



大成環境科技拓展有限公司

ENVIRONMENTAL PIONEERS & SOLUTIONS LIMITED

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

Proposed Road Improvement Works in West Kowloon Reclamation Development – Phase 1

Baseline Environmental Monitoring (24-hr TSP) Report

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ISO 9001 : 2008
Certificate No.: CC 5832



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Certificate No.: CC 5833



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友商有良 2013/14
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APPROVAL SHEET

Prepared and Certified by:
Environmental Team Leader (Environmental Pioneers & Solutions Limited)

Signature:  _____

Ms. Goldie Fung
(ET Leader)

Date: 25 February 2016

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EXECUTIVE SUMMARY

This baseline monitoring report presents the baseline air quality monitoring results performed from AM1 and AM3-A.

24-hr Total Suspended Particulates (TSP) of AM1 and AM3-A baseline monitoring for 14 consecutive days were conducted as stipulated in their respective sections in the Environmental Monitoring and Audit Manual. Data obtained from the monitoring was processed to establish action and limit levels.

24hr-TSP baseline monitoring was conducted at AM1 from 8th January 2016 to 21st January 2016 and AM3-A from 19th December 2015 to 1st January 2016.

Details of the monitoring location and results are presented in this baseline monitoring report.

1. INTRODUCTION

1.1 Project Background Information

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

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

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

In accordance with the requirements stated in the Environmental Permit (no.: EP-455/2013) based on the Environmental Monitoring and Audit (EM&A) Manual and reference to Annex 21 Technical Memorandum under the Environmental Impact Assessment Ordinance (EIAO-TM), baseline monitoring of air quality and noise are required to be carried out prior to the commencement of construction of the project.

1.2 Purpose

By establishing the baseline level of air quality, the performance of the construction contractor shall be measured in meeting required environmental protection standards and requirements of the EM&A Manual. This report presents the methodology, monitoring location, equipment, period, results and observations for the environmental measurements during the baseline monitoring period.

2. AIR QUALITY MONITORING

According to the EM&A Manual, monitoring of the 24 Hours Total Suspended Particulate (24-hr TSP) levels should be carried out for 14 consecutive days at four monitoring locations.

Due to the rejection from the representatives/ property management of the premises, high volume samplers are not feasible to be installed at AM2, AM3 and AM4 for the 24-hr TSP monitoring. Alternative locations AM2-A, AM3-A and AM4-A are proposed accordingly. Coordination with the representatives of premises for the installation of High Volume Samplers (HVSs) at AM2-A and AM4-A is in progress.

2.1 Monitoring Methodology and Parameters

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

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

Installation of HVSs:

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

- Permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
- A secured supply of electricity is needed to operate the samplers.

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

Other relevant data such as monitoring location, time, weather conditions and any other special phenomena at the construction site were recorded during the measurement period. The monitoring parameters and frequency are summarized in **Table 2.1**.

Table 2.1 – 24-hr TSP Baseline Monitoring Parameters and Frequency

Parameter	Frequency	Monitoring Period
24-hr TSP	1 time per day	14 consecutive days

2.2 Monitoring Locations

Monitoring for 24-hr TSP was conducted at two locations. Details are shown in **Table 2.2** and **Appendix A**.

Table 2.2 – 24-hr TSP Baseline Monitoring Location

Identification No.	Monitoring Location	Description	Parameter	Monitoring Period
AM1	Marine Department New Yau Ma Tei Public Cargo Working Area Administrative Building	Rooftop Face to Hoi Po Road	24-hr TSP	8 th Jan 16 to 21 st Jan 16
AM3-A	Contractor Works Area 4	Ground Floor Near to International Commerce Centre Roundabout on Nga Cheung Road and	24-hr TSP	19 th Dec 15 To 1 st Jan 16

2.3 Monitoring Equipment

The measurement equipments for 24-hr TSP are summarized in **Table 2.3** and Calibration Certificates are shown in **Appendix B**.

Table 2.3 Air Quality Monitoring Equipment

Equipment	Manufacturer & Model No.	Parameter
High Volume Samplers (HVSs)	Tisch TE-5170	TSP (24-hr)
Calibration Kit for HVS	Tisch TE-5028A	N/A

2.4 Quality Assurance / Quality Control Results and Detection Limits

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

2.5 Monitoring Results and Observations

There were a total of 14 sets of 24-hr TSP monitoring data obtained at the monitoring locations. The monitoring results are summarized in **Table 2.4**. All monitoring data and the graphical plot are shown in **Appendix C**.

Table 2.5 Summary of Average 24-hr TSP Baseline Monitoring Results

Monitoring Location	Average 24-hr TSP ($\mu\text{g}/\text{m}^3$)
AM1	42
AM3-A	72

During the monitoring period, vehicle emissions were identified as one of the main dust sources for AM1. Construction activities from other construction sites near Nga Cheung Road and vehicle emissions were the influencing factors for AM3-A.

2.6 Action and Limit Levels

According to the EM&A Manual, the criteria of establishing Action and Limit levels of 24-hr TSP are summarized in **Table 2.6.1**.

Table 2.6.1 Action and Limit Levels for 24-hr TSP

Cases	Action Level	Limit Level
Averaged baseline level $\leq 200 \mu\text{g}/\text{m}^3$	$= (\text{Baseline level} \times 1.3 + \text{Limit level}) / 2$	$260 \mu\text{g}/\text{m}^3$
Averaged baseline level $> 200 \mu\text{g}/\text{m}^3$	$= \text{Limit level}$	

The baseline monitoring results have formed the basis of air quality requirements for the impact monitoring. According to the measured baseline results, Action and Limit levels for 24-hr TSP impact monitoring are established in **Table 2.6.2**.

Table 2.6.2 Established 24-hr TSP Action and Limit Levels

Monitoring Location	Action Level	Limit Level
AM1	$157 \mu\text{g}/\text{m}^3$	$260 \mu\text{g}/\text{m}^3$
AM3-A	$177 \mu\text{g}/\text{m}^3$	

3. REVISIONS FOR INCLUSION IN THE EM&A MANUAL

24-hr TSP monitoring for 14 consecutive days for AM1 has been conducted in accordance with to the EM&A Manual. The monitoring methodology, parameters and location for 24-hr TSP monitoring for AM1 are all in line with the EM&A Manual.

Installations of HVSs at AM2, AM3 and AM4 were rejected by the representatives / property management of premises. The 24-hr TSP cannot be carried out at the designated locations, AM2, AM3 and AM4, in accordance with the EM&A Manual.

AM3-A is the alternative location of AM3. 24-hr TSP monitoring for 14 consecutive days for AM3-A has been conducted. The monitoring methodology and parameters for 24-hr TSP monitoring for AM3-A are all in line with the EM&A Manual.

Arrangement of alternative monitoring locations for 24-hr TSP for AM2 and AM4 is in pending stage. The conditions given in S.3.5.1 of the EM&A Manual were been taken into account for choosing the alternative locations. The details of 24-hr TSP monitoring shall be reported in a separate proposal.

4. CONCLUSION

24-hr TSP monitoring for 14 consecutive days have been conducted at timeframe when there is no construction works underwent by this project in the identified nearest sensitive receivers from 8th January 2016 to 21st January 2016 for AM1 and 19th December 2015 to 1st January 2016 for AM3-A.

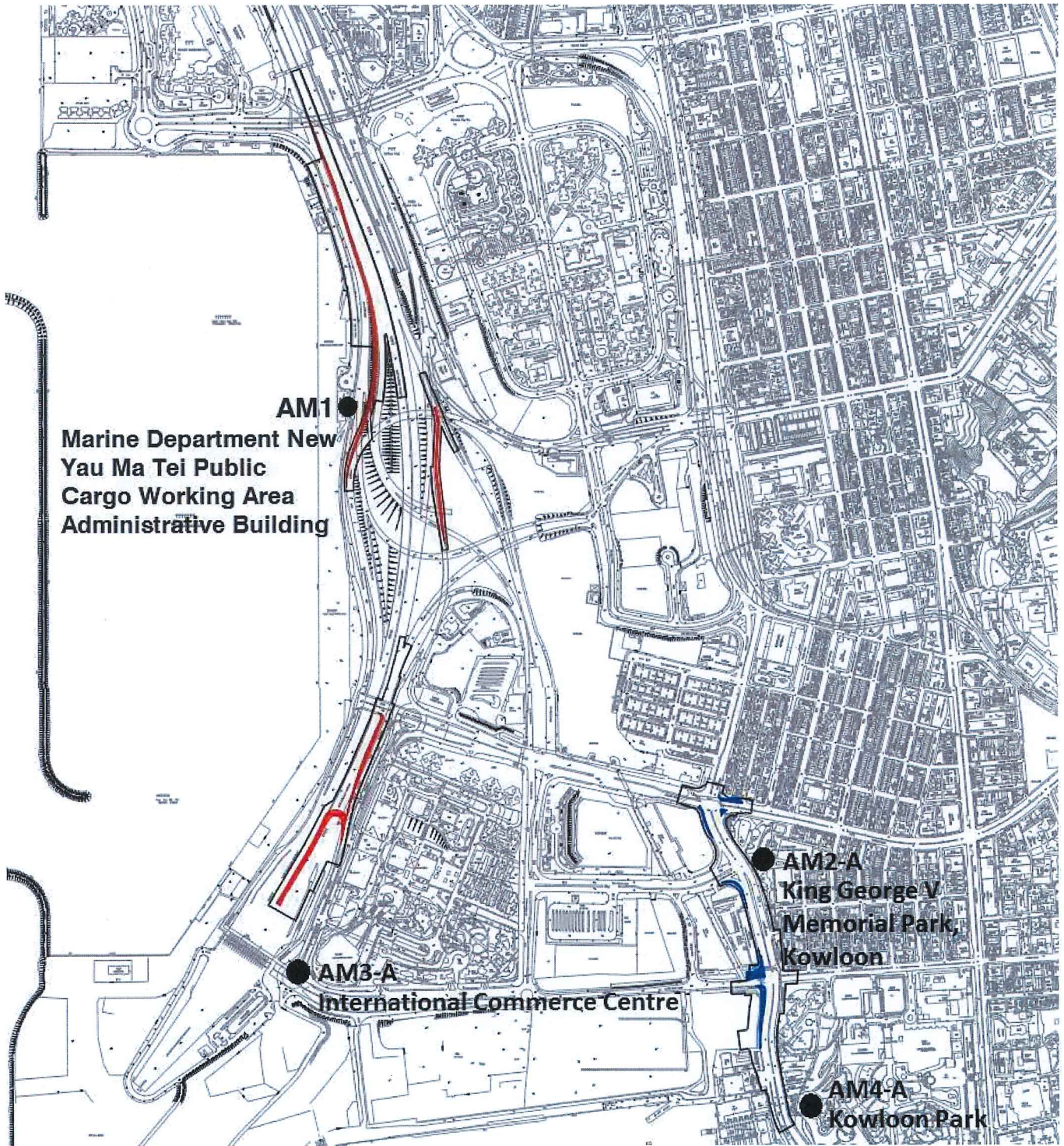
The average 24-hr TSP was $42\mu\text{g}/\text{m}^3$ for AM1 and $72\mu\text{g}/\text{m}^3$ for AM3-a.

The established action level for 24-hr TSP measurement was $157\mu\text{g}/\text{m}^3$ for AM1 and $177\mu\text{g}/\text{m}^3$ for AM3-A. The limit level was $260\mu\text{g}/\text{m}^3$ for AM1 and AM3-A.

24-hr TSP baseline monitoring for AM2 and AM4 was not carried out in the monitoring period. The details of 24-hr TSP baseline monitoring at AM2 and AM4 was presented in a separate proposal.

Appendix A

Monitoring Locations



● AM1

Marine Department New
Yau Ma Tei Public
Cargo Working Area
Administrative Building

● AM2-A



King George V
Memorial Park,
Kowloon

● AM3-A

International Commerce Centre

● AM4-A

Kowloon Park

Monitoring Location	Photo Record
AM1 Marine Department New Yau Ma Tei Public Cargo Working Area Administrative Building	 <p>A photograph showing a grey, rectangular monitoring station with a white top panel. It is situated on a tiled rooftop terrace. To the left of the station is a white door with horizontal ventilation slats. In the background, there is a grey wall and a metal railing. A date stamp '2015/11/07' is visible in the bottom right corner of the photo.</p>
AM3-A International Commerce Centre (Contractor Work Area 4)	 <p>A photograph of a grey monitoring station located inside a construction site. The station is positioned in a narrow aisle between red and white plastic safety barriers. In the background, there are concrete pillars, a white staircase, and other construction elements. A date stamp '2015/12/17' is visible in the bottom right corner of the photo.</p>

Appendix B
Calibration Certificate



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5028A

Date - Jan 30, 2015 Rootmeter S/N 9833620 Ta (K) - 293
 Operator Tisch Orifice I.D. - 2137 Pa (mm) - 762

PLATE OR VDC #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.3460	4.1	1.50
2	NA	NA	1.00	1.0420	6.9	2.50
3	NA	NA	1.00	0.9580	8.1	3.00
4	NA	NA	1.00	0.8820	9.6	3.50
5	NA	NA	1.00	0.6710	16.3	6.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0142	0.7535	1.2368	0.9946	0.7389	0.7595
1.0104	0.9697	1.5967	0.9909	0.9509	0.9805
1.0088	1.0530	1.7491	0.9893	1.0327	1.0740
1.0068	1.1415	1.8892	0.9873	1.1194	1.1601
0.9978	1.4871	2.4735	0.9785	1.4583	1.5189
Qstd slope (m) = 1.68658			Qa slope (m) = 1.05611		
intercept (b) = -0.03417			intercept (b) = -0.02098		
coefficient (r) = 0.99991			coefficient (r) = 0.99991		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol [(Pa-Diff. Hg)/760] (298/Ta)
 Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
 Qa = Va/Time

For subsequent flow rate calculations:

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

**TSP Sampler Calibration
(Dickson recorder)**

SITE

Location: **Nga Cheung Road**
 Sampler: **TE-5170 MFC**

Date: **19-Dec-15**
 Tech: **Andy Tsang**

CONDITIONS

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

CALIBRATION ORIFICE

Make: **Tisch**
 Model: **TE-5028A**
 Serial#: **5**

Qstd Slope: **2.01000**
 Qstd Intercept: **-0.02003**
 Date Certified: **Original**

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	9.80	1.200	60.0	45.83	Slope = 35.3979
2	8.20	1.098	56.0	42.77	Intercept = 3.6204
3	7.10	1.023	52.0	39.72	Corr. coeff.= 0.9988
4	5.80	0.925	48.0	36.66	
5	4.20	0.789	41.0	31.32	# of Observations: 5

Calculations

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

$$IC = I[\text{sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate
 IC = corrected chart response
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pa = actual pressure during calibration (mm Hg)
 Tstd = 298 deg K
 Pstd = 760 mm Hg
 For subsequent calculation of sampler flow:

$$1/m((I) [\text{sqrt}(298/Tav)(Pav/760)] - b)$$

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

**TSP Sampler Calibration
(Dickson recorder)**

SITE

Location: **YMT Public Cargo Working Area** Date: **8-Jan-16**
 Sampler: **TE-5170 MFC** Tech: **Andy Tsang**

CONDITIONS

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

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.01000
Model:	TE-5028A	Qstd Intercept:	-0.02003
Serial#:	5	Date Certified:	Original

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)	LINEAR REGRESSION
1	2.70	0.635	35.5	27.13	Slope = 45.3725 Intercept = -1.5821 Corr. coeff.= 0.9997
2	3.80	0.751	42.8	32.70	
3	5.00	0.860	48.7	37.21	
4	6.10	0.949	54.5	41.64	
5	7.20	1.030	59.0	45.08	
					# of Observations: 5

Calculations

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

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate
 IC = corrected chart response
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pa = actual pressure during calibration (mm Hg)
 Tstd = 298 deg K
 Pstd = 760 mm Hg
 For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)] - b)$$

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

Appendix C

Monitoring Results and Graphical plots

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



CERTIFICATE OF ANALYSIS

Client	: ENVIRONMENTAL PIONEERS & SOLUTION LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 2
Contact	: ALLEN CHAN	Contact	: Fung Lim Chee, Richard	Work Order	: HK1603585
Address	: FLAT A, 8/F, CHAI WAN INDUSTRIAL CENTRE, 20 LEE CHUNG STREET, CHAI WAN HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
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Project	: PROPOSED ROAD IMPROVEMENT WORKS IN WEST KOWLOON RECLAMATION DEVELOPMENT - PHASE 1	Quote number	: ----	Date received	: 22-JAN-2016
Order number	: ----	Date of issue	: 29-JAN-2016	No. of samples	: - Received : 14
C-O-C number	: ----				: - Analysed : 14
Site	: ----				

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1603585 supersedes any previous reports with this reference. The completion date of analysis is 25-JAN-2016. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1603585 :

Sample(s) were picked up from client by ALS Technichem (HK) staff in an ambient condition.
Sample(s) analysed and reported on an as received basis.

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

Signature	Position	Authorised results for:
Fung Lim Chee, Richard	General Manager	Inorganics

ALS Technichem (HK) Pty Ltd Part of the ALS Laboratory Group

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Analytical Results

Sub-Matrix: FILTER (TSP/RSP)

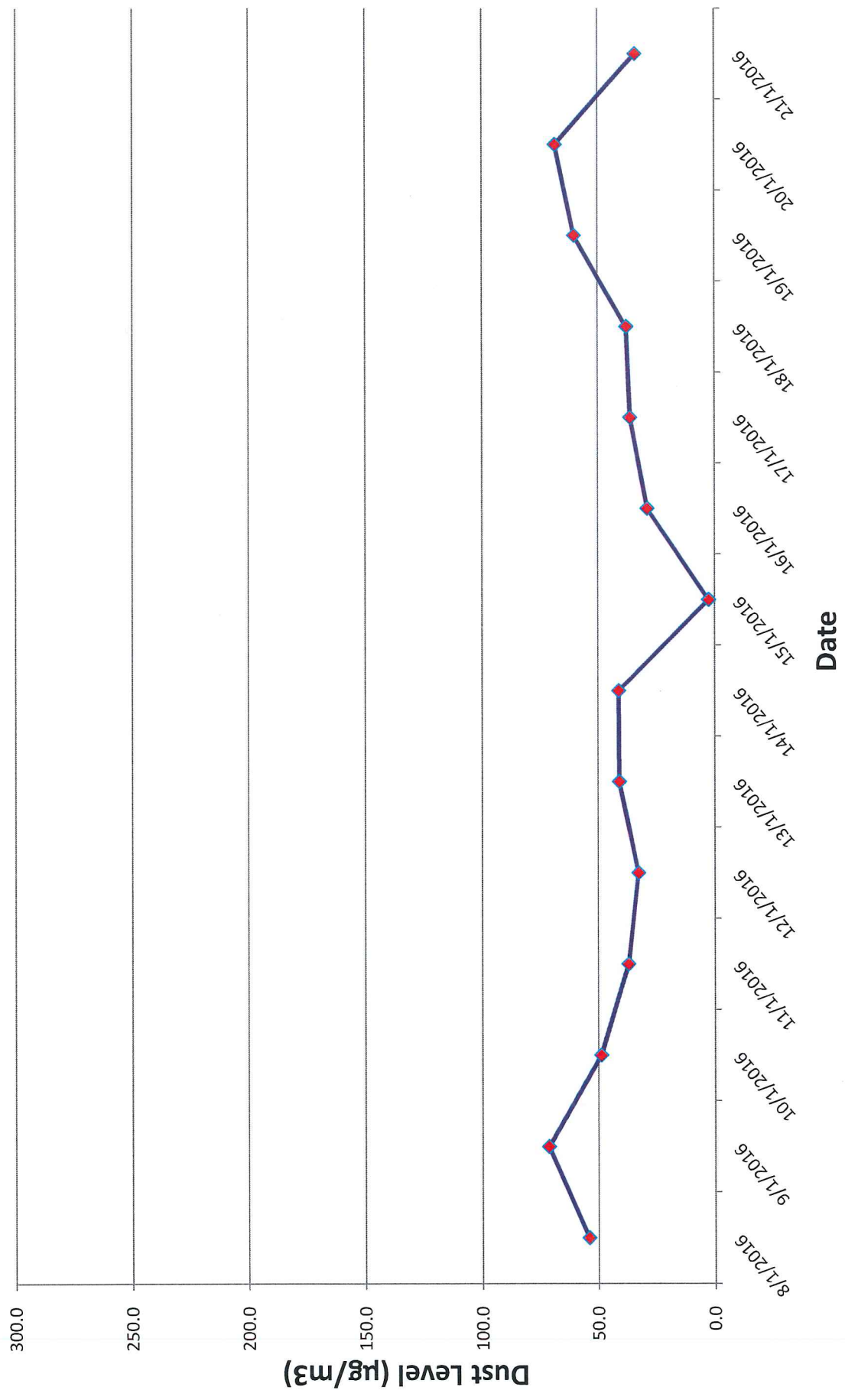
Client sample ID	Client sampling date / time	Laboratory sample ID	Compound	HK-TSP: Total Suspended Particulates	HK-TSP: Initial Weight	HK-TSP: Final Weight
				EAVED: Physical and Aggregate Properties	EAVED: Physical and Aggregate Properties	EAVED: Physical and Aggregate Properties
			LOR Unit	0.0010 g	0.0010 g	0.0010 g
AM10108 200501	[08-JAN-2016]	HK1603585-001		0.1234	2.8105	2.9339
AM10109 200509	[09-JAN-2016]	HK1603585-002		0.1632	2.8200	2.9832
AM10110 200502	[10-JAN-2016]	HK1603585-003		0.1113	2.8009	2.9122
AM10111 200503	[11-JAN-2016]	HK1603585-004		0.0846	2.8162	2.9008
AM10112 200504	[12-JAN-2016]	HK1603585-005		0.0748	2.8138	2.8886
AM10113 200508	[13-JAN-2016]	HK1603585-006		0.0933	2.8193	2.9126
AM10114 200505	[14-JAN-2016]	HK1603585-007		0.0938	2.8159	2.9097
AM10115 200506	[15-JAN-2016]	HK1603585-008		0.0058	2.8197	2.8255
AM10116 200521	[16-JAN-2016]	HK1603585-009		0.0658	2.8835	2.9493
AM10117 200520	[17-JAN-2016]	HK1603585-010		0.0825	2.9005	2.9830
AM10118 200517	[18-JAN-2016]	HK1603585-011		0.0862	2.8795	2.9657
AM10119 200507	[19-JAN-2016]	HK1603585-012		0.1376	2.8070	2.9446
AM10120 200518	[20-JAN-2016]	HK1603585-013		0.1564	2.8710	3.0274
AM10121 200519	[21-JAN-2016]	HK1603585-014		0.0776	2.8717	2.9493

24-hr TSP Monitoring Result for AM1

Sampling Date	Paper No.	Wt. of paper (g)		Wt. of dust	Flow Rate (CFM)			TSP Concentration (µg/m ³)	Temperature (°C) *	Wind Diection *	Wind Speed (m/s) *
		Initial Wt.	Final Wt.		Initial	Final	Avg Flow				
08/01/16	200501	2.8105	2.9339	0.1234	56	56	2283.47	54.0406	15 - 22	E	0-4.5
09/01/16	200509	2.8200	2.9832	0.1632	56	56	2283.47	71.4702	17 - 20	E	1.4-5.3
10/01/16	200502	2.8009	2.9122	0.1113	56	56	2283.47	48.7416	17 - 19	E	0.8-7.5
11/01/16	200503	2.8162	2.9008	0.0846	56	56	2283.47	37.0489	17 - 21	NW	0-4.2
12/01/16	200504	2.8138	2.8886	0.0748	56	56	2283.47	32.7572	16 - 19	NW	0-2.8
13/01/16	200508	2.8193	2.9126	0.0933	56	56	2283.47	40.8589	14 - 20	E	0-4.7
14/01/16	200505	2.8159	2.9097	0.0938	56	56	2283.47	41.0778	15 - 18	E	0-1.4
15/01/16	200506	2.8197	2.8255	0.0058	56	56	2283.47	2.5400	14 - 16	E	1.9-6.4
16/01/16	200521	2.8835	2.9493	0.0658	56	56	2283.47	28.8158	16 - 18	E	0-1.4
17/01/16	200520	2.9005	2.9830	0.0825	56	56	2283.47	36.1292	14 - 22	NW	0.8-1.4
18/01/16	200517	2.8795	2.9657	0.0862	56	56	2283.47	37.7496	11 - 17	E	0.2-1.4
19/01/16	200507	2.8070	2.9446	0.1376	56	56	2283.47	60.2592	15 - 18	E	0.6-4.4
20/01/16	200518	2.8710	3.0274	0.1564	56	56	2283.47	68.4922	15 - 17	E	1.7-6.4
21/01/16	200519	2.8717	2.9493	0.0776	56	56	2283.47	33.9834	16 - 17	NW	0-2.8

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

AM1 - 24hr TSP Graph plot



ALS Technichem (HK) Pty Ltd

ALS Laboratory Group ANALYTICAL CHEMISTRY & TESTING SERVICES



CERTIFICATE OF ANALYSIS

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Project : PROPOSED ROAD IMPROVEMENT WORKS IN
WEST KOWLOON RECLAMATION
DEVELOPMENT - PHASE 1
Order number : ----
C-O-C number : ----
Site : ----

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Quote number : ----

Page : 1 of 2
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Date received : 22-JAN-2016
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No. of samples : - Received : 14
- Analysed : 14

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1603587 supersedes any previous reports with this reference. The completion date of analysis is 25-JAN-2016. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1603587 :

Sample(s) were picked up from client by ALS Technichem (HK) staff in an ambient condition.
Sample(s) analysed and reported on an as received basis.

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

Signatory : Fung Lim Chee, Richard
Position : General Manager
Authorised results for: Inorganics

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Analytical Results

Sub-Matrix: FILTER (TSP/RSP)

Client sample ID	Client sampling date / time	Laboratory sample ID	Compound	HK-TSP: Total Suspended Particulates	HK-TSP: Initial Weight	HK-TSP: Final Weight
				EAVED: Physical and Aggregate Properties	EAVED: Physical and Aggregate Properties	EAVED: Physical and Aggregate Properties
			LOR Unit	0.0010 g	0.0010 g	0.0010 g
AM3-A1219 200492	[19-DEC-2015]	HK1603587-001		0.0634	2.8256	2.8890
AM3-A1220 200357	[20-DEC-2015]	HK1603587-002		0.1699	2.6818	2.8517
AM3-A1221 200358	[21-DEC-2015]	HK1603587-003		0.1580	2.6833	2.8413
AM3-A1222 200359	[22-DEC-2015]	HK1603587-004		0.2105	2.6802	2.8907
AM3-A1223 200360	[23-DEC-2015]	HK1603587-005		0.1640	2.6896	2.8536
AM3-A1224 200361	[24-DEC-2015]	HK1603587-006		0.1617	2.6893	2.8510
AM3-A1225 200362	[25-DEC-2015]	HK1603587-007		0.0925	2.6847	2.7772
AM3-A1226 200363	[26-DEC-2015]	HK1603587-008		0.0860	2.6700	2.7560
AM3-A1227 200364	[27-DEC-2015]	HK1603587-009		0.1562	2.6838	2.8400
AM3-A1228 200365	[28-DEC-2015]	HK1603587-010		0.1263	2.6633	2.7696
AM3-A1229 200366	[29-DEC-2015]	HK1603587-011		0.2805	2.6705	2.9510
AM3-A1230 200493	[30-DEC-2015]	HK1603587-012		0.2197	2.8214	3.0411
AM3-A1231 200494	[31-DEC-2015]	HK1603587-013		0.1757	2.8154	2.9911
AM3-A0101 200496	[01-JAN-2016]	HK1603587-014		0.1940	2.8145	3.0085

24-hr TSP Monitoring Result for AM3-A

Sampling Date	Paper No.	Wt. of paper (g)		Wt. of dust	Flow Rate (CFM)			Total Volume (m ³)	TSP Concentration (µg/m ³)	Temperature (°C)	Wind Direction	Wind Speed (m/s)
		Initial Wt.	Final Wt.		Initial	Final	Avg Flow					
19/12/15	200492	2.8256	2.8890	0.0634	42	42	2242.69	28.2696	13 - 20	SE	0-3.3	
20/12/15	200357	2.6818	2.8517	0.1699	44	44	2242.69	75.7571	17 - 19	NW	0-2.8	
21/12/15	200358	2.6833	2.8413	0.1580	44	44	2242.69	70.4510	17 - 23	E	0-1.4	
22/12/15	200359	2.6802	2.8907	0.2105	44	44	2242.69	93.8603	19 - 22	E	0-8.5	
23/12/15	200360	2.6896	2.8536	0.1640	46	46	2242.69	73.1263	19 - 24	E	0-3.3	
24/12/15	200361	2.6893	2.8510	0.1617	46	46	2242.69	72.1008	20 - 27	SE	0-4.2	
25/12/15	200362	2.6847	2.7772	0.0925	46	46	2242.69	41.2450	16 - 19	NW	0-6.6	
26/12/15	200363	2.6700	2.7560	0.0860	52	52	2242.69	38.3467	16 - 20	NW	0-3.3	
27/12/15	200364	2.6838	2.8400	0.1562	52	52	2242.69	69.6484	16 - 18	NW	0-4.2	
28/12/15	200365	2.6633	2.7896	0.1263	50	50	2242.69	56.3162	16 - 19	NW	0-3.3	
29/12/15	200366	2.6705	2.9510	0.2805	52	52	2242.69	125.0728	16 - 21	E	0-1.4	
30/12/15	200493	2.8214	3.0411	0.2197	50	50	2242.69	97.9625	15 - 19	NW	0-3.3	
31/12/15	200494	2.8154	2.9911	0.1757	50	50	2242.69	78.3433	15 - 19	NW	0-1.4	
01/01/16	200496	2.8145	3.0085	0.1940	50	50	2242.69	86.5031	16 - 22	E	0-4.7	

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

AM3-A - 24hr TSP Graph plot

