MTR Corporation Limited

MTR Lai Chi Kok Station Pedestrian Subway and Entrance Works

Monthly Environmental Monitoring & Audit Report

16 December 2008 – 15 January 2009

Environmental Pioneers & Solutions Limited
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APPROVAL SHEET

Prepared and Certified by: ET Leader (Environmental Pioneers & Solutions Limited)

Signature: _____ Date: 02 FEB 2009

Miss Patricia Chung
(ET Leader)

* ET – Environmental Team

MTR Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway & Entrance Works

Submission Document Title: Environmental Permit Conditions
- Monthly EM&A Report

Environmental Permit No.: EP-253/ 2006
Independent Environmental Checker Ref: EP2532006-LCK-IEC- 019

According to Permit Condition 1.9 of the above Environmental Permit, the titled document(s) certified by the Environmental Team Leader has been checked and verified by the undersigned.. The document is considered to be in environmental acceptable manner.

Verified by:

Glenn Frommer

Dr. Glenn H Frommer
Head of Sustainability Development
of MTR Corporation

02 FEB 2009

Date

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EXECUTIVE SUMMARY

This is the 17th Monthly Environmental Monitoring and Audit (EM&A) Report for "MTRC Lai Chi Kok Station Pedestrian Subway and Entrance Works". The Report concludes the impact monitoring and audit works for the construction works undertaken during the period of 16 December 2008 to 15 January 2009. The major construction activities in this reporting month include excavation and disposal for subway construction, fabricate the temporary support for construction of subway for site under West Kowloon Corridor, trial trench excavation for sheet piling works at footpath of Lai Chi Kok Road and driven sheetpiles for smoke vent shaft.

Impact monitoring for the construction noise impact was conducted in this reporting period. There was no exceedance of action and limit levels recorded at the agreed sensitive receivers. There were no formal public concerns or complaints on environmental issues received during this reporting period. The Contractor's performance on environmental issues was considered to be satisfactory in general.

1 INTRODUCTION

This is the 17th Monthly Environmental Monitoring and Audit (EM&A) Report for "MTRC Lai Chi Kok Station Pedestrian Subway and Entrance Works" (Environmental Permit No. EP-253/2006). The Report concludes the impact monitoring and audit works for the construction works undertaken during the period of 16 December 2008 to 15 January 2009.

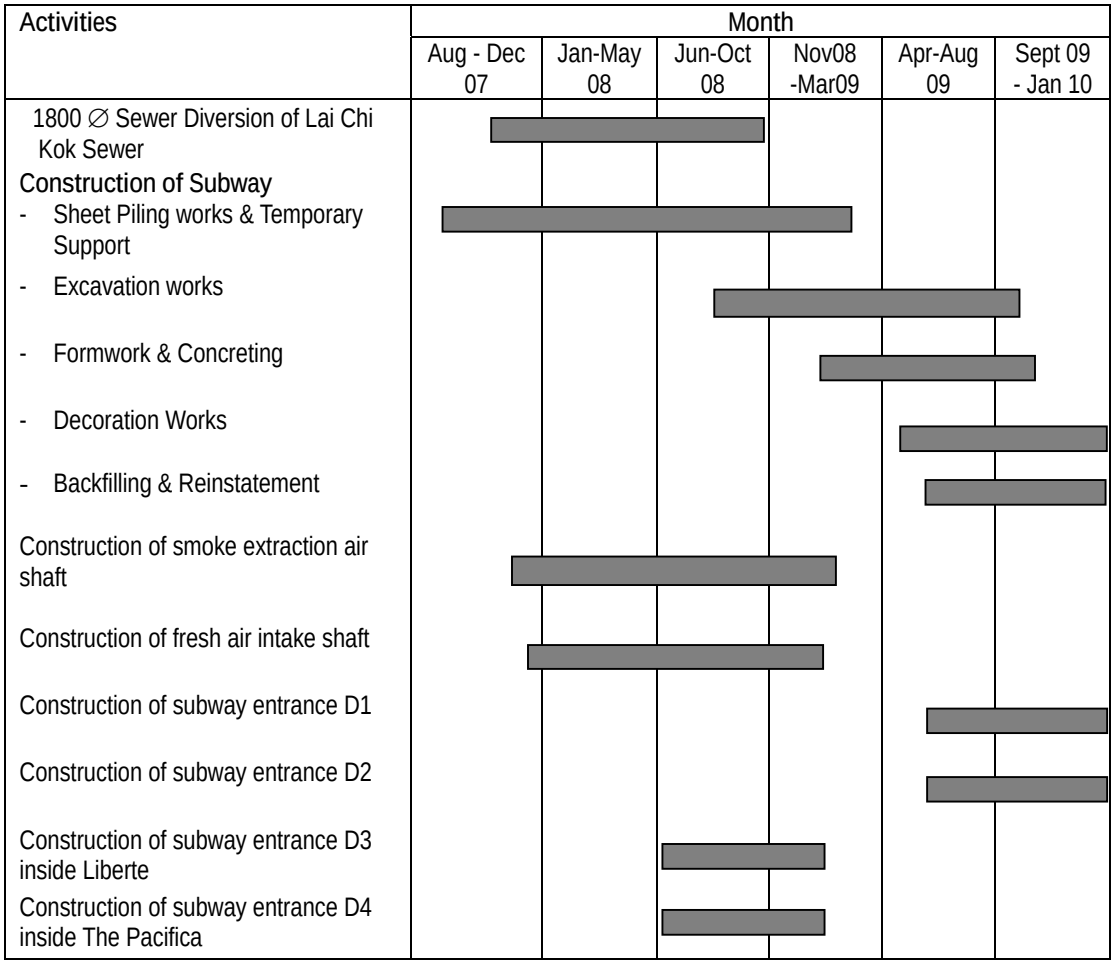
2 PROJECT INFORMATION

2.1 Construction Program

Civil construction of the whole subway would take approximately 30 months to complete. The construction sites are mainly located at Cheung Lai Street, a section of Lai Chi Kok road near West Kowloon Corridor and a section of Cheung Sha Wan Road. The overall construction works of the project are currently on progress.

Construction of the subway would be carried out simultaneously by cut and cover method. Vertical open cut areas would be provided in phases to suit the project progress and laterally supported by sheetpile walls for temporary road decks construction. In order to maintain existing traffic flows at Lai Chi Kok Road, Cheung Sha Wan Road and Cheung Lai Street, temporary road decks would be provided as soon as possible. This would also act as a screen to minimize the nuisance to the public and pedestrian during construction of the subway structures. All excavation and construction of the subway and its ancillary underground structures would be carried out underneath the road decks thereby minimizing environmental impacts. At-grade access points would be provided for transportation of material/spoil and workers' access during implementation of the underground subway construction works. Once the construction of the subway structure is completed, the work areas would be backfilled and the road surface for the temporary works sites will be reinstated.

Site location plan is shown in Appendix 1. The construction programme is shown below.



2.2 Construction Activities in the Past Month

Major construction activities carried out by the contractor during this reporting period include:

Site under West Kowloon Corridor.

a) Excavation and excavated material disposal for subway
b) Fabricate temporary support for construction of subway

Lai Chi Kok Road Westbound

a) Trial trench excavation for sheet piling works at footpath of Lai Chi Kok Road.
b) Construction of smoke vent shaft

Site at Cheung Lai Street

a) Construction of subway

- Driving sheet piles at west side footpath of Cheung Lai Street in between Cheung Shun Street and Cheung Sha Wan Road;
- Grouting for utilities window of sheetpile cofferdam at Cheung Sha Wan Road/Cheung Lai Street Junction and Cheung Lai Street/Cheung Shun Street Junction
- Installing decking beams and deck panels at Cheung Sha Wan Road/Cheung Lai Street Junction
- Excavation for construction of subway at Cheung Lai Street in between Cheung Shun Street and Cheung Yee Street;
- Fabricating temporary support for construction of subway

Site at Entrance D3

- Installing decking beams for construction of subway

Site at Entrance D4

- Removing existing tie-beams and pile cap for construction of subway
- Installing the remaining sheetpiles for subway construction.

2.3 Construction Activities for the Coming Month

Major construction activities by the contractor anticipated for the coming month include:

Site under West Kowloon Corridor

a) Pump Test (Stage 3)
b) Excavation for construction of subway
c) Fabricate temporary supports for construction of subway

Lai Chi Kok Road Westbound

a) Driving sheet piles at footpath of Lai Chi Kok Road westbound.
b) Construction of smoke vent shaft.

Site Cheung Lai Street

a) Construction of subway.

- Installing decking beams and deck panels at Cheung Sha Wan Road/Cheung Lai Street Junction
- Driving sheet piles at west side footpath of Cheung Lai Street in between Cheung Shun Street and Cheung Sha Wan Road;
- Excavation for install decking beam and deck panel at Cheung Lai Street/Cheung Shun Street Junction
- Excavation for construction of subway at Cheung Lai Street in between Cheung Shun Street and Cheung Yee Street;
- Fabricating temporary supports for construction of subway

Site at Entrance D3

- Installing site hoarding for sheet piling works
- Installing deck panels for construction of subway

Site Entrance D4

- Construction of proposed tie-beams and excavation for subway

3 Noise Monitoring

3.1 Monitoring Methodology

In accordance with the EM&A Manual, the construction noise level is measured in terms of A-weighted equivalent continuous sound pressure level (L_{Aeq}). During normal construction working hours (0700-1900 Monday to Saturday), monitoring of $L_{Aeq, 30min}$ noise levels (as six consecutive $L_{Aeq, 5min}$ readings) was carried out once every week.

3.2 Equipment Used and Calibration Details

Impact noise monitoring was conducted using SVAN sound analysis equipment – SVAN 949, which complied with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1 985 (Type 1) Specifications as referred to in the Technical Memorandum to the Noise Control Ordinance. The equipment were calibrated and verified by certified laboratory or manufacturer every two years to ensure they perform to the same level of accuracy as stated in the manufacturer's specification. Before and after each measurement, the reading of sound level meter was checked with the acoustic calibrator and the measurements were accepted as valid if the calibration levels before and after the noise measurement agreed to within 1.0 dB. Free field and weatherproof microphone was extended 1m from the exterior of the sensitive receivers building façade and with an unobstructed field of view of the proposed construction site. Measurements were recorded to the nearest 0.1 dB.

3.3 Monitoring Station

In accordance with the EM&A Manual, monitoring stations were established at 2 locations, which are summarized in Table 3.1 and depicted in Appendix 1.

Table 3.1 – Noise Monitoring Stations

Sensitive Receiver No.	Location
R1	Podium, Block 7, Liberte
R2	Podium, Tower 1, The Pacifica

3.4 Monitoring Results

The results are presented in the Table 3.2. Relevant details of the noise monitoring results, graphic plots calculation reference are presented in Appendix 2 and 3. The corrected LAeq results, ranged between 61.0dB(A) and 72.5 dB(A), were within the limit levels and therefore, no exceedance was found.

Table 3.2 – Noise monitoring results for the reporting month

Location	Parameter	Time	Date	Measured Leq	Baseline Noise Level	Corrected LAeq*	Limit	Exceedance
R1	Leq30min	14:05	17-December-08	75.9 dB(A)	74 dB(A)	71.4 dB(A)	75 dB(A)	N
R1	Leq30min	10:05	23-December-08	75.5 dB(A)	74 dB(A)	70.2 dB(A)	75 dB(A)	N
R1	Leq30min	15:40	3-January-09	75.6 dB(A)	74 dB(A)	70.5 dB(A)	75 dB(A)	N
R1	Leq30min	15:15	10-January-08	75.4 dB(A)	74 dB(A)	69.8 dB(A)	75 dB(A)	N
R2	Leq30min	14:50	17-December-08	74.6 dB(A)	74.3 dB(A)	62.8 dB(A)	75 dB(A)	N
R2	Leq30min	10:05	23-December-08	76.5 dB(A)	74.3 dB(A)	72.5 dB(A)	75 dB(A)	N
R2	Leq30min	14:45	3-January-08	75.7 dB(A)	74.3 dB(A)	70.1 dB(A)	75 dB(A)	N
R2	Leq30min	16:00	10-January-08	74.5 dB(A)	74.3 dB(A)	61.0 dB(A)	75 dB(A)	N

***Corrected to baseline background level**

 # Measured Leq is lower than baseline noise measurement

Action and Limit levels and the associated Event/ Action Plan in event of exceedence are summarized in Table 3.3 and 3.4, respectively.

Table 3.3 – Action and Limit Levels for Construction Noise at Sensitive Receivers R1 and R2

Time Period	Action	Limit
Daytime 0700 – 1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)
0700 – 2300hrs on holidays; and 1900 – 2300 hrs on all other days		Subject to the control of Noise Control Ordinance
2300 – 0700 hrs of next day		Subject to the control of Noise Control Ordinance

Table 3.4 - Event/Action plan for construction noise

Event	Action			
	ET Leader	**IEC**	**RE**	**Contractor**
Action Level	1. Notify IEC, RE and the Contractor. 2. Carry out investigation. 3. Report the results of investigation to IEC,RE and the Contractor. 4. Discuss with the RE and the Contractor and formulate remedial measures. 5. Increase monitoring frequency to check mitigation measures.	1. Review with analysed results submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise RE accordingly. 3. Supervise the implement of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to RE / ET. 2. Implement noise mitigation proposals.
Limit Level	1. Identify the source. 2. Notify IEC, RE, EPD and the Contractor. 3. Repeat measurement to confirm findings. 4. Increase monitoring frequency. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. Inform IEC, RE, and EPD the causes & actions taken for the exceedances. 7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and RE informed of the results. 8. If exceedance stops, cease additional monitoring	1. Discuss amongst RE, ET Leader and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise RE accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to RE and IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the RE until the exceedance is abated.

3.5 Monitoring Schedule for Next Reporting Period

Noise monitoring in the next reporting period is scheduled for 17th, 22nd, 31st January 2009, as well as 4th, 11th, February 2009.

Site inspection schedule for the next reporting period is designated on 22nd January and 11th February 2009.

4 ACTION TAKEN IN EVENT OF EXCEEDENCE

There were no exceedance recorded during this reporting period, therefore no actions were taken.

5 Construction Waste Disposal

Dumping locations for disposal of C&D wastes from the construction site were appointed and allocated by EPD/CEDD. The contractor has implemented the delivery trip ticket system for recording the waste disposal to the public fill and landfill areas. Excavated materials are reused as back-fill material to balance cut and fill and hence reduce the generation of materials. Table 5.1 is a summary of updated figures of the construction wastes disposal provided by the Contractor. The relevant disposal records are kept in Contractor's site office for inspection.

Table 5.1 Summary of Construction Waste Disposal

	Amount of Construction Waste disposed		
	Inert Waste (to Public Fill) (tonnes)	**Non-inert Waste (to Landfill) (tonnes)**	**Chemical Waste (trip)**
16 August 07 to 15 September 07	963.75	34.8	--
16 September 07 to 15 October 07	1220.02	0	--
16 October 07 to 15 November 07	186.89	0	--
16 November 07 to 15 December 07	136.7	0	13
16 December 07 to 15 January 08	698.2	102.3	0
16 January 08 to 15 February 08	586.1	0	0
16 February 08 to 15 March 08	*322.9*	*0*	*0*
16 March 08 to 15 April 08	*136.71*	*0*	*0*
16 April 08 to 15 May 08	*239.28*	*0*	*0*
16 May 08 to 15 June 08	*0*	*0*	*0*
16 June 08 to 15 July 08	*39.4*	*0*	*0*
16 July 08 to 15 August 08	*70.19*	*0*	*0*
16 August 08 to 15 September 08	*212.8*	*0*	*0*
16 September 08 to 15 October 08	*1030.75*	*0*	*0*
16 October 08 to 15 November 08	*3019.77*	*0*	*0*
16 November 08 to 15 December 08	1838.03	0	0
16 December 08 to 15 January 09	*4611.2*	*0*	*0*
Total	*15258.09*	*137.1*	*13*

6 COMPLAINT LOG

Table 6.1 Summary of Formal Complaints received				
	Air	**Noise**	**Water**	**Others**
16 August 07 to 15 September 07	0	0	0	0
16 September 07 to 15 October 07	0	0	0	0
16 October 07 to 15 November 07	0	0	0	0
16 November 07 to 15 December 07	0	0	0	0
16 December 07 to 15 January 08	0	0	0	0
16 January 08 to 15 February 08	0	0	0	0
16 February 08 to 15 March 08	0	0	0	0
16 March 08 to 15 April 08	0	1	0	0
16 April 08 to 15 May 08	1	0	0	0
16 May 08 to 15 June 08	1	0	0	0
16 June 08 to 15 July 08	1	0	0	0
16 July 08 to 15 August 08	0	0	0	0
16 August 08 to 15 September 08	0	0	0	0
16 September 08 to 15 October 08	0	0	0	0
16 October 08 to 15 November 08	0	0	0	0
16 November 08 to 15 December 08	0	0	0	0
16 December 08 to 15 January 09	0	0	0	0
Total	*3*	*1*	*0*	*0*

7 STATUS OF PERMITS AND LICENSES OBTAINED

Table 7.1 is the updated status of environmental related permits/ license obtained for the construction activities. Construction Noise Permit is renewed in the reporting month.

Table 7.1 Status of Permits and Licenses Obtained

Description	License / Permit No.#	Date of Issue	Date of Expiry	Remarks
Environmental Permit	EP-253/2006	11 Aug 2006	--	
Registration of C&D Waste Producer	7005542	1 Jun 2007	--	
Chemical Waste Producer	5214-264-K2869-08	08-May 2007	--	
Construction Noise Permit	PP-RW0002-08	6 Feb 2008	14 Aug 2008	
Effluent Discharge License	EP760/264/0124051	24 July 2007	31 July 2012	

8 SITE INSPECTION AND AUDITS

During the reporting period, regular bi-weekly joint site inspections led by senior staffs from MTR, Residential Engineer, Contractor and the ET were carried out. The Contractor's performance on the environmental matters was assessed and concerned items were raised for rectification. Inspection findings from the reporting period are summarized as follows:

Table 8.1 Summary of inspection findings

Item	Observations/ Description	Status
1	The Contractor was reminded to have regular check on site to ensure the compliance of relevant environmental regulations, permits and licenses.	Ongoing
2	The Contractor was reminded to ensure all required construction noise mitigation measures to be followed properly.	Ongoing
3	The Contractor was reminded to keep the site works area and site office tidy as good housekeeping.	Ongoing
4	The Contractor was reminded to implement proper noise mitigation measures to shield the noise parts of circular saw, handheld breaker and vibratory hammer during construction.	Ongoing
5	The Contractor should regularly review the condition of hoardings for Cheung Lai Street site area. in order to reduce any air pollution impact to the nearby public.	Ongoing
6	The Contractor was reminded to have regular view on potential oil leak from fuel containers and the stationery plants on site by providing proper drip trays or similar.	Ongoing
7	The Contractor was reminded to have regular check on the potential black smoke from working plants.	Ongoing
	The Contractor should take care the required dust mitigation measures at the progressing work sites at Cheung Lai Street in between Cheung Sha Wan Road and Cheung Shun Street. .	Actioned
8	The Contractor should strictly follow up the required noise mitigation measures at the progressing work sites at area D4.	Contractor to follow
9	The Contractor should provide the oil drip pans at the site below West Kowloon Corridor.	Contractor to follow
10	The Contractor should have close monitoring on the noise labels on the working air compressors and hand breakers.	Contractor to follow

.

9 CONCLUSION

In this reporting month, construction activities for this project “MTRC Lai Chi Kok Station Pedestrian Subway and Entrance Works” included excavation and excavead material disposal for subway, fabrication of temporary support for construction of Subway, driving sheet piles at west side footpath of Cheung Lai Street in between Cheung Shun Street and Cheung Sha Wan Road. Regular monthly meetings and weekly site audits, led by the seniors and attended by representatives of RE, ET, IEC and the Contractor, were held for discussing site environmental related issues. Concerned site environmental items raised during the audits were generally followed up by the Contractor for rectification. The overall environmental pollution control measures provided by the Contractor were considered satisfactory. Noise levels recorded during the monitoring period were within limits. The ET will continue to execute the environmental monitoring and audit programme in accordance with the EM&A Manual and Environmental Permit requirements.

APPENDIX 1 – REFERENCE FIGURES

Figure 1 Project Construction Area

Figure 2 Noise Monitoring Stations

Figure 1 Project Construction Area

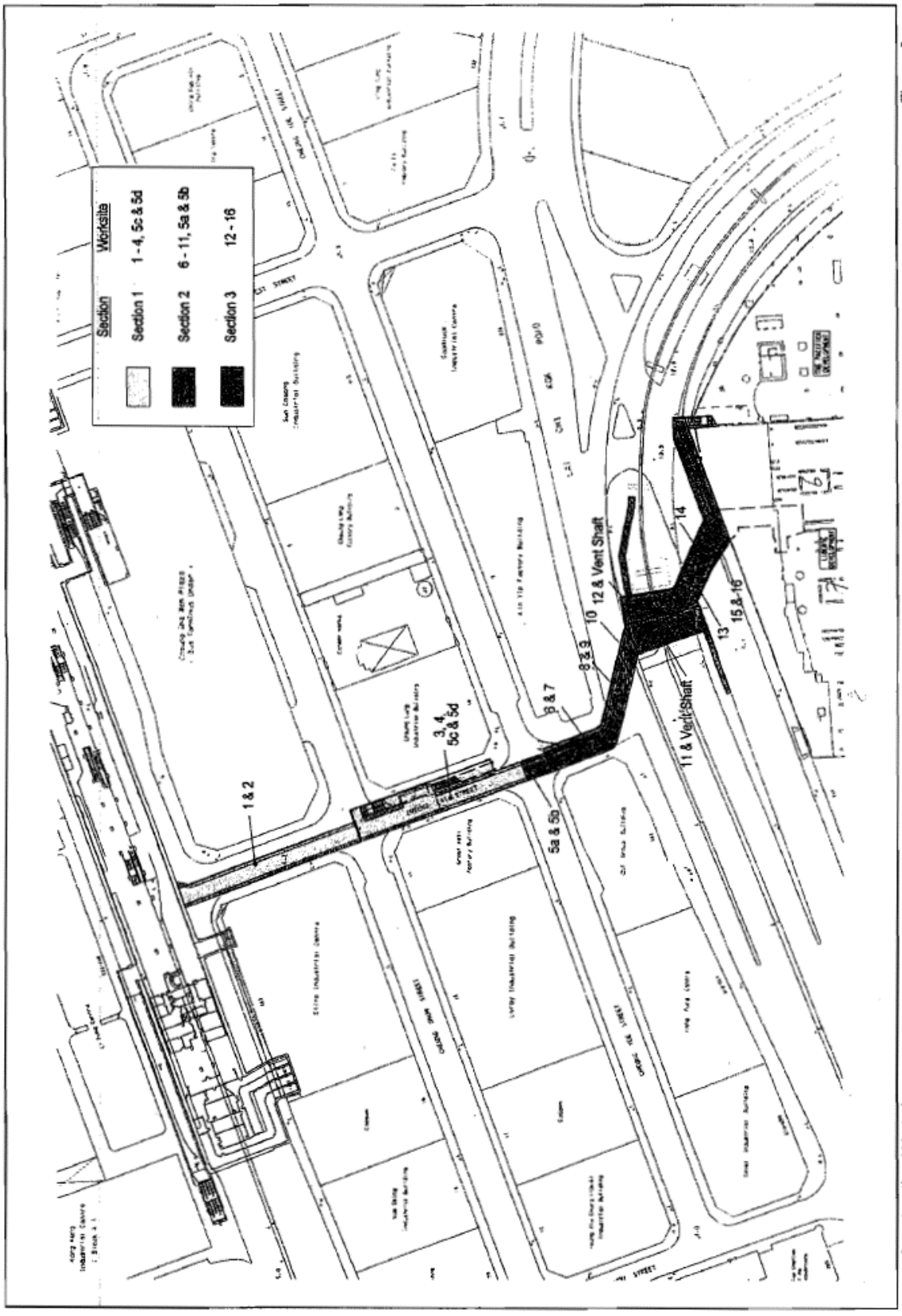


Figure 2 Noise Monitoring Stations R1 and R2

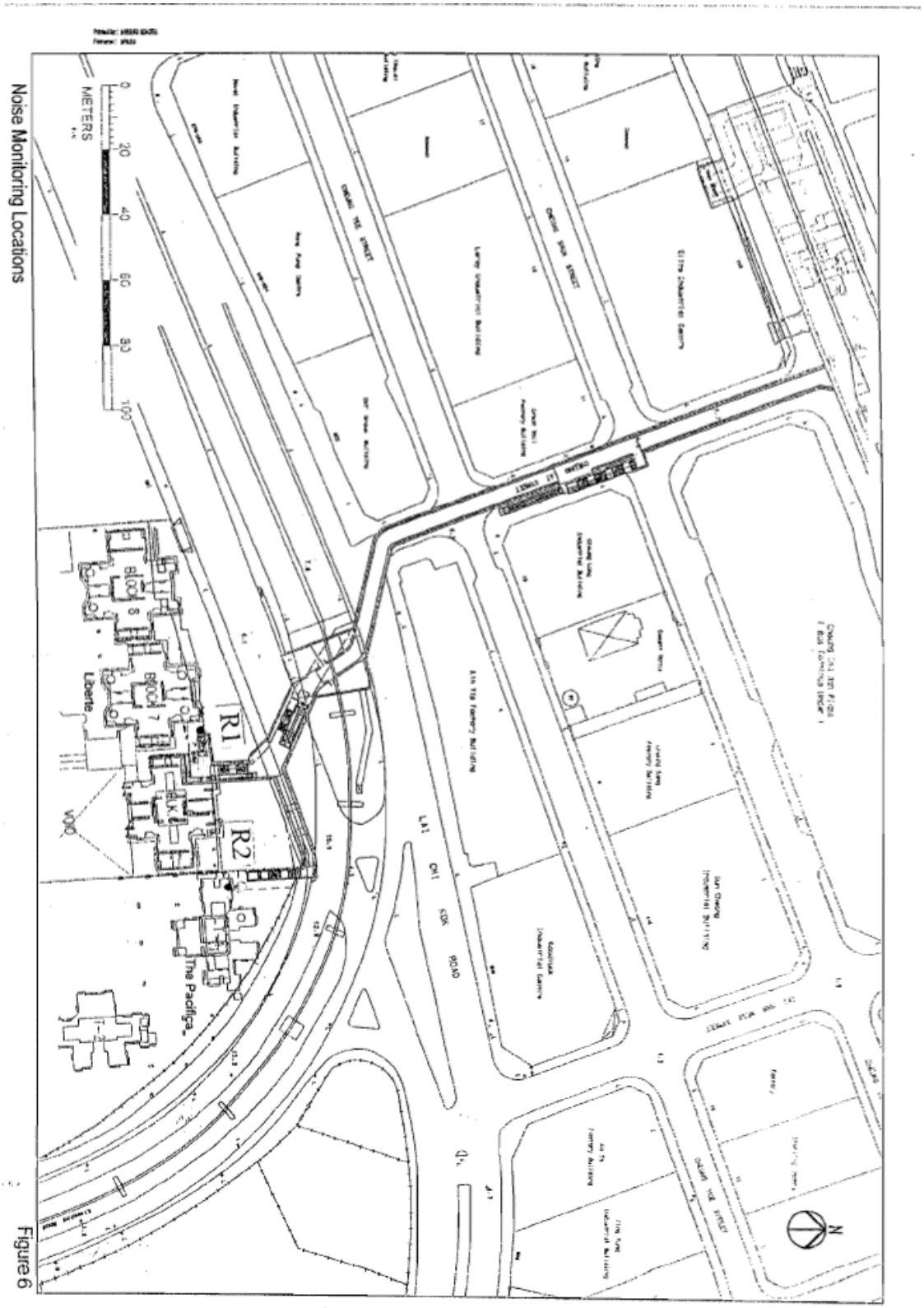
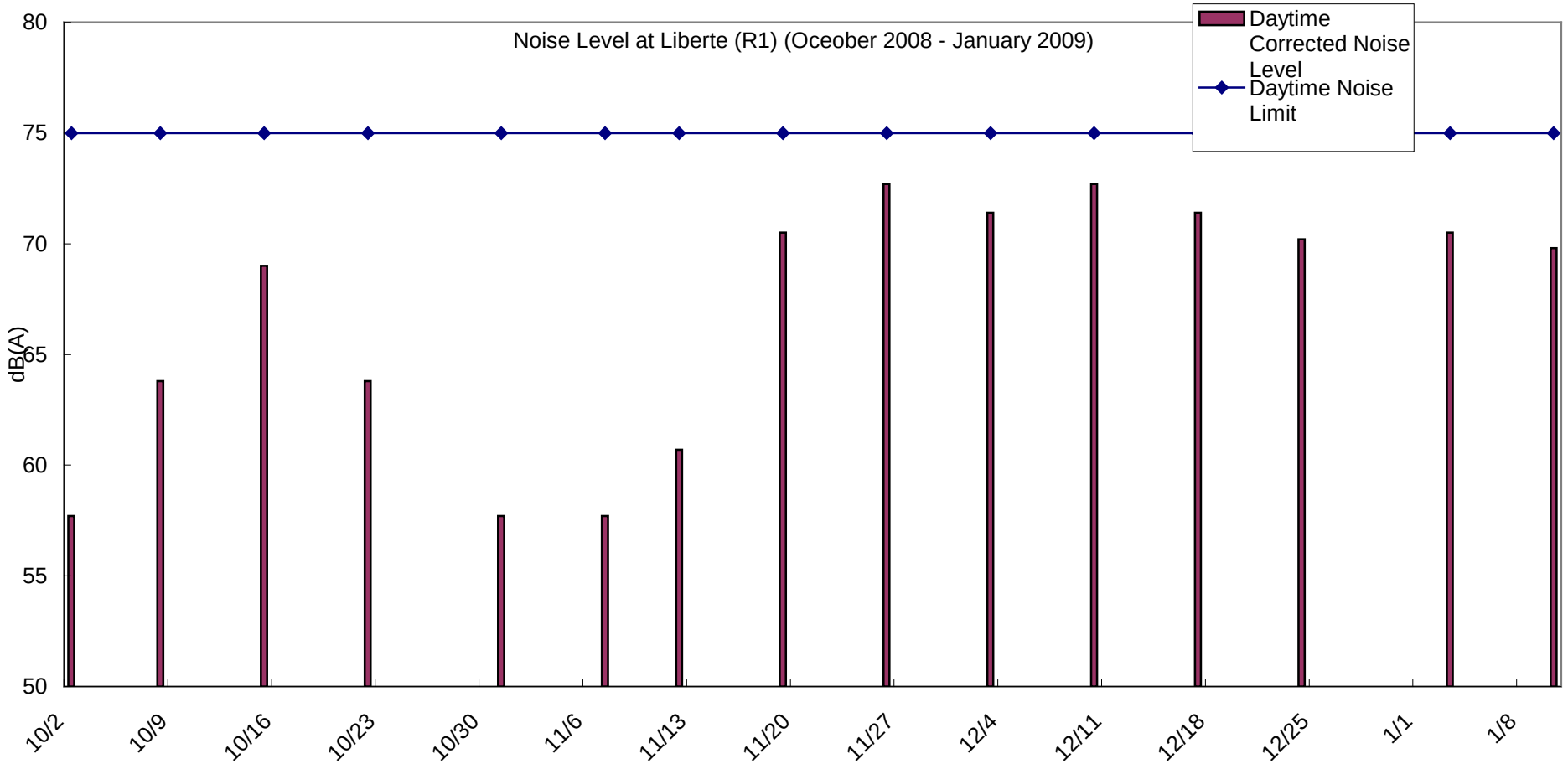
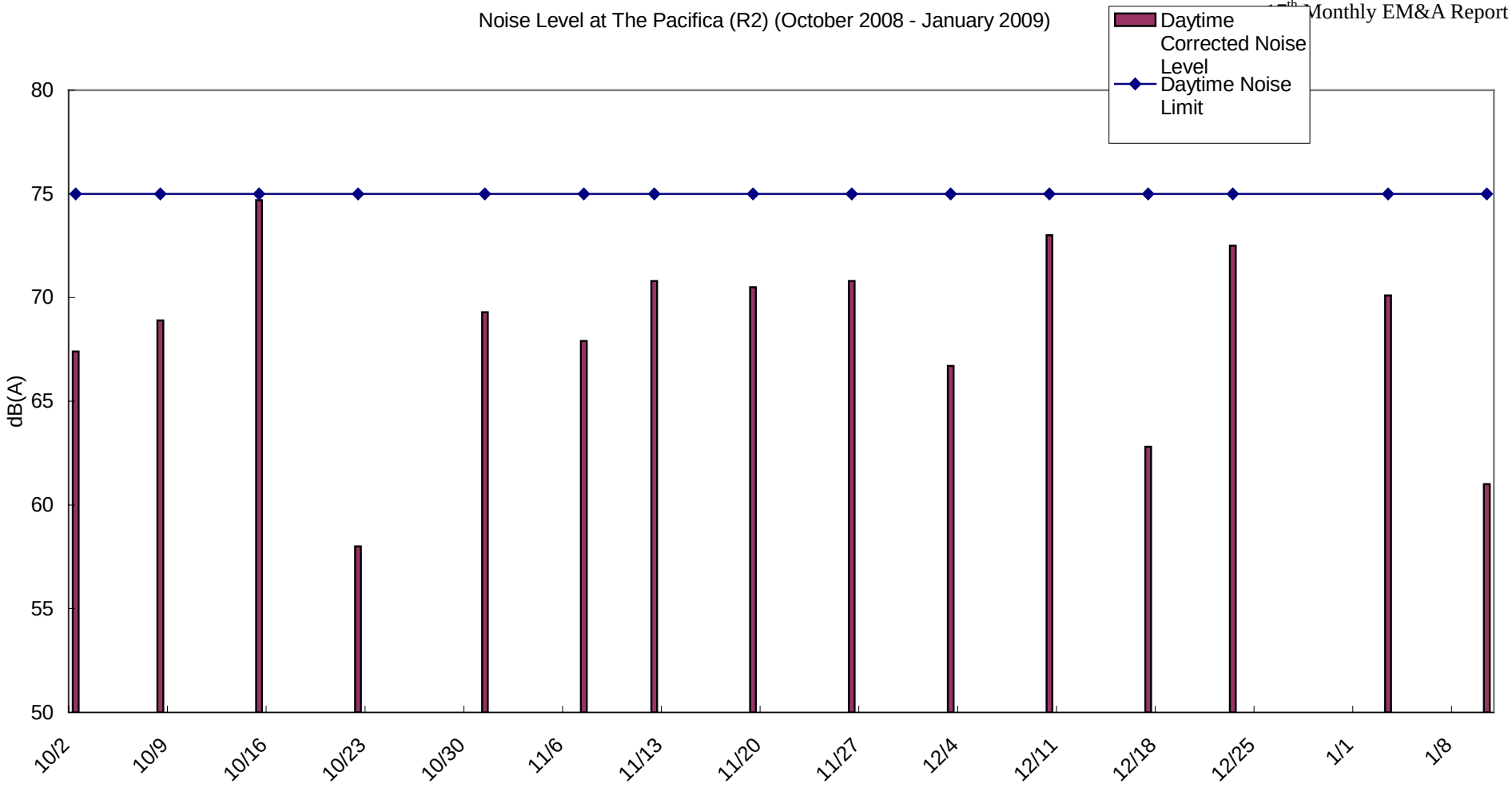


Figure 6

APPENDIX 2 – Environmental Monitoring Data / Charts


Noise Level at Liberte (R1) (Oceober 2008 - January 2009)
Daytime Corrected Noise Level
Daytime Noise Limit
dB(A)
80
75
70
65
60
55
50
10/2
10/9
10/16
10/23
10/30
11/6
11/13
11/20
11/27
12/4
12/11
12/18
12/25
1/1
1/8


Noise Level at The Pacifica (R2) (October 2008 - January 2009)
Daytime Corrected Noise Level
Daytime Noise Limit
dB(A)
80
75
70
65
60
55
50
10/2
10/9
10/16
10/23
10/30
11/6
11/13
11/20
11/27
12/4
12/11
12/18
12/25
1/1
1/8

APPENDIX 3 – Noise Monitoring Data Sheet and Calculation

Calculations and Equations:

The 30minutes A-weighted equivalent continuous sound pressure level ($L_{Aeq, 30min}$) is calculated by geometric mean from 6 consecutive $L_{Aeq, 5min}$ readings:

$$L_{Aeq, 30min} = 6^{th} \text{ root of } (L1)(L2)\ldots(L6)$$

Where: L1~6 is the 6consecutive $L_{Aeq, 5min}$ readings

And the equation of the Baseline correction:

$$10\log (10^{Laeq/10}-10^{Lb/10})$$

Where:
L_{aeq} is the $L_{Aeq, 30min}$ from the geometric mean of 6 consecutive L_{eq5min} results
Lb is the baseline noise level.

Mass Transit Railway - Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway and Entrance Works

Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Block 7, Liberte
Sampling Date		17 December 2008
Sampling Time		14:05-14:35
Weather Condition		Sunny
Baseline Noise Level	**dB(A)**	74.0
Monitoring Results	**L_{eq}, dB(A)**	75.9
	L_{10}, dB(A)	81.2
	L_{90}, dB(A)	70.7
Calibration before Measurement	**dB(A)**	94.0
Calibration after Measurement	**dB(A)**	94.0
Observation(s)		
Excavation noise by (Excavator x 2) Power generation noise by (Power generator x 1) Other construction noise from C.L.P. Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : **71.4** **dB(A)**

Recorded by : Stephen Tsang **Date : Dec 17th 2008**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: _____ dBA Weather: Sunny Recorded by: Stephen Tsang

Date	Location	Time/H Duration Min.	Comment/Source	L_{max}	L_{min}	L_{10}	L_{90}	L_{Aeq}
17-12-2008	R1 Library	14:05-14:10		85.9	69.5	82.3	71.2	77.5
		14:10-14:15		84.1	69.7	81.7	70.5	76.7
		14:15-14:20		83.7	68.5	80.7	69.8	76.3
		14:20-14:25		82.5	69.1	80.5	71.3	75.5
		14:25-14:30		83.7	70.1	80.7	71.7	75.5
		14:30-14:35		82.1	68.4	81.2	69.5	74.2

L_{10} 30 min = 81.2

L_{90} 30 min = 70.7

L_{eq} 30 min = 75.9

Mass Transit Railway - Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway and Entrance Works

Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Tower 1, The Pacifica
Sampling Date		17 December 2008
Sampling Time		14:50-15:20
Weather Condition		Sunny
Baseline Noise Level	**dB(A)**	74.3
Monitoring Results	**L_{eq}, dB(A)**	74.6
	L_{10}, dB(A)	78.7
	L_{90}, dB(A)	70.8
Calibration before Measurement	**dB(A)**	94.0
Calibration after Measurement	**dB(A)**	94.0
Observation(s)		
Excavation noise by (Excavator x 1) Power generation noise by (Power generator x 1) Other consrtruction noise from C.L.P. Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : 62.8 **dB(A)**

Recorded by : Stephen Tsang **Date : 17 December 2008**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: _____ dBA Weather: Sunny Recorded by: Stephen Tsang

Date	Location	Time/H Duration Min.	Comment/Source	L_{max}	L_{min}	L_{10}	L_{90}	L_{Aeq}
17-12-2009	R2 Pacific	14:50 14:55		85.0	67.6	77.3	69.5	74.5
		(14:55-15:00		82.0	69.7	76.5	70.7	74.3
		15:00-15:05		82.2	70.1	78.2	71.7	73.1
		15:05-15:10		85.8	70.0	82.2	71.5	75.1
		15:10-15:15		85.7	71.0	80.2	71.7	75.5
		15 15-15:20		79.1	69.7	78.0	70.0	75.0

L_{10} 30min = 78.7

L_{90} 30min = 70.8

L_{eq} 30min = 74.6

Mass Transit Railway - Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway and Entrance Works

Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Block 7, Liberte
Sampling Date		23 December 2008
Sampling Time		10:05-10:35
Weather Condition		Sunny
Baseline Noise Level	**dB(A)**	74.0
Monitoring Results	**L_{eq}, dB(A)**	75.5
	L_{10}, dB(A)	79.5
	L_{90}, dB(A)	70.8
Calibration before Measurement	**dB(A)**	94.0
Calibration after Measurement	**dB(A)**	94.0
Observation(s)		
Excavation noise by (Excavator x 1) Air compression noise by (Air Compressor x 1) Other Construction noise from C.L.P. site Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : **70.2** **dB(A)**

Recorded by : Stephen Tsang **Date : Dec 23rd 2008**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: _____ dBA Weather: Fine Recorded by: Stephen Tsang

Date	Location	Time/H Duration Min.	Comment/Source	L_{max}	L_{min}	L_{10}	L_{90}	L_{Aeq}
23-12-2008	R1 Liberte	10:05-10:10		82.8	69.0	80.0	72.0	76.1
		10:10-10:15		81.2	69.2	79.4	71.6	75.7
		10:15-10:20		81.0	70.0	79.0	71.1	75.4
		10:20-10:25		80.4	69.5	79.1	70.8	75.0
		10:25-10:30		80.0	67.3	79.1	69.0	75.5
		10:30-10:35		80.2	69.2	79.2	70.1	75.2

L_{10} 30min = 79.5

L_{90} 30min = 70.8

L_{Aeq} 30min = 75.5

Mass Transit Railway - Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway and Entrance Works

Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Tower 1, The Pacifica
Sampling Date		23 December 2008
Sampling Time		10:50-11:20
Weather Condition		Sunny
Baseline Noise Level	**dB(A)**	74.3
Monitoring Results	**L_{eq}, dB(A)**	76.5
	L_{10}, dB(A)	81.7
	L_{90}, dB(A)	73.4
Calibration before Measurement	**dB(A)**	94.0
Calibration after Measurement	**dB(A)**	94.0
Observation(s)		
Excavation noise by (Excavator x 1) Air compression by (Air compressor x 1) Other consrtruction noise from C.L.P. Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : **72.5** **dB(A)**

Recorded by : Stephen Tsang **Date : 23 December 2008**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: _____ dBA Weather: Fine Recorded by: Stephen Tsang

Date	Location	Time/H Duration Min.	Comment/Source	L_{max}	L_{min}	L_{10}	L_{99}	L_{Avg}
23/12/2009	R2 Pacific	10:50-10:55		91.5	70.3	80.6	72.8	76.7
		10:55-11:00		85.2	72.4	79.8	73.5	76.5
		11:00-11:05		85.7	72.8	81.5	73.7	77.7
		11:05-11:10		96.5	72.7	85.5	73.1	76.1
		11:10-11:15		88.7	72.0	83.7	74.1	76.7
		11:15-11:20		83.2	72.2	79.0	73.0	75.1

L_{10} 30min = 81.7

L_{90} 30min = 73.4

L_{eq} 30min = 76.5

Mass Transit Railway - Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway and Entrance Works

Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Block 7, Liberte
Sampling Date		3 January 2009
Sampling Time		15:40-16:10
Weather Condition		Sunny
Baseline Noise Level	dB(A)	74.0
Monitoring Results	L_{eq} dB(A)	75.6
	L_{10}, dB(A)	81.6
	L_{90}, dB(A)	70.7
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Excavation noise by (Excavator x 1) Power generation noise by (Power generator x 1) Other construction noise from C.I.P. site Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : 70.5 **dB(A)**

Recorded by : Stephen Tsang **Date : Jan 3rd 2009**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: _____ dBA Weather: Fine Recorded by: Stephen Tsang

Date	Location	Time/H Duration Min.	Comment/Source	L_{max}	L_{min}	L_{10}	L_{90}	L_{Aeq}
31-1-2009	R1 Library	15:40-15:45		88.7	69.1	81.7	71.5	77.7
		15:45-15:50		88.4	68.9	82.4	70.2	75.4
		15:50-15:55		87.8	66.4	83.1	68.5	74.9
③		15:55-16:00		88.4	70.1	80.5	71.7	76.9
④		16:00-16:05		87.8	70.5	82.9	70.9	75.7
		16:05-16:10		86.0	69.5	79.7	71.1	74.3

L10 30min = 81.9

L90 30min = 70.7

LAeq 30min = 75.9

Mass Transit Railway - Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway and Entrance Works

Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Tower 1, The Pacifica
Sampling Date		3 January 2009
Sampling Time		14:45-15:15
Weather Condition		Sunny
Baseline Noise Level	**dB(A)**	74.3
Monitoring Results	**L_{eq}, dB(A)**	75.7
	L_{10}, dB(A)	79.6
	L_{90}, dB(A)	70.3
Calibration before Measurement	**dB(A)**	94.0
Calibration after Measurement	**dB(A)**	94.0
Observation(s)		
Excavation noise by (Excavator x 1) Power generation noise by (Power generator x 1) Other consrtruction noise from C.L.P. Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : **70.1** **dB(A)**

Recorded by : Stephen Tsang **Date : 3 January 2009**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: _____ dBA Weather: Fine Recorded by: Stephen Tsang

Date	Location	Time/H Duration Min.	Comment/Source	L_{max}	L_{min}	L_{10}	L_{90}	L_{Aeq}
3-1-2024	R2 Pavilia	14:45-14:50		89.0	68.1	78.7	68.4	74.3
		14:50-14:55		88.7	67.6	79.9	69.7	75.7
		14:55-15:00		87.5	69.1	80.5	71.1	76.7
		15:00-15:05		88.1	67.1	79.1	69.1	75.1
		15:05-15:10		87.4	69.7	79.7	72.3	75.9
		15:10-15:15		85.7	68.4	77.7	71.1	76.3

L_{10} 30 min = 79.6

L_{90} 30 min = 70.3

L_{Aeq} 30 min = 75.7

Mass Transit Railway - Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway and Entrance Works

Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Block 7, Liberte
Sampling Date		10 January 2009
Sampling Time		15:15-15:45
Weather Condition		Sunny
Baseline Noise Level	**dB(A)**	74.0
Monitoring Results	**L_{eq}, dB(A)**	75.4
	L_{10}, dB(A)	70.2
	L_{90}, dB(A)	80.3
Calibration before Measurement	**dB(A)**	94.0
Calibration after Measurement	**dB(A)**	94.0

Observation(s)

Excavation noise by (Excavator x 1)
Hammering noise by (Hammer x 2)
Other construction noise from the C.L.P. site
Transportation noise by public transportation

Remarks

N/A

With Baseline Correction : 69.8 **dB(A)**

Recorded by : Stephen Tsang **Date : Jan 10th 2009**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: _____ dBA Weather: Fine Recorded by: Stephen Tsang

Date	Location	Time/# Duration Min.	Comment/Source	L_{max}	L_{min}	L_{10}	L_{90}	L_{Aeq}
10-1-09	R. Liberte	15:15-15:20		85.1	69.1	79.7	70.5	75.2
		15:20-15:25		84.3	68.5	81.1	69.7	76.3
		15:25-15:30		84.7	65.4	80.2	67.1	74.1
		15:30-15:35		83.5	65.7	79.5	70.3	74.7
		15:35-15:40		85.5	68.7	79.7	71.1	75.2
		15:40-15:45		86.1	69.5	81.5	72.4	77.1

L_{10} 30 min = 80.3

L_{90} 30 min = 70.2

L_{Aeq} 30 min = 75.4

Mass Transit Railway - Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway and Entrance Works

Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Tower 1, The Pacifica
Sampling Date		10 January 2008
Sampling Time		16:00-16:30
Weather Condition		Sunny
Baseline Noise Level	dB(A)	74.3
Monitoring Results	L_{eq}, dB(A)	74.5
	L_{10}, dB(A)	80.6
	L_{90}, dB(A)	69.4
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Excavation noise by (Excavator x 1) Power generation noise by (Power generator x 1) Other consrtruction noise from C.L.P. Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : 61.0 **dB(A)**

Recorded by : Stephen Tsang **Date : 10 Jan 2009**

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: ________ dBA   Weather: Fine   Recorded by: Stephen Tsang

Date	Location	Time/H Duration Min.	Comment/Source	L max	L min	L10	L90	L Aeq
10-1-09	R2 Pacifica	16:00 - 16:05		84.3	68.5	78.7	70.5	74.7
		16:05 - 16:10		85.2	67.1	80.1	67.4	75.2
		16:10 - 16:15		83.7	67.4	81.2	69.7	74.7
		16:15 - 16:20		84.7	65.7	80.5	67.1	72.3
		16:20 - 16:25		86.5	69.1	82.4	71.1	75.7
		16:25 - 16:30		85.4	67.7	80.7	68.7	74.5

L10 30min = 80.6
L90 30min = 69.4
LAeq 30min = 74.5