4	56.0
		21:08	57.9	58.2	55.8
15	27-Aug-18	Cancelled due to adverse weather			
16	28-Aug-18	Cancelled due to adverse weather			
17	29-Aug-18	Cancelled due to adverse weather			
18	30-Aug-18	22:21	58.8	60.2	56.9
		22:26	58.4	60.1	56.2
		22:31	59.1	60.8	57.3
		22:36	60.4	62.1	57.5
		22:41	58.4	59.7	56.5
		22:46	58.9	60.4	57.5
19	31-Aug-18	19:12	58.4	59.8	55.8
		19:17	57.9	59.6	56.0
		19:22	58.2	59.6	56.4
		19:27	59.7	61.2	56.8
		19:32	59.2	61.0	56.6
		19:37	60.1	61.4	57.8
20	01-Sep-18	20:13	59.4	60.9	57.2
		20:18	58.3	59.5	56.7
		20:23	58.2	59.2	57.0
		20:28	58.3	59.6	56.6
		20:33	59.1	60.4	57.6
		20:38	58.8	60.2	57.2

Location: NMC01 - Kei Shun Special School

Parameter

Time Period: From 2300-0700 hrs of all days

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$
1	13-Aug-18 to 14-Aug-18	23:49	67.1	69.8	62.4
		23:54	66.1	69.2	59.9
		23:59	66.8	69.5	60.7
		00:04	65.8	68.9	59.5
		00:09	66.5	69.6	59.6
		00:14	66.9	70.2	59.8
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3			
3	15-Aug-18 to 16-Aug-18	23:54	66.9	70.0	61.3
		23:59	67.8	70.4	61.4
		00:04	71.6	74.6	60.3
		00:09	64.2	71.8	64.9
		00:14	67.3	70.1	60.6
		00:19	66.9	70.2	59.9
4	16-Aug-18	23:03	68.4	71.0	63.0
		23:08	68.1	71.0	62.0
		23:13	68.1	71.0	61.5
		23:18	67.7	70.5	62.0
		23:23	67.7	70.0	63.0
		23:28	67.7	70.0	62.5
5	17-Aug-18	23:00	69.3	72.0	63.5
		23:05	68.5	71.0	63.0
		23:10	69.5	72.0	63.5
		23:15	69.7	72.5	65.5
		23:20	70.0	73.0	63.5
		23:25	68.2	70.0	63.5
6	19-Aug-18	00:12	67.7	70.0	61.5
		00:17	68.0	71.0	62.0
		00:22	66.6	69.5	60.0
		00:27	67.8	70.0	60.5
		00:32	67.1	70.0	61.5
		00:37	66.4	69.0	59.5
7	20-Aug-18	00:46	65.8	69.5	57.0
		00:51	64.8	68.0	54.5
		00:56	64.8	68.5	56.0
		01:01	64.7	67.5	60.0
		01:06	67.5	69.5	64.5
		01:11	66.5	69.0	57.0
8	21-Aug-18	00:05	66.2	69.2	60.0
		00:10	65.6	68.8	57.8
		00:15	67.2	70.2	61.0
		00:20	65.1	68.6	57.8
		00:25	66.4	69.4	60.2
		00:30	65.3	68.6	57.0
9	21-Aug-18	23:20	67.7	70.6	61.2
		23:25	66.0	68.8	59.8
		23:30	66.8	69.6	60.4
		23:35	65.9	68.6	60.0
		23:40	65.2	67.4	60.0
		23:45	67.3	70.2	61.8
10	22-Aug-18	Cancelled due to adverse weather			
11	24-Aug-18	01:13	63.4	67.4	55.4
		01:18	63.0	66.4	63.8
		01:23	62.7	66.2	53.4
		01:28	63.7	66.2	53.6
		01:33	60.6	64.2	53.8
		01:38	60.9	64.6	51.8
12	24-Aug-18 to 25-Aug-18	23:57	67.2	69.6	59.2
		00:02	66.6	69.6	57.4
		00:07	66.2	69.6	59.4
		00:12	65.6	68.4	59.6
		00:17	66.3	70.0	58.6
		00:22	65.5	68.4	59.0
13	25-Aug-18	23:23	67.2	70.2	62.2
		23:28	66.6	69.8	59.4
		23:33	67.0	70.0	62.0
		23:38	66.3	69.6	60.4
		23:43	66.2	69.0	60.2
		23:48	66.9	69.6	59.6
14	26-Aug-18	Cancelled due to adverse weather			
15	27-Aug-18	Cancelled due to adverse weather			
16	28-Aug-18	Cancelled due to adverse weather			
17	29-Aug-18	Cancelled due to adverse weather			
18	31-Aug-18	00:45	67.5	70.2	62.8
		00:50	65.6	68.6	59.5
		00:55	66.5	69.7	58.2
		01:00	65.5	68.8	57.9
		01:05	66.1	70.0	56.8
		01:10	65.1	68.3	58.7
19	31-Aug-18 to 1-Sep-18	23:48	67.1	69.8	61.4
		23:53	67.6	70.0	63.0
		23:58	67.4	70.2	62.2
		00:03	67.2	70.8	59.6
		00:08	67.1	70.5	57.7
		00:13	67.5	69.9	62.4
20	01-Sep-18	23:29	68.1	71.0	62.6
		23:34	69.0	71.7	61.6
		23:39	67.8	70.1	63.2
		23:44	67.7	69.8	64.2
		23:49	66.6	69.2	60.8
		23:54	67.0	69.8	61.7

Location: NMC02 - Shun Lee Disciplined Services Quarters(Block 6)

Time Period: From 2300-0700 hrs of all days

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$
1	13-Aug-18	23:05	70.7	74.0	64.6
		23:10	69.4	72.4	63.0
		23:15	70.2	73.0	62.3
		23:20	70.1	73.1	64.0
		23:25	69.3	72.6	63.7
		23:30	69.7	72.5	62.6
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3			
3	15-Aug-18	23:11	71.4	74.6	64.1
		23:16	68.7	71.2	63.7
		23:21	71.0	74.0	63.6
		23:26	69.1	72.1	63.0
		23:31	70.6	73.3	65.4
		23:36	69.3	73.1	60.9
4	16-Aug-18	23:02	69.8	72.6	65.8
		23:07	69.5	72.9	64.4
		23:12	69.6	71.7	64.0
		23:17	70.1	72.3	66.6
		23:22	68.8	71.6	63.5
		23:27	68.9	71.0	64.7
5	17-Aug-18	23:02	69.8	72.9	63.5
		23:07	69.7	72.1	65.0
		23:12	69.7	72.4	64.9
		23:17	70.2	72.7	65.1
		23:22	69.4	72.1	64.2
		23:27	69.5	71.0	63.0
6	19-Aug-18	00:07	68.3	71.2	64.1
		00:12	68.8	71.2	62.9
		00:17	68.9	71.6	63.9
		00:22	67.7	70.1	61.5
		00:27	69.3	72.0	63.1
		00:32	68.7	72.0	63.5
7	20-Aug-18	01:27	66.4	69.7	58.8
		01:32	65.5	69.3	58.3
		01:37	66.6	69.5	62.7
		01:42	66.1	68.9	61.8
		01:47	64.3	67.4	58.5
		01:52	62.4	65.2	57.9
8	21-Aug-18	00:02	67.9	70.7	62.3
		00:07	69.4	72.0	64.2
		00:12	67.6	71.0	61.0
		00:17	67.7	70.7	60.5
		00:22	68.6	71.9	63.1
		00:27	67.2	70.9	59.1
9	22-Aug-18	00:05	67.0	70.4	60.4
		00:10	68.7	71.6	61.6
		00:15	67.7	70.4	61.4
		00:20	68.4	71.2	61.2
		00:25	67.7	71.0	59.8
		00:30	65.8	68.8	60.6
10	22-Aug-18	Cancelled due to adverse weather			
11	24-Aug-18	01:17	67.7	70.7	58.8
		01:22	66.2	59.2	56.7
		01:27	65.3	68.6	57.4
		01:32	66.6	69.2	58.4
		01:37	64.7	68.1	55.3
		01:42	64.7	68.8	55.5
12	25-Aug-18	00:02	69.3	72.4	61.8
		00:07	69.5	72.8	63.1
		00:12	69.6	72.4	62.5
		00:17	71.5	75.4	62.2
		00:22	68.5	71.6	61.6
		00:27	68.5	71.1	63.5
13	25-Aug-18 to 26-Aug-18	23:45	71.7	73.4	63.7
		23:50	70.7	72.9	65.5
		23:55	69.3	72.0	61.4
		00:00	69.6	72.7	63.5
		00:05	70.1	72.9	63.9
		00:10	69.2	72.6	61.8
14	26-Aug-18	Cancelled due to adverse weather			
15	27-Aug-18	Cancelled due to adverse weather			
16	28-Aug-18	Cancelled due to adverse weather			
17	29-Aug-18	Cancelled due to adverse weather			
18	31-Aug-18	00:37	68.3	70.4	65.0
		00:42	68.0	70.2	64.0
		00:47	68.6	71.4	63.6
		00:52	67.3	69.8	61.0
		00:57	67.7	71.2	62.0
		01:02	65.7	68.8	59.4
19	31-Aug-18	23:00	70.3	73.0	63.6
		23:53	67.6	70.0	65.8
		23:10	70.6	73.6	66.4
		23:15	69.7	71.8	65.2
		23:20	69.4	71.6	64.2
		23:25	70.9	73.2	65.0
20	01-Sep-18	23:34	71.9	75.0	66.4
		23:39	68.9	71.4	64.2
		23:44	68.5	71.6	64.0
		23:49	69.1	72.0	63.8
		23:54	69.5	72.0	63.8
		23:59	69.6	73.0	64.0

Location: NMC03 - Sienna Garden Block 6

Time Period: From 2300-0700 hrs of all days

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$
1	13-Aug-18	02:09	70.0	71.6	52.8
		02:14	67.2	69.6	53.5
		02:19	68.5	70.5	52.2
		02:24	70.4	72.3	52.2
		02:29	71.1	72.1	58.9
		02:34	73.6	78.1	55.3
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3			
3	16-Aug-18	00:52	72.1	76.8	54.0
		00:57	72.0	75.3	53.3
		01:02	70.7	75.3	55.8
		01:07	71.1	75.8	54.3
		01:12	72.2	76.2	54.4
		01:17	70.0	73.7	53.4
4	16-Aug-18 to 17-Aug-18	23:56	77.2	81.0	63.5
		00:01	77.6	82.0	62.5
		00:06	78.7	82.5	63.0
		00:11	79.4	82.5	63.0
		00:16	76.6	81.0	61.0
		00:21	76.6	80.5	65.0
5	17-Aug-18 to 18-Aug-18	23:48	77.6	81.5	62.5
		23:53	76.6	80.5	60.0
		23:58	76.8	81.0	62.5
		00:03	76.6	80.5	60.0
		00:08	76.2	80.0	61.5
		00:13	76.7	81.1	60.5
6	19-Aug-18	01:02	74.4	78.0	59.0
		01:07	77.3	78.5	57.0
		01:12	74.7	78.0	60.5
		01:17	73.2	77.5	57.5
		01:22	73.8	78.0	58.0
		01:27	73.7	78.0	58.5
7	20-Aug-18	00:00	74.7	79.0	59.0
		00:05	77.0	80.0	59.5
		00:10	74.7	78.5	58.0
		00:15	72.2	76.5	58.0
		00:20	74.3	79.0	59.0
		00:25	72.8	76.0	56.5
8	21-Aug-18	00:55	71.8	75.2	55.8
		01:00	73.6	75.8	54.0
		01:05	71.7	75.2	51.6
		01:10	70.3	74.6	55.4
		01:15	71.2	75.2	55.0
		01:20	69.7	71.6	53.0
9	21-Aug-18	23:17	76.8	80.4	63.2
		23:22	75.2	79.2	57.8
		23:27	75.4	79.4	61.1
		23:32	74.9	79.6	61.4
		23:37	75.2	79.8	57.6
		23:42	74.7	77.7	56.8
10	22-Aug-18	Cancelled due to adverse weather			
11	24-Aug-18	02:08	68.1	70.8	53.2
		02:13	70.3	70.4	51.0
		02:18	70.8	74.8	53.6
		02:23	70.7	73.8	53.0
		02:28	68.3	72.6	52.0
		02:33	65.8	67.8	52.2
12	25-Aug-18	00:50	74.1	76.4	55.6
		00:55	74.6	77.0	56.6
		01:00	72.2	76.6	55.0
		01:05	71.0	75.2	56.6
		01:10	72.0	74.8	52.2
		01:15	72.2	72.2	53.0
13	25-Aug-18	23:00	78.3	81.4	61.7
		23:05	76.6	80.7	64.1
		23:10	77.0	80.9	63.3
		23:15	77.4	79.9	59.3
		23:20	75.7	79.7	63.3
		23:25	75.9	79.1	59.3
14	26-Aug-18	Cancelled due to adverse weather			
15	27-Aug-18	Cancelled due to adverse weather			
16	28-Aug-18	Cancelled due to adverse weather			
17	29-Aug-18	Cancelled due to adverse weather			
18	31-Aug-18	01:27	71.3	74.4	55.6
		01:32	73.5	75.6	61.6
		01:37	72.4	76.2	55.6
		01:42	71.3	74.4	56.0
		01:47	71.5	75.2	55.8
		01:52	70.7	74.0	53.2
19	31-Aug-18	23:00	76.6	80.5	63.6
		23:05	79.5	82.8	61.7
		23:10	76.5	80.7	60.3
		23:15	79.7	82.2	65.5
		23:20	77.1	80.6	63.6
		23:25	76.4	80.6	61.3
20	02-Sep-18	00:28	74.5	78.4	55.2
		00:33	73.1	77.8	57.6
		00:38	73.5	77.6	60.8
		00:43	72.5	76.6	55.8
		00:48	74.3	78.2	55.8
		00:53	74.3	78.6	58.8

*Additional 3dB(A) shall be made on the result to the free field meaurement

Location: NMC04 - Po Tat Estate Tat Kai House

Time Period: From 2300-0700 hrs of all days

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$
1	13-Aug-18	23:07	63.6	65.0	62.0
		23:12	62.7	63.5	61.5
		23:17	63.5	65.0	62.0
		23:22	63.5	64.5	62.0
		23:27	63.0	64.0	61.5
		23:32	63.0	64.0	61.0
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3			
3	16-Aug-18	00:26	64.0	65.5	61.5
		00:31	63.5	65.0	61.5
		00:36	65.3	67.5	62.0
		00:42	64.5	66.5	62.0
		00:46	66.0	68.5	62.0
		00:52	63.5	64.5	61.5
4	17-Aug-18	00:45	63.0	64.0	61.0
		00:50	61.7	62.5	60.5
		00:55	62.5	63.5	61.0
		01:00	62.2	63.0	61.0
		01:05	61.9	63.0	60.5
		01:10	61.9	62.7	60.5
5	18-Aug-18	01:45	60.3	61.5	52.8
		01:50	61.2	63.1	53.0
		01:55	60.0	60.9	51.5
		02:00	60.0	61.2	51.6
		02:05	60.4	61.0	52.3
		02:10	60.5	62.4	53.0
6	18-Aug-18	23:02	63.4	64.5	61.7
		23:07	62.7	64.2	61.4
		23:12	63.2	64.5	61.7
		23:17	63.0	64.0	61.8
		23:22	62.8	63.6	62.0
		23:27	63.2	64.4	61.6
7	19-Aug-18	23:04	62.8	64.2	61.6
		23:09	62.6	63.9	61.3
		23:14	62.9	64.0	61.7
		23:19	62.9	64.2	61.7
		23:24	62.0	62.8	61.0
		23:29	61.9	63.0	60.8
8	20-Aug-18	23:01	63.3	64.3	62.0
		23:06	62.6	63.4	61.4
		23:11	62.5	63.4	61.5
		23:16	63.0	63.9	61.5
		23:21	62.8	64.0	61.1
		23:26	63.4	64.9	61.3
9	22-Aug-18	01:04	60.6	61.4	58.6
		01:09	60.0	61.4	58.6
		01:14	60.3	61.4	58.8
		01:19	58.7	69.4	67.8
		01:24	59.9	61.0	58.4
		01:29	59.6	60.8	58.2
10	22-Aug-18	Cancelled due to adverse weather			
11	24-Aug-18	00:08	62.7	63.9	61.7
		00:13	62.2	63.2	61.0
		00:18	61.7	62.6	60.8
		00:23	61.5	62.3	60.3
		00:28	61.7	62.7	60.7
		00:33	61.7	62.8	60.3
12	24-Aug-18	23:00	62.4	63.7	61.3
		23:05	62.2	63.5	61.0
		23:10	62.5	63.4	61.3
		23:15	63.3	64.6	61.5
		23:20	63.2	64.3	61.6
		23:25	62.5	63.5	61.3
13	26-Aug-18	00:36	63.8	65.7	61.3
		00:41	62.0	62.3	61.1
		00:46	62.2	63.6	60.7
		00:51	61.5	62.5	60.4
		00:56	61.7	62.9	60.4
		01:01	61.6	63.0	60.2
14	26-Aug-18	Cancelled due to adverse weather			
15	27-Aug-18	Cancelled due to adverse weather			
16	28-Aug-18	Cancelled due to adverse weather			
17	29-Aug-18	Cancelled due to adverse weather			
18	30-Aug-18	23:01	62.2	63.2	61.2
		23:06	62.7	64.2	60.8
		23:11	62.7	63.8	61.4
		23:16	62.2	63.0	61.2
		23:21	62.3	63.0	61.4
		23:26	62.6	63.6	61.2
19	01-Sep-18	00:47	61.4	62.4	60.2
		00:52	61.7	62.6	60.4
		00:57	60.8	62.0	59.4
		01:02	60.9	62.0	59.4
		01:07	60.6	61.6	59.2
		01:12	60.7	61.4	59.8
20	02-Sep-18	01:21	62.0	64.5	60.4
		01:26	60.8	61.7	59.6
		01:31	60.8	61.6	59.6
		01:36	60.7	62.2	59.1
		01:41	60.1	60.9	59.3
		01:46	60.5	61.5	59.1

*Additional 3dB(A) shall be made on the result to the free field meaurement

Location: NMC05 - Hong Wah Court Block B Yee Hong House

Time Period: From 2300-0700 hrs of all days

Day	Date	Time	$L_{eq\ (5min)}$	$L_{10\ (5min)}$	$L_{90\ (5min)}$
1	14-Aug-18	00:00	58.3	59.5	56.5
		00:05	58.4	59.5	56.5
		00:10	59.2	61.0	57.0
		00:15	58.6	60.0	57.0
		00:20	58.0	59.0	55.0
		00:25	57.7	59.5	56.0
2	14-Aug-18	Cancelled due to the hoisting of Tropical Cyclone Warning Signal No. 3			
3	15-Aug-18	23:01	59.3	60.5	57.0
		23:06	59.6	61.5	57.5
		23:11	60.0	61.5	58.0
		23:16	60.6	62.5	58.5
		23:21	61.5	63.5	58.5
		23:26	62.0	64.5	58.5
4	17-Aug-18	00:52	57.5	59.1	55.3
		00:57	57.3	58.7	55.7
		01:02	57.5	58.8	55.2
		01:07	56.6	58.5	54.6
		01:12	56.3	57.4	55.1
		01:17	56.4	57.5	55.1
5	18-Aug-18	01:48	56.5	58.5	54.5
		01:53	56.4	57.5	55.0
		01:58	57.5	58.5	55.2
		02:03	53.6	57.5	55.0
		02:08	56.6	58.0	54.5
		02:13	56.5	58.0	54.0
6	18-Aug-18	23:00	59.9	62.0	57.5
		23:05	59.3	61.0	57.0
		23:10	59.0	60.5	57.5
		23:15	59.0	60.0	57.5
		23:20	60.3	62.0	58.0
		23:25	58.9	60.0	57.5
7	19-Aug-18	23:01	59.6	61.0	58.0
		23:06	59.6	61.0	58.0
		23:11	59.6	60.5	58.0
		23:16	59.5	60.5	57.5
		23:21	59.3	61.0	57.5
		23:26	58.9	60.5	56.5
8	20-Aug-18	23:00	59.9	62.4	57.0
		23:05	59.0	61.0	56.6
		23:10	58.1	59.2	56.6
		23:15	58.7	60.2	56.8
		23:20	58.5	59.8	56.6
		23:25	58.5	60.6	56.4
9	21-Aug-18	23:10	56.7	58.2	64.3
		23:15	57.3	58.9	54.7
		23:20	55.9	57.0	53.5
		23:25	57.3	58.2	53.7
		23:30	55.4	56.8	53.5
		23:35	55.4	56.8	53.5
10	22-Aug-18	Cancelled due to adverse weather			
11	24-Aug-18	23:00	58.4	59.6	56.2
		23:05	57.6	58.8	56.0
		23:10	57.7	59.2	55.8
		23:15	58.0	59.4	56.2
		23:20	59.0	60.8	56.8
		23:25	57.9	59.2	56.2
12	25-Aug-18	00:17	58.7	59.0	55.4
		00:22	56.6	58.0	54.8
		00:27	56.7	58.4	54.6
		00:32	56.5	57.8	55.2
		00:37	57.0	58.6	55.0
		00:42	56.8	58.2	54.8
13	26-Aug-18	00:44	58.2	59.0	55.4
		00:49	56.2	57.6	54.6
		00:54	58.1	57.6	54.8
		00:59	56.5	57.8	54.4
		01:04	56.6	58.2	54.6
		01:09	56.2	57.6	54.6
14	26-Aug-18	Cancelled due to adverse weather			
15	27-Aug-18	Cancelled due to adverse weather			
16	28-Aug-18	Cancelled due to adverse weather			
17	29-Aug-18	Cancelled due to adverse weather			
18	30-Aug-18	23:00	58.5	59.7	57.1
		23:05	58.8	60.4	56.8
		23:10	59.1	60.3	56.7
		23:15	58.2	59.2	56.8
		23:20	59.1	60.7	57.2
		23:25	59.1	60.5	56.7
19	01-Sep-18	00:54	57.8	59.7	55.8
		00:59	57.3	59.1	55.1
		01:04	57.0	58.2	55.2
		01:09	57.2	58.9	55.3
		01:14	57.1	58.4	55.3
		01:19	57.5	59.0	55.3
20	02-Sep-18	01:14	56.6	57.8	54.4
		01:19	56.4	57.8	53.8
		01:24	56.1	57.2	54.6
		01:29	55.3	56.6	53.8
		01:34	55.4	56.6	54.0
		01:39	56.0	57.8	53.4

Appendix F

Baseline Water Quality Monitoring Data

Baseline Water Quality Monitoring at Station E - Upstream Control Station at channelized nullah across the Project site

Station Reference	Sampling Date	Weather	Sampling Time	Sampling Depth	Temperature °C			pH -			Salinity ppt			DO Saturation %			DO mg/L			Turbidity NTU			SS mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
Station E - Upstream Control Station at channelized nullah across the Project site	13/8/18	Fine	11:10	Surface	25.4	25.4	25.6	7.85	7.85	7.83	0.03	0.03	0.03	82.9	82.8	82.3	6.78	6.77	6.73	8.39	8.43	8.43	6.5	6.6
			11:12		25.8	25.8		7.80	7.80		0.03	0.03		82.3	81.3		6.73	6.64		8.45	8.44		6.6	
	15/8/18	Cloudy	10:10	Surface	25.7	25.7	25.9	7.62	7.62	7.58	0.03	0.03	0.03	81.9	83.5	81.4	6.69	6.81	6.63	21.75	21.71	21.71	5.1	5.7
			10:12		26.0	26.0		7.53	7.53		0.03	0.03		78.7	81.5		6.40	6.62		21.70	21.68		6.3	
	17/8/18	Rainy	9:40	Surface	24.7	24.7	24.8	7.53	7.50	7.52	0.02	0.02	0.02	75.5	75.2	75.5	6.26	6.25	6.26	129.00	129.70	129.90	194.9	175.8
			9:42		24.8	24.8		7.51	7.52		0.02	0.02		75.9	75.4		6.28	6.25		130.10	130.80		156.7	
	20/8/18	Rainy	10:17	Surface	24.8	24.8	25.0	6.70	6.69	6.59	0.02	0.02	0.02	81.1	79.2	80.2	6.71	6.55	6.62	14.03	14.04	14.00	8.7	8.4
			10:19		25.1	25.1		6.50	6.48		0.02	0.02		81.1	79.5		6.69	6.51		13.97	13.97		8.0	
	22/8/18	Cloudy	12:25	Surface	25.7	25.7	25.8	6.88	6.89	6.88	0.02	0.02	0.02	79.0	79.5	79.5	6.41	6.44	6.44	8.82	8.85	8.84	7.4	5.7
			12:27		25.9	25.9		6.87	6.87		0.02	0.02		80.1	79.5		6.47	6.42		8.86	8.81		3.9	
	24/8/18	Cloudy	12:06	Surface	25.3	25.3	25.4	7.11	7.11	7.10	0.02	0.02	0.02	81.7	81.2	81.7	6.69	6.64	6.68	15.90	15.87	15.87	14.7	10.3
			12:08		25.4	25.4		7.08	7.08		0.02	0.02		82.2	81.6		6.71	6.66		15.98	15.74		5.9	
	27/8/18	Rainy	10:43	Surface	25.0	25.0	25.1	7.93	7.91	7.92	0.02	0.02	0.02	77.7	76.5	77.1	6.41	6.31	6.36	19.94	19.98	20.00	5.4	5.6
			10:45		25.1	25.1		7.92	7.90		0.02	0.02		77.8	76.4		6.41	6.29		20.04	20.02		5.7	
	29/8/18	Cloudy	10:20	Surface	25.4	25.4	25.6	7.04	7.04	7.03	0.02	0.02	0.02	79.3	84.1	83.4	6.50	6.89	6.83	18.44	18.19	18.26	3.0	3.3
			10:22		25.7	25.7		7.01	7.01		0.02	0.02		85.1	85.1		6.96	6.96		18.13	18.29		3.5	
	31/8/18	Cloudy	13:57	Surface	24.8	24.8	24.8	6.87	6.84	6.85	0.02	0.02	0.02	81.8	81.0	81.4	6.77	6.70	6.72	8.01	7.95	7.99	4.3	4.3
			13:59		24.8	24.8		6.85	6.82		0.02	0.02		81.5	81.1		6.72	6.70		7.98	8.03		<1.0	
	3/9/18	Cloudy	15:15	Surface	28.4	28.4	28.5	7.38	7.38	7.38	0.03	0.03	0.03	78.6	81.7	81.7	6.13	6.36	6.36	7.91	7.92	7.92	8.2	9.0
			15:17		28.5	28.5		7.39	7.38		0.03	0.03		83.4	83.0		6.49	6.45		7.92	7.92		9.7	
	5/9/18	Cloudy	11:05	Surface	29.1	29.1	29.3	6.95	6.95	6.95	0.04	0.04	0.04	81.4	80.0	78.7	6.23	6.12	6.02	30.74	34.96	34.46	28.2	31.9
			11:07		29.4	29.4		6.94	6.94		0.04	0.04		77.4	76.0		5.92	5.81		36.07	36.07		35.5	
	7/9/18	Cloudy	12:50	Surface	26.1	26.1	26.3	7.96	7.96	7.95	0.02	0.02	0.02	75.3	78.7	75.6	6.08	6.35	6.10	9.39	9.39	9.39	4.1	4.3
			12:51		26.4	26.4		7.94	7.94		0.02	0.02		75.3	73.0		6.07	5.89		9.38	9.38		4.5	

Action and Limit Level for Station E - Upstream Control Station at channelized nullah across the Project site

Parameter	Action Level	Limit Level
pH	-	-
DO (mg/L)	-	-
Turbidity (NTU)	-	-
SS (mg/L)	-	-

Remark: It is recommended that upstream monitoring station would be taken as control reference for exceedance investigation only. Action and limit level would not be establish using the baseline data.

Baseline Water Quality Monitoring at Station F - Downstream Impact Station at channelized nullah across the Project site

Station Reference	Sampling Date	Weather	Sampling Time	Sampling Depth	Temperature °C			pH -			Salinity ppt			DO Saturation %			DO mg/L			Turbidity NTU			SS mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
Station F - Downstream Control Station at channelized nullah across the Project site	13/8/18	Fine	11:25	Surface	26.2	26.2	26.3	6.94	6.94	6.99	0.04	0.04	0.04	81.5	80.4	80.3	6.57	6.49	6.48	5.54	5.45	5.47	3.8	3.7
			11:27		26.4	26.4		7.04	7.04		0.04	0.04		80.3	79.1		6.48	6.38		5.44	5.44		3.5	
	15/8/18	Cloudy	10:20	Surface	25.6	25.6	25.7	6.24	6.24	6.48	0.04	0.04	0.04	83.2	83.4	83.6	6.79	6.81	6.82	9.72	9.72	9.72	2.7	3.0
			10:22		25.8	25.8		6.71	6.71		0.04	0.04		84.1	83.5		6.86	6.81		9.71	9.71		3.3	
	17/8/18	Rainy	11:25	Surface	24.5	24.5	24.5	6.91	6.90	6.86	0.03	0.03	0.03	75.2	75.2	76.8	6.28	6.29	6.41	34.93	34.93	34.79	26.2	25.6
			11:26		24.5	24.5		6.82	6.82		0.03	0.03		77.4	79.3		6.45	6.61		34.80	34.50		24.9	
	20/8/18	Rainy	12:30	Surface	25.7	25.7	25.8	6.36	6.35	6.41	0.03	0.03	0.04	83.9	83.9	83.2	6.83	6.83	6.76	8.92	8.91	8.87	6.3	6.3
			12:32		25.9	25.9		6.46	6.46		0.04	0.04		81.8	83.1		6.64	6.75		8.82	8.83		6.2	
	22/8/18	Cloudy	12:42	Surface	26.5	26.5	26.6	6.78	6.77	6.78	0.04	0.04	0.04	80.5	80.8	80.8	6.44	6.46	6.46	7.11	7.09	7.09	3.0	2.9
			12:44		26.6	26.6		6.78	6.79		0.04	0.04		81.2	80.7		6.49	6.44		7.11	7.04		2.7	
	24/8/18	Cloudy	12:25	Surface	25.6	25.6	25.7	7.03	7.03	7.02	0.05	0.05	0.05	82.3	81.8	82.2	6.66	6.61	6.66	5.44	5.51	5.46	2.7	3.0
			12:27		25.7	25.7		7.01	7.02		0.05	0.05		82.8	81.8		6.69	6.66		5.45	5.43		3.2	
	27/8/18	Rainy	11:50	Surface	25.4	25.4	25.5	7.55	7.55	7.50	0.05	0.05	0.05	80.2	80.0	78.8	6.58	6.56	6.46	6.79	6.79	6.78	8.1	5.4
			11:52		25.5	25.5		7.44	7.44		0.05	0.05		78.0	77.0		6.39	6.31		6.78	6.76		2.6	
	29/8/18	Cloudy	10:38	Surface	25.2	25.2	25.3	6.95	6.96	6.96	0.04	0.04	0.05	76.1	76.4	77.4	6.27	6.29	6.38	12.23	12.22	12.19	3.7	3.6
			10:40		25.3	25.3		6.97	6.97		0.07	0.04		78.1	79.1		6.43	6.51		12.18	12.14		3.5	
	31/8/18	Cloudy	14:14	Surface	24.9	24.9	24.9	6.62	6.61	6.63	0.04	0.04	0.04	81.6	81.2	81.3	6.75	6.71	6.72	14.07	14.09	14.07	9.1	8.5
			14:16		24.9	25.0		6.64	6.65		0.04	0.04		81.1	81.3		6.70	6.72		14.07	14.05		7.8	
	3/9/18	Cloudy	15:27	Surface	26.2	26.2	26.4	6.24	6.24	6.28	0.04	0.04	0.04	84.4	82.2	81.3	6.81	6.62	6.55	6.74	6.70	6.85	1.4	1.8
			15:29		26.6	26.6		6.32	6.32		0.04	0.04		80.6	77.9		6.49	6.26		6.90	7.07		2.2	
	5/9/18	Cloudy	11:20	Surface	27.4	27.4	27.5	7.05	7.05	7.03	0.06	0.06	0.06	79.7	78.1	77.9	6.30	6.16	6.14	79.04	78.20	78.54	56.2	51.0
			11:22		27.6	27.6		7.01	7.01		0.06	0.06		77.0	76.6		6.08	6.03		78.12	78.81		45.7	
	7/9/18	Cloudy	12:40	Surface	27.4	27.4	27.5	8.41	8.41	8.38	0.07	0.07	0.07	69.0	68.0	68.4	5.45	5.36	5.40	7.73	7.74	7.73	1.7	1.9
			12:41		27.6	27.6		8.34	8.34		0.07	0.07		67.7	68.8		5.35	5.43		7.73	7.73		2.0	

Action and Limit Level for Station F - Downstream Impact Station at channelized nullah across the Project site

Parameter	Action Level	Limit Level
pH	6.6-8.4	6.5-8.5
DO (mg/L)	5.8	5.5
Turbidity (NTU)	24.4	32.7
SS (mg/L)	17.0	23.8

Remark: Further reviewed the baseline water quality monitoring data, the SS and turbidity data recorded on 5 September 2018 would take as outliers to set the Action and Limit Level in order to establish the representative action and limit levels.

Baseline Water Quality Monitoring at Station H - Upstream Control Station at Ma Yau Tong Stream

Station Reference	Sampling Date	Weather	Sampling Time	Sampling Depth	Temperature °C			pH -			Salinity ppt			DO Saturation %			DO mg/L			Turbidity NTU			SS mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
Station H - Upstream Control Station at Ma Yau Tong Stream	13/8/18	Fine	15:25	Surface	28.2	28.2	28.3	7.54	7.54	7.42	0.10	0.10	0.10	80.8	80.8	79.9	6.29	6.29	6.22	193.10	193.40	193.43	127.9	120.2
			15:27		28.4	28.4		7.30	7.30		0.10	0.10		78.5	79.6		6.11	6.19		193.60	193.60		112.5	
	15/8/18	Cloudy	13:40	Surface	27.2	27.2	27.4	7.58	7.58	7.57	0.11	0.11	0.11	80.6	80.8	80.2	6.37	6.38	4.83	61.21	61.38	61.46	22.7	24.1
			13:42		27.6	27.6		7.56	7.56		0.11	0.11		80.4	79.1		0.34	6.24		61.58	61.66		25.5	
	17/8/18	Rainy	10:20	Surface	25.0	25.0	25.1	6.71	6.71	6.74	0.04	0.04	0.04	74.8	73.6	73.2	6.17	6.08	6.04	427.20	426.30	423.80	480.3	459.6
			10:22		25.1	25.1		6.77	6.77		0.04	0.04		72.5	72.0		5.98	5.93		420.90	420.80		438.9	
	20/8/18	Rainy	12:55	Surface	26.4	26.4	26.5	8.22	8.21	8.23	0.08	0.08	0.08	81.3	81.0	81.0	6.53	6.51	6.50	393.40	393.10	392.95	442.1	439.1
			12:57		26.6	26.6		8.24	8.24		0.08	0.08		80.8	81.0		6.48	6.49		392.80	392.50		436.0	
	22/8/18	Cloudy	12:00	Surface	27.8	27.8	27.9	7.21	7.21	7.19	0.12	0.12	0.12	79.3	78.7	79.1	6.20	6.15	6.18	53.22	53.22	53.26	25.8	23.0
			12:02		27.9	27.9		7.17	7.17		0.12	0.12		79.9	78.5		6.23	6.12		53.31	53.28		20.1	
	24/8/18	Cloudy	11:40	Surface	27.2	27.2	27.3	7.83	7.82	7.82	0.09	0.09	0.09	81.3	81.8	81.5	6.44	6.48	6.45	309.90	309.90	310.00	251.1	254.5
			11:42		27.4	27.4		7.82	7.80		0.09	0.09		82.1	80.9		6.49	6.40		310.40	309.80		257.9	
	27/8/18	Rainy	10:26	Surface	26.4	26.4	26.5	8.50	8.50	8.51	0.09	0.09	0.09	80.6	79.6	80.5	6.48	6.39	6.46	648.40	649.20	648.48	5921.5	5650.3
			10:28		26.5	26.5		8.52	8.53		0.09	0.09		81.3	80.3		6.52	6.44		647.90	648.40		5379.0	
	29/8/18	Cloudy	9:50	Surface	25.8	25.8	25.9	7.38	7.38	7.38	0.09	0.09	0.09	88.1	87.7	87.4	7.16	7.12	7.10	69.34	69.32	69.32	58.5	59.7
			9:52		26.0	26.0		7.37	7.37		0.09	0.09		87.3	86.4		7.09	7.02		69.31	69.30		60.8	
	31/8/18	Cloudy	13:41	Surface	25.9	25.9	26.0	7.20	7.21	0.00	0.09	0.09	0.09	82.4	81.6	81.9	6.68	6.62	6.64	23.30	23.91	23.66	19.7	23.2
			13:43		26.0	26.0		7.24	7.24		0.09	0.09		82.0	81.4		6.64	6.60		23.72	23.69		26.7	
	3/9/18	Cloudy	15:48	Surface	76.4	76.4	51.6	6.52	6.52	6.57	0.08	0.08	0.08	83.3	83.1	82.5	6.68	6.66	6.61	22.04	22.17	21.65	16.3	17.4
			15;50		26.8	26.8		6.61	6.61		0.08	0.08		82.1	81.6		6.58	6.53		21.17	21.20		18.4	
	5/9/18	Cloudy	11:45	Surface	27.1	27.1	27.2	6.93	6.93	6.88	0.09	0.09	0.09	76.3	76.1	76.5	6.06	6.04	6.06	13.45	13.47	13.40	3.0	3.0
			11:47		27.3	27.3		6.82	6.82		0.09	0.09		76.9	76.5		6.10	6.03		13.37	13.31		2.9	
	7/9/18	Cloudy	12:10	Surface	28.2	28.2	27.9	8.18	8.18	8.26	0.14	0.14	0.11	76.1	75.2	72.0	5.92	5.85	5.64	7.52	7.50	7.62	4.7	3.4
			12:12		27.6	27.6		8.34	8.34		0.07	0.07		67.7	68.8		5.35	5.43		7.73	7.73		2.0	

Action and Limit Level for Station H - Upstream Control Station at Ma Yau Tong Stream

Parameter	Action Level	Limit Level
pH	-	-
DO (mg/L)	-	-
Turbidity (NTU)	-	-
SS (mg/L)	-	-

Remark: It is recommended that upstream monitoring station would be taken as control reference for exceedance investigation only. Action and limit level would not be establish using the baseline data.

Baseline Water Quality Monitoring at Station I - Downstream Impact Station at Ma Yau Tong Stream

Station Reference	Sampling Date	Weather	Sampling Time	Sampling Depth	Temperature °C			pH -			Salinity ppt			DO Saturation %			DO mg/L			Turbidity NTU			SS mg/L	
					Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value		Average	Value	Average
Station I - Downstream Impact Station below the slope near Sau Mau Ping Rd	13/8/18	Fine	15:50	Surface	28.2	28.2	28.3	7.08	7.08	7.08	0.12	0.12	0.12	81.0	80.9	80.0	6.30	6.30	6.23	64.03	64.22	64.32	38.6	39.6
			15:52		28.4	28.4		7.07	7.07		0.12	0.12		79.2	78.7		6.20	6.12		64.44	64.57		40.6	
	15/8/18	Cloudy	14:05	Surface	27.7	27.7	27.9	7.15	7.15	7.18	0.12	0.12	0.12	79.3	80.0	78.6	6.22	6.27	6.16	26.00	26.79	26.65	11.6	11.5
			14:07		28.0	28.0		7.20	7.20		0.12	0.12		78.1	76.8		6.12	6.02		26.89	26.93		11.4	
	17/8/18	Rainy	10:45	Surface	25.5	25.5	25.5	6.81	6.81	6.81	0.05	0.05	0.05	80.9	80.2	80.6	6.62	6.57	6.60	197.40	197.40	197.63	120.2	137.1
			10:47		25.5	25.5		6.81	6.81		0.05	0.05		81.0	80.2		6.63	6.56		197.10	198.60		153.9	
	20/8/18	Rainy	13:26	Surface	27.2	27.2	27.3	7.66	7.66	7.64	0.09	0.09	0.09	82.2	81.7	81.8	6.52	6.48	6.48	219.90	218.60	216.08	230.8	208.5
			13:28		27.3	27.3		7.62	7.61		0.09	0.09		80.9	82.4		6.38	6.53		213.00	212.80		186.2	
	22/8/18	Cloudy	11:30	Surface	28.9	28.9	29.0	7.32	7.32	7.33	0.12	0.12	0.12	74.8	73.6	74.8	5.74	5.65	5.73	49.21	49.14	49.15	10.3	10.8
			11:32		29.0	29.0		7.34	7.34		0.12	0.12		75.4	75.2		5.77	5.75		49.17	49.07		11.2	
	24/8/18	Cloudy	11:10	Surface	27.2	27.2	27.3	7.33	7.31	7.32	0.11	0.11	0.11	76.7	76.6	76.8	6.07	6.06	6.08	82.48	81.97	82.27	49.3	44.0
			11:12		27.3	27.3		7.32	7.31		0.11	0.11		76.8	77.2		6.07	6.10		82.28	82.34		38.6	
	27/8/18	Rainy	10:00	Surface	26.4	26.4	26.5	7.78	7.78	7.78	0.09	0.09	0.09	82.9	81.3	80.7	6.67	6.54	6.49	890.00	895.00	894.00	769.0	748.5
			10:02		26.5	26.5		7.77	7.77		0.09	0.09		78.4	80.2		6.30	6.45		895.00	896.00		728.0	
	29/8/18	Cloudy	9:15	Surface	26.0	26.0	26.1	7.66	7.66	7.67	0.09	0.09	0.09	84.0	84.4	82.9	6.81	6.84	6.72	13.53	13.51	13.57	5.4	6.5
			9:17		26.1	26.1		7.67	7.67		0.09	0.09		82.4	80.6		6.68	6.53		13.59	13.66		7.6	
	31/8/18	Cloudy	13:16	Surface	26.4	26.4	26.5	7.77	7.78	7.76	0.19	0.19	0.19	80.1	79.2	80.1	6.43	6.35	6.39	13.22	13.23	13.23	9.1	9.6
			13:18		26.5	26.5		7.72	7.75		0.19	0.19		81.1	79.8		6.50	6.29		13.20	13.25		10.0	
	3/9/18	Cloudy	16:10	Surface	27.3	27.3	27.4	6.63	6.63	6.69	0.10	0.10	0.10	80.9	82.2	81.2	6.40	6.50	6.42	18.16	18.02	17.99	6.7	6.9
			16:12		27.5	27.5		6.74	6.74		0.10	0.10		81.5	80.0		6.44	6.32		17.85	17.92		7.1	
	5/9/18	Cloudy	12:05	Surface	27.4	27.4	27.6	6.86	6.86	6.88	0.10	0.10	0.10	67.9	71.1	71.8	5.35	5.60	5.65	10.74	10.92	10.93	2.3	2.4
			12:07		27.7	27.7		6.90	6.90		0.10	0.10		74.1	74.1		5.83	5.83		11.01	11.04		2.5	
	7/9/18	Cloudy	11:54	Surface	28.9	28.9	28.3	8.52	8.52	8.43	1.13	1.13	0.60	72.2	70.3	69.8	5.52	5.37	5.42	7.64	7.65	7.69	2.3	2.2
			11:55		27.6	27.6		8.34	8.34		0.07	0.07		67.7	68.8		5.35	5.43		7.73	7.73		2.0	

Action and Limit Level for Station I - Downstream Impact Station at Ma Yau Tong Stream

Parameter	Action Level	Limit Level
pH	6.6-8.4	6.5-8.5
DO (mg/L)	5.5	5.4
Turbidity (NTU)	206.9	214.2
SS (mg/L)	172.8	201.4

Remark: Further reviewed the baseline water quality monitoring data, the SS and turbidity data recorded on 27 August 2018 would take as outliers to set the Action and Limit Level in order to establish the representative action and limit levels.