



**CONTRACT NO: CV/2012/07**

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

**QUARTERLY ENVIRONMENTAL MONITORING & AUDIT  
REPORT**

**-JANUARY 2014 TO MARCH 2014 -**

**CLIENTS:**

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**DATE:**

12 April 2014



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**EXECUTIVE SUMMARY**

- i. This is the Environmental Monitoring and Audit (EM&A) Quarterly Report – January 2014 to March 2014 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 3rd quarterly of EM&A report presenting the environmental monitoring findings and information recorded during the period 01 January 2014 to 31 March 2014.

**Table 1.1 Major Construction Activities for the Reporting Period**

January 2014	February 2014	March 2014
<ul style="list-style-type: none"> <li>● Cut slope, foundation excavation</li> <li>● Cascade and catchpit construction</li> <li>● Soil nail installation</li> <li>● Piling works</li> </ul>	<ul style="list-style-type: none"> <li>● Slope excavation</li> <li>● Drainage works</li> <li>● Soil nail installation</li> <li>● Piling works</li> </ul>	<ul style="list-style-type: none"> <li>● Slope excavation</li> <li>● Drainage works</li> <li>● Soil nail installation</li> <li>● Piling works</li> </ul>

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 January 2014 to 31 March 2014.

### 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](http://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 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 **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 m<sup>3</sup> 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.
- 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)
10-Jan-14	10:28 - 10:58	NM1	66.1
	09:22 - 09:52	NM2	63.9
16-Jan-14	15:10 - 15:40	NM1	68.1
	14:15 - 14:45	NM2	65.4
21-Jan-14	08:39 - 10:09	NM1	70.4
	10:32 - 11:02	NM2	65.9
30-Jan-14	08:45 - 09:15	NM1	61.1
	09:30 - 10:00	NM2	63.1
05-Feb-14	09:15 - 09:45	NM1	65.1
	08:30 - 09:00	NM2	61.3
11-Feb-14	09:40 - 10:10	NM1	70.2
	09:00 - 09:30	NM2	63.9
17-Feb-14	09:40 - 10:10	NM1	70.1
	08:25 - 08:55	NM2	63.3

28-Feb-14	09:30 – 10:00	NM1	71.9
	09:30 - 10:00	NM2	65.1
6-Mar-14	08:56 - 09:26	NM1	66.1
	08:14 - 08:44	NM2	62.4
12-Mar-14	09:18 - 09:48	NM1	68.9
	08:35 - 09:05	NM2	64.1
18-Mar-14	17:20 - 17:50	NM1	69.1
	13:10 - 13:40	NM2	61.9
24-Mar-14	10:35 - 11:05	NM1	69.8
	08:40 - 09:10	NM2	64.4
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 27 Jan 2014 to 22 Feb 2014. 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-Jan-14	8:00	125
9-Jan-14	8:00	147
15-Jan-14	8:00	117
20-Jan-14	8:00	106
24-Jan-14	8:00	117
29-Jan-14	8:00	105
4-Feb-14	8:00	71
10-Feb-14	8:00	73
15-Feb-14	8:00	77
21-Feb-14	8:00	86
27-Feb-14	8:00	77
5-Mar-14	8:00	84
11-Mar-14	8:00	88



17-Mar-14	8:00	79
22-Mar-14	8:00	155
28-Mar-14	8:00	71
<b>Action Level</b>		<b>200</b>
<b>Limit Level:</b>		<b>260</b>

**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-Jan-14	8:30	189
4-Jan-14	9:35	177
4-Jan-14	10:40	189
10-Jan-14	8:10	138
10-Jan-14	9:16	108
10-Jan-14	10:24	140
16-Jan-14	13:00	192
16-Jan-14	14:05	156
16-Jan-14	15:10	122
21-Jan-14	8:43	143
21-Jan-14	9:47	156
21-Jan-14	10:53	154
25-Jan-14	8:25	121
25-Jan-14	9:30	105
25-Jan-14	10:35	171
30-Jan-14	8:30	135
30-Jan-14	9:35	69
30-Jan-14	10:40	69
5-Feb-14	8:15	89
5-Feb-14	9:20	83
5-Feb-14	10:30	91
11-Feb-14	8:45	100
11-Feb-14	9:50	97
11-Feb-14	10:55	84
17-Feb-14	8:40	94
17-Feb-14	9:43	111
17-Feb-14	10:50	101
22-Feb-14	8:40	99
22-Feb-14	9:43	96
22-Feb-14	10:50	110
28-Feb-14	8:10	136
28-Feb-14	9:15	138
28-Feb-14	10:20	119
6-Mar-14	8:23	147
6-Mar-14	9:37	157
6-Mar-14	10:49	154
12-Mar-14	8:40	137
12-Mar-14	9:45	133
12-Mar-14	10:52	150





18-Mar-14	13:00	85
18-Mar-14	14:04	94
18-Mar-14	15:10	79
24-Mar-14	8:30	181
24-Mar-14	9:37	170
24-Mar-14	10:45	184
29-Mar-14	8:08	90
29-Mar-14	9:12	61
29-Mar-14	10:19	74
<b>Action Level</b>		<b>197</b>
<b>Limit Level:</b>		<b>500</b>

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 <sup>3</sup>	0.4816	2.3834	TKO137
Inert C&D materials recycled, 000m <sup>3</sup>	0	0	N/A
Non-inert C&D materials disposed, 000m <sup>3</sup>	0.0018	0.00496	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
January 2014 - March 2014	0
<b>Project-to-Date</b>	<b>0</b>

**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
<b>Total</b>	<b>-</b>	<b>0</b>	<b>0</b>



**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***

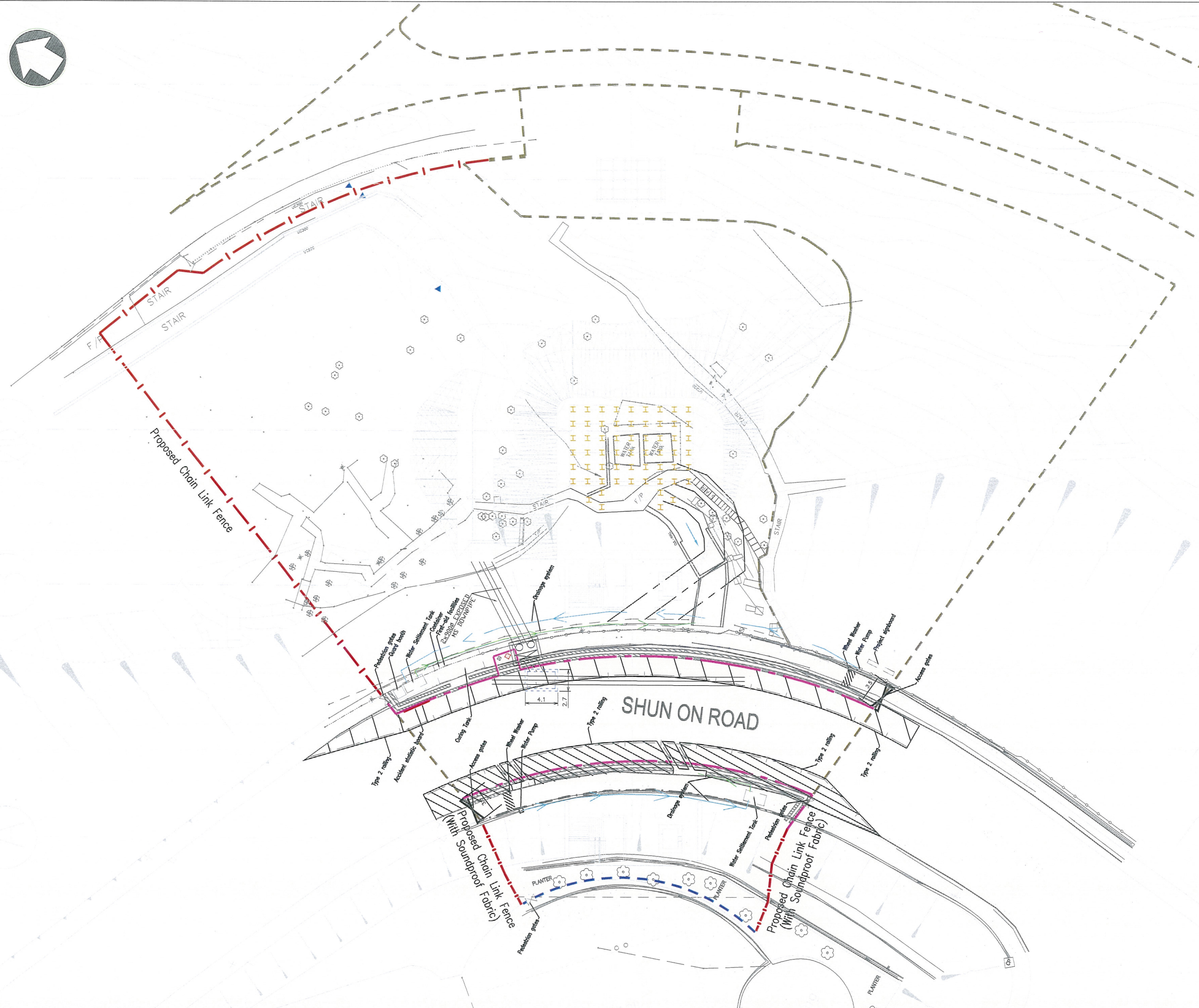


**NOTES:**

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.

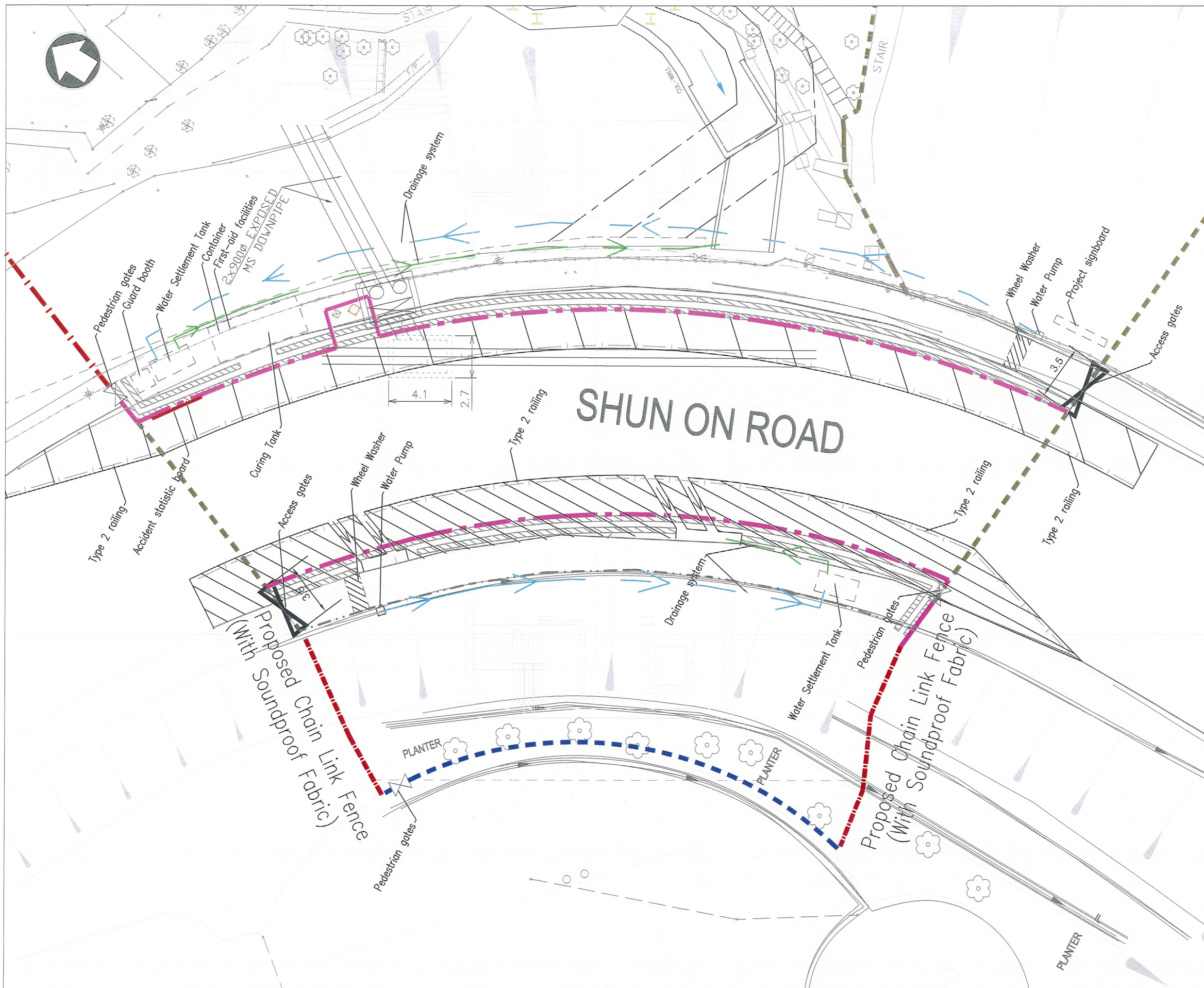
**Legend**

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



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

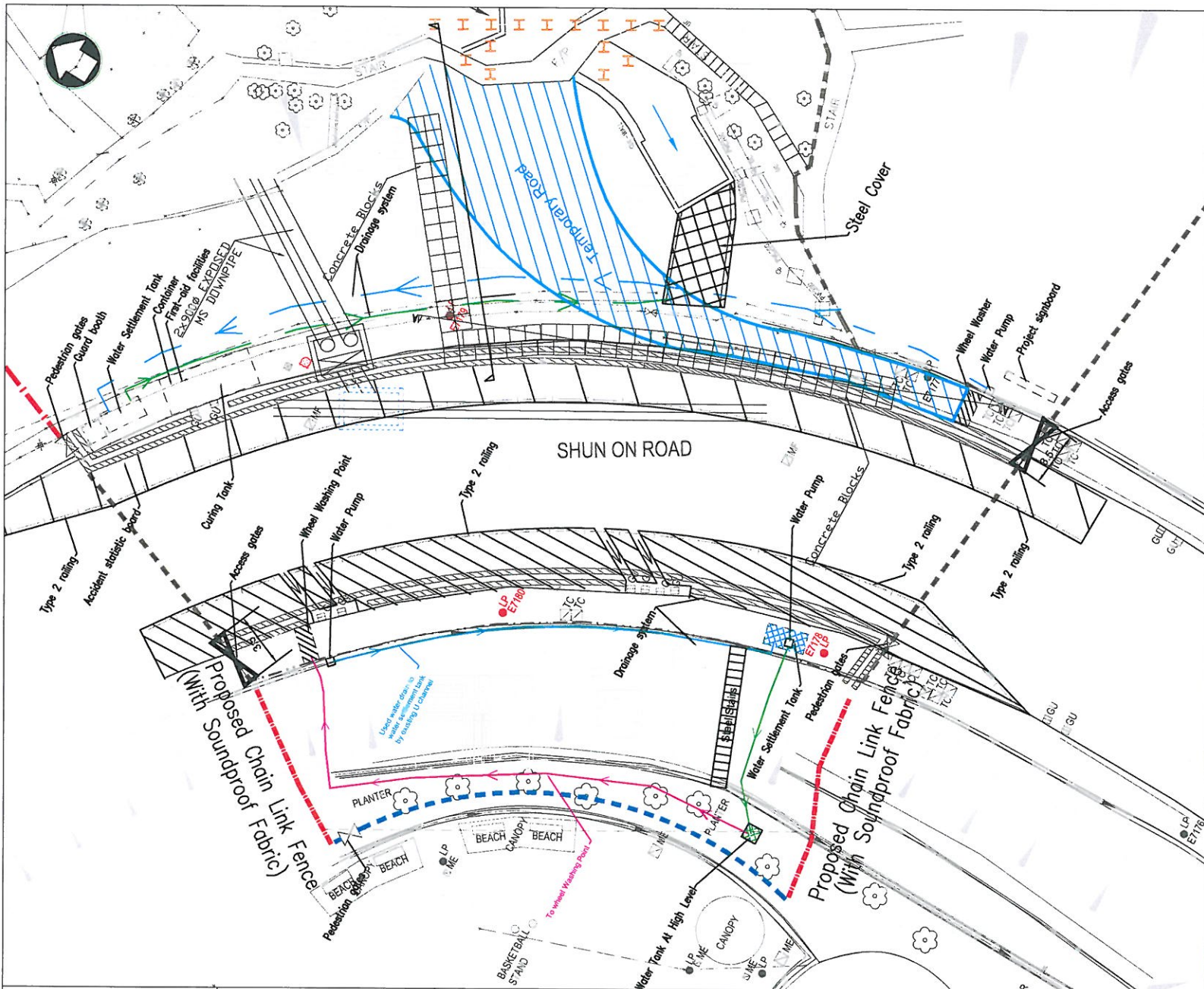




- NOTES:**
1. This drawing shall be read in conjunction with Drawing 24711/1052.
  2. The location of fencing and hoarding is indicative only. The exact location is approved on site by Engineer.
  3. For Detail of Access gate refer to CEDD Standard Drawing No. C1007.
  4. Dimensions Are in Meters Unless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

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





- 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

SCALE	1:250 @ A3	PRINT DATE	20 Nov. 2013
CHECK	HUNG	DATE	20 Nov. 2013
JOB NO.	CV/2012/07	DRAWN	Bobby
		DRAWING NO.	SK024
		REV	A

(Sheet 1/1)



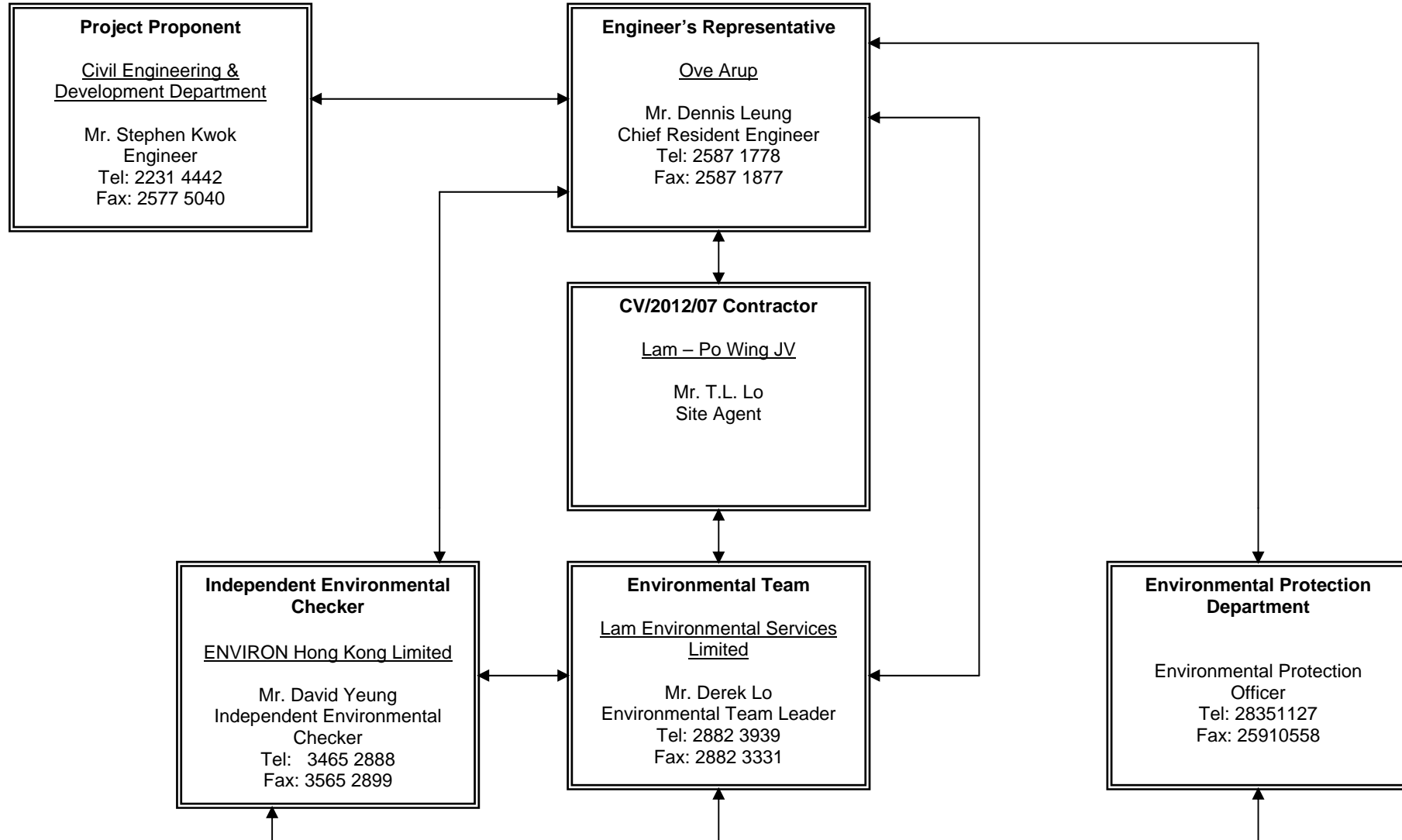


***Figure 2.2***

***Project Organization Chart***



**Project Organization Chart**

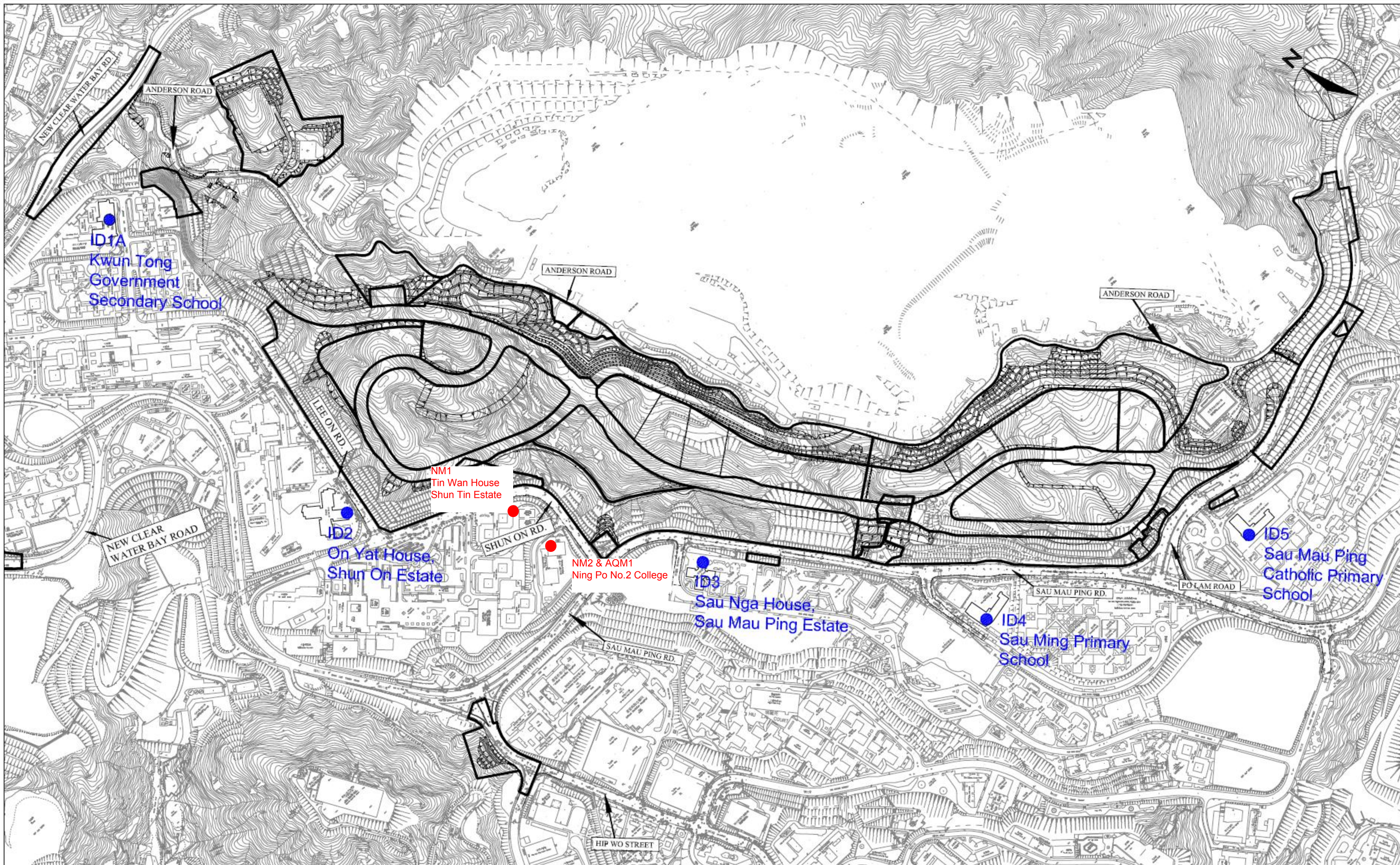




***Figure 4.1***

***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"> <li>• Mean vehicle speed of haulage trucks at 10 km/hr.</li> <li>• Twice daily watering of all open site areas.</li> <li>• Regular watering (once every 1 hour) of all site roads and access roads with frequent truck movement.</li> <li>• Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.</li> <li>• 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.</li> <li>• Suitable side and tailboards on haulage vehicles.</li> <li>• Watering of temporary stockpiles.</li> </ul> <p><i>Blasting</i></p> <ul style="list-style-type: none"> <li>• Use of select aggregate and fines to stem the charge with drill holes and watering of blast face.</li> <li>• Use of vacuum extraction drilling methods.</li> <li>• Carefully sequenced blasting.</li> </ul> <p><i>Crushing</i></p> <ul style="list-style-type: none"> <li>• Fabric filters installed for the crushing plant.</li> <li>• Water sprays on the crusher.</li> </ul> <p><i>Loading and Unloading Points, and conveyor Belt System</i></p> <ul style="list-style-type: none"> <li>• Water sprays at all fixed loading and unloading points (at the crusher and conveyor belts).</li> <li>• The loading point at the crusher is enclosed with dust curtains are used for controlling dust.</li> <li>• When transferring materials from conveyor belt or crusher to the dump trucks, chutes or dust curtains are used for controlling dust.</li> <li>• Cover the conveyor belts with steel roof and canvas sides.</li> </ul>	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"> <li>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.</li> <li>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.</li> </ul>	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"> <li>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.</li> <li>Separate treatment facilities may be required for effluent from site offices, toilets (unless chemical toilets are used) and canteens.</li> <li>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.</li> <li>Relevant practice for dealing with various typr of construction discharges provided in EPD's ProPECC Note 1/94 should be adopted.</li> </ul>	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"> <li>Different types of wastes should be segregated, stored, transported and disposed of proper practice of waste management.</li> <li>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.</li> <li>Excavated spoil should be used as much as possible to minimize off-site fill material requirements and disposal of spoil.</li> <li>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.</li> <li>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.</li> <li>Necessary mitigation measures should be adopted to prevent the uncontrolled disposal of chemical and hazardous waste into air, soil, surface waters and ground waters.</li> </ul>	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"><li>• 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.</li><li>• 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.</li><li>• 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.</li></ul>						
--	--	--	--	--	--	--	--	--

\* 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) <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 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 : 27-Dec-13  
 Calibration Due Date : 27-Feb-14

**CALIBRATION OF CONTINUOUS FLOW RECORDER**

Ambient Condition			
Temperature, T <sub>a</sub>	286	Kelvin	Pressure, P <sub>a</sub>
			1024 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m <sub>c</sub>	2.01968	Intercept, b <sub>c</sub>	-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 <sub>std</sub> (m <sup>3</sup> / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /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 &lt; 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



Lam Environmental Services Limited

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

Location : Ning Po No.2 College  
 ID : AQM1

Calibration Date : 25-Feb-14  
 Calibration Due Date : 25-Apr-14

#### CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T <sub>a</sub>	293	Kelvin	Pressure, P <sub>a</sub>
			1019 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m <sub>c</sub>	2.01968	Intercept, b <sub>c</sub>	-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 <sub>std</sub> (m <sup>3</sup> / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31) Y-axis
	(up)	(down)	(difference)			
1	5.9	5.9	11.8	1.7337	51	51.5778
2	4.6	4.6	9.2	1.5324	42	42.4758
3	3.8	3.8	7.6	1.3940	37	37.4192
4	2.4	2.4	4.8	1.1107	25	25.2832
5	1.5	1.5	3.0	0.8809	15	15.1699

By Linear Regression of Y on X

Slope, m = 42.3698      Intercept, b = -21.9809  
 Correlation Coefficient\* = 0.9997  
 Calibration Accepted = Yes/No\*\*

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

\*\* Delete as appropriate.

Remarks : \_\_\_\_\_

Calibrated by : Henry  
 Date : 25-Feb-14

Checked by : Derek Lo  
 Date : 25-Feb-14



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 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 = 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:

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

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





# 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 <sub>A</sub>	L <sub>F</sub>	94.0	94.1
		L <sub>S</sub>		94.1
	L <sub>C</sub>	L <sub>F</sub>		94.1
		L <sub>S</sub>		94.1
	L <sub>A</sub>	L <sub>F</sub>	114.0	114.1
		L <sub>S</sub>		114.1
	L <sub>C</sub>	L <sub>F</sub>		114.1
		L <sub>S</sub>		114.1

IEC 651 Type 1 Spec. :  $\pm 0.7$  dB  
Uncertainty :  $\pm 0.1$  dB

2. **Level Stability** : 0.0 dB  
IEC 651 Type 1 Spec. :  $\pm 0.3$  dB  
Uncertainty :  $\pm 0.1$  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	$\pm 0.4$ dB
	94.0	94.1 (Ref.)	--	
	95.0	95.1	0.0	$\pm 0.2$ dB

Uncertainty :  $\pm 0.1$  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, $\pm 1.5$ dB
63 Hz	-26.3	- 26.2 dB, $\pm 1.5$ dB
125 Hz	-16.2	- 16.1 dB, $\pm 1$ dB
250 Hz	-8.7	- 8.6 dB, $\pm 1$ dB
500 Hz	-3.3	- 3.2 dB, $\pm 1$ dB
1 kHz	0.0 (Ref.)	0 dB, $\pm 1$ dB
2 kHz	+1.3	+ 1.2 dB, $\pm 1$ dB
4 kHz	+1.0	+ 1.0 dB, $\pm 1$ dB
8 kHz	-1.3	- 1.1 dB, + 1.5 dB ~ - 3 dB
16 kHz	-12.1	- 6.6 dB, + 3 dB ~ - $\infty$

Uncertainty :  $\pm 0.1$  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	$\pm 0.5$ dB
1/10 <sup>2</sup>	50.0	50.1	
1/10 <sup>3</sup>	50.0	50.1	$\pm 1.0$ dB
1/10 <sup>4</sup>	50.0	50.2	

Uncertainty :  $\pm 0.1$  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 -----





# 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	$\pm 0.3$ dB

Uncertainty :  $\pm 0.2$  dB

## 2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	1.001 kHz	$\pm 2$ %

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

## 3. Level Stability : 0.0 dB

IEC 942 Class 1 Spec. :  $\pm 0.1$  dB

Uncertainty :  $\pm 0.01$  dB

## 4. Total Harmonic Distortion : $< 0.3$ %

IEC 942 Class 1 Spec. :  $< 3$  %

Uncertainty :  $\pm 2.3$  % 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. **34707**

Page 1 of 3 Pages

**Customer :** Lam Geotechnics Limited

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

**Order No. :** Q31887

**Date of receipt :** 4-Jul-13

## Item Tested

**Description :** Sound Level Meter

**Manufacturer :** B&K

**Model :** 2238

**Serial No. :** 2160277

## Test Conditions

**Date of Test :** 16-Jul-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 specifications.  
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:** 16-Jul-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

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# Calibration Certificate

Certificate No. 34707

Page 2 of 3 Pages

Results :

## 1. SPL Accuracy

UUT Setting				Applied Value (dB)	UUT Reading (dB)
Range	Freq. Wgt.	Bandwith	Center Freq.		
20 ~ 100	A	BB/F	--	94.0	93.7
	A	BB/S	--		93.7
	C	BB/F	--		93.7
40 ~ 120	A	BB/F	--	94.0	93.9
	A	BB/F	--	114.0	113.8

IEC 651 Type 1 Spec. :  $\pm 0.7$  dB

Uncertainty :  $\pm 0.1$  dB

## 2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. :  $\pm 0.3$  dB

Uncertainty :  $\pm 0.1$  dB

## 3. Linearity

### 3.1 Level Linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec. (Primary Indicator Range)
140	114.0	113.7	0.0	$\pm 0.7$ dB
130	104.0	103.7	0.0	
120	94.0	93.7 (Ref.)	--	
110	84.0	83.7	0.0	
100	74.0	73.7	0.0	
90	64.0	63.6	-0.1	
80	54.0	53.7	0.0	

### 3.2 Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	83.7	0.0	$\pm 0.4$ dB
	94.0	93.7 (Ref.)	--	
	95.0	94.7	0.0	$\pm 0.2$ dB

Uncertainty :  $\pm 0.1$  dB



# Calibration Certificate

Certificate No. 34707

Page 3 of 3 Pages

## 4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	-39.2	- 39.4 dB, $\pm 1.5$ dB
63 Hz	-26.0	- 26.2 dB, $\pm 1.5$ dB
125 Hz	-16.1	- 16.1 dB, $\pm 1$ dB
250 Hz	-8.6	- 8.6 dB, $\pm 1$ dB
500 Hz	-3.3	- 3.2 dB, $\pm 1$ dB
1 kHz	0.0 (Ref)	0 dB, $\pm 1$ dB
2 kHz	+1.2	+ 1.2 dB, $\pm 1$ dB
4 kHz	+0.9	+ 1.0 dB, $\pm 1$ dB
8 kHz	-1.2	- 1.1 dB, + 1.5 dB $\sim$ -3 dB
16 kHz	-6.7	- 6.6 dB, + 3 dB $\sim$ $-\infty$

Uncertainty :  $\pm 0.1$  dB

## 5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	39.9	$\pm 0.5$ dB
1/10 <sup>2</sup>	40.0	39.8	$\pm 1.0$ dB
1/10 <sup>3</sup>	40.0	39.8	
1/10 <sup>4</sup>	40.0	39.4	

Uncertainty :  $\pm 0.1$  dB

Remarks : 1. UUT : Unit-Under-Test

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

3. Atmospheric pressure : 1002 hPa.

----- END -----





# Calibration Certificate

Certificate No. **34228**

Page 1 of 2 Pages

**Customer :** Lam Geotechnics Limited

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

**Order No. :** Q31610

**Date of receipt :** 21-Jun-13

## Item Tested

**Description :** Sound Level Calibrator

**Manufacturer :** Rion

**Model :** NC-73

**Serial No. :** 10707358

## Test Conditions

**Date of Test :** 25-Jun-13

**Supply Voltage :** --

**Ambient Temperature :** (23 ± 3)°C

**Relative Humidity :** (50 ± 25) %

## Test Specifications

Calibration check.

Ref. Document/Procedure : F21, Z02.

## Test Results

All results were within the manufacturer's 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>
S014	Spectrum Analyzer	30259	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	30620	NIM-PRC & SCL-HKSAR
S041	Universal Counter	28347	SCL-HKSAR
S206	Sound Level Meter	30655	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:** 25-Jun-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

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# Calibration Certificate

Certificate No. 34228

Page 2 of 2 Pages

Results :

## 1. Level Accuracy (at 1 kHz)

UUT Nominal Value	Measured Value	Mfr's Spec.
94 dB	93.88 dB	$\pm 1$ dB

Uncertainty :  $\pm 0.2$  dB

## 2. Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.995 kHz	$\pm 2$ %

Uncertainty :  $\pm 0.1$  %

## 3. Level Stability : 0.0 dB

Uncertainty :  $\pm 0.01$  dB

## 4. Total Harmonic Distortion : $< 0.2$ %

Mfr's Spec. :  $< 3$  %

Uncertainty :  $\pm 2.3$  % of reading

Remark : 1. UUT : Unit-Under-Test

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

3. The above measured values were the mean of 3 measurements.

4. Atmospheric Pressure : 999 hPa

----- END -----



***Appendix 5.2***

***Noise Monitoring Results and Graphical Presentations***



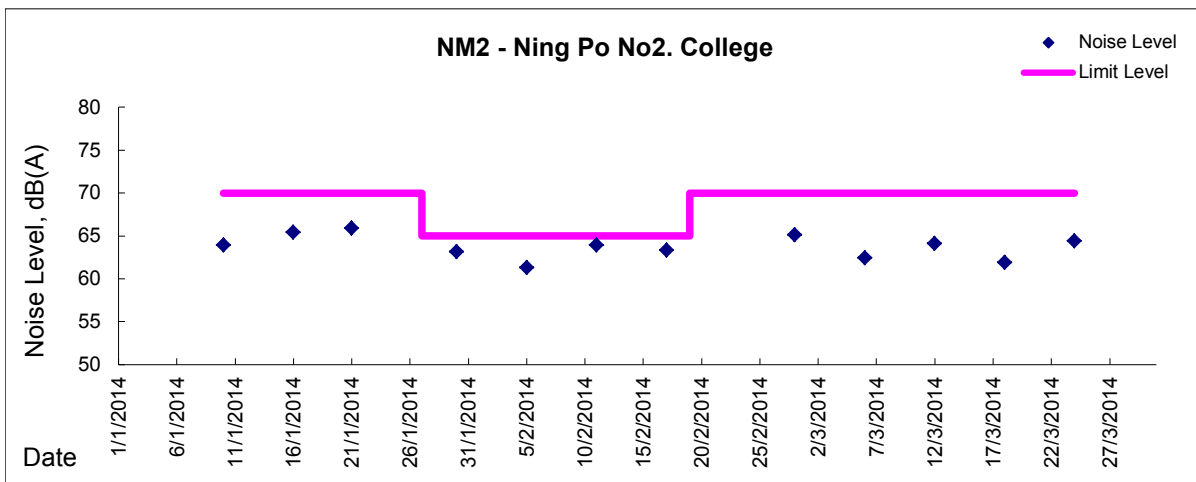
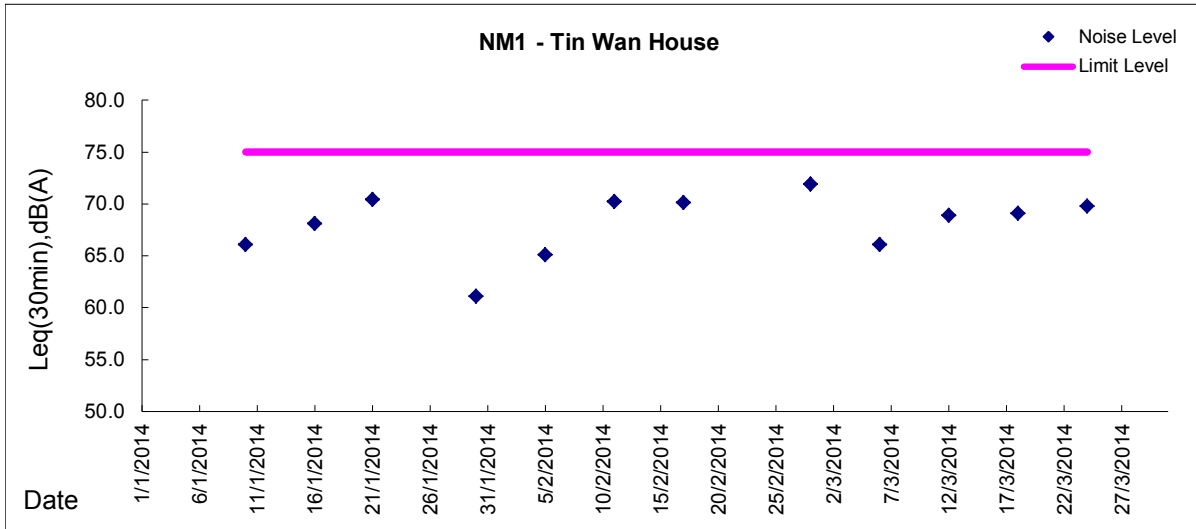
Contract No. CV/2012/07  
Development at Anderson Road -  
Footbridge D and Associated Works Area

JOB NO : CS\_J2013-02\_CV201207

CLIENT : LPWJV

Daytime(07:00-19:00)					
Date	Time	Location	Leq (dB)	L10 (dB)	L90 (dB)
10-Jan-14	10:28 - 10:58	NM1	66.1	73.7	62.5
	09:22 - 09:52	NM2	63.9	71.2	59.4
16-Jan-14	15:10 - 15:40	NM1	68.1	75.1	63.2
	14:15 - 14:45	NM2	65.4	69.8	62.4
21-Jan-14	08:39 - 10:09	NM1	70.4	72.7	64.7
	10:32 - 11:02	NM2	65.9	73.1	61.3
30-Jan-14	08:45 - 09:15	NM1	61.1	64.4	58.4
	09:30 - 10:00	NM2	63.1	65.0	58.0
5-Feb-14	09:15 - 09:45	NM1	65.1	71.7	60.5
	08:30 - 09:00	NM2	61.3	68.8	56.3
11-Feb-14	09:40 - 10:10	NM1	70.2	76.4	64.1
	09:00 - 09:30	NM2	63.9	71.1	60.1
17-Feb-14	09:40 - 10:10	NM1	70.1	75.9	66.9
	08:25 - 08:55	NM2	63.3	70.9	60.5
28-Feb-14	09:30 - 10:00	NM1	71.9	74.8	67.2
	09:30 - 10:00	NM2	65.1	70.7	60.7
6-Mar-14	08:56 - 09:26	NM1	66.1	69.5	61.5
	08:14 - 08:44	NM2	62.4	65.0	58.5
12-Mar-14	09:18 - 09:48	NM1	68.9	72.5	64.0
	08:35 - 09:05	NM2	64.1	70.5	58.0
18-Mar-14	17:20 - 17:50	NM1	69.1	71.5	65.0
	13:10 - 13:40	NM2	61.9	64.0	59.5
24-Mar-14	10:35 - 11:05	NM1	69.8	72.5	66.5
	08:40 - 09:10	NM2	64.4	67.5	61.5

**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		Elapse Time, hr		Sampling Time, hr	Flow Rate, $\text{m}^3/\text{min}$			Total Volume, $\text{m}^3$	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, $Q_{si}$	Final, $Q_{sf}$	Average		
3-Jan-14	8:00	Cloudy	007612	2.6470	2.9038	756.29	780.29	24.00	1.43	1.43	1.43	2056	125
9-Jan-14	8:00	Cloudy	007755	2.6454	2.9487	761.30	785.30	24.00	1.44	1.44	1.44	2069	147
15-Jan-14	8:00	Fine	007571	2.6746	2.9181	788.30	812.30	24.00	1.44	1.44	1.44	2075	117
20-Jan-14	8:00	Fine	007653	2.6195	2.8392	815.30	839.30	24.00	1.44	1.44	1.44	2070	106
24-Jan-14	8:00	Fine	005826	2.6432	2.8850	842.30	866.30	24.00	1.43	1.43	1.43	2063	117
29-Jan-14	8:00	Fine	006318	2.6207	2.8297	869.30	893.30	24.00	1.38	1.38	1.38	1992	105
4-Feb-14	8:00	Fine	007827	2.8240	2.9707	896.36	920.36	24.00	1.43	1.43	1.43	2058	71
10-Feb-14	8:00	Cloudy	007877	2.8214	2.9736	923.36	947.36	24.00	1.44	1.45	1.45	2082	73
15-Feb-14	8:00	Cloudy	007883	2.8374	2.9967	950.36	974.36	24.00	1.44	1.44	1.44	2072	77
21-Feb-14	8:00	Cloudy	007911	2.8314	3.0106	977.36	1001.36	24.00	1.44	1.44	1.44	2074	86
27-Feb-14	8:00	Cloudy	008174	2.8287	2.9869	1004.36	1028.36	24.00	1.44	1.44	1.44	2068	77
5-Mar-14	8:00	Cloudy	008143	2.8221	2.9956	1031.36	1055.36	24.00	1.44	1.44	1.44	2075	84
11-Mar-14	8:00	Cloudy	008142	2.8212	3.0001	1058.36	1082.36	24.00	1.40	1.41	1.41	2023	88
17-Mar-14	8:00	Cloudy	006412	2.6948	2.8584	1085.36	1109.36	24.00	1.44	1.43	1.44	2064	79
22-Mar-14	8:00	Cloudy	008220	2.8256	3.1476	1112.36	1136.36	24.00	1.44	1.44	1.44	2074	155
28-Mar-14	8:00	Cloudy	007892	2.8252	2.9642	1139.37	1163.37	24.00	1.29	1.29	1.29	1861	71

Report on 1-hour TSP monitoring

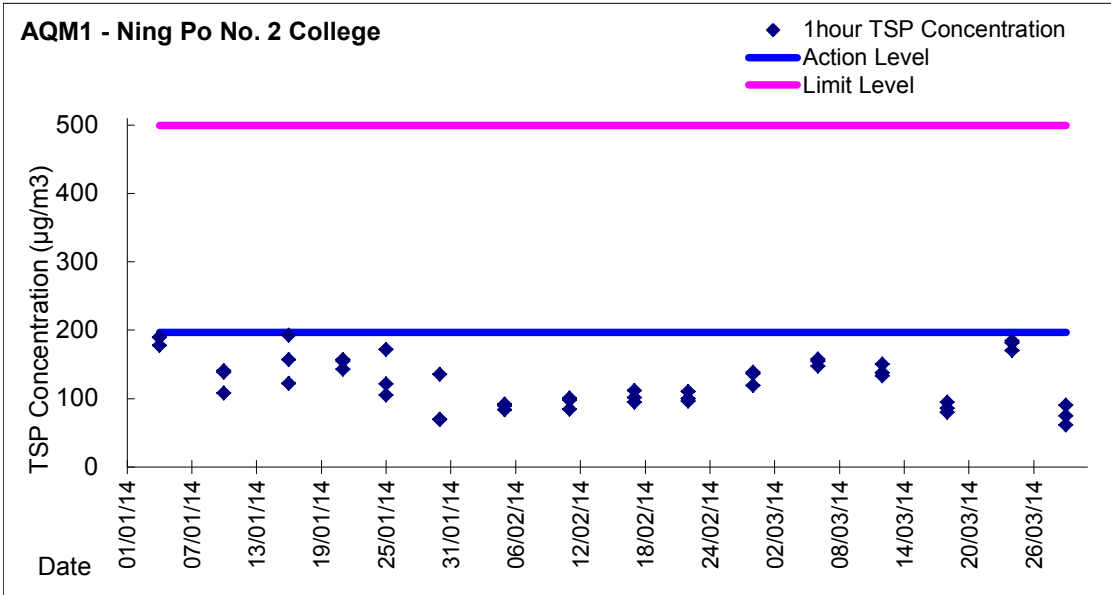
Action Level ( $\mu\text{g}/\text{m}^3$ ) - 197

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

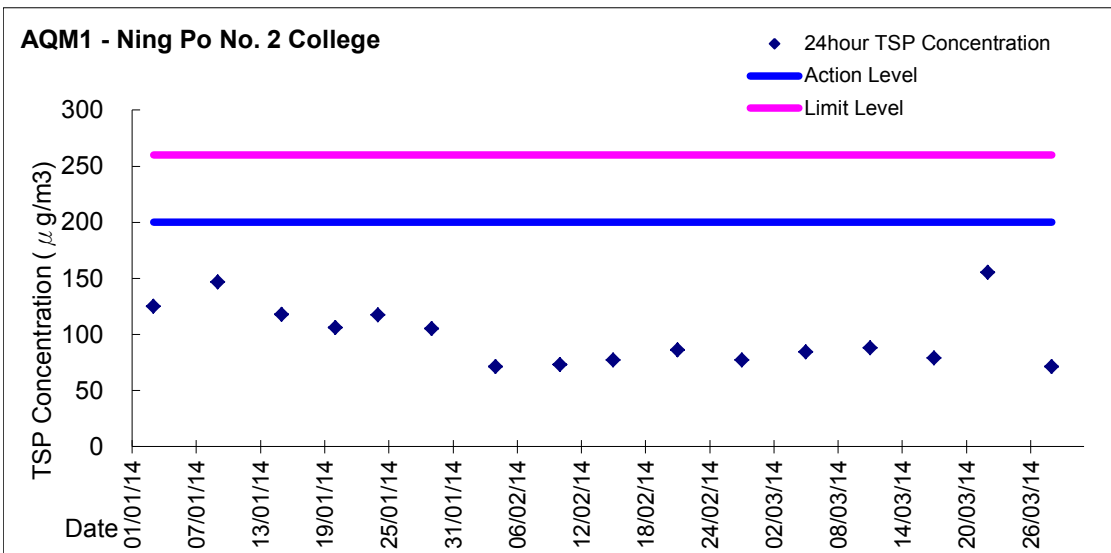
Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, $\text{m}^3/\text{min}$			Total Volume, $\text{m}^3$	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, $Q_{si}$	Final, $Q_{sf}$	Average		
4-Jan-14	8:30	Fine	007757	2.6509	2.6671	780.29	781.29	1.00	1.43	1.43	1.43	86	189
4-Jan-14	9:35	Fine	007754	2.6611	2.6763	781.29	782.29	1.00	1.43	1.43	1.43	86	177
4-Jan-14	10:40	Fine	007753	2.6549	2.6711	782.29	783.29	1.00	1.43	1.43	1.43	86	189
10-Jan-14	8:10	Fine	007570	2.6516	2.6635	785.30	786.30	1.00	1.44	1.44	1.44	86	138
10-Jan-14	9:16	Fine	007752	2.6656	2.6749	786.30	787.30	1.00	1.44	1.44	1.44	86	108
10-Jan-14	10:24	Fine	007684	2.6515	2.6636	787.30	788.30	1.00	1.44	1.44	1.44	86	140
16-Jan-14	13:00	Fine	007666	2.6538	2.6704	812.30	813.30	1.00	1.44	1.44	1.44	86	192
16-Jan-14	14:05	Fine	007668	2.6658	2.6793	813.30	814.30	1.00	1.44	1.44	1.44	86	156
16-Jan-14	15:10	Fine	007669	2.6489	2.6594	814.30	815.30	1.00	1.44	1.44	1.44	86	122
21-Jan-14	8:43	Fine	007652	2.6267	2.6390	839.30	840.30	1.00	1.44	1.44	1.44	86	143
21-Jan-14	9:47	Fine	006416	2.7679	2.7814	840.30	841.30	1.00	1.44	1.44	1.44	86	156
21-Jan-14	10:53	Fine	006415	2.7610	2.7743	841.30	842.30	1.00	1.44	1.44	1.44	86	154
25-Jan-14	8:25	Cloudy	006321	2.6358	2.6462	866.30	867.30	1.00	1.43	1.43	1.43	86	121
25-Jan-14	9:30	Cloudy	005932	2.6366	2.6456	867.30	868.30	1.00	1.43	1.43	1.43	86	105
25-Jan-14	10:35	Cloudy	006319	2.5996	2.6143	868.30	869.30	1.00	1.43	1.43	1.43	86	171
30-Jan-14	8:30	Fine	007824	2.8324	2.8440	893.30	894.30	1.00	1.43	1.43	1.43	86	135
30-Jan-14	9:35	Fine	007825	2.8344	2.8403	894.30	895.30	1.00	1.43	1.43	1.43	86	69
30-Jan-14	10:40	Fine	007826	2.8258	2.8317	895.30	896.30	1.00	1.43	1.43	1.43	86	69
5-Feb-14	8:15	Cloudy	007876	2.8394	2.8470	920.36	921.36	1.00	1.43	1.43	1.43	86	89
5-Feb-14	9:20	Cloudy	007893	2.8396	2.8467	921.36	922.36	1.00	1.43	1.43	1.43	86	83
5-Feb-14	10:30	Cloudy	005924	2.6461	2.6539	922.36	923.36	1.00	1.43	1.43	1.43	86	91
11-Feb-14	8:45	Cloudy	007878	2.8243	2.8333	947.36	948.36	1.00	1.45	1.45	1.45	87	100
11-Feb-14	9:50	Cloudy	007879	2.8363	2.8447	948.36	949.36	1.00	1.45	1.45	1.45	87	97
11-Feb-14	10:55	Cloudy	007880	2.8233	2.8306	949.36	950.36	1.00	1.45	1.45	1.45	87	84
17-Feb-14	8:40	Cloudy	007888	2.8379	2.8460	974.36	975.36	1.00	1.45	1.43	1.44	87	94
17-Feb-14	9:43	Cloudy	007887	2.8485	2.8580	975.36	976.36	1.00	1.43	1.43	1.43	86	111
17-Feb-14	10:50	Cloudy	007886	2.8352	2.8439	976.36	977.36	1.00	1.43	1.43	1.43	86	101
22-Feb-14	8:40	Cloudy	007885	2.8222	2.8307	1001.36	1002.36	1.00	1.44	1.44	1.44	86	99
22-Feb-14	9:43	Cloudy	008032	2.8427	2.8509	1002.36	1003.36	1.00	1.44	1.41	1.43	86	96
22-Feb-14	10:50	Cloudy	008031	2.8260	2.8355	1003.36	1004.36	1.00	1.44	1.44	1.44	86	110
28-Feb-14	8:10	Cloudy	008175	2.8289	2.8406	1028.36	1029.36	1.00	1.44	1.44	1.44	86	136
28-Feb-14	9:15	Cloudy	008176	2.8180	2.8299	1029.36	1030.36	1.00	1.44	1.44	1.44	86	138
28-Feb-14	10:20	Cloudy	008177	2.8167	2.8270	1030.36	1031.36	1.00	1.44	1.44	1.44	86	119
6-Mar-14	8:23	Cloudy	008144	2.8178	2.8303	1055.36	1056.36	1.00	1.44	1.40	1.42	85	147
6-Mar-14	9:37	Cloudy	008176	2.8180	2.8314	1056.36	1057.36	1.00	1.44	1.40	1.42	85	157
6-Mar-14	10:49	Cloudy	008177	2.8160	2.8298	1057.36	1058.36	1.00	1.44	1.40	1.42	85	154
12-Mar-14	8:40	Cloudy	008016	2.8479	2.8597	1082.36	1083.36	1.00	1.44	1.44	1.44	86	137
12-Mar-14	9:45	Cloudy	008620	2.8297	2.8412	1083.36	1084.36	1.00	1.44	1.44	1.44	86	133
12-Mar-14	10:52	Cloudy	008212	2.8206	2.8334	1084.36	1085.36	1.00	1.44	1.41	1.42	87	150
18-Mar-14	13:00	Cloudy	008221	2.8338	2.8411	1109.36	1110.36	1.00	1.43	1.43	1.43	86	85
18-Mar-14	14:04	Cloudy	008199	2.8129	2.8210	1110.36	1111.36	1.00	1.43	1.43	1.43	86	94
18-Mar-14	15:10	Cloudy	008200	2.8183	2.8251	1111.36	1112.36	1.00	1.43	1.43	1.43	86	79
24-Mar-14	8:30	Cloudy	007890	2.8335	2.8491	1136.37	1137.37	1.00	1.44	1.44	1.44	86	181
24-Mar-14	9:37	Cloudy	007889	2.8387	2.8533	1137.37	1138.37	1.00	1.44	1.41	1.43	86	170
24-Mar-14	10:45	Cloudy	007891	2.8298	2.8456	1138.37	1139.37	1.00	1.44	1.44	1.44	86	184
29-Mar-14	8:08	Cloudy	008171	2.8264	2.8334	1163.37	1164.37	1.00	1.29	1.29	1.29	78	90
29-Mar-14	9:12	Cloudy	008172	2.8376	2.8423	1164.37	1165.37	1.00	1.29	1.29	1.29	78	61
29-Mar-14	10:19	Cloudy	008173	2.8340	2.8397	1165.37	1166.37	1.00	1.29	1.29	1.29	79	74



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



**Event / Action Plan for Construction Air Quality**

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



***Appendix 6.2***

***Summary for Notification of Exceedance \_Air and Noise***





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***

<b>Complaint Log No.</b>	<b>Date of Complaint</b>	<b>Received From and Received By</b>	<b>Location of Complainant</b>	<b>Nature of Complaint</b>	<b>Outcome</b>	<b>Status</b>
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
1	1	<b>Development at Anderson Road - Footbridge D and Associated Works</b>	<b>1119 days</b>	<b>Thu 31/01/13</b>	<b>Wed 30/11/16</b>			<b>0 days</b>	[Gantt bar for ID 1]																																															
2	1.1	<b>PRELIMINARY WORK</b>	<b>578 days</b>	<b>Thu 31/01/13</b>	<b>Sun 01/02/15</b>			<b>541 days</b>	[Gantt bar for ID 2]																																															
3	1.1.1	Application of XP, Site Access from Highways	140 days	Thu 31/01/13	Wed 31/07/13			88	[Gantt bar for ID 3]																																															
4	1.1.2	Tree Survey	12 days	Mon 18/02/13	Sat 02/03/13			5	[Gantt bar for ID 4]																																															
5	1.1.3	Transplant	30 days	Mon 04/03/13	Thu 11/04/13	4		0	[Gantt bar for ID 5]																																															
6	1.1.4	Air & noise baseline monitoring	50 days	Mon 18/02/13	Sat 20/04/13			46,47	[Gantt bar for ID 6]																																															
7	1.1.5	Record Survey, Condition Survey and Setting Out	90 days	Thu 31/01/13	Thu 30/05/13			1029	[Gantt bar for ID 7]																																															
8	1.1.6	Erect Fencing and Hoarding As Directed	48 days	Mon 08/04/13	Tue 04/06/13			16	[Gantt bar for ID 8]																																															
9	1.1.7	Design and material submission	120 days	Thu 31/01/13	Sat 06/07/13			38,79	[Gantt bar for ID 9]																																															
10	1.1.8	Handover of Portion A, B & C1	0 days	Sat 28/09/13	Sat 28/09/13			61	[Gantt bar for ID 10]																																															
11	1.1.9	Handover of Portion E1	0 days	Fri 31/05/13	Fri 31/05/13			1029	[Gantt bar for ID 11]																																															
12	1.1.10	Handover of Portion E2	0 days	Sun 01/02/15	Sun 01/02/15			541	[Gantt bar for ID 12]																																															
13	1.2	<b>Section 1</b>	<b>781 days</b>	<b>Mon 08/04/13</b>	<b>Tue 01/12/15</b>			<b>20 days</b>	[Gantt bar for ID 13]																																															
14	1.2.1	<b>Lift Tower D-A</b>	<b>475 days</b>	<b>Wed 05/06/13</b>	<b>Wed 14/01/15</b>			<b>491 days</b>	[Gantt bar for ID 14]																																															
15	1.2.1.1	Method statement and material submission	30 days	Mon 23/09/13	Tue 29/10/13	18SS-60 days		905	[Gantt bar for ID 15]																																															
16	1.2.1.2	Excavation for Raft footing	150 days	Wed 05/06/13	Tue 03/12/13	8		17SS	[Gantt bar for ID 16]																																															
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	[Gantt bar for ID 17]																																															
18	1.2.1.4	Construct Raft footing	30 days	Wed 04/12/13	Fri 10/01/14	17		19,15SS-60 days	[Gantt bar for ID 18]																																															
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	[Gantt bar for ID 19]																																															
20	1.2.1.6	Erect Steelwork for Lift Shaft	70 days	Mon 28/04/14	Tue 22/07/14	19		21,22	[Gantt bar for ID 20]																																															
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	[Gantt bar for ID 21]																																															
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	[Gantt bar for ID 22]																																															
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	[Gantt bar for ID 23]																																															
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	[Gantt bar for ID 24]																																															
25	1.2.2	<b>Lift Tower D-B</b>	<b>480 days</b>	<b>Tue 08/10/13</b>	<b>Mon 01/06/15</b>			<b>439 days</b>	[Gantt bar for ID 25]																																															
26	1.2.2.1	Method statement and material submission	30 days	Tue 08/10/13	Tue 12/11/13	27SS-60 days		893	[Gantt bar for ID 26]																																															
27	1.2.2.2	Excavation for Raft footing	100 days	Wed 18/12/13	Tue 29/04/14	74		28SS, 26SS-60 days	[Gantt bar for ID 27]																																															
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	[Gantt bar for ID 28]																																															
29	1.2.2.4	Construct Raft footing	30 days	Wed 30/04/14	Thu 05/06/14	28		30	[Gantt bar for ID 29]																																															
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	[Gantt bar for ID 30]																																															
31	1.2.2.6	Erect Steelwork for Lift Shaft	70 days	Thu 11/09/14	Wed 03/12/14	30		32,33	[Gantt bar for ID 31]																																															
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	[Gantt bar for ID 32]																																															

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









