



CONTRACT NO: CV/2012/07
DEVELOPMENT AT ANDERSON ROAD -
FOOTBRIDGE D AND ASSOCIATED WORKS AREA

QUARTERLY ENVIRONMENTAL MONITORING & AUDIT
REPORT

- OCTOBER 2013 TO DECEMBER 2013 -

CLIENTS:

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EXECUTIVE SUMMARY

- i. This is the Environmental Monitoring and Audit (EM&A) Quarterly Report – October 2013 to December 2013 project “Development at Anderson Road – Footbridge D and Associated Works Area” (Hereafter called “this Project”). The construction works of this project was commenced on 20 July 2013. This is the 1st quarterly of EM&A report presenting the environmental monitoring findings and information recorded during the period 01 September 2013 to 31 December 2013.

Table1.1 Major Construction Activities for the Reporting Period

October 2013	November 2013	December 2013
<ul style="list-style-type: none"> ● Cut slope ● Excavation of raft footing ● Demolish existing structure ● Site investigation ● Drainage works 	<ul style="list-style-type: none"> ● Slope excavation ● Soil nail installation ● Concrete work for drainage 	<ul style="list-style-type: none"> ● Excavation of slope ● Cascade (Drainage) construction ● Soil nail installation ● Mini pile construction

Noise Monitoring

- ii. Noise monitoring during daytime was conducted at the stations NM1 and NM2 on a weekly basis in the reporting period. No action or limit level exceedance was recorded in the reporting period.

Air Quality Monitoring

- iii. Air quality monitoring has been conducted at station AQM1. No action or limit level exceedance was recorded in the reporting period.

Complaints, Notifications of Summons and Successful Prosecutions

- iv. No complaint and notifications of summons or successful prosecutions were recorded in this reporting period.

Site Inspections and Audit

- v. The Environmental Team (ET) conducted weekly site inspections for Contract no. CV/2012/07 in the reporting period. Major observations and recommendations made during the audit sessions were rectified by the Contractors. No non-conformance was identified during the site inspections.

1. Introduction

1.1 Scope of the Report

- 1.1.1. Lam Environmental Services Limited (LES) has been appointed to work as the Environmental Team (ET) to implement the Environmental Monitoring and Audit (EM&A) programme as stipulated in the EM&A Manual of the approved Environmental Impact Assessment (EIA) Report for Development of Anderson Road.
- 1.1.2. This report presents the environmental monitoring and auditing work carried out in accordance to the Section 1.4 of EM&A Manual and “*Environmental Monitoring and Audit Requirements*” under Particular Specification Section 25.
- 1.1.3. The construction works of this project was commenced on 20 July 2013. This report documents the finding of EM&A works for this Project and during the period 01 October 2013 to 31 December 2013.

1.2 Structure of the Report

- Section 1** **Introduction** – details the scope and structure of the report.
- Section 2** **Project Background** – summarizes background and scope of the project, site description, project organization and contact details of key personnel during the reporting period.
- Section 3** **Monitoring Requirements** – summarizes all monitoring parameters, monitoring methodology and equipment, monitoring locations, monitoring frequency, criteria and respective event and action plan and monitoring programmes.
- Section 4** **Monitoring Results** – summarizes the monitoring results obtained in the reporting period.
- Section 5** **Compliance Audit** – summarizes the auditing of monitoring results and environmental site inspection, all exceedances environmental parameters.
- Section 6** **Complaints, Notification of summons and Prosecution** – summarizes the cumulative statistics on complaints, notification of summons and prosecution
- Section 7** **Conclusion**

2. Project Background

2.1 Background

- 2.1.1. The main objective of the project “Development at Anderson Road – Footbridge D and Associated Works Area” (Hereafter called “this Project”) is to construct a footbridge, Footbridge D, and associated lift towers across Shun On Road between the existing Shun Tin Estate and the future development platform.
- 2.1.2. For this project, Tin Wan House (NM1) and Ning Po No.2 College (NM2 and AQM1) are the designated monitoring station during the construction period. Owing to this contract is under the master project and on the other hand, the construction area is vicinity to the monitoring station (On Yat House) ID2 and (Sau Nga House) ID3 of the master project, so that the baseline noise and air quality monitoring will adopt the baseline data from those stations instead of conducting baseline monitoring. All the baseline data are referred to the baseline report from the public domain web site (www.anderson-road.com/main.htm).
- 2.1.3. The construction works of this project was commenced on 20 July 2013. During the construction phase of the project, air quality (dust) and noise impacts from the development site itself and the adjacent Anderson Road Quarry and other nearby construction sites are identified as the major environmental issues of concern. Besides, waste management is also identified in the EIA study as another environmental issue during the construction phase of the project that requires mitigation measures.

2.2 Scope of the Project and Site Description

- 2.2.1. The Project is located mainly near Shun Tin Estate and Ning Po No.2 College, as shown in **Figure 2.1**.
- 2.2.2. The scope of the Project comprises:
- Construction of footbridge and associated lift towers between Shun On Road and future platform at +152mPD and across Shun On Road. In Conjunction with these footbridge works are the associated furniture, drainage system, irrigation system and traffic signs.
 - Construction of drainage system for diversion of an existing stream on the slop[e adjoining Footbridge D.
 - Site formation and associated slopeworks for Footbridge D adjacent to Shun On Road.

2.3 Project Organization and Contact Personnel

- 2.3.1. Civil Engineering and Development Department is the overall project controllers for this project. For the construction phase of the Project, Project Engineer, Contractor(s), Environmental Team and Independent Environmental Checker are appointed to manage and control environmental issues.

2.3.2. The proposed project organization and lines of communication with respect to environmental protection works are shown in **Figure 2.2**. Key personnel and contact particulars are summarized in **Table 2.1**:

Table 2.1 Contact Details of Key Personnel

Party	Role	Post	Name	Contact No.	Contact Fax
Ove Arup	Engineer	Chief Resident Engineer	Dennis Leung	3656 3000	3656 1000
		Resident Engineer	Kenneth Lee	3656 3000	3656 1000
Lam-Po Wing Joint Venture	Contractor under Contract no. CV/2012/07	Project Manager	K.C. Wong	2318 0281	3171 7222
		Site Agent	T.L. Lo	2318 0281	
		Safety Officer	K.W. Lau	2318 0281	
		Environmental Officer	K.I. Ip	2318 0281	
ENVIRON Hong Kong Limited	Independent Environmental Checker (IEC)	Independent Environmental Checker (IEC)	Mr. David Yeung	3465 2888	3465 2899
Lam Environmental Services Limited	Environmental Team (ET)	Environmental Team Leader (ETL)	Mr. Derek Lo	2882 3939	2882 3331

Hotline telephone number for the public to make enquiries: (852) 5346 4647

3. Monitoring Requirements

3.1 Noise Monitoring

NOISE MONITORING STATIONS

3.1.1. The noise monitoring has been undertaken at the designated locations Tin Wan House (NM1) and Ning Po No.2 College (NM2). The detailed information of monitoring stations for the Project are listed and shown in **Table 3.1** and **Figure 4.1**. **Appendix 4.1** shows the established Action/Limit Levels for the monitoring works.

Table 3.1 Noise Monitoring Stations

Station ID	Monitoring Location
NM1	G/F of Tin Wan House
NM2	G/F of Ning Po No.2 College

NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION



3.1.2. The construction noise level shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). $L_{eq(30\text{ minutes})}$ shall be used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays. For all other time periods, $L_{eq(5\text{ minutes})}$ shall be employed for comparison with the Noise Control Ordinance (NCO) criteria. Supplementary information for data auditing, statistical results such as L10 and L90 shall also be obtained for reference.

3.1.3. Noise monitoring shall be carried out at all the designated monitoring stations. The monitoring frequency shall depend on the scale of the construction activities. The following is an initial guide on the regular monitoring frequency for each station on a weekly basis when noise generating activities are underway:

- one set of measurements between 0700 and 1900 hours on normal weekdays.

3.1.4. If construction works are extended to include works during the hours of 1900 – 0700 as well as public holidays and Sundays, additional weekly impact monitoring shall be carried out during respective restricted hours periods. Applicable permits under NCO shall be obtained by the Contractor.

MONITORING EQUIPMENT

3.1.5. As referred to in the Technical Memorandum (TM) issued under the NCO, sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration level from before and after the noise measurement agree to within 1.0 dB.

3.1.6. Noise measurements shall not be made in fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

3.2 Air Monitoring

AIR QUALITY MONITORING STATIONS

3.2.1. The air monitoring has been conducted at the designated location Ning Po No.2 College (AQM1). The air monitoring stations for the Project are listed and shown in **Table 3.2** and **Figure 4.1**. **Appendix 4.1** shows the established Action/Limit Levels for the monitoring works.

Table 3.2 Air Monitoring Station

Station ID	Monitoring Location
AQM1	Roof Top of Ning Po No.2 College

AIR MONITORING PARAMETERS, FREQUENCY AND DURATION

3.2.2. One-hour and 24-hour TSP levels should be measured to indicate the impacts of construction dust on air quality. The 24-hour TSP levels shall be measured by following the standard high

volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B.

- 3.2.3. All relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and any other local atmospheric factors affecting or affected by site conditions, etc., shall be recorded down in detail.
- 3.2.4. For regular impact monitoring, the sampling frequency of at least once in every six-days, shall be strictly observed at all the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six-days should be undertaken when the highest dust impact occurs.

SAMPLING PROCEDURE AND MONITORING EQUIPMENT

- 3.2.5. High volume samplers (HVSs) in compliance with the following specifications shall be used for carrying out the 1-hour and 24-hour TSP monitoring:
- 0.6 - 1.7 m³ per minute adjustable flow range;
 - equipped with a timing / control device with +/- 5 minutes accuracy for 24 hours operation;
 - installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation;
 - capable of providing a minimum exposed area of 406 cm²;
 - flow control accuracy: +/- 2.5% deviation over 24-hour sampling period;
 - equipped with a shelter to protect the filter and sampler;
 - incorporated with an electronic mass flow rate controller or other equivalent devices;
 - equipped with a flow recorder for continuous monitoring;
 - provided with a peaked roof inlet;
 - incorporated with a manometer;
 - able to hold and seal the filter paper to the sampler housing at horizontal position;
 - easily changeable filter; and
 - capable of operating continuously for a 24-hour period.
- 3.2.6. Initial calibration of dust monitoring equipment shall be conducted upon installation and thereafter at bi-monthly intervals. The transfer standard shall be traceable to the internationally recognized primary standard and be calibrated annually. The calibration data shall be properly documented for future reference by concerned parties such as the IEC. All the data should be converted into standard temperature and pressure equivalents.

LABORATORY MEASUREMENT / ANALYSIS

- 3.2.7. A clean laboratory with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments to handle the dust samples collected, shall be available for sample analysis, and equipment calibration and maintenance. The laboratory should be HOKLAS accredited.
- 3.2.8. If a site laboratory is set up or a non-HOKLAS accredited laboratory is retained for analysis, laboratory equipment shall be provided by the ER in consultation with the IC(E). Measurement performed by the laboratory shall be demonstrated to the satisfaction of the ER and the IC(E).



The IC(E) shall conduct regular audit to the measurement performed by the laboratory to ensure the accuracy of measurement results. The ET leader shall provide the ER with one copy of the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), and Appendix B for his reference.

- 3.2.9. Filter paper of size 8" x 10" shall be labelled before sampling. It shall be a clean filter paper with no pinholes, and shall be conditioned in a humidity-controlled chamber for over 24-hours and be pre-weighed before use for the sampling.
- 3.2.10. After sampling, the filter paper loaded with dust shall be kept in a clean and tightly sealed plastic bag. The filter paper shall then be returned to the laboratory for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with readout down to 0.1 mg. The balance shall be regularly calibrated against a traceable standard.
- 3.2.11. All the collected samples shall be kept in a good condition for 6 months prior to disposal.

4. Monitoring Results

4.0.1. The environmental monitoring will be implemented based on the sensitive receivers which would be mostly affected. Overall layout showing the work area, latest status of work commencement and monitoring stations are shown in **Figure 2.1** and **Figure 4.1**.

4.1 Noise Monitoring Results

4.1.1. The noise monitoring results for Contract no. CV/2012/07 are summarized in **Table 4.1** below:

Table 4.1 Summary of Noise Monitoring Results at NM1 and NM2

Date	Time	Location	Leq (dB)
4-Oct-13	11:15 - 11:45	NM1	61.0
	10:15 - 10:45	NM2	65.3
10-Oct-13	08:45 - 09:15	NM1	67.9
	09:45 - 10:15	NM2	66.8
16-Oct-13	10:15 - 10:45	NM1	70.9
	11:15 - 11:45	NM2	60.8
22-Oct-13	10:35 - 11:05	NM1	72.1
	08:58 - 09:28	NM2	63.1
28-Oct-13	10:36 - 11:06	NM1	74.1
	08:33 - 09:03	NM2	69.3
8-Nov-13	10:10 - 10:40	NM1	67.6
	09:13 - 09:43	NM2	63.2
14-Nov-13	10:23 - 10:53	NM1	72.2
	08:58 - 09:28	NM2	69.4

20-Nov-13	09:47 - 10:17	NM1	73.3
	08:33 - 09:03	NM2	69.6
26-Nov-13	10:20 - 10:50	NM1	71.6
	08:21 - 08:51	NM2	69.5
2-Dec-13	09:33 - 10:03	NM1	67.3
	10:57 - 11:27	NM2	64.4
13-Dec-13	8:15 - 8:45	NM1	66.5
	9:50 - 10:20	NM2	64.1
19-Dec-13	15:10 - 15:40	NM1	70.6
	14:15 - 14:45	NM2	58.2
24-Dec-13	08:39 - 10:09	NM1	65.4
	10:32 - 11:02	NM2	65.4
30-Dec-13	14:30 - 15:00	NM1	64.2
	15:10 - 15:40	NM2	63.4
Limit Level			65 / 70 /75*

Note :

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

4.1.2. Day time period noise monitoring was conducted at the Tin Wan House (NM1) and Ning Po No.2 College (NM2). In this reporting period, school examination was undertaken at Ning Po No.2 College (NM2) during 5 Dec 2013 to 19 Dec 2013. Therefore, the noise Limited Level during that period would be reduced to 65dB(A)

4.1.3. Noise monitoring results measured in this reporting period are reviewed and summarized. No exceedance was recorded in reporting period. Details of noise monitoring results and graphical presentation can be referred in **Appendix 5.2**.

4.2 Air Monitoring Results

4.2.1. The air monitoring results are summarized in **Table 4.2** and **Table 4.3** below. No exceedance was recorded in the reporting period.

Table 4.2 Summary of Air Monitoring Results at AQM1 - 24 hr TSP Monitoring

Date	Time	TSP Level, ($\mu\text{g}/\text{m}^3$)
3-Oct-13	8:00	107
9-Oct-13	8:00	97
15-Oct-13	8:00	156
21-Oct-13	8:00	160
26-Oct-13	8:00	166
1-Nov-13	8:00	162
7-Nov-13	8:00	125
13-Nov-13	8:00	81



19-Nov-13	8:00	188
25-Nov-13	8:00	148
30-Nov-13	8:00	133
6-Dec-13	8:00	165
12-Dec-13	8:00	195
18-Dec-13	8:00	65
23-Dec-13	8:00	132
28-Dec-13	8:00	145
Action Level		200
Limit Level:		260

Table 4.3 Summary of Air Monitoring Results at AQM1 - 1 hr TSP Monitoring

Date	Time	TSP Level, ($\mu\text{g}/\text{m}^3$)
4-Oct-13	8:13	142
4-Oct-13	9:19	145
4-Oct-13	10:26	156
10-Oct-13	8:16	167
10-Oct-13	9:23	161
10-Oct-13	10:29	177
16-Oct-13	8:23	143
16-Oct-13	9:35	121
16-Oct-13	10:42	154
22-Oct-13	8:40	146
22-Oct-13	9:45	146
22-Oct-13	10:50	174
28-Oct-13	13:10	170
28-Oct-13	14:15	175
28-Oct-13	15:20	172
2-Nov-13	8:22	177
2-Nov-13	9:30	187
2-Nov-13	10:44	175
8-Nov-13	8:40	179
8-Nov-13	9:51	178
8-Nov-13	10:56	175
14-Nov-13	8:26	148
14-Nov-13	9:41	178
14-Nov-13	10:26	182
20-Nov-13	8:22	183
20-Nov-13	9:36	178
20-Nov-13	10:49	184
26-Nov-13	8:42	180
26-Nov-13	9:54	174
26-Nov-13	10:57	167
2-Dec-13	8:42	140
2-Dec-13	9:50	146
2-Dec-13	10:58	194
7-Dec-13	8:40	187



7-Dec-13	9:43	176
7-Dec-13	10:48	188
13-Dec-13	8:20	166
13-Dec-13	9:25	184
13-Dec-13	10:30	179
19-Dec-13	8:37	171
19-Dec-13	9:45	178
19-Dec-13	10:51	176
24-Dec-13	8:32	175
24-Dec-13	9:41	155
24-Dec-13	10:53	168
30-Dec-13	14:30	158
30-Dec-13	15:35	130
30-Dec-13	16:40	187
Action Level		197
Limit Level:		500

4.2.2. Air monitoring results measured in this reporting period are reviewed and summarized. No exceedance was recorded in reporting period. Details of air monitoring results can be referred in **Appendix 5.3**.

4.3 Waste Monitoring Results

4.3.1. Inert and non-inert C&D waste were disposed of in this reporting period. Details of the waste flow table are summarized in **Table 4.4**.

Table 4.4 Details of Waste Disposal for Contract no. CV/2012/07

Waste Type	Quantity this quarter	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
Inert C&D materials disposed, 000m ³	1.7922	1.9018	TKO137
Inert C&D materials recycled, 000m ³	0	0	N/A
Non-inert C&D materials disposed, 000m ³	0.00316	0.00316	TKO137
Non-inert C&D materials recycled, kg	0	0	N/A
Chemical waste disposed, kg	0	0	N/A



5. Compliance Audit

5.0.1. The Event Action Plan for construction noise, air quality and water quality are presented in **Appendix 6.1.**

5.1 Noise Monitoring

5.1.1. No exceedance was recorded in the reporting period.

5.2 Air Monitoring

5.2.1. No exceedance was recorded in the TSP monitoring in the reporting period.

5.3 Environmental Site Audit

5.3.1. There was no non-compliance from the site audits in the reporting period. During environmental site inspections conducted during the reporting period, minor deficiencies were noted.

5.4 Review of the Reasons for and the Implications of Non-compliance

5.4.1. There was no non-compliance from the site audits in the reporting period. The observations and recommendations made in each individual site audit session were presented in Section 8.

5.5 Summary of action taken in the event of and follow-up on non-compliance

5.5.1. There was no particular action taken since no project-related non-compliance was recorded from the site audits and environmental monitoring in the reporting period.

6. Complaints, Notification of Summons and Prosecution

- 6.0.1. No complaint and notification of summons or successful prosecutions were recorded in this reporting period.
- 6.0.2. The details of cumulative complaint log and updated summary of complaints are presented in **Appendix 8.1**.
- 6.0.3. Cumulative statistic on complaints and successful prosecutions are summarized in **Table 6.1** and **Table 6.2** respectively.

Table 6.1 Cumulative Statistics on Complaints

Reporting Period	No. of Complaints
October 2013 - December 2013	0
Project-to-Date	0

Table 6.2 Cumulative Statistics on Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Successful Prosecutions this quarter (Offence Date)	Cumulative No. Project-to-Date
Air	-	0	0
Noise	-	0	0
Waste	-	0	0
Total	-	0	0



7. Conclusion

- 7.0.1. The EM&A programme was carried out in accordance with the EM&A Manual requirements, minor alterations to the programme proposed were made in response to changing circumstances.
- 7.0.2. No construction air and noise monitoring results that triggered the Limit Level was recorded. No complaint of air and noise were received by the ARUP and the contractor. Furthermore, no notification of summons or successful prosecution was received in this reporting period.



Figure 2.1

Project Layout

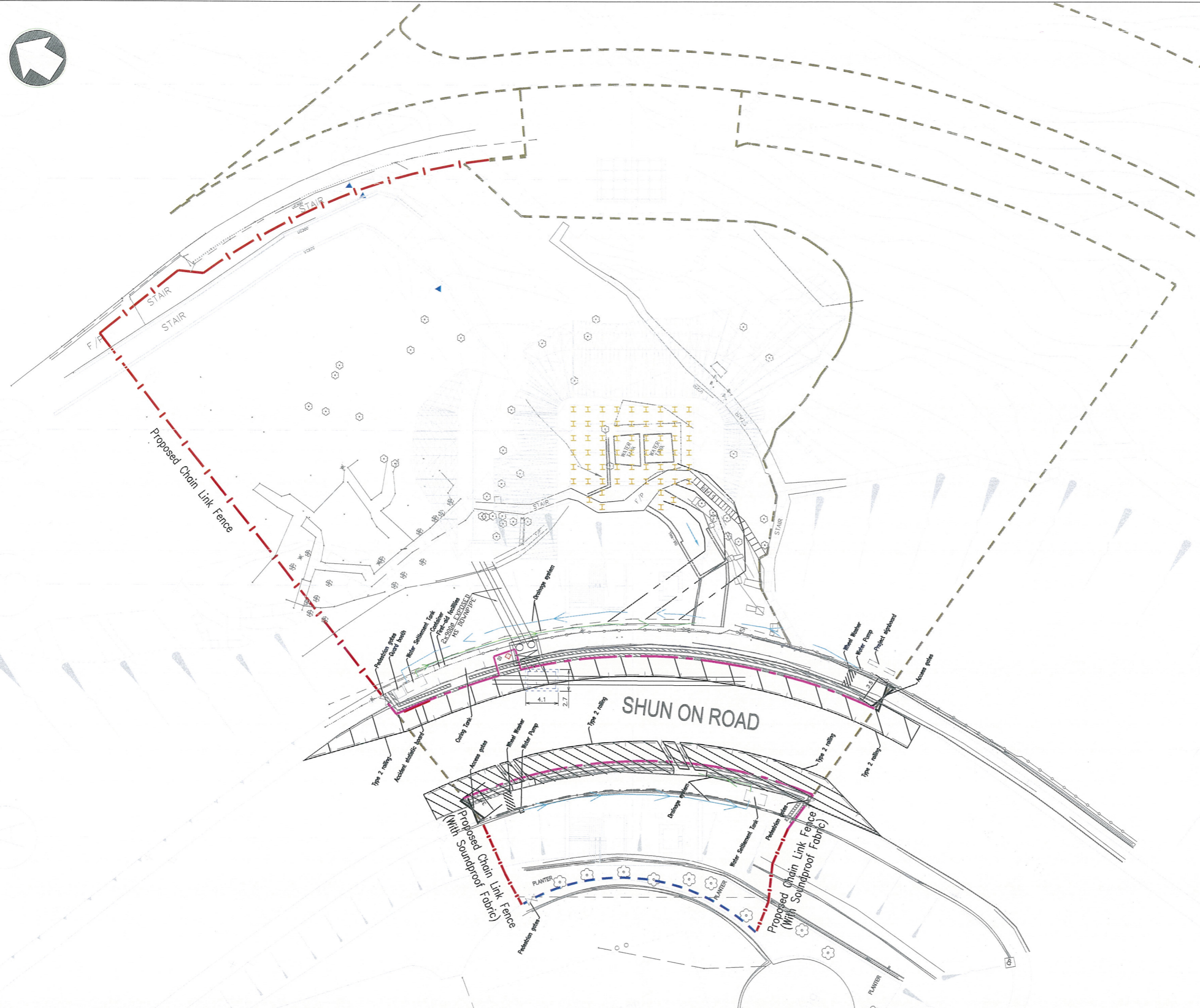


NOTES:

1. This drawing shall be read in conjunction with Drawing 24711/1052.
2. The location of fencing and hoarding is indicative only. The exact location is approved on site by Engineer.
3. For Detail of Access gate refer to CEDD Standard Drawing No. C1007.
4. Dimensions Are in Meters Unless Otherwise Shown.

Legend

- Proposed Chain Link Fence
- Proposed Safety Fence (Type A)
- Proposed Hoarding (Type I)
- Site Boundary



ARUP 奧雅納工程顧問
Ove Arup & Partners Hong Kong Limited

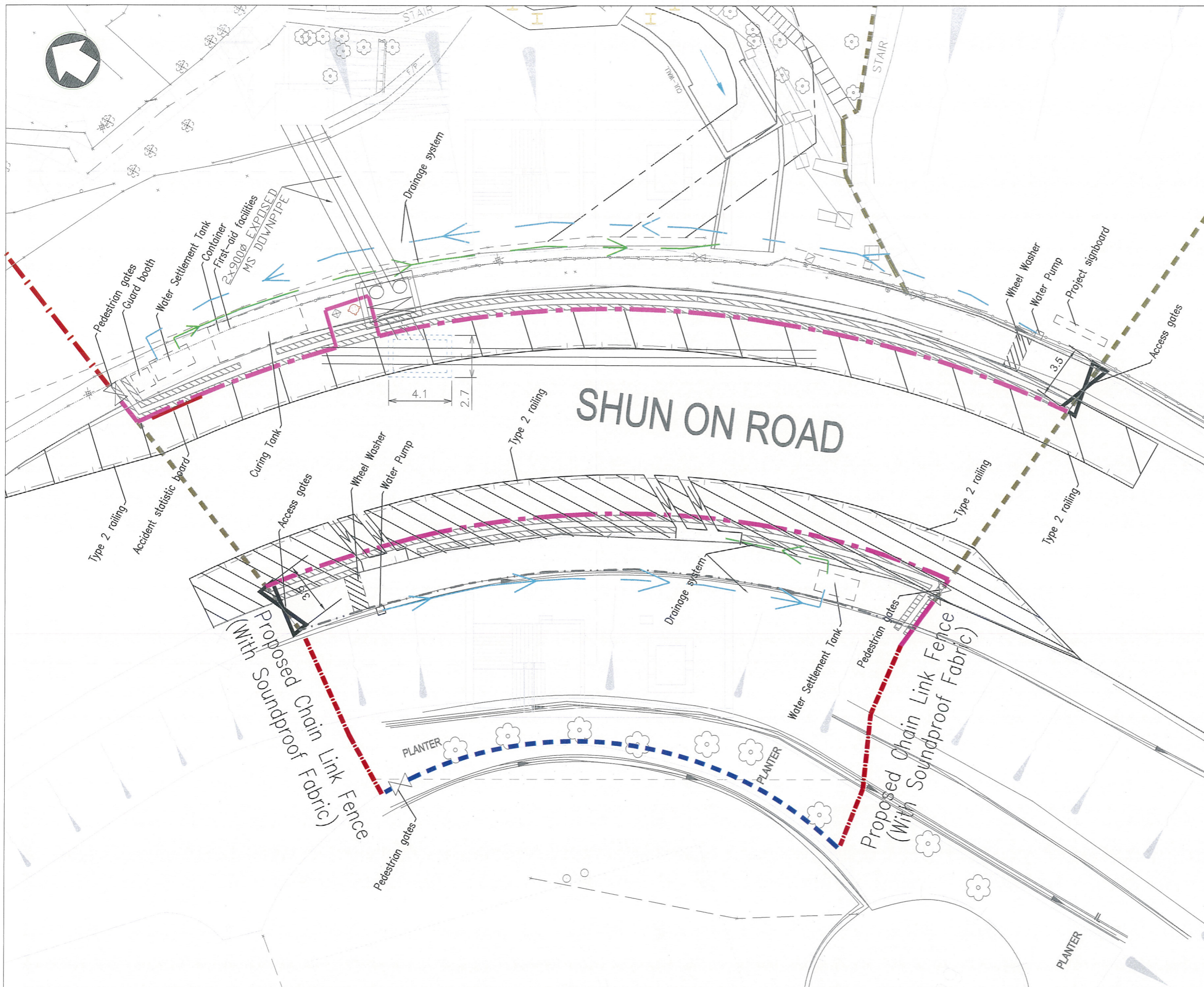
CEDD 土木工程拓展署
Civil Engineering and Development Department

Contract No. CV/2012/07
Development at Anderson Road –
Footbridge D and Associated Works

Lam-Po Wing Joint Venture

DRAWING Title:
Site Establishment Plan

SCALE	1:500 @ A3	DATE	24 JULY 2013
CHECK	HUNG	DRAWN	HUNG
JOB NO.	CV/2012/07	DRAWING NO.	SK011
		(Sheet 1/2)	REV B



- NOTES:**
1. This drawing shall be read in conjunction with Drawing 24711/1052.
 2. The location of fencing and hoarding is indicative only. The exact location is approved on site by Engineer.
 3. For Detail of Access gate refer to CEDD Standard Drawing No. C1007.
 4. Dimensions Are in Meters Unless Otherwise Shown.

- Legend**
- - - Proposed Chain Link Fence
 - - - Proposed Safety Fence (Type A)
 - - - Proposed Hoarding (Type I)
 - - - Site Boundary



Figure 2.2

Project Organization Chart



Figure 4.1

Locations of Environmental Monitoring Stations

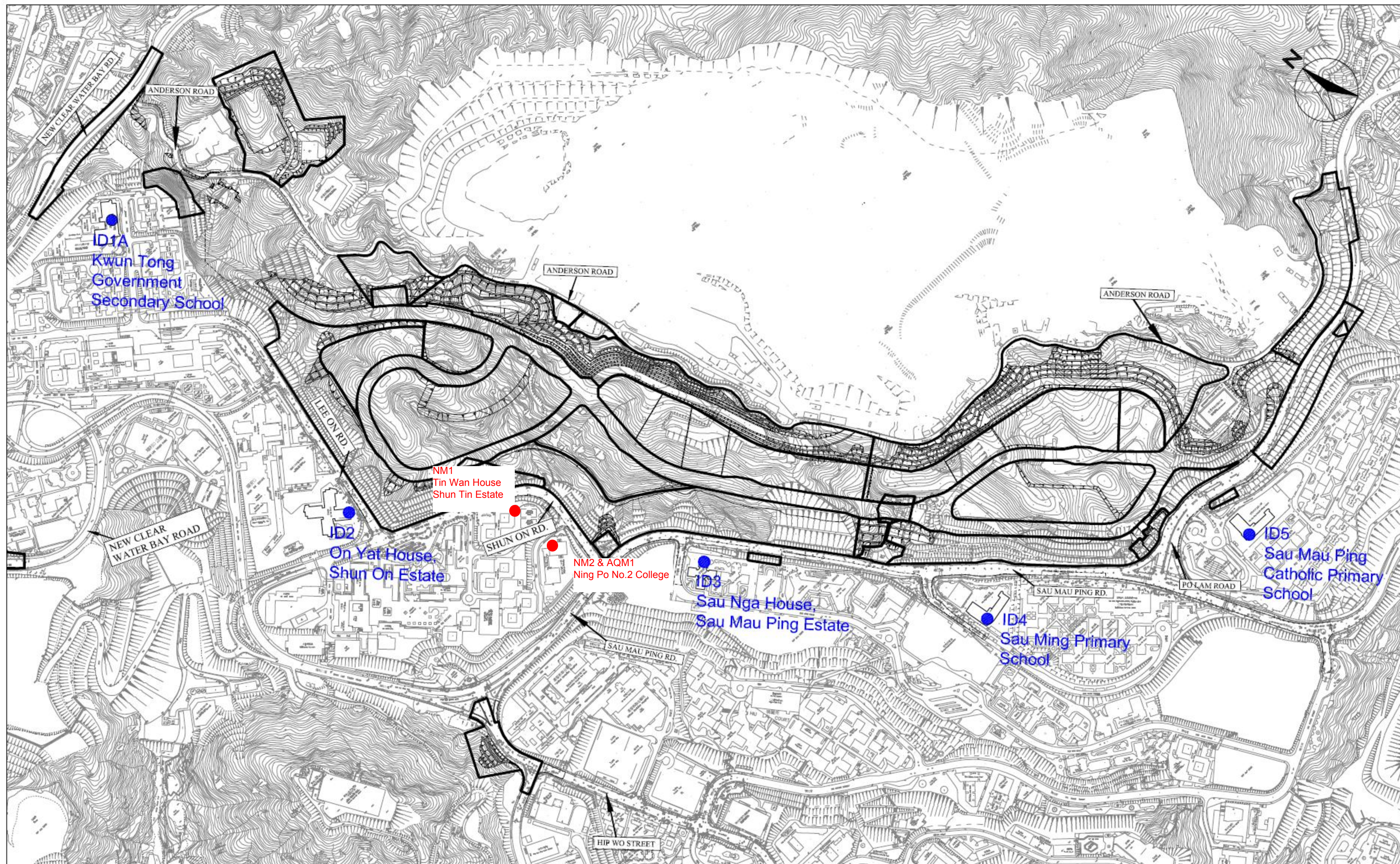


Figure 4.1. Environmental Monitoring Location

LEGEND

- impact monitoring station
- Monitoring station of master project



Appendix 3.1

Environmental Mitigation Implementation Schedule



Environmental Mitigation Implementation Schedule

Implementation Schedule for Construction Dust Control

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location (duration/ completion of measures)	Funding Agent	Implementation Agent	Implementation Stages**		Relevant Legislation & Guidelines
						D	C	
S2.7	S1, S2.8	<p><i>Site Practice</i></p> <ul style="list-style-type: none"> • Mean vehicle speed of haulage trucks at 10 km/hr. • Twice daily watering of all open site areas. • Regular watering (once every 1 hour) of all site roads and access roads with frequent truck movement. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site, combined with cleaning of public roads where necessary. • Suitable side and tailboards on haulage vehicles. • Watering of temporary stockpiles. <p><i>Blasting</i></p> <ul style="list-style-type: none"> • Use of select aggregate and fines to stem the charge with drill holes and watering of blast face. • Use of vacuum extraction drilling methods. • Carefully sequenced blasting. <p><i>Crushing</i></p> <ul style="list-style-type: none"> • Fabric filters installed for the crushing plant. • Water sprays on the crusher. <p><i>Loading and Unloading Points, and conveyor Belt System</i></p> <ul style="list-style-type: none"> • Water sprays at all fixed loading and unloading points (at the crusher and conveyor belts). • The loading point at the crusher is enclosed with dust curtains are used for controlling dust. • When transferring materials from conveyor belt or crusher to the dump trucks, chutes or dust curtains are used for controlling dust. • Cover the conveyor belts with steel roof and canvas sides. 	All Construction sites (late 2007 to 2016)	CEDD	Lam – Po Wing JV	√	√	TM on EIA Process, APCO, Air Pollution Control (Construction Dust) Regulation

* All recommendations and requirements are summarized from approved EIA resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project,

** D=Design, C=Construction



Implementation Schedule for Construction Noise Control

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location (duration/ completion of measures)	Funding Agent	Implementation Agent	Implementation Stages**		Relevant Legislation & Guidelines
						D	C	
S3.7	S1, S3.7	<p><i>Site Formation</i></p> <ul style="list-style-type: none"> Silenced powered mechanical equipment (PME) for most equipment5 (including drill rig, backhoe, dump truck, breaker and crane) and the decrease of percentage on time usage of drill rig among the Central Area form 50% to 40% is prosed. Temporary movable noise barrier shall be used to shield the noise emanating from the drilling rig in order to provide adequate shielding for the affected NSRs. 	All Construction sites (late 2007 to 2016)	CEDD	Lam – Po Wing JV	√	√	TM on EIA Process, NCO, TM on Noise from Construction Work other than Percussive Pilling, ProPECC Note PN2/93

* All recommendations and requirements are summarized from approved EIA resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project,

** D=Design, C=Construction



Implementation Schedule for Water Quality Control

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location (duration/ completion of measures)	Funding Agent	Implementation Agent	Implementation Stages**		Relevant Legislation & Guidelines
						D	C	
S6.4	S1	<p><i>Construction Phase</i></p> <ul style="list-style-type: none"> All active working areas should be bounded to retain storm water with sufficient retention time to ensure that suspended solids are not discharged from the site in concentrations above those specified in the TM for the Victor Harbour (Phase I) WCZ. All fuel storage areas should be bounded with drainage directed to an oil interceptor. Separate treatment facilities may be required for effluent from site offices, toilets (unless chemical toilets are used) and canteens. Discharged wastewater from the construction sites to surface water and /or public drainage systems should be controlled through licensing. Discharges should follow fully the terms and conditions in the licences. Relevant practice for dealing with various typr of construction discharges provided in EPD's ProPECC Note 1/94 should be adopted. 	All Construction sites (late 2007 to 2016)	CEDD	Lam – Po Wing JV	√	√	TM on EIA Process, WPCO, ProPECC Note PN 1/94

* All recommendations and requirements are summarized from approved EIA resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project,

** D=Design, C=Construction



Implementation Schedule for Construction Waste Management

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location (duration/ completion of measures)	Funding Agent	Implementation Agent	Implementation Stages**		Relevant Legislation & Guidelines
						D	C	
S8.4	S1,S4	<p><i>Waste Disposal</i></p> <ul style="list-style-type: none"> Different types of wastes should be segregated, stored, transported and disposed of proper practice of waste management. Sorting of wastes should be done on-site. Different types of wastes should be segregated and stored in different stockpiles, containers or skips to enhance recycling of materials and proper disposal of wastes. Excavated spoil should be used as much as possible to minimize off-site fill material requirements and disposal of spoil. During road transportation of excavated spoil, vehicles should be covered to avoid dust impact. Wheel washing facilities should be installed at all site exits together with regular watering of the site access roads. Chemical waste should be recycled on-site or removed by licenced companies. It should be handled according to the Code of practice on the packaging, Labelling and Storage of Chemical Wastes. When off-site disposal is required, it should be collected and delivered by licenced contractors to Tsing Yi Chemical Waste Treatment Facility and disposed of in accordance with the Chemical Waste (General) Regulation. Necessary mitigation measures should be adopted to prevent the uncontrolled disposal of chemical and hazardous waste into air, soil, surface waters and ground waters. 	All Construction sites (late 2007 to 2016)	CEDD	Lam – Po Wing JV	√	√	TM on EIA Process, WDO, DGO, Waste Disposal (Chemical Waste) (General) Regulation



		<p><i>Waste Storage</i></p> <ul style="list-style-type: none">• Chemical material storage areas should be bounded, constructed of impervious materials, and have the capacity to contain 120 percent of the total volume of the containers. Indoor storage areas must have sufficient ventilation to prevent the build-up of fumes, and must be capable of evacuating the space in the event of an accidental release. Outdoor storage areas must be covered with a canopy or contain provisions for the safe removal of rainwater. In both cases, storage areas must not be connected to the foul or stormwater sewer system.• Dangerous materials as defined under the DGO, including fuel, oil and lubricants, should be stored and properly labeled on site in accordance with the requirements in the DGO. If transportation of hazardous materials is necessary, hazardous materials, chemical wastes and fuel should be packed or stored in containers or vessels of suitable design and construction to prevent leakage, spillage or escape.• Human waste should be discharged into septic tanks provided by the contractors and removed regularly by a hygiene services company. Refuse containers such as open skips should be provided at every work site for use by the workforce; On-site refuse collection points must also be provided.						
--	--	--	--	--	--	--	--	--

* All recommendations and requirements are summarized from approved EIA resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project,

** D=Design, C=Construction



Appendix 4.1

Action and Limit Level



Action and Limit Level

Action and Limit Level for Noise Monitoring

Time Period	Action Level	Limit Level
07:00 – 19:00 hours on normal weekdays	When one documented complaint is received.	75 dB(A)/ 70 dB(A)/ 65 dB(A) ^{Note 1}

Note 1:

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

Action and Limit Level for Air Monitoring

Monitoring Location	1-hour TSP Level in $\mu\text{g}/\text{m}^3$		24-hour TSP Level in $\mu\text{g}/\text{m}^3$	
	Action Level	Limit Level	Action Level	Limit Level
AQM1	197	500	200	260



Appendix 4.2

Copies of Calibration Certificates



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : Ning Po No.2 College
 ID : AQM1

Calibration Date : 2-Sep-13
 Calibration Due Dat : 2-Nov-13

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	303	Kelvin	Pressure, P _a
			1010 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m _c	2.01968	Intercept, b _c	-0.02746
Last Calibration Date	15-Jul-13	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	15-Jul-14				

Calibration of RSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	5.9	5.9	11.8	1.6976	58	57.4257
2	4.6	4.6	9.2	1.5005	47	46.5346
3	3.9	3.9	7.8	1.3827	40	39.6039
4	2.4	2.4	4.8	1.0876	24	23.7624
5	1.5	1.5	3.0	0.8627	13	12.8713

By Linear Regression of Y on X

Slope, m = 53.5754 Intercept, b = -33.9421

Correlation Coefficient* = 0.9995

Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by : Henry
 Date : 2-Sep-13

Checked by : Derek Lo
 Date : 2-Sep-13



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : Ning Po No.2 College
 ID : AQM1

Calibration Date : 28-Oct-13
 Calibration Due Date : 28-Dec-13

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	297	Kelvin	Pressure, P _a
			1019 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m _c	2.01968	Intercept, b _c	-0.02746
Last Calibration Date	15-Jul-13	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	15-Jul-14				

Calibration of RSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	6.0	6.0	12.0	1.7365	59	59.2652
2	4.6	4.6	9.2	1.5221	48	48.2158
3	4.0	4.0	8.0	1.4203	42	42.1888
4	2.4	2.4	4.8	1.1032	25	25.1124
5	1.5	1.5	3.0	0.8750	13	13.0584

By Linear Regression of Y on X

Slope, m = 53.8894 Intercept, b = -34.1827
 Correlation Coefficient* = 0.9999
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by : Henry
 Date : 28-Oct-13

Checked by : Derek Lo
 Date : 28-Oct-13



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : Ning Po No.2 College
 ID : AQM1

Calibration Date : 27-Dec-13
 Calibration Due Date : 27-Feb-14

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	286	Kelvin	Pressure, P _a
			1024 mmHg

Orifice Transfer Standard Information			
Equipment No.	EL086	Slope, m _c	2.01968
		Intercept, b _c	-0.02746
Last Calibration Date	15-Jul-13	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$	
Next Calibration Date	15-Jul-14		

Calibration of RSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	5.7	5.7	11.4	1.7290	50	51.3069
2	4.5	4.5	9.0	1.5378	42	43.0978
3	3.6	3.6	7.2	1.3769	36	36.9410
4	2.3	2.3	4.6	1.1033	25	25.6535
5	1.5	1.5	3.0	0.8936	16	16.4182

By Linear Regression of Y on X

Slope, m = 41.4523 Intercept, b = -20.3703
 Correlation Coefficient* = 0.9998
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by : Henry
 Date : 27-Dec-13

Checked by : Derek Lo
 Date : 27-Dec-13



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jul 19, 2012 Rootmeter S/N 0438320 Ta (K) - 298
 Operator Tisch Orifice I.D. - 0005 Pa (mm) - 751.84

PLATE OR Run #	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	1.3840	3.2	2.00
2	NA	NA	1.00	0.9760	6.4	4.00
3	NA	NA	1.00	0.8730	7.9	5.00
4	NA	NA	1.00	0.8340	8.8	5.50
5	NA	NA	1.00	0.6890	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9850	0.7117	1.4066	0.9957	0.7194	0.8903
0.9809	1.0050	1.9892	0.9915	1.0159	1.2591
0.9788	1.1212	2.2240	0.9894	1.1333	1.4078
0.9777	1.1723	2.3326	0.9883	1.1850	1.4765
0.9725	1.4115	2.8132	0.9831	1.4268	1.7807
Qstd slope (m) = 2.01145			Qa slope (m) = 1.25953		
intercept (b) = -0.02803			intercept (b) = -0.01774		
coefficient (r) = 0.99995			coefficient (r) = 0.99995		
y axis = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

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

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

For subsequent flow rate calculations:

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

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



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AIR POLLUTION MONITORING EQUIPMENT
 ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jul 15, 2013 Roots-meter S/N 0438320 Ta (K) - 300
 Operator Tisch Orifice I.D. - 0005 Pa (mm) - 759.46

PLATE OR Run #	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	1.3910	3.2	2.00
2	NA	NA	1.00	0.9830	6.4	4.00
3	NA	NA	1.00	0.8800	7.9	5.00
4	NA	NA	1.00	0.8380	8.8	5.50
5	NA	NA	1.00	0.6930	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9884	0.7106	1.4090	0.9958	0.7159	0.8888
0.9843	1.0013	1.9926	0.9916	1.0087	1.2570
0.9822	1.1161	2.2278	0.9895	1.1244	1.4054
0.9811	1.1708	2.3365	0.9884	1.1795	1.4740
0.9760	1.4084	2.8180	0.9832	1.4188	1.7777
Qstd slope (m) = 2.01968			Qa slope (m) = 1.26469		
intercept (b) = -0.02746			intercept (b) = -0.01732		
coefficient (r) = 0.99999			coefficient (r) = 0.99999		
y axis = $\text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$			y axis = $\text{SQRT}[\text{H}_2\text{O}(\text{Ta}/\text{Pa})]$		

CALCULATIONS

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

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

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

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

For subsequent flow rate calculations:

$$\text{Qstd} = 1/m \{ [\text{SQRT}(\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta}))] - b \}$$

$$\text{Qa} = 1/m \{ [\text{SQRT}(\text{H}_2\text{O}(\text{Ta}/\text{Pa}))] - b \}$$



Calibration Certificate

Certificate No. 31707

Page 1 of 2 Pages

Customer : Lam Geotechnics Limited

Address : 11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong.

Order No. : Q30699

Date of receipt : 13-Mar-13

Item Tested

Description : Sound Level Calibrator

Manufacturer : Cesva

Model : CB-5

Serial No. : 0035092

Test Conditions

Date of Test : 20-Mar-13

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Calibration procedure : F21, Z02.

Test Results

All results were within the IEC 942 Class1 specification.

The results are shown in the attached page(s).

Test equipment used:


<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	30259	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	30620	NIM-PRC & SCL-HKSAR
S041	Universal Counter	28347	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by : 
Liam Wong

Approved by : 
Dorothy Cheuk

Date: 20-Mar-13

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646



Calibration Certificate

Certificate No. 31707

Page 2 of 2 Pages

Results :

1. Level Accuracy

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	93.94	± 0.3 dB

Uncertainty : ± 0.2 dB

2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	1.001 kHz	± 2 %

Uncertainty : $\pm 3.6 \times 10^{-6}$

3. Level Stability : 0.0 dB

IEC 942 Class 1 Spec. : ± 0.1 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.3 %

IEC 942 Class 1 Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The above measured values are the mean of 3 measurements.

3. The uncertainty claimed is for a confidence probability of not less than 95%.

4. Atmospheric Pressure : 1003 hPa.

----- END -----



Calibration Certificate

Certificate No. **31706**

Page 1 of 3 Pages

Customer : Lam Geotechnics Limited

Address : 11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong.

Order No. : Q30699

Date of receipt : 13-Mar-13

Item Tested

Description : Sound Level Meter

Manufacturer : Cesva

Model : SC-20e

Serial No. : T217501

Test Conditions

Date of Test : 20-Mar-13

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01.

Test Results

All results were within the IEC 651 Type1 and IEC 804 Type1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S017	Multi-Function Generator	C127181	SCL-HKSAR
S024	Sound Level Calibrator	30620	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by : 
Liam Wong

Approved by : 
Dorothy Cheuk

Date: 20-Mar-13

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646



Calibration Certificate

Certificate No. 31706

Page 2 of 3 Pages

Results :

1. SPL Accuracy

Level Range (dB)	UUT Setting		Applied Value (dB)	UUT Reading (dB)
	Freq. Weight	Time Weighting		
0 ~ 137	L _A	L _F	94.0	94.1
		L _S		94.1
	L _C	L _F		94.1
		L _S		94.1
	L _A	L _F	114.0	114.1
		L _S		114.1
	L _C	L _F		114.1
		L _S		114.1

IEC 651 Type 1 Spec. : ± 0.7 dB
Uncertainty : ± 0.1 dB

2. **Level Stability** : 0.0 dB
IEC 651 Type 1 Spec. : ± 0.3 dB
Uncertainty : ± 0.1 dB

3. Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec.
0 ~ 137	84.0	84.1	0.0	± 0.4 dB
	94.0	94.1 (Ref.)	--	
	95.0	95.1	0.0	± 0.2 dB

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 31706

Page 3 of 3 Pages

4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	-39.7	- 39.4 dB, ± 1.5 dB
63 Hz	-26.3	- 26.2 dB, ± 1.5 dB
125 Hz	-16.2	- 16.1 dB, ± 1 dB
250 Hz	-8.7	- 8.6 dB, ± 1 dB
500 Hz	-3.3	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref.)	0 dB, ± 1 dB
2 kHz	+1.3	+ 1.2 dB, ± 1 dB
4 kHz	+1.0	+ 1.0 dB, ± 1 dB
8 kHz	-1.3	- 1.1 dB, + 1.5 dB ~ - 3 dB
16 kHz	-12.1	- 6.6 dB, + 3 dB ~ - ∞

Uncertainty : ± 0.1 dB

5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	50.0	--	--
1/10	50.0	50.1	± 0.5 dB
1/10 ²	50.0	50.1	
1/10 ³	50.0	50.1	± 1.0 dB
1/10 ⁴	50.0	50.2	

Uncertainty : ± 0.1 dB

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1003 hPa.

----- END -----



Appendix 5.2

Noise Monitoring Results and Graphical Presentations



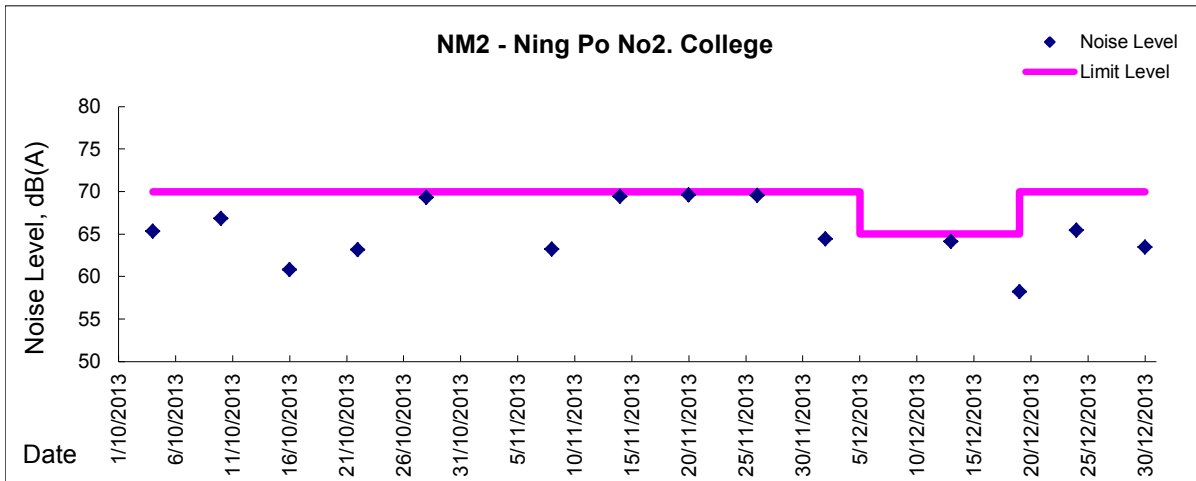
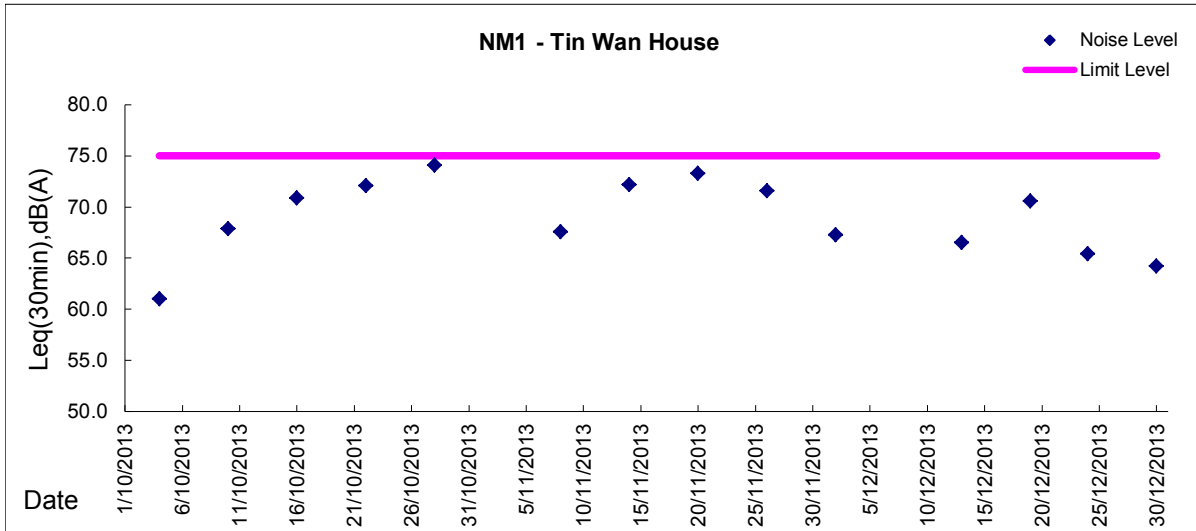
Contract No. CV/2012/07
Development at Anderson Road -
Footbridge D and Associated Works Area

JOB NO : CS_J2013-02_CV201207

CLIENT : LPWJV

Daytime(07:00-19:00)					
Date	Time	Location	Leq (dB)	L10 (dB)	L90 (dB)
4-Oct-13	11:15 - 11:45	NM1	61.0	64.6	53.5
	10:15 - 10:45	NM2	65.3	67.8	59.0
10-Oct-13	08:45 - 09:15	NM1	67.9	71.4	60.6
	09:45 - 10:15	NM2	66.8	71.3	59.6
16-Oct-13	10:15 - 10:45	NM1	70.9	73.1	67.4
	11:15 - 11:45	NM2	60.8	75.1	55.4
22-Oct-13	10:35 - 11:05	NM1	72.1	76.0	62.2
	08:58 - 09:28	NM2	63.1	73.2	59.8
28-Oct-13	10:36 - 11:06	NM1	74.1	78.5	69.6
	08:33 - 09:03	NM2	69.3	75.1	67.5
8-Nov-13	10:10 - 10:40	NM1	67.6	72.2	65.9
	09:13 - 09:43	NM2	63.2	72.1	61.7
14-Nov-13	10:23 - 10:53	NM1	72.2	77.4	68.5
	08:58 - 09:28	NM2	69.4	74.2	66.6
20-Nov-13	09:47 - 10:17	NM1	73.3	77.0	66.4
	08:33 - 09:03	NM2	69.6	74.8	62.9
26-Nov-13	10:20 - 10:50	NM1	71.6	74.5	65.5
	08:21 - 08:51	NM2	69.5	72.0	64.0
2-Dec-13	09:33 - 10:03	NM1	67.3	71.0	59.5
	10:57 - 11:27	NM2	64.4	67.0	57.5
13-Dec-13	8:15 - 8:45	NM1	66.5	69.4	61.8
	9:50 - 10:20	NM2	64.1	68.9	60.9
19-Dec-13	15:10 - 15:40	NM1	70.6	73.2	68.4
	14:15 - 14:45	NM2	58.2	66.9	55.4
24-Dec-13	08:39 - 10:09	NM1	65.4	69.8	59.8
	10:32 - 11:02	NM2	65.4	67.3	58.5
30-Dec-13	14:30 - 15:00	NM1	64.2	66.0	59.3
	15:10 - 15:40	NM2	63.4	65.7	58.8

Graphic Presentation of Noise Monitoring Result
Day Time (0700 - 1900hrs on normal weekdays)





Appendix 5.3

Air Quality Monitoring Results and Graphical Presentations



Location: AQM1-Ning Po No.2 College

Report on 24-hour TSP monitoring

Action Level ($\mu\text{g}/\text{m}^3$) - 200

Limit Level ($\mu\text{g}/\text{m}^3$) - 260

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
3-Oct-13	8:00	Fine	007228	2.6553	2.8567	24.00	1.31	1.31	1.31	1890	107
9-Oct-13	8:00	Fine	005325	2.8414	3.0292	24.00	1.35	1.35	1.35	1941	97
15-Oct-13	8:00	Fine	005327	2.8301	3.1284	24.00	1.33	1.33	1.33	1918	156
21-Oct-13	8:00	Fine	005511	2.8240	3.1357	24.00	1.35	1.35	1.35	1946	160
26-Oct-13	8:00	Fine	005868	2.6379	2.9706	24.00	1.39	1.39	1.39	2002	166
1-Nov-13	8:00	Fine	007489	2.6518	2.9664	24.00	1.35	1.35	1.35	1938	162
7-Nov-13	8:00	Cloudy	007475	2.6618	2.9045	24.00	1.35	1.35	1.35	1944	125
13-Nov-13	8:00	Cloudy	005840	2.6462	2.8080	24.00	1.39	1.39	1.39	1997	81
19-Nov-13	8:00	Cloudy	005836	2.6524	3.0154	24.00	1.34	1.34	1.34	1926	188
25-Nov-13	8:00	Fine	005788	2.8735	3.1620	24.00	1.35	1.35	1.35	1949	148
30-Nov-13	8:00	Fine	006457	2.7442	3.0054	24.00	1.36	1.36	1.36	1958	133
6-Dec-13	8:00	Cloudy	005984	2.6370	2.9675	24.00	1.39	1.39	1.39	2003	165
12-Dec-13	8:00	Cloudy	007678	2.6383	3.0191	24.00	1.36	1.36	1.36	1953	195
18-Dec-13	8:00	Cloudy	005951	2.6331	2.7648	24.00	1.40	1.40	1.40	2019	65
23-Dec-13	8:00	Fine	005851	2.6266	2.8848	23.99	1.36	1.36	1.36	1957	132
28-Dec-13	8:00	Fine	007792	2.6125	2.9048	24.00	1.37	1.44	1.40	2021	145

Report on 1-hour TSP monitoring

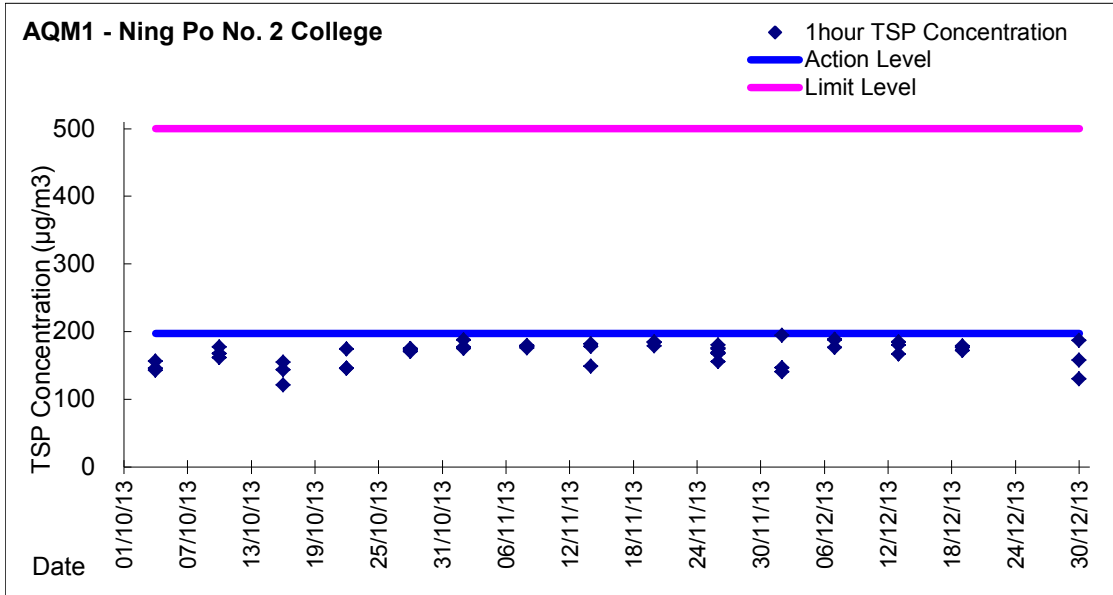
Action Level ($\mu\text{g}/\text{m}^3$) - 197

Limit Level ($\mu\text{g}/\text{m}^3$) - 500

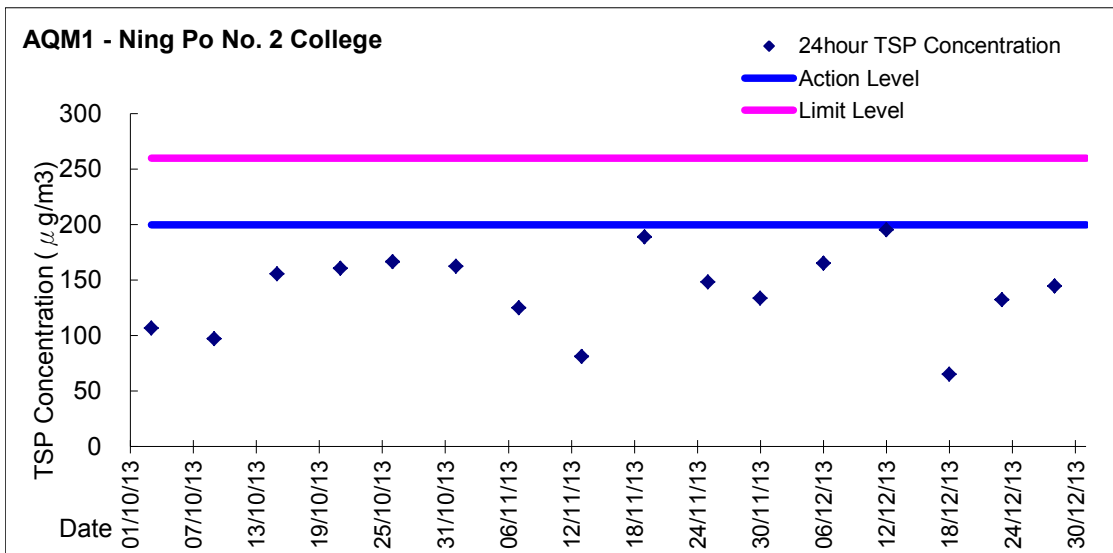
Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
4-Oct-13	8:13	Fine	005322	2.8419	2.8537	1.00	1.38	1.38	1.38	83	142
4-Oct-13	9:19	Fine	005323	2.8478	2.8597	1.00	1.37	1.37	1.37	82	145
4-Oct-13	10:26	Fine	005324	2.8449	2.8577	1.00	1.37	1.37	1.37	82	156
10-Oct-13	8:16	Fine	005889	2.6711	2.6850	1.00	1.38	1.38	1.38	83	167
10-Oct-13	9:23	Fine	005326	2.8372	2.8506	1.00	1.38	1.38	1.38	83	161
10-Oct-13	10:29	Fine	005891	2.6321	2.6468	1.00	1.38	1.38	1.38	83	177
16-Oct-13	8:23	Fine	007198	2.5915	2.6031	1.00	1.35	1.35	1.35	81	143
16-Oct-13	9:35	Fine	007199	2.6465	2.6563	1.00	1.35	1.35	1.35	81	121
16-Oct-13	10:42	Fine	005510	2.8219	2.8344	1.00	1.35	1.35	1.35	81	154
22-Oct-13	8:40	Fine	005863	2.6815	2.6933	1.00	1.35	1.35	1.35	81	146
22-Oct-13	9:45	Fine	005864	2.6683	2.6801	1.00	1.35	1.35	1.35	81	146
22-Oct-13	10:50	Fine	005471	2.8247	2.8388	1.00	1.35	1.35	1.35	81	174
28-Oct-13	13:10	Fine	007490	2.6415	2.6553	1.00	1.35	1.35	1.35	81	170
28-Oct-13	14:15	Fine	007491	2.6346	2.6488	1.00	1.35	1.35	1.35	81	175
28-Oct-13	15:20	Fine	007492	2.6339	2.6479	1.00	1.35	1.35	1.35	81	172
2-Nov-13	8:22	Fine	005876	2.6508	2.6651	1.00	1.35	1.35	1.35	81	177
2-Nov-13	9:30	Fine	005877	2.6561	2.6712	1.00	1.35	1.35	1.35	81	187
2-Nov-13	10:44	Fine	005878	2.6528	2.6669	1.00	1.35	1.35	1.35	81	175
8-Nov-13	8:40	Fine	005816	2.6823	2.6968	1.00	1.35	1.35	1.35	81	179
8-Nov-13	9:51	Fine	005815	2.6510	2.6654	1.00	1.35	1.35	1.35	81	178
8-Nov-13	10:56	Fine	005814	2.6482	2.6624	1.00	1.35	1.35	1.35	81	175
14-Nov-13	8:26	Fine	005837	2.6683	2.6803	1.00	1.35	1.35	1.35	81	148
14-Nov-13	9:41	Fine	005838	2.6706	2.6850	1.00	1.35	1.35	1.35	81	178
14-Nov-13	10:26	Fine	005839	2.6426	2.6573	1.00	1.35	1.35	1.35	81	182
20-Nov-13	8:22	Fine	006226	2.6414	2.6563	1.00	1.36	1.36	1.36	81	183
20-Nov-13	9:36	Fine	006225	2.6554	2.6699	1.00	1.36	1.36	1.36	81	178
20-Nov-13	10:49	Fine	006224	2.6272	2.6422	1.00	1.36	1.36	1.36	81	184
26-Nov-13	8:42	Fine	006460	2.7318	2.7464	1.00	1.35	1.35	1.35	81	180
26-Nov-13	9:54	Fine	006459	2.7279	2.7420	1.00	1.35	1.35	1.35	81	174
26-Nov-13	10:57	Fine	006458	2.7820	2.7956	1.00	1.35	1.35	1.35	81	167
2-Dec-13	8:42	Fine	005982	2.6093	2.6207	1.00	1.36	1.36	1.36	81	140
2-Dec-13	9:50	Fine	005981	2.6337	2.6456	1.00	1.36	1.36	1.36	81	146
2-Dec-13	10:58	Fine	005980	2.6128	2.6286	1.00	1.36	1.36	1.36	81	194
7-Dec-13	8:40	Fine	007681	2.6515	2.6667	1.00	1.36	1.36	1.36	81	187
7-Dec-13	9:43	Fine	007680	2.6370	2.6513	1.00	1.36	1.36	1.36	81	176
7-Dec-13	10:48	Fine	007679	2.6421	2.6574	1.00	1.36	1.36	1.36	81	188
13-Dec-13	8:20	Fine	005949	2.6367	2.6502	1.00	1.36	1.36	1.36	81	166
13-Dec-13	9:25	Fine	005950	2.6346	2.6496	1.00	1.36	1.36	1.36	81	184
13-Dec-13	10:30	Fine	005957	2.6378	2.6524	1.00	1.36	1.36	1.36	81	179
19-Dec-13	8:37	Fine	005849	2.6229	2.6373	1.00	1.40	1.40	1.40	84	171
19-Dec-13	9:45	Fine	005903	2.6509	2.6659	1.00	1.40	1.40	1.40	84	178
19-Dec-13	10:51	Fine	005857	2.6432	2.6580	1.00	1.40	1.40	1.40	84	176
26-Nov-13	8:32	Fine	007795	2.6084	2.6231	1.00	1.40	1.40	1.40	84	175
26-Nov-13	9:41	Fine	007794	2.6278	2.6408	1.00	1.40	1.40	1.40	84	155
26-Nov-13	10:53	Fine	007793	2.6162	2.6303	1.00	1.40	1.40	1.40	84	168
30-Dec-13	14:30	Fine	005926	2.6448	2.6584	1.00	1.44	1.44	1.44	86	158
30-Dec-13	15:35	Fine	007613	2.6372	2.6484	1.00	1.44	1.44	1.44	86	130
30-Dec-13	16:40	Fine	007667	2.6563	2.6727	1.00	1.46	1.46	1.46	88	187



Graphic Presentation of 1 hour TSP Result



Graphic Presentation of 24 hour TSP Result





Appendix 6.1

Event Action Plans



Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IC(E)	ER	CONTRACTOR
Exceedance for Action Level	<ol style="list-style-type: none"> 1. Notify IC(E) and Contractor; 2. Carry out investigation; 3. Report the results of investigation to IC(E) and Contractor; 4. Discuss with Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the analysed results submitted by ET; 2. Review the proposed remedial measures by the Contractor and advise ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IC(E); 2. Implement noise mitigation proposals.
Exceedance for Limited Level	<ol style="list-style-type: none"> 1. Notify IC(E), ER, EPD and Contractor; 2. Identify sources; 3. Repeat measurements to confirm finding; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IC(E), ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.



Event / Action Plan for Construction Air Quality

EVENT	ACTION			
	ET	IC(E)	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> Identify source; Inform IC(E) and ER; Repeat measurement to confirm finding; Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method. 	<ol style="list-style-type: none"> Notify Contractor. 	<ol style="list-style-type: none"> Rectify any unacceptable practice; Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Identify source; Inform IC(E) and ER; Repeat measurements to confirm findings; Increase monitoring frequency to daily; Discuss with IC(E) and Contractor for remedial actions required; If exceedance continues, arrange meeting with IC(E) and ER; If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> Submit proposals for remedial actions to IC(E) within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
LIMITED LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> Identify source; Inform ER, Contractor and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Notify IEC, ER, Contractor and EPD; Identify source; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IEC and ER to discuss the remedial actions to be taken; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> Discuss amongst ER, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing; Notify Contractor; In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented; Ensure remedial measures properly implemented; If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IC(E) within 3 working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by the ER until the exceedance is abated.



Appendix 6.2

Summary for Notification of Exceedance



Ref. No.	Date	Time	Location	Construction Noise Level	Unit	Action Level	Limit Level	Follow-up action
N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A



Appendix 8.1

Complaint Log



Environmental Complaints Log

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
Nil	Nil	Nil	Nil	Nil	Nil	Closed



Appendix 9.1

Construction Programme

**Master Programme For Contract No. CV/2012/07
Development at Anderson Road - Footbridge D and Associated Works
(Rev. 2)**

ID	WBS	Task Name	Duration	Start	Finish	Predecessors	Successors	Total Slack	2013												2014												2015												2016												
									Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1	Development at Anderson Road - Footbridge D and Associated Works	1119 days	Thu 31/01/13	Wed 30/11/16			0 days																																																	
2	1.1	PRELIMINARY WORK	578 days	Thu 31/01/13	Sun 01/02/15			541 days																																																	
3	1.1.1	Application of XP, Site Access from Highways	140 days	Thu 31/01/13	Wed 31/07/13		88	889 days																																																	
4	1.1.2	Tree Survey	12 days	Mon 18/02/13	Sat 02/03/13		5	0 days																																																	
5	1.1.3	Transplant	30 days	Mon 04/03/13	Thu 11/04/13	4		0 days																																																	
6	1.1.4	Air & noise baseline monitoring	50 days	Mon 18/02/13	Sat 20/04/13		46,47	8 days																																																	
7	1.1.5	Record Survey, Condition Survey and Setting Out	90 days	Thu 31/01/13	Thu 30/05/13			1029 days																																																	
8	1.1.6	Erect Fencing and Hoarding As Directed	48 days	Mon 08/04/13	Tue 04/06/13		16	491 days																																																	
9	1.1.7	Design and material submission	120 days	Thu 31/01/13	Sat 06/07/13		38,79	128 days																																																	
10	1.1.8	Handover of Portion A, B & C1	0 days	Sat 28/09/13	Sat 28/09/13		61	109 days																																																	
11	1.1.9	Handover of Portion E1	0 days	Fri 31/05/13	Fri 31/05/13			1029 days																																																	
12	1.1.10	Handover of Portion E2	0 days	Sun 01/02/15	Sun 01/02/15			541 days																																																	
13	1.2	Section 1	781 days	Mon 08/04/13	Tue 01/12/15			20 days																																																	
14	1.2.1	Lift Tower D-A	475 days	Wed 05/06/13	Wed 14/01/15			491 days																																																	
15	1.2.1.1	Method statement and material submission	30 days	Mon 23/09/13	Tue 29/10/13	18SS-60 days		905 days																																																	
16	1.2.1.2	Excavation for Raft footing	150 days	Wed 05/06/13	Tue 03/12/13	8		17SS	491 days																																																
17	1.2.1.3	Rock Joint Mapping for founding material of raft footing	150 days	Wed 05/06/13	Tue 03/12/13	16SS		18	491 days																																																
18	1.2.1.4	Construct Raft footing	30 days	Wed 04/12/13	Fri 10/01/14	17		19,15SS-60 days	491 days																																																
19	1.2.1.5	Construct RC Lift Tower and Retaining Wall	80 days	Sat 11/01/14	Sat 26/04/14	18		20,41	491 days																																																
20	1.2.1.6	Erect Steelwork for Lift Shaft	70 days	Mon 28/04/14	Tue 22/07/14	19		21,22	491 days																																																
21	1.2.1.7	Installation of Lift	100 days	Wed 23/07/14	Wed 19/11/14	20		22FF+5 days, 23,24FS-60 days, 54	491 days																																																
22	1.2.1.8	M&E Installation	100 days	Tue 29/07/14	Tue 25/11/14	20,21FF+5 days		23,24FS-60 days	550 days																																																
23	1.2.1.9	T & C of M&E Equipment	30 days	Wed 26/11/14	Fri 02/01/15	21,22		24FF+7 days	553 days																																																
24	1.2.1.10	Finishing and Metal Works	100 days	Mon 15/09/14	Wed 14/01/15	21FS-60 days, 22FS-60 days, 23FF+7 days			550 days																																																
25	1.2.2	Lift Tower D-B	480 days	Tue 08/10/13	Mon 01/06/15			439 days																																																	
26	1.2.2.1	Method statement and material submission	30 days	Tue 08/10/13	Tue 12/11/13	27SS-60 days		893 days																																																	
27	1.2.2.2	Excavation for Raft footing	100 days	Wed 18/12/13	Tue 29/04/14	74		28SS,26SS-60 days	379 days																																																
28	1.2.2.3	Rock Joint Mapping for founding material of raft footing	100 days	Wed 18/12/13	Tue 29/04/14	27SS		29	379 days																																																
29	1.2.2.4	Construct Raft footing	30 days	Wed 30/04/14	Thu 05/06/14	28		30	379 days																																																
30	1.2.2.5	Construct RC Lift Tower and Retaining Wall	80 days	Fri 06/06/14	Wed 10/09/14	29		31,41	379 days																																																
31	1.2.2.6	Erect Steelwork for Lift Shaft	70 days	Thu 11/09/14	Wed 03/12/14	30		32,33	379 days																																																
32	1.2.2.7	Installation of Lift	100 days	Thu 04/12/14	Mon 13/04/15	31		33FF,34,35FS-60 days, 54	379 days																																																

Date: Mon 10/06/13
Prepared By: T.L. Lo



Assume Contract Start On 31-Jan-2013
and Finish On 30-Nov-2016 (1399 days)
Duration as shown by week day

