


China State Construction Engineering (Hong Kong) Ltd.

Contract No. CV/2007/03

**Development at Anderson Road –
Site Formation and Associated
Infrastructure Works****Final EM&A Report for
May 2008 to December 2018**

March 2019

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6 March 2019

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By Post and Fax: 2407 8382

Attention: Mr. YK Cheung

Dear Sir,

**Re: Contract No. CV/2007/03 (Environmental Permit No. EP-140/2002 and EP-483/2013)
Development at Anderson Road
Site Formation and Associated Infrastructure Works
Final EM&A Report (May 2008 to December 2018)**

Reference is made to the Environmental Team's submission of the Final EM&A Report for May 2008 to December 2018 received by e-mail on 6 March 2019 for our review and comment.

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

Thank you very much for your attention and please feel free to contact the undersigned should you require further information.

Yours faithfully,



David Yeung
Independent Environmental Checker

c.c. AECOM Attn.: Mr. Y. W. Fung
 CSCEC Attn.: Mr. Holmes Wong

By Fax: 3922 9797
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EXECUTIVE SUMMARY

Introduction

The Project “Development at Anderson Road – Site Formation and Associated Infrastructure Works” (hereafter called “the Project”) is proposed to form platforms for housing development and associated uses in area of about 20 hectares, and to carry out necessary infrastructural upgrading or improvement works to cater for the proposed development.

China State Construction Engineering (Hong Kong) Limited (CSCE) was commissioned as the Contractor of the Project. AECOM Asia Co. Ltd. (AECOM) was employed by CSCE as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works for the Project. This is the Final Environmental Monitoring and Audit (EM&A) Review Report prepared by AECOM for the Project. This report summarises the EM&A work performed throughout the construction and operation stage of the Project from May 2008 to December 2018 of the Project.

The impact EM&A for the Project includes air quality and noise monitoring. The EM&A programme for Sau Ming Primary School (ID 4) and Sau Mau Ping Catholic Primary School (ID 5) commenced on 1 May 2008, while for Kwun Tong Government Secondary School (ID 1A), On Yat House (ID 2) and Sau Nga House (ID 3) commenced on 1 June 2008.

The monitoring stations ID 4 & ID 5 will serve both the entire Development of Anderson Road (Schedule 3 Designated Project (DP)) project as well as the Widening of Po Lam Road (Schedule 2 DP) project.

The construction for the Widening of Po Lam Road (Schedule 2 DP) project was commenced on 21 September 2011.

The major works of the Project was substantially completed in December 2018 and the construction phase EM&A programme was terminated on 16 January 2019. The operational phase noise monitoring of the Widening of Po Lam Road (Schedule 2 DP) project was conducted in September 2018.

Environmental Monitoring Works

Air Quality

1-hr TSP Monitoring

There was no action / limit level exceedance recorded throughout the construction period.

24-hr TSP Monitoring

There were a total of 17 action level and 1 limit level exceedances recorded throughout the construction period.

Noise

Construction Noise

There were a total of 32 action level and 1 limit level exceedances recorded throughout the construction period.

Complaints

During the construction phase of the Project, there were a total of 75 complaints received, in which 38 were air quality related, 30 were noise related, 5 were water quality related and 2 were both air quality and noise related.

During the construction phase of the Project, there were a total of 6 notification of summons, in which 2 were successful prosecutions.

1. INTRODUCTION

Background

- 1.1 The Project site is located in the East Kowloon District. It is bounded by Anderson Road to the north, the realigned Sau Mau Ping Road to the south, Po Lam Road to the east, and Lee On Road and Shun On Road to the west.
- 1.2 The objective of the Project “Development at Anderson Road Site Formation and Associated Infrastructure Works” under Contract CV/2007/03 (hereafter called “the Project”) is to provide land for constructing public housing and government and public facilities. The development will provide 16,100 public housing units for 48,000 people in phases between 2015 and 2016.
- 1.3 The scope of works of this Project includes construction of site formation, roads, drains and upgrading of existing infrastructure to provide usable land of about 20 hectares for housing and associated government, institution or community uses at the site between existing Anderson Road Quarry and Sau Mau Ping Road in Kwun Tong District.
- 1.4 The Project was anticipated to be completed in the fourth quarter of 2016.
- 1.5 Part of the Project involving widening of existing Po Lam Road is a designated project and is governed by an Environmental Permit (EP) EP-140/2002, while the rest of the Project is non-designated. Baseline monitoring covering the entire Project site was undertaken and baseline monitoring report was prepared prior to commencement of construction of the Project in accordance with Conditions 3.2 and 3.4 of the EP (EP-140/2002) and the Environmental Monitoring and Audit (EM&A) Manual.
- 1.6 Widening of the existing Po Lam Road, is a designated project and is governed by the Environmental Permit (EP) EP-140/2002 issued on 18 June 2002. The construction for the Widening of Po Lam Road was commenced on 21 September 2011. Subsequently, Director of Environmental Protection issued EP-483/2013 on 23 December 2013 regarding the operation of the widened Po Lam Road.
- 1.7 According to the EP and the EM&A Manual of the Project, there is a need of an EM&A programme including air quality and noise monitoring.
- 1.8 The EM&A programme for Sau Ming Primary School (ID 4) and Sau Mau Ping Catholic Primary School (ID 5) commenced on 1 May 2008, while for Kwun Tong Government Secondary School (ID 1A), On Yat House (ID 2) and Sau Nga House (ID 3) commenced on 1 June 2008.
- 1.9 The monitoring stations ID 4 & ID 5 will serve both the entire Development of Anderson Road (Schedule 3 Designated Project (DP)) project as well as the Widening of Po Lam Road. (Schedule 2 DP) project.
- 1.10 AECOM Asia Co. Ltd. (AECOM) was employed by the Contractor, China State Construction Engineering (Hong Kong) Limited (CSCE), as the Environmental Team (ET) to undertake the EM&A works for the Project. In accordance with the EM&A Manual of the Project, environmental monitoring of air quality, noise and environmental site inspections would be required for this Project.

Scope of Report

- 1.11 This is the Final Environmental Monitoring and Audit (EM&A) Review Report under the Contract CV/2007/03 - Development at Anderson Road – Site Formation and Associated Infrastructure Works. This report presents a summary of the environmental monitoring and inspection works, list of activities, mitigation measures carried out by the Contractor for the Project throughout the construction stage from May 2008 to December 2018 and operational phase noise monitoring of widened Po Lam Road carried out in September 2018.

Project Organisation

1.12 The project organization structure is shown in Appendix A. The key personnel contact names and numbers are summarized in Table 1.1.

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
ER (Ove Arup)	Resident Engineer	Yu Kit CHEUNG	2407 0300	2407 8382
	Assistant Resident Engineer	Brendon LEE	2407 0300	2407 8382
IEC (Ramboll)	Independent Environmental Checker	David Yeung	3465 2888	3465 2899
Contractor (CSCE)	Site Agent	Holmes Wong	2704 2095	2702 6553
	Safety and Environmental Officer	Raymond Ma	6221 9331	2702 6553
ET (AECOM)	ET Leader	Yiu Wah Fung	3922 9366	2317 7609

Summary of Construction Works

1.13 The construction works under the Project commenced in May 2008, the major construction activities of the projects are as follows:

- Site Establishment
- Site Formation Works
- Retaining Walls
- Bored Pile Walls
- Reinforced Earth Walls
- Rockfall / Boulder Fence/ Catch Fence
- Blasting Protection Measure
- Road Works
- Junction Improvement Works
- Vehicular Bridges
- Footbridges
- Drainage Works
- Noise Barriers
- Land Contamination Remediation
- Landscaping Works

1.14 The project commenced in May 2008 and substantially completed in December 2018. The only outstanding works is the slope works, roadworks, roadside planting works and minor E&M Works which were anticipated that insignificant environmental impacts will be generated. Layout plan of the Project work site is provided in Figure 1.1.

2. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Monitoring Parameters

- 2.1 The EM&A Manual designates several locations representative of the identified sensitive receivers for the ET to monitor environmental impacts in terms of air quality and noise due to the Project.

Table 2.1 Monitoring Parameters and Frequency

	Parameters	Frequency
Air Quality	1-hr TSP	Three times per every six days
	24-hr TSP	Once every six days
Noise	Daytime noise	Once every week

- 2.2 Air quality and noise monitoring has been carried out at 5 monitoring locations. ID 2, ID 3, ID 4 and ID 5, were set up at the proposed locations in accordance with EM&A Manual, while monitoring station, ID 1A, was set up at a location agreed by the ER and IEC.

Table 2.2 Locations of Monitoring Stations

ID	Location	Monitoring Station
1A	Kwun Tong Government Secondary School	Roof top of the premises facing Anderson Road
2	On Yat House	Roof top of the premises facing Lee On Road
3	Sau Nga House	Roof top of the premises facing Sau Mau Ping Road
4	Sau Ming Primary School	Roof top of the premises
5	Sau Mau Ping Catholic Primary School	Roof top of the premises

- 2.3 The EM&A programme including air quality and noise monitoring commenced in May 2008.
- 2.4 The Project area, monitoring locations and sensitive receivers during construction phase are depicted in Figure 2.1.

Monitoring Methodology and Calibration Details

- 2.5 All monitoring works were conducted and monitoring equipment was regularly calibrated in accordance with the EM&A Manual.

Environmental Quality Performance Limits (Action and Limit Levels)

- 2.6 The environmental quality performance limits, i.e. Action and Limit Levels (AL Levels) were derived from the baseline monitoring result. Should the measured environmental quality parameters exceed the AL Levels, the respective action plan will be implemented. The AL Levels for each environmental parameter are given in Appendix C.

Event Action Plan

- 2.7 Relevant mitigation measures were recommended in the EM&A Manual for the ET, IC(E), ER and Contractor to implement. A list of Event and Action Plan is given in Appendix F.

Termination of the EM&A Programme

- 2.8 As the major works of the Project has been substantially completed in December 2018 and agreed by the IEC and ER, the EM&A programme was terminated on 16 January 2019.

3. MONITORING RESULTS

Air Quality

- 3.1 Air quality monitoring, including 24-hr TSP and 1-hr TSP monitoring, was conducted at 5 monitoring stations throughout the construction phase of the Project. The monitoring was carried out between May 2008 and December 2018.
- 3.2 Table 3.1 and Table 3.2 present the averaged, maximum and minimum impact air quality monitoring results of 1-hr TSP and 24-hr TSP throughout the construction period.

Table 3.1 Comparison of Impact Monitoring Results of 1-hr TSP Concentration

Location	May 2008 – December 2018				
	Average ($\mu\text{g}/\text{m}^3$)	Minimum ($\mu\text{g}/\text{m}^3$)	Maximum ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
ID1A	75.3	50.6	94.6	201.5	500
ID2	76.0	56.1	96.3	197.0	500
ID3	76.3	53.9	99.1	203.7	500
ID4	76.2	53.9	103.0	264.6	500
ID5	76.1	53.5	101.3	267.4	500

Table 3.2 Comparison of Impact Monitoring Results of 24-hr TSP Concentration

Location	May 2008 – December 2018				
	Average ($\mu\text{g}/\text{m}^3$)	Minimum ($\mu\text{g}/\text{m}^3$)	Maximum ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
ID1A	42.0	1.5	251.0	170.2	260
ID2	46.6	4.4	256.2	200.0	260
ID3	52.6	2.2	282.6	200.0	260
ID4	48.7	2.4	213.6	181.3	260
ID5	41.7	0.5	259.1	180.8	260

- 3.3 Major dust sources during the dust monitoring included construction dust from the Project site, construction dust from other construction sites nearby and nearby traffic emission.
- 3.4 Weather information including wind speed and wind direction is annexed in Appendix H. The information was obtained from Hong Kong Observatory Weather Station and Anemometer Station.
- 3.5 The graphical presentation of the monitoring data of air quality over the construction period is provided in Appendix D.
- 3.6 For 1-hour TSP, there was no action / limit level exceedance recorded throughout the construction phase of the Project.
- 3.7 For 24-hour TSP, there were a total of 17 action level and 1 limit level exceedances recorded throughout the construction phase of the Project.
- 3.8 Investigations were carried out by the Environmental Team for all exceedances recorded during the construction phase of the Project.

3.9 Recommendations were provided to the Contractor on all non-compliances of the air quality recorded for the Project. No further non-compliance of air quality was recorded after the implementation of appropriate mitigation measures by the Contractor.

Construction Noise

3.10 Construction noise monitoring was required to be carried out at 5 locations. The construction noise monitoring was carried out from May 2008 to December 2018.

3.11 Table 3.3 presents the maximum and minimum impact noise monitoring results for daytime period throughout the construction period.

Table 3.3 Comparison of Baseline and Impact Monitoring Results of Noise Monitoring

Location	May 2008 – December 2018		
	Minimum (Leq, dB(A))	Maximum (Leq, dB(A))	Limit Level (Leq, dB(A))
ID1A	44.5	68.2	*65 / 70
ID2	45.7	71.2	75
ID3	47.8	74.6	75
ID4	49.4	69.9	*65 / 70
ID5	48.4	69.6	*65 / 70

* Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65 dB (A) applies during school examination period

3.12 Major noise sources during the noise monitoring included construction noise from the Project site, construction noise from other construction sites nearby, nearby traffic noise and noise from school activities and community noise.

3.13 The graphical presentation of the monitoring data of noise over the construction period is provided in Appendix E.

3.14 For noise monitoring, there were a total of 32 action level and 1 limit level exceedances recorded throughout the construction phase of the Project.

3.15 Investigations were carried out by the Environmental Team for all exceedances recorded during the construction phase of the Project.

3.16 Recommendations were provided to the Contractor on all non-compliances of the noise recorded for the Project. No further non-compliance of noise was recorded after the implementation of appropriate mitigation measures by the Contractor.

4. Implementation Status of Environmental Mitigation Measures

Implementation Status of Environmental Mitigation Measures

4.1 Throughout this project, the Contractor had implemented the necessary environmental mitigation measures as stipulated in the EIA report, Environmental Permit and the EM&A Manual.

Summary mitigation measure in During Construction period of the project

4.2 Mitigation measure implemented during the Construction period were included:

- Properly store and label oil drums and chemical containers placed on site;
- Proper chemicals, chemical wastes and wastes management;
- Maintenance works should be carried out within roofed, paved areas with proper drainage system to handle run-off from maintenance works;
- Collection and segregation of construction waste and general refuse should be carried out properly and regularly;
- Site runoff should be properly collected and treated prior to discharge;
- Regular review and maintenance of drainage systems and desilting facilities;
- Exposed slopes/soil stockpiles should be properly treated to avoid generation of silty surface run-off during rainstorm;
- Proper mitigation measures should be provided to avoid relocation of treated contaminated soil;
- Regular review and maintenance of wheel washing facilities provided at all site entrances/exits;
- Suppress dust generated from work processes with use of bagged cements, earth movements, drilling works, breaking works, excavation activities, exposed areas/slopes/soil stockpiles and haul road traffic;
- Conduct regular inspection of the working machineries within works area to avoid any dark smoke emission and oil leakage;
- Quieter powered mechanical equipment should be used;
- Provision of proper and effective noise control measures, such as erection of movable noise barriers during blasting, breaking and drilling works and at crushing plant works area and provision of acoustic material wrapping to breaking tips of breakers; and
- Proper protection and regular inspection of existing trees, transplanted/retained trees.

4.3 The updated implementation status of environmental mitigation measures (EMIS) is given in Appendix B.

Advice on Waste Management Status

4.4 The actual quantities of uncontaminated sediment, contaminated sediment, inert C&D materials and C&D wastes generated by activities of the Project during construction period, from May 2008 to December 2018 are provided in Table 4.1. Trip ticket system was implemented for all offsite waste disposal.

Table 4.1 Summary of Waste Disposal in During Construction Period of the Project

Type of waste	Summary
Total C&D materials	14,342,754 m ³
Hard Rocks and Large Broken Concrete	2,230,368 m ³
Amount Reused in the Project	60,007 m ³
Amount Reused in other Projects	29,080 m ³
Disposed of to TKO 137	11,778,055 m ³
Metals	2,211,212 kg
Paper cardboard packing	1,100 kg
Plastics	725 kg
Chemical waste	16,546 L
General refuse	35,047 tonnes

5. Non-compliance (exceedances) of the Environmental Quality Performance Limits

Summary of Exceedances

5.1 Throughout the construction stage, there were 18 of 24-hr TSP and 33 of noise exceedances recorded. Table 5.1 summarizes the number of exceedance throughout the construction phase.

Table 5.1 Number of Exceedances throughout the Construction Phase

Month	Air Quality		Noise	Total	Remark
	1-hr TSP	24-hr TSP			
May-08	0	0	0	0	N/A
Jun-08	0	3	3	6	3 action level exceedances of 24-hr TSP, 2 action level and 1 limit level exceedance of noise were recorded.
Jul-08	0	3	1	4	3 action level exceedances of 24-hr TSP and 1 action level exceedance of noise were recorded.
Aug-08	0	0	0	0	N/A
Sep-08	0	0	1	1	1 action level exceedance of noise was recorded.
Oct-08	0	0	0	0	N/A
Nov-08	0	1	0	1	1 action level exceedance of 24-hr TSP was recorded.
Dec-08	0	0	0	0	N/A
Jan-09	0	1	1	2	1 action level exceedances of 24-hr TSP and 1 action level exceedance of noise were recorded.
Feb-09	0	0	3	3	3 action level exceedance of noise were recorded.

Month	Air Quality		Noise	Total	Remark
	1-hr TSP	24-hr TSP			
Mar-09	0	0	0	0	N/A
Apr-09	0	0	1	1	1 action level exceedance of noise was recorded.
May-09	0	0	1	1	1 action level exceedance of noise was recorded.
Jun-09	0	0	2	2	2 action level exceedance of noise were recorded.
Jul-09	0	0	1	1	1 action level exceedance of noise was recorded.
Aug-09	0	0	2	2	2 action level exceedance of noise were recorded.
Sep-09	0	0	0	0	N/A
Oct-09	0	0	1	1	1 action level exceedance of noise was recorded.
Nov-09	0	0	0	0	N/A
Dec-09	0	0	0	0	N/A
Jan-10	0	0	0	0	N/A
Feb-10	0	0	0	0	N/A
Mar-10	0	0	0	0	N/A
Apr-10	0	0	2	2	2 action level exceedance of noise were recorded.
May-10	0	0	0	0	N/A
Jun-10	0	0	0	0	N/A
Jul-10	0	0	0	0	N/A
Aug-10	0	0	0	0	N/A
Sep-10	0	0	0	0	N/A
Oct-10	0	0	0	0	N/A
Nov-10	0	0	0	0	N/A
Dec-10	0	2	0	2	2 action level exceedances of 24-hr TSP were

Month	Air Quality		Noise	Total	Remark
	1-hr TSP	24-hr TSP			
					recorded.
Jan-11	0	0	0	0	N/A
Feb-11	0	0	0	0	N/A
Mar-11	0	1	0	1	1 action level exceedance of 24-hr TSP was recorded.
Apr-11	0	0	1	1	1 action level exceedance of noise was recorded.
May-11	0	0	1	1	1 action level exceedance of noise was recorded.
Jun-11	0	0	2	2	2 action level exceedance of noise were recorded.
Jul-11	0	0	0	0	N/A
Aug-11	0	0	0	0	N/A
Sep-11	0	0	1	1	1 action level exceedance of noise was recorded.
Oct-11	0	0	0	0	N/A
Nov-11	0	0	0	0	N/A
Dec-11	0	0	0	0	N/A
Jan-12	0	0	0	0	N/A
Feb-12	0	0	0	0	N/A
Mar-12	0	0	2	2	2 action level exceedance of noise were recorded.
Apr-12	0	0	0	0	N/A
May-12	0	0	0	0	N/A
Jun-12	0	0	0	0	N/A
Jul-12	0	0	2	2	2 action level exceedance of noise were recorded.
Aug-12	0	0	0	0	N/A
Sep-12	0	0	0	0	N/A
Oct-12	0	0	1	1	1 action level

Month	Air Quality		Noise	Total	Remark
	1-hr TSP	24-hr TSP			
					exceedance of noise was recorded.
Nov-12	0	0	0	0	N/A
Dec-12	0	0	1	1	1 action level exceedance of noise was recorded.
Jan-13	0	0	0	0	N/A
Feb-13	0	0	0	0	N/A
Mar-13	0	0	0	0	N/A
Apr-13	0	0	0	0	N/A
May-13	0	0	1	1	1 action level exceedance of noise was recorded.
Jun-13	0	0	0	0	N/A
Jul-13	0	0	0	0	N/A
Aug-13	0	0	1	1	1 action level exceedance of noise was recorded.
Sep-13	0	0	1	1	1 action level exceedance of noise was recorded.
Oct-13	0	0	0	0	N/A
Nov-13	0	0	0	0	N/A
Dec-13	0	0	0	0	N/A
Jan-14	0	4	0	4	3 action level exceedances and 1 limit level of 24-hr TSP were recorded.
Feb-14	0	0	0	0	N/A
Mar-14	0	0	0	0	N/A
Apr-14	0	0	0	0	N/A
May-14	0	0	0	0	N/A
Jun-14	0	0	0	0	N/A
Jul-14	0	0	0	0	N/A
Aug-14	0	0	0	0	N/A
Sep-14	0	0	0	0	N/A
Oct-14	0	0	0	0	N/A

Month	Air Quality		Noise	Total	Remark
	1-hr TSP	24-hr TSP			
Nov-14	0	0	0	0	N/A
Dec-14	0	1	0	1	1 action level exceedance of 24-hr TSP was recorded.
Jan-15	0	0	0	0	N/A
Feb-15	0	0	0	0	N/A
Mar-15	0	0	0	0	N/A
Apr-15	0	0	0	0	N/A
May-15	0	0	0	0	N/A
Jun-15	0	0	0	0	N/A
Jul-15	0	0	0	0	N/A
Aug-15	0	0	0	0	N/A
Sep-15	0	0	0	0	N/A
Oct-15	0	0	0	0	N/A
Nov-15	0	0	0	0	N/A
Dec-15	0	0	0	0	N/A
Jan-16	0	0	0	0	N/A
Feb-16	0	0	0	0	N/A
Mar-16	0	0	0	0	N/A
Apr-16	0	0	0	0	N/A
May-16	0	0	0	0	N/A
Jun-16	0	0	0	0	N/A
Jul-16	0	0	0	0	N/A
Aug-16	0	0	0	0	N/A
Sep-16	0	0	0	0	N/A
Oct-16	0	0	0	0	N/A
Nov-16	0	0	0	0	N/A
Dec-16	0	0	0	0	N/A
Jan-17	0	0	0	0	N/A
Feb-17	0	0	0	0	N/A
Mar-17	0	0	0	0	N/A
Apr-17	0	0	0	0	N/A
May-17	0	0	0	0	N/A
Jun-17	0	0	0	0	N/A
Jul-17	0	0	0	0	N/A

Month	Air Quality		Noise	Total	Remark
	1-hr TSP	24-hr TSP			
Aug-17	0	0	0	0	N/A
Sep-17	0	0	0	0	N/A
Oct-17	0	0	0	0	N/A
Nov-17	0	0	0	0	N/A
Dec-17	0	0	0	0	N/A
Jan-18	0	0	0	0	N/A
Feb-18	0	0	0	0	N/A
Mar-18	0	1	0	1	1 action level exceedance of 24-hr TSP was recorded.
Apr-18	0	1	0	1	1 action level exceedance of 24-hr TSP was recorded.
May-18	0	0	0	0	N/A
Jun-18	0	0	0	0	N/A
Jul-18	0	0	0	0	N/A
Aug-18	0	0	0	0	N/A
Sep-18	0	0	0	0	N/A
Oct-18	0	0	0	0	N/A
Nov-18	0	0	0	0	N/A
Dec-18	0	0	0	0	N/A
Total	0	18	33	51	

Summary of Actions Taken

5.2 Interim notifications had been issued for all the exceedances during the construction phase of the Project to inform the EPD, ER, IEC and Contractor about the incidents. For the valid exceedances, recommendations were provided in the notifications and the Contractor generally followed up the exceedances to prevent similar non-compliance from happening again.

6. Environmental Complaints, Notification of Summons and Successful Prosecutions

- 6.1 There were a total of 75 complaints received during the construction phase of the Project, in which 38 were air quality related, 30 were noise related, 5 were water quality related and 2 were both air quality and noise related. Table 6.1 summarizes the number of environmental complaints throughout the construction phase.

Table 6.1 Summary of Environmental Complain throughout the Construction Phase

Date Received	Detail of complaint	Parameter	Follow up action
6 June 2008#1	The noise complaints were lodged by a Kwun Tong District Councillor and from EPD relayed by Oriental Daily respectively on 6 June 2008 both referring to the complaints from the residents of Sau Mau Ping Estate. Both complaints were about the rock breaking noise at Portion F site area in the morning.	Noise	The Contractor erected bamboo scaffolding with acoustic sheet around 3m in height on top of the hoarding along Po Lam Road and Sau Mau Ping Road surrounding the site area. In addition, the Contractor place 3m tall movable noise barriers right in front of the hydraulic breaker to lower the noise level of the works.
15 July 2008	Ms Leung referred a complaint from a resident who lives at Sau Nga House of Sau Mau Ping Estate about the construction noise at slope DT14 opposite Sau Nga House.	Noise	A noise enclosure of acoustic sheets was erected in the afternoon to cover the drilling machine during work.
30 September 2008	CEDD's officer referred a complaint from a resident who lives at Sau Yin House of Sau Mau Ping Estate about the rock breaking noise at Portion F site area opposite Sau Nga House in the morning.	Noise	Noise enclosures of acoustic sheets were erected to cover the excavator-mounted breaker during work.
5 January 2009	A complaint from a resident about the fugitive dust emission at construction sites near Shun Chi Court.	Air	Regular water was implemented in construction site areas (Portion J2).
12 January 2009	A complaint from a resident (Mr. So) about the fugitive dust emission from site access at Portion J2.	Air	Water sprinkler system at site entrance worked effectively and water sprinkler system was installed at site boundary.
23 January 2009	CEDD's officer referred a complaint from a resident (Mr. Leung) about the rock breaking noise at Portion F site area.	Noise	The amount of noise barriers at the working areas had been increased. Noise enclosures of acoustic sheets were implemented to cover up the tips of the excavator-mounted breaker during work.
6 February 2009	Mr. Li Wah Ming referred a complaint from a resident (Mr. Hon) about the rock breaking noise at Portion F site area.	Noise	6m movable noise barriers had been added at the working areas. Noise enclosures of acoustic sheets were

Date Received	Detail of complaint	Parameter	Follow up action
			implemented to cover up the tips of the excavator-mounted breaker during work.
Mid-February 2009	EPD's officer referred a complaint about construction noise at Portion J3 site area.	Noise	The Contractor had ensured that the absorptive materials coverage at the hoarding and tips of excavator-mounted breakers were well maintained.
27 February 2009	EPD's officer referred a complaint about construction noise and fugitive dust emission at Portion J3 site area.	Air & Noise	The Contractor had ensured that the absorptive materials and nets coverage at the hoarding, absorptive material coverage at the tips of the excavator-mounted breakers and water spraying facilities at rock breaking areas were well maintained.
20 March 2009	CEDD (ICC) officer referred a complaint about fugitive dust emission from construction works at Portion J2 site area.	Air	The Contractor had provided additional tarpaulin sheet coverage at working areas and along hoarding at New Clear Water Bay Road. Hourly water spraying had also provided during installation of soil nails.
14 April 2009	Mr. Mak complains about fugitive dust generation when dump trucks passing the site area opposite to Sau Nga House.	Air	The Contractor had provided a list of dust suppressive measures to minimize the dust impacts: addition of black top to main haul roads at Portion S2a, installation of sprinkler systems along haul roads at Portion S2a and C2 and provision of geotextile coverage to or shotcreting the exposed slopes at Portion S2a.
17 April 2009	Ms. Mak requested the Contractor to start the slope work opposite to Sau Yee House (DT14), i.e. Portion S2a, after 8a.m.	Noise	The Contractor had rescheduled the work and started the slope work at Portion S2a after 8a.m.
19 May 2009	Ms. Poon complains about construction noise impact at Portion J3 in the early morning.	Noise	The Contractor rescheduled the work and start any kind of noisy work at Portion J3 after 9:30a.m.
15 June 2009	Mr. To complained about muddy flooding into United Christian College (Kowloon East) at Portion J3.	Water	The Contractor cleared up all deposited silt immediately and keep the drains along the toe of the slope clear. Further preventive measures, such as sealing up the gaps at the base of the hoarding and forming a sump pit with pumping facility was also conducted

Date Received	Detail of complaint	Parameter	Follow up action
			immediately. The Contractor kept liaison with the Contractors of the construction sites nearby on the arrangement of temporary drainage systems on site and kept regular inspection on the temporary drainage system on site.
16 June 2009	Mr. Mak complained about construction noise impact from rock breaking activities located at Portion D (site area opposite to Sau Ching House) in the early morning. Moreover, he complained about mosquito breeding problems occur at Sau Ching House and Sau Yin House.	Noise	The Contractor rescheduled the rock breaking work and start any kind of noisy work at Portion D after 9:00a.m. The Contractor kept on carrying out mosquito breeding preventive measures on site as scheduled.
29 June 2009	CEDD officer referred a complaint about construction noise impact from rock breaking activities located at Portion D (site area opposite to Po Tat Estate) in the early morning.	Noise	Proper acoustic wrapping around the tips of the breakers working at Portion D and sufficient noise barriers at rock breaking work area at Portion D was provided.
15 July 2009	CEDD officer referred a complaint about construction noise impact from rock breaking activities located at Portion D (site area opposite to Sau Yin House).	Noise	The Contractor had rescheduled the work program and started the rock breaking work at Portion D after 10 a.m. in the morning. Also, the Contractor had used the silenced drill rig and non-explosive expanding agent for rock breaking process to minimize the noise impacts. The rock breaking work was completed.
18 August 2009	RSS received a complaint regarding the construction noise impact from rock breaking activities located at Portion D (site area opposite to Sau Ching House).	Noise	The Contractor had rescheduled the work program and started the rock breaking work at Portion D in the afternoon.
24 August 2009	RSS received a complaint regarding the construction noise impact from soil nailing activities at the slopes at Portion S1a (site area opposite to Sau Ching House).	Noise	The Contractor had erected scaffolding with proper acoustic materials to cover up the soil nailing area at the slopes at Portion S1a.
14 October 2009	RSS received a complaint regarding the construction noise impact from rock breaking activities at the retaining wall	Noise	The Contractor had suspended the rock breaking activities at the retaining wall R25B at Portion S1a.

Date Received	Detail of complaint	Parameter	Follow up action
	(R25B) at Portion S1a (site area opposite to Sau Ching House).		The Contractor had erected additional scaffolding with proper acoustic materials to cover up the rock breaking area at the retaining wall R25B at Portion S1a.
10 April 2010	RSS received a complaint regarding the construction noise impact from rock breaking activities at Retaining Wall R25A at Portion S1a (site area opposite to Sau Ching House).	Noise	The Contractor had erected scaffolding with acoustic material coverage at the rock breaking area at Retaining Wall R25A at Portion S1a. All kinds of construction works at Retaining Wall R25A had been suspended until 2pm. Construction activities at the captioned area are kept to minimal, as far as possible. Silenced type drill rig and chemical expanding agent had been employed for the rock breaking works at captioned area.
16 April 2010	A complaint was referred by EPD regarding the discharge of muddy water from the site exit (opposite to the Gate No. 2 of Ka Wah Quarry) onto Anderson Road.	Water	Concrete ramps has been provided at the concerned site exit to confine the surface run-off from the works area and eliminate the potential discharge of surface run-off onto Anderson Road.
29 April 2010	A complaint was referred by EPD regarding the construction noise impact from rock breaking activities in the afternoon at works area in junction between Po Lam Road and Sau Mau Ping Road (site area near Po Tat Estate).	Noise	The Contractor has provided proper noise barriers (in form of scaffolding with acoustic material coverage) at the concerned rock breaking area. Acoustic wrapping of breaking tip of the breaker stationed at rock breaking area was provided.
1 April 2011	A complaint was referred by CEDD (ICC) officer regarding the construction noise impact from rock breaking activities at Retaining Wall 6 at Portion S2a (site area opposite to Lee Foo House of Shun Lee Estate).	Noise	The Contractor provided additional noise screening measures (in form of noise barriers) at the concerned working areas to minimize the noise impacts.
12 May 2011	A complaint was referred by CEDD (ICC) officer regarding the fugitive dust emission from exposed works areas in Portion J2 (site area at New Clear Water Bay Road).	Air	The Contractor had covered up the concerned exposed works area with tarpaulin sheet to avoid fugitive dust emission.

Date Received	Detail of complaint	Parameter	Follow up action
20 May 2011	A complaint was received by RSS regarding the construction noise impact from rock breaking activities at Retaining Wall R25 at Portion D.	Noise	Additional noise barriers were provided at the concerned breaking works area. The works schedule was revised to minimize the noise impact from concurrent undertaking of noisy activities.
3 June 2011	A complaint was referred by CEDD (ICC) officer regarding the construction noise from rock breaking works at Portion D and E of the Project, rock breaking works at Sau Mau Ping Road and at the temple's sites at Portion F by other contracts.	Noise	Noise mitigation measures have been provided at rock breaking areas to mitigate the noise impacts which included erection of mobile noise barriers and scaffolding with adhesion of noise absorptive materials for the sides facing the noise sensitive receivers. Moreover, acoustic wrappings had been provided to the breaking tips of the breakers worked at the works areas. Less noisy construction methods, such as blasting and expanding agent were adopted to reduce construction noise.
17 June 2011	A complaint was referred by CEDD (ICC) officer regarding the construction noise impact from rock breaking and drilling activities in Portion I (site areas opposite to Ning Po No. 2 College).	Noise	Contractor was to provided additional noise mitigation measures by means of increasing the length of noise screening measures at the concerned working areas to further minimize the noise impacts.
21 September 2011	A complaint was received by RSS regarding the construction noise and dust impact from blasting activities carried out within the Project site after 1700.	Air & Noise	Tyre mat was provided to enclose the blasting area in order to mitigate the noise impacts to nearby noise sensitive receivers. The Contractor increased the frequency of watering at the blasting area to minimize the construction dust impacts during blasting.
12,17 and 26 January 2012	CEDD (ICC) referred a complaint about fugitive dust accumulated on the water barrier and traffic cones at Portion J2 (Clear Water Bay Road near Anderson Road crossing). The complainant has made other calls on 17 and 26 January 2012 regarding the same issue.	Air	The Contractor increased the frequency of watering at the haul road to minimize the construction dust impacts.

Date Received	Detail of complaint	Parameter	Follow up action
17 February 2012	CEDD (ICC) referred a complaint about no wheel washing facility was provided for dump trucks at the construction site entrance of the junction of New Clear Water Bay and Anderson Road.	Air	The Contractor increased the frequency of watering at the haul road and cleaning on public road to minimize the construction dust impacts and ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.
21 February 2012	CEDD (ICC) referred a complaint about gravel on the haul road at Anderson Road and New Clear Water Bay Road.	Air	In order to minimize the dust impact, cleaning on the public road was carried out in the early March 2012. The Contractor was provided to remove any dusty materials from their bodies and wheels before leaving construction site.
22 February 2012	CEDD (ICC) referred a complaint about gravel accumulated on the haul road at Clear Water Bay Road.	Air	In order to minimize the dust impact, cleaning on the public road was carried out in the early March 2012. The Contractor was provided to remove any dusty materials from their bodies and wheels before leaving construction site.
27 February 2012	CEDD (ICC) referred a complaint querying on the presence of wheel washing facility at the construction site entrance at Clear Water Bay Road.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
13 March 2012	CEDD (ICC) referred complaint about gravel on the haul road at Anderson Road and New Clear Water Bay Road.	Air	The Contractor ensured the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site and review the effectiveness of wheel washing facility.
13 March 2012	CEDD (ICC) referred a complaint about traffic obstruction by accumulation of fugitive dust from the road works at Clear Water Bay Road near Anderson Road crossing.	Air	The Contractor ensured the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site and review the effectiveness of wheel washing facility.
14 March 2012	A complaint was referred by CEDD (ICC) regarding the construction noise impact from rock breaking at R15.	Noise	The Contractor rescheduled noisy construction activities to be started after 10a.m.; And provision of additional noise screening measures at rock

Date Received	Detail of complaint	Parameter	Follow up action
			breaking works areas, e.g. erection of adequate mobile noise barrier.
14 March 2012	A complaint was referred by CSCEC regarding the construction noise impact from rock breaking at R15.	Noise	The Contractor rescheduled noisy construction activities to be started after 10a.m.; And provision of additional noise screening measures at rock breaking works areas, e.g. erection of adequate mobile noise barrier.
14 March 2012	CEDD (ICC) referred complaint about gravel and mud on the haul road at Anderson Road.	Air	The Contractor ensured the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site and review the effectiveness of wheel washing facility.
14 March 2012	CEDD (ICC) referred complaint about accumulation of mud on the haul road at New Clear Water Bay Road.	Air	The Contractor ensured the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site and review the effectiveness of wheel washing facility.
15 March 2012	CEDD (ICC) referred complaint about gravel on the haul road at New Clear Water Bay Road.	Air	The Contractor ensured the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site and review the effectiveness of wheel washing facility.
15 March 2012	CEDD (ICC) referred complaint about gravel on the haul road at Anderson Road and New Clear Water Bay Road crossing.	Air	The Contractor ensured the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site and review the effectiveness of wheel washing facility.
16 March 2012	CEDD (ICC) referred complaint about gravel on the haul road at Anderson Road and New Clear Water Bay Road.	Air	The Contractor ensured the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site and review the effectiveness of wheel washing facility.

Date Received	Detail of complaint	Parameter	Follow up action
22 March 2012	CEDD (ICC) referred a complaint about traffic obstruction by accumulation of fugitive dust from the road works at junction of Clear Water Bay and New Clear Water Bay Road.	Air	The Contractor ensured the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site and review the effectiveness of wheel washing facility.
23 March 2012	CEDD (ICC) referred a complaint about traffic obstruction by accumulation of fugitive dust from the road works at Clear Water Bay Road.	Air	The Contractor ensured the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site and review the effectiveness of wheel washing facility.
17 July 2012	CEDD (ICC) referred a complaint about construction noise impact from retaining wall construction alongside Po Lam Road.	Noise	The Contractor maintained the noise mitigation measures to ensure the effectiveness of noise mitigation measures deployed within works area was reviewed onsite regularly in order to provide sufficient noise screening effect properly for the NSRs.
31 July 2012	CEDD referred a complaint about construction noise impact from retaining wall construction alongside Po Lam Road.	Noise	The Contractor stopped rock breaking work before 6pm, maintain the noise mitigation measures and ensure the effectiveness of noise mitigation measures deployed within works area reviewed onsite regularly in order to provide sufficient noise screening effect properly for the noise sensitive receivers.
31 August 2012	CEDD referred a complaint about dust nuisance at New Clear Water Bay Road.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
31 August 2012	A complaint was referred by CEDD (ICC) regarding the fugitive dust impact at the slope of Shun Chi Court on 31 August 2012.	Air	The Contractor implemented regular water spray to the works area and closely monitor the status of tarpaulin sheet to minimize fugitive emission generated.
15 October 2012	A complaint was sent to CSCE regarding the construction noise impact in the works area facing Sau Mau Ping Estate on 15 October 2012 via email.	Noise	The Contractor was stipulated the noise mitigation measures for construction activities involving the use of Powered Mechanical Equipment (PME) is

Date Received	Detail of complaint	Parameter	Follow up action
			conducted in the concerned area.
4 December 2012	A complaint was referred by CEDD (ICC) regarding the muddy water impact along the road at New Clear Water Bay Road on 4 December 2012.	Water	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility. Moreover, regular water spraying was also cleaned the carriageway along New Clear Water Bay Road.
6 December 2012	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 6 December 2012.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
11 December 2012	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 11 December 2012.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
13 December 2012	CEDD referred a complaint about construction noise impact from retaining wall construction alongside Po Lam Road.	Noise	The Contractor started the works after 9 a.m., strictly implement the noise mitigation measures and ensure the effectiveness of noise mitigation measures deployed within works reviewed onsite regularly in order to provide sufficient noise screening effect properly for the noise sensitive receivers.
27 May 2013	CEDD(ICC) referred complaints about noise nuisance along the Shun On Road on 27 May 2013.	Noise	The Contractor implemented the noise mitigation measures and ensure the effectiveness of noise mitigation measures deployed within works area should be reviewed onsite regularly in order to provide sufficient noise screening effect properly for the NSRs.
9 July 2013	CEDD(ICC) referred a complaint about air quality nuisance at Hiu Kwong Street works area on 9 July 2013.	Air	The Contractor provided regular maintenance to the captioned generator operating at the works area, closely monitor the captioned generator to ensure that emission of dark was avoided.

Date Received	Detail of complaint	Parameter	Follow up action
7 August 2013	A complaint was referred by CEDD (ICC) regarding the discharging of silty water in the vicinity of KTTS on 7 August 2013.	Water	Apart from the cleaning works which have been undertaken by the Contractor in the vicinity of KTTS, Tsui Ping Nullah and sandtrap at Sau Mau Ping Road, the Contractor provided sufficient effluent treatment facility on site to avoid any non-complied wastewater discharge.
23 August 2013	CEDD(ICC) referred complaints about noise nuisance outside Sau Ming Primary School on 23 August 2013.	Noise	The Contractor started the works after 9 a.m., strictly implement the noise mitigation measures and ensure the effectiveness of noise mitigation measures deployed within works area reviewed onsite regularly in order to provide sufficient noise screening effect properly for the NSRs.
17 September 2013	CEDD(ICC) referred complaints about noise nuisance along the Shun On Road on 17 September 2013.	Noise	The Contractor implemented the noise mitigation measures and ensure the effectiveness of noise mitigation measures deployed within works area reviewed onsite regularly in order to provide sufficient noise screening effect properly for the NSRs.
11 November 2013	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 11 November 2013.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
2 December 2013	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 2 December 2013.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
30 December 2013	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 2 December 2013.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
6 March 2014	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 6 March 2014.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.

Date Received	Detail of complaint	Parameter	Follow up action
6 March 2014	CEDD(ICC) referred a complaint about dust nuisance along Po Lam Road on 6 March 2014.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
7 March 2014	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 7 March 2014.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
11 March 2014	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 11 March 2014.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
12 March 2014	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 12 March 2014.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
14 March 2014	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 6 March 2014.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
21 March 2014	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 21 March 2014.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
25 March 2014	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 25 March 2014.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
29 April 2014	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay Road near Anderson Road crossing on 29 April 2014.	Air	The Contractor ensured the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.
29 April 2014	CEDD(ICC) referred a complaint about dust nuisance along the road at New Clear Water Bay	Air	The Contractor ensured the wheel washing facility was operated at the construction site

Date Received	Detail of complaint	Parameter	Follow up action
	Road near Anderson Road crossing on 29 April 2014.		entrance and closely monitor the effectiveness of the wheel washing facility.
16 June 2014	CEDD(ICC) referred a complaint about effluent arisen from washing water of a concrete lorry at Po Lam Road near Po Tat Estate on 16 June 2014.	Water	The Contractor avoided improper vehicle washing activity on public road and prevent any potential effluent from entering the public road and drainage system.
24 April 2018	A complaint was referred by EPD during inspection on 20 April 2018. The complaint was about dust emission by road marking removal activity on Lee On Road.	Air	The Contractor implemented sufficient water spraying was provided during road marking removal activity to suppress dust generation.

#1 Two complaints were counted in this noise complaint. The detail of this noise complaint please refer to the monthly report for June 2008.

- 6.2 Complaint investigation was carried out for each of the complaint received. All the complaint cases had been closed.
- 6.3 A summary of environmental complaints is provided in Appendix G.

- 6.4 During the construction phase of the Project, there were a total of 6 notification of summons, in which 2 were successful prosecutions.
- 6.5 4 summons were received regarding the suspected violation case of Air Pollution Control Ordinance (Cap. 311) within site working area of the project on 17 July 2012. For the four summons, two charges had been convicted and the written reports on successful prosecution were received by the Contractor on 12 July 2013.
- 6.6 2 summonses were received regarding the suspected violation case of Water Pollution Control Ordinance (Cap. 358) within site working area of the project on 4 May 2013.
- 6.7 Table 6.2 summarizes the number of Summon and Successful prosecutions in during construction phase.

Table 6.2 Summary of Summon and Successful prosecutions throughout the Construction Phase

Date	Nature of Breaches	Detail of Summon	Result	Follow-up action
17 July 2012	Air	No dust control measure implemented during loading and unloading dusty material.	Dropped Charge	N/A
17 July 2012	Air	The vehicle carried dusty material did not cover entirely by clean imperious sheeting before leaving the site.	Successful prosecution	Not provided
17 July 2012	Air	No dust control measure implemented during blasting work carrying the construction area.	Successful prosecution	Not provided
17 July 2012	Air	No dust control measure implemented during and after the excavation works.	Dropped Charge	N/A
4 May 2013 #1	Water	The exceeded limit suspended solid of wastewater was discharged from the construction site.	Dropped Charge	N/A

#1 Two summons were received in this suspected violation case. The detail of this suspected violation case please refer to the monthly report for February 2014.

- 6.8 The cumulative statistics on complaints is updated in Appendix G.

7. OPERATIONAL PHASE NOISE MONITORING

Introduction

- 7.1 The operation phase noise monitoring has been carried out in accordance with the methodology and requirements set out in the approved Updated EM&A Manual. This section presents the noise monitoring results and the verification of the traffic noise assessment conducted in Environmental Impact Assessment (EIA) Study, by comparing the project noise impact predictions with the actual impacts.

Monitoring Requirement

- 7.2 According to the Environmental Permit Condition 2.3 and 3.3 of EP-483/2013, traffic noise impact monitoring for the operational phase shall be conducted within 12 months after the commencement of operation of the Project. The measured noise levels shall be compared with the project noise impact predications in the Final EIA report (Register No. AEIAR-007/1999), using the counted traffic data at the time of measurement.
- 7.3 The purpose of this monitoring is to verify the traffic noise assessment and effectiveness of the proposed noise mitigation measures, which is the provisioning of a 7m high cantilevered noise barrier wall (6 m vertical barrier with 1.4m cantilever length at 45 degree to the horizontal) (same configuration as those being removed), along the footpath of the widened Po Lam Road is proposed, that the impact at NSRs are within acceptable noise limits. The proposed noise mitigation measures plan are provided in Appendix I.

Measurement Time

- 7.4 As stipulated in the Updated EM&A manual, noise level shall be measured at the time of peak traffic flow on normal weekdays. According to the latest publication on traffic flow produced by Transport Department, The Annual Traffic Census 2017, peak hours on normal weekdays was 0900-1000 and 1800-1900 for the east bound; and 0800-0900 and 1700-1800 for the west bound.
- 7.5 Since there is a concurrent project in the vicinity (i.e. Contract: NE/2016/01 – Site Formation and Infrastructure Works for Development of Anderson Road Quarry Site) which involves heavy breaking activities and site formation, noise from construction activities (such as breaking activities) would be dominant during normal working hours (normal weekdays, 0700-1900). Monitoring during normal working hours (normal weekdays, 0700-1900) is not feasible as noise from construction activities would affect the monitoring result and validity. Taking into account that typical construction works shifts end at 1800 and with consideration of peak hours from the Annual Traffic Census, the monitoring time is proposed to be any 1 hour between 1830 and 2000 during normal weekdays.

Noise Monitoring Locations (Noise Sensitive Receivers)

- 7.6 Noise measurements were carried out at two locations according to the Updated EM&A manual as shown in Table 7.1 below.

Table 7.1 Traffic Noise Monitoring Locations

Location	Sensitive Receiver ID.	Use	Monitoring Floor
Tat Yan House of Po Tat Estate	2094	Residential	30/F
Tat Chui House of Po Tat Estate	2088	Residential	30/F

Noise Monitoring Equipment

7.7 Integrating Sound Level Meters (Type 1), which comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1), was used for the noise monitoring. The sound level meter is capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (Leq) and percentile sound pressure level (Lx). Acoustic calibrator was deployed to check the sound level meter at a known sound pressure level. The instrumentation to be used for the noise monitoring is given Table 7.2.

Table 7.2 Traffic Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	B&K 2238 & 2270
Hand-held Acoustic Calibrator	B&K 4231

7.8 The sound level meter was calibrated using a Bruel and Kjaer Sound Level Calibrator Type 4231 for 94dB at 1kHz, immediate prior to and after each set of measurements. The results of the calibration were recorded on the field data sheet. The difference between the readings made before and after each set of measurements was less than 1 dB(A).

Noise Measurement Methodology

- 7.9 Noise measurements were made in accordance with Section III of the “Calculation of Road Traffic Noise (CRTN), 1998”.
- 7.10 The noise measurements were conducted to obtain one sets of A-weighted L₁₀ (1 hour) sound pressure level during the PM peak traffic hour in any one hour monitoring period between 1830 and 2000 at each designated monitoring station. Statistical results such as Leq and L₉₀ were also obtained for reference.
- 7.11 For Tat Yan House and Tat Chui House, noise measurements were conducted at a point 1m from exterior of the sensitive receiver building façade.
- 7.12 The wind speed should be checked with a portable wind meter. Observations were recorded when intrusive noise was unavoidable. No noise monitoring should be carried out in case in the presence of fog, rain, wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Traffic Survey

7.13 Road traffic data including average vehicle speeds, number of vehicles per hour and percentage of heavy vehicles for both west-bound and east-bound of Po Lam Road were recorded at the time of noise measurement for the two monitoring stations. The road traffic count details are summarized in Table 7.3.

Table 7.3 Road Traffic Count Details

Noise Monitoring Locations	Sensitive Receiver ID.	Location of Road Traffic Count
30/F, Tat Yan House of Po Tat Estate	2094	Roof top of Tat Yan House
30/F, Tat Chui House of Po Tat Estate	2088	Roof top of Tat Chui House

Projected Noise Levels

7.14 The measured noise levels should be compared with the predicted noise levels by the application of appropriate corrections to normalise the traffic conditions of the assessment year as adopted in the EIA Study (i.e. Year 2011).

7.15 The correction factor should be calculated as follows:

$$\text{Correction Factor} = 10\text{Log}\left(\frac{Q'}{Q}\right) + 33\text{Log}\left(\frac{V'+40+500/V'}{V+40+500/V}\right) + 10\text{Log}\left(\frac{1+5p'/V'}{1+5p/V}\right)$$

Where Q' is predicted traffic flow using the CRTN noise model
 V' is predicted traffic speed using the CRTN noise model
 p' is predicted percentage of heavy vehicle using the CRTN noise model
 Q is measured traffic flow during the traffic noise monitoring event
 V is measured traffic speed during the traffic noise monitoring event
 p is measured percentage of heavy vehicle during the traffic noise monitoring event

7.16 The traffic noise prediction and effectiveness of the proposed noise mitigation measures should be verified by this monitoring. The discrepancy, if any, should be reported to the EPD.

General Result and Observation

7.17 During the course of noise monitoring, road traffic along Po Lam road was the major noise source. Noise data were continuously recorded by sound level meters at an interval of 1 minute.

Traffic Noise Monitoring Results

7.18 The operational phase noise monitoring was conducted on a weekday during PM peak traffic hour from 18:30 to 20:00 on 04 September 2018. The weather condition during the monitoring days were fine. Random check of wind speed at the monitoring stations showed that it was below 5 m/s. The summary of traffic noise measurement results are summarized in Table 7.4.

Table 7.4 Noise Measurement Results

Monitoring Date	Monitoring Station	Period	Measured Noise Level (Mitigated), L _{10 (1-hr)} dB(A)
04 September 2018	Tat Yan House	PM Traffic Peak hour (18:30 – 19:30)	64.6
04 September 2018	Tat Chui House		65.1

Road Condition and Traffic Survey

7.19 The traffic conditions along the concerned road sections were normal and there was no traffic congestion during the monitoring period. The summary of the traffic data obtained in the peak hour are summarized in Table 7.5.

Table 7.5 Traffic Survey Results

Monitoring Station		No. of Vehicles	Percentage of Heavy Vehicles	Average Vehicle Speed (km/h)
30/F, Tat Yan House	East Bound	636 ^(a)	11	71
	West Bound	660	27	66
30/F, Tat Chui House	East Bound	996 ^(a)	25	42 ^(b)
	West Bound	654	20	68

Notes:

- (a) According to the observation during the operational noise monitoring, some vehicles from east-bound traffic counting position for Tat Chui House were driven into On Sau Road or the internal road of Po Tat Estate before reaching the east-bound traffic counting position for Tat Yan House. Therefore, the counted number of vehicles for Tat Yan House is lower.
- (b) According to the observation during the operational noise monitoring, east-bound vehicle speed measured at the road section that proposed for vehicle speed estimation for Tat Chui House is relatively lower due to traffic light control and vehicles moving uphill.

Predicted Noise Levels under the Traffic Flow Condition in 2011

- 7.20 According to approved EIA Report for the Project, the traffic forecast was produced for the design year of 2001, 2006 and 2011 as part of the Traffic Impact Assessment (TIA) of EIA study.
- 7.21 The traffic noise levels at the identified NSRs were predicted using the computer model “Road Noise” which implements the calculation method as prescribed in “Calculation of Road Traffic Noise (CRTN)” developed by the UK Department of Transport, Welsh Office in 1988.
- 7.22 In the EIA study, the traffic data of year 2011, which was agreed by the Transport Department, shows that the projected population figures of the future development of Shun On, Shun Lee, Shun Tin and Shun Lee THA and Rehabilitation of the existing Anderson Road Quarry planned beyond 2011 are included to predict a worst case traffic projection. The traffic forecast for year 2011 (AM peak hour) was therefore taken in the noise impact assessment to predict worst case noise impacts.

Predicted Noise Levels in Current Situation

- 7.23 According to the Updated EM&A Manual, the measured noise levels should be compared with the noise modelling result obtained with the counted traffic data.
- 7.24 The traffic flow, vehicular speed and percentage of heavy vehicle obtained during the course of traffic noise measurements and that adopted in the approved EIA report for the assessment year of 2011 are summarized in Table 7.6.

Table 7.6 Counted Traffic Data and Traffic Data in the Approved EIA Report for assessment year of 2011

Road	No. of Vehicles (East Bound + West Bound)	Percentage of Heavy Vehicles	Estimated Speed (km/h)
<i>Traffic data from the approved EIA report for the Project</i>			
Po Lam Road (Road Segment No.124-126)	4040	19	50
<i>Counted traffic data during operational noise monitoring</i>			
Po Lam Road (Counted from Tat Yan House)	1296	19.4 ^(a)	68.6 ^(a)
Po Lam Road (Counted from Tat Chui House)	1650	23.3 ^(a)	52.5 ^(a)

Note:

(a) Averaged value of east bound and west bound counted traffic data.

- 7.25 Table 7.7 shows the measured noise levels, the projected noise levels and the EIA predicted noise levels in assessment year of 2011 in comparison with the noise standard.

Table 7.7 Comparison of the Projected Noise Levels and the EIA Predicted Noise Levels

Monitoring Station	Noise Level, L ₁₀ (1-hr) dB(A)				
	Measured Noise Level [1]	Correction Factor [2]	Projected Noise Level ^(a) [1]+[2]	EIA Predicted Noise Level in Year 2011 (AM Peak Hour)	Noise Standard
30/F, Tat Yan House	64.6	3.6	68.2	68.6	70
30/F, Tat Chui House	65.1	3.2	68.3	68.7	70

Note:

(a) The noise level that projected to the traffic condition that adopted in the approved EIA report for the assessment year of 2011 from the measured noise level.

- 7.26 As shown in Table 7.7, all of the measured noise levels and the projected noise levels are within the criterion of 70 dB(A). The projected noise levels and the EIA predicted noise level in Year 2011 are considered comparable within a reasonable deviation range. Hence, the noise mitigation measures implemented are considered effective.

8. OVERALL SUMMARY

Review of EM&A Program

- 8.1 The impact air quality and noise monitoring was properly conducted in accordance with the EM&A Manual. The monitoring events were sufficient to justify the respective environmental impacts on the nearby sensitive receivers.
- 8.2 Site audits were carried out weekly to monitor the Contractor's performance on the air quality, noise, water quality and waste management issues. The audit programme confirmed that the mitigation measures were properly implemented by the Contractor.

Comparison of the EM&A Data with the EIA Predictions

- 8.3 Despite occasional air quality and noise exceedances occurred during the construction phase, the environmental monitoring data (i.e. air quality and noise) collected in the construction period were generally in line with the prediction of the EIA Report as the monitoring results were within the acceptable levels as stipulated in the EIA Report.

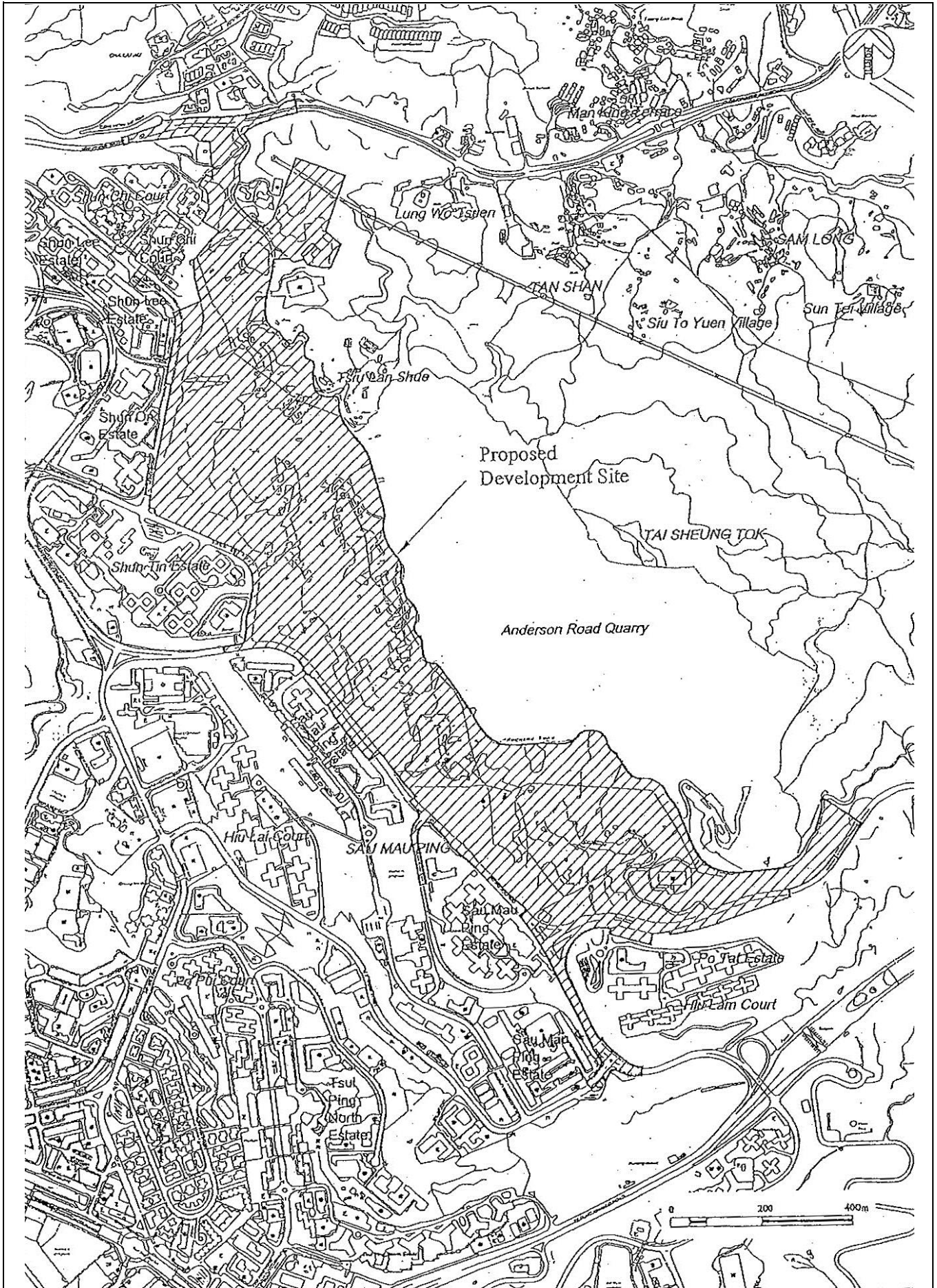
Review of the Monitoring Methodology and EM&A Programme


- 8.4 ET regularly reviewed the monitoring methodology as recommended in the EM&A Manual. There was no amendment on the monitoring methodology during the construction phase of the Project.
- 8.5 The EM&A programme and the effectiveness and efficiency of the mitigation measures were successful during the construction period.

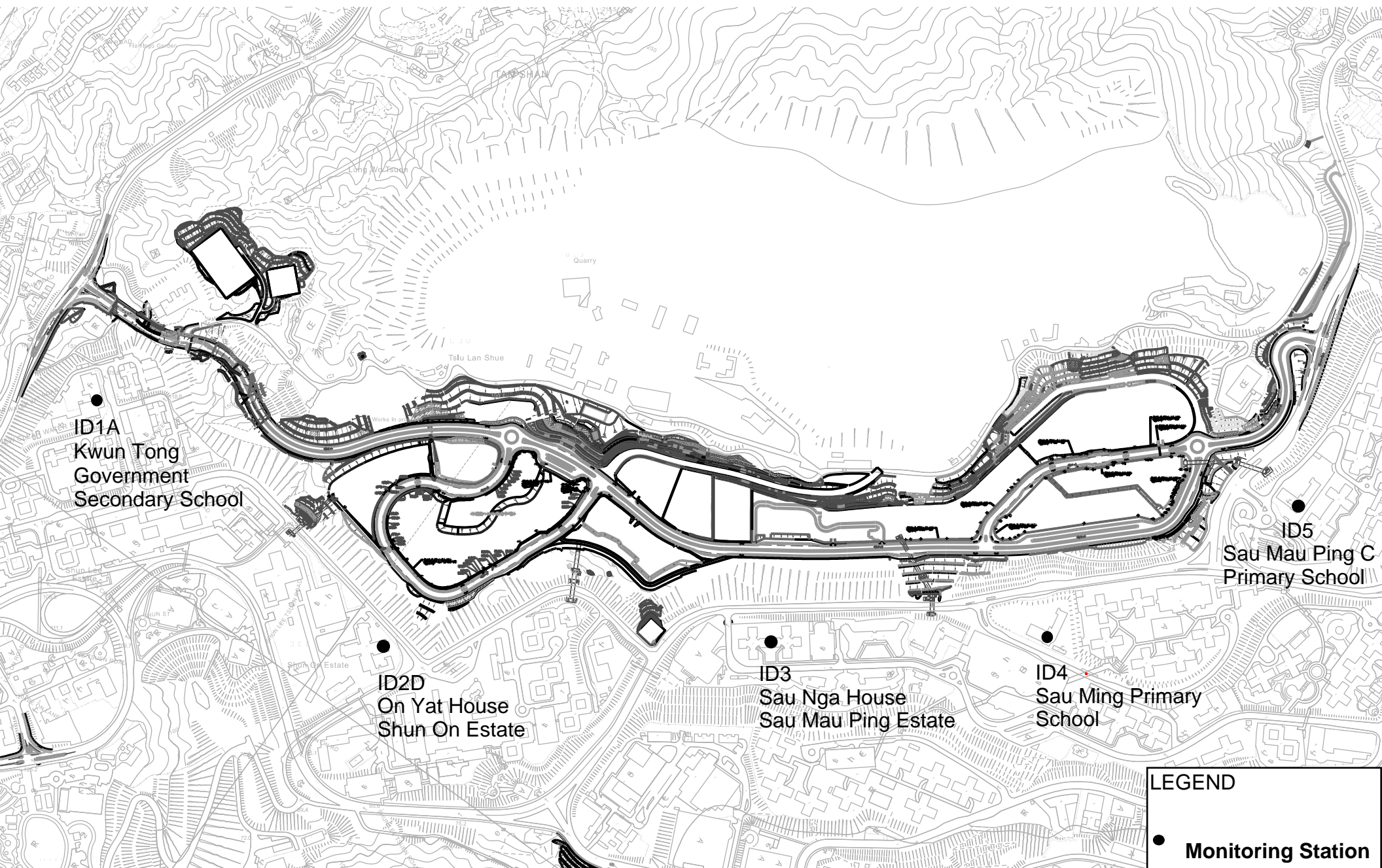
Environmental Acceptability of the Project

- 8.6 Most of Environmental monitoring result were below the Action and Limit Levels in the construction stage, excepted few exceedances of air quality and noise results were recorded. The environmental monitoring results indicated that the construction activities in general complied with the relevant environmental requirements.
- 8.7 From the monitoring results, it is concluded that the overall environmental performance of the project is satisfactory.

FIGURES



	Development at Anderson Road - Site Formation and Associated Infrastructure Works			SCALE	N.T.S.	DATE	Nov-09
	GENERAL LAYOUT PLAN			CHECK	ENFL	DRAWN	LCHC
				JOB NO.	60043155	DRAWING No.	Rev.
				FIG 1.1			



LEGEND

● **Monitoring Station**

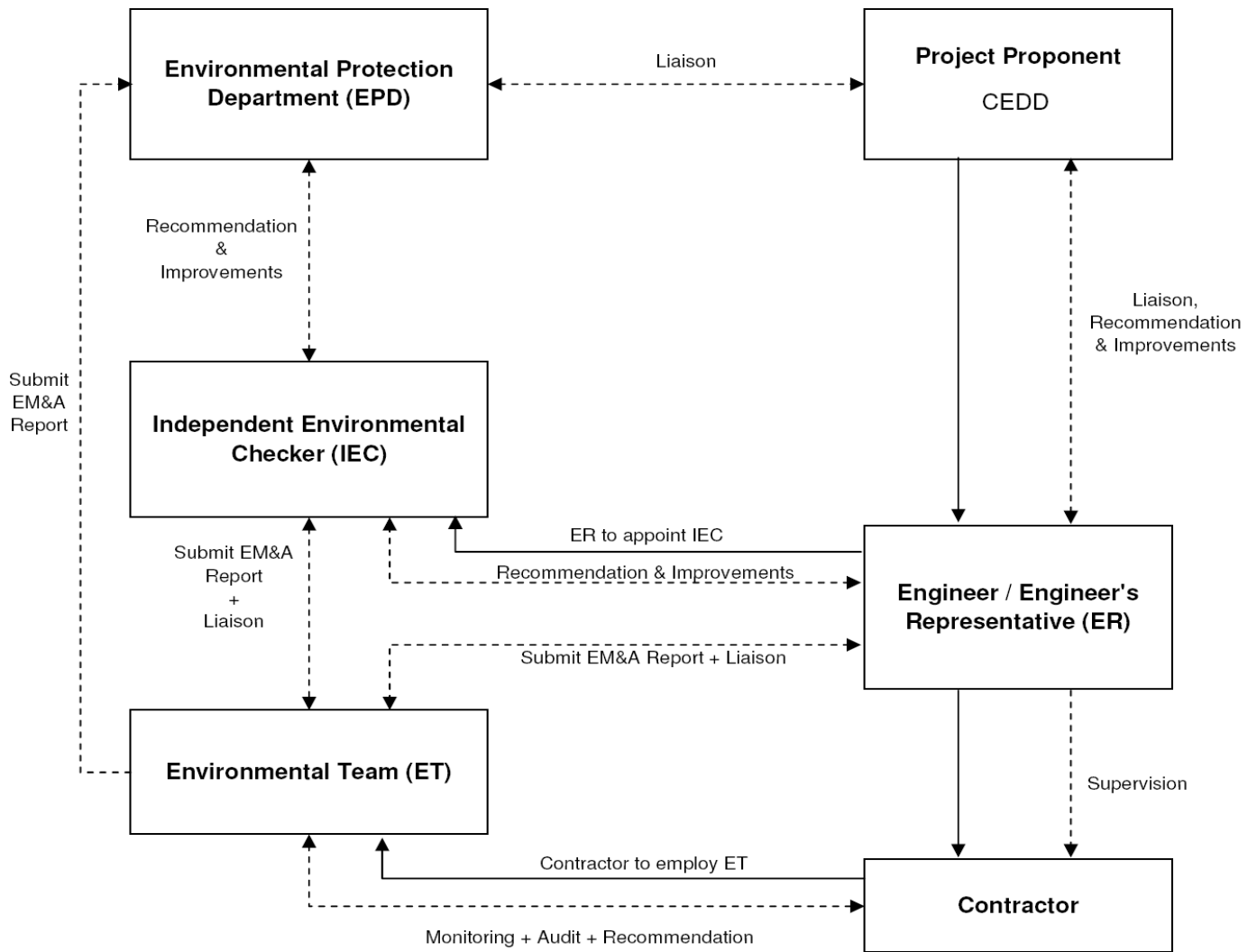


**DEVELOPMENT AT ANDERSON ROAD
SITE FORMATION AND ASSOCIATED INFRASTRUCTURE WORKS
MONITORING LOCATIONS**

SCALE	N.T.S.	DATE	JAN-19	
CHECK	CWHY	DRAWN	RWHW	
JOB No.	60043155	DRAWING No.	FIG 2.1	REV —

APPENDIX A

Project Organization Structure



——— Employment Relationship
 - - - - - Working Relationship



Contract No. CV/2007/03
 Development at Anderson Road – Site Formation and Associated
 Infrastructure Works

Project Organization Structure

SCALE	N.T.S.	DATE	2009
CHECK	ENFL	DRAWN	LCHC
JOB NO.	60043155	APPENDIX	Rev
		A	-

APPENDIX B

**Implementation Schedule of Environmental Mitigation
Measures (EMIS)**

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Appendix B - Implementation Schedule of Environmental Mitigation Measures

Environmental Mitigation Measures		Location	Implementation Status
Construction Noise Impact			
Site Formation	Silenced powered mechanical equipment (PME) for most equipment (including drill rig, backhoe, dump truck, breaker and crane) and the decrease of percentage on time usage of drill rig among the Central Area from 50% to 40% is proposed.	All construction sites	V
	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	V
Construction Air Quality Impact			
General Site	Mean vehicle speed of haulage trucks at 10km/hr.	All construction sites	V
Practice	Twice daily watering of all open site areas.	All construction sites	V
	Regular watering (once every 1 hour) of all site roads and access roads with frequent truck movement.	All construction sites	V
	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.	All construction sites	V
	Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.	All construction sites	V
	Establishment and use of vehicle wheel and body washing facilities at the exit points of the site, combined with cleaning of public roads were necessary.	Site exits	V

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General Site Practice	Suitable side and tailboards on haulage vehicles.	All construction sites	V
	Watering of temporary stockpiles.	All construction sites	V
Blasting	Use of select aggregate and fines to stem the charge with drill holes and watering of blast face.	All construction sites	V
	Use of vacuum extraction drilling methods.	All construction sites	V
	Carefully sequenced blasting.	All construction sites	V
Crushing	Fabric filters installed for the crushing plant.	All construction sites	V
	Water sprays on the crusher.	All construction sites	V
Loading and Unloading Points, and conveyor Belt System	Water sprays at all fixed loading and unloading points (at the crusher and conveyor belts).	All construction sites	V
	The loading point at the crusher is enclosed with dust collection system installed.	All construction sites	V
	When transferring materials from conveyor belt or crusher to the dump trucks or chutes, dust curtains are used for controlling dust.	All construction sites	V
	Cover the conveyor belts with steel roof and canvas sides.	All construction sites	V
Construction Water Quality Impact			
Construction Phase	All active working areas should be bounded to retain storm water with sufficient retention time to ensure that suspended solids are not discharged from the site in concentrations above those specified in the TM for the Victoria Harbour (Phase I) WCZ. All fuel storage areas should be bounded with drainage directed to an oil interceptor.	Site drainage system	V

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	Separate treatment facilities may be required for effluent from site offices, toilets (unless chemical toilets are used) and canteens.	Site drainage system	V
	Discharged wastewater from the construction sites to surface water and/or public drainage systems should be controlled through licensing. Discharge should follow fully the terms and conditions in the licenses.	All works area	V
	Relevant practice for dealing with various type of construction discharges provided in EPD's ProPECC Note PN 1/94 should be adopted.	All works area	V
Waste Management			
Waste Disposal	Different types of wastes should be segregated, stored, transported and disposed of separately in accordance with the relevant legislative requirements and guidelines as proper practice of waste management.	All construction sites	V
	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 spoil.	All construction sites	V
	Excavated spoil should be used as much as possible to minimize off-side fill material requirements and disposal of spoil.	All construction sites	V
	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.	All construction sites	V

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	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	V
Waste Storage	Chemical material storage areas should be bounded, constructed of impervious materials and have the capacity to contain 120 percent of the total volume of the containers. Indoor storage areas must have sufficient ventilation to prevent the build-up of fumes, and must be capable of evacuating the space in the event of an accidental release. Outdoor storage areas must be covered with a canopy or contain provisions for the safe removal of rainwater. In both cases, storage areas must not be connected to the foul or stormwater sewer system.	All construction sites	V
	Dangerous materials as defined under the DGO, including fuel, oil and lubricants, should be stored and properly labelled 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.	All construction sites	V
	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 construction sites	V

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Landscape and Visual			
Additional Measures	Planting and vegetation restoration (including transplanted trees) on soil slopes including restoration of grassland, scrub and woodland on slopes around the development platforms and access road. Restoration would be undertaken using predominantly native species.	Whole development	V
Additional Measures	Screen planting along the access roads, to limit impacts of elevated structures and rock slopes.	Whole development	V
	Colouring of shotcrete slopes.	Whole development	V
	Limited planting on shotcrete slopes.	Whole development	V
	Landscape buffers and planting in and around the development itself to screen partially close views of the site.	Whole development	V
	Screen planting in front of retaining walls / granite cladding to those walls to reduce glare and visual impacts.	Whole development	V
	Careful design of road elevated structure and abutments, to limit visual impacts.	Whole development	V
	Roadside landscape features / hardworks to limit visual impacts.	Whole development	V
	Conservation of CDG or CDV recovered from the site for re-use in the landscape restoration.	Whole development	V
	Preservation (by transplanting if necessary) of any trees identified as being of particular landscape value.	Whole development	V

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Ecology			
	Woodland planting on soft cut slopes available (about 13.4ha) within the development site. Native species, preferably with documented ecological utility, should be used.	Soft cut slopes	V
	Seeds of the native species when possible should be added into the hydroseeding mix. Seedlings should be pit planted with placement of slow release fertilizer.	Soft cut slopes	V
	Maintenance and service, including weeding, fertilizing, replacement of dead plants, etc. should be performed during the first 1 years of planting to enhance the survival rate of the plants.	Soft cut slopes	V
Contaminated Land			
	In accordance with the approved Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) in Nov 2006, it is recommended that cement solidification / stabilization prior to on-site backfill for heavy metal contaminated soil and excavation followed by disposal at designated landfill for organic contaminated soil. Upon the completion of the proposed remediation exercise as outlined in CAR & RAP, a Remediation Report will be compiled for submission to EPD to demonstrate that the proposed soil remediation has been carried out properly and satisfactorily. Results from the confirmation tests will also be included in the Remediation Report. Photos showing the area of excavation, the solidification process, and remediated soil and site shall also be included in the report for reference.	Locations specified in CAR	V

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Landfill Gas Hazard			
	Further site investigation should be carried out during the detailed design stage in order to measure landfill gas around the perimeter of the site, to re-confirm that there is no preferential pathway for landfill gas migration and to assess the potential for landfill gas hazards on the future development. If a landfill gas hazard is identified, mitigation measures should be proposed and implemented to address the hazard.	The whole development site	V

Legend: V = implemented;
 x = not implemented;
 @ = partially implemented;
 N/A = not applicable

APPENDIX C

Summary of Action and Limit Levels

Appendix C - Summary of Action and Limit Levels

Table 1 – Action and Limit Levels for 1-hour TSP

Location	Action Level	Limit Level
ID 1A	201.5	500
ID 2	197.0	500
ID 3	203.7	500
ID 4	264.6	500
ID 5	267.4	500

Table 2 – Action and Limit Levels for 24-hour TSP

Location	Action Level	Limit Level
ID 1A	170.2	260
ID 2	200.0	260
ID 3	200.0	260
ID 4	181.3	260
ID 5	180.8	260

Table 3 – Action and Limit Levels for Construction Noise (0700-1900 hrs of normal weekdays)

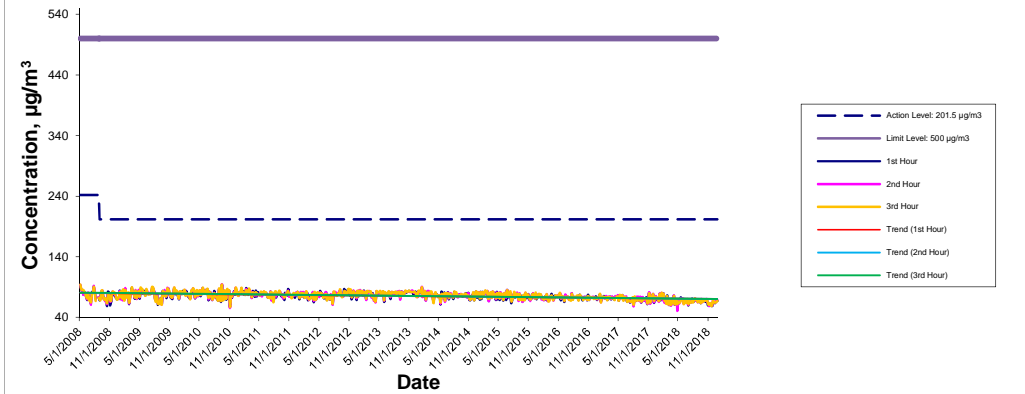
Location	Action Level	Limit Level
ID 1A	When one documented complaint is received from any one of the sensitive receivers	*65 / 70 dB(A)
ID 2		75 dB(A)
ID 3		75 dB(A)
ID 4		*65 / 70 dB(A)
ID 5		*65 / 70 dB(A)

*Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period

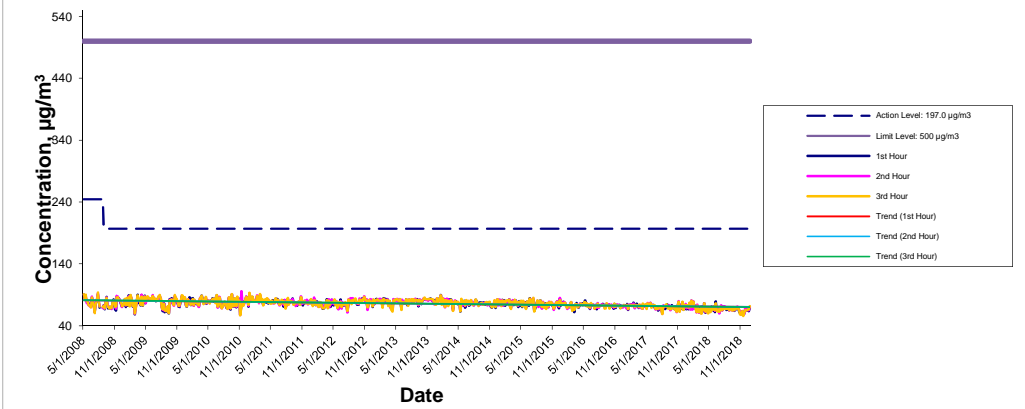
APPENDIX D

**Graphical Presentation of Impact Air Quality Monitoring
Results over the Construction Stage**

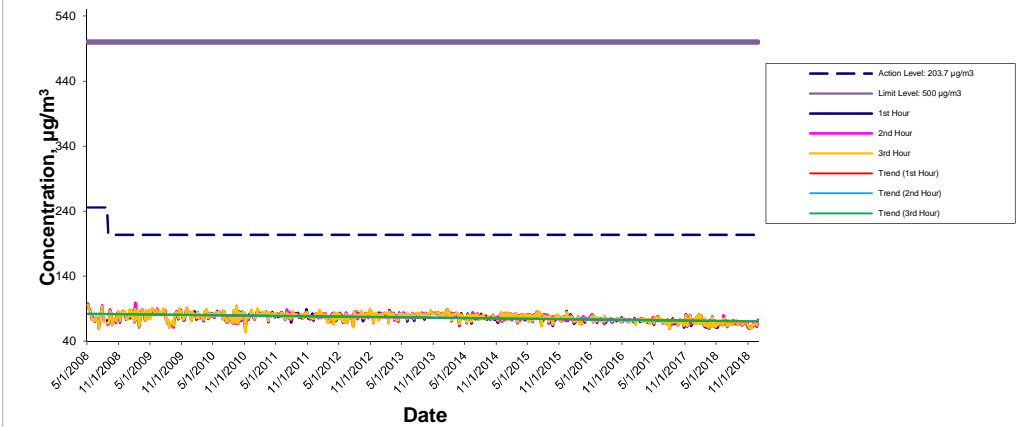
ID 1A



ID 2

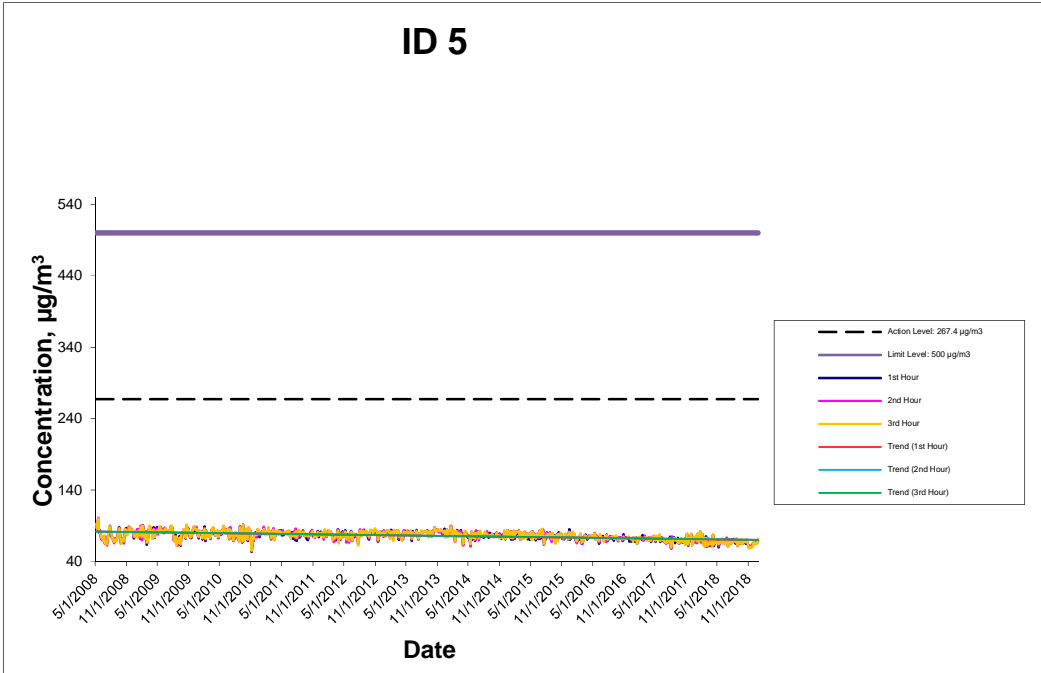
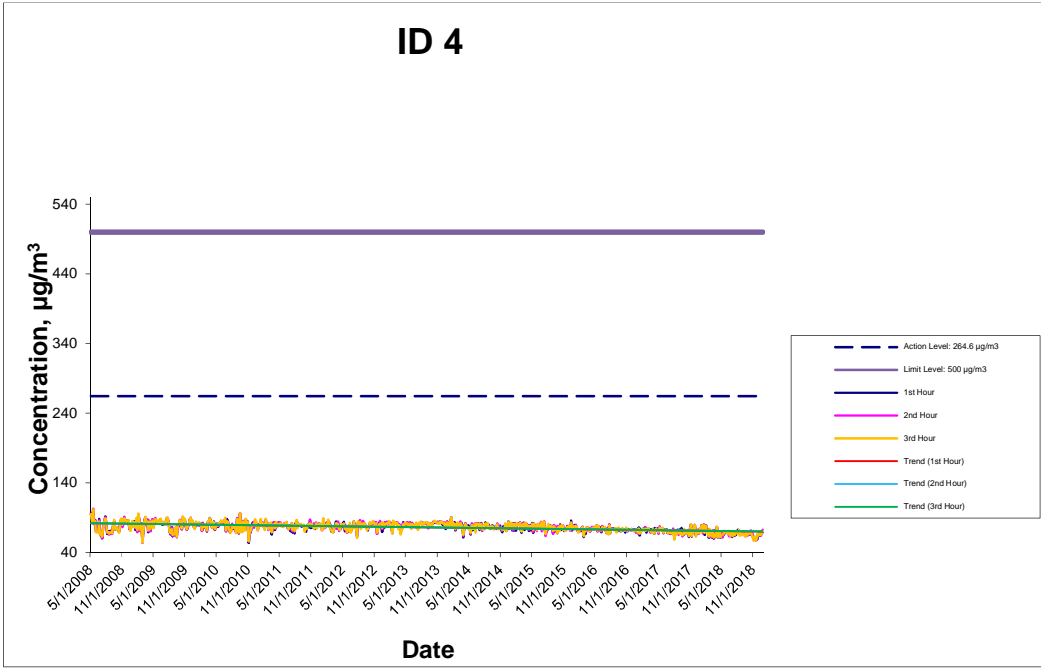


ID 3



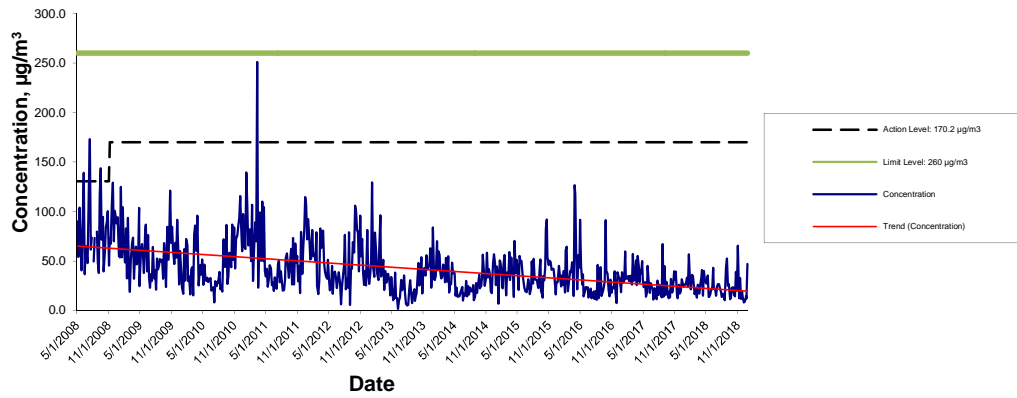
**Development at Anderson Road - Site Formation
and Associated Infrastructure Works**
**Graphical Presentations of Impact 1-hour TSP
Monitoring Results**

SCALE	N.T.S.	DATE	Jan-19
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JOB NO.	60043155	APPENDIX No.	Rev.
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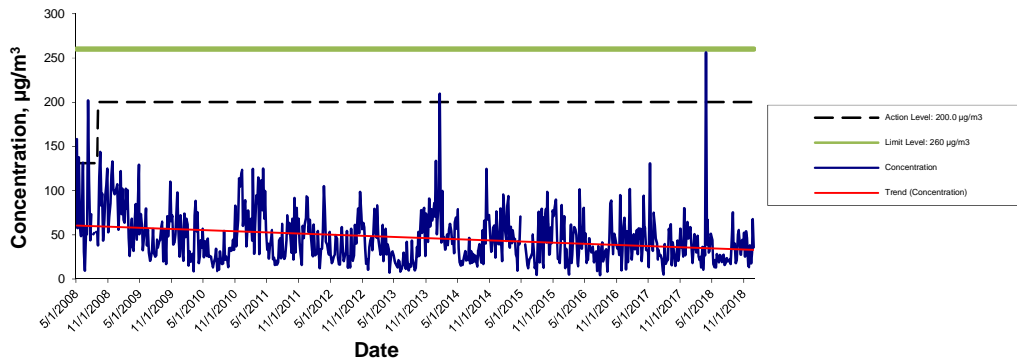


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		JOB NO.	60043155	APPENDIX No.	Rev.

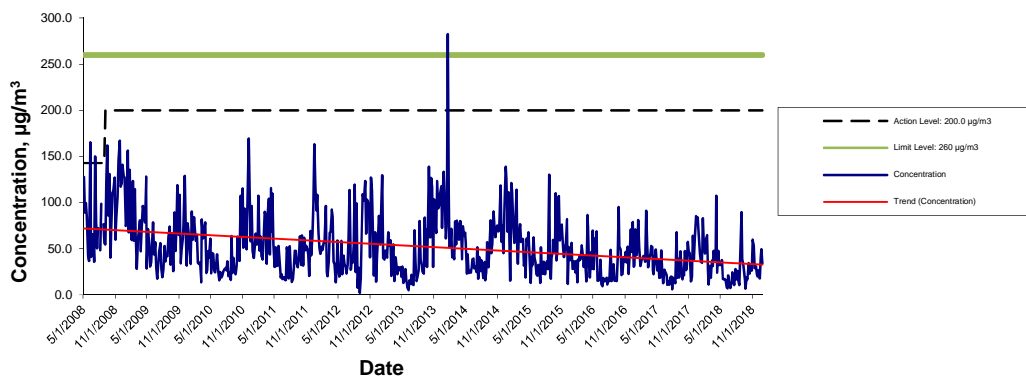
ID 1A



ID 2



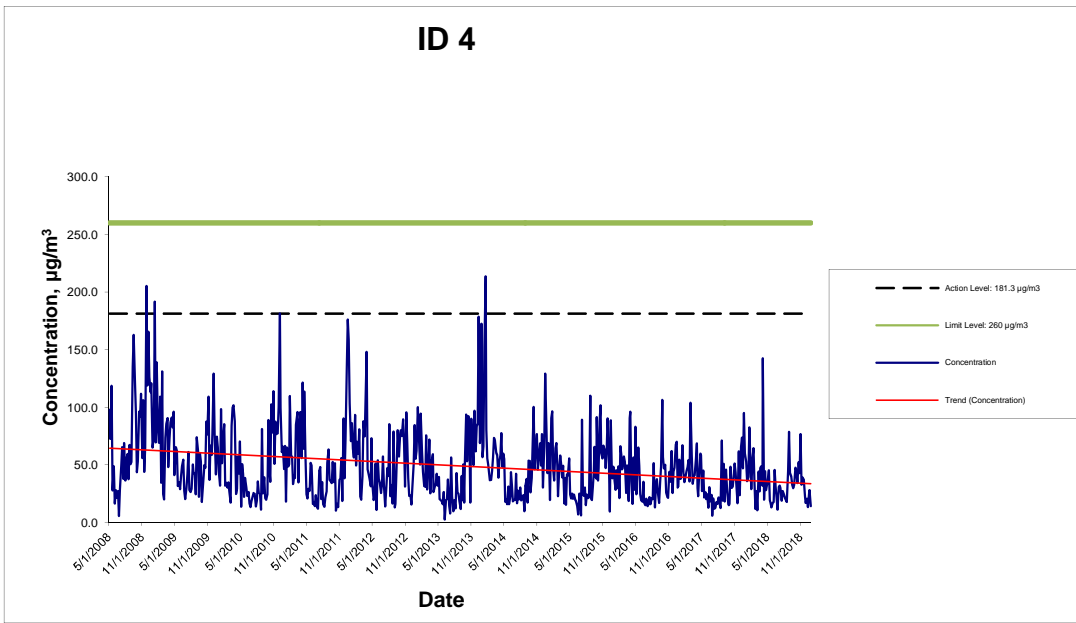
ID 3



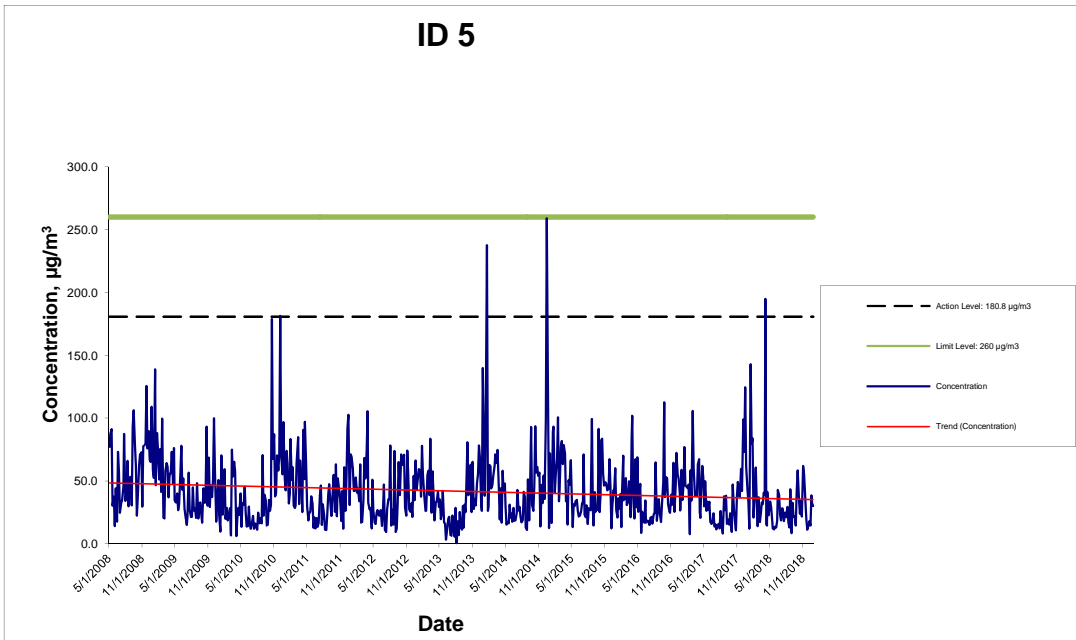
**Development at Anderson Road - Site Formation
and Associated Infrastructure Works**
Graphical Presentations of Impact 24-hour TSP
Monitoring Results

SCALE	N.T.S.	DATE	Jan-19
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ID 4



ID 5



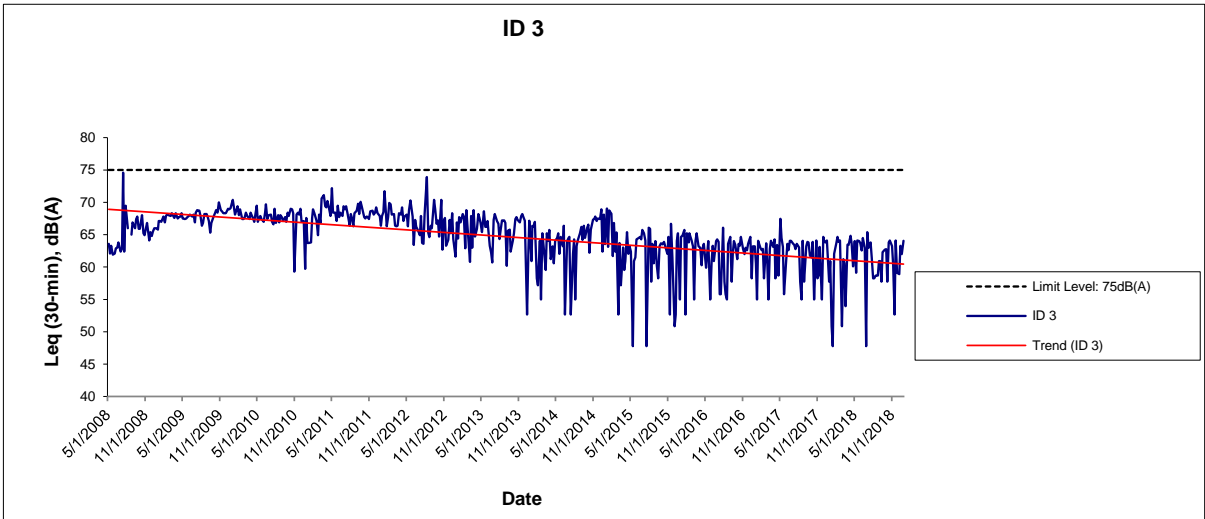
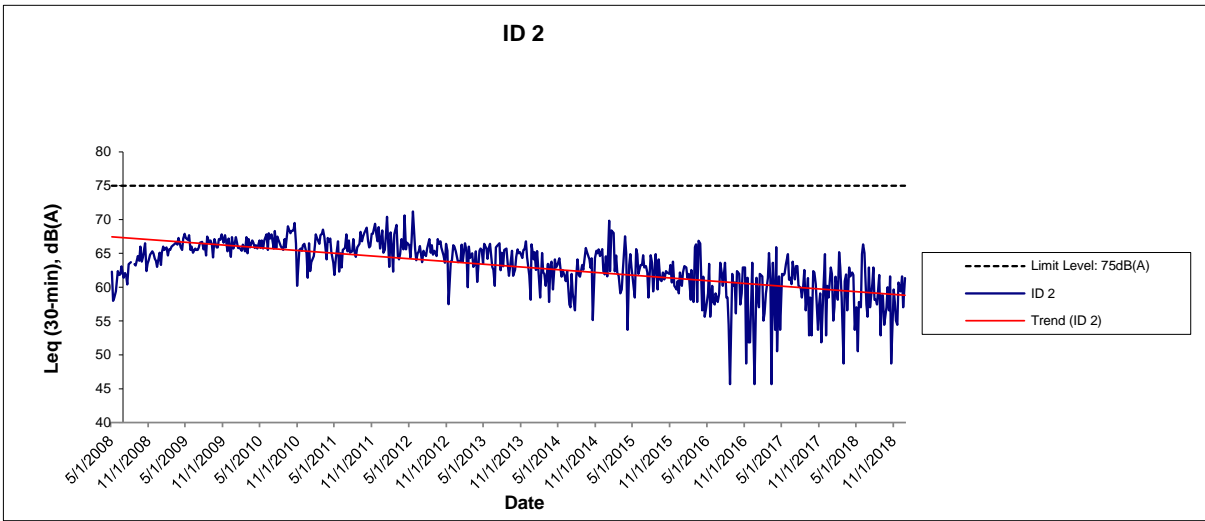
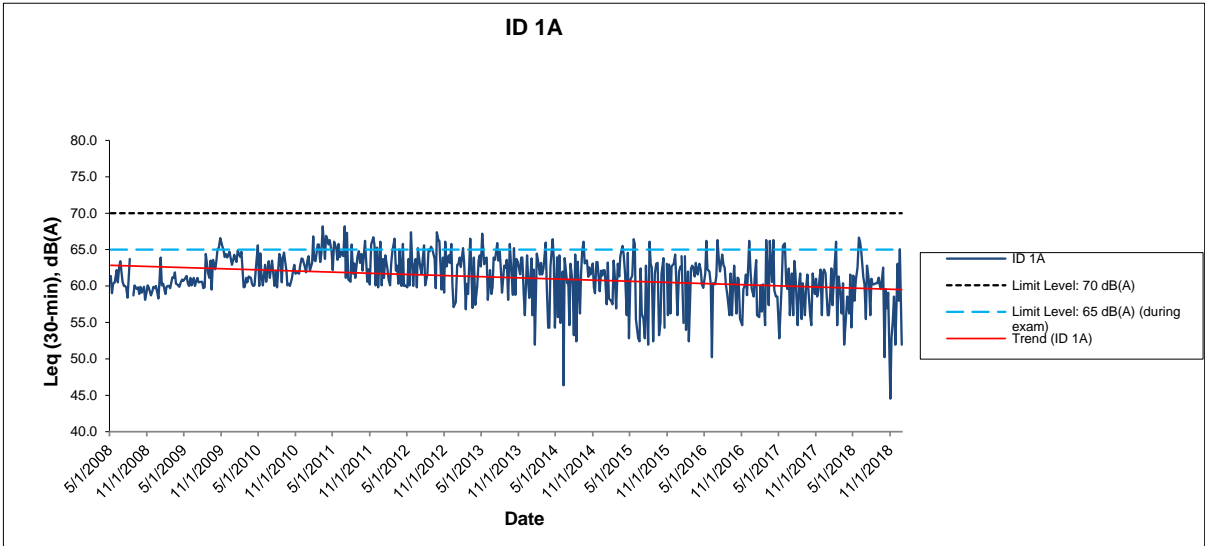
**Development at Anderson Road - Site Formation
and Associated Infrastructure Works**

**Graphical Presentations of Impact 24-hour TSP
Monitoring Results**

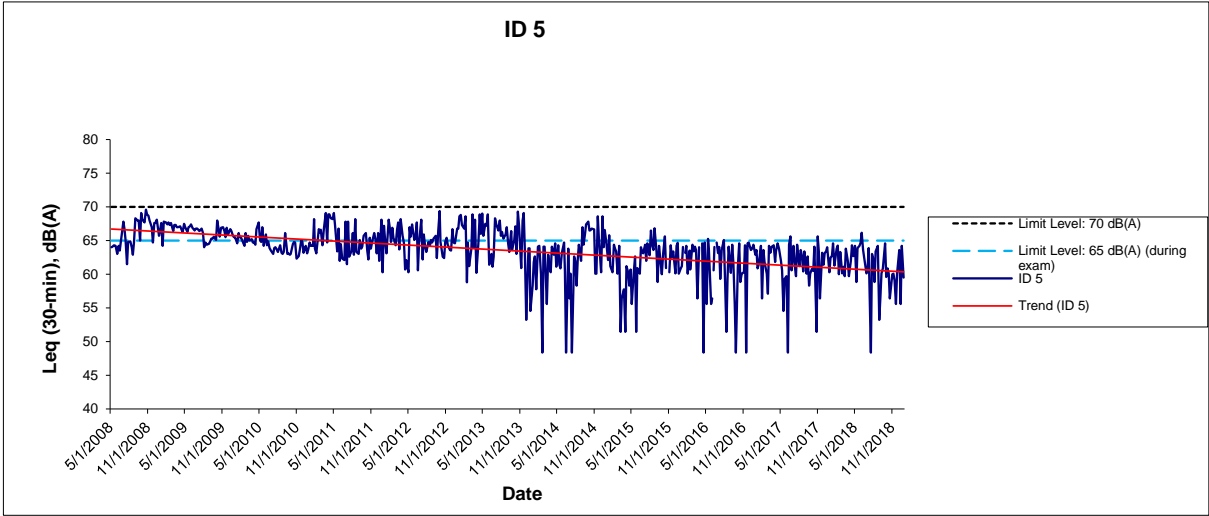
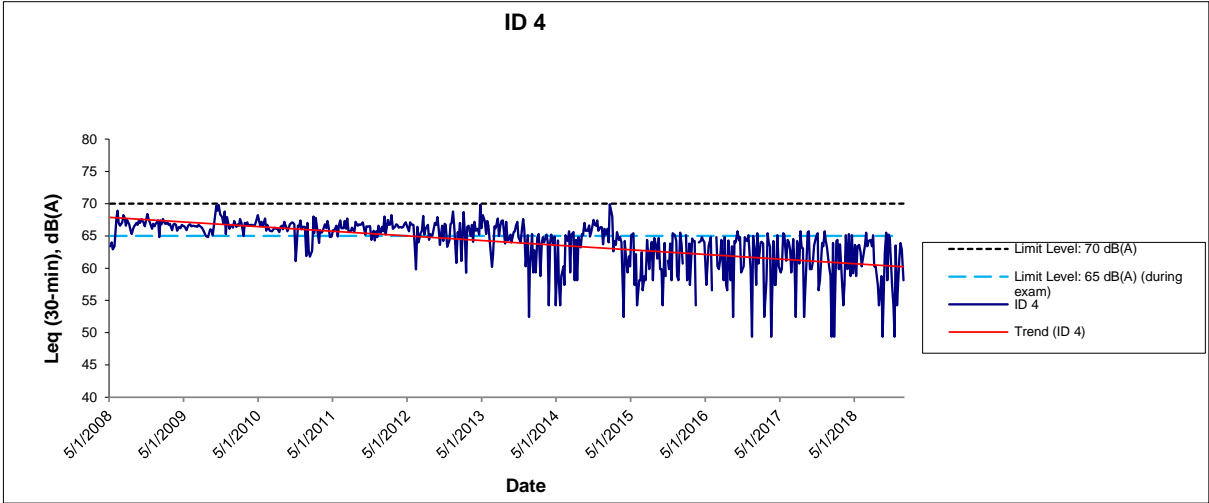
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JOB NO.	60043155	APPENDIX No.	Rev.
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APPENDIX E

**Graphical Presentation of Noise Monitoring Results
over the Construction Stage**



	Development at Anderson Road - Site Formation and Associated Infrastructure Works		SCALE	N.T.S.	DATE	Jan-09
	Graphical Presentations of Noise Monitoring Results		CHECK	FYW	DRAWN	DTTW
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	Development at Anderson Road - Site Formation and Associated Infrastructure Works	SCALE	N.T.S.	DATE	Jan-19
	Graphical Presentations of Noise Monitoring Results	CHECK	FYW	DRAWN	DTTW
		JOB NO.	60043155	APPENDIX	E

APPENDIX F

Event Action Plan

Appendix F – Event Action Plan

Event and Action Plan for Air Quality

Event	ACTION			
	ET	IC(E)	ER	Contractor
ACTION LEVEL				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source 2. Inform IC(E) and ER. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET. 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice. 2. Amend working methods if appropriate.
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source. 2. Inform IC(E) and ER. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Discuss with IC(E) and Contractor for remedial actions required. 6. If exceedance continues, arrange meeting with IC(E) and ER. 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET. 2. Check Contractor's working method. 3. Discuss with ET and Contractor on possible remedial measures. 4. Advise ER on the effectiveness of proposed remedial measures. 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. Ensure remedial actions properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposal for remedial actions to IC(E) within 3 working days of notification. 2. Implement the agreed proposals. 3. Amend proposal if appropriate.

Event and Action Plan for Air Quality

Event	ACTION			
	ET	IC(E)	ER	Contractor
LIMIT LEVEL				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source. 2. Inform ER and EPD. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily. 5. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET. 2. Check Contractor's working method. 3. Discuss with ET and Contractor on possible remedial measures. 4. Advise ER on the effectiveness of proposed remedial measures. 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. Ensure remedial actions properly implemented. 	<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. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source. 2. Inform ER and EPD. 3. Repeat measurements to confirm finding. 4. Increase monitoring frequency to daily. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken. 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. 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. In consultation with IC(E), agree with Contractor on the remedial measures to be implemented. 4. Ensure remedial measures properly implemented. 5. If exceedance continues, consider what portion of the work is responsible and instruct Contractor to stop the 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. Amend proposal if appropriate.

Event and Action Plan for Noise

Event	Action			
	ET	IC(E)	ER	Contractor
1.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.
1.Exceedance for Limit 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 exceedance. 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. 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 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 ER until the exceedance is abated.

APPENDIX G

**Cumulative Statistics of Exceedances, Complaints,
Notification of Summons and Successful Prosecutions**

Appendix G - Cumulative Statistics on Exceedances, Complaints, Notification of Summons and Successful Prosecutions

Cumulative statistics on Exceedances

		Total no. recorded since project commencement
1-Hour TSP	Action	-
	Limit	-
24-Hour TSP	Action	17
	Limit	1
Noise	Action	32
	Limit	1

Cumulative statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Total no. recorded since project commencement
Environmental complaints	75
Notification of summons	6
Successful Prosecutions	2

APPENDIX H

Meteorological Data for the Construction Stage

Monthly Extract of Meteorological Observations: 2008

Month	Hong Kong Observatory										King's Park	Waglan Island [^]	
	Mean Pressure (hPa)	Air Temperature					Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean Daily Max (deg. C)	Mean (deg. C)	Mean Daily Min (deg. C)	Absolute Daily Min (deg. C)							
5	1008.3	31.4	28.1	25.3	23.3	19.8	22.1	83	75	191.9	124.8	80	20.2
6	1006.2	32.9	28.9	26.7	24.8	22.8	24.4	88	81	1346.1	75.5	200	21.7
7	1005.7	34.6	31	28.4	26.5	22.9	24.9	82	70	471.1	179	240	18
8	1005.9	34.3	31.3	28.4	26.5	23.4	24.3	79	66	317	215.5	240	20
9	1007.8	34.3	32	29	26.8	24.7	23.8	75	66	159.2	213.9	90	18.5
10	1014.1	30.7	29.1	26.5	24.9	22.5	22.1	77	69	144.6	180.6	80	28.5
11	1018	29.4	24.5	21.9	19.8	12.5	14.7	65	48	54.3	216	080#	27.8#
12	1019.8	24.4	21	18.4	16.2	11.5	11.1	63	50	9	188.5	360	24.3

Monthly Extract of Meteorological Observations: 2009

Month	Hong Kong Observatory										King's Park	Waglan Island [^]	
	Mean Pressure (hPa)	Air Temperature					Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean Daily Max (deg. C)	Mean (deg. C)	Mean Daily Min (deg. C)	Absolute Daily Min (deg. C)							
1	1021.9	24.5	18.3	15.3	13	9.4	8.1	64	40	Trace	226.5	360	25.9
2	1015.5	28.3	23.7	20.5	18.6	15.8	17.1	81	64	1.1	140.7	70	21
3	1015.2	28.3	22.1	19.7	17.9	12.8	16.6	83	81	120.7	70.1	070#	24
4	1012.7	30.1	24.8	22	20.2	16.8	17.6	77	79	108.7	119.3	70	29
5	1010.8	32	28.8	25.5	23.5	20.7	21.2	78	70	245.2	169.8	80	21.9
6	1004.8	32.9	30.7	28.1	26.2	24.4	24.6	81	76	341.8	127.1	220	18.4
7	1005.1	34.3	31.9	29.1	27	23.9	25.3	81	69	389.4	197.4	100	21.5
8	1004.9	34.9	32.2	29.4	27.7	24.8	25.5	80	69	334.1	192.1	230	16.1
9	1007.5	34.6	31.9	28.8	26.9	24.2	24.6	78	66	486.3	181.3	080#	28.6
10	1012.4	32.1	28.9	26.2	24.3	23	20.8	73	59	44.4	202.6	090#	21.6#
11	1017.7	30.3	23.2	20.5	18.3	9.7	15.1	72	61	60.4	171.4	360	25.5
12	1019.3	24	19.3	17.3	15.6	9.4	13.3	78	65	50.2	124.5	10	25.8

Monthly Extract of Meteorological Observations: 2010

Month	Hong Kong Observatory										King's Park	Waglan Island [^]	
	Mean Pressure (hPa)	Air Temperature					Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean Daily Max (deg. C)	Mean (deg. C)	Mean Daily Min (deg. C)	Absolute Daily Min (deg. C)							
1	1020.5	24.5	19	16.8	15.2	9.8	13.3	80	73	24.6	108.7	40	27.1
2	1016.6	27.1	19.7	17.9	16.3	7.7	15.8	88	88	113.1	31.8	30	22.7
3	1016.9	29.1	23.1	20.2	18.1	8.1	16.4	80	73	17.5	110.1	30	22.2
4	1014.7	29.5	23.6	21	19	13.5	18.6	87	84	78.9	49.2	30	23.1
5	1008.8	30.7	28.1	25.6	23.7	20.8	22.9	86	77	176.6	112.1	80	19
6	1007.8	32.7	29.2	27.1	25.4	20.4	24.4	85	81	474.9	92.5	210	21
7	1008.2	33.9	32.1	29.2	26.9	23.6	25.5	81	69	469.4	247.8	210	20.4
8	1008.1	33.7	31.9	28.8	26.6	24.3	25.2	81	67	350.3	213.4	80	15.5
9	1008.7	34.1	30.5	28	25.9	23.1	24.6	83	70	583.1	179.9	60	18.6
10	1012.5	31.6	27.2	24.8	22.9	15.7	19.2	72	67	22.7	165.5	20	31.5
11	1017.1	26.7	23.9	21.2	19.2	16.8	16.1	74	51	42.2	212.5	70	24
12	1016.3	26.8	20.8	18.1	15.6	5.8	11.1	66	45	18.4	185.8	20	26.3

Monthly Extract of Meteorological Observations: 2011

Month	Hong Kong Observatory										King's Park	Waglan Island [^]	
	Mean Pressure (hPa)	Air Temperature					Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean Daily Max (deg. C)	Mean (deg. C)	Mean Daily Min (deg. C)	Absolute Daily Min (deg. C)							
1	1021.5	19.4	16.3	13.7	11.6	7.2	7.5	67	63	5.4	158.6	20	27.1
2	1017.1	26.9	19.1	16.2	14.2	8.6	12	77	65	23.7	127.7	40	22.5
3	1018.7	27.4	21.1	18	15.7	12.5	12.4	71	79	20.5	108.6	30	26.2
4	1014	29.7	26.9	22.9	20.6	16.9	18.2	76	59	36	191.6	70	18.4
5	1009.2	33	29	26	24.1	19.8	22.4	81	73	186.7	150.5	50	16.9
6	1005.3	34.5	31.3	28.6	26.7	24.6	25	82	74	446.1	149.5	200	21.5
7	1004.4	33.9	31.4	28.8	27	24.6	25.1	81	64	226.8	202.3	220	19.3
8	1006.1	35	32.4	29.5	27.4	25.2	24.8	77	56	157.6	242	220	13.4
9	1007.6	32.8	30.6	28	26	23.2	23.9	79	70	123.1	158.5	110	26.4
10	1013.9	30.2	27.3	24.8	23.2	21.3	20.6	78	62	172.4	161.1	80	29.3
11	1015.4	29.7	25.3	23	21.5	17.7	18.7	77	70	86.1	134.2	70	27.3
12	1020.9	24.5	19.4	16.9	14.6	9.6	9.9	65	50	2.8	193.9	20	28.1

Monthly Extract of Meteorological Observations: 2012

Month	Hong Kong Observatory										King's Park	Waglan Island ^a	
	Mean Pressure (hPa)	Air Temperature					Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean Daily Max (deg. C)	Mean (deg. C)	Mean Daily Min (deg. C)	Absolute Daily Min (deg. C)							
1	1019.3	22.4	17	15.1	13.5	7.4	11.9	82	79	42.1	86	30	23.3
2	1016.8	22.2	17.8	15.8	14	9.8	13.1	85	84	29.5	38.1	40	25.4
3	1015.6	28.8	21.8	19	16.9	11.4	15.8	83	75	22.1	106.5	50	23.9
4	1011.3	30.2	26.2	23.9	22	18.2	21.2	85	80	294.9	88.1	80	21.4
5	1007.5	32.5	29.4	27	25.5	24.1	24.4	86	78	277.7	136.1	090#	23.4#
6	1002.6	33.3	30.5	28.1	26.4	24.7	25	83	78	261.5	126	210#	26.2#
7	1004.6	33.8	31.6	28.8	26.8	24.4	25.2	81	70	467.8	197.6	230	22.6
8	1003.3	34.5	32.2	29.5	27.4	25.1	24.9	77	71	149.8	183.2	230	17
9	1010.3	33.6	30.9	28	26	23.6	23	75	65	213	187.4	110	20
10	1014.3	30.7	28.3	25.6	23.7	17.7	20.4	74	59	46.4	199.8	100	25.7
11	1015.5	27.8	24.2	22.2	20.6	14.6	18.7	81	76	63.9	101.4	80	26.2
12	1018.3	26.2	19.7	17.8	15.9	7.1	13.8	78	74	56	101	70	31.3

Monthly Extract of Meteorological Observations: 2013

Month	Hong Kong Observatory										King's Park	Waglan Island ^a	
	Mean Pressure (hPa)	Air Temperature					Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean Daily Max (deg. C)	Mean (deg. C)	Mean Daily Min (deg. C)	Absolute Daily Min (deg. C)							
1	1020.5	25.6	19.1	16.7	14.8	10.8	11.3	71	58	3.4	184	60	21.2
2	1018.3	26.2	22.1	19.1	17.1	11.9	15.4	80	75	1.5	98.7	70	22.6
3	1015.7	28.3	23.5	20.5	18.5	13.2	16.5	79	65	130.5	127.4	50	19.5
4	1012.3	30.6	23.9	21.5	19.7	15.2	19	86	81	253.8	53.6	70	22.9
5	1008.8	33	28.2	25.7	23.9	16.6	23.2	86	80	509.3	90.7	60	19.7
6	1005.5	34.2	30.7	28.2	26.5	22.4	25.1	84	72	438.6	146.1	230	23.4
7	1007.1	33.5	30.9	28	26.1	24.6	25.1	85	72	436.3	156.9	170	20.3
8	1004.9	34.9	31.1	28.6	26.5	24.4	25.3	83	68	445.4	148.1	200	22.7
9	1008.5	34.7	30.3	27.5	25.7	23.6	23.9	82	67	454.2	186	90	27.4
10	1014.1	32	28.6	25.7	23.7	19.4	18.6	66	45	2.9	247.3	90	23.6
11	1017.3	29.5	23.8	21.7	19.7	12.8	16.2	72	67	83.1	133.4	80	30.5
12	1019.6	24.9	18.6	16.1	14	9.2	8.6	63	40	88.3	197.4	30	24.8

Monthly Extract of Meteorological Observations: 2014

Month	Hong Kong Observatory										King's Park	Waglan Island ^a	
	Mean Pressure (hPa)	Air Temperature					Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean Daily Max (deg. C)	Mean (deg. C)	Mean Daily Min (deg. C)	Absolute Daily Min (deg. C)							
1	1021.3	24.4	19.2	16.3	14.1	10.3	9.9	67	32	Trace	238.8	40	22.9
2	1017.7	24.6	17.9	15.5	13.5	7.3	12.3	82	73	39.5	91.9	50	26.6
3	1017.1	27.6	20.9	18.7	17	13.9	15.7	83	77	207.6	86	60	24.1
4	1013.4	29	24.9	22.6	21	17.5	20	86	72	132.4	119.4	80	20.6
5	1009.5	32.8	28.6	26.4	24.6	18.8	23.7	86	82	687.3	107.8	240#	24.3#
6	1003.8	33.7	31.5	29	27	25.2	25	80	77	436.6	147.3	230	18.9
7	1005.3	34.2	32.6	29.8	27.6	25.9	25.9	80	70	260.5	217.5	220	18.2
8	1007	34.6	32	29	26.8	22.9	25.3	81	67	548.2	212	240	17.7
9	1008.4	34.1	32	29	27	25.2	24.5	77	57	140.6	203	80	17.4
10	1014.6	31.4	28.9	26.2	24.3	22.8	20.4	71	54	109.8	222.9	100	24.3
11	1017	28.6	24.6	22.6	21.2	18.1	18.5	78	63	31.1	141.4	90	25
12	1021.7	23.9	18.5	16.3	14.2	10.7	9.9	67	67	44.7	115.3	20	30.5

Monthly Extract of Meteorological Observations: 2015

Month	Hong Kong Observatory										King's Park	Waglan Island ^a	
	Mean Pressure (hPa)	Air Temperature					Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean Daily Max (deg. C)	Mean (deg. C)	Mean Daily Min (deg. C)	Absolute Daily Min (deg. C)							
1	1021.2	23.9	18.9	16.4	14.5	10.3	11.2	72	45	41.7	198.8	50	24.3
2	1019.4	23.8	19.5	17.5	15.9	11	13.4	78	74	32	97.5	40	22.2
3	1017.7	28.3	22	19.9	18.5	14.8	17.1	85	83	28.4	69.9	50	22.6
4	1014.1	31.9	26.7	23.6	21.4	15.9	19.2	77	63	64.5	159.2	20	18.2
5	1008.7	32.6	29.9	27.5	25.5	22.6	24.5	85	84	513	93.5	210	20.1
6	1007.3	34.2	32.3	29.7	27.7	25.6	25.7	80	69	302.1	192.8	220	20.3
7	1004.2	34.4	31.8	29.1	27.2	23.9	25	79	75	406.2	164.9	210	20.4
8	1006.1	36.3	32.1	29.3	27.2	24.9	25	78	65	143.3	195.9	220	12.8
9	1010.2	32.9	31.1	28.4	26.6	24.5	24.1	78	61	87.9	204.5	60	20
10	1014.4	31.7	28.5	26	24.2	18.5	21.4	77	64	168.3	172.8	80	23
11	1017.5	30.3	26.1	24	22.4	15.3	20	79	66	22.8	143.9	80	27.7
12	1020.8	25.1	20.3	18.6	17.1	11.3	14	76	77	64.3	75.9	20	26.2

Monthly Extract of Meteorological Observations: 2016

Month	Hong Kong Observatory										King's Park	Waglan Island [^]	
	Mean Pressure (hPa)	Air Temperature					Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean Daily Max (deg. C)	Mean (deg. C)	Mean Daily Min (deg. C)	Absolute Daily Min (deg. C)							
1	1020.4	24.3	17.8	16	14.4	3.1	13	83	79	266.9	67.1	60	29.4
2	1022.2	25.9	18.2	15.5	13.4	9.4	10.4	74	68	24.8	103.3	20	21.3
3	1017.7	25.9	20	17.5	15.7	10	14.5	84	79	148.7	84.8	50	22.8
4	1011.6	29.1	26	23.6	21.9	19.8	21.6	89	84	211.4	55.4	40	17.1
5	1009.7	32.1	29.1	26.7	24.9	20.4	23.6	83	78	233.6	122.2	70	20.2
6	1007.7	35.5	32.4	29.4	27.5	24.1	25.8	82	70	347.4	173.5	220#	18.5#
7	1007	35.6	32.6	29.8	27.4	24.7	25.7	79	63	175.9	218.2	230#	19.3#
8	1002.8	34.4	31	28.4	26.5	24.5	25.2	84	72	532.7	148.5	60	17.1
9	1007.1	34.9	30.4	27.9	26.1	22.8	23.9	79	72	323.1	135.7	80	18.8
10	1010.7	32.4	29.1	26.8	25	22	22.9	80	74	624.4	152.6	70	26.3
11	1017	29.2	24.5	22.3	20.3	12.8	18.3	79	68	131.3	138.3	70	27
12	1019.5	25.9	21.8	19.6	17.7	11.5	13.9	70	62	6.6	168.2	60	26.7

Monthly Extract of Meteorological Observations: 2017

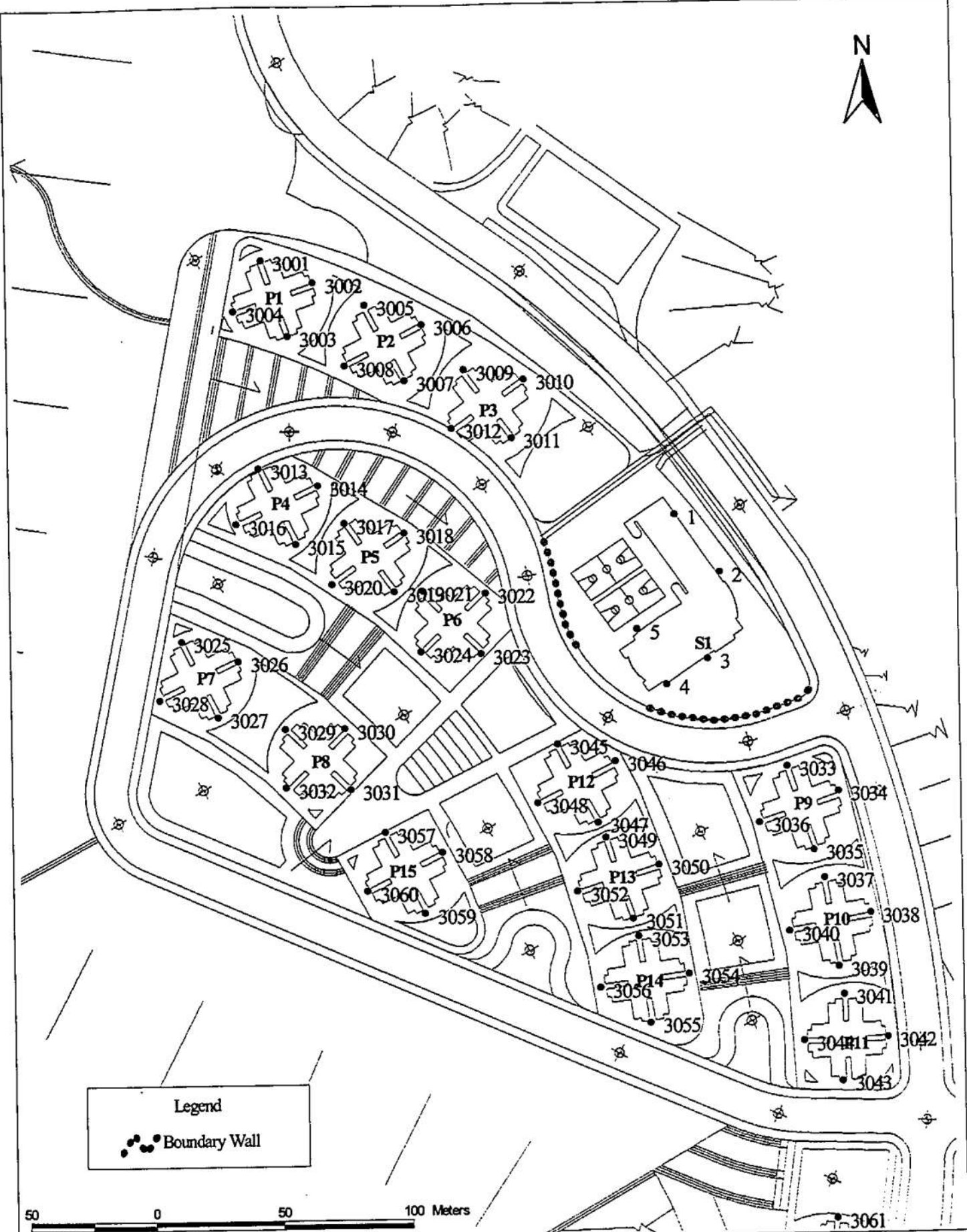
Month	Hong Kong Observatory										King's Park	Waglan Island [^]	
	Mean Pressure (hPa)	Air Temperature					Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean Daily Max (deg. C)	Mean (deg. C)	Mean Daily Min (deg. C)	Absolute Daily Min (deg. C)							
1	1019.8	25.5	20.6	18.5	17	13.6	14.7	79	66	7.8	145.1	70	26.4
2	1020.5	25.5	20	17	14.9	10.6	12.2	75	65	19.9	139.9	60	26.8
3	1016.4	27.6	21.7	19.3	17.3	13.8	15.7	81	80	48	85.2	60	26.5
4	1013.2	30.7	26.2	23.3	21.2	15.5	19.8	81	69	58.8	130.3	70	20.1
5	1010.5	31.6	28.6	26	24.2	22.6	22.5	82	77	399.3	126	80	18.6
6	1006.7	34.1	31.3	28.8	27.2	24.3	25.6	83	78	656	138.9	240	23
7	1006.8	34.8	31.4	28.7	26.9	24.4	25.5	83	79	570	162.9	90	22.1
8	1006.3	36.6	32.1	29.3	27.3	24	25.3	80	70	489.1	205.4	230	20.6
9	1009.1	34.1	31.9	29	27.2	25.3	25	80	65	192.4	187.1	080#	17.4
10	1012.7	33.5	29	26.3	24.4	19	20.4	71	57	99.6	228.6	70	32.9
11	1016.6	28.4	24.4	22.2	20.5	15.5	17.6	76	74	31.2	114.3	60	28.8
12	1020.6	23.2	20.1	17.8	16	9.8	11.2	66	54	Trace	209.6	70	29.6

Monthly Extract of Meteorological Observations: 2018

Month	Hong Kong Observatory										King's Park	Waglan Island [^]	
	Mean Pressure (hPa)	Air Temperature					Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean Daily Max (deg. C)	Mean (deg. C)	Mean Daily Min (deg. C)	Absolute Daily Min (deg. C)							
1	1018.4	25.5	18.5	16.1	14.1	7.8	11.7	77	69	62.2	136.1	60	29.5
2	1019.7	26.2	18.7	16	13.9	6.8	10.4	70	73	4.5	108.7	50	23.7
3	1016.1	27.9	24.4	20.8	18.6	11.1	16.2	76	56	22.7	196.2	60	20.8
4	1014.1	30.6	26.9	23.6	21.7	16.1	19.4	78	71	28.1	143.5	70	16.1
5	1010.5	35.4	31.7	28.3	26.1	22.1	23.7	77	62	57.5	236.9	220	20.2
6	1004.8	35.1	31.3	28.6	26.8	24.4	24.7	80	79	458.8	145.2	230#	24.6#
7	1004	34.3	31.8	29.1	27	25	25.4	81	77	341.1	181.1	90	24.2
8	1001.9	34.2	31	28.6	26.7	24.6	25.5	84	84	615.1	116.2	230	19.9
9	1008.8	35.1	31	28	26	23.6	23.7	78	68	383.3	183.3	090#	19.5#
10	1015.5	31.4	28	25.3	23.4	20.9	18.7	69	59	104.3	181.9	80	24.3
11	1017.2	28	24.8	22.9	21.4	17	18.6	78	79	73.4	123.9	70	29.1
12	1019.9	27.1	21.3	19.2	17.6	10.3	14.8	76	75	11.9	122	360	25.9

APPENDIX I

Proposed noise mitigation measures for the project



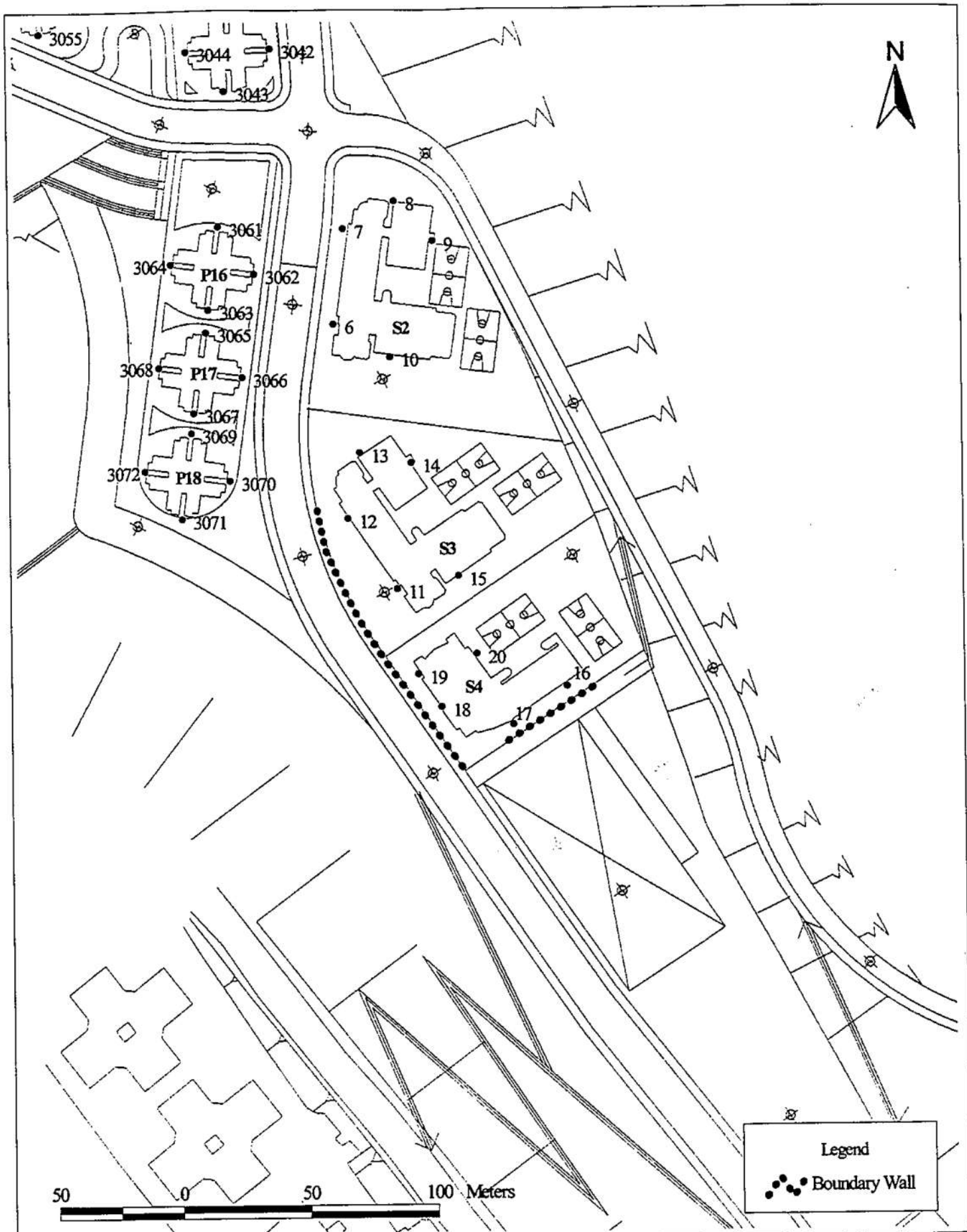
Legend
●●● Boundary Wall

50 0 50 100 Meters

環科 CES

TITLE
Proposed Noise Mitigation Measures
for Anderson Road Development Site

CES (ASIA) LIMITED			
PROJECT NO.	C210	DATE	Nov. 1998
DESIGNED	Fanny Lau	DRAWING NO.	Figure 1.4



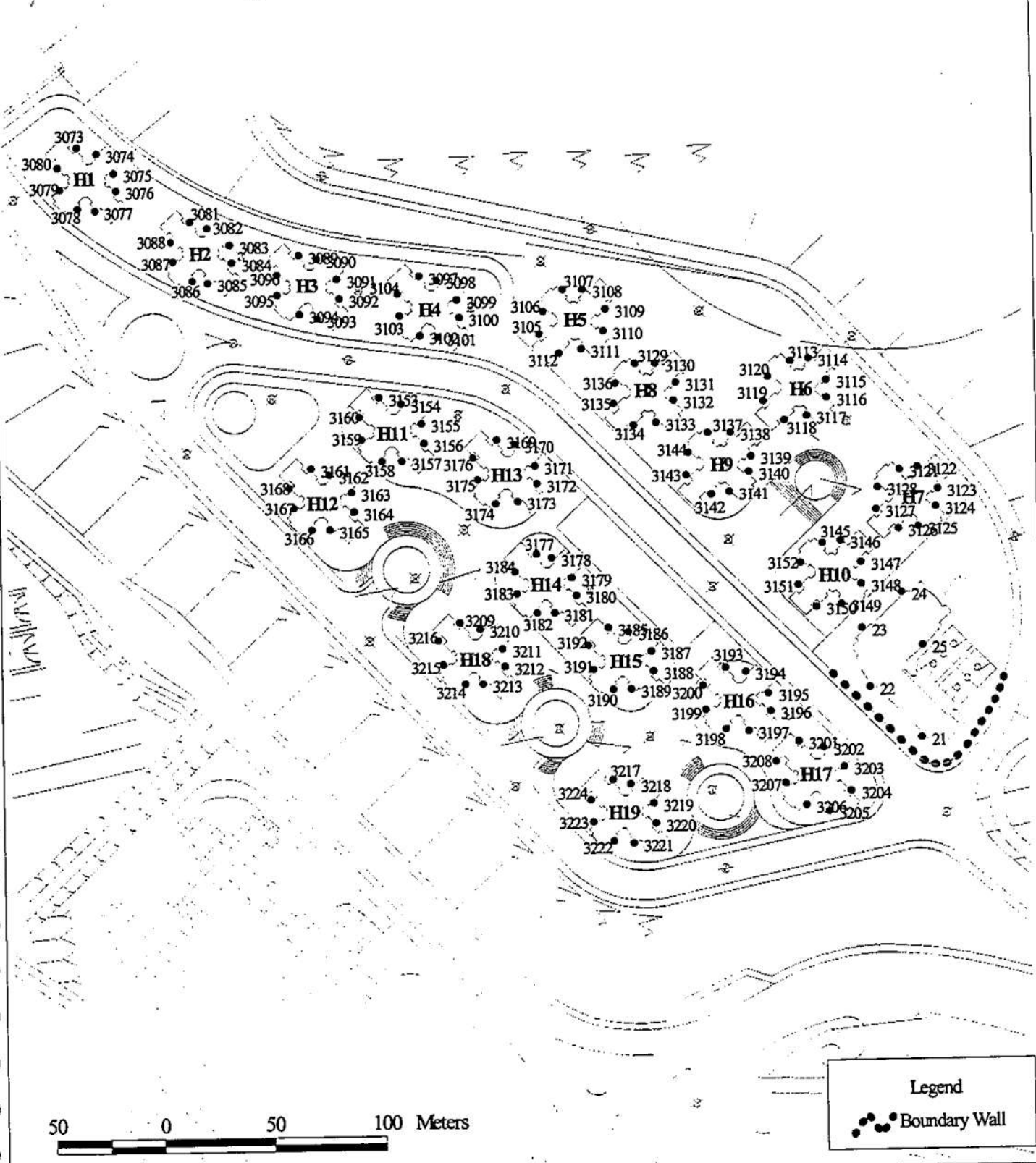
環科 CES

TITLE

Proposed Noise Mitigation Measures
for Anderson Road Development Site

CES (ASIA) LIMITED

PROJECT NO.	C210	DATE	Nov. 1998
DESIGNED	Fanny Lau	DRAWING NO.	Figure 1.5



50 0 50 100 Meters

Legend
●●●● Boundary Wall



TITLE
Proposed Noise Mitigation Measures
for Anderson Road Development Sites

CES (ASIA) LIMITED			
PROJECT NO.	C210	DATE	Nov. 1998
DESIGNED	Famy Lau	DRAWING NO.	Figure 1.6



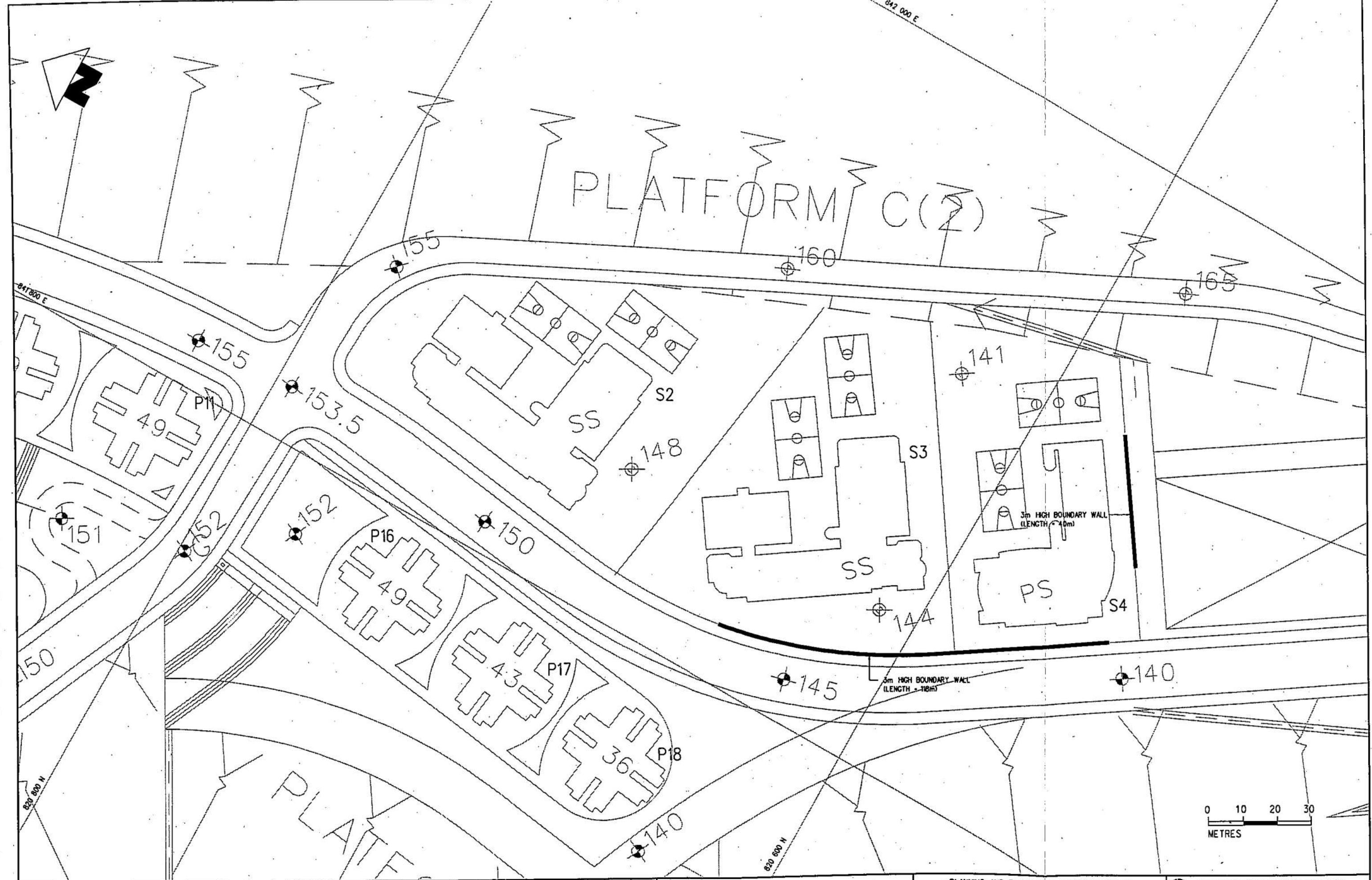
Maunsell
in association with
Urbis
CES

REVISION	DESCRIPTION	BY	DATE	RE-HECKED	REVISION	DESCRIPTION	BY	DATE	RE-HECKED

PLANNING AND ENGINEERING FEASIBILITY STUDY
FOR DEVELOPMENT AT ANDERSON ROAD

TITLE
PROPOSED NOISE MITIGATION MEASURES FOR ANDERSON ROAD DEVELOPMENT SITE SHEET 1 OF 5

CIVIL ENGINEERING DEPARTMENT, HONG KONG			
SCALE	1:1000	DATE	SEPTEMBER 98
DESIGN	TMK	CHECK	EW
CAD REF.	11:020100104997:001:1015-2a.dwg	PREPARED BY	Figure 1.13



Maunsell
in association with
Urbis
CES

REV/NO	DESCRIPTION	BY	DATE	REV/NO	DESCRIPTION	BY	DATE	REV/NO	DESCRIPTION	BY	DATE	REV/NO	DESCRIPTION	BY	DATE

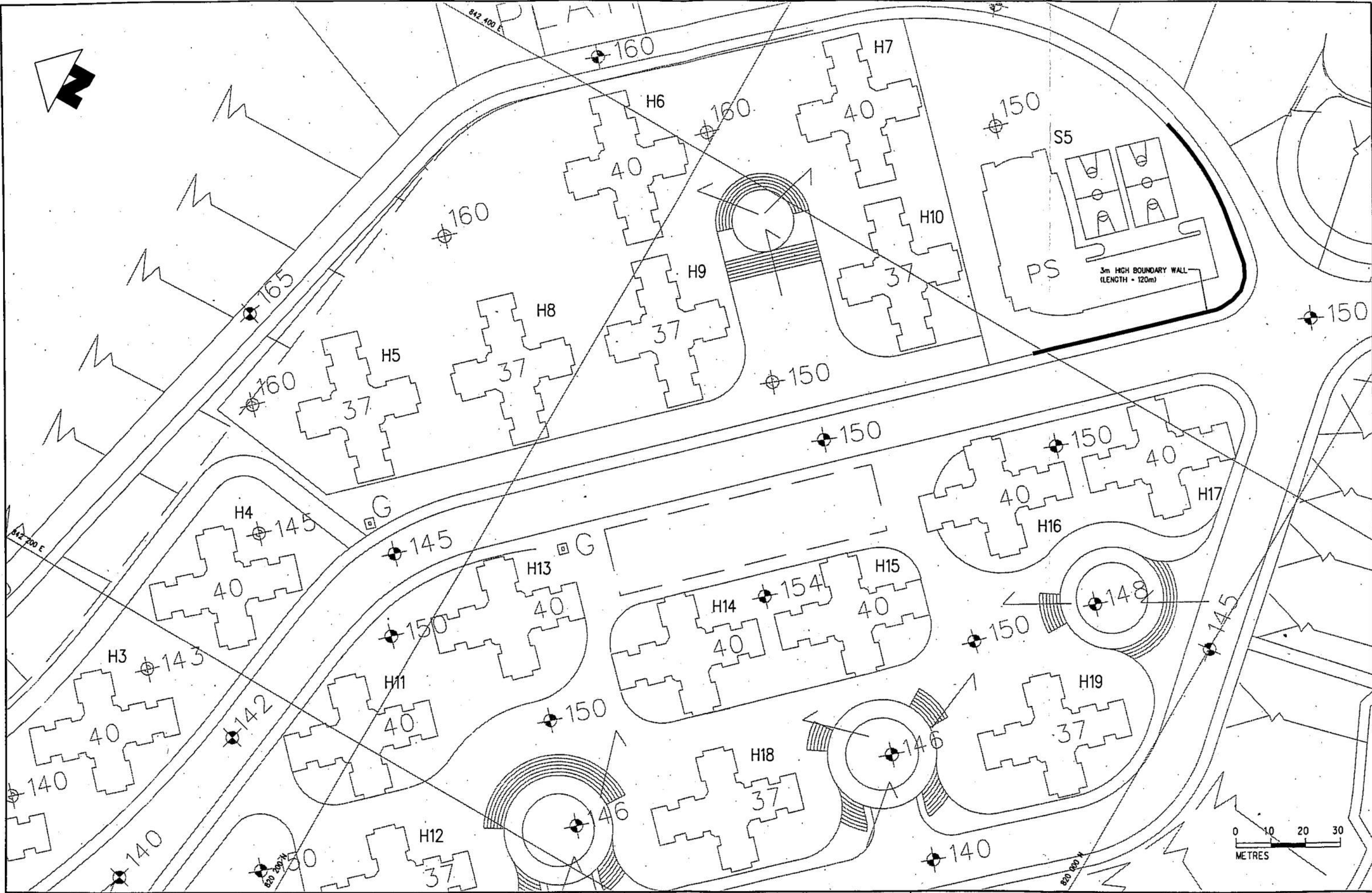
PLANNING AND ENGINEERING FEASIBILITY STUDY
FOR DEVELOPMENT AT ANDERSON ROAD

TITLE
**PROPOSED NOISE MITIGATION
MEASURES FOR ANDERSON
ROAD DEVELOPMENT SITE** SHEET 2 OF 5

CIVIL ENGINEERING DEPARTMENT, HONG KONG

SCALE	1:1000	DATE	SEPTEMBER 98
DESIGNED	TMK	CHECKED	EW
DWG. NO.	PL-01/ANDERSON/98/01	DATE	1998-12-01
CR. NO.		REV.	

Figure 1.14



Maunsell
 in association with
 Urbis
 CES

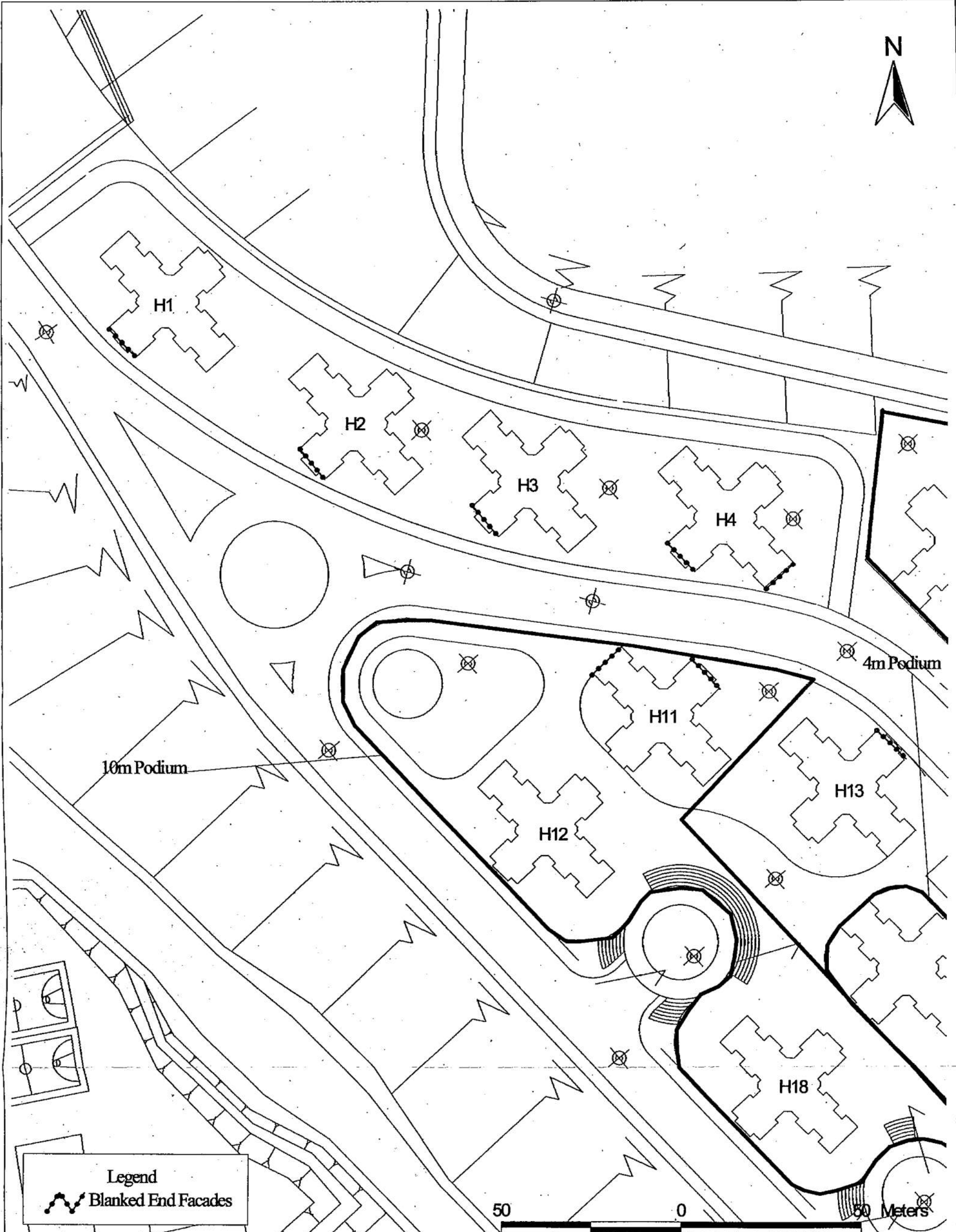
REV/CH	DESCRIPTION	BY	DATE	REVIEWED	REVISION	DESCRIPTION	BY	DATE	REVIEWED


PLANNING AND ENGINEERING FEASIBILITY STUDY
 FOR DEVELOPMENT AT ANDERSON ROAD

TITLE
 PROPOSED NOISE MITIGATION
 MEASURES FOR ANDERSON
 ROAD DEVELOPMENT SITE

SHEET 3 OF 5

CIVIL ENGINEERING DEPARTMENT, HONG KONG	
SCALE	1:1000
DATE	SEPTEMBER 98
DESIGNED	TKM
DRAWN	EW
CHECKED	
DATE	
REV	
Figure 1.15	

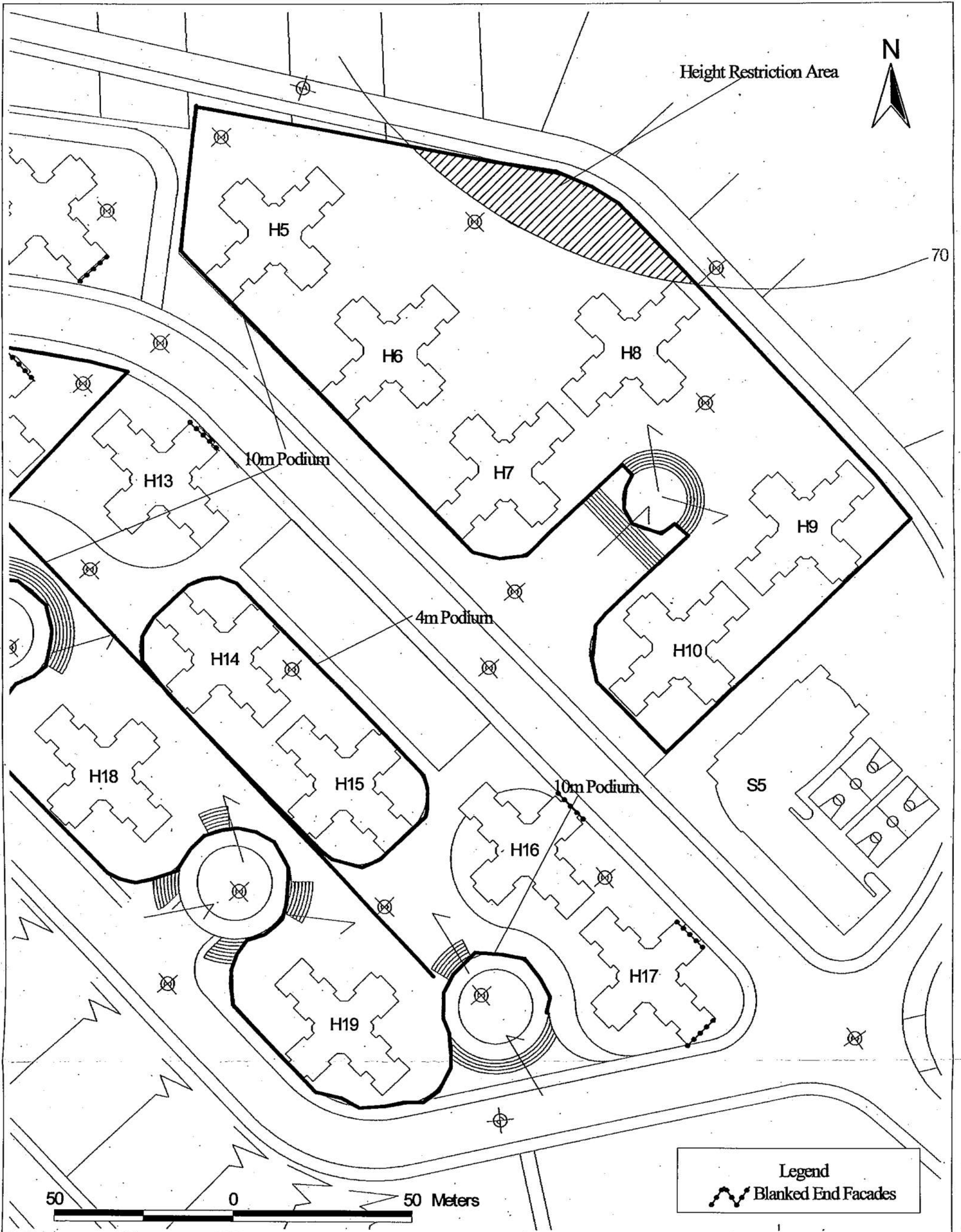


Legend
 Blanked End Facades

環科 CES

TITLE Proposed Noise Mitigation Measures
 for Anderson Road Development Site
 - Sheet 4 of 5

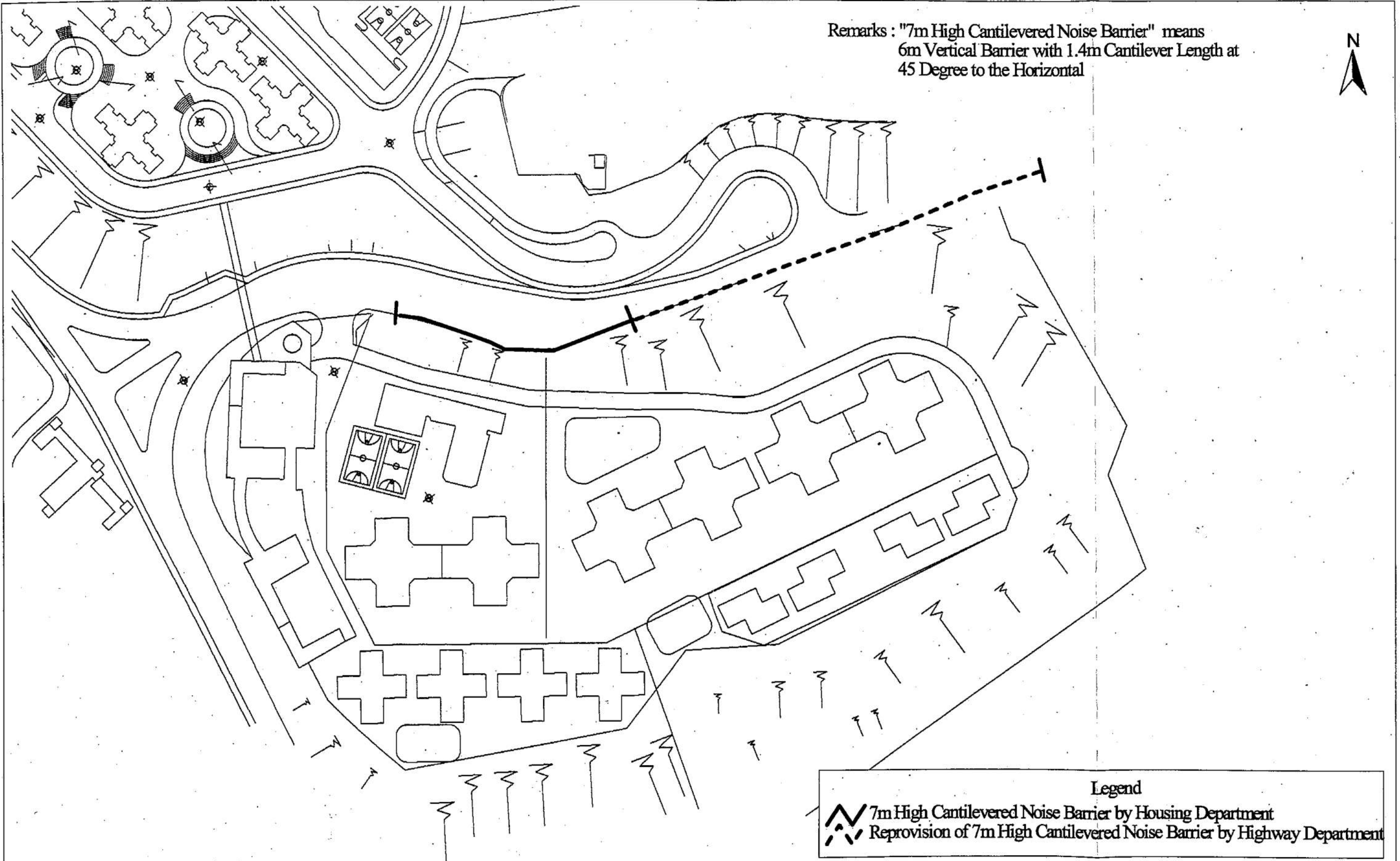
CES (ASIA) LIMITED			
PROJECT NO.	C210	DATE	Sept.1998
DESIGNED	Fanny Lau	DRAWING NO.	Figure 1.18



環科 CES

TITLE Proposed Noise Mitigation Measures for Anderson Road Development Site - Sheet 5 of 5

CES (ASIA) LIMITED			
PROJECT NO.	C210	DATE	Sept. 1998
DESIGNED	Fanny Lau	DRAWING NO.	Figure 1.19



Legend

7m High Cantilevered Noise Barrier by Housing Department
 Reprovision of 7m High Cantilevered Noise Barrier by Highway Department



TITLE

Proposed Noise Mitigation Measures for Po Lam Road

CES (ASIA) LIMITED			
PROJECT NO.	C210	DATE	Sept. 1998
DESIGNED	Fanny Lau	DRAWING NO.	Figure 1.20