



CONTRACT NO: CV/2012/07

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

**QUARTERLY ENVIRONMENTAL MONITORING & AUDIT
REPORT**

-JULY 2016 TO SEPTEMBER 2016 -

CLIENTS:

Lam-Po Wing Joint Venture

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Derek Lo
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DATE:

25 October 2016

Ref.: OAPANDSNEM00_0_1803L.16.doc

26 October 2016

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

By Email and Post

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 July to September 2016**

Reference is made to the Environmental Team's submission of the draft Quarterly EM&A Report for July to September 2016 received by e-mail on 25 October 2016.

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
LPWJV

Attn.: Mr. Derek Lo
Attn.: Mr. Tak-Leung Lo

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EXECUTIVE SUMMARY

- i. This is the Environmental Monitoring and Audit (EM&A) Quarterly Report – July 2016 to September 2016 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 13th quarterly of EM&A report presenting the environmental monitoring findings and information recorded during the period 1 July 2016 to 30 September 2016.

Table 1.1 Major Construction Activities for the Reporting Period

July 2016	August 2016	September 2016
<ul style="list-style-type: none"> ● Construction of U-Channel at slope C2 ● Construction of foot path at portion A 	<ul style="list-style-type: none"> ● Drainage works at portion C2 (Tower B) ● Slope works at portion A-B ● Steel deck construction ● Painting works at Tower C 	<ul style="list-style-type: none"> ● Drainage works at portion C2 ● Backfilling between tower B to tower C at portion C2 ● Steel deck A-B installation at C3

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 July 2016 to 30 September 2016](#).

1.2 Structure of the Report

Section 1 **Introduction** – details the scope and structure of the report.

Section 2 **Project Background** – summarizes background and scope of the project, site description, project organization and contact details of key personnel during the reporting period.

Section 3 **Monitoring Requirements** – summarizes all monitoring parameters, monitoring methodology and equipment, monitoring locations, monitoring frequency, criteria and respective event and action plan and monitoring programmes.

Section 4 **Monitoring Results** – summarizes the monitoring results obtained in the reporting period.

Section 5 **Compliance Audit** – summarizes the auditing of monitoring results and environmental site inspection, all exceedances environmental parameters.

Section 6 **Complaints, Notification of summons and Prosecution** – summarizes the cumulative statistics on complaints, notification of summons and prosecution

Section 7 **Conclusion**

2. Project Background

2.1 Background

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

2.2 Scope of the Project and Site Description

- 2.2.1. The Project is located mainly near Shun Tin Estate and Ning Po No.2 College, as shown in **Figure 2.1**.
- 2.2.2. The scope of the Project comprises:
- Construction of footbridge and associated lift towers between Shun On Road and future platform at +152mPD and across Shun On Road. In Conjunction with these footbridge works are the associated furniture, drainage system, irrigation system and traffic signs.
 - Construction of drainage system for diversion of an existing stream on the 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	2407 0300	2407 8382
		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	
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 (L_{eq}). L_{eq} (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, L_{eq} (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 cm²;
 - flow control accuracy: +/- 2.5% deviation over 24-hour sampling period;
 - equipped with a shelter to protect the filter and sampler;
 - incorporated with an electronic mass flow rate controller or other equivalent devices;
 - equipped with a flow recorder for continuous monitoring;
 - provided with a peaked roof inlet;
 - incorporated with a manometer;
 - able to hold and seal the filter paper to the sampler housing at horizontal position;
 - easily changeable filter; and
 - capable of operating continuously for a 24-hour period.
- 3.2.6. Initial calibration of dust monitoring equipment shall be conducted upon installation and thereafter at bi-monthly intervals. The transfer standard shall be traceable to the internationally recognized primary standard and be calibrated annually. The calibration data shall be properly documented for future reference by concerned parties such as the IEC. All the data should be converted into standard temperature and pressure equivalents.

LABORATORY MEASUREMENT / ANALYSIS

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



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

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

4. Monitoring Results

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

4.1 Noise Monitoring Results

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

Table 4.1 Summary of Noise Monitoring Results at NM1 and NM2

Date	Time	Location	Leq (dB)	
5-Jul-16	9:15	NM1	63.7	75
	10:20	NM2	63.9	70
11-Jul-16	9:09	NM1	64.0	75
	10:15	NM2	63.8	70
22-Jul-16	13:15	NM1	64.0	75
	14:20	NM2	63.1	70
28-Jul-16	14:30	NM1	63.0	75
	15:41	NM2	62.9	70
3-Aug-16	9:15	NM1	62.4	75
	10:21	NM2	63.3	70
9-Aug-16	9:10	NM1	60.3	75
	10:15	NM2	61.1	70
15-Aug-16	13:10	NM1	61.6	75
	14:15	NM2	60.6	70

26-Aug-16	13:10	NM1	62.8	75
	14:15	NM2	61.4	70
1-Sep-16	13:21	NM1	63.3	75
	14:15	NM2	62.1	70
7-Sep-16	13:41	NM1	61.8	75
	14:25	NM2	62.2	70
13-Sep-16	13:11	NM1	63.4	75
	14:14	NM2	61.2	70
19-Sep-16	13:19	NM1	62.1	75
	14:23	NM2	61.7	70
30-Sep-16	13:21	NM1	62.4	75
	14:40	NM2	62.9	70
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).

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**.

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, ($\mu\text{g}/\text{m}^3$)
4-Jul-16	8:00	19
9-Jul-16	8:00	105
15-Jul-16	8:00	45
21-Jul-16	8:00	27
27-Jul-16	8:00	27
3-Aug-16	13:05	28
8-Aug-16	8:00	55
13-Aug-16	8:00	35
19-Aug-16	8:00	63
25-Aug-16	8:00	62
31-Aug-16	8:00	71
6-Sep-16	8:00	27
12-Sep-16	8:00	41
17-Sep-16	8:00	85
23-Sep-16	8:00	80



29-Sep-16	8:00	99
Action Level		200
Limit Level:		260

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

Date	Time	TSP Level, ($\mu\text{g}/\text{m}^3$)
5-Jul-16	10:00	15
5-Jul-16	11:00	15
5-Jul-16	13:00	15
11-Jul-16	14:00	72
11-Jul-16	15:03	71
11-Jul-16	16:06	56
16-Jul-16	8:35	65
16-Jul-16	9:38	57
16-Jul-16	10:40	61
22-Jul-16	13:00	20
22-Jul-16	14:04	27
22-Jul-16	15:16	17
28-Jul-16	13:30	21
28-Jul-16	14:40	30
28-Jul-16	15:55	22
3-Aug-16	8:50	116
3-Aug-16	9:55	93
3-Aug-16	11:00	47
9-Aug-16	8:19	93
9-Aug-16	9:30	137
9-Aug-16	10:45	191
15-Aug-16	13:00	28
15-Aug-16	14:03	54
15-Aug-16	15:07	33
20-Aug-16	8:03	83
20-Aug-16	9:04	100
20-Aug-16	10:05	90
26-Aug-16	13:00	109
26-Aug-16	14:05	60
26-Aug-16	15:10	46
1-Sep-16	13:01	31
1-Sep-16	14:05	20
1-Sep-16	15:10	28
7-Sep-16	13:00	19
7-Sep-16	14:05	17
7-Sep-16	15:10	29
13-Sep-16	13:00	80
13-Sep-16	14:10	85
13-Sep-16	15:15	30
19-Sep-16	13:01	48
19-Sep-16	14:07	54
19-Sep-16	15:09	85
24-Sep-16	13:01	9
24-Sep-16	14:05	22



24-Sep-16	15:10	19
30-Sep-16	13:05	100
30-Sep-16	14:10	52
30-Sep-16	15:15	54
Action Level		197
Limit Level:		500

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

4.3 Waste Monitoring Results

4.3.1. Inert 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 ³	0.152767	12.02622	TKO137
Inert C&D materials recycled, m ³	0	0	N/A
Non-inert C&D materials disposed, m ³	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 ³	0.027385	0.88124	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
July 2016 – September 2016	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

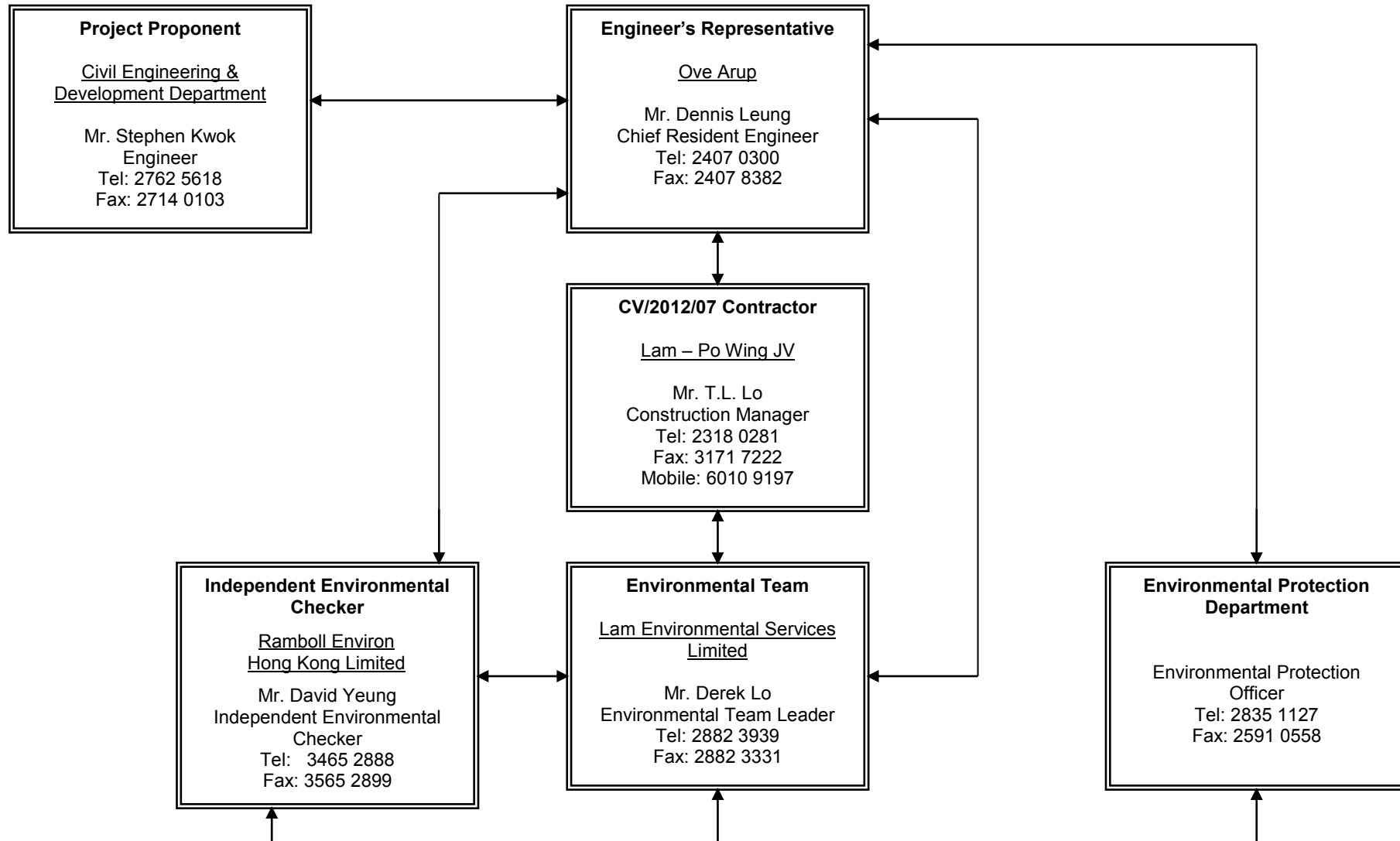
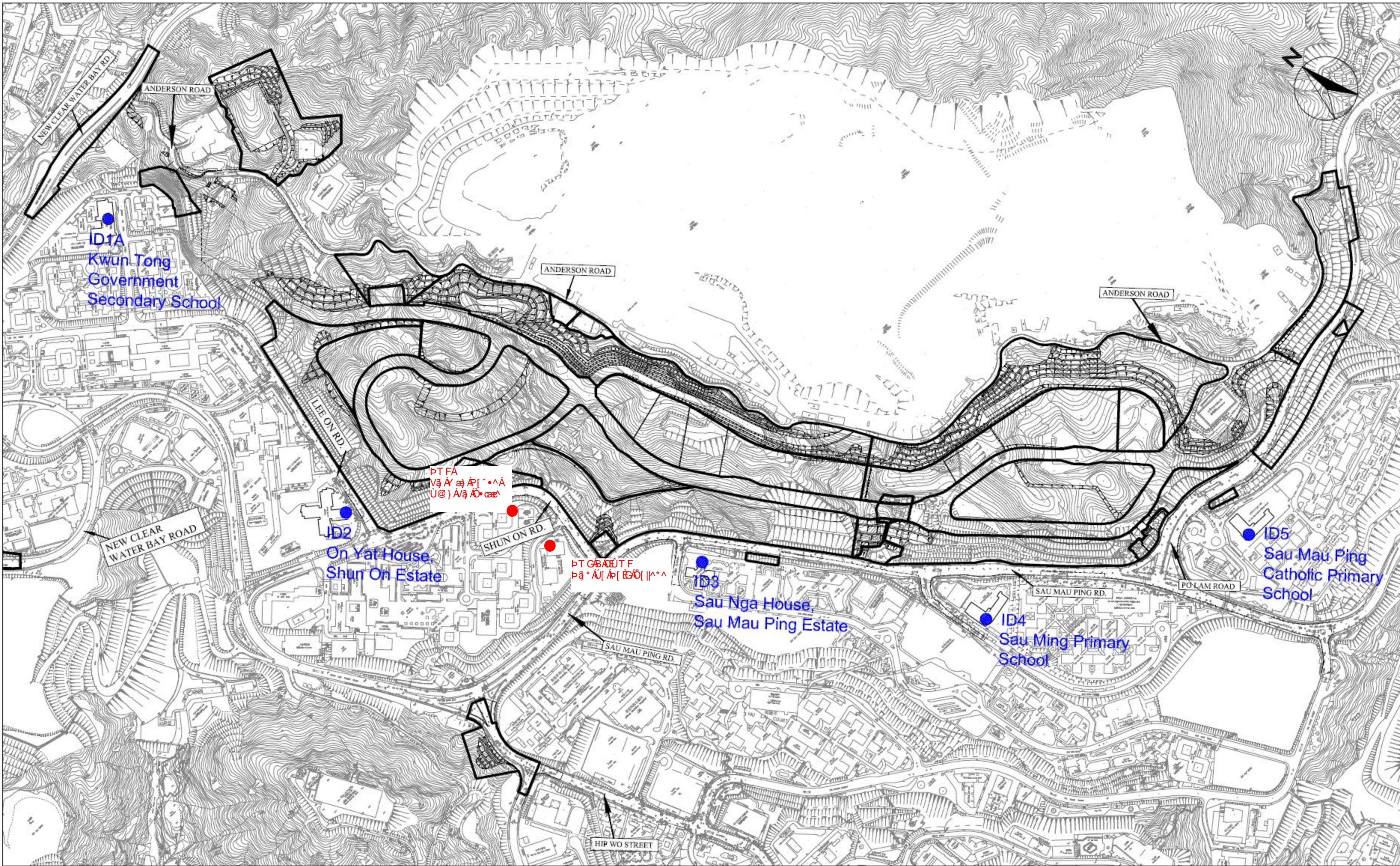




Figure 4.1

Locations of Environmental Monitoring Stations



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Appendix 3.1

Environmental Mitigation Implementation Schedule



Environmental Mitigation Implementation Schedule

Implementation Schedule for Construction Dust Control

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

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

** D=Design, C=Construction



Implementation Schedule for Construction Noise Control

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

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

** D=Design, C=Construction



Implementation Schedule for Water Quality Control

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

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

** D=Design, C=Construction



Implementation Schedule for Construction Waste Management

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



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

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

** D=Design, C=Construction



Appendix 4.1

Action and Limit Level



Action and Limit Level

Action and Limit Level for Noise Monitoring

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

Note 1:

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

Action and Limit Level for Air Monitoring

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



Appendix 4.2

Copies of Calibration Certificates



CERTIFICATE OF CALIBRATION

Certificate No.: 15CA1203 04-02

Page: 1 of 2

Item tested

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

Item submitted by

Customer: Lam Geotechnics Ltd.
Address of Customer: -
Request No.: -
Date of receipt: 03-Dec-2015

Date of test: 04-Dec-2015

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	15-Apr-2016	SCL
Preamplifier	B&K 2673	2239857	22-Apr-2016	CEPREI
Measuring amplifier	B&K 2610	2346941	22-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI
Digital multi-meter	34401A	US36087050	17-Apr-2016	CEPREI
Audio analyzer	8903B	GB41300350	17-Apr-2016	CEPREI
Universal counter	53132A	MY40003662	16-Apr-2016	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 50 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

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

Test results

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

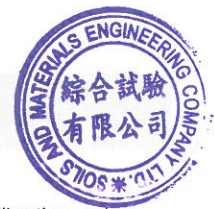
Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:


Huang Jian Min/Feng Jun Qi

Date: 05-Dec-2015

Company Chop:



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



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA1203 04-02 Page: 2 of 2

1, Measured Sound Pressure Level

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

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	(Output level in dB re 20 μ Pa)
			Estimated Expanded Uncertainty dB
1000	94.00	94.05	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz STF = 0.002 dB

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz Actual Frequency = 992.8 Hz

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz TND = 0.3 %

Estimated expanded uncertainty 0.7 %

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

Calibrated by:

Date:

Fung Chi Yip
04-Dec-2015

- End -

Checked by:

Date:

Lam Tze Wai
05-Dec-2015

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



CERTIFICATE OF CALIBRATION

Certificate No.: 16CA0226 04-02

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1L)
Manufacturer: CESVA, SPAIN
Type/Model No.: CB-5
Serial/Equipment No.: 0035092
Adaptors used: -

Item submitted by

Customer: Lam Geotechnics Ltd.
Address of Customer: -
Request No.: -
Date of receipt: 26-Feb-2016

Date of test: 27-Feb-2016

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	15-Apr-2016	SCL
Preamplifier	B&K 2673	2239857	22-Apr-2016	CEPREI
Measuring amplifier	B&K 2610	2346941	22-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI
Digital multi-meter	34401A	US36087050	17-Apr-2016	CEPREI
Audio analyzer	8903B	GB41300350	17-Apr-2016	CEPREI
Universal counter	53132A	MY40003662	16-Apr-2016	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1010 ± 5 hPa

Test specifications

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

Test results

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

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

Approved Signatory:


Huang Jian Min / Feng Jun Qi

Date: 01-Mar-2016

Company Chop:



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

Calibration Certificate

Issued By: Castle Group Ltd

Date Of Issue : 26/01/15

Certificate No : 069819/63570



All instruments are tested to check compliance with particular specifications. These specifications may be appropriate British Standards, or if the instrument was not originally designed to meet any British Standard, or when the instrument was originally manufactured a relevant British Standard did not exist, the instrument will be tested to the manufacturer's original specification.

Absolute acoustic calibration of acoustic calibrators and sound level meters is checked at one or more standard frequencies against an independent sound source with calibration directly traceable to the National Physical Laboratory (NPL) in the United Kingdom. The NPL reference applicable for the calibration of the test equipment is shown below.

The performance of the instrument was determined by comparison with the manufacturers' specification as found in the instrument handbook or other technical publication. Any significant uncertainty of the measuring system will also be included.

The instrument was allowed to stabilise for a period of 30 minutes prior to measurements made.

The ambient temperature and relative humidity throughout calibration were 23 ± 2 °C and 37% RH respectively.

Instruments used to carry out this calibration are as follows: -

Multifunction Calibrator 4226 Serial No: 1551589

Applicable Reference: S6312.

Subject of Calibration: GA116L

Instrument: Safety / Environmental Data-logging Sound Meter

Serial No: 069819

Preamplifier Data

Preamplifier Type: MK580P1B

Preamplifier Serial No: 3133

Microphone Data

Microphone Type: MK80

Microphone Serial No: 59018

Basis Of Test: Compliance to IEC 61672-1 : 2002 Class 1, IEC 61252 : 1993

Calibrated By:

H. Aistrop

(Approved Signatory)

Checked By:

O. L. Wrightson

(Approved Signatory)

Date of Calibration: 26 Jan 2015

Recalibration Due: 01 Oct 2016

Completed Status: Pass

Client:

Address:

Client Reference:

Castle Group Ltd

Salter Road, Scarborough Business Park, Scarborough, North Yorkshire YO11 3UZ United Kingdom

t: +44 (0)1723 584250 f: +44 (0)1723 583728 e: sales@castlegroup.co.uk

www.castlegroup.co.uk



Calibration Data for High Volume Sampler (TSP Sampler)

Location : Ning Po No.2 College

Calibration Date : 13-Jul-16

ID : HVS003

Calibration Due Date : 13-Sep-16

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	302	Kelvin	Pressure, P _a
			1005 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori002	Slope, m _c	2.10714	Intercept, b _c	-0.05158
Last Calibration Date	20-May-16	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	20-May-17				

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	5.9	5.9	11.8	1.6372	54	53.4211
2	4.7	4.7	9.4	1.4639	44	43.5283
3	3.6	3.6	7.2	1.2842	39	38.5819
4	2.2	2.2	4.4	1.0093	20	19.7856
5	1.4	1.4	2.8	0.8101	14	13.8499

By Linear Regression of Y on X

Slope, m = 49.1008 Intercept, b = -27.0983

Correlation Coefficient* = 0.9922

Calibration Accepted = Yes/No**

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

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL086 to HVS003 with respect to the update in quality management system.

Calibrated by : Kit Au

Checked by : Pauline Wong

Date : 13-Jul-16

Date : 13-Jul-16



Calibration Data for High Volume Sampler (TSP Sampler)

Location : Ning Po No.2 College
 ID : HVS003
 Calibration Date : 13-Sep-16
 Calibration Due Date : 13-Nov-16

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition						
Temperature, T _a	301	Kelvin	Pressure, P _a	1010	mmHg	
Orifice Transfer Standard Information						
Equipment No.	Ori002	Slope, m _c	2.10714	Intercept, b _c	-0.05158	
Last Calibration Date	20-May-16	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$				
Next Calibration Date	20-May-17					
Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.3	1.3	2.6	0.7846	14	13.9074
2	2.2	2.2	4.4	1.0134	21	20.8610
3	3.8	3.8	7.6	1.3241	38	37.7485
4	4.8	4.8	9.6	1.4852	48	47.6824
5	6.2	6.2	12.4	1.6846	58	57.6162
By Linear Regression of Y on X						
Slope, m	=	50.1143	Intercept, b	=	-27.4998	
Correlation Coefficient*	=	0.9953				
Calibration Accepted	=	Yes/No**				

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

** Delete as appropriate.

Remarks : As per client's provided information, the equipment reference no. of the calibrated High Volume Sampler has been re-assigned from EL086 to HVS003 with respect to the update in quality management system.

Calibrated by : Jackey MA
 Date : 13-Sep-16
 Checked by : Pauline Wong
 Date : 13-Sep-16



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 20, 2016 Rootmeter S/N 0438320 Ta (K) - 293
 Operator Tisch Orifice I.D. - 3166 Pa (mm) - 748.03

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4270	3.2	2.00
2	NA	NA	1.00	1.0220	6.4	4.00
3	NA	NA	1.00	0.9100	7.9	5.00
4	NA	NA	1.00	0.8730	8.8	5.50
5	NA	NA	1.00	0.7180	12.7	8.00

DATA TABULATION

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

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

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



Appendix 5.2

Noise Monitoring Results and Graphical Presentations



JOB NO : CS_J2013-02_CV201207

CLIENT : LPWJV

Daytime(07:00-19:00)					
Date	Time	Location	Leq (dB)	L10 (dB)	L90 (dB)
5-Jul-16	9:15	NM1	63.7	64.2	61.5
	10:20	NM2	63.9	64.9	61.8
17-Jun-16	9:09	NM1	64.0	65.8	61.3
	10:15	NM2	63.8	65.8	60.8
22-Jul-16	13:15	NM1	64.0	65.1	62.2
	14:20	NM2	63.1	65.2	61.8
28-Jul-16	14:30	NM1	63.0	63.9	60.1
	15:41	NM2	62.9	64.0	59.3
3-Aug-16	9:15	NM1	62.4	63.9	59.8
	10:21	NM2	63.3	64.5	59.9
9-Aug-16	9:10	NM1	60.3	62.4	58.7
	10:15	NM2	61.1	63.0	58.4
15-Aug-16	13:10	NM1	61.6	63.4	58.7
	14:15	NM2	60.6	62.4	57.3
26-Aug-16	13:10	NM1	62.8	63.4	58.9
	14:15	NM2	61.4	63.0	56.7
1-Sep-16	13:21	NM1	63.3	64.0	58.4
	14:15	NM2	62.1	63.4	60.1
7-Sep-16	13:41	NM1	61.8	63.3	57.2
	14:25	NM2	62.2	63.8	59.9
13-Sep-16	13:11	NM1	63.4	64.7	60.5
	14:14	NM2	61.2	62.9	56.9
19-Sep-16	13:19	NM1	62.1	63.3	57.5
	14:23	NM2	61.7	63.0	56.3
30-Sep-16	13:21	NM1	62.4	64.0	59.4
	14:40	NM2	62.9	63.7	58.8

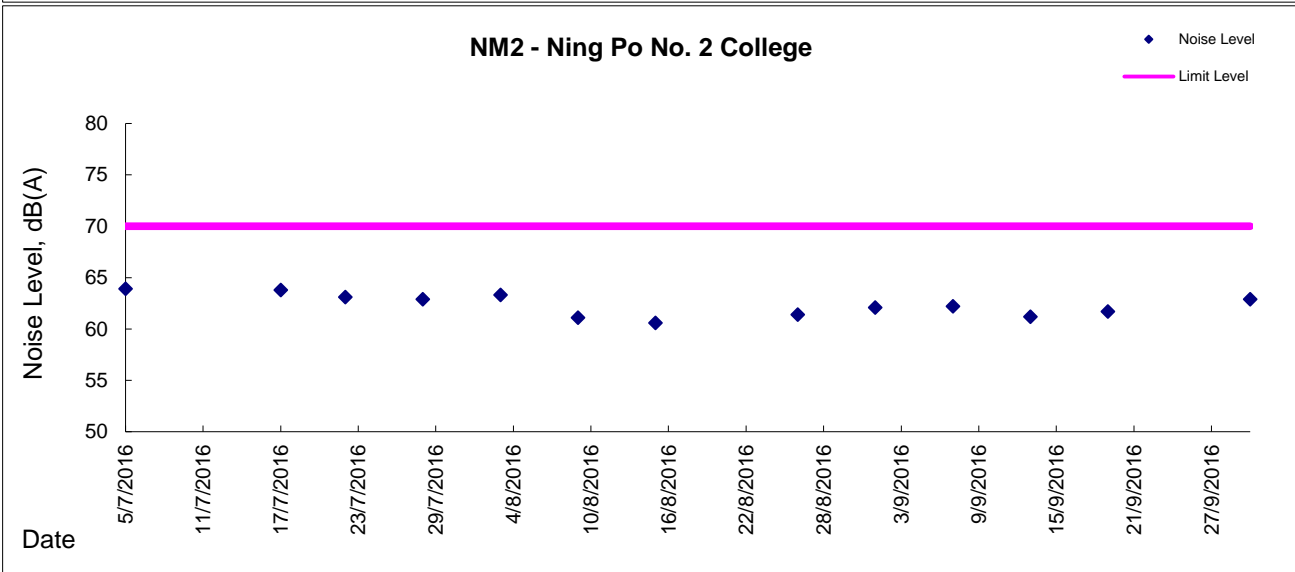
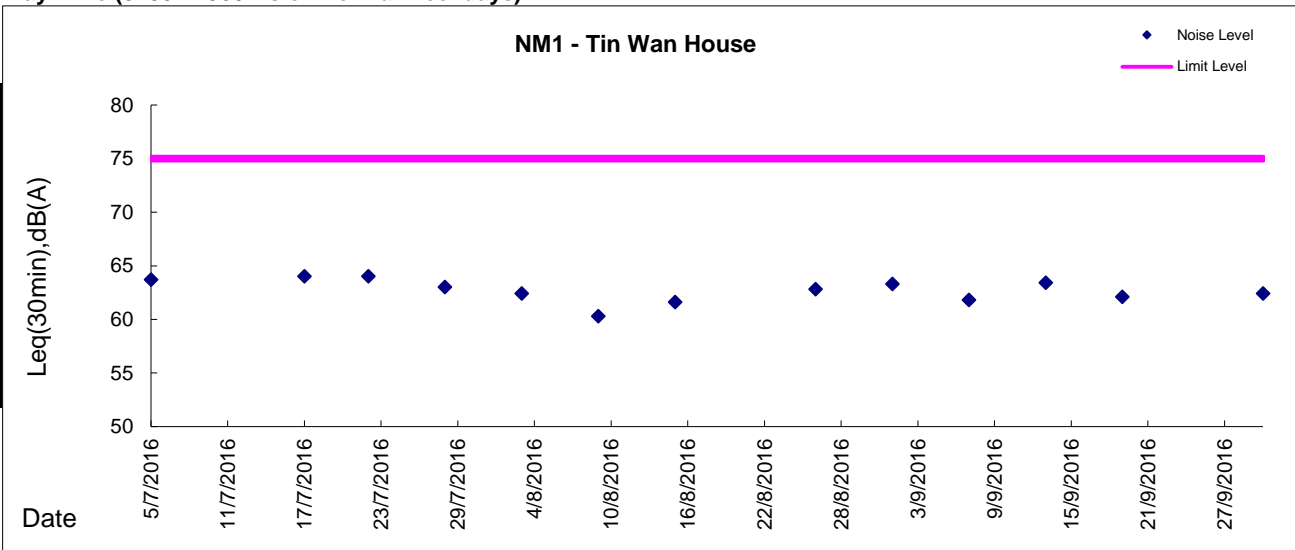
NM1 - Tin Wan House

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 ($\mu\text{g}/\text{m}^3$) - 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, m^3/min			Total Volume, m^3	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
4-Jul-16	8:00	Cloudy	016255	2.8146	2.8492	5200.21	5224.21	24.00	1.38	1.38	1.38	1992	17
9-Jul-16	8:00	Cloudy	016412	2.8413	3.0416	5227.21	5251.21	24.00	1.42	1.42	1.42	2048	98
15-Jul-16	8:00	Cloudy	016254	2.8220	2.9090	5254.21	5278.21	24.00	1.43	1.43	1.43	2053	42
21-Jul-16	8:00	Fine	016476	2.9252	2.9763	5281.30	5305.30	24.00	1.43	1.43	1.43	2056	25
27-Jul-16	8:00	Cloudy	016499	2.8723	2.9235	5308.30	5332.30	24.00	1.43	1.43	1.43	2055	25
3-Aug-16	13:05	Cloudy	16452	2.8796	2.9373	5350.58	5374.58	24.00	1.43	1.41	1.42	2041	28
8-Aug-16	8:00	Fine	16840	2.6647	2.7815	5377.58	5401.58	24.00	1.48	1.48	1.48	2129	55
13-Aug-16	8:00	Cloudy	15603	2.8267	2.8931	5404.58	5428.58	24.00	1.32	1.33	1.33	1908	35
19-Aug-16	8:00	Cloudy	16833	2.6563	2.7804	5431.58	5455.58	24.00	1.37	1.37	1.37	1966	63
25-Aug-16	8:00	Fine	17096	2.8147	2.9370	5458.59	5482.59	24.00	1.36	1.36	1.36	1964	62
31-Aug-16	8:00	Fine	16824	2.6329	2.7731	5485.59	5509.59	24.00	1.37	1.37	1.37	1966	71
6-Sep-16	8:00	Cloudy	16839	2.6857	2.7381	5512.59	5536.59	24.00	1.37	1.37	1.37	1971	27
12-Sep-16	8:00	Cloudy	17170	2.8240	2.9050	5539.60	5563.60	24.00	1.37	1.37	1.37	1970	41
17-Sep-16	8:00	Fine	17335	2.7528	2.9161	5566.60	5590.60	24.00	1.33	1.33	1.33	1911	85
23-Sep-16	8:00	Fine	17325	2.8012	2.9562	5593.60	5617.60	24.00	1.35	1.35	1.35	1943	80
29-Sep-16	8:00	Fine	17399	2.7927	2.9857	5620.60	5644.60	24.00	1.35	1.35	1.35	1943	99

Report on 1-hour TSP monitoring

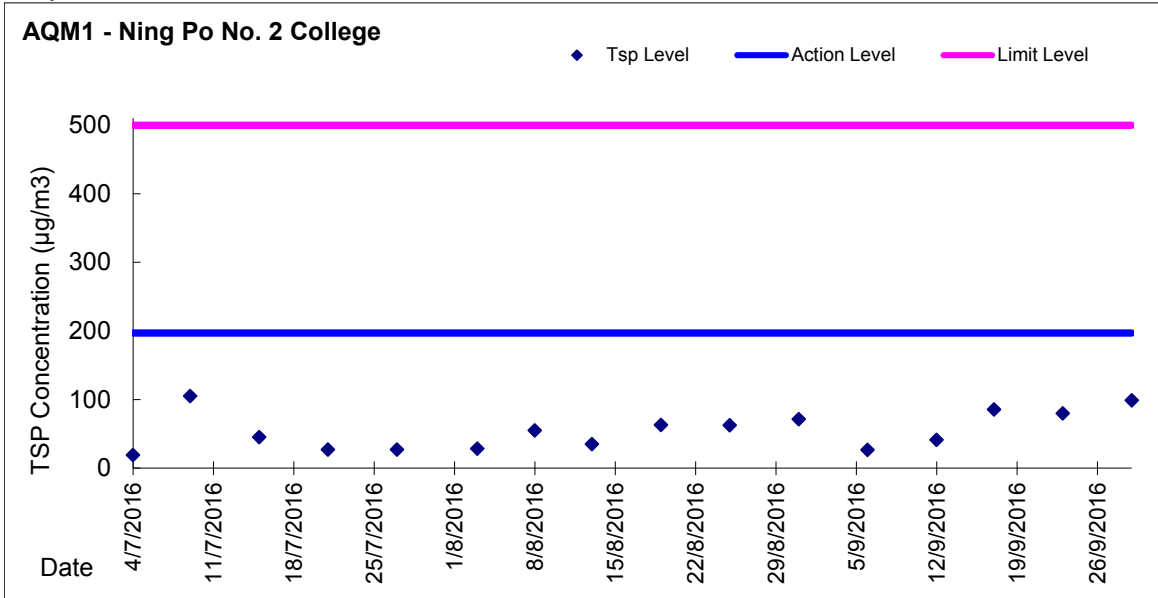
Action Level ($\mu\text{g}/\text{m}^3$) - 197

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

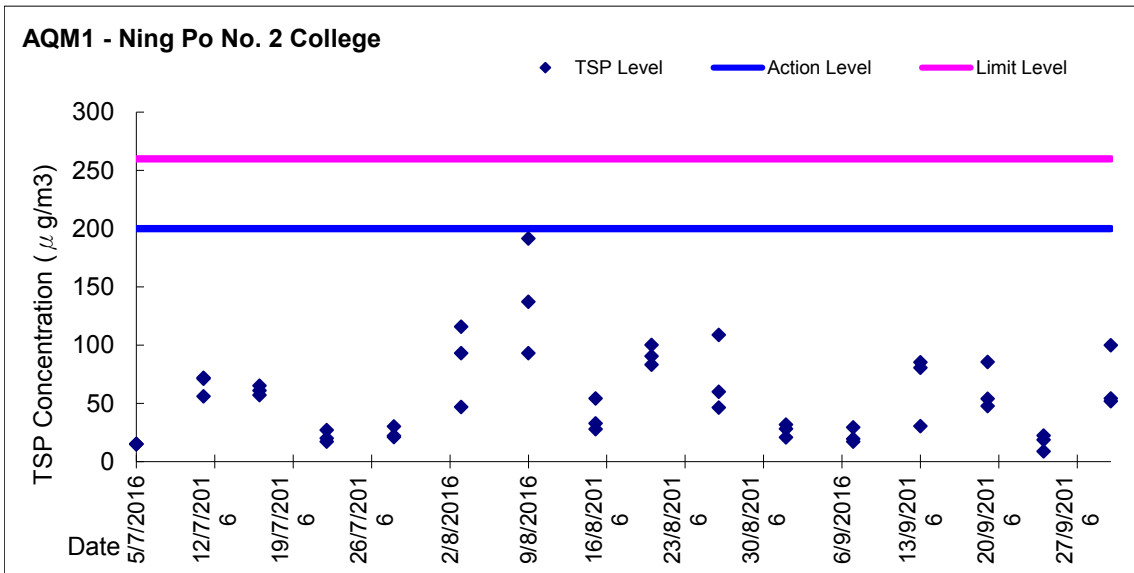
Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
5-Jul-16	10:00	Cloudy	015751	2.8181	2.8193	5224.21	5225.21	1.00	1.43	1.43	1.43	86	14
5-Jul-16	11:00	Cloudy	016413	2.8413	2.8425	5225.21	5226.21	1.00	1.43	1.43	1.43	86	14
5-Jul-16	13:00	Cloudy	015749	2.8247	2.8259	5226.21	5227.21	1.00	1.43	1.43	1.43	86	14
11-Jul-16	14:00	Cloudy	016411	2.8340	2.8398	5251.21	5252.21	1.00	1.43	1.43	1.43	86	68
11-Jul-16	15:03	Cloudy	016410	2.8490	2.8547	5252.21	5253.21	1.00	1.43	1.43	1.43	86	67
11-Jul-16	16:06	Cloudy	016409	2.8426	2.8471	5253.21	5254.21	1.00	1.43	1.43	1.43	86	53
16-Jul-16	8:35	Cloudy	016473	2.9271	2.9323	5278.21	5279.21	1.00	1.43	1.43	1.43	86	61
16-Jul-16	9:38	Cloudy	016474	2.9302	2.9348	5279.21	5280.21	1.00	1.43	1.43	1.43	86	54
16-Jul-16	10:40	Cloudy	016475	2.9157	2.9206	5280.21	5281.21	1.00	1.43	1.43	1.43	86	57
22-Jul-16	13:00	Fine	016682	2.9222	2.9238	5305.30	5306.30	1.00	1.43	1.43	1.43	86	19
22-Jul-16	14:04	Fine	016253	2.8079	2.8101	5306.30	5307.30	1.00	1.43	1.43	1.43	86	26
22-Jul-16	15:16	Fine	016252	2.8135	2.8149	5307.30	5308.30	1.00	1.43	1.43	1.43	86	16
22-Jul-16	13:30	Fine	016251	2.8250	2.8267	5332.30	5333.30	1.00	1.43	1.43	1.43	86	20
28-Jul-16	14:40	Fine	016250	2.8182	2.8206	5333.30	5334.30	1.00	1.43	1.43	1.43	86	28
28-Jul-16	15:55	Fine	016249	2.8189	2.8207	5334.30	5335.30	1.00	1.43	1.43	1.43	86	21
3-Aug-16	8:50	Cloudy	16686	2.8979	2.9078	5374.58	5375.58	1.00	1.43	1.43	1.43	86	116
3-Aug-16	9:55	Cloudy	16451	2.8851	2.8930	5375.58	5376.58	1.00	1.43	1.41	1.42	85	93
3-Aug-16	11:00	Cloudy	16685	2.9159	2.9199	5376.58	5377.58	1.00	1.43	1.43	1.43	86	47
9-Aug-16	8:19	Cloudy	15606	2.8319	2.8400	5401.58	5402.58	1.00	1.46	1.44	1.45	87	93
9-Aug-16	9:30	Cloudy	15605	2.8296	2.8417	5402.58	5403.58	1.00	1.48	1.46	1.47	88	137
9-Aug-16	10:45	Cloudy	15604	2.8269	2.8439	5403.58	5404.58	1.00	1.48	1.48	1.48	89	191
15-Aug-16	13:00	Cloudy	16687	2.8972	2.8994	5428.58	5429.58	1.00	1.33	1.33	1.33	80	28
15-Aug-16	14:03	Cloudy	16835	2.6513	2.6556	5429.58	5430.58	1.00	1.33	1.33	1.33	80	54
15-Aug-16	15:07	Cloudy	16834	2.6602	2.6628	5430.58	5431.58	1.00	1.33	1.33	1.33	80	33
20-Aug-16	8:03	Cloudy	17099	2.8019	2.8087	5455.58	5456.58	1.00	1.37	1.37	1.37	82	83
20-Aug-16	9:04	Cloudy	17098	2.7802	2.7884	5456.58	5457.58	1.00	1.37	1.37	1.37	82	100
20-Aug-16	10:05	Cloudy	17097	2.7949	2.8023	5457.58	5458.58	1.00	1.37	1.37	1.37	82	90
26-Aug-16	13:00	Fine	16827	2.6661	2.6750	5482.59	5483.59	1.00	1.36	1.36	1.36	82	109
26-Aug-16	14:05	Fine	16826	2.6327	2.6376	5483.59	5484.59	1.00	1.36	1.36	1.36	82	60
26-Aug-16	15:10	Fine	16825	2.6312	2.6350	5484.59	5485.59	1.00	1.36	1.36	1.36	82	46
1-Sep-16	13:01	Cloudy	16823	2.6742	2.6768	5509.59	5510.59	1.00	1.38	1.38	1.38	83	31
1-Sep-16	14:05	Cloudy	16822	2.6584	2.6601	5510.59	5511.59	1.00	1.38	1.38	1.38	83	20
1-Sep-16	15:10	Cloudy	16821	2.6311	2.6334	5511.59	5512.59	1.00	1.38	1.38	1.38	83	28
7-Sep-16	13:00	Cloudy	15596	2.8581	2.8597	5536.59	5537.59	1.00	1.37	1.37	1.37	82	19
7-Sep-16	14:05	Cloudy	17184	2.8201	2.8215	5537.59	5538.59	1.00	1.37	1.37	1.37	82	17
7-Sep-16	15:10	Cloudy	17183	2.8134	2.8158	5538.59	5539.59	1.00	1.37	1.37	1.37	82	29
13-Sep-16	13:00	Cloudy	17167	2.7995	2.8061	5563.60	5564.60	1.00	1.37	1.37	1.37	82	80
13-Sep-16	14:10	Cloudy	16166	2.7945	2.8015	5564.60	5565.60	1.00	1.37	1.37	1.37	82	85
13-Sep-16	15:15	Cloudy	16165	2.7958	2.7983	5565.60	5566.60	1.00	1.37	1.37	1.37	82	30
19-Sep-16	13:01	Fine	17328	2.8111	2.8149	5590.60	5591.60	1.00	1.33	1.33	1.33	80	48
19-Sep-16	14:07	Fine	17327	2.8141	2.8184	5591.60	5592.60	1.00	1.33	1.33	1.33	80	54
19-Sep-16	15:09	Fine	17326	2.8127	2.8195	5592.60	5593.60	1.00	1.33	1.33	1.33	80	85
24-Sep-16	13:01	Fine	17402	2.8195	2.8202	5617.60	5618.60	1.00	1.35	1.35	1.35	81	9
24-Sep-16	14:05	Fine	17401	2.8219	2.8237	5618.60	5619.60	1.00	1.35	1.35	1.35	81	22
24-Sep-16	15:10	Fine	17400	2.8340	2.8355	5619.60	5620.60	1.00	1.35	1.35	1.35	81	19
30-Sep-16	13:05	Fine	17392	2.7795	2.7876	5644.60	5645.60	1.00	1.35	1.35	1.35	81	100
30-Sep-16	14:10	Fine	17391	2.7835	2.7877	5645.60	5646.60	1.00	1.35	1.35	1.35	81	52
30-Sep-16	15:15	Fine	17390	2.8008	2.8052	5646.60	5647.60	1.00	1.35	1.35	1.35	81	54



Graphic Presentation of 24 hour TSP Result



Graphic Presentation of 1 hour TSP Result





Appendix 6.1

Event Action Plans



Event/Action Plan for Construction Noise

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



Event / Action Plan for Construction Air Quality

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



Appendix 6.2

Summary for Notification of Exceedance_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

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	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.	<ol style="list-style-type: none">1) RSS notified ET on 15 Aug 20142) 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 works3) 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.4) 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)**

ID	WBS	Task Name	Duration	Start	Finish	Predecessors	Successors	Total Slack	2013												2014												2015												2016												
									Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	1	Development at Anderson Road - Footbridge D and Associated Works	1119 days	Thu 31/01/13	Wed 30/11/16			0 days	[Gantt bar for ID 1]																																																
2	1.1	PRELIMINARY WORK	578 days	Thu 31/01/13	Sun 01/02/15			541 days	[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	889 days	[Gantt bar for ID 3]																																															
4	1.1.2	Tree Survey	12 days	Mon 18/02/13	Sat 02/03/13			5	0 days	[Gantt bar for ID 4]																																															
5	1.1.3	Transplant	30 days	Mon 04/03/13	Thu 11/04/13	4		0 days	[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	8 days	[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	days	[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	491 days	[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	128 days	[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	109 days	[Gantt bar for ID 10]																																															
11	1.1.9	Handover of Portion E1	0 days	Fri 31/05/13	Fri 31/05/13			1029	days	[Gantt bar for ID 11]																																															
12	1.1.10	Handover of Portion E2	0 days	Sun 01/02/15	Sun 01/02/15			541	days	[Gantt bar for ID 12]																																															
13	1.2	Section 1	781 days	Mon 08/04/13	Tue 01/12/15			20 days	[Gantt bar for ID 13]																																																
14	1.2.1	Lift Tower D-A	475 days	Wed 05/06/13	Wed 14/01/15			491 days	[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	days	[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	491 days	[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	491 days	[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	491 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	491 days	[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	491 days	[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	491 days	[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	550 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	553 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	Lift Tower D-B	480 days	Tue 08/10/13	Mon 01/06/15			439 days	[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	days	[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	379 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	379 days	[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	379 days	[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	379 days	[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	379 days	[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	379 days	[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

