## CONTRACT NO: CV/2012/07

# DEVELOPMENT AT ANDERSON ROAD - FOOTBRIDGE D AND ASSOCIATED WORKS AREA

# QUARTERLY ENVIRONMENTAL MONITORING & AUDIT REPORT

-JANUARY 2017 TO MARCH 2017 -

**CLIENTS:** 

Lam-Po Wing Joint Venture

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:

고i April 2017



Ref.: OAPANDSNEM00\_0\_1910L.17

26 April 2017

By Email and Post

Engineer's Representative Ove Arup & Partners Level 5, Festival Walk 80 Tat Chee Avenue Kowloon Tong, Kowloon Hong Kong

Attention: Mr. Dennis Leung

Dear Sir,

Re: Contract No. CV/2012/07
Development at Anderson Road
Footbridge D and Associated Works Area
Quarterly EM&A Report for January to March 2017

Reference is made to the Environmental Team's submission of the draft Quarterly EM&A Report for January to March 2017 received by e-mail on 21 April 2017.

Please be informed that we have no adverse comment on the captioned submission.

Thank you very much for your kind attention and please do not hesitate to contact the undersigned should you have any queries.

Yours faithfully,

David Yeung

Independent Environmental Checker

Encl.

c.c. Lam

Attn.: Mr. Derek Lo

**LPWJV** 

Attn.: Mr. Tak-Leung Lo

Fax: 2882 3331

Fax: 3171 7222

Q:\Projects\OAPANDSNEM00\Corr\OAPANDSNEM00\_0\_1910L.17.doc

## **TABLE OF CONTENTS**

EXE	CUTIV	E SUMMARY	3	
1.	INTR	ODUCTION	4	
	1.1 1.2	Scope of the ReportStructure of the Report	4	
2.	PRO	JECT BACKGROUND		
	2.1 2.2 2.3	Background	5	
3.	MON	ITORING REQUIREMENTS	6	
	3.1 3.2	Noise MonitoringAir Monitoring		
4.	MON	ITORING RESULTS	g	
	4.1 4.2 4.3	Noise Monitoring Results Air Monitoring Results Waste Monitoring Results	10	
5.	COM	PLIANCE AUDIT	14	
	5.1 5.2 5.3 5.4 5.5	Noise Monitoring Air Monitoring Environmental Site Audit Review of the Reasons for and the Implications of Non-compliance Summary of action taken in the event of and follow-up on non-compliance	14 13	
6.	СОМ	PLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION	15	
7.	CONCLUSION			

Development at Anderson Road –
Footbridge D and Associated Works Area

### **LIST OF TABLES**

Table 1.1	Major Construction Activities for the Reporting Period
Table 2.1	Contact Details of Key Personnel
Table 3.1	Noise Monitoring Stations
Table 3.2	Air Monitoring Station
Table 4.1	Summary of Noise Monitoring Results at NM1 and NM2
Table 4.2	Summary of Air Monitoring Results at AQM1 - 24 hr TSP Monitoring
Table 4.3	Summary of Air Monitoring Results at AQM1 - 1 hr TSP Monitoring
Table 4.4	Details of Waste Disposal for Contract no. CV/2012/07
Table 6.1	Cumulative Statistics on Complaints
Table 6.2	Cumulative Statistics on Successful Prosecutions

## LIST OF FIGURES

Figure 2.1	Project Layout
Figure 2.2	Project Organization Chart
Figure 4.1	Locations of Environmental Monitoring Stations

### **LIST OF APPENDICES**

Appendix 3.1	Environmental Mitigation Implementation Schedule
Appendix 4.1	Action and Limit Level
Appendix 4.2	Copies of Calibration Certificates
Appendix 5.2	Noise Monitoring Results and Graphical Presentations
Appendix 5.3	Air Quality Monitoring Results and Graphical Presentations
Appendix 6.1	Event Action Plans
Appendix 6.2	Summary for Notification of Exceedance_Air and Noise
Appendix 8.1	Complaint Log
Appendix 9.1	Construction Programme

#### **EXECUTIVE SUMMARY**

i. This is the Environmental Monitoring and Audit (EM&A) Quarterly Report – January 2017 to March 2017 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 15th quarterly of EM&A report presenting the environmental monitoring findings and information recorded during the period 1 January 2017 to 31 March 2017.

Table 1.1 Major Construction Activities for the Reporting Period

	January 2017		February 2017		March 2017
•	Paving brick (C2 & Portion	•	Dismantling the external	•	Construction of U-channel
	B)		metal scaffold (C2)		between Tower B to
•	Dismantling the external	•	Backfill material &		Tower C (C2)
	metal scaffold (C2)		Granolithic paving after	•	Concrete Buttress for cut
•	Dismantling Crane (C2)		dismantled external metal		slope to the northeast of
			scaffold between Tower		lift tower behind Cap C
			B-C (C2)		(C2)

#### **Noise Monitoring**

ii. Noise monitoring during daytime was conducted at the stations NM1 and NM2 on a weekly basis in the reporting period. No 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 1 January 2017 to 31 March 2017.

### 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.
- **Section3 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 (<a href="www.anderson-road.com/main.htm">www.anderson-road.com/main.htm</a>).
- 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 slope 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 <u>Figure 2.2.</u> 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	2407 0300	2407 8382
		Resident Engineer	Kenneth Lee	3656 3000	3656 1000
Lam-Po Wing Joint Venture	Contractor under Contract	Project Manager	K.C. Wong	2318 0281	3171 7222
	no. CV/2012/07	Site Agent	T.L. Lo	2318 0281	
		Safety Officer	K.W. Lau	2318 0281	
		Environmental Officer	K.I. lp	2318 0281	
Ramboll 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 (Leq). Leq (30 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, Leq (5 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 cm<sup>2</sup>;
  - 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.

Footbridge D and Associated Works Area

#### Lam Environmental Services Limited

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)	Limit Level
F lon 17	13:48	NM1	64.8	75
5-Jan-17	14:31	NM2	63.7	70

11-Jan-17	13:30	NM1	64.2	75
11-Jan-17	14:47	NM2	63.9	70
47 Inc. 47	13:58	NM1	63.9	75
17-Jan-17	15:04	NM2	62.9	70
23-Jan-17	13:58	NM1	63.8	75
23-Jan-17	15:04	NM2	64.2	70
2-Feb-17	8:30	NM1	63.2	75
2-Feb-17	9:08	NM2	64.0	70
7-Feb-17	13:07	NM1	63.8	75
7-reb-17	13:48	NM2	63.7	70
12 Fab 17	13:04	NM1	64.2	75
13-Feb-17	13:58	NM2	63.9	65
24-Feb-17	13:11	NM1	62.2	75
24-160-17	13:59	NM2	63.0	65
2-Mar-2017	8:14	NM1	63.0	75
2-1VId1-2017	9:10	NM2	64.3	70
8-Mar-2017	10:40	NM1	66.7	75
0-1VId1-2017	9:40	NM2	66.3	70
14-Mar-2017	14:56	NM1	64.0	75
14-Mai-2017	14:22	NM2	65.6	70
20-Mar-2017	14:05	NM1	67.1	75
20-iviai-20 i /	13:00	NM2	63.0	70
31-Mar-2017	11:20	NM1	67.5	75
3 1-1VIAI-20 17	10:15	NM2	63.5	70
	Limit Level	65 / 70 /75*		

## Note:

- 4.1.2. Day time period noise monitoring was conducted at the Tin Wan House (NM1) and Ning Po No.2 College (NM2).
- 4.1.3. Noise monitoring results measured in this reporting period are reviewed and summarized. No action level exceedance was recorded in the reporting period. Details of noise monitoring results and graphical presentation can be referred in *Appendix 5.2*.

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



## 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, (μg/m³)
4-Jan-17	8:00	76
10-Jan-17	8:00	128
16-Jan-17	8:00	56
21-Jan-17	8:00	93
26-Jan-17	8:00	77
1-Feb-17	8:00	49
6-Feb-17	8:00	101
11-Feb-17	8:00	91
17-Feb-17	8:00	84
23-Feb-17	8:00	96
1-Mar-17	8:00	189
7-Mar-17	8:00	135
13-Mar-17	8:00	83
18-Mar-17	8:00	115
24-Mar-17	8:00	81
30-Mar-17	8:00	133
Actio	n Level	200
Limit	Level:	260

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

Date	Time	TSP Level, (μg/m³)
5-Jan-17	13:07	22
5-Jan-17	14:10	19
5-Jan-17	15:14	16
11-Jan-17	13:04	73
11-Jan-17	14:08	58
11-Jan-17	15:13	59
17-Jan-17	13:04	22
17-Jan-17	14:10	40
17-Jan-17	15:13	19
23-Jan-17	8:24	142
23-Jan-17	9:46	121
23-Jan-17	10:55	98
26-Jan-17	8:10	25
26-Jan-17	9:13	60
26-Jan-17	10:30	20
2-Feb-17	8:45	56
2-Feb-17	9:48	45
2-Feb-17	13:00	41
7-Feb-17	13:00	80
7-Feb-17	14:04	104



7-Feb-17	15:25	91
13-Feb-17	8:10	99
13-Feb-17	13:00	146
13-Feb-17	14:03	96
18-Feb-17	8:04	61
18-Feb-17	9:11	38
18-Feb-17	15:25	113
24-Feb-17	13:01	41
24-Feb-17	14:05	50
24-Feb-17	15:10	17
2-Mar-17	8:09	105
2-Mar-17	9:11	113
2-Mar-17	10:17	148
8-Mar-17	8:10	72
8-Mar-17	9:20	92
8-Mar-17	10:26	67
14-Mar-17	13:00	93
14-Mar-17	14:05	61
14-Mar-17	15:15	23
20-Mar-17	13:00	38
20-Mar-17	14:05	82
20-Mar-17	15:15	82
25-Mar-17	8:03	140
25-Mar-17	9:05	141
25-Mar-17	10:09	114
31-Mar-17	10:00	110
31-Mar-17	13:00	85
31-Mar-17	14:02	58
Actio	on Level	197
Limi	t 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*.

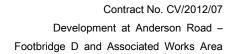


## 4.3 Waste Monitoring Results

4.3.1. Inert C&D waste and General refuse were disposed 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, m <sup>3</sup>	0.04404	12.254234	TKO137
Inert C&D materials recycled, m <sup>3</sup>	0	0	N/A
Non-inert C&D materials disposed, m³	0	0	N/A
Non-inert C&D materials recycled, kg	0	34.5436	N/A
Chemical waste disposed, kg	0	0	N/A
General refuse,m <sup>3</sup>	0.028125	0.954175	NENT





### 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.

### 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
January 2017 – March 2017	0
Project-to-Date	1

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 action level and 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

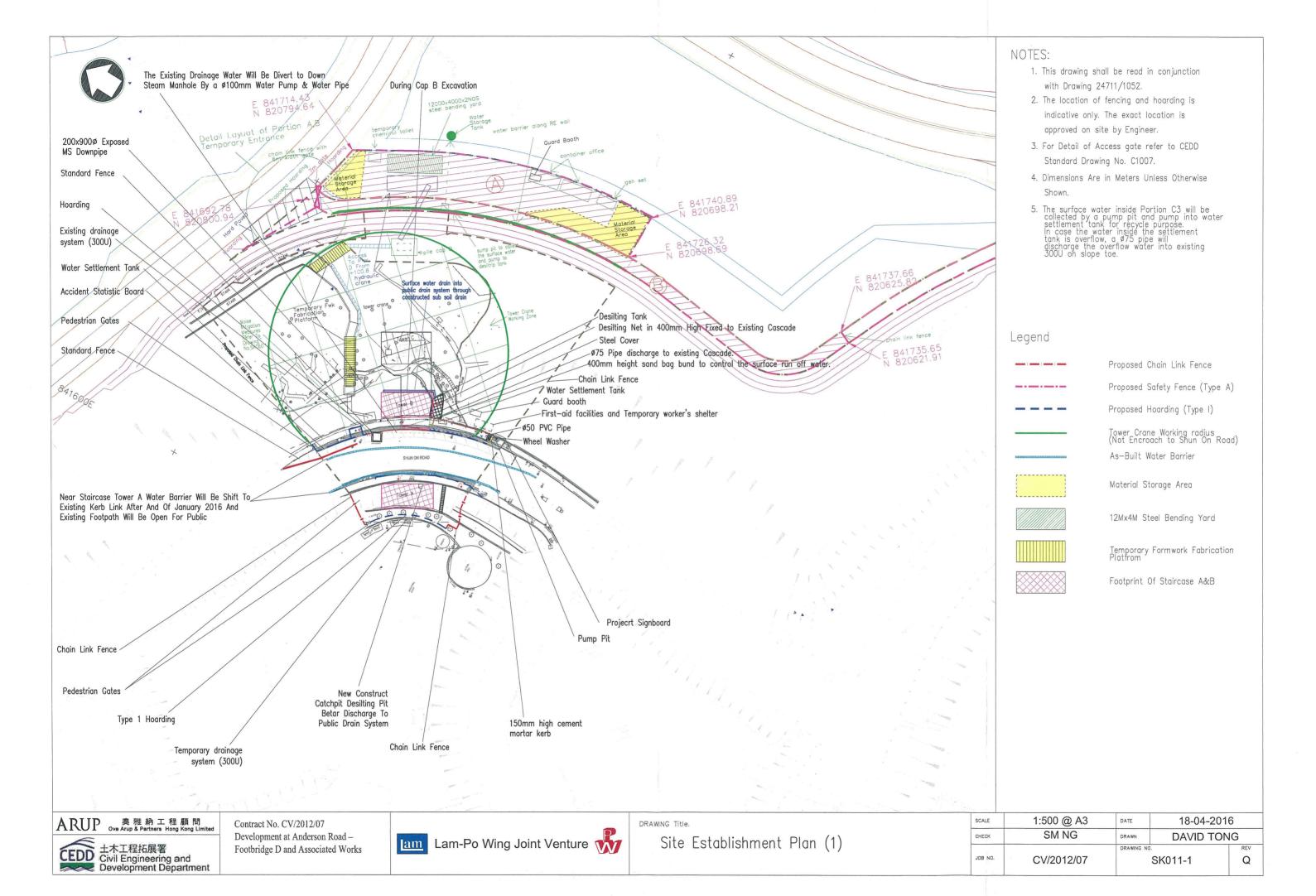
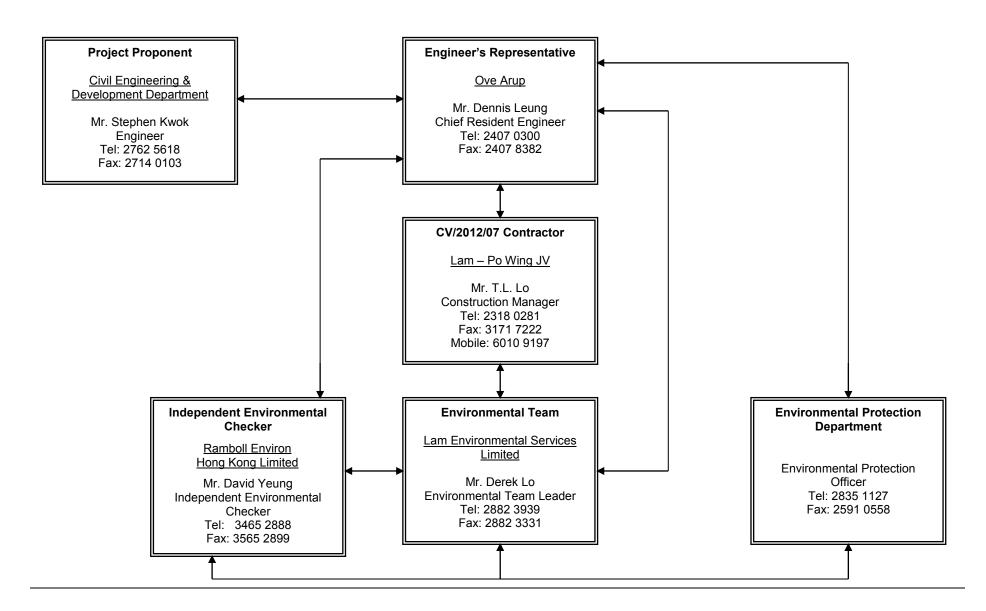


Figure 2.2

**Project Organization Chart** 

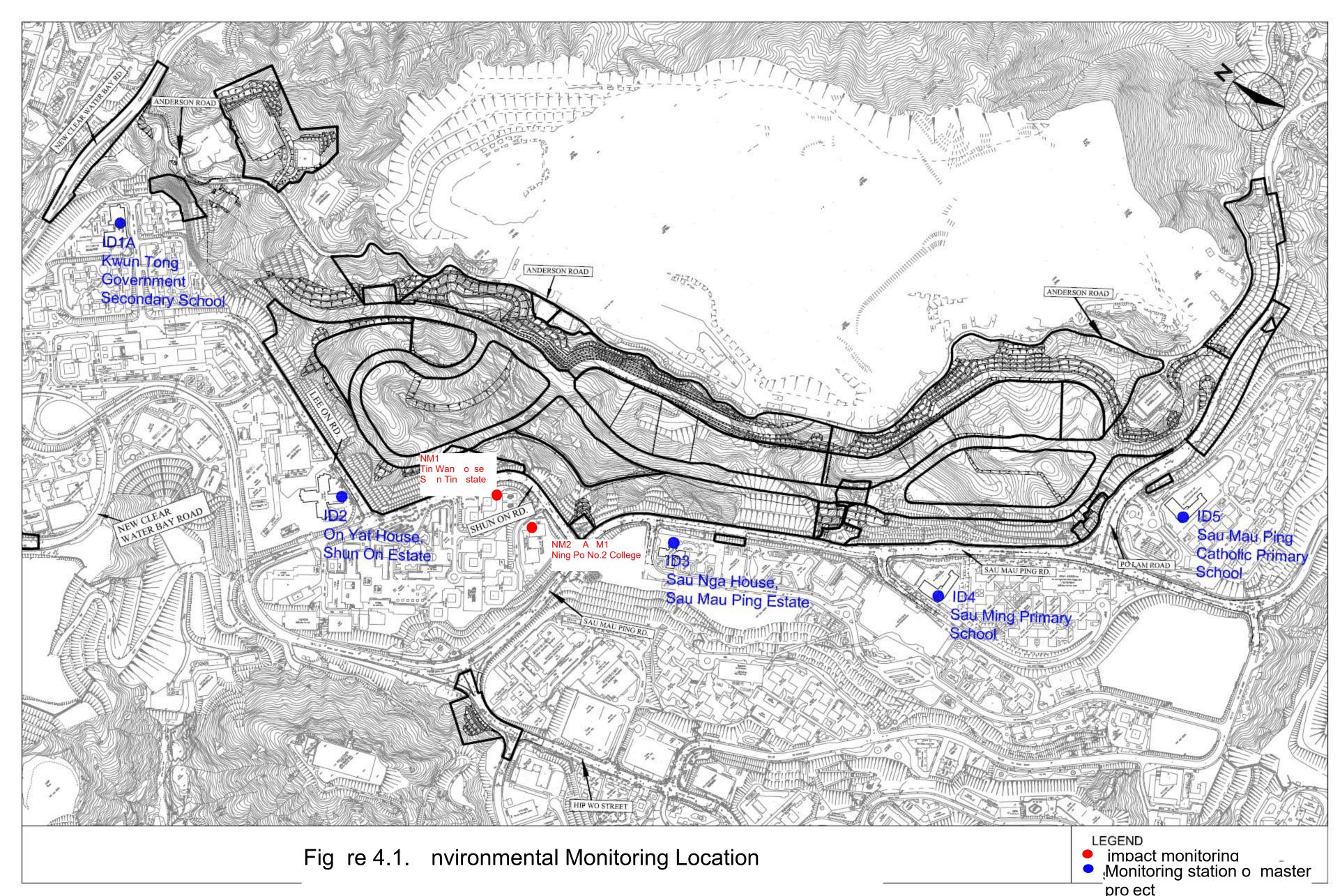


#### **Project Organization Chart**



# Figure 4.1

Locations of Environmental Monitoring Stations



# 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	Funding Agent	Implementation Agent	Implementation Stages**		Relevant Legislation & Guidelines			
			measures)			D	С				
\$2.7	S1, S2.8	Site Practice  • 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, form and between site locations.	All Construction sites (late 2007 to 2016)	sites (late 2007 to	Lam – Po Wing JV	J	<i>J</i>	TM on EIA Process, APCO, Air Pollution Control (Construction Dust) Regulation			
		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.									
		Blasting  Use of select aggregate and fines to stem the charge with drill holes and watering of blast face.  Use of vaccum extraction drilling methods.  Carefully sequenced blasting.									
		Crushing  • Fabric filters installed for the crushing plant.  • Water sprays on the crusher.									
		Loading and Unloading Points, and conyeyor Belt System  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.									

<sup>\*</sup> 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,

<sup>\*\*</sup> D=Design, C=Construction

## Implementation Schedule for Construction Noise Control

EIA Ref.	EM&A Log Ref.		Location (duration/ completion of measures)	Funding Agent	Implementation Agent	Implementation Stages**		Relevant Legislation & Guidelines
						D	С	
\$3.7	\$1, \$3.7	Site Formation Silenced powered mechanical equipment (PME) for most equipments (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	J	J	TM on EIA Process, NCO, TM on Noise from Construction Work other than Percussive Pilling, ProPECC Note PN2/93

<sup>\*</sup> 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,

<sup>\*\*</sup> D=Design, C=Construction



## Implementation Schedule for Water Quality Control

EIA Ref.	EM&A Log Ref.	f.	Location (duration/ completion of	Funding Agent	Implementation Agent	Implementation Stages**		Relevant Legislation & Guidelines
			measures)			D	С	
\$6.4	S1	Construction Phase     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	J	J	TM on EIA Process, WPCO, ProPECC Note PN 1/94

<sup>\*</sup> 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,

<sup>\*\*</sup> D=Design, C=Construction



## Implementation Schedule for Construction Waste Management

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location (duration/ completion of	Funding Agent	Implementation Agent	Implementation Stages**		Relevant Legislation & Guidelines
			measures)			D	С	
\$8.4	S1,S4	Waste Disposal  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 qatering 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	J	J	TM on EIA Process, WDO, DGO, Waste Disposal (Chemical Waste) (General) Regulation



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

Waste Storage  • 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.			

<sup>\*</sup> 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,

<sup>\*\*</sup> 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) <sup>Note 1</sup>

#### 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 i	n $\mu$ g/m <sup>3</sup>	24-hour TSP Level in $\mu$ g/m <sup>3</sup>		
	Action Level	Limit Level	Action Level	Limit Level	
AQM1	197	500	200	260	

## Appendix 4.2

Copies of Calibration Certificates

# Calibration Certificate

Certificate Number 2016005141

Customer:

LAM Environmental Services Ltd

11/F Centre Point

181-185 Gloucester Road

Wanchai, , Hong Kong

Model Number LxT SE
Serial Number 0004797
Test Results Pass

Initial Condition As Manufactured

Description Sound Expert LxT

Procedure NumberD0001.8384TechnicianRon HarrisCalibration Date8 Jun 2016

Calibration Due

 Temperature
 22.36 °C
 ± 0.01 °C

 Humidity
 50.5 %RH
 ± 0.5 %RH

 Static Pressure
 86.11 kPa
 ± 0.03 kPa

**Evaluation Method** 

Tested with:

Data reported in dB re 20 µPa.

PRMLxT1L. S/N 042622 377B02. S/N 163704

Compliance Standards

Compliant to Manufacturer Specifications and the following standards when combined with

Calibration Certificate from procedure D0001.8378:

IEC 60651:2001 Type 1 ANSI S1.4-2014 Class 1
IEC 60804:2000 Type 1 ANSI S1.4 (R2006) Type 1
IEC 61252:2002 ANSI S1.11 (R2009) Class 1
IEC 61260:2001 Class 1 ANSI S1.25 (R2007)

IEC 61672:2013 Class 1 ANSI S1.43 (R2007) Type 1

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2008.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

This report may not be reproduced, except in full, unless permission for the publication of an approved abstract is obtained in writing from the organization issuing this report.

Standards Used							
Description	Cal Date	Cal Due	Cal Standard				
SRS DS360 Ultra Low Distortion Generator	06/24/2015	06/24/2016	006311				
Hart Scientific 2626-H Temperature Probe	06/17/2015	06/17/2016	006798				
Larson Davis CAL200 Acoustic Calibrator	08/12/2015	08/12/2016	007027				
Larson Davis Model 831	03/01/2016	03/01/2017	007182				
1/2 inch Microphone - P - 0V	03/07/2016	03/07/2017	007185				
Larson Davis CAL291 Residual Intensity Calibrator	09/24/2015	09/24/2016	007287				

Larson Davis, a division of PCB Piezotronics, Inc 1681 West 820 North Provo, UT 84601, United States 716-684-0001







### **Acoustic Calibration**

Measured according to IEC 61672-3:2013 10 and ANSI S1.4-2014 Part 3: 10

Measurement	Test Result [dB]	Lower Limit [dB]	Upper Limit [dB]	Expanded Uncertainty [dB]	Result
1000 Hz	114.00	113.80	114.20	0.14	Pass

## **Acoustic Signal Tests, C-weighting**

Measured according to IEC 61672-3:2013 12 and ANSI S1.4-2014 Part 3: 12 using a comparison coupler with Unit Under Test

(UUT) and reference SLM using S-time-weighted sound level

Frequency [Hz]	Test Result [dB]	Expected [dB]	Lower Limit [dB]	Upper Limit [dB]	Expanded Uncertainty [dB]	Result
125	-0.21	-0.20	-1.20	0.80	0.21	Pass
1000	0.03	0.00	-0.70	0.70	0.21	Pass
8000	-2.39	-3.00	-5.50	-1.50	0.21	Pass

<sup>--</sup> End of measurement results--

# **Self-generated Noise**

Measured according to IEC 61672-3:2013 11.1 and ANSI S1.4-2014 Part 3: 11.1

Measurement Test Result [dB]

Low Range, 20 dB gain

64.17

-- End of measurement results--

-- End of Report--

Signatory: Ron Harris

Larson Davis, a division of PCB Piezotronics, Inc 1681 West 820 North Provo, UT 84601, United States 716-684-0001





# Calibration Certificate

Certificate Number 2016010424

Customer:

LAM Environmental Services Ltd

11/F Centre Point

181-185 Gloucester Road

Wanchai, , Hong Kong

Model Number Serial Number CAL200 13128

Test Results

Pass

Initial Condition

Inoperable

Description

Larson Davis CAL200 Acoustic Calibrator

Procedure Number

D0001.8386

Technician

Scott Montgomery

Calibration Date
Calibration Due

22 Nov 2016

Temperature

22 Nov 2017 24 °C

°C ± 0.3 °C

Humidity

30 %

%RH ±3%RH

Static Pressure

101.4 kPa

kPa ±1kPa

**Evaluation Method** 

The data is aquired by the insert voltage calibration method using the reference microphone's open

circuit sensitivity. Data reported in dB re 20 µPa.

Compliance Standards

Compliant to Manufacturer Specifications per D0001.8190 and the following standards:

IEC 60942:2003

ANSI S1.40-2006

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2008.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

This report may not be reproduced, except in full, unless permission for the publication of an approved abstract is obtained in writing from the organization issuing this report.

Standards Used							
Description	Cal Date	Cal Due	Cal Standard				
Agilent 34401A DMM	09/07/2016	09/07/2017	001021				
Sound Level Meter / Real Time Analyzer	04/07/2016	04/07/2017	001051				
Microphone Calibration System	08/17/2016	08/17/2017	005446				
1/2" Preamplifier	10/06/2016	10/06/2017	006506				
Larson Davis 1/2" Preamplifier 7-pin LEMO	08/22/2016	08/22/2017	006507				
1/2 inch Microphone - RI - 200V	03/15/2016	03/15/2017	006510				
Pressure Transducer	07/01/2016	07/01/2017	007368				





#### Certificate Number 2016010424

## **Output Level**

Nominal Level [dB]	Pressure [kPa]	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
94	101.4	94.00	93.80	94.20	0.14	Pass
114	101.4	114.00	113.80	114.20	0.13	Pass
			End of measureme	nt results		

## Frequency

Nominal Level [dB]	Pressure [kPa]	Test Result [Hz]	Lower limit [Hz]	Upper limit [Hz]	Expanded Uncertainty [Hz]	Result
94	101.4	999.97	990.00	1,010.00	0.20	Pass
114	101.4	999.95	990.00	1.010.00	0.20	Pass

# Total Harmonic Distortion + Noise (THD+N)

Nominal Level [dB]	Pressure [kPa]	Test Result [%]	Lower limit [%]	Upper limit [%]	Expanded Uncertainty [%]	Result
114	101.4	0.30	0.00	2.00	0.25	Pass
94	101.4	0.41	0.00	2.00	0.25	Pass

# **Level Change Over Pressure**

Tested at: 114 dB, 24 °C, 30 %RH

Nominal Pressure [kPa]	Pressure [kPa]	Test Result [dB]	Lower limit [dB]	Upper limit [dB]	Expanded Uncertainty [dB]	Result
101.3	101.1	0.00	-0.30	0.30	0.04 ‡	Pass
108.0	108.0	-0.05	-0.30	0.30	0.04 ‡	Pass
92.0	91.9	0.04	-0.30	0.30	0.04 ‡	Pass
83.0	83.0	0.04	-0.30	0.30	0.04 ‡	Pass
74.0	74.0	-0.03	-0.30	0.30	0.04 ‡	Pass
65.0	64.9	-0.21	-0.30	0.30	0.04 ‡	Pass

<sup>--</sup> End of measurement results--

# **Frequency Change Over Pressure**

Tested at: 114 dB, 24 °C, 30 %RH

Nominal Pressure	Pressure	Test Result [Hz]	Lower limit [Hz]	Upper limit [Hz]	Expanded Uncertainty [Hz]	Result
[kPa] 101.3	[kPa] 101.1	0.00	-10.00	10.00	0.20 ‡	Pass
92.0	91.9	0.00	-10.00	10.00	0.20 ‡	Pass
108.0	108.0	-0.02	-10.00	10.00	0.20 ‡	Pass
83.0	83.0	0.00	-10.00	10.00	0.20 ‡	Pass
74.0	74.0	0.00	-10.00	10.00	0.20 ‡	Pass
65.0	64.9	0.01	-10.00	10.00	0.20 ‡	Pass

-- End of measurement results--

Larson Davis, a division of PCB Piezotronics, Inc 1681 West 820 North Provo, UT 84601, United States 716-684-0001







#### Certificate Number 2016010424

# Total Harmonic Distortion + Noise (THD+N) Over Pressure

Tested at: 114 dB, 24 °C, 30 %RH

Nominal Pressure	Pressure	Test Result	Lower limit	Upper limit	Expanded Uncertainty	D14
[kPa]	[kPa]	[%]	[%]	[%]	[%]	Result
101.3	101.1	0.30	0.00	2.00	0.25 ‡	Pass
92.0	91.9	0.30	0.00	2.00	0.25 ‡	Pass
108.0	108.0	0.31	0.00	2.00	0.25 ‡	Pass
83.0	83.0	0.28	0.00	2.00	0.25 ‡	Pass
74.0	74.0	0.27	0.00	2.00	0.25 ‡	Pass
65.0	64.9	0.27	0.00	2.00	0.25 ±	Pass

<sup>--</sup> End of measurement results--

Signatory: Scott Montgomery

Larson Davis, a division of PCB Piezotronics, Inc 1681 West 820 North Provo, UT 84601, United States 716-684-0001







# **Calibration Data for High Volume Sampler (TSP Sampler)**

Location	:	Ning Po No.2 College	Calibration Date	:	08-Feb-17
ID	:	HVS003	Calibration Due Date	:	08-May-17

#### **CALIBRATION OF CONTINUOUS FLOW RECORDER**

	Ambient Condition								
Temperature, T <sub>a</sub>	291	Kelvin	Pressure, P <sub>a</sub>	101	17 mmHg				
Orifice Transfer Standard Information									
Equipment No.	Ori002	Slope, m <sub>c</sub>	2.10714	Intercept, bc	-0.05158				
Last Calibration Date	Last Calibration Date 20-May-16 ( <i>H x P<sub>a</sub> / 1013.3 x 298 / T<sub>a</sub></i> ) <sup>1/2</sup>								
Next Calibration Date	Next Calibration Date 20-May-17 = $m_c \times Q_{std} + b_c$								

			(	Calibration of TSP		
Calibration	Ма	nometer R	eading	Q <sub>std</sub>	Continuous Flow	IC
Point	н	(inches of	water)	(m <sup>3</sup> / min.)	Recorder, W	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)
	(up)	(down)	(difference)	X-axis	(CFM)	Y-axis
1	1.2	1.2	2.4	0.7698	26	26.3588
2	2.0	2.0	4.0	0.9867	32	32.4417
3	3.1	3.1	6.2	1.2225	40	40.5521
4	4.0	4.0	8.0	1.3853	44	44.6073
5	5.4	5.4	10.8	1.6056	50	50.6901
By Linear Regression of Y	on X					
	Slope, m	=	29.4	381 Ir	ntercept, b =	3.7810
Correlation C	oefficient*	=	0.99	988		
Calibration	Accepted	=	Yes/f	<del>\</del> \ <del>0</del> **		

<sup>\*</sup> if Correlation Coefficient < 0.990, check and recalibration again.

As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been Remarks:

re-assigned from EL086 to HVS003 with respect to the update in quality management system.

Checked by Jackey MA Pauline Wong Calibrated by 08-Feb-17 Date 08-Feb-17 Date

<sup>\*\*</sup> Delete as appropriate.



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

## ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mo Operator		Rootsmeter Orifice I.I		438320 3166	Ta (K) - Pa (mm) -	293 - 748.03
PLATE OR Run # 1 2 3 4 5	VOLUME START (m3)  NA NA NA NA NA	VOLUME STOP (m3) NA NA NA NA NA	DIFF VOLUME (m3)  1.00 1.00 1.00 1.00	DIFF TIME (min)  1.4270 1.0220 0.9100 0.8730 0.7180	METER DIFF Hg (mm) 3.2 6.4 7.9 8.8 12.7	ORFICE DIFF H2O (in.) 2.00 4.00 5.00 5.50 8.00

#### DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9967 0.9925 0.9904 0.9892 0.9840	0.6985 0.9711 1.0883 1.1332 1.3705	1.4150 2.0010 2.2372 2.3464 2.8299		0.9957 0.9915 0.9893 0.9882 0.9830	0.6977 0.9701 1.0872 1.1320 1.3691	0.8851 1.2517 1.3995 1.4678 1.7702
Qstd slop intercept coefficie y axis =	(b) = ent (r) =	2.10714 -0.05158 0.99978	 [a)]	Qa slope intercept coefficie v axis =	= (b) $=$	1.31946 -0.03226 0.99978

## CALCULATIONS

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

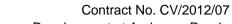
Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

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

# Appendix 5.2

Noise Monitoring Results and Graphical Presentations





Development at Anderson Road - Footbridge D and Associated Works Area

**JOB NO**: CS\_J2013-02\_CV201207

**CLIENT**: LPWJV

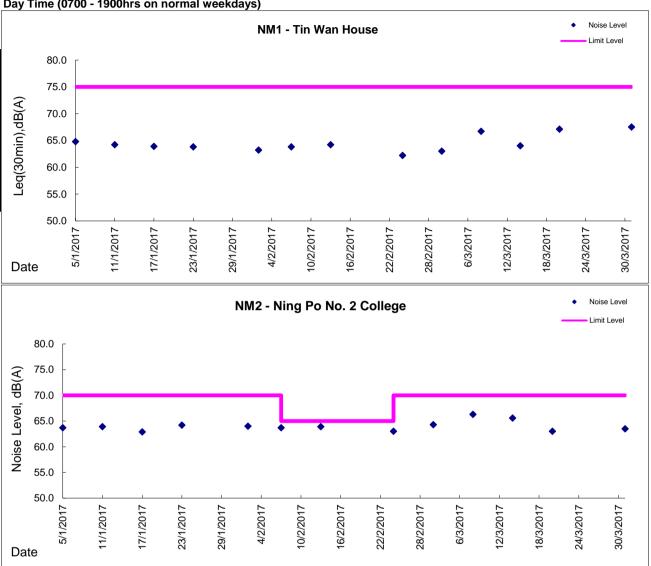
		Dayti	me(07:00-19:00)		
Date	Time	Location	Leq (dB)	L10 (dB)	L90 (dB)
5-Jan-17	13:48	NM1	64.8	66.2	59.4
5-Jan-17	14:31	NM2	63.7	64.8	58.7
11-Jan-17	13:30	NM1	64.2	65.9	60.2
11 3411 17	14:47	NM2	63.9	65.0	59.2
17-Jan-17	13:58	NM1	63.9	65.2	59.7
17-Jan-17	15:04	NM2	62.9	63.8	57.9
23-Jan-17	13:58	NM1	63.8	65.5	60.0
25-5411-17	15:04	NM2	64.2	66.1	60.3
2-Feb-17	8:30	NM1	63.2	65.5	58.4
2-Feb-17	9:08	NM2	64.0	65.7	59.5
7-Feb-17	13:07	NM1	63.8	65.6	60.0
	13:48	NM2	63.7	64.9	59.9
13-Feb-17	13:04	NM1	64.2	66.3	61.2
13-1 60-17	13:58	NM2	63.9	65.7	60.8
24-Feb-17	13:11	NM1	62.2	64.4	59.3
24-Feb-17	13:59	NM2	63.0	64.9	59.9
2-Mar-17	8:14	NM1	63.0	64.8	59.1
2-IVId1-17	9:10	NM2	64.3	65.6	60.7
8-Mar-17	10:40	NM1	66.7	68.5	62.5
0-IVIAI-17	9:40	NM2	66.3	68.0	58.5
14-Mar-17	14:56	NM1	64.0	65.5	60.3
14-IVIAI-11	14:22	NM2	65.6	66.3	58.2
20-Mar-17	14:05	NM1	67.1	69.5	63.0
20-1VIAI-17	13:00	NM2	63.0	65.5	57.5
31-Mar-17	11:20	NM1	67.5	69.5	64.0
JI-IVIAI-II	10:15	NM2	63.5	65.0	57.0

NM1 - Tin Wan House NM2 - Ning Po No. 2 College



**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

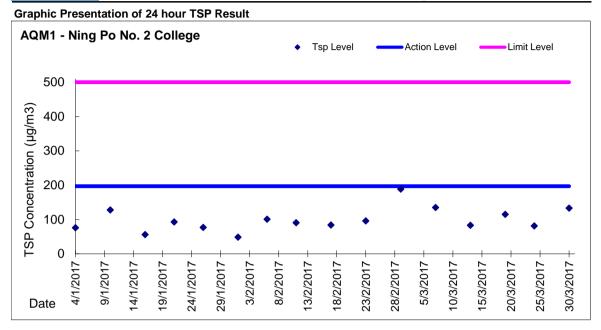
Report on 24-hour TSP monitoring Action Level (µg/m3) - 200 Limit Level (µg/m3) - 260

Date	Sampling	Weather	Filter	Filter Weight,	g	Elapse Tim	e, hr	Sampling	Flo	w Rate, m <sup>3</sup> /	min	Total	TSP Level,
	Time	Condition	paper no.	Initial	Final	Initial	Final	Time, hr	Initial, Q <sub>si</sub>	Final, $Q_{sf}$	Average	Volume, m <sup>3</sup>	μg/m³
4-Jan-17	8:00	Fine	18610	2.8158	2.9753	6076.71	6100.71	24.00	1.46	1.45	1.46	2096	76
10-Jan-17	8:00	Fine	18770	2.7017	2.9703	6103.71	6127.71	24.00	1.46	1.46	1.46	2101	128
16-Jan-17	8:00	Cloudy	18903	2.8202	2.9385	6130.71	6154.71	24.00	1.47	1.46	1.46	2109	56
21-Jan-17	8:00	Fine	18533	2.8084	3.0047	6157.71	6181.71	24.00	1.47	1.47	1.47	2115	93
26-Jan-17	8:00	Fine	19016	2.8204	2.9824	6184.71	6208.71	24.00	1.47	1.46	1.47	2111	77
1-Feb-17	8:00	Fine	19012	2.8355	2.9378	6211.71	6235.71	24.00	1.46	1.47	1.46	2109	49
6-Feb-17	8:00	Cloudy	18527	2.8077	3.0195	6238.73	6262.73	24.00	1.46	1.46	1.46	2104	101
11-Feb-17	8:00	Fine	18979	2.8961	3.0882	6265.80	6289.80	24.00	1.47	1.47	1.47	2122	91
17-Feb-17	8:00	Fine	18523	2.8154	2.9921	6292.80	6316.80	24.00	1.46	1.46	1.46	2101	84
23-Feb-17	8:00	Cloudy	19045	2.8464	3.0215	6319.80	6343.80	24.00	1.26	1.27	1.27	1824	96
1-Mar-17	8:00	Cloudy	19401	2.8262	3.1680	6346.80	6370.80	24.00	1.26	1.26	1.26	1813	189
7-Mar-17	8:00	Cloudy	19538	2.8688	3.1145	6373.80	6397.80	24.00	1.26	1.26	1.26	1817	135
13-Mar-17	8:00	Cloudy	19660	2.8266	2.9806	6400.80	6424.80	24.00	1.28	1.29	1.28	1850	83
19-Mar-17	8:00	Cloudy	19307	2.8621	3.0746	6427.81	6451.81	24.00	1.29	1.28	1.29	1851	115
24-Mar-17	8:00	Fine	19698	2.8456	2.9965	6454.81	6478.81	24.00	1.29	1.29	1.29	1852	81
30-Mar-17	8:00	Fine	19606	2.8466	3.0930	6481.81	6505.81	24.00	1.28	1.29	1.29	1851	133

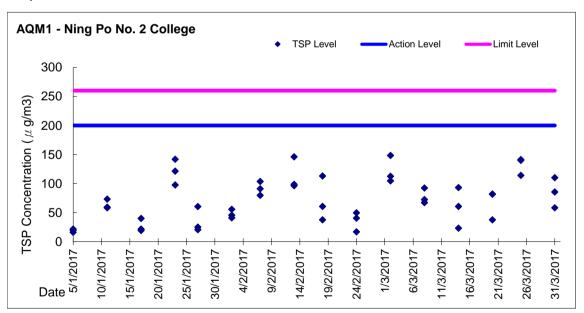
Report on 1-hour TSP monitoring Action Level (µg/m3) - 197 Limit Level (µg/m3) - 500

Date	Sampling	Weather	Filter	Filter Weight,	g	Elapse Tim	e, hr	Sampling	Flo	w Rate, m <sup>3</sup> /	min	Total	TSP Level,
	Time	Condition	paper no.	Initial	Final	Initial	Final	Time, hr	Initial, Q <sub>si</sub>	Final, $Q_{\text{sf}}$	Average	Volume, m <sup>3</sup>	$\mu g/m^3$
5-Jan-17	13:07	Fine	18680	2.6712	2.6731	6100.71	6101.71	1.00	1.45	1.45	1.45	87	22
5-Jan-17	14:10	Fine	18773	2.6502	2.6519	6101.71	6102.71	1.00	1.45	1.45	1.45	87	19
5-Jan-17	15:14	Fine	18771	2.6610	2.6624	6102.71	6103.71	1.00	1.45	1.45	1.45	87	16
11-Jan-17	13:04	Fine	18906	2.8011	2.8075	6127.71	6128.71	1.00	1.46	1.46	1.46	88	73
11-Jan-17	14:08	Fine	18905	2.8236	2.8287	6128.71	6129.71	1.00	1.46	1.46	1.46	88	58
11-Jan-17	15:13	Fine	18904	2.8158	2.8210	6129.71	6130.71	1.00	1.46	1.46	1.46	88	59
17-Jan-17	13:04	Cloudy	18534	2.7808	2.7827	6154.71	6155.71	1.00	1.46	1.46	1.46	88	22
17-Jan-17	14:10	Cloudy	18532	2.8135	2.8170	6155.71	6156.71	1.00	1.46	1.46	1.46	88	40
17-Jan-17	15:13	Cloudy	18911	2.8267	2.8284	6156.71	6157.71	1.00	1.46	1.46	1.46	88	19
23-Jan-17	8:24	Fine	18908	2.8303	2.8428	6181.71	6182.71	1.00	1.47	1.47	1.47	88	142
23-Jan-17	9:46	Fine	19018	2.8088	2.8195	6182.71	6183.71	1.00	1.47	1.47	1.47	88	121
23-Jan-17	10:55	Fine	19017	2.8139	2.8225	6183.71	6184.71	1.00	1.47	1.47	1.47	88	98
27-Jan-17	8:10	Fine	19015	2.8190	2.8212	6208.71	6209.71	1.00	1.46	1.46	1.46	88	25
27-Jan-17	9:13	Fine	19014	2.8376	2.8429	6209.71	6210.71	1.00	1.46	1.46	1.46	88	60
27-Jan-17	10:30	Fine	19013	2.8233	2.8251	6210.71	6211.71	1.00	1.46	1.46	1.46	88	20
2-Feb-17	8:45	Fine	18529	2.8083	2.8132	6235.71	6236.71	1.00	1.47	1.47	1.47	88	56
2-Feb-17	9:48	Fine	18528	2.8006	2.8046	6236.71	6237.71	1.00	1.47	1.47	1.47	88	45
2-Feb-17	13:00	Fine	18521	2.8359	2.8395	6237.71	6238.71	1.00	1.47	1.47	1.47	88	41
7-Feb-17	13:00	Cloudy	19007	2.8162	2.8232	6262.73	6263.73	1.00	1.46	1.46	1.46	88	80
7-Feb-17	14:04	Cloudy	19006	2.8240	2.8331	6263.73	6264.73	1.00	1.46	1.46	1.46	88	104
7-Feb-17	15:25	Cloudy	19199	2.8253	2.8333	6264.73	6265.73	1.00	1.46	1.46	1.46	88	91
13-Feb-17	8:10	Fine	19198	2.8386	2.8473	6289.80	6290.80	1.00	1.47	1.47	1.47	88	99
13-Feb-17	13:00	Fine	18978	2.8955	2.9084	6290.80	6291.80	1.00	1.47	1.47	1.47	88	146
13-Feb-17	14:03	Fine	18522	2.8318	2.8403	6291.80	6292.80	1.00	1.47	1.47	1.47	88	96
18-Feb-17	8:04	Fine	19194	2.8436	2.8489	6216.80	6217.80	1.00	1.46	1.46	1.46	88	61
18-Feb-17	9:11	Fine	19047	2.8452	2.8485	6217.80	6218.80	1.00	1.46	1.46	1.46	88	38
18-Feb-17	15:25	Fine	19046	2.8503	2.8602	6218.80	6219.80	1.00	1.46	1.46	1.46	88	113
24-Feb-17	13:01	Cloudy	19403	2.8259	2.8290	6343.80	6344.80	1.00	1.27	1.27	1.27	76	41
24-Feb-17	14:05	Cloudy	19400	2.8365	2.8403	6344.80	6345.80	1.00	1.27	1.27	1.27	76	50
24-Feb-17	15:10	Cloudy	19402	2.8332	2.8345	6345.80	6346.80	1.00	1.27	1.27	1.27	76	17
2-Mar-17	8:09	Fine	19541	2.8166	2.8245	6370.80	6371.80	1.00	1.26	1.26	1.26	76	105
2-Mar-17	9:11	Fine	19540	2.8485	2.8570	6371.80	6372.80	1.00	1.26	1.26	1.26	76	113
2-Mar-17	10:17	Fine	19539	2.8389	2.8501	6372.80	6373.80	1.00	1.26	1.26	1.26	76	148
8-Mar-17	8:10	Cloudy	19326	2.8535	2.8590	6397.80	6398.80	1.00	1.26	1.26	1.26	76	72
8-Mar-17	9:20	Cloudy	19662	2.8335	2.8405	6398.80	6399.80	1.00	1.26	1.26	1.26	76	92
8-Mar-17	10:26	Cloudy	19661	2.8074	2.8125	6399.80	6400.80	1.00	1.26	1.26	1.26	76	67
14-Mar-17	13:00	Cloudy	19311	2.8098	2.8170	6424.81	6425.81	1.00	1.29	1.29	1.29	77	93
14-Mar-17	14:05	Cloudy	19309	2.8286	2.8333	6425.81	6426.81	1.00	1.29	1.29	1.29	77	61
14-Mar-17	15:15	Cloudy	19308	2.8521	2.8539	6426.81	6427.81	1.00	1.29	1.29	1.29	77	23
20-Mar-17	13:00	Cloudy	19701	2.8418	2.8447	6451.81	6452.81	1.00	1.28	1.28	1.28	77	38
20-Mar-17	14:05	Cloudy	19700	2.8241	2.8304	6452.81	6453.81	1.00	1.28	1.28	1.28	77	82
20-Mar-17	15:15	Cloudy	19699	2.8272	2.8335	6453.81	6454.81	1.00	1.28	1.28	1.28	77	82
25-Mar-17	8:03	Fine	19604	2.8668	2.8776	6478.81	6479.81	1.00	1.29	1.29	1.29	77	140
25-Mar-17	9:05	Fine	19608	2.8271	2.8380	6479.81	6480.81	1.00	1.29	1.29	1.29	77	141
25-Mar-17	10:09	Fine	19607	2.8294	2.8382	6480.81	6481.81	1.00	1.29	1.29	1.29	77	114
31-Mar-17	10:00	Fine	19925	2.9370	2.9455	6505.81	6506.81	1.00	1.29	1.29	1.29	77	110
31-Mar-17	13:00	Fine	19924	2.9371	2.9437	6506.81	6507.81	1.00	1.29	1.29	1.29	77	85
31-Mar-17	14:02	Fine	19923	2.9235	2.9280	6507.81	6508.81	1.00	1.29	1.29	1.29	77	58





## **Graphic Presentation of 1 hour TSP Result**



Appendix 6.1

**Event Action Plans** 

## **Event/Action Plan for Construction Noise**

EVENT		A		
	ET	IC(E)	ER	CONTRACTOR
Exceedance for Action Level	Notify IC(E) and Contractor;     Carry out investigation;     Report the results of investigation to IC(E) and Contractor;     Discuss with Contractor and formulate remedial measures;;     Increase monitoring frequency to check mitigation effectiveness.	Review the analysed results submitted by ET;     Review the proposed remedial measures by the Contractor and advise ER accordingly;     Supervise the implementation of remedial measures.	Confirm receipt of notification of failure in writing;     Notify Contractor;     Require Contractor to propose remedial measures for the analysed noise problem;     Ensure remedial measures are properly implemented.	Submit noise mitigation proposals to IC(E);     Implement noise mitigation proposals.
Exceedance for Limited Level	Notify IC(E), ER, EPD and Contractor;     Identify sources;     Repeat measurements to confirm finding;     Increase monitoring frequency;     Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;     Inform IC(E), ER and EPD the causes and actions taken for the exceedances;     Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results;     If exceedance stops, cease additional monitoring.	Discuss amongst ER, ET, and Contractor on the potential remedial actions;     Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly.	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.	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.

Event / Action Plan for Construction Air Quality

EVENT			ACT	TON				
		ET		IC(E)		ER		CONTRACTOR
ACTION LEVEL								
Exceedance for one sample	2. 3.	Identify source; Inform IC(E) and ER; Repeat measurement to confirm finding; Increase monitoring frequency to daily.	1. 2.	Check monitoring data submitted by ET; Check Contractor's working method.	1.	Notify Contractor.	1. 2.	Rectify any unacceptable practice; Amend working methods if appropriate.
Exceedance for two or more consecutive samples	2. 3. 4. 5.	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.	1. 2. 3. 4. 5.	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.	1. 2. 3.	Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measures properly implemented.	1. 2. 3.	Submit proposals for remedial actions t IC(E) within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
LIMITED LEVEL  1. Exceedance for one sample		Identify source; Inform ER, Contractor and EPD;	1. 2.	Check monitoring data submitted by ET; Check Contractor's working method:	1.	Confirm receipt of notification of failure in writing:	1.	Take immediate action to avoid further exceedance:
	4. 5.	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.	<ul><li>3.</li><li>4.</li><li>5.</li></ul>	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.	2. 3.	Notify Contractor; Ensure remedial measures properly implemented.	2. 3. 4.	Submit proposals for remedial actions IEC within 3 working days of notificatio Implement the agreed proposals; Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	2. 3. 4. 5.	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	1. 2. 3.	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.	1. 2. 3.	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:	1. 2. 3. 4.	Take immediate action to avoid further exceedance; Submit proposals for remedial actions t IC(E) within 3 working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control:
	7.	Arrange meeting with the 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.			5.	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.	5.	Stop the relevant portion of works as determined by the ER until the exceedance is abated.

# Appendix 6.2

Summary for Notification of Exceedance\_Air and Noise

Summary for Notification of Exceedance

Ref. No.	Date	Time	Location	Measured TSP 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	N/A	

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



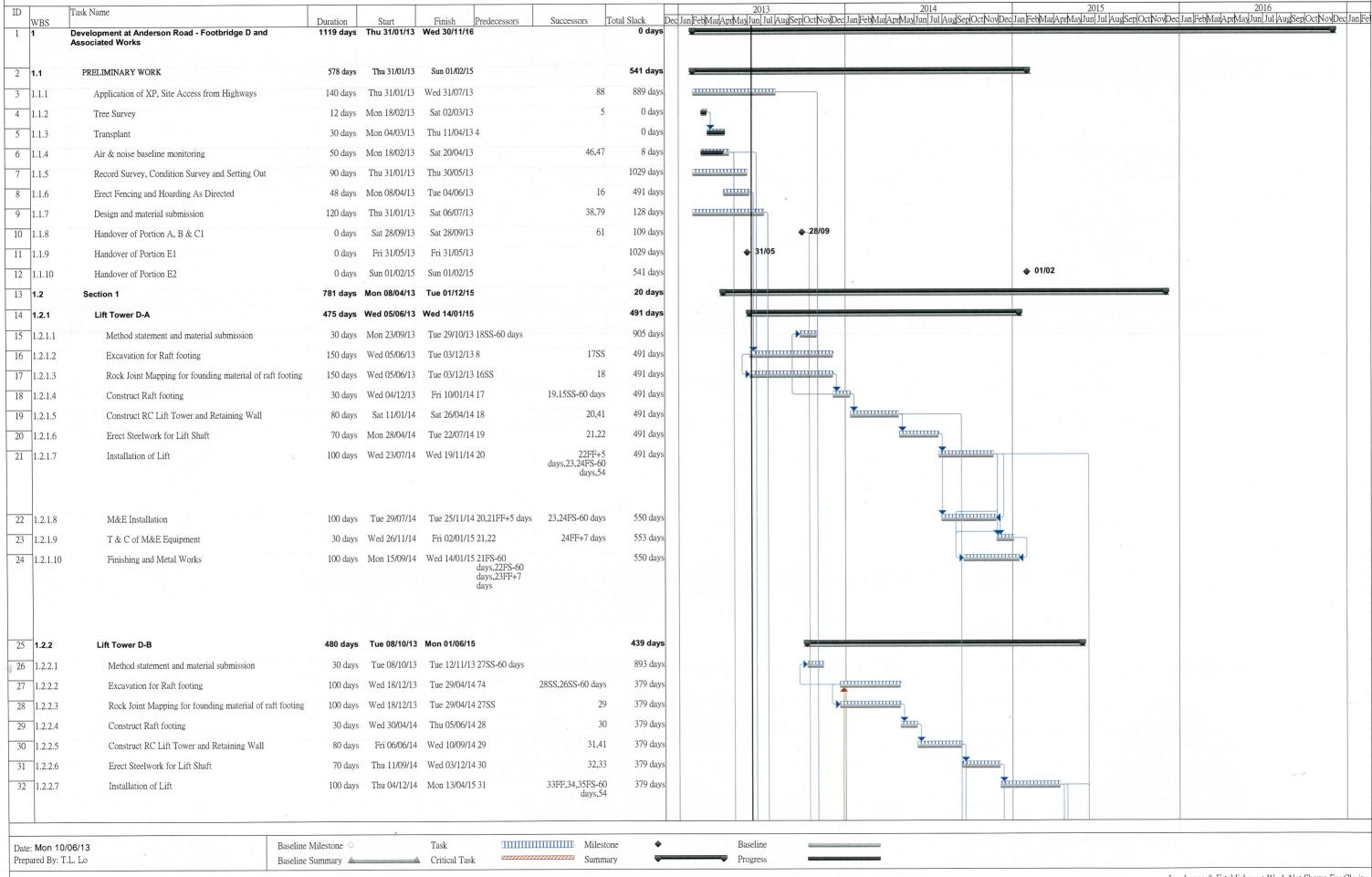
# **Environmental Complaints Log**

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Out	tcome	Status
140813	13 Aug 2014	Resident complained via hotline by RE	The slope opposite to Tin Wan House, Shun Tin Estate, Kowloon	Noise was emanated from the construction site at the slope opposite to Tin Wan House, Shun Tin Estate, Kowloon at around 1620 hrs on 13 Aug 2014 and requested follow up action by relevant department.	2)	RSS notified ET on 15 Aug 2014 ET confirmed with site staff the major noise generating construction activities undertaken at works area at the slope opposite to Tin Wan House including slope works After reviewing the noise monitoring data at monitoring stations (NM1 - Tin Wan House and NM2 - Ning Po No.2 College), no limit level exceedances were recorded during routine noise monitoring event on 14 Aug 2014. As similar construction works activities conducted on 13 Aug 2014 was continued across the above monitoring period, the noise emanated from the construction activities under Contract CV/2012/07 was considered to comply with the statutory requirement.  In addition, weekly environmental site inspection was conducted on 12 Aug 2014 at around 10:00. According to the inspection record, no particular observation regarding noise impact was recorded and the mitigation measures including erection of temporary noise barrier was observed in place.	Closed

# Appendix 9.1

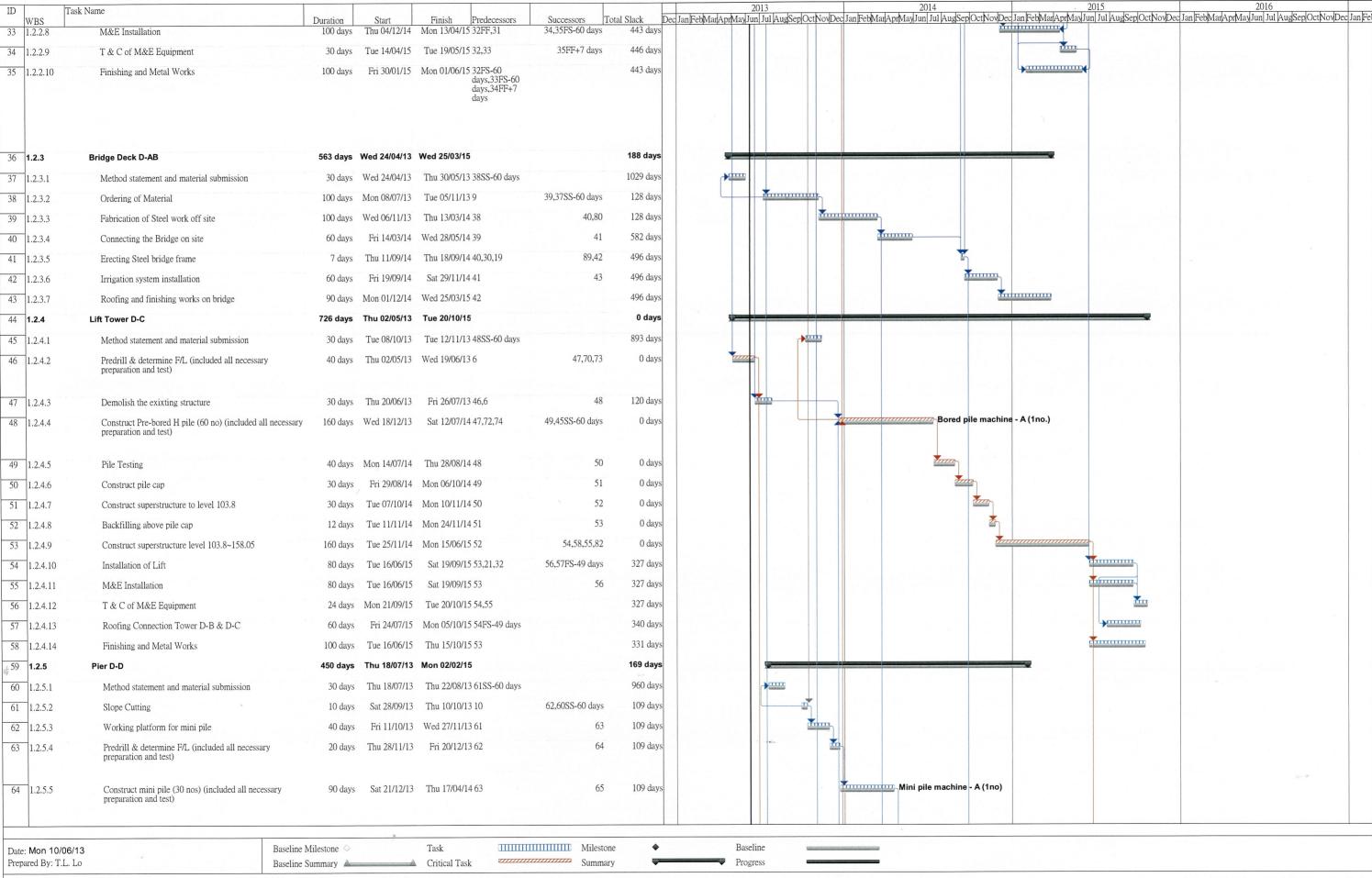
**Construction Programme** 

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



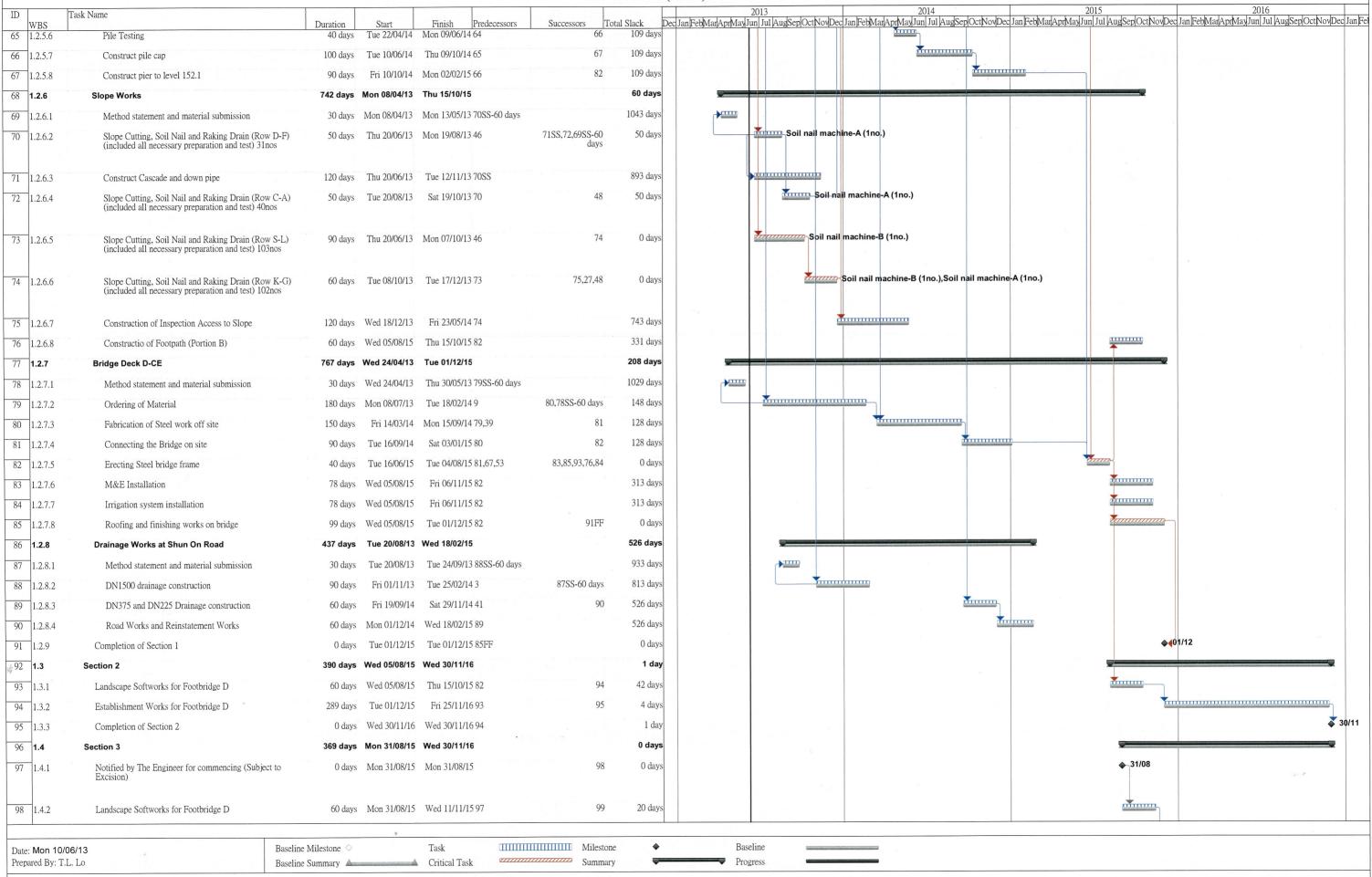
Assume Contract Start On 31-Jan-2013 and Finish On 30-Nov-2016 (1399 days) Duration as shown by week day

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



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

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



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

#### Master Programme For Contract No. CV/2012/07 Development at Anderson Road - Footbridge D and Associated Works 2013 2014 2015 2016 Dec Jan FebMar ApriMay Jun Jul Aug Sep Oct Nov Dec ID Task Name Total Slack WBS Finish Successors 99 1.4.3 Landscape Softworks and Establishment Works for Footbridge A, B and C 289 days Thu 12/11/15 Mon 07/11/16 98 20 days 30/11 0 days Wed 30/11/16 Wed 30/11/16 99 0 days 100 1.4.4 Completion of Section 3

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

Baseline Milestone 

Task

Milestone 

Baseline 

Summary

Progress

Progress