MTR Corporation Limited

MTR Lai Chi Kok Station Pedestrian Subway and Entrance Works

Monthly Environmental Monitoring & Audit Report

16 October 2009 – 15 November 2009

Environmental Pioneers & Solutions Limited

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APPROVAL SHEET

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

Signature?

Miss Patricia Chung (ET Leader)

* ET - Environmental Team

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-029

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:

alenn Frommer

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

- 2 DEC 2009

Date

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EXECUTIVE SUMMARY

This is the 27th 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 October 2009 to 15 November 2009. The major construction activities in this reporting month include grouting lagging walls and construction of subway base slabs, walls and soffits under West Kowloon Corridor and Cheung Lai Street; pumping tests at Entrance D3 and utility diversions and subway base slab construction at Lai Chi Kok Road West. Noise impact monitoring for the construction noise impact was conducted at the agreed NSRs during this reporting period and no exceedance of action and limit levels recorded. The Contractor's performance on environmental issues was considered to be satisfactory in general.

1 INTRODUCTION

This is the 27th 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 October 2009 to 15 November 2009.

2 PROJECT INFORMATION

2.1 Construction Program

Civil construction of the whole subway would take approximately 33 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.

As advised by RE, the following construction programme has been revised to suit the current progress of the project works due to longer time taken for the utility diversion works and resolving site constraints. Site location plan is shown in Appendix 1.

Activities	Month							
	Aug - Dec		Jun-Oct	Nov08 -	Apr-Aug		Feb - May	
1800 Φ Sewer Diversion of Lai Chi	07	08	08	Mar09	09	Jan 10	10	
Kok Sewer								
Construction of Subway								
 Sheet Piling works & Temporary Support 								
- Excavation works								
- Formwork & Concreting								
- Decoration Works								
- Backfilling & Reinstatement								
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:

Site under West Kowloon Corridor

- Subway excavation and soil disposal;
- Grouting works for lagging walls for Liberte;
- Installation of lateral supports for construction of subway;
- Construction of subway base slabs.

Lai Chi Kok Road Westbound

- Soil excavation and disposal for installing waling and strut of the cofferdam;
- Construction of the subway blinding layer;
- Fabrication of supports to the existing utilities.

Site at Cheung Lai Street

- Soil excavation and disposal for subway construction;
- Installation of strut and waling for subway construction;
- Construction of subway base slabs, walls and soffit;
- Applying water proof membrane for subway;
- Construction of strengthening portal at the existing diaphragm wall of LCK Station.

Site at Entrance D3

- Water testing for installed pump wells.
- Preparation works for sheet piling works

Site at Entrance D4

- Preparation of the underground beam 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

- Construction of subway base slabs, walls and soffits.
- Installation of waterproofing membrane.
- Construction of remaining smoke and fresh air vent shaft

Lai Chi Kok Road Westbound

- Soil excavation and disposal for installing waling and strut of the cofferdam;
- Construction of the blinding layer;
- Fabrication of supports to the existing utilities.

Site at Cheung Lai Street

- Soil excavation and disposal for subway construction;

- Construction of subway base slabs, walls and soffits;
- Applying waterproof membrane for subway;
- Construction of strengthening portal at the existing diaphragm wall of LCK Station.

Site at Entrance D3

- Sheet piling works
- Pumping test.

Site at Entrance D4

- Construction of tie beam and ground beam
- Existing steel H-pile modification

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.

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

Table 3.1 – Noise Monitoring Stations

3.4 Monitoring Results

The results are presented in the Table 3.2. Relevant details of the noise monitoring results, graphic plots calculation references are presented in Appendix 2 and 3. The corrected LAeq results, ranged between 60.5dB(A) and 73.7 dB(A), were within the limit levels and therefore, no exceedance was found.

				Measured	Baseline	Corrected		
					Noise			
Location	Parameter	Time	Date	Leq	Level	LAeq* Limit		Exceedance
R1	Leq30min	11:09	19-Oct-09	75.0 dB(A)	74 dB(A)	60.5 dB(A)	75 dB(A)	Ν
R1	Leq30min	11:44	29-Oct-09	77.0 dB(A)	74 dB(A)	65.5 dB(A)	75 dB(A)	Ν
R1	Leq30min	11:55	2-Nov-09	74.6 dB(A)	74 dB(A)	60.5 dB(A)	75 dB(A)	Ν
R1	Leq30min	11:02	12-Nov-09	76.2 dB(A)	74 dB(A)	68.8 dB(A)	75 dB(A)	Ν
R2	Leq30min	10:30	19-Oct-09	74.0 dB(A)	74.3 dB(A)	73.7 dB(A)	75 dB(A)	Ν
R2	Leq30min	11:10	29-Oct-09	74.4 dB(A)	74.3 dB(A)	62.8 dB(A)	75 dB(A)	Ν
R2	Leq30min	11:16	2-Nov-09	76.2 dB(A)	74.3 dB(A)	71.7 dB(A)	75 dB(A)	Ν
R2	Leq30min	10:25	12-Nov-09	75.0 dB(A)	74.3 dB(A)	66.7 dB(A)	75 dB(A)	Ν

Table 3.2 – Noise monitoring results for the reporting month

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

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

 Table 3.4 - Event/Action plan for construction noise

3.5 Monitoring Schedule for Next Reporting Period

Noise monitoring in the next reporting period is scheduled for 17^{th} and 26^{th} November and 1^{st} and 10^{th} December 2009.

Site inspection schedule for the next reporting period is designated on and 23rd November and 14th December 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.

	Amount	Amount of Construction Waste disposed							
	Inert Waste (to Public Fill) (tonnes)	Non-inert Waste (to Landfill) (tonnes)	Chemical Waste (trip) (tonnes)						
16 August 07 to 15 May 08	5642.79	0	0.4						
16 May 08 to 15 February 09	12526.15	16.00	1						
16 February 09 to 15 March 09	3871.40	0	0						
16 March 09 to 15 April 09	5603.90	3.00	0.4						
16 April 09 to 15 May 09	3354.90	6.50	0						
16 May 09 to 15 June 09	4182.60	2.70	0						
16 June 09 to 15 July 09	5594.20	9.50							
16 July 09 to 15 August 09	5667.33	4.45	0						
16 August 09 to 15 September 09	1300.50	12.90	0						
16 September 09 to 15 October 09	2442.80	32.00	0						
16 October 09 to 15 November 09	0.00	145.00	0						
Total	50186.57	232.05	1.80						

Table 5.1 Summary of Construction Waste Disposal

6 COMPLAINT LOG

Table 6.1 Summary of Formal Complaints received								
	Air	Noise	Water	Others				
16 August 07 to 15 May 07	1	1	0	0				
16 May 08 to 15 February 09	2	0	0	0				
16 February 09 to 15 March 09	0	0	0	0				
16 March 09 to 15 April 09	0	1	0	0				
16 April 09 to 15 May 09	0	0	0	0				
16 May 09 to 15 June 09	0	0	0	0				
16 June 09 to 15 July 09	0	0	0	0				
16 July 09 to 15 August 09	0	0	0	0				
16 August 09 to 15 September 09	0	0	0	0				
16 September 09 to 15 October 09	0	0	0	0				
16 October 09 to 15 November 09	0	0	0	0				
Total	3	2	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.

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	GW-RW0303-09	3 Aug 2009	2 Feb 2010	
Construction Noise Permit	GW-RW0330-09	17 Aug 2009	16 Feb 2010	
Effluent Discharge License	EP760/264/0124051	24 July 2007	31 July 2012	

Table 7.1 Status of Permits and Licenses Obtained

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:

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 should implement properly required dust mitigation measures at the progressing work sites	Ongoing
9	The Contactor should regularly check any ponding site water in order to prevent mosquito breeding problems and working condition of the working de-silting tanks.	Still followed by Contractor
10	The Contractor should follow up the general housing keeping at Lai Chi Kok site.	Improved by Contractor

Table 8.1 Summary of inspection findings

9 CONCLUSION

In this reporting month, construction activities for this project "MTRC Lai Chi Kok Station Pedestrian Subway and Entrance Works" include grouting lagging walls and construction of subway base slabs and walls under West Kowloon Corridor; excavation and installation of the lateral supports along footpath of Lai Chi Kok Road Westbound and construction of subway base slabs, soffits and walls for the subway section under Cheung Lai Street; pumping tests at Entrance D3. 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 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

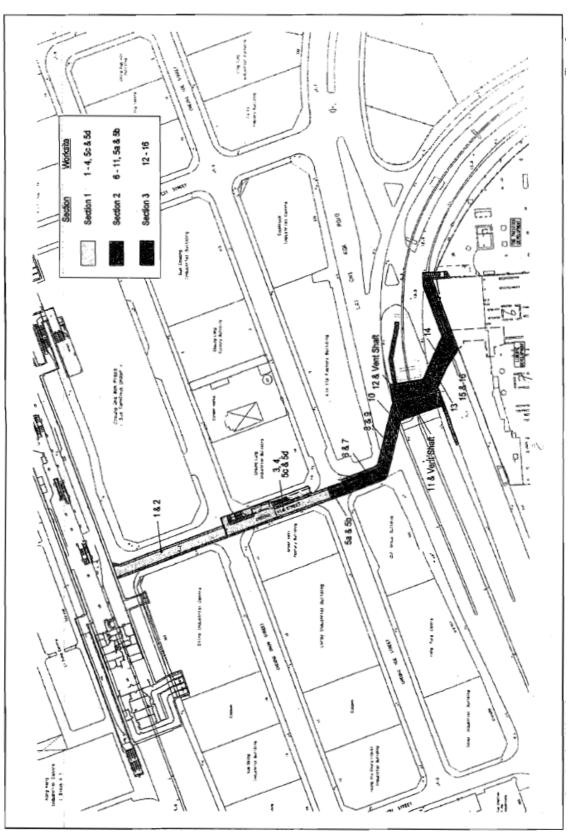


Figure 1 Project Construction Area

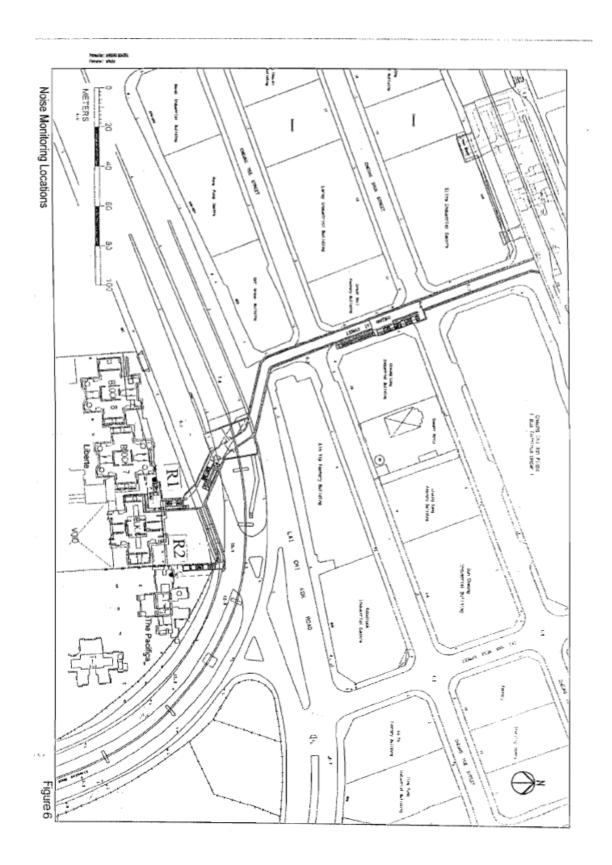
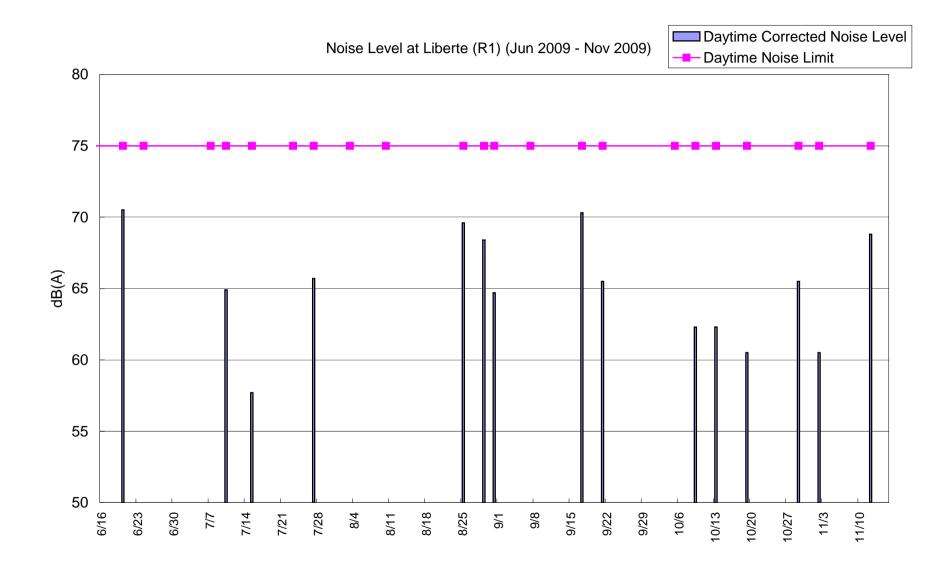
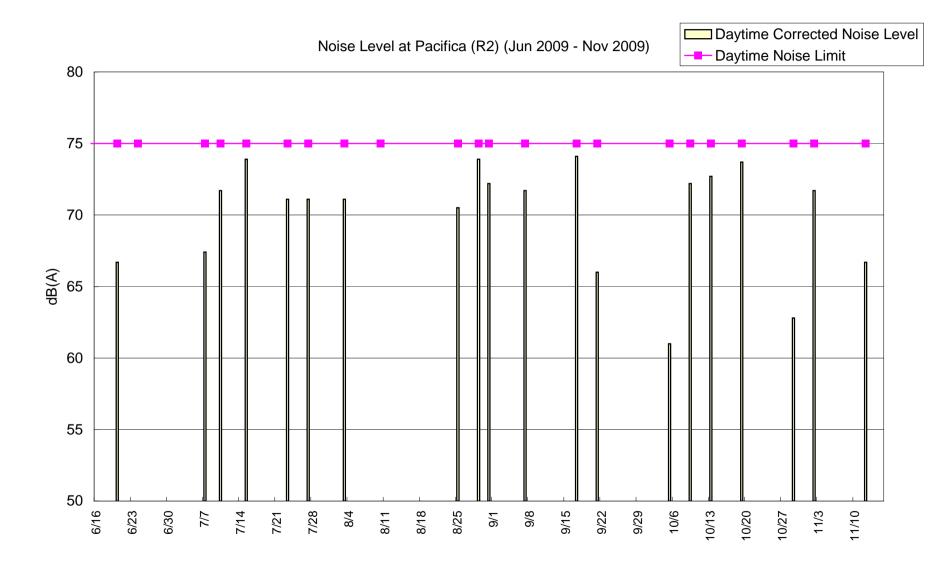


Figure 2 Noise Monitoring Stations R1 and R2

 $\begin{array}{c} MTRC-Lai\ Chi\ Kok\ Station\\ Cheung\ Lai\ Street\ Pedestrian\ Subway\ and\ Entrance\ Works\\ 27^{th}\ Monthly\ EM&A\ Report \end{array}$

APPENDIX 2 – Environmental Monitoring Data / Charts





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:

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

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

And the equation of the Baseline correction:

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

Where:

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

Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Block 7, Liberte					
Sampling Date		19 October 2009					
Sampling Time							
Weather Condition		11:09 - 11:39					
	30(4)	Sunny					
Baseline Noise Level	dB(A)	73.8					
	Leq, dB(A)	74.0					
Monitoring Results	L ₁₀ , dB(A)	75.4					
	L ₉₀ , dB(A)	72.3					
Calibration before Measurement	dB(A)	94.0					
Calibration after Measurement	dB(A)	94.0					
Observation(s)							
Remarks							
N/A							

With Baseline Correction :

60.5 dB(A)

#Note: The measurement noise level is lower than the baseline noise level Therefore, no baseline correction is calculated.

Recorded by : William Law

Date : 19 October 2009

	(m)	L Acq	73.60	14. D	74. LO	art	aj-sht	73.60	03.7ht =	some = A.40	= 72.30
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		L _{min}	7 0.50 F	otilt	70.AD	af. OF	39. QL	e.4			
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<u>сл</u>	Weather: Surry	Comment/Source			-	-					
	dBA	Time/H Duration Min.	11-12-69-11	[[+11(-11+12]	11:19-11:4	fr:17-h(1]	11-11-54	[]: 34 -[1: 39			
	Frequency weightings: _	Location	19/10/mg C, Liberce								
		Date	u/io/w								

NOISE MEASUREMENT RECORD

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Noise Level Monitoring Log Sheet

dB(A) L _{eq} , dB(A) L ₁₀ , dB(A) L ₉₀ , dB(A) dB(A) dB(A)	Podium, Tower 1, The Pacifica 19 October 2009 10:30 - 11:00 Sunny 74.3 77.0 78.8 74.9 94.0 94.0
L _{eq} , dB(A) L ₁₀ , dB(A) L ₉₀ , dB(A) dB(A) dB(A)	Sunny 74.3 77.0 78.8 74.9 94.0
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L ₉₀ , dB(A) dB(A) dB(A)	74.9 94.0
dB(A) dB(A)	94.0
dB(A)	
	94.0
ration	
ration	
-	73.7

Note: The measurement level is lower than the baseline noise level. Therefore, no baseline correction is calculated

Recorded by : William Law

Date : 19 October 2009

MTRC – Lai Chi Kok Station	
Cheung Lai Street Pedestrian Subway and Entrance Works	
27 th Monthly EM&A Report	

NOISE MEASUREMENT RECORD

<u>SUMMARY</u>

Sunury

Weather:

dBA

Recorded by: WILLIAM LAN

Frequency weightings:

4.25 4.25 4.25 4.25 4.25 5.25 5.25 5.25	k_2 therefore $ 0:3^\circ - 10:35$ 8 t/5 co 6 t/5 co 7 t/6 t/6 7 t/6 co $ 0:3^\circ - 10:35$ $ 0:3^\circ - 10:35$ 8 so 7 so 7 so 7 so 7 so 7 so $ 0:35 - 10:46$ 8 so 8 so 7 so 7 so 7 so 7 so 7 so $ 0:46 - 10:45$ 8 so 7 so 7 so 7 so 7 so 7 so 7 so $ 0:45 - 10:50$ 8 so 7 so 7 so 7 so 7 so 7 so $ 0:45 - 10:50$ 8 so 7 so 7 so 7 so 7 so 7 so $ 0:55 - (1:60)$ 9 s.co 7 so 7 so 7 so 7 so 7 so $ 0:55 - (1:60)$ 9 so 7 so 7 so 7 so 7 so 7 so 7 so $ 0:55 - (1:60)$ 9 so 7 so		Location	Time/H Duration Min.	Comment/Source	L max	Lmin	L10	L90	L Acq
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									Lio Souria	- 19.00
Lo sour - 78.80	LIO SOWIN - 10.00								1 . Jours - 74.90	of the a

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Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Block 7, Liberte
Sampling Date		29 October 2009
Sampling Time		11:44 - 12:14
Weather Condition		Sunny
Baseline Noise Level	dB(A)	73.8
	L _{eq} , dB(A)	74.4
Monitoring Results	L ₁₀ , dB(A)	76
	L ₉₀ , dB(A)	72.5
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Remarks		
N/A .		

With Baseline Correction :

65.5 dB(A)

#Note: The measurement noise level is lower than the baseline noise level Therefore, no baseline correction is calculated.

Recorded by : William Law

Date : 29 October 2009

NOISE MEASUREMENT RECORD

SUMMARY

WILLIAM LAW

Recorded by:

Shamp

Weather:

dBA

Frequency weightings:

	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Ualc	Location	Time/H Duration Min.	Comment/Source	Lmax	Lmin	L10	L90	L Auq
8.100 70.100 70.00 70.00 70.10	8.00 70.60 76.50 76.50 76.50 76.50 76.50 76.50 76.50 7.15 71.10 71.10 71.50 71.50 71.50 71.50 81.50 71.50 76.50 76.50 71.50 72.50 81.50 71.50 71.50 71.50 72.50	/where a	R, Liberte	:tut-11:ta		79.90	70. ge	26.30	4.17	ag. ht
4.15 37.15 31.15 3	4.15 71.16 71.15 71.16 71.15 71.16 7.15 71.16 71.15 71.16 7.15 71.16 71.16 7.15 71.16 71.16 7.15 7			As=11-60=11		Jo.es	to be	x. 22	72.30	24.40
82.90 71.50 76.00 76.00 72.80 81.60 76.50 76.00 72.10 87.60 71.60 75.50 72.50	α.H a.1F a.18 α.H a.1F a.18 α.H a.14 a.18 α.14 a.18			65=11-25=17		28.9K	arit	al.It	al.it	74.30
81.76 76.56 76.20 72.10 87.66 71.10 75.76 72.50	81.55 21.15 7.18 37.65 7.15			Aa=21-65=17		82.90	orit	t is	72.80	es. H
87.60 71.10 75.70 72.50	af. fr 71. 60 75.70			12:04-12:09		B1.PD	P.S.	X. X	72.10	74.30
	Les 30min = Ht. 40			15-09- 12:14		87.60	71.60	સ.સ	72.50	st. to
Lio Somin = 76 00									05.65 2000 6	05.(f =

Noise Level Monitoring Log Sheet

$\frac{dB(A)}{L_{eq}, dB(A)}$ $\frac{L_{10}, dB(A)}{dB(A)}$ $\frac{dB(A)}{dB(A)}$ oration	Podium, Tower 1, The Pacifica 29 October 2009 11:10 - 11:40 Sunny 74.3 74.6 76.0 72.9 94.0 94.0
L _{eq} , dB(A) L ₁₀ , dB(A) L ₉₀ , dB(A) dB(A) dB(A)	Sunny 74.3 74.6 76.0 72.9 94.0
L _{eq} , dB(A) L ₁₀ , dB(A) L ₉₀ , dB(A) dB(A) dB(A)	74.3 74.6 76.0 72.9 94.0
L _{eq} , dB(A) L ₁₀ , dB(A) L ₉₀ , dB(A) dB(A) dB(A)	74.6 76.0 72.9 94.0
L ₁₀ , dB(A) L ₉₀ , dB(A) dB(A) dB(A)	76.0 72.9 94.0
L ₉₀ , dB(A) dB(A) dB(A)	72.9 94.0
dB(A) dB(A)	94.0
dB(A)	
	94.0
ration	
ration	
-	

With Baseline Correction :

62.8 dB(A)

Note: The measurement level is lower than the baseline noise level. Therefore, no baseline correction is calculated

Recorded by : William Law

Date : 29 October 2009

MTRC – Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway and Entrance Works
27 th Monthly EM&A Report

4cV	L Aug	7430	X. or	14.B	Hile	74.30	74.00	74.60	76.00	ep.17
William L	L90	72.90	33.50	33.20	72.90	क्स	72.30	leg soun = 74.60	L10 30mm = 76.00	Lgo 30min = 72.90
Recorded by: <u>William</u> LAU	L10	of K	H.30	or.9t	75. 40	4.X	75.30			<u> </u>
ра 	Ľ _{min}	et.H	72,60	72.10	the to	di th	49. of			
SUMMARY	L max	0).ff	a8-tt	ap.H	06.Pt	03:H	74.30			
SUMMA Weather: Jumy	Comment/Source					• • •				
ABA	Time/H Duration Min.	[ا: ای ما: ا]	ar(:11 -51:1)	57:11 - 0(-1)	-1:17-11:30-	58:1) -05:11	07:11-52-11:40			
Frequency weightings: _	Date Location	A/10/209 R2 Pacifier								

NOISE MEASUREMENT RECORD

P. 33

Noise Level Monitoring Log Sheet

		Podium, Block 7, Liberte
Sampling Date		02 November 2009
Sampling Time		11:55 - 13:05
Weather Condition		Sunny
Baseline Noise Level	dB(A)	73.8
	L _{eq} , dB(A)	74.0
Monitoring Results	L ₁₀ , dB(A)	75.6
	L ₉₀ , dB(A)	72.1
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Remarks N/A		

With Baseline Correction :

60.5 dB(A)

#Note: The measurement noise level is lower than the baseline noise level Therefore, no baseline correction is calculated.

Recorded by : William Law

Date : 02 November 2009

MTRC – Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway and Entrance Works
27 th Monthly EM&A Report

NOISE MEASUREMENT RECORD

SUMMARY

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Weather:

dBA

Recorded by: WILLIAM LAN

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cy wo	
duen	
Fre	

$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	14.20 69.40 75 x 21.40 12.10 69.40 75 x 21.40 12.10 69.40 75 x 21.40 12.50 69.40 75 x 21.40 12.40 69.90 75.60 72.40 12.40 69.90 75.60 72.40 12.40 69.90 75.60 72.40 12.40 69.90 75.60 12.40 12.40	Location	Time/H Duration Min.	Comment/Source	Lmax	Lain	L10	L90	L Acq
82.10 69.70 75.00 75.00 75.00 71.60 79.50 69.70 75.60 71.60 71.60 69.90 75.60 72.40 79.00 75.00 75.60 23.00 79.00 75.00 75.60 23.00	82.10 69.34 ar.34 ar.34 ar.34 11.50 69.94 ar.34 ar.34 11.50 69.94 ar.35 ar.34 12.50 million ar.35 ar.34 12.50million ar.34 13.50million ar.34 14.50 ar.34 15.50million ar.35 15.50million ar.35 15.50		[[-55-]] too		or.ff	69.40	_	og.If	73.60
79.50 70.80 75.60 75.60 72.40 78.50 69.90 75.60 72.40 79.00 69.90 75.60 72.40 79.00 75.00 75.60 23.00 29.00 20.00 20.00 20.00	11.55 10.67 12.54 12.54 12.54 11.55 15.54 12.54 12.55 15.54 12.54 12.55 15.54 12.56 12.54 12.56 12.55 12.56 12.54 1		[2:w-12:05		82.10	of. 69		09.1E	13. FL
78.50 69.70 75.60 71.60 79.00 69.90 75.70 72.40 79.00 70.20 76.30 73.00	71.50 69.90 75.60 71.60 79.00 75.70 75.60 79.00 75.70 75.60 Leg Bautu		[2:05-[2:10		as.ft	70.BU	4.52	12.to	<i>X</i> , <i>X</i>
77.00 69.90 75.70 72.40 79.00 70.20 76.30 73.00 Ley Bour -	77.00 69.90 75.10 72.40 79.00 70.20 76.30 73.00 Ley Journ Ley Journ		12:10-12:15		78.50	at:69	ag. St	09.1E	73. 80
79.00 76.30 76.30 73.00 [eg Boun -	79.00 70.00 76.30 76.30 73.00 Leg Journ		an: {1-s1: []		og-tt	69.90	4.St	72.40	94.20
Leg Jouin -	Leg Bourn		13:00 - 13:05		so ft	2.4	08.96	73.ev	at the
	Lip 30min - 75.60							Leg Jowin	aartt -
								a source	01.25 -

Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Tower 1, The Pacifica
Sampling Date		02 November 2009
Sampling Time		11:16 - 11:46
Weather Condition		Sunny
Baseline Noise Level	dB(A)	74.3
	L _{eq} , dB(A)	76.2
Monitoring Results	L ₁₀ , dB(A)	78.0
	L ₉₀ , dB(A)	73.9
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Remarks		

With Baseline Correction : 71.7 dB(A)

Note: The measurement level is lower than the baseline noise level. Therefore, no baseline correction is calculated

Recorded by : William Law

Date : 02 November 2009

 $\begin{array}{c} MTRC-Lai\ Chi\ Kok\ Station\\ Cheung\ Lai\ Street\ Pedestrian\ Subway\ and\ Entrance\ Works\\ 27^{th}\ Monthly\ EM&A\ Report \end{array}$

RECORD
NOISE MEASUREMENT

<u>SUMMARY</u>

WILLIAM LAN

Recorded by:

Junay

Weather:

dBA

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i wei	5
Frequenc	

82.50 70.10 77.60 74.00 82.50 71.50 74.00 74.00 83.90 71.60 74.00 73.60 84.80 71.60 74.90 73.60 84.30 71.60 74.30 74.10 84.50 74.80 74.90 74.30	[1:16-11:21 82.50 70.10 77.40 74.00 N=21-11:26 82.90 71.50 71.50 73.60 N=21-11:26 84.80 72.66 71.90 73.60 N=31-11:26 84.80 71.60 73.90 73.90 N=31-11:26 84.80 71.60 74.90 73.90 N=31-11:26 84.30 71.80 76.70 74.90 N=31-11:46 84.30 71.80 76.70 74.10 N=31-11:41 87.10 71.80 76.30 74.10 N=11-11:46 87.50 71.80 76.30 74.10	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	- 1 J	Location	Time/H Duration Min.	Comment/Source	L mex	Lmin	L10	L90	L Acq
83.90 71.50 71.00 73.60 84.80 72.65 71.90 73.60 81.30 71.60 78.90 73.90 81.30 71.80 78.30 76.10	83.90 71.50 71.00 73.60 84.80 72.64 71.90 73.60 81.90 71.80 71.90 73.90 81.50 71.80 71.90 73.90 81.50 71.80 74.90 73.90 81.50 71.80 74.90 74.90 81.50 71.80 74.90 74.90 81.50 71.80 74.90 74.90 81.50 71.50 77.50 74.90	83.90 71.50 71.00 71.00 84.80 72.60 71.90 83.90 71.80 78.90 84.30 71.80 78.30 82.10 72.50 77.70	looth	he facifice	[1:(b-](:×1		82.50	70.60.	27.40	a) the	06:5£
84.30 72.65 77.90 73.90 84.30 74.80 78.90 73.90 84.30 74.80 74.30 74.10 81.30 74.80 74.30 74.10	84.80 72.65 77.90 73.90 83.90 71.65 77.90 73.90 84.30 71.60 74.90 73.90 84.50 71.60 77.90 74.00 82.10 72.50 77.9 74.00 82.10 72.50 77.10 20001	84.80 72.65 77.90 83.90 71.80 78.90 89.30 74.80 78.30 82.10 72.50 77.97			92:1)-12=11		83.90	St.FC	20.8t	73.60	ar.gr
81.30 71.60 78.90 73.90 81.30 74.80 78.30 74.10 82.50 74.60 74.30	83.90 71.80 78.90 73.90 88.30 71.80 78.90 73.90 88.50 71.80 76.80 76.10 82.10 72.50 77.70 76.00 69 80min -	83.30 71.80 78.90 88.30 71.80 78.30 82.10 72.50 77.75			1:26-11:31		28.80	72.60	06.ft	73.20	0]·%
88.30 7.80 7.80 7.80 7.10	88.30 71.80 78.30 74.10 82.10 72.50 77.70 74.00 62.80min -	88.30 71.90 76.30 82.10 72.50 77.70			11:31 - [1:36	-	83.90	71.80	28.98	73.90	06.92
2) IC AT 22 - 27 - 21 - 21 - 21 - 21 - 21 - 21 -	82.10 72.50 77.70	82.10 72.50 F7.70			11:39-11:61		88.30	ay H	74.30	H, IP	76.10
0 2 1 1 1 1 2 2 2 1 1 2 2 2 2 2 2 2 2 2	(og 30mm - 76.30	Les somme 75.00			11+11-11+41		82.10	72.50	77.75	H. W	

P. 37

Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Block 7, Liberte
Sampling Date		12 November 2009
Sampling Time		11:02 - 11:32
Weather Condition		Sunny
Baseline Noise Level	dB(A)	73.8
	L _{eq} , dB(A)	75.0
Monitoring Results	L ₁₀ , dB(A)	76.3
	L ₉₀ , dB(A)	73.5
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Transportation noise by public	poration	

With Baseline Correction : _____68.8 ___dB(A)

#Note: The measurement noise level is lower than the baseline noise level Therefore, no baseline correction is calculated.

Recorded by : William Law

Date : 12 November 2009

MTRC – Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway and Entrance Works
27 th Monthly EM&A Report

NOISE MEASUREMENT RECORD

<u>SUMMARY</u>

Sunny

Weather:

dBA

Recorded by: When the

Frequency weightings:

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Dale	Location	Time/H Duration Min.	Comment/Source	Lmux	Lmin	Lio	L90	L Acu
PD.30 H.90 76.30 H.90 73.50 P1.10 P2.10 P6.70 P3.50 P2.37 P2.10 P6.20 P3.50 P2.37 P2.10 P6.20 P3.50 P3.10 P1.45 P6.20 P3.50 P3.10 P3.10 P3.10 P3.10 P3.10 P1.45 P6.20 P3.10 P3.10 P1.45 P6.20 P3.10	Jaac(11)/1	R, Liberte	foil) - 20:1]		84.30	72.56	76. 30	at. ? t	er.24
81.76 72.10 76.76 73.50 82.37 72.10 76.30 73.50 78.10 71.66 76.00 73.10 78.10 72.30 76.30 73.60 18.10 72.30 76.30 230mm =			1:17-11:12		PD.30	71.90	76.30	73.50	4.9r
82.38 72.10 76.20 73.50 78.10 71.60 76.20 73.10 78.10 72.20 76.20 73.60 Lo Source			[112 - [1:1]	-	81. h	J2.(0	at.92	73.50	a:st
78.10 71.60 76.00 73.10 78.10 72.20 76.20 73.60 [eg 20min =			[sr7-[]:ve		\$2.30	72.10	or. 92	73.So	24:90
78.60 72.20 76.20 73.60 =			(1:22- 4:2F	-	al. 8t	A.H	76.00	73.10	74:72
Les somme to 30 - to 30			11:27-11:32		78.60	f2.20	ar. 95	73.60	+4.70 H
LIO Sour = 76:30								Leg Domin	80. Ft =
								Llo some	- 76.37

P. 39

Noise Level Monitoring Log Sheet

Monitoring Location		Podium, Tower 1, The Pacifica
Sampling Date		12 November 2009
Sampling Time		10:25 - 10:55
Weather Condition		Sunny
Baseline Noise Level	dB(A)	74.3
	L _{eq} , dB(A)	75.0
Monitoring Results	L ₁₀ , dB(A)	76.4
	L ₉₀ , dB(A)	73.4
Calibration before Measurement	dB(A)	94.0
Calibration after Measurement	dB(A)	94.0
Observation(s)		
Remarks		

With Baseline Correction :

66.7 dB(A)

Note: The measurement level is lower than the baseline noise level. Therefore, no baseline correction is calculated

Recorded by : William Law

Date : 12 November 2009

MTRC – Lai Chi Kok Station
Cheung Lai Street Pedestrian Subway and Entrance Works
27 th Monthly EM&A Report

NOISE MEASUREMENT RECORD

SUMMARY

Weather: Junny

dBA

Recorded by: WILLIAM CAN

Frequency weightings:

$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	82.00 72.30 77.00 76.00 73.50 85.40 72.30 76.00 73.50 85.40 72.10 76.50 73.20 78.50 72.10 76.50 73.60 78.50 73.60 73.60 83.50 74.90 76.00 73.60 83.50 74.90 76.00 73.60	Date	Location	Time/H Duration Min.	Comment/Source	L max	L _{min}	LIO	L90	L Acu
83.55 23.55 24.55	85.40 71.00 76.00 81.30 72.10 76.50 78.30 78.30 78.50 78.50 83.50 74.50	ford/	ks fautter	05:01-52:01		82.00	72.30	29.FT	73-50	A5.30
at:27 21:00 76:30 73:00 76:30 73:00 74:57 21:00 76:30 73:00 74:50 73:00 74:50 73:00 74:50 73:00 74:50 73:00 74:50 73:00 74:50 73:00 74:50 73:00 74:50	11.30 72.50 76.30 11.30 72.50 76.30 76.30 76.97 76.90 76.50 76.50 76.50			58:01-08:0]		85.40	8. (f	20 St	73.Se	74.B
76.30 72.10 76.30 73.20 76.00 74.50 73.00 83.50 79.90 76.00 73.60	18.30 72.10 76.30 76.00 76.00 83.50 79.90 76.00			10:35-10:40		81.30	72.20	39.9E	73.90	er.St
013.54 00.74 05.14 03.64 03.57 03.64 05.14 05.14 03.64 09.83.00mm	78.50 71.70 76.00 83.50 71.90 76.00			10:40- 10:4Z	1	28.35	72.60	76.30	or. 54	74.90
83.50 71.90 76.50 73.60	83.50 N.90 76.50			(0:Kz- 10:50		03.Pt	R.F	59.92	73.00	74.60
Log Journ - 75.00	Log Journ - 75.00 Los Jourine 76.40			10:50 - (0:55		83.50	A.90	76.50	73.60	75.30
	Lin sourine 76.40								Log Jour	H. F. in