

MTR Corporation Limited

MTR Lai Chi Kok Station Pedestrian Subway and Entrance Works

Monthly Environmental Monitoring & Audit Report

16 June 2008 – 15 July 2008

Environmental Pioneers & Solutions Limited

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MTR Lai Chi Kok Station

Cheung Lai Street Pedestrian Subway & Entrance Works

Environmental Permit No. EP – 253/ 2006

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- 014

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:


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

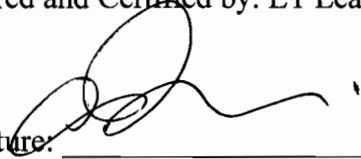
28 JUL 2009

Date

APPROVAL SHEET

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

Signature: _____



Miss Patricia Chung
(ET Leader)

Date: 28 JUL 2008

* ET – Environmental Team

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EXECUTIVE SUMMARY

This is the 11th 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 June to 15 July 2008. The major construction activities in this reporting month include 1800mm dia sewer diversion works, sheetpiling and temporary support for subway construction, utility diversion works and temporary road diversion.

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 was a formal public concern on an exhaust gas emission at Cheung Lai Street site. Reasonable follow up actions have been taken in accordance with the complaint response procedure in the EM&A manual for resolution. The Contractor's performance on environmental issues of the project in this reporting month was considered in general satisfactory.

1 INTRODUCTION

This is the 11th 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 June to 15 July 2008.

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.

Activities	Month					
	Aug - Dec 07	Jan-May 08	Jun-Oct 08	Nov08 -Mar09	Apr-Aug 09	Sept 09 - Jan 10
1800 Ø Sewer Diversion of Lai Chi Kok Sewer	■					
Construction of Subway						
- Sheet Piling works & Temporary Support	■					
- Excavation works			■			
- Formwork & Concreting				■		
- Decoration Works					■	
- Backfilling & Reinstatement					■	
Construction of smoke extraction air shaft	■					
Construction of fresh air intake shaft	■					
Construction of subway entrance D1					■	
Construction of subway entrance D2					■	
Construction of subway entrance D3 inside Liberte			■			
Construction of subway entrance D4 inside The Pacifica			■			

2.2 Construction Activities in the Past Month

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

1800 dia sewer diversion of Lai Chi Kok Sewer under West Kowloon Corridor.

- Construct new manhole FM-2 for the sewer diversion.
- Complete 1800 mm dia. diverted sewer pipes laying from new manhole FM-1 to the existing manhole
- Remove abandoned section of the existing 1800mm dia sewer for diversion.

Construction of ventilation ducts and shafts

- No significant progress in this reporting month..

Construction of subway

- Install temporary road deck panels for road reopen at north lane of Cheung Yee Street.
- Drive sheet piles at middle portion of Cheung Lai Street in between Cheung Shun Street and Cheung Yee Street.
- Complete the temporary road deck panels at the section across Lai Chi Kok Road for road reopen.

2.3 Construction Activities for the Coming Month

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

1800 dia sewer diversion of Lai Chi Kok Sewer under West Kowloon Corridor.

- Complete new manholes FM-1 and FM-2 for the sewer diversion.
- Complete the removal of the existing abandoned pipes.

Construction of ventilation ducts and shafts

- Excavation for constructing the extract smoke ventilation shaft under West Kowloon Corridor.

Construction of subway

- Install temporary road deck panels at middle portion of Cheung Lai Street in between Cheung Shun Street and Cheung Yee Street.
- Complete the temporary road deck panels at the section across Lai Chi Kok Road for road reopen.
- Trial trench for drive sheet piles at Cheung Lai Street in between Cheung Sha Wan Road and Cheung Shun Street.

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 results, ranged between 62.5 dB(A) and 71.4 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	Baseline	Corrected		Limit	Exceedance
				Leq	Noise Level	L _{Aeq} *			
R1	Leq30min	13:52	16-June-08	75.0 dB(A)	74 dB(A)	68.1	dB(A)	75 dB(A)	N
R1	Leq30min	11:20	24-June-08	74.7 dB(A)	74 dB(A)	66.4	dB(A)	75 dB(A)	N
R1	Leq30min	11:30	30-June-08	74.3 dB(A)	74 dB(A)	62.5	dB(A)	75 dB(A)	N
R1	Leq30min	15:12	11-July-08	75.5 dB(A)	74 dB(A)	70.2	dB(A)	75 dB(A)	N
R1	Leq30min	11:07	14-July-08	75.5 dB(A)	74 dB(A)	70.2	dB(A)	75 dB(A)	N
R2	Leq30min	13:08	16-June-08	75.9 dB(A)	74.3 dB(A)	70.8	dB(A)	75 dB(A)	N
R2	Leq30min	10:39	24-June-08	75.5 dB(A)	74.3 dB(A)	69.3	dB(A)	75 dB(A)	N
R2	Leq30min	13:00	30-June-08	76.1 dB(A)	74.3 dB(A)	71.4	dB(A)	75 dB(A)	N
R2	Leq30min	14:29	11-July-08	75.7 dB(A)	74.3 dB(A)	70.1	dB(A)	75 dB(A)	N
R2	Leq30min	10:27	14-July-08	73.6 dB(A)	74.3 dB(A)	#	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 exceedance 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to RE / ET. 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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 21st, 28th, July 2008, as well as 4th and 11th August 2008.

Site inspection schedule for the next reporting period is designated on 21st July 2008 and 4th, 11th August 2008.

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
<i>Total</i>	<i>4529.95</i>	<i>137.1</i>	<i>13</i>

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 07 to 15 February 08	0	0	0	0
16 February 07 to 15 March 08	0	0	0	0
16 March 07 to 15 April 08	0	1	0	0
16 April 07 to 15 May 08	1	0	0	0
16 May 07 to 15 June 08	1	0	0	0
16 June 07 to 15 July 08	1	0	0	0
<i>Total</i>	<i>3</i>	<i>1</i>	<i>0</i>	<i>0</i>

A public concern on odorous exhaust gas emission at Cheung Lai Street site was received from EPD on 7 July. Proper follow up actions were taken by Resident Engineer/ Contractor/ Environmental Team and Independent Environmental Checker for investigation and resolution. The Contractor has implemented the agreed mitigation measures for resolution. The details can be referred to the complain report and log in Appendix 4, as well as the Environmental follow-up Action Photos in Appendix 5.

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
8	The Contractor was reminder to strictly follow up the required noise mitigation measures at the work sites for Entrance D3 and D4.	Reminder to Contractor
9	The Contractor was reminded to reinstate the drip pan installation at the work site under West Kowloon Corridor.	Awaited

9 CONCLUSION

In this reporting month, construction activities for this project “MTRC Lai Chi Kok Station Pedestrian Subway and Entrance Works” included 1800mm dia sewer diversion works, sheetpiling and temporary support for subway construction, temporary road panels installation, utility diversion works and temporary road diversion. 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 implement the environmental monitoring & audit programme in accordance with the EM&A Manual and Environmental Permit requirements.

There was one public concern on odorous exhaust gas emission recorded that had been handled properly in accordance with the complaint response procedure in the EM&A Manual as per Appendix 4 and 5.

APPENDIX 1 – REFERENCE FIGURES

Figure 1 Project Construction Area

Figure 2 Noise Monitoring Stations

Figure 1 Project Construction Area

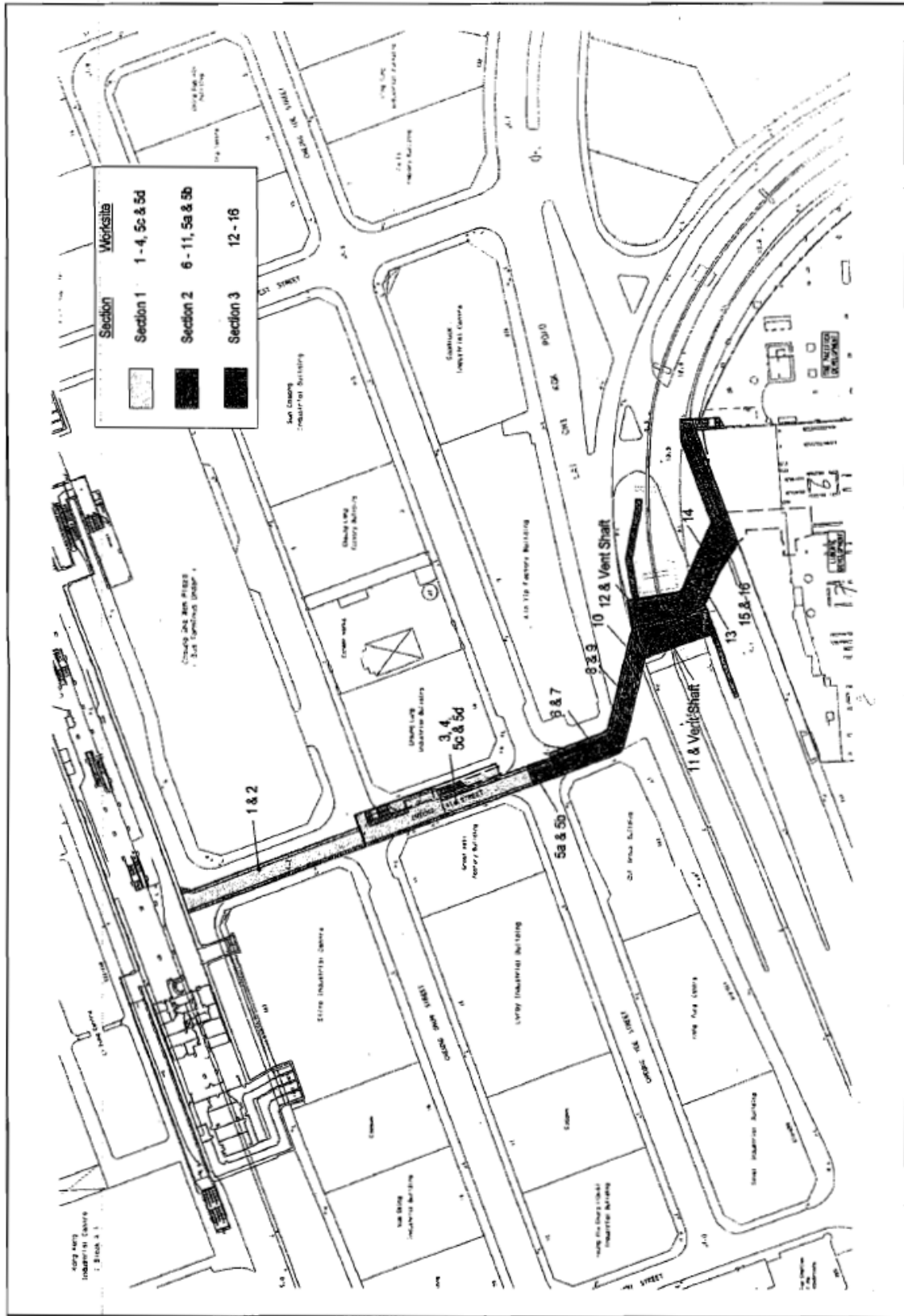


Figure 2 Noise Monitoring Stations R1 and R2

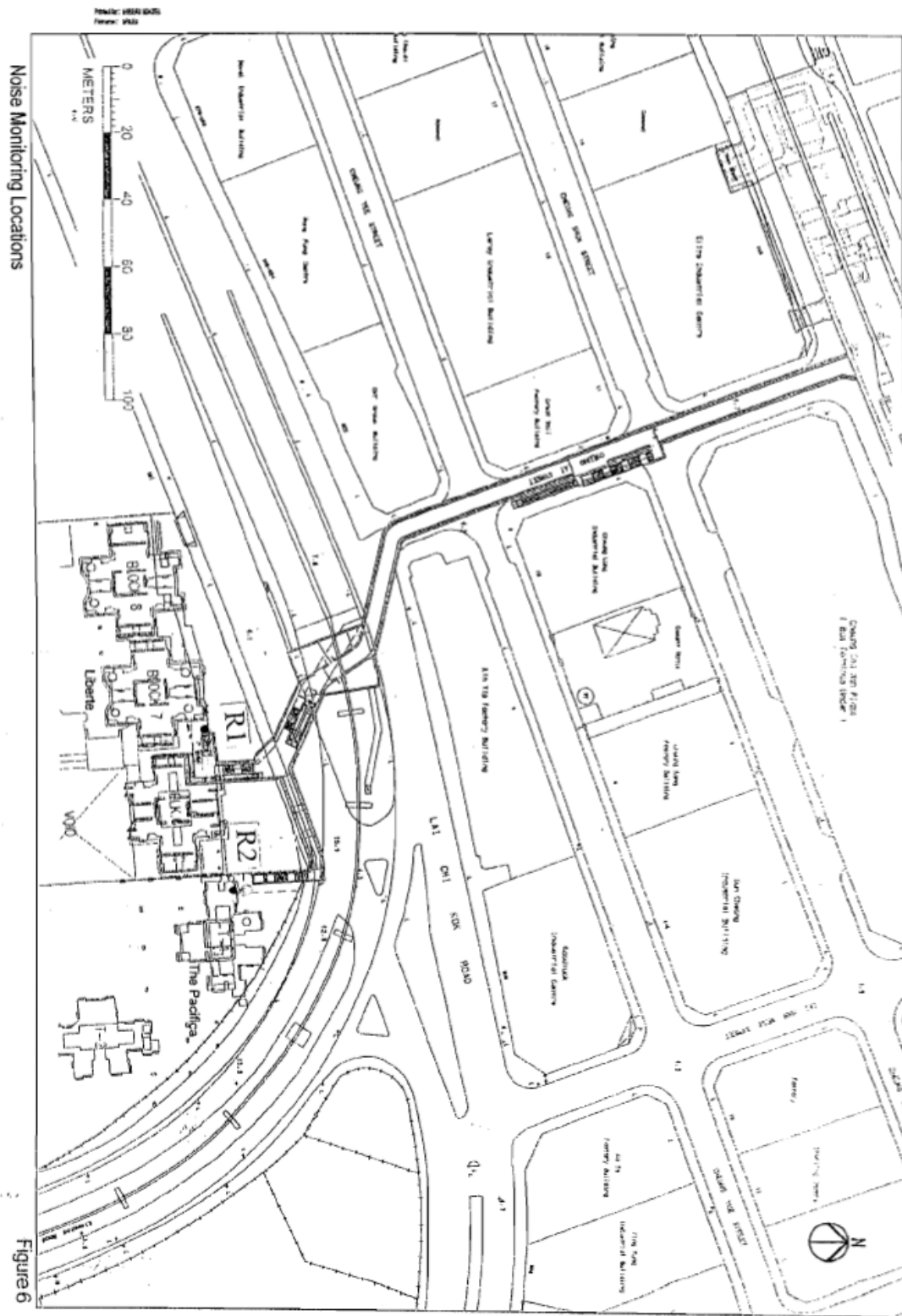
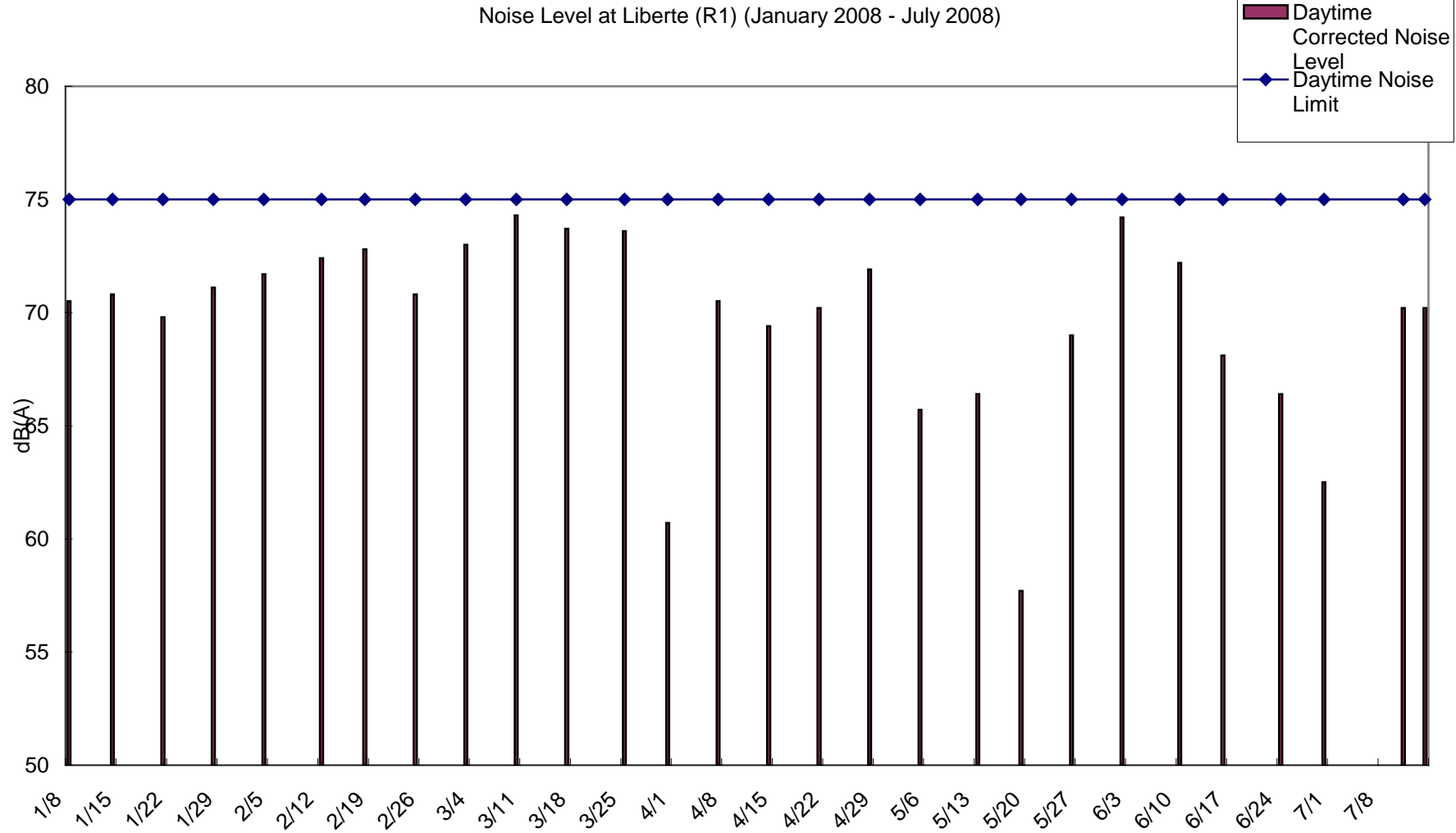
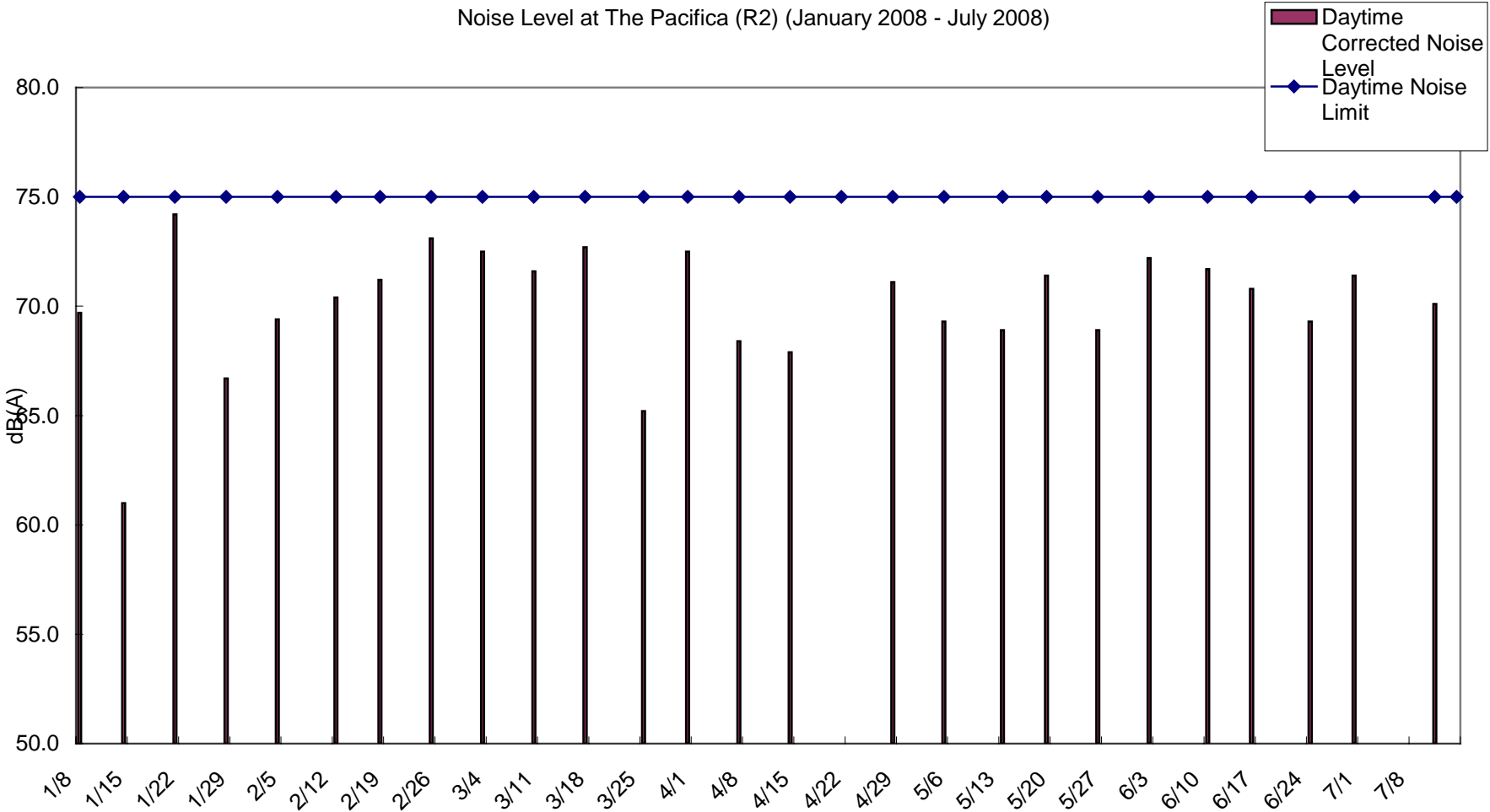


Figure 6

APPENDIX 2 – Environmental Monitoring Data / Charts



Noise Level at The Pacifica (R2) (January 2008 - July 2008)



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:

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

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

And the equation of the Baseline correction:

$$10\log (10^{L_{aeq}/10} - 10^{L_b/10})$$

Where:

L_{aeq} is the $L_{Aeq, 30min}$ from the geometric mean of 6 consecutive L_{eq5min} results

L_b 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		16 June 2008
Sampling Time		1352-1422
Weather Condition		Cloudy
Baseline Noise Level	dB(A)	74.0
Monitoring Results	L _{eq} , dB(A)	75.0
	L ₁₀ , dB(A)	76.5
	L ₉₀ , dB(A)	72.9
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Water punping noise by (Water pump) Crane lifting noise by (Crane Lifter x 1) Excavator noise by (Excavator x 1) Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : 68.1 dB(A)

Recorded by : Stephen Tsang

Date : 16 June 2008

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: _____ dBA Weather: CLOUDY Recorded by: _____

Date	Location	Time/H Duration Min.	Comment/Source	L _{max}	L _{min}	L ₁₀	L ₉₀	L _{Aeq}
16-6-2008	R. Liberte.	13:52-13:57		81.0	69.2	76.5	72.2	74.6
		13:57-14:02		88.6	71.5	75.9	73.0	74.9
		14:02-14:07		80.8	71.4	76.5	72.6	74.9
		14:07-14:12		79.7	71.7	76.6	73.5	75.2
		14:12-14:17		80.7	71.7	77.0	73.3	75.3
		14:17-14:22		81.1	71.7	76.7	73.1	75.0

L_{Aeq} 30min = 75.0
 L₉₀ 30min = 72.9
 L₁₀ 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, Tower 1, The Pacifica
Sampling Date		16 June 2008
Sampling Time		1308-1338
Weather Condition		Cloudy
Baseline Noise Level	dB(A)	74.3
Monitoring Results	L_{eq}, dB(A)	75.9
	L₁₀, dB(A)	77.4
	L₉₀, dB(A)	73.8
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Water pumping noise by (Water Pump x 1) Crane lifting noise by (Crane Lifter x 1) Excavator noise by (Excavator x 1) Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : 70.8 dB(A)

Recorded by : Stephen Tsang

Date : 16 June 2008

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: _____ dBA Weather: CLOUDY Recorded by: _____

Date	Location	Time/H Duration Min.	Comment/Source	L _{max}	L _{min}	L ₁₀	L ₉₀	L _{Aeq}
16-6-2008	R2 Pacifica	13:08-13:13		82.1	72.9	78.0	74.3	76.4
		13:13-13:18		81.8	73.3	77.7	74.8	76.3
		13:18-13:23		88.0	72.3	76.9	73.7	75.7
		13:23-13:28		89.6	71.4	77.4	73.2	75.8
		13:28-13:33		80.0	71.5	76.9	73.4	75.4
		13:33-13:38		84.3	71.6	77.6	73.3	75.6

L_{Aeq} 30min = 75.9
 L₉₀ 30min = 73.8
 L₁₀ 30min = 77.4

**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		24 June 2008
Sampling Time		1120-1150
Weather Condition		Sunny
Baseline Noise Level	dB(A)	74.0
Monitoring Results	L_{eq}, dB(A)	74.7
	L₁₀, dB(A)	76.4
	L₉₀, dB(A)	72.5
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Shoveling noise by (Shovel x 1) Crane lifting noise by (Crane Lifter x 1) Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : 66.4 dB(A)

Recorded by : Stephen Tsang

Date : 24 June 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 ₅₀	L _{Aeq}
24-6-08	R ₁ Liberte	11:20-11:25		81.1	71.4	76.8	73.0	75.2
		11:25-11:30		87.1	71.1	76.4	72.4	74.8
		11:30-11:35		80.1	71.5	76.7	72.7	74.9
		11:35-11:40		83.9	70.4	76.5	72.4	74.7
		11:40-11:45		79.6	70.5	75.9	72.0	74.3
		11:45-11:50		80.9	70.6	76.3	72.3	74.6

L_{Aeq} 30min = 74.7

L₁₀ 30min = 76.4

L₉₀ 30min = 72.5

**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		24 June 2008
Sampling Time		1039-1109
Weather Condition		Sunny
Baseline Noise Level	dB(A)	74.3
Monitoring Results	L_{eq}, dB(A)	75.5
	L₁₀, dB(A)	77
	L₉₀, dB(A)	73.5
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Shoveling noise by (Shovel x 1) Crane lifting noise by (Crane Lifter x 1) Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : 69.3 dB(A)

Recorded by : Stephen Tsang

Date : 24 June 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}
24-6-08	R2 Pacifica	10:39-10:44		83.5	69.9	77.0	73.0	75.2
		10:44-10:49		89.1	72.1	77.2	73.8	75.9
		10:49-10:54		84.0	71.9	76.9	73.3	75.4
		10:54-10:59		83.9	71.6	77.7	73.6	75.9
		10:59-11:04		83.8	71.8	77.1	74.0	75.6
		11:04-11:09		80.7	71.9	76.3	73.2	74.9

L_{Aeq} 30min = 75.5

L₁₀ 30min = 77.0

L₉₀ 30min = 73.5

**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		30 June 2008
Sampling Time		1130-1200
Weather Condition		Cloudy
Baseline Noise Level	dB(A)	74.0
Monitoring Results	L_{eq}, dB(A)	74.3
	L₁₀, dB(A)	75.8
	L₉₀, dB(A)	72.5
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Excavation noise by (Excavator x 1) Shoveling noise by (Shovel x 3) Crane lifting noise by (Crane Lifter x 1) Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : 62.5 dB(A)

Recorded by : Stephen Tsang

Date : 30 June 2008

NOISE MEASUREMENT RECORD

SUMMARY

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

Date	Location	Time/H Duration Min.	Comment/Source	L _{max}	L _{min}	L ₁₀	L ₅₀	L _{Aeq}
30-6-2008	R, Liberte	11:30am-11:35		84.1	69.9	75.2	72.2	74.0
		11:35-11:40		82.9	69.9	75.9	73.0	74.7
		11:40-11:45		77.3	69.6	75.5	72.2	74.0
		11:45-11:50		78.0	71.4	76.5	72.9	74.7
		11:50-11:55		87.0	70.9	75.8	72.7	74.5
		11:55-12:00		77.9	69.2	75.7	72.1	74.1

L_{Aeq} 30min = 74.3
 L₁₀ 30min = 75.8
 L₉₀ 30min = 72.5

**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		30 June 2008
Sampling Time		1300-1330
Weather Condition		Cloudy
Baseline Noise Level	dB(A)	74.3
Monitoring Results	L_{eq}, dB(A)	76.1
	L₁₀, dB(A)	77.9
	L₉₀, dB(A)	72.4
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Excavation noise by (Excavator x 1)		
Crane lifting noise by (Crane Lifter x 1)		
Shoveling noise by (Shovel x 3)		
Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : 71.4 dB(A)

Recorded by : Stephen Tsang

Date : 30 June 2008

NOISE MEASUREMENT RECORD

SUMMARY

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

Date	Location	Time/H Duration Min.	Comment/Source	L _{max}	L _{min}	L ₁₀	L ₅₀	L _{Aeq}
30-6-2008	R2 Pacific	13:00-13:05		82.5	72.4	77.3	73.6	75.7
		13:05-13:10		89.2	72.8	78.3	75.0	77.4
		13:10-13:15		89.5	67.3	79.7	73.0	78.1
		13:15-13:20		79.9	65.9	78.8	70.9	76.7
		13:20-13:25		81.4	68.6	77.1	70.4	74.7
		13:25-13:30		79.4	68.6	76.2	71.9	74.2

L_{Aeq} 30min = 76.1
 L₁₀ 30min = 77.9
 L₉₀ 30min = 72.4

**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		11 July 2008
Sampling Time		15:12-15:42
Weather Condition		Sunny
Baseline Noise Level	dB(A)	74.0
Monitoring Results	L_{eq}, dB(A)	75.5
	L₁₀, dB(A)	76.9
	L₉₀, dB(A)	73.8
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Hand breaking noise by (Pneumatic hand held breaker x 1) Shoveling noise by (Shovel x 1) Crane lifting noise by (Crane Lifter x 1) Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : 70.2 dB(A)

Recorded by : Stephen Tsang

Date : 11 July 2008

NOISE MEASUREMENT RECORD

SUMMARY

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

Date	Location	Time/H Duration Min.	Comment/Source	L _{max}	L _{min}	L ₁₀	L ₉₀	L _{Aeq}
11-7-2008	R. Liberte	15:12-15:17		84.8	71.4	76.8	73.0	75.3
		15:17-15:22		83.4	73.2	76.6	74.2	75.5
		15:22-15:27		86.9	72.4	77.1	73.8	75.7
		15:27-15:32		80.6	72.0	76.7	73.8	75.3
		15:32-15:37		81.5	72.2	77.4	73.8	75.7
		15:37-15:42		79.2	72.0	76.9	74.0	75.6

L_{Aeq} 30_{min} = 75.5
 L₁₀ 30_{min} = 76.9
 L₉₀ 30_{min} = 73.8

**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		11 July 2008
Sampling Time		1429-14:59
Weather Condition		Sunny
Baseline Noise Level	dB(A)	74.3
Monitoring Results	L_{eq}, dB(A)	75.7
	L₁₀, dB(A)	77.2
	L₉₀, dB(A)	73.9
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Hand breaking noise by (Pneumatic hand held breaker x 1) Crane lifting noise by (Crane Lifter x 1) Shoveling noise by (Shovel x 1) Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : 70.1 dB(A)

Recorded by : Stephen Tsang

Date : 11 July 2008

NOISE MEASUREMENT RECORD

SUMMARY

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

Date	Location	Time/H Duration Min.	Comment/Source	L _{max}	L _{min}	L ₁₀	L ₉₀	L _{Aeq}
11-7-2008	R2 Pacific	14:29-14:34		80.9	71.1	77.3	73.5	75.5
		14:34-14:39		81.4	72.1	77.3	74.0	75.7
		14:39-14:44		81.3	72.6	77.5	74.0	75.8
		14:44-14:49		79.2	72.5	77.0	74.2	75.9
		14:49-14:54		81.4	72.9	77.6	74.6	76.2
		14:54-14:57		81.9	71.6	76.6	73.3	75.1

L_{Aeq} 30_{min} = 75.7

L₁₀ 30_{min} = 77.2

L₉₀ 30_{min} = 73.9

**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		14 July 2008
Sampling Time		11:07-11:37
Weather Condition		Sunny
Baseline Noise Level	dB(A)	74.0
Monitoring Results	L_{eq}, dB(A)	75.5
	L₁₀, dB(A)	77
	L₉₀, dB(A)	73.7
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Hand breaking noise by (Pneumatic hand held breaker x 1) Crane lifting noise by (Crane Lifter x 1) Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : 70.2 dB(A)

Recorded by : Stephen Tsang

Date : 14 July 2008

NOISE MEASUREMENT RECORD

SUMMARY

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

Date	Location	Time/H Duration Min.	Comment/Source	L _{max}	L _{min}	L ₁₀	L ₅₀	L _{Aeq}
14-7-2008	R ₁ Libert	11:07-11:12		81.3	72.7	76.9	73.3	75.4
		11:12-11:17		82.0	71.8	77.0	73.7	75.6
		11:17-11:22		81.7	72.4	77.1	73.8	75.7
		11:22-11:27		86.9	72.0	76.7	73.8	75.3
		11:27-11:32		80.6	72.2	77.4	73.8	75.7
		11:32-11:37		81.5	72.2	76.9	74.0	75.6

L_{Aeq} 30min = 75.5
 L₁₀ 30min = 77.0
 L₁₀ 30min = 73.7

**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		14 July 2008
Sampling Time		10:27-10:57
Weather Condition		Sunny
Baseline Noise Level	dB(A)	74.3
Monitoring Results	L_{eq}, dB(A)	73.6
	L₁₀, dB(A)	75
	L₉₀, dB(A)	71.7
	Calibration before Measurement	dB(A)
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Hand breaking noise by (Pneumatic hand held breaker x 1) Crane lifting noise by (Crane Lifter x 1) Transportation noise by public transportation		
Remarks		
N/A		

With Baseline Correction : # dB(A)

represents (The measured L_{Aeq} (30) min is lower than baseline.
 Therefore, there is not any baseline correction required)

Recorded by : Stephen Tsang

Date : 14 July 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 ₅₀	L _{Aeq}
14-7-2008	R2 Pacifica	10:27-10:32		79.5	69.9	75.2	71.7	73.7
		10:32-10:37		81.6	69.7	75.1	71.5	73.6
		10:37-10:42		77.1	69.3	74.7	71.2	73.2
		10:42-10:47		76.8	70.7	74.9	72.2	73.8
		10:47-10:52		81.2	69.4	74.8	71.5	73.4
		10:52-10:57		79.7	69.6	75.3	72.0	73.8

L_{Aeq} 30 min = 73.6
 L₁₀ 30 min = 75.0
 L₉₀ 30 min = 71.7

APPENDIX 4 – COMPLAINT REPORT AND LOG

MTR Project – MTR Lai Chi Kok Station Cheung Lai Street Pedestrian Subway and Entrances Works

Report for Complaint/ Concern

Ref: LCK-Ct03/08

Sheet: 1 of 2

RECIPIENT

Name: MTR Corporation Limited

Details: The EPD's fax dated 3 July 2008 regarding a public complaint on odorous exhaust gas emission was received by MTR on 7 July 2008.

Received Date: 7 July 2008

Received Time: _____

COMPLAINANT / Concern

Name: N/A

Tel: N/A

Address: N/A

COMPLAINT

Noise Air quality/Dust Water Environment Traffic/Pedestrian
Safety Others

Event Date and Time: 2 July 2008

Location: A complainant showed his concern on an odorous exhaust gas emission from the construction activities on Cheung Lai Street to the EPD.

INVESTIGATION RESULTS & MITIGATION MEASURES

Investigation

1. As per the EM&A Manual section 7.3, relevant follow up discussion and investigation with the representatives from RE/ Contractor/ Environmental Team/ IEC have been made on 9 July to resolve the above incident after receipt of the above public concern from EPD.
2. The investigation findings indicate the bad smell was caused by the stockpiled drainage sludge of the progressing existing 1050mm pipe removal work at Cheung Lai Street during the period of 30th June to 2nd July. The stockpiled sludge has been removed off site by the contractor for proper disposal since 3 July.

Proposed Mitigation Measures

3. The contractor has agreed to well manage any similar incidents by putting the drainage sludge into a well covered container to reduce impact to the public during future drainage diversion works on construction sites.
4. The contractor has also agreed not to stockpile any well-covered drainage sludge on site for over night during future construction activities.
5. A post meeting site inspection on the construction sites taken on 9 July by the representatives found there was no drainage sludge stockpiling found. The concerned existing 1050 mm dia pipes removal work has been completed.

RECOMMENDATIONS

- ◆ The Contractor should always pay attention and minimize any unnecessary drainage sludge stockpiling on site that may cause public concern;
- ◆ Sludge generated from the future drainage diversion works should be placed in a well covered container that have to be removed off site asap without stockpiling on site for over night.
- ◆ The Contractor should take serious notice on the public concern and always provides and maintains proper mitigation measure and always keep good management at site.

Signed:

Date: 9-7-2008

COMPLAINT / CONCERN LOG

Ref: _____

Log Ref	Event Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/Mitigation Action	File Closed
LCK-Ct03/08	2 nd July 2008; Cheung Lai St.	A public concern received by MTR via EPD on 7 th July 08	A complainant showed his concern on the construction activities which generated odorous exhaust gas in Cheung Lai Street to the EPD on 2 nd July 2008	<p>1)The event investigation on 9 July 2008 have been conducted to figure out major source of impacts produced from the site.</p> <p>2) The investigation outcome shows the Contractor has taken immediate actions to reduce the impact to the public from the concerned odorous exhaust gas emission during the existing drain pipes removal at Cheung Lai Street site from 30 June to 2 July 2008.The drainage removal work was completed on 9th July 2008.</p> <p>3) The Contractor has agreed to improve the odor impact at the working locations to the passing pedestrians by putting the sludge into a well-covered container and to remove it the same day in future similar construction activities.</p>	Yes

Filed by Environmental Team Leader: _____

Date: _____

APPENDIX 5 – Environmental Follow-Up Action Photos



The arrow showed the location of stockpile drainage sludge that caused odorous smell to public on Cheung Lai Street during the period of 30th June to 2nd July 2008 due to construction work of drainage diversion 1050mm dia pipe. The site inspection photo that was taken on July 9th showed the stockpile of drainage sludge had been removed off site for proper disposal since 3rd July.

This picture showed the construction work of drainage diversion 1050mm dia pipe was completed on 11th July.

