

**MTR Corporation Limited**

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**MTR Lai Chi Kok Station Pedestrian Subway and Entrance Works**

**Monthly Environmental Monitoring & Audit Report**

**16 October 2008 – 15 November 2008**

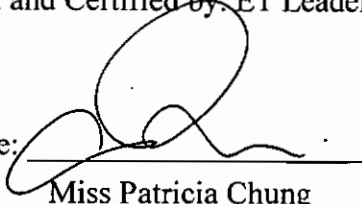
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**APPROVAL SHEET**

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

Signature: \_\_\_\_\_



Miss Patricia Chung  
(ET Leader)

Date: 28 NOV 2008

\* ET – Environmental Team

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MTR Lai Chi Kok Station

Cheung Lai Street Pedestrian Subway & Entrance Works

Environmental Permit No. EP – 253/ 2006

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**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-017**

*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 NOV 2008

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Date

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## EXECUTIVE SUMMARY

This is the 15th 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 to 15 November 2008. The major construction activities in this reporting month include soil excavation and disposal for underground services diversion works and subway construction, installation of decking beams and panels, trial trench excavation, installation of sheet piles at Cheung Sha Wan Road Westbound and construction of the smoke extraction ventilation 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 15<sup>th</sup> 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 to 15 November 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<br>07                          | Jan-May<br>08 | Jun-Oct<br>08                            | Nov08<br>-Mar09                          | Apr-Aug<br>09                            | Sept<br>09 – Jan<br>10 |
| 1800 Ø Sewer Diversion of Lai Chi Kok Sewer            | ██ |               |  |  |  |                        |
| <b>Construction of Subway</b>                          |  |               |  |  |  |                        |
| - 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:

### Site under West Kowloon Corridor

- a) Excavation works for underground services diversion works and subway construction.
- b) Fixing temporary supports and road panels for the subway construction.
- c) Construction of the smoke ventilation duct and shaft



Site at Cheung Lai Street

- a) Construction of subway
  - Decking beam and deck panel installation at east side of Cheung Lai Street in between Cheung Shun Street and Cheung Sha Wan Road;
  - Trial trench excavation for install sheet piles at Cheung Sha Wan Road Westbound;
  - Install temporary road deck panels in between Chung Shun Street and Cheung Yee Street;
  - Install deck panel for further TTA at Cheung Lai Street/Cheung Shun Street Junction;
  - Reinstate partially carriageway at Lai Chi Kok Road Westbound for further TTA.

**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) Continue excavation work for underground services diversion and subway construction.
- b) Continue fixing temporary supports and road panels for the subway construction.
- c) Continue construction of smoke vent shaft and ventilation duct.

Site at Cheung Lai Street

- a) Construction of subway.
  - Continue driving sheet piles in between Cheung Sha Wan Road and Cheung Shun Street;
  - Continue trial trench excavation for driven sheet piles at west side of Cheung Lai Street in between Cheung Sha Wan Road and Cheung Shun Street;
  - Continue excavation for subway at Cheung Lai Street section in between Cheung Shun Street and Cheung Yee Street;
  - Grout injection for diaphragm wall for connection of existing MTR subway

Site at Lai Chi Kok Road

- Trial trench excavation for sheet piling works at slow traffic lane and footpath of Lai Chi Kok Road Westbound

### **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 57.7dB(A) and 70.8 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  | 15:40 | 22-October-08  | 74.4 dB(A)   | 74 dB(A)             | 63.8 dB(A)      | 75 dB(A) | N          |
| R1       | Leq30min  | 11:30 | 31-October-08  | 74.1 dB(A)   | 74 dB(A)             | 57.7 dB(A)      | 75 dB(A) | N          |
| R1       | Leq30min  | 10:32 | 7-November-08  | 74.1 dB(A)   | 74 dB(A)             | 57.7 dB(A)      | 75 dB(A) | N          |
| R1       | Leq30min  | 16:28 | 12-November-08 | 74.2 dB(A)   | 74 dB(A)             | 60.7 dB(A)      | 75 dB(A) | N          |
| R2       | Leq30min  | 16:27 | 22-October-08  | 74.4 dB(A)   | 74.3 dB(A)           | 58.0 dB(A)      | 75 dB(A) | N          |
| R2       | Leq30min  | 10:49 | 31-October-08  | 75.5 dB(A)   | 74.3 dB(A)           | 69.3 dB(A)      | 75 dB(A) | N          |
| R2       | Leq30min  | 15:33 | 7-November-08  | 75.2 dB(A)   | 74.3 dB(A)           | 67.9 dB(A)      | 75 dB(A) | N          |
| R2       | Leq30min  | 15:45 | 12-November-08 | 75.9 dB(A)   | 74.3 dB(A)           | 70.8 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**

| <b>Time Period</b>  | <b>Action</b>                             | <b>Limit</b>                                      |
|---|---|---|
| Daytime<br>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  |
| <b>Action Level</b> | <ol style="list-style-type: none"> <li>1. Notify IEC, RE and the Contractor.</li> <li>2. Carry out investigation.</li> <li>3. Report the results of investigation to IEC, RE and the Contractor.</li> <li>4. Discuss with the RE and the Contractor and formulate remedial measures.</li> <li>5. Increase monitoring frequency to check mitigation measures.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Review with analysed results submitted by ET.</li> <li>2. Review the proposed remedial measures by the Contractor and advise RE accordingly.</li> <li>3. Supervise the implement of remedial measures.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing.</li> <li>2. Notify the Contractor.</li> <li>3. Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>4. Ensure remedial measures are properly implemented.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to RE / ET.</li> <li>2. Implement noise mitigation proposals.</li> </ol>  |
| <b>Limit Level</b>  | <ol style="list-style-type: none"> <li>1. Identify the source.</li> <li>2. Notify IEC, RE, EPD and the Contractor.</li> <li>3. Repeat measurement to confirm findings.</li> <li>4. Increase monitoring frequency.</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented.</li> <li>6. Inform IEC, RE, and EPD the causes &amp; actions taken for the exceedances.</li> <li>7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and RE informed of the results.</li> <li>8. If exceedance stops, cease additional monitoring</li> </ol> | <ol style="list-style-type: none"> <li>1. Discuss amongst RE, ET Leader and the Contractor on the potential remedial actions.</li> <li>2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise RE accordingly.</li> <li>3. Supervise the implementation of remedial measures.</li> </ol> | <ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance in writing.</li> <li>2. Notify the Contractor.</li> <li>3. Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>4. Ensure remedial measures are properly implemented.</li> <li>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.</li> </ol> | <ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance.</li> <li>2. Submit proposals for remedial actions to RE and IEC within 3 working days of notification.</li> <li>3. Implement the agreed proposals.</li> <li>4. Resubmit proposals if problem still not under control.</li> <li>5. Stop the relevant activity of works as determined by the RE until the exceedance is abated.</li> </ol> |

### 3.5 Monitoring Schedule for Next Reporting Period

Noise monitoring in the next reporting period is scheduled for 20<sup>th</sup>, 26<sup>th</sup> November 2008, as well as 3<sup>rd</sup>, 10<sup>th</sup> December 2008.

Site inspection schedule for the next reporting period is designated on 26<sup>th</sup> November 2008 and 10<sup>th</sup> December 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<br>(to Public Fill) (tonnes) | Non-inert Waste<br>(to Landfill) (tonnes) | Chemical Waste<br>(trip) |
| 16 August 07 to 15<br>September 07  | 963.75                                   | 34.8                                      | --                       |
| 16 September 07 to 15<br>October 07 | 1220.02                                  | 0   | --                       |
| 16 October 07 to 15<br>November 07  | 186.89                                   | 0   | --                       |
| 16 November 07 to 15<br>December 07 | 136.7                                    | 0   | 13                       |
| 16 December 07 to 15<br>January 08  | 698.2                                    | 102.3                                     | 0                        |
| 16 January 08 to 15<br>February 08  | 586.1                                    | 0   | 0                        |
| 16 February 08 to 15 March<br>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<br>September 08  | 212.8                                    | 0   | 0                        |
| 16 September 08 to<br>15 October 08 | 1030.75                                  | 0   | 0                        |
| 16 October 08 to<br>15 November 08  | 3019.77                                  | 0   | 0                        |
| <i>Total</i>                        | <i>8808.86</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 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        |
| <i>Total</i>                     | <i>3</i> | <i>1</i> | <i>0</i> | <i>0</i> |

## 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 should strictly follow up the required noise mitigation measures for the progressing piling work at Cheung Lai Street .  | Contractor to follow |
| 9.   | The Contractor was required to improve the housekeeping at the site under <u>West Kowloon Corridor</u>  | Contractor to follow |
| 10   | The Contractor should have close monitoring on noise control and noise label fixing for 10 kg or above 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 works for utility diversions and subway construction, temporary road diversion works, trial trench excavation for sheetpile installation at Cheung Sha Wan Road Westbound. 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

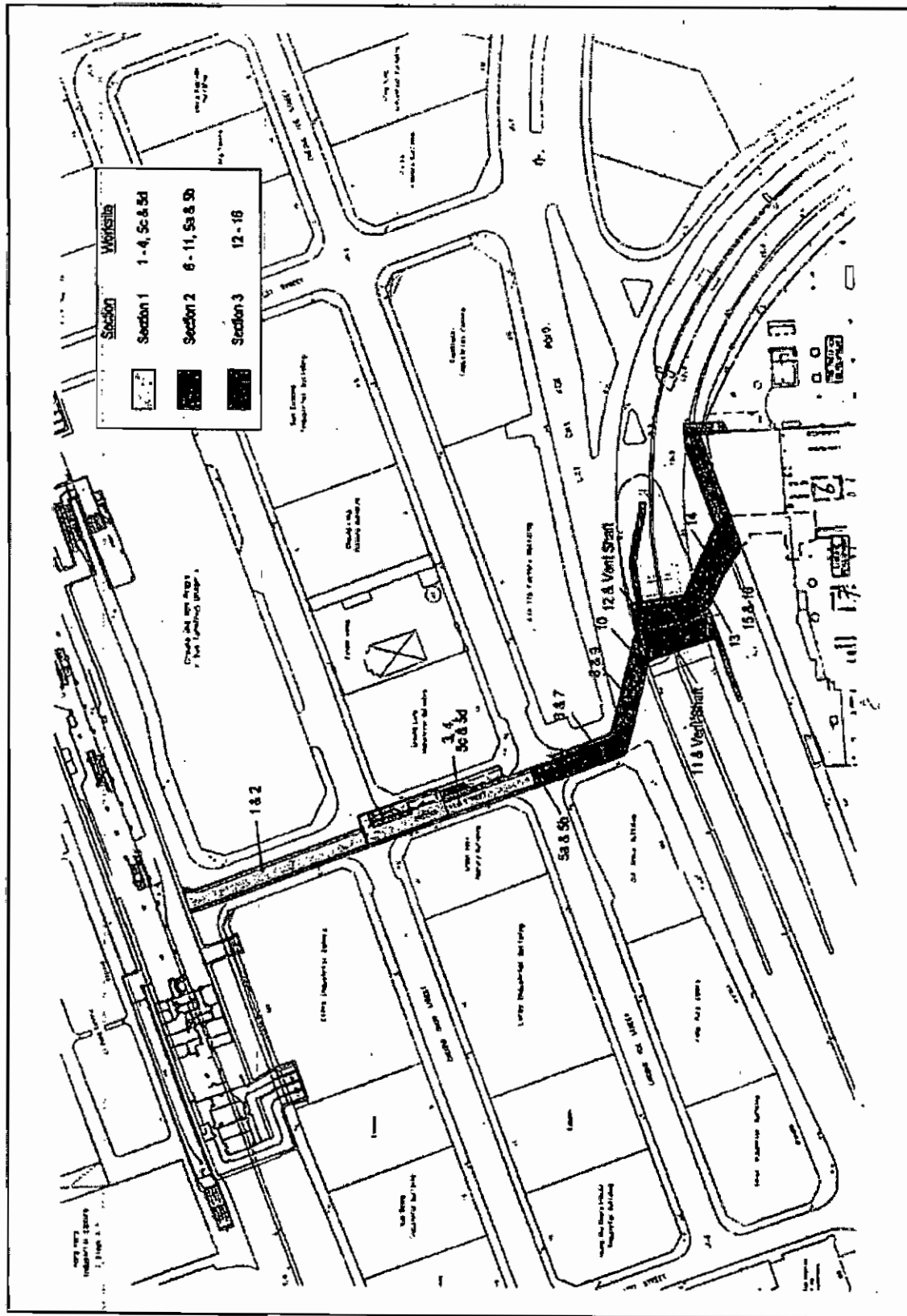
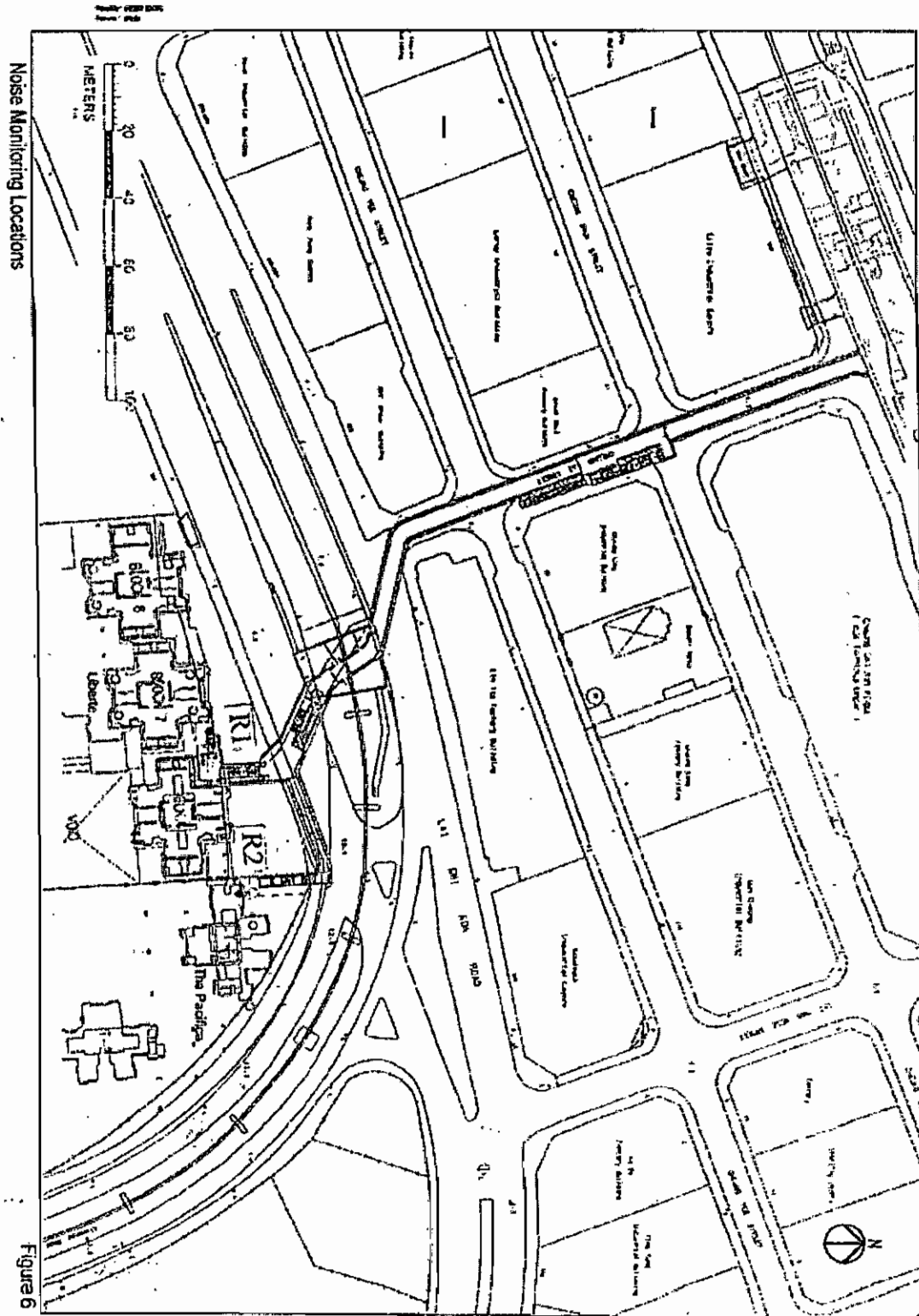
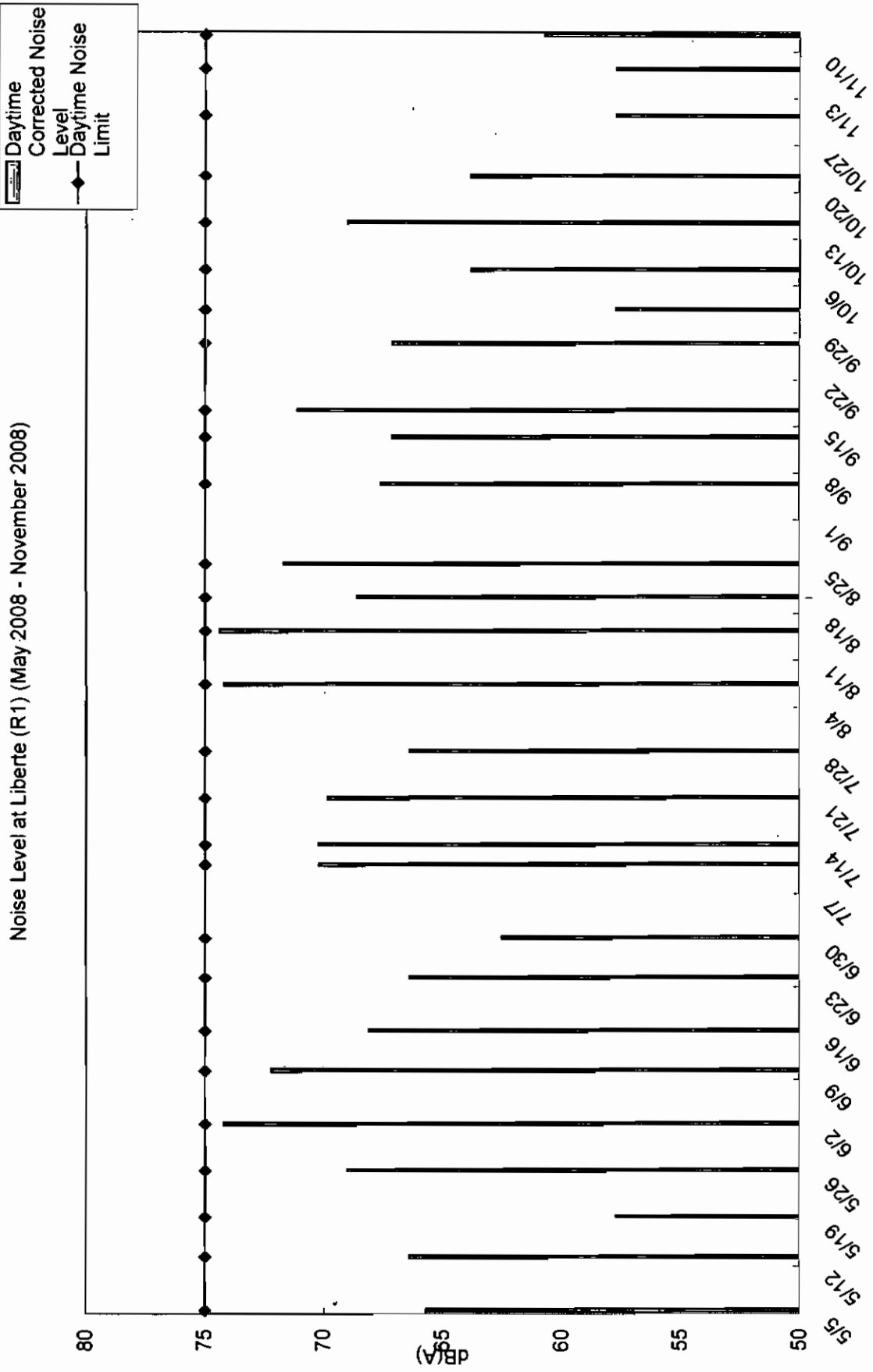


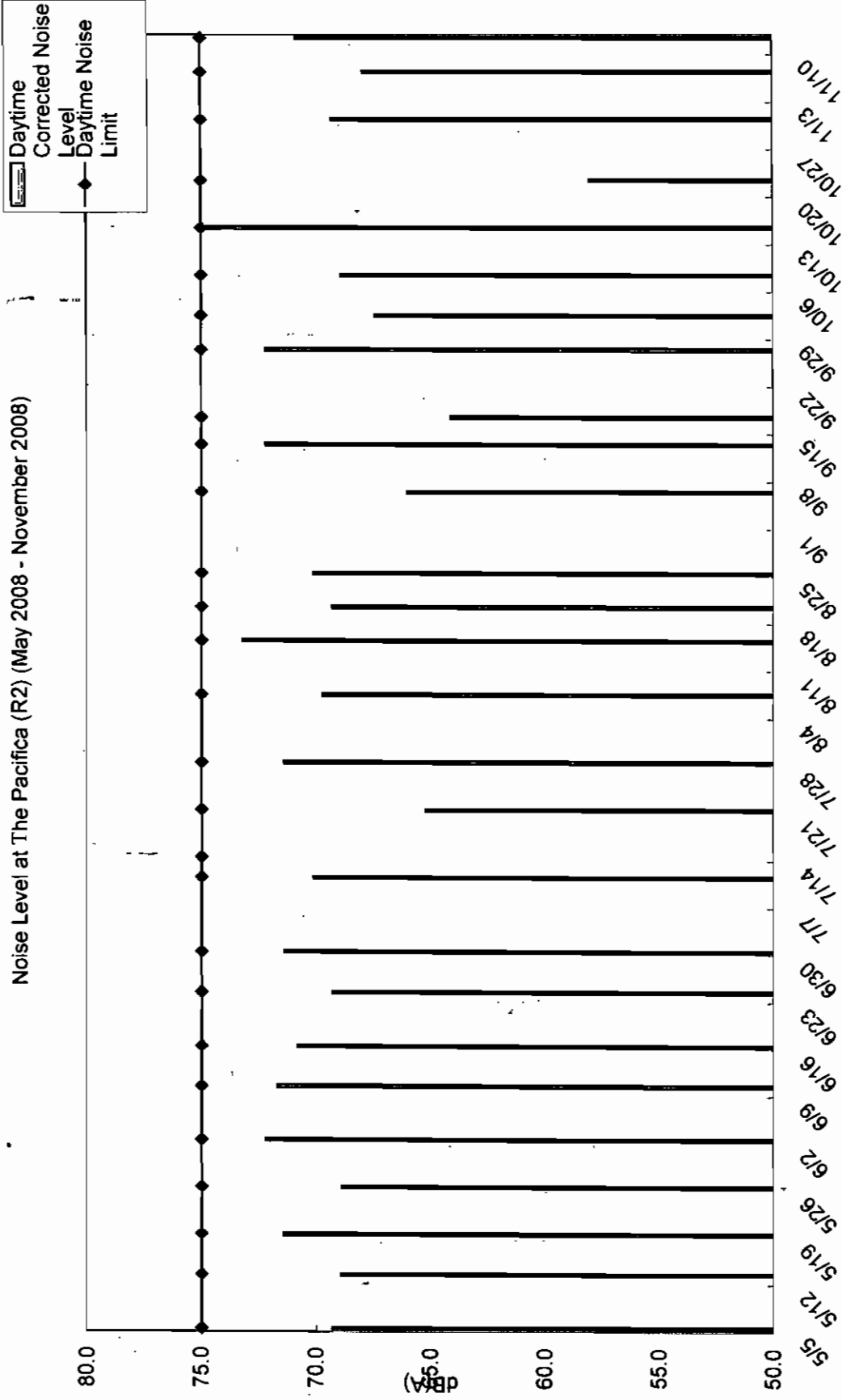
Figure 2 Noise Monitoring Stations R1 and R2



**APPENDIX 2 – Environmental Monitoring Data / Charts**

MTRC – Lai Chi Kok Station  
 Cheung Lai Street Pedestrian Subway and Entrance Works  
 15<sup>th</sup> Monthly EM&A Report







**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:

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

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**

|   |                         |                               |
|---|-------------------------|-------------------------------|
| <b>Monitoring Location</b>  |                         | Podium, Tower 1, The Pacifica |
| <b>Sampling Date</b>  |                         | 22 October 2008               |
| <b>Sampling Time</b>  |                         | 15:40-16:10                   |
| <b>Weather Condition</b>  |                         | Sunny                         |
| <b>Baseline Noise Level</b>   | dB(A)                   | 74.3                          |
| <b>Monitoring Results</b>   | L <sub>eq</sub> , dB(A) | 74.4                          |
|   | L <sub>10</sub> , dB(A) | 76.1                          |
|   | L <sub>90</sub> , dB(A) | 72.3                          |
| <b>Calibration before Measurement</b>   | dB(A)                   | 94.0                          |
| <b>Calibration after Measurement</b>  | dB(A)                   | 94.0                          |
| <b>Observation(s)</b>   |                         |                               |
| Excavation noise by (Excavator x 1)<br>Crane lifting noise by (Crane Lifter x 1)<br>Transportation noise by public transportation |                         |                               |
| <b>Remarks</b>  |                         |                               |
| N/A   |                         |                               |

With Baseline Correction : 58.0 dB(A)

Recorded by : Stephen Tsang

Date : 22 October 2008

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: Sunny      Recorded by: Stephen T. Sany

| Date     | Location     | Time/H<br>Duration Min. | Comment/Source | L <sub>max</sub> | L <sub>min</sub> | L <sub>10</sub> | L <sub>50</sub> | L <sub>90</sub> |
|----------|--------------|-------------------------|----------------|------------------|------------------|-----------------|-----------------|-----------------|
| 22-10-08 | R2 Pacificoq | 15:40-15:45             |                | 80.6             | 69.9             | 75.5            | 72.2            | 74.0            |
|          |              | 15:45-15:50             |                | 78.0             | 69.4             | 75.9            | 71.9            | 74.2            |
|          |              | 15:50-15:55             |                | 83.9             | 69.8             | 76.1            | 72.2            | 74.4            |
|          |              | 15:55-16:00             |                | 81.2             | 71.0             | 76.6            | 72.7            | 74.8            |
|          |              | 16:00-16:05             |                | 82.0             | 71.0             | 75.7            | 72.5            | 74.3            |
|          |              | 16:05-16:10             |                | 85.3             | 71.5             | 76.7            | 72.6            | 75.0            |

L<sub>eq</sub> 30min = 74.4  
 L<sub>10</sub> 30min = 76.1  
 L<sub>90</sub> 30min = 72.3

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

Noise Level Monitoring Log Sheet

|   |                              |                          |
|---|------------------------------|--------------------------|
| <b>Monitoring Location</b>  |                              | Podium, Block 7, Liberte |
| <b>Sampling Date</b>  |                              | 22 October 2008          |
| <b>Sampling Time</b>  |                              | 16:27-16:57              |
| <b>Weather Condition</b>  |                              | Sunny                    |
| <b>Baseline Noise Level</b>   | <b>dB(A)</b>                 | 74.0                     |
| <b>Monitoring Results</b>   | <b>L<sub>eq</sub>, dB(A)</b> | 74.4                     |
|   | <b>L<sub>10</sub>, dB(A)</b> | 75.8                     |
|   | <b>L<sub>90</sub>, dB(A)</b> | 71.9                     |
| <b>Calibration before Measurement</b>   | <b>dB(A)</b>                 | 94.0                     |
| <b>Calibration after Measurement</b>  | <b>dB(A)</b>                 | 94.0                     |
| <b>Observation(s)</b>   |                              |                          |
| Excavation noise by (Excavator x 1)<br>Crane lifting noise by (Crane lifter x 1)<br>Transportation noise by public transportation |                              |                          |
| <b>Remarks</b>  |                              |                          |
| N/A   |                              |                          |

With Baseline Correction : 63.8 dB(A)

Recorded by : Stephen Tsang

Date : 22 October 2008

NOISE MEASUREMENT RECORD

SUMMARY

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

| Date     | Location   | Time/H<br>Duration Min. | Comment/Source | L <sub>max</sub> | L <sub>min</sub> | L <sub>10</sub> | L <sub>50</sub> | L <sub>Aeq</sub> |
|----------|------------|-------------------------|----------------|------------------|------------------|-----------------|-----------------|------------------|
| 22-10-08 | R1 Liberte | 16:27-16:32             |                | 84.9             | 70.3             | 75.9            | 71.7            | 74.0             |
|          |            | 16:32-16:37             |                | 84.0             | 70.2             | 76.0            | 72.3            | 74.4             |
|          |            | 16:37-16:42             |                | 80.8             | 70.7             | 76.0            | 72.4            | 74.5             |
|          |            | 16:42-16:47             |                | 80.5             | 69.6             | 75.0            | 71.4            | 73.5             |
|          |            | 16:47-16:52             |                | 81.6             | 69.3             | 75.9            | 71.4            | 74.1             |
|          |            | 16:52-16:57             |                | 79.7             | 70.4             | 75.9            | 72.3            | 74.4             |

L<sub>eq</sub> 30min = 74.4

L<sub>10</sub> 30min = 75.8

L<sub>90</sub> 30min = 71.9

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                                 |                        | 31 October 2008          |
| Sampling Time                                 |                        | 11:30-12:00              |
| Weather Condition                             |                        | Sunny                    |
| Baseline Noise Level                          | dB(A)                  | 74.0                     |
| Monitoring Results                            | L <sub>req</sub> dB(A) | 74.1                     |
|   | L <sub>10</sub> dB(A)  | 75.1                     |
|   | L <sub>50</sub> dB(A)  | 71.1                     |
| Calibration before Measurement                | dB(A)                  | 94.0                     |
| Calibration after Measurement                 | dB(A)                  | 94.0                     |
| Observation(s)                                |                        |                          |
| Excavation noise by (Excavator x 1)           |                        |                          |
| Air compressor noise by (Air Compressor x 1)  |                        |                          |
| Crane lifting noise by (Crane lifter x 1)     |                        |                          |
| Transportation noise by public transportation |                        |                          |
| Remarks                                       |                        |                          |
| N/A   |                        |                          |

With Baseline Correction : 57.7 dB(A)

Recorded by : Stephen Tsang

Date : 31 October 2008

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA

Weather: Sunny

Recorded by: \_\_\_\_\_

| Date       | Location               | Time/H<br>Duration Min. | Comment/Source | L <sub>max</sub> | L <sub>mita</sub> | L <sub>10</sub> | L <sub>90</sub> | L <sub>Aeq</sub> |
|------------|------------------------|-------------------------|----------------|------------------|-------------------|-----------------|-----------------|------------------|
| 31-10-2008 | R <sub>1</sub> Liberte | 11:30-11:35             |                | 83.7             | 69.4              | 75.1            | 71.2            | 73.5             |
|            |                        | 11:35-11:40             |                | 93.9             | 68.0              | 75.4            | 71.2            | 74.1             |
|            |                        | 11:40-11:45             |                | 90.7             | 68.5              | 74.9            | 71.0            | 74.0             |
|            |                        | 11:45-11:50             |                | 85.8             | 68.1              | 75.5            | 71.1            | 74.2             |
|            |                        | 11:50-11:55             |                | 84.7             | 68.9              | 74.8            | 70.8            | 74.1             |
|            |                        | 11:55-12:00             |                | 80.5             | 69.5              | 75.2            | 71.3            | 74.3             |

L<sub>Aeq</sub> 30min = 74.1

L<sub>10</sub> 30min = 75.1

L<sub>90</sub> 30min = 71.1



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

**Noise Level Monitoring Log Sheet**

|   |                              |                               |
|---|------------------------------|-------------------------------|
| <b>Monitoring Location</b>  |                              | Podium, Tower 1, The Pacifica |
| <b>Sampling Date</b>  |                              | 31 October 2008               |
| <b>Sampling Time</b>  |                              | 10:49-11:19                   |
| <b>Weather Condition</b>  |                              | Sunny                         |
| <b>Baseline Noise Level</b>   | <b>dB(A)</b>                 | 74.3                          |
| <b>Monitoring Results</b>   | <b>L<sub>eq</sub>, dB(A)</b> | 75.5                          |
|   | <b>L<sub>10</sub>, dB(A)</b> | 80.6                          |
|   | <b>L<sub>90</sub>, dB(A)</b> | 72.0                          |
| <b>Calibration before Measurement</b>   | <b>dB(A)</b>                 | 94.0                          |
| <b>Calibration after Measurement</b>  | <b>dB(A)</b>                 | 94.0                          |
| <b>Observation(s)</b>   |                              |                               |
| Excavation noise by (Excavator x 1)<br>Crane lifting noise by (Crane Lifter x 1)<br>Air Compressor noise by (Air Compressor x 1)<br>Transportation noise by public transportation |                              |                               |
| <b>Remarks</b>  |                              |                               |
| N/A   |                              |                               |

With Baseline Correction : 69.3 dB(A)

Recorded by : Stephen Tsang

Date : 31 October 2008

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: Sunny      Recorded by: \_\_\_\_\_

| Date     | Location    | Time/H<br>Duration Min. | Comment/Source | L <sub>max</sub> | L <sub>min</sub> | L <sub>10</sub> | L <sub>50</sub> | L <sub>avg</sub> |
|----------|-------------|-------------------------|----------------|------------------|------------------|-----------------|-----------------|------------------|
| 21-10-08 | R2 Pacifica | 10:49-10:54             |                | 88.7             | 69.3             | 79.5            | 71.3            | 75.5             |
|          |             | 10:54-10:59             |                | 87.6             | 70.7             | 81.3            | 72.7            | 75.4             |
|          |             | 10:59-11:04             |                | 91.7             | 70.8             | 82.4            | 72.3            | 76.6             |
|          |             | 11:04-11:09             |                | 85.8             | 70.8             | 79.5            | 71.5            | 74.7             |
|          |             | 11:09-11:14             |                | 90.0             | 70.8             | 81.7            | 71.8            | 75.1             |
|          |             | 11:14-11:19             |                | 88.7             | 70.8             | 79.5            | 72.2            | 75.7             |

L<sub>avg</sub> 30 min = 75.5  
 L<sub>10</sub> 30 min = 80.6  
 L<sub>90</sub> 30 min = 72.0

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

**Noise Level Monitoring Log Sheet**

|  |                              |                          |
|--|------------------------------|--------------------------|
| <b>Monitoring Location</b>   |                              | Podium, Block 7, Liberte |
| <b>Sampling Date</b>   |                              | 7 November 2008          |
| <b>Sampling Time</b>   |                              | 10:32-11:02              |
| <b>Weather Condition</b>   |                              | Sunny                    |
| <b>Baseline Noise Level</b>  | <b>dB(A)</b>                 | 74.0                     |
| <b>Monitoring Results</b>  | <b>L<sub>eq</sub>, dB(A)</b> | 74.1                     |
|  | <b>L<sub>10</sub>, dB(A)</b> | 75.6                     |
|  | <b>L<sub>90</sub>, dB(A)</b> | 71.2                     |
| <b>Calibration before Measurement</b>  | <b>dB(A)</b>                 | 94.0                     |
| <b>Calibration after Measurement</b>   | <b>dB(A)</b>                 | 94.0                     |
| <b>Observation(s)</b>  |                              |                          |
| Excavation noise by (Excavator x 1)<br>Power generation noise by (Power generator x 1)<br>Air compression noise by (Air Compressor x 1)<br>Transportation noise by public transportation |                              |                          |
| <b>Remarks</b>   |                              |                          |
| N/A  |                              |                          |

With Baseline Correction : 57.7 dB(A)

Recorded by : Stephen Tsang

Date : Nov 7th 2008

NOISE MEASUREMENT RECORD

SUMMARY

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

| Date      | Location   | Time/H<br>Duration Min. | Comment/Source | L <sub>max</sub> | L <sub>min</sub> | L <sub>10</sub> | L <sub>90</sub> | L <sub>Aeq</sub> |
|-----------|------------|-------------------------|----------------|------------------|------------------|-----------------|-----------------|------------------|
| 7-11-2009 | R, Liberte | 11:20-11:25             |                | 78.7             | 70.5             | 75.3            | 72.0            | 73.8             |
|           |            | 11:25-11:30             |                | 90.6             | 70.0             | 76.5            | 71.8            | 74.5             |
|           |            | 11:30-11:35             |                | 78.3             | 70.7             | 75.6            | 71.5            | 74.0             |
|           |            | 11:35-11:40             |                | 79.0             | 69.2             | 75.1            | 69.9            | 73.6             |
|           |            | 11:40-11:45             |                | 77.7             | 70.6             | 75.1            | 70.8            | 73.6             |
|           |            | 11:45-11:50             |                | 81.9             | 70.0             | 76.0            | 71.1            | 74.3             |

L<sub>eq</sub> 30min = 74.1  
 L<sub>10</sub> 30min = 75.6  
 L<sub>90</sub> 30min = 71.2

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  |                         | 7 November 2008               |
| Sampling Time  |                         | 15:33-16:03                   |
| Weather Condition  |                         | Sunny                         |
| Baseline Noise Level   | dB(A)                   | 74.3                          |
| Monitoring Results   | L <sub>eq</sub> , dB(A) | 75.2                          |
|  | L <sub>10</sub> , dB(A) | 75.6                          |
|  | L <sub>90</sub> , dB(A) | 71.2                          |
| Calibration before Measurement   | dB(A)                   | 94.0                          |
| Calibration after Measurement  | dB(A)                   | 94.0                          |
| Observation(s)   |                         |                               |
| Excavation noise by (Excavator x 1)<br>Power generation noise by (Power generator x 1)<br>Air Compression noise by (Air Compressor x 1)<br>Transportation noise by public transportation |                         |                               |
| Remarks  |                         |                               |
| N/A  |                         |                               |

With Baseline Correction : 67.9 dB(A)

Recorded by : Stephen Tsang

Date : 7 November 2008

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA  
 Weather: Sunny  
 Recorded by: Stephen Tsang

| Date      | Location                | Time/H<br>Duration Min. | Comment/Source | L <sub>max</sub> | L <sub>min</sub> | L <sub>10</sub> | L <sub>50</sub> | L <sub>Aeq</sub> |
|-----------|-------------------------|-------------------------|----------------|------------------|------------------|-----------------|-----------------|------------------|
| 7-11-2008 | R <sub>2</sub> Pacifica | 10:32-10:37             |                | 79.7             | 70.0             | 75.7            | 76.6            | 73.8             |
|           |                         | 10:37-10:42             |                | 84.6             | 70.8             | 76.5            | 72.7            | 75.2             |
|           |                         | 10:42-10:47             |                | 91.8             | 70.0             | 76.6            | 72.5            | 75.1             |
|           |                         | 10:47-10:52             |                | 84.1             | 71.9             | 77.0            | 73.3            | 75.4             |
|           |                         | 10:52-10:57             |                | 90.8             | 72.1             | 77.0            | 73.5            | 75.7             |
|           |                         | 10:57-11:02             |                | 87.8             | 70.0             | 77.0            | 72.8            | 76.0             |

L<sub>eq</sub> 30min = 75.2  
 L<sub>10</sub> 30min = 76.6  
 L<sub>90</sub> 30min = 72.7

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   |                       | 12 November 2008         |
| Sampling Time   |                       | 16:28-16:58              |
| Weather Condition   |                       | Sunny                    |
| Baseline Noise Level  | dB(A)                 | 74.0                     |
| Monitoring Results  | L <sub>eq</sub> dB(A) | 74.2                     |
|   | L <sub>10</sub> dB(A) | 75.6                     |
|   | L <sub>90</sub> dB(A) | 71.9                     |
| Calibration before Measurement  | dB(A)                 | 94.0                     |
| Calibration after Measurement   | dB(A)                 | 94.0                     |
| Observation(s)  |                       |                          |
| Excavation noise by (Excavator x 1)<br>Shoveling noise by (Shove x 2)<br>Hammering noise by (Hammer x 1)<br>Transportation noise by public transportation |                       |                          |
| Remarks   |                       |                          |
| N/A   |                       |                          |

With Baseline Correction : 60.7 dB(A)

Recorded by : Stephen Tsang

Date : 12 November 2008

NOISE MEASUREMENT RECORD

SUMMARY

Frequency weightings: \_\_\_\_\_ dBA      Weather: Sunny      Recorded by: Stephien Tsang

| Date     | Location  | Time/H<br>Duration Min. | Comment/Source | L <sub>max</sub> | L <sub>min</sub> | L <sub>10</sub> | L <sub>50</sub> | L <sub>Aeq</sub> |
|----------|-----------|-------------------------|----------------|------------------|------------------|-----------------|-----------------|------------------|
| 12-11-08 | R. Libera | 16:28-16:33             |                | 81.5             | 68.5             | 77.1            | 69.9            | 74.5             |
|          |           | 16:33-16:38             |                | 80.9             | 69.2             | 78.5            | 71.1            | 74.2             |
|          |           | 16:38-16:43             |                | 80.0             | 67.4             | 76.9            | 69.4            | 73.1             |
|          |           | 16:43-16:48             |                | 81.3             | 69.1             | 78.3            | 70.5            | 73.5             |
|          |           | 16:48-16:53             |                | 79.5             | 68.4             | 77.5            | 69.5            | 74.1             |
|          |           | 16:53-16:58             |                | 85.4             | 64.5             | 81.4            | 66.7            | 75.0             |

L<sub>Aeq</sub> 30min = 74.2

L<sub>10</sub> 30min = 78.3

L<sub>90</sub> 30min = 69.3



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

**Noise Level Monitoring Log Sheet**

|   |                             |                               |
|---|-----------------------------|-------------------------------|
| <b>Monitoring Location</b>  |                             | Podium, Tower 1, The Pacifica |
| <b>Sampling Date</b>  |                             | 12 November 2008              |
| <b>Sampling Time</b>  |                             | 15:45-16:15                   |
| <b>Weather Condition</b>  |                             | Sunny                         |
| <b>Baseline Noise Level</b>   | <b>dB(A)</b>                | 74.3                          |
| <b>Monitoring Results</b>   | <b>L<sub>eq</sub> dB(A)</b> | 75.9                          |
|   | <b>L<sub>10</sub> dB(A)</b> | 79.8                          |
|   | <b>L<sub>90</sub> dB(A)</b> | 72.5                          |
| <b>Calibration before Measurement</b>   | <b>dB(A)</b>                | 94.0                          |
| <b>Calibration after Measurement</b>  | <b>dB(A)</b>                | 94.0                          |
| <b>Observation(s)</b>   |                             |                               |
| Excavation noise by (Excavator x 1)<br>Shoveling noise by (Shove x 2)<br>Hammering noise by (Hammer x 1)<br>Transportation noise by public transportation |                             |                               |
| <b>Remarks</b>  |                             |                               |
| N/A   |                             |                               |

With Baseline Correction : 70.8 dB(A)

Recorded by : Stephen Tsang

Date : 12 November 2008

NOISE MEASUREMENT RECORD

SUMMARY

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

| Date                | Location    | Time/H<br>Duration Min. | Comment/Source | L <sub>max</sub> | L <sub>min</sub> | L <sub>10</sub> | L <sub>50</sub> | L <sub>90</sub> | L <sub>avg</sub> |
|---------------------|-------------|-------------------------|----------------|------------------|------------------|-----------------|-----------------|-----------------|------------------|
| <del>12-11-08</del> | R2 Pacifica | 15:45-15:50             |                | 84.5             | 69.5             | 79.5            | 71.4            | 76.1            |                  |
| 12-11-08            |             | 15:50-15:55             |                | 81.3             | 71.1             | 79.1            | 72.5            | 76.3            |                  |
|                     |             | 15:55-16:00             |                | 79.9             | 68.4             | 77.4            | 71.7            | 74.8            |                  |
|                     |             | 16:00-16:05             |                | 82.3             | 70.7             | 79.1            | 71.0            | 74.9            |                  |
|                     |             | 16:05-16:10             |                | 85.9             | 72.4             | 81.4            | 74.5            | 76.3            |                  |
|                     |             | 16:10-16:15             |                | 88.5             | 73.7             | 82.3            | 74.2            | 77.1            |                  |

L<sub>avg</sub> 30min = 75.9  
 L<sub>10</sub> 30min = 79.8  
 L<sub>90</sub> 30min = 72.5