

BARBICAN CONSTRUCTION CO., LTD

**Contract No. HY/2001/18
Sai Sha Road Widening between Kam Ying
Road and Future Trunk Road T7 Junction**

**MONTHLY ENVIRONMENTAL MONITORING
& AUDIT REPORT
REPORT NO. 13**

Document No. R/2563/019 Issue 1

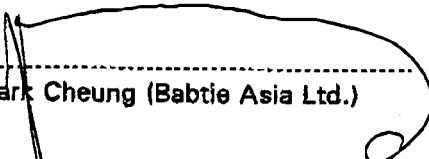
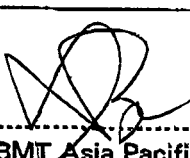
November 2003

Babtie Asia



**Contract No. HY/2001/18
Sai Sha Road Widening between Kam Ying Road and
Proposed Road T7 Junction**

**Monthly Environmental Monitoring & Audit Report
Report No. 13**

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CONTRACT NO. HY/2001/18
SAI SHA ROAD WIDENING BETWEEN KAM YING ROAD
AND FUTURE TRUNK ROAD T7 JUNCTION

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT

REPORT NO. 13

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EXECUTIVE SUMMARY

This is the thirteenth EM & A Report for the project of Sai Sha Road Widening between Kam Ying Road and Future Trunk Road T7 Junction.

This report mainly presents the EM & A works undertaken for the above project from 1 October 2003 to 31 October 2003 in accordance with the EM & A Manual under Appendix H.3 of the Particular Specification.

Noise Level

L_{eq} (30min) noise level measurement was performed at CNM 1 and CNM 2. CNM 1 is for noise sensitive receivers (NSRs 1 & 2) Wu Kwai Sha New Village. CNM 2 is for (NSRs 3 & 4) Kam Lung Court/ Lee On Estate. The limit level for all the noise sensitive receivers is 75 dB(A).

The construction noise monitoring was taken on the 2nd, 9th, 16th, 23rd and 30th of October 2003. All the measured noise levels at two monitoring stations are below the noise limit level.

Complaint log

No written or verbal complaints were received during the reporting period.

Others

No notifications of summons, no successful prosecutions were received during the reporting period.

Future Key Issues

Adverse influence on both air quality and noise level is anticipated from future construction activities, such as noise barrier construction works near Kam Lung Court and the machine operation on the unpaved haul road near Lee Wing House. The Contractor should carry out good site practice to minimise the potential air pollution and noise pollution.

The effectiveness of construction dust suppression measures will become the main environmental concern during windy season. The Contractor should provide an effective water spraying system for watering the site area especially for the places near Lee Wing House and Wu Kwai Sha KCRC station where excavation works and other earthworks are undertaken on the unpaved haul road.

Site runoff including those from wheel washing should be properly treated through sedimentation tank before being discharged to the stormwater drainage system.

The Contractor should exert himself to prevent the accumulation of stagnant water to avoid the breeding of mosquitoes and the spread of dengue fever.

To improve the hygiene condition of the site, the Contractor should regularly remove the rubbish within the site area and provide rubbish bins as far as possible.

1.0 ENVIRONMENTAL STATUS

1.1 Background

Babtie Asia Ltd was employed by the Contractor to act as the Environmental Team for this project. The Independent Environmental Checker is BMT Asia Pacific Limited.

The purpose of this document is to report the Environmental Monitoring & Audit (EM & A) works in the period between 1 October 2003 and 31 October 2003.

1.2 Contact Details of Key Personnel

Titles, names and contact telephone numbers of the key personnel of the captioned project are tabulated below:

| Title | Name | Contact Number |
|--|-----------------|----------------|
| Engineer's Representative (Highways Department) | Mr. Greg Leung | 2716 1043 |
| EPD | Mr. Simon Hui | 2835 1105 |
| Project Director (Contractor) | Mr. David Kong | 2137 5522 |
| Project Manager (Contractor) | Mr. Alan Tam | 9161 2991 |
| Site Agent (Contractor) | Mr. K I Mok | 9813 9599 |
| Environmental Team Leader (Babtie Asia Limited) | Mr. Mark Cheung | 2738 3803 |
| Independent Environmental Checker (BMT Asia Pacific Limited) | Ms. Lyn Ip | 2241 9812 |

1.3 Construction Programme

The latest construction programme is attached in Appendix A. This construction programme is subject to continuous refinement.

1.4 Site Management Structure

The site organization chart is shown as Appendix B.

1.5 Works undertaken during the reporting period with illustrations

The works for this project are divided into three sections: Section 1, Section 2 and Section 3.

Section 1 comprises all the works for the completion of the subway system connecting the existing vacant subway barrel across Sai Sha Road adjacent to Kam Ying Road and the local widening of northern Kam Ying Road and all associated landscaping works.

Section 2 comprises all construction works including the new carriageways, two footbridges and all footpath, cycle tracks, subways, village access road, noise barriers, roundabout and associated works comprising drainage works, E&M works, traffic signs and aids, slope works, embankments, retaining walls, subway wing walls, cycle parks, fencing, street lighting and all associated landscaping works, except Section 1 and Section 3.

Section 3 comprises all the works for the new access road to Whitehead and all the works except Section 1 and 2.

The works undertaken during the reporting period were as follows:

- Drainage Works – Water pipe installation near Lee Wing House of Lee On Estate by WSD and other parties; Manholes construction and pipe installation at the area adjacent Wu Kai Sha Railway Station; Pipe installation at the area near Residential Development at Wu Kwai Sha DD 206
- Construction of Subway (P8F) – Gully and Manhole construction, Noise Barrier Footing construction, Finishing for Subway P8F near Villa Athena
- Construction of Subway (S1) – Retaining wall construction at Ramp 1, Ramp 2 base slab construction
- Construction of Subway (S2) – Main barrel head wall construction
- Construction of Footbridge No.1 (FB1) near Lee Wing House of Lee On Estate – Lift and staircase wall construction at Southern side

The photos showing the construction works in the reporting period are shown in Appendix C.

1.6 Project Area, Sensitive Receivers & Monitoring Locations

The drawings showing the project area, noise sensitive receivers (NSRs) and the locations of the monitoring stations are shown in Appendix D.

The construction noise monitoring stations are CNM 1 and CNM 2.

CNM 1 is for noise sensitive receivers (NSRs 1 & 2) Wu Kwai Sha New Village. CNM 2 is for (NSRs 3 & 4) Kam Lung Court/ Lee On Estate.

It is noted that the locations of the monitoring stations are the same as those adopted in the Noise Baseline Monitoring.

2.0 IMPLEMENTATION STATUS

According to the EIA report, the following should be implemented for the fifth construction phase quarter.

| Location | Reference Section | Environmental Protection Measures | Agent |
|--------------------------------------|-------------------|-----------------------------------|------------|
| <i>Construction Noise Mitigation</i> | | | |
| Wu Kwai Sha New Village (1) | EIA 3.5.25 | Mitigation Option 2 | Contractor |
| Wu Kwai Sha New Village (2) | EIA 3.5.23 | Mitigation Option 1 | Contractor |
| Lok Wo Sha (1) | EIA 3.5.23 | Mitigation Option 1 | Contractor |
| Lok Wo Sha (2) | EIA 3.5.23 | Mitigation Option 1 | Contractor |
| Kam Lung Court (1) | EIA 3.5.25 | Mitigation Option 2 | Contractor |
| Kam Lung Court (2) | EIA 3.5.25 | Mitigation Option 2 | Contractor |
| Lee On Estate (1) | EIA 3.5.25 | Mitigation Option 2 | Contractor |
| Lee On Estate (2) | EIA 3.5.25 | Mitigation Option 2 | Contractor |
| Residential Development STTL446 | EIA 3.5.23 | Mitigation Option 1 | Contractor |

- Note: The locations of the noise assessment points are shown in the Figure 7 of the EIA Report.

It is noted that the noise pollution control for Wu Kwai Sha New Village (2) and Lok Wo Sha (2) have been changed from mitigation option 2 to mitigation option 1 for this construction phase.

| Location | Reference Section | Environmental Protection Measures | Agent |
|---|-------------------|--|------------|
| <i>Landscape and Visual Mitigation Measures for the Construction Phase</i> | | | |
| All Scheme Roads | EIA 4.5.1 | <ul style="list-style-type: none"> • Conservation of topsoil; • Screening of site construction works by use of hoardings; • Surface treatment of site hoardings to enhance visual interest and harmony with surrounding landscape / townscape; • Locating site offices and other temporary buildings in least visually prominent locations; • Efficient programming of construction works to reduce duration of construction works; • Staging of construction works to minimise areas requiring site hoardings which creates visual intrusion; • Re-routing of pedestrian routes away from the work site where possible; • Retaining existing trees and minimising damage to vegetation where possible. Care shall be taken not to damage those trees identified in the Tree Survey Report to be retained during the construction phase; and • Careful and efficient transplanting of existing vegetation carried out under the supervision of a professional landscape architect | Contractor |

2.1 Advice on the Implementation Status of Environmental Protection & Pollution Control / Mitigation Measures

2.1.1 Construction Noise Mitigation Measures

The Contractor should use silencers or mufflers on construction equipment such as pneumatic breaker and have noisy air compressor completely enclosed to avoid exceeding the noise limit level and nuisance to the nearby sensitive receivers.

Regular maintenance of the construction plant is strongly encouraged to avoid black smoke and excessive noise production. The machines and plant should be shut down or throttled down to a minimum when they are in intermittent use.

The plant known to emit noise strongly in one direction should be orientated to direct noise away from nearby noise sensitive receivers. The mobile plants should be sited as far away from the noise sensitive receivers as possible.

Care should be taken that different mitigation plans (option 1 & option 2) will be applied to different noise sensitive receivers. For mitigation option 2, more stringent environmental control will be required and implemented. The Contractor should pay particular attention to follow and carry out the mitigation measures mentioned in the EIA Report for those sensitive receivers to whom mitigation option 2 should be applied.

It is noted that for different construction phase quarters, the mitigation option will be different. The detailed environmental mitigation implementation schedule is shown in the EIA Report Annex A for different construction phases.

2.1.2 Landscape and Visual Mitigation Measures

Care should be taken not to damage those trees identified in the Tree Survey Report to be retained during the construction phase.

In case of conflict between the construction machine and the trees during the construction activities, the Contractor should consider adopting an alternative construction approach to protect the trees from being damaged. As the last resort, the tree transplanting method may be considered. However, prior to such action, approval from the Engineer, the Environmental Team Leader and the Independent Environmental Checker should be obtained.

Whenever tree transplanting is required, the Contractor should notify the ET in advance and should carry out the works under the supervision of a professional landscape architect as stipulated in the EM & A Manual.

3.0 MONITORING RESULTS

3.1 Graphical plots of the monitored parameters

The graphical presentations of the monitored parameters during the reporting period are shown in Appendix G.

3.2 Major Activities During the Reporting Period

Major activities during October 2003 include the followings:

- Drainage Works – Water pipe installation near Lee Wing House of Lee On Estate by WSD and other parties; manholes construction and pipe installation at the area adjacent Wu Kai Sha Railway Station; pipe installation at the area near Residential Development at Wu Kwai Sha DD 206
- Construction of Subway (P8F) – Gully and Manhole construction, Noise Barrier Footing construction, Finishing inside Subway P8F
- Construction of Subway (S1) – Retaining wall construction at Ramp 1, Ramp 2 base slab construction
- Construction of Subway (S2) – Main barrel head wall construction
- Construction of Footbridge No.1 (FB1) near Lee Wing House of Lee On Estate – Lift and staircase wall construction at Southern side

3.3 Noise Monitoring Methodology

Construction noise monitoring was carried out by using a Sound Level Meter to ensure that exceedance in noise levels could be readily identified and timely action taken to reduce the noise levels to within allowable limits.

3.4 Noise Monitoring Equipment

The approved integrating Sound Level Meter, Model No. CESVA SC20-e, in compliance with the International Electrotechnical Commission (IEC) Publication 651:1979 (Type 1) and 804:1985 (Type 1) specification as referred to in the Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO), was used for construction noise measurement.

3.5 Calibration Details

A sound level calibrator, Model No. CESVA CB-5, was used to calibrate the Sound Level Meter before and after the measurement on site.

The sound level meter and calibrator have been recently taken to a laboratory for full calibration processes. A copy of calibration certificates conducted by Calibration and Testing Laboratory of Sun Creation Engineering Limited for the Sound Level Meter and the Sound Calibrator is attached in Appendix E.

3.6 Noise Parameters

The construction noise levels were measured in terms of equivalent A-weighted sound pressure level (L_{eq}) measured in decibels (dB).

$L_{eq(30min)}$ was used as the monitoring parameter for the time period between (0700 to 1900) hours on normal weekdays.

$L_{eq(5min)}$ was used as the monitoring parameter for all other time period, if applicable.

The two statistical sound levels L_{A10} and L_{A90} , the level exceeded for 10 and 90 percent of the measurement time respectively, were also recorded as supplementary information for reference.

The construction noise monitoring limit and action level is shown in Appendix I.

3.7 Monitoring Locations

The construction noise monitoring was conducted at two noise sensitive receivers, namely, CNM 1 (Wu Kwai Sha New Village) and CNM 2 (Kam Lung Court/ Lee On Estate).

Both the measurement points for CNM 1 and CNM 2 are at façade.

Locations of construction noise monitoring stations and photos are shown in Appendix D.

3.8 Monitoring Date, Time, Frequency and Duration

The monitoring frequency will depend on the scale of the construction activities. The following was adopted as an initial arrangement of measurement on the regular monitoring frequency for each station on a per week basis when noise generating activities are underway:

- (a) one set of measurements between 0700 – 1900 hours on normal weekdays;
- (b) one set of measurements between 1900 – 2300 hours;
- (c) one set of measurements between 2300 – 0700 hours; and
- (d) one set of measurements between 0700 – 1900 hours on holidays

During the reporting period, the construction noise monitoring was conducted on 2nd, 9th, 16th, 23rd and 30th October and followed the scheme (a). The time and duration of measurement are shown in the Appendix F. The construction noise monitoring schedule for October 2003 and November 2003 is shown in Appendix K.

3.9 Noise Monitoring Results

The data for noise monitoring is presented in Appendix F. Graphical representation of construction noise monitoring data is presented in Appendix G.

For CNM 1, the results show that during the reporting period, the noise level is on average 60.9 dB(A) which is below the noise limit level 75 dB(A).

For CNM 2, the results show that during the reporting period, the noise level is on average 68.5 dB(A) which is below the noise limit level 75 dB(A).

The major noise sources during the reporting period include the machines operation such as noise barrier construction work near Lee Wing House and Wu Kwai Sha

New Village, and the traffic of the heavy vehicles like trucks and buses along the Sai Sha Road. Other noise source included residential noise.

3.10 Weather Conditions

The weather conditions were mainly sunny and did not affect the environmental monitoring works during the reporting period. The weather conditions during the period are shown in the Appendix H.

3.11 Influencing Factors

The traffic noise from Sai Sha Road significantly contributed to the recorded noise level.

3.12 QA/QC Results and Detection Limits

The QC result is shown in Appendix E. The lower limit of the sound level meter for L_{eq} is 0 dB(A). The upper limit for L_{eq} is 137 dB(A).

4.0 RECORD OF NON-COMPLIANCE OF THE ACTION AND LIMIT LEVELS, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

4.1 Non-compliance of the Action and Limit Levels

4.1.1 Noise

During the reporting period, the noise levels for two monitoring stations (CNM 1 and CNM 2) were within the noise limit level.

No non-compliance of noise level was recorded.

4.2 Written Complaints and Verbal Complaints

No written and verbal complaints were received during the reporting period.

The following table shows the summary for all the complaints received since the commencement of the Contract.

| TOTAL NO. OF COMPLAINT | NO. OF COMPLAINT RECEIVED WITHIN REPORTING PERIOD | NO. OF COMPLAINT THAT IS STILL UNDER INVESTIGATION | NO. OF CLOSED COMPLAINT |
|------------------------|---|--|-------------------------|
| 1 | 0 | 0 | 1 |

The statistics for environmental complaint on the reporting period is shown in Appendix L.

4.3 Notifications of Summons and Successful Prosecutions

No notifications of summons or successful prosecutions were received by the Contractor regarding the non-compliance of the environmental performance of the construction site during the reporting period.

5.0 OTHERS

5.1 Future Key Issue

In the coming month, the following activities will be undertaken.

- the construction of retaining wall
- the construction of noise barrier
- the construction of lift and staircase wall for the footbridge
- the construction of drainage works

Potential environmental impacts due to the above construction works are associated with construction dust, noise and site runoff.

The locations of the mini pile works for the footbridge are very near to the Kam Lung Court, Lee On Estate and Wu Kwai Sha New Village. Since these three sensitive receivers should be protected by the noise mitigation option 2 during piling works under the EIA Report, the Contractor should minimise the noise pollution resulting from the operation of the machines and plant.

The Contractor should clean away the sediments which block the stormwater U-channels within the site area. The Contractor should also remove any rubbish within the site area. In addition, the Contractor should exert himself to prevent the presence of accumulation of stagnant water to avoid the breeding of mosquitoes and the spread of dengue fever.

Nonetheless, with the implementation of the following mitigation measures, potential impacts to the surrounding sensitive receivers could be minimised.

Construction Dust

- Provide adequate water supply for the whole site area.
- Regular watering of unpaved areas and the dry topsoil
- Regular watering during the demolition works such as the breaking of rigid pavement
- Cover the stockpiles with tarpaulin
- Investigate other dust sources
- Maintain onsite machinery and vehicles regularly
- Limit the speed of construction vehicles
- Regularly maintain the water spraying system.

Construction Noise

- Carry out good site practice
- Use quieter plant
- Adopt quiet working methods
- Enclose certain type of power mechanical equipment such as generators and compressors.
- Shut down the machines and plant that may be in intermittent use between work periods or throttled them down to a minimum.
- Provide temporary movable vertical barrier

Construction Site Runoff

- Direct the site runoff to the desilting facilities
- Desilt the site runoff before discharging it into the stormwater system.

5.2 Advice on the solid and liquid waste management status

5.2.1 General Refuse

General refuse may be generated by site workers. Bins shall be provided for containment prior to disposal of such waste. The Contractor should avoid the accumulation of waste materials or rubbish on site and regular waste disposal is required.

If there is any chemical waste or oil generated by the site, they should be properly treated and disposed of as chemical waste. If applicable, the Contractor should register as a chemical waste producer under the registration of the Department of Environmental Protection.

Environmental awareness shall be encouraged in office so as to reduce volume of office waste.

5.2.2 Liquid Waste Management

The accumulation of stagnant water within the construction site should be avoided to eliminate breeding grounds of mosquitoes. To achieve this, the Contractor should identify potential stagnant areas on the Site, provide personnel to inspect the Site and take necessary rectification action to ensure no mosquitoes can breed.

Sprinkling Larvicidal Oil is regarded as the short term measure before the stagnant water is discharged. However, discharging the stagnant water should be the long term solution.

To properly treat the silty water, the Contractor should provide sandbags/ bunds to direct site surface runoff to the desilting facilities such as sedimentation tanks. The desilting facilities should be properly operated and maintained. To avoid the breeding of mosquitoes and other insects, the sedimentation tank should not become a pool of stagnant water. Care should also be taken to ensure the capacity of the desilting facilities is sufficient to handle the discharge and to avoid overflow of the silty water.

The desilting facilities should be maintained properly. Regular removal of the accumulated debris with proper disposal is recommended.

For the wastewater generated from the site area, the Contractor should identify the sources. The produced wastewater should be collected and treated prior to disposal.



APPENDIX A

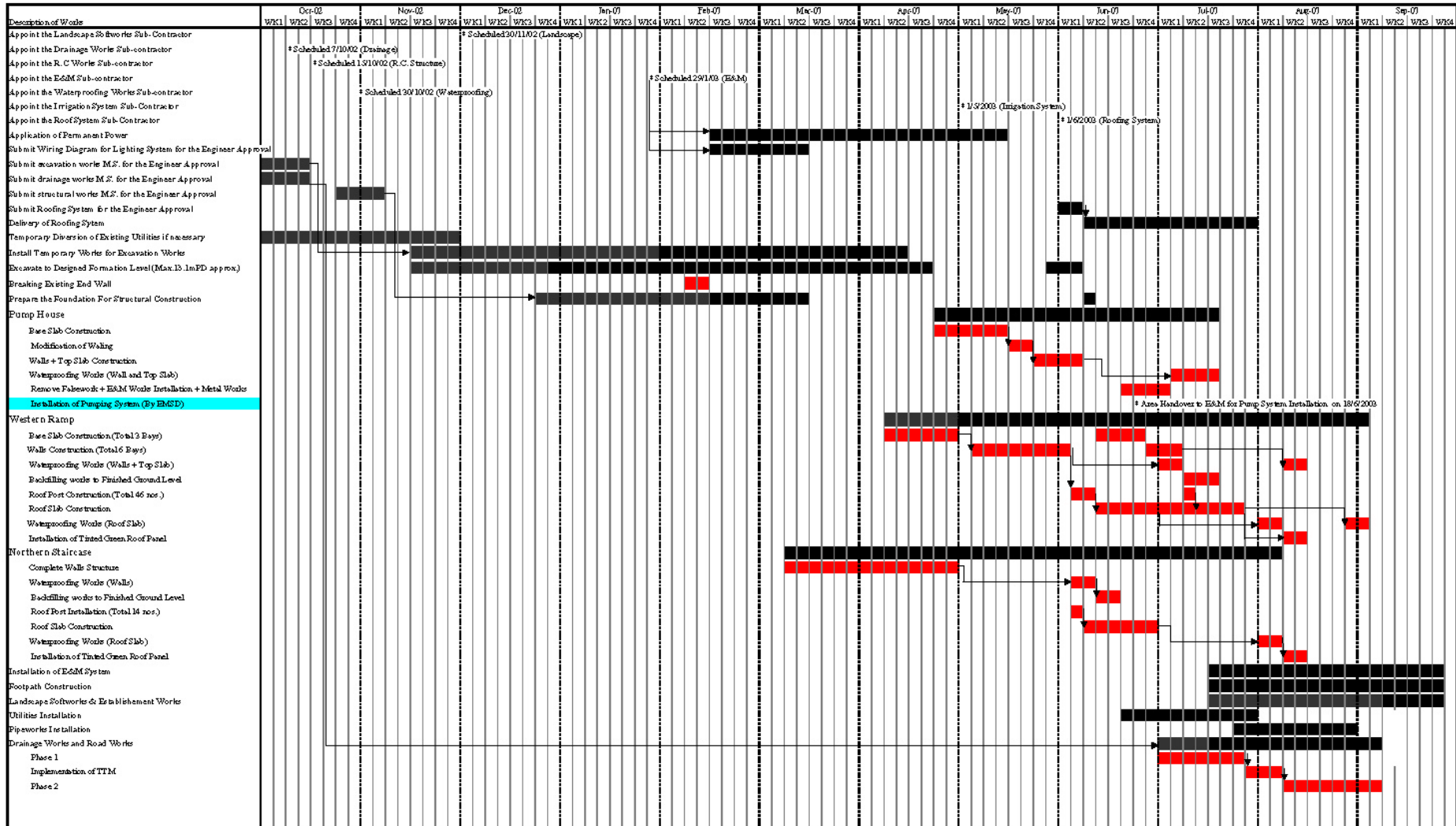
CONSTRUCTION PROGRAMME

Barbican Construction Limited
 Contract No. HY/2001/18
 Sai Sha Road Widening Between Kam Ying Road and Future Trunk Road T7 Junction

Detailed Working Programme for Completion of 'Section 1' Works

Date: 20 May 2003

Rev: 3



Barbican Construction Limited
 Contract No. H12001/13
 Sai Sha Road Widening Between Kam Ying Road and Future Trunk Road T1 Junction

Detailed Working Programme for Completion of Section 2' Works

Table 21 (Cont'd)

| Activity ID | Description of Work | Oct-02 | Nov-02 | Dec-02 | Jan-03 | Feb-03 | Mar-03 | Apr-03 | May-03 | Jun-03 | Jul-03 | Aug-03 | Sep-03 | Oct-03 | Nov-03 | Dec-03 | Jan-04 | Feb-04 | Mar-04 | Apr-04 | May-04 | Jun-04 | Jul-04 | Aug-04 | Sep-04 |
|-------------|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| W2A100 | Possession of Area To Retain C1' | | | | | | | | | | | | | | | | | | | | | | | | |
| W2A100A | Possession of Area To Retain C2' | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000 | Implementation of Traffic Diversions at Sai Sha Road Existing TDM Scheme | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000 | Stage 1 - Open Temporary Carriageway | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000 | Stage 2 - Divert Existing SSR West (Towards Shek Tin) to Permanent Road | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000A | Stage 2A - Close Part of Temporary Road and Divert Traffic to Permanent Road | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000 | Stage 3 - Partially Close Temporary Road | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000 | Stage 4 - TDM for Proposed Roadwork Construction | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000 | Close Overhead | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000 | Stage 1 - Closure of Southbound | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000 | Stage 2 - Closure of Northbound | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000 | Allow Traffic to Use Shek Tin Junction | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000 | Stage 1 - Closure of Slow Lanes at Sai Sha Road | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000 | Stage 2 - Closure of Middle Lanes at Sai Sha Road | | | | | | | | | | | | | | | | | | | | | | | | |
| W20000 | Stage 2 - Closure of Fast Lanes at Sai Sha Road | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Site Clearance | | | | | | | | | | | | | | | | | | | | | | | | |
| W21007 | Technical Submission + Fabrication of Clearing and Demolition Items | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Piling Works | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Ground Investigation for Minimising Waste | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Design of Founding Level of Minipiles Approved by the Engineer | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Construction of Minipiles (South End) at FB1 | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Construction of Minipiles (North End) at FB1 | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Utility Diversion for Minipiling Works at FB2 | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Construction of Minipiles at FB2 | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Construction of Probe Bridge FB1 | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Technical Submission (E&M Works) for the Engineer Approval | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Application of Permanent Power | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Technical Submission for Structural Steel Footbridge (FB1 and FB2) | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Fabrication of Steel Footbridge (Main Span) | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Construction of Southern Staircase + Lift Tower | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Construction of Northern Staircase + Lift Tower | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Installation of Bearings | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Concrete Strength Development of Structure (achieve 28 days strength) | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Temp. Diversion at Sai Sha Rd. for Launching of Pre-stressed Main Span | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Completion of Remaining Works (E&M, Finishing, M.T. Installation etc.) | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Area Available for Lift Installation by E&M | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Construction of Probe Bridge FB2 | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Technical Submission of E&M Works for the Engineer Approval | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Application of Permanent Power | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Fabrication of Steel Footbridge (Main Span) | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Construction of Staircase + Lift Tower | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Installation of Bearing | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Concrete Strength Development of Structure (achieve 28 days strength) | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Temp. Diversion at Sai Sha Rd. for Launching of Pre-stressed Main Span | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Completion of Remaining Works (Lift Tower, Finishing, M.T. Installation etc.) | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Area Available for Lift Installation by E&M | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Construction of Subway S1' | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Technical Submission of E&M Works for the Engineer Approval | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Application of Permanent Power | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Temp. Protection Diversion to Existing Utilities (Water Pipes/Gas Pipes/Cable) | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Waterproofing Walls | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Wing Wall Construction | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Soakers End | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Main Base | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Soakers Portion | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Soakers Portion | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Pumps | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Remaining Works (E&M Works + Finishing Works etc.) | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Construction of Subway S2' | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Technical Submission of E&M Works for the Engineer Approval | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Application of Permanent Power | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Waterproofing Walls | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Main Base | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Wing Wall | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Remaining Works (E&M Works + Finishing Works etc.) | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Retaining Walls | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Removal of Existing Over Area | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Assessing Wall A1 | | | | | | | | | | | | | | | | | | | | | | | | |
| W21000 | Assessing Wall A2 (Partially) etc. | | | | | | | | | | | | | | | | | | | | | | | | |

Barbican Construction Limited
 Contract No. HY2001/18
 Sai Sha Road Widening Between Kam Ying Road and Future Trunk Road T7 Junction
 Detailed Working Programme for Completion of Section 2' Works

Date: 21 May 2012

Rev: 2

| Activity ID | Description of Works | Oct-02 | Nov-02 | Dec-02 | Jan-03 | Feb-03 | Mar-03 | Apr-03 | May-03 | Jun-03 | Jul-03 | Aug-03 | Sep-03 | Oct-03 | Nov-03 | Dec-03 | Jan-04 | Feb-04 | Mar-04 | Apr-04 | May-04 | Jun-04 | Jul-04 | Aug-04 | Sep-04 | |
|-------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| W2H000 | Site Barrier | | | | | | | | | | | | | | | | | | | | | | | | | |
| W2H070 | Material HSub-Plan Design for the Engineer Approval | | | | | | | | | | | | | | | | | | | | | | | | | |
| W2H110 | Material Ordering + Delivery to Site | | | | | | | | | | | | | | | | | | | | | | | | | |
| W2H010 | Concrete Footing | | | | | | | | | | | | | | | | | | | | | | | | | |
| W2H020 | Type I | | | | | | | | | | | | | | | | | | | | | | | | | |
| W2H030 | Type II | | | | | | | | | | | | | | | | | | | | | | | | | |
| W2H040 | Type III | | | | | | | | | | | | | | | | | | | | | | | | | |
| W2H050 | Type IV | | | | | | | | | | | | | | | | | | | | | | | | | |
| W2H060 | Type V | | | | | | | | | | | | | | | | | | | | | | | | | |
| W2H110 | Installation of Noise Barrier | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21100 | Drainage Works | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21100 | Sha On Street Southbound/ Sai Sha Road Westbound | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21100 | Sha On Street Northbound/ Sai Sha Road Westbound | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21100 | Sai Sha Road Westbound | | | | | | | | | | | | | | | | | | | | | | | | | |
| W24100 | Sai Sha Road Eastbound | | | | | | | | | | | | | | | | | | | | | | | | | |
| W26000 | Wai Kwai Sha Village Access Road | | | | | | | | | | | | | | | | | | | | | | | | | |
| W27000 | Last Manhole Connection (Road T7) | | | | | | | | | | | | | | | | | | | | | | | | | |
| W22100 | Road Works + Road Marking | | | | | | | | | | | | | | | | | | | | | | | | | |
| W22100 | Technical Submission for Approval (Flexible Pavement) | | | | | | | | | | | | | | | | | | | | | | | | | |
| W22100 | Sha On Street Southbound/ Sai Sha Road Westbound | | | | | | | | | | | | | | | | | | | | | | | | | |
| W22100 | Sha On Street Northbound/ Sai Sha Road Westbound | | | | | | | | | | | | | | | | | | | | | | | | | |
| W23100.1 | Sai Sha Road Westbound | | | | | | | | | | | | | | | | | | | | | | | | | |
| W24100 | Sai Sha Road Eastbound | | | | | | | | | | | | | | | | | | | | | | | | | |
| W24100 | Wai Kwai Sha Village Access Road (Section 1) | | | | | | | | | | | | | | | | | | | | | | | | | |
| W24100 | Wai Kwai Sha Village Access Road (Remaining Section) | | | | | | | | | | | | | | | | | | | | | | | | | |
| W22100 | Sign Entry + Drive On Sign + Traffic Sign | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21100 | Trees Felling + Tree Transplanting | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21100.1 | Original Works | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21100.2 | Additional Works under V.O. | | | | | | | | | | | | | | | | | | | | | | | | | |
| W22100 | Landscaping Works + Irrigation System | | | | | | | | | | | | | | | | | | | | | | | | | |
| W22100.1 | Technical Submission for Approval | | | | | | | | | | | | | | | | | | | | | | | | | |
| W22100.2 | Hardware | | | | | | | | | | | | | | | | | | | | | | | | | |
| W22100.3 | Softworks | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21110 | Utilities Installation (Subject to Utilities Coordination Meeting) | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21110.1 | Along Sai Sha Road (Towards T7) / Sha On Street (Westbound) Phase 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21110.2 | Along Sai Sha Road (Towards T7) / Sha On Street (Eastbound) Phase 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21110.3 | Along Sai Sha Road (Towards Sai Kwong) | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21110.4 | Underneath Subway and ST | | | | | | | | | | | | | | | | | | | | | | | | | |
| W21110.5 | Underneath Temporary Carriageway | | | | | | | | | | | | | | | | | | | | | | | | | |

To get Completion Date 13/9/04



APPENDIX B
SITE ORGANIZATION CHART

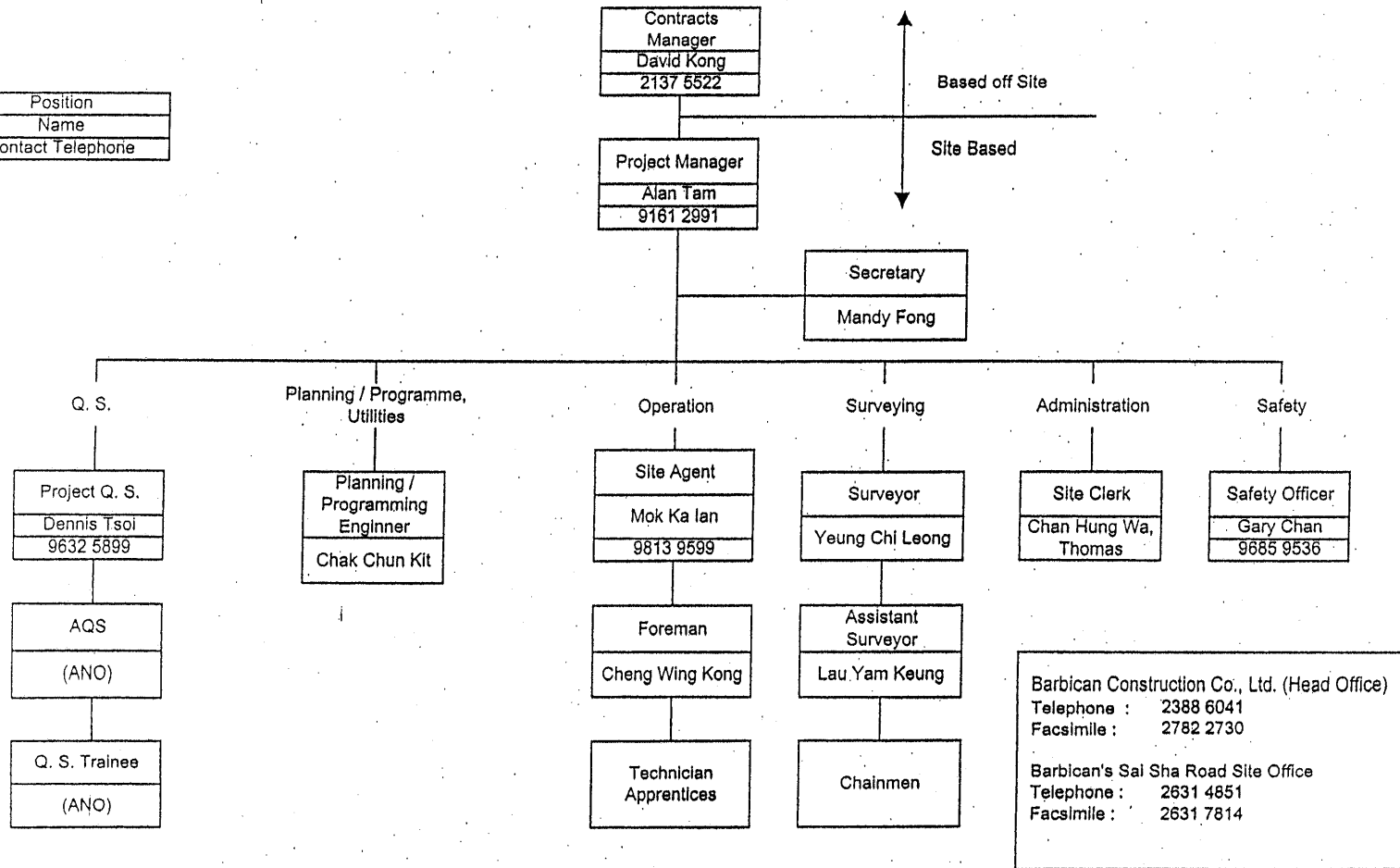
Barbican Construction Co., Ltd.

Contract No. : HY/2001/18
 Sai Sha Road Widening between
 Kam Ying Road and Future Trunk Road T7 Junction

Date : 23 September 2002
 Rev : C

Site Organization Chart

| |
|-------------------|
| Position |
| Name |
| Contact Telephone |





APPENDIX C
RECORD PHOTOS FOR CONSTRUCTION ACTIVITIES
IN OCTOBER 2003



Date: 2 October 2003

Works: Construction of Subway

Location: Near Residential Development Wu Kai Sha DD 206



Date: 2 October 2003

Works: Drainage Work

Location: Near Wu Kai Sha KCRC Station



Date: 16 October 2003
Location: Near Villa Athena

Works: Construction of Subway



Date: 23 October 2003
Location: Near Villa Athena

Works: Construction of Subway



Date: 16 October 2003
Location: Near Lee Wing House

Works: Construction of Footbridge

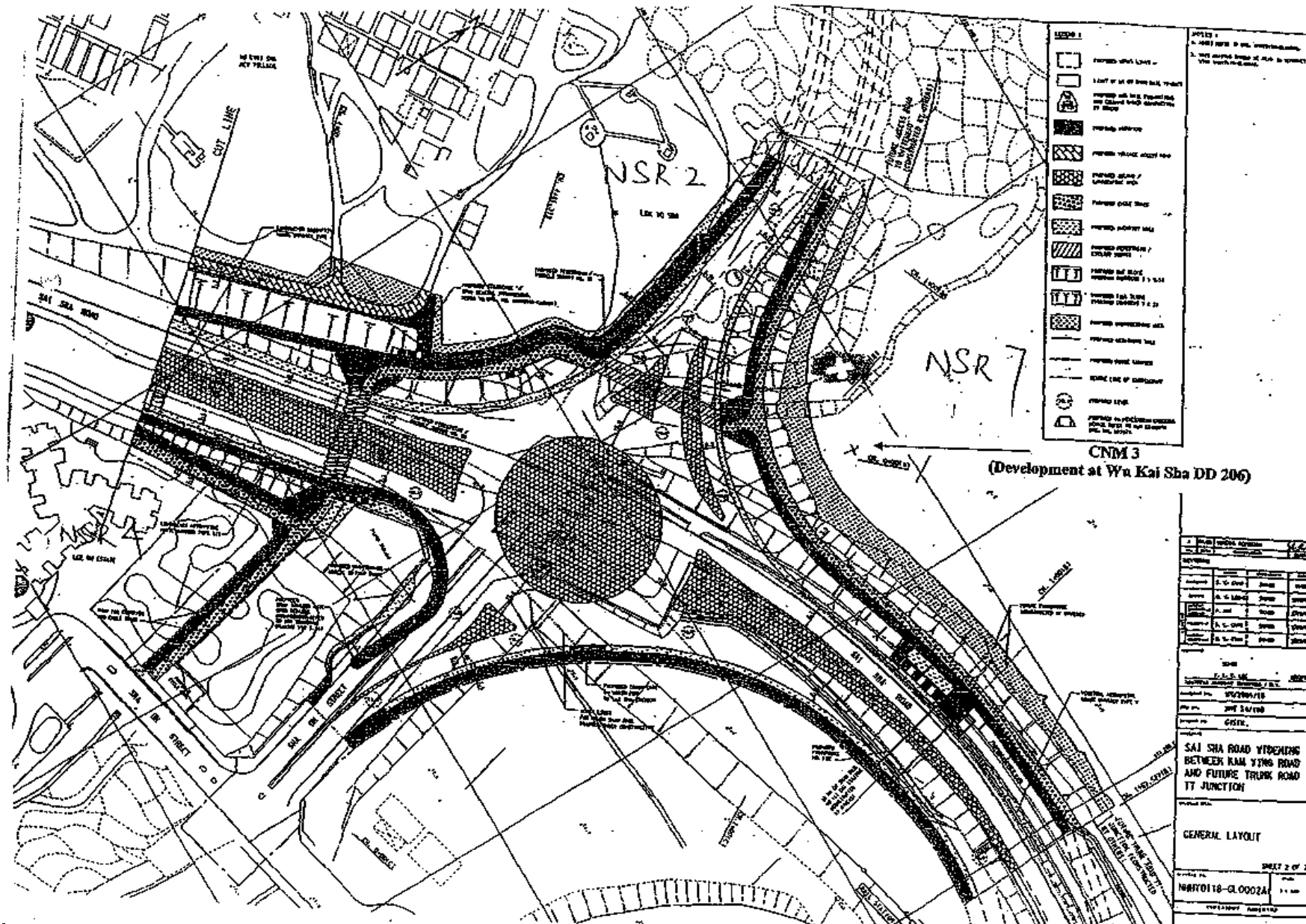


Date: 23 October 2003
Location: Near Lee Wing House

Works: Construction of Footbridge



APPENDIX D
THE PROJECT AREA, ENVIRONMENTAL SENSITIVE RECEIVERS
AND THE LOCATIONS OF THE MONITORING STATIONS





Monitoring Point CNM 1 – Wu Kwai Sha New Village



Monitoring Point CNM 2 – Lee Wing House of Lee On Estate



APPENDIX E
CALIBRATION CERTIFICATES FOR SOUND LEVEL METER



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C033460

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter (E01-010)

Manufacturer : Cesva

Model No. : SC-20e

Serial No. : T214258

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C033460.*

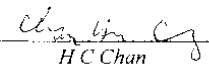
The equipment is supplied by

Co. Name : HONKEI TECHNOLOGY

*Address : Rm. 2501, 25/F., Ho King Comm. Centre, 2-16 Fa Yuen St.,
Mongkok, Kowloon*

Date of Issue : 27 August 2003

Certified by :


H.C. Chan

The test equipment used for calibration are traceable to the National Standards as specified in the calibration report.
This certificate may not be reproduced except in full and with prior written approval of the issuing laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o G.T. I.C.K. Telephone Exchange Building, 2 Yuet Lan Street, Lai Chi Kok, Kowloon, Hong Kong

Tel: 2927 2606

Fax: 2743 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C033459

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator (E01-011)

Manufacturer : Cesva

Model No. : CB-5

Serial No. : 031198

has been calibrated for the specific items and ranges.

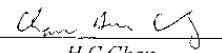
The results are shown in the Calibration Report No. C033459.

The equipment is supplied by

Co. Name : HONKEI TECHNOLOGY

*Address : Rm. 2501, 25/F., Ho King Comm. Centre, 2-16 Fa Yuen St.,
Mongkok, Kowloon*

Date of Issue : 27 August 2003

*Certified by : 
H.C. Chan*

The test equipment used for calibration are traceable to the National Standards as specified in the calibration report.
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Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o G.E. I.C.K. Telephone Exchange Building, 2 Yuec Fun Street, Tai Chi Kek, Kowloon, Hong Kong
Tel: 2927 2696 Fax: 2734 8986 E-mail: callab@suncreation.com Website: www.suncreation.com



APPENDIX F
DATA OF NOISE MONITORING

Contract No. HY/2001/18

**Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction**

Monitoring Location: Wu Kwai Sha New Village (CNM 1)

Time Period 7:00-19:00

| Date | Start Time | Duration (min) | Measurement Results | | | | | | | | |
|----------|------------|----------------|-------------------------|-------------------------|----------------------------------|------|------|------|------|-----------------------------------|------|
| | | | L ₉₀ (dB(A)) | L ₁₀ (dB(A)) | L _{eq} (dB(A)) (5 mins) | | | | | L _{eq} (dB(A)) (30 mins) | |
| 02/10/03 | 09:45 | 30 | 56.4 | 64.9 | 61.4 | 60.9 | 62.2 | 62.6 | 63.3 | 62.3 | 62.1 |
| 09/10/03 | 09:45 | 30 | 57.5 | 63.6 | 60.6 | 62.0 | 60.5 | 62.0 | 61.4 | 61.3 | 61.3 |
| 16/10/03 | 09:45 | 30 | 57.2 | 63.6 | 60.4 | 61.0 | 61.1 | 60.7 | 67.3 | 61.6 | 62.0 |
| 23/10/03 | 10:00 | 30 | 55.0 | 61.1 | 58.3 | 58.6 | 58.4 | 58.7 | 57.7 | 59.5 | 58.5 |
| 30/10/03 | 09:58 | 30 | 57.0 | 62.3 | 60.6 | 60.8 | 63.7 | 59.8 | 59.4 | 60.1 | 60.7 |

Contract No. HY/2001/18

**Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction**

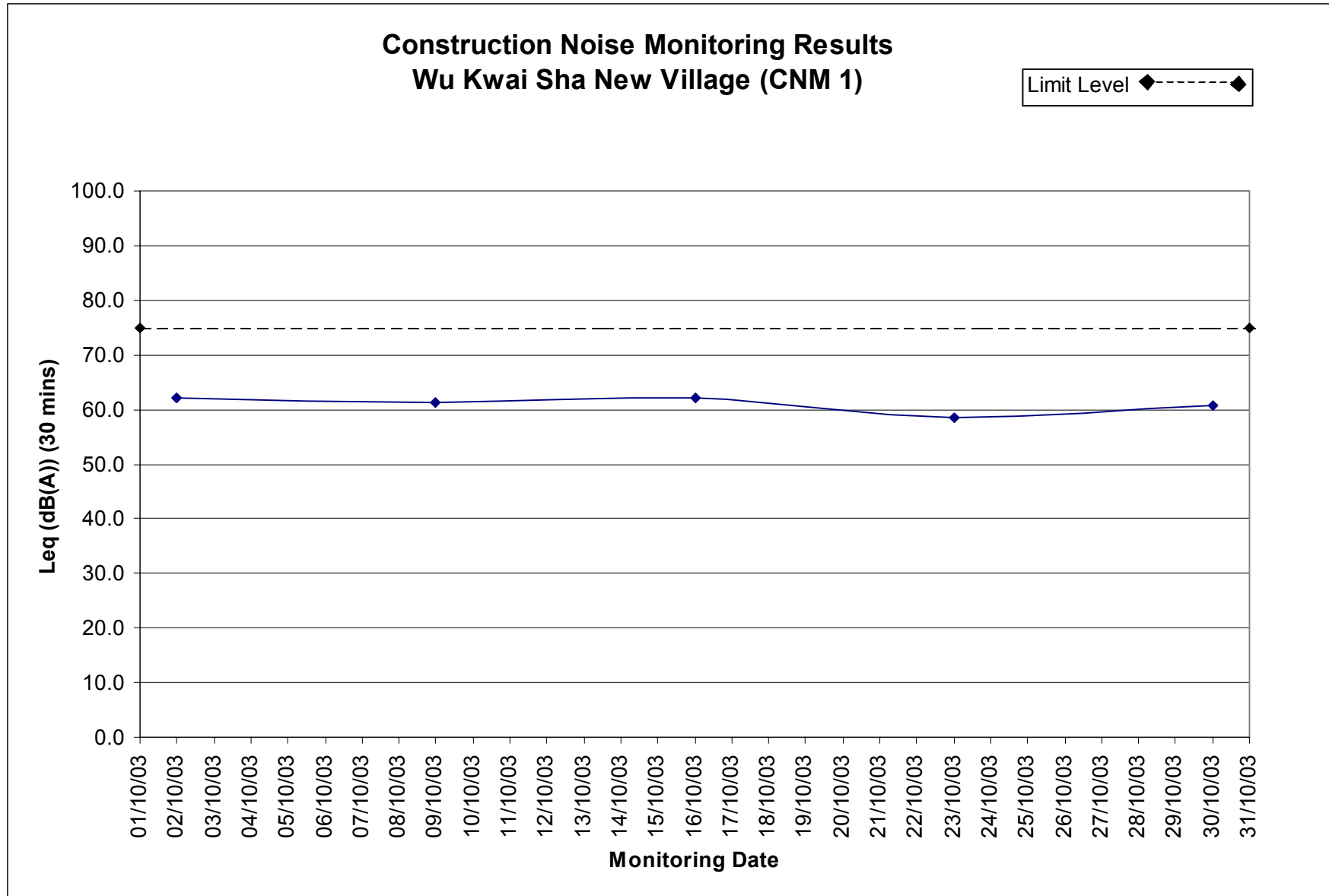
Monitoring Location: Kam Lung Court (CNM 2)

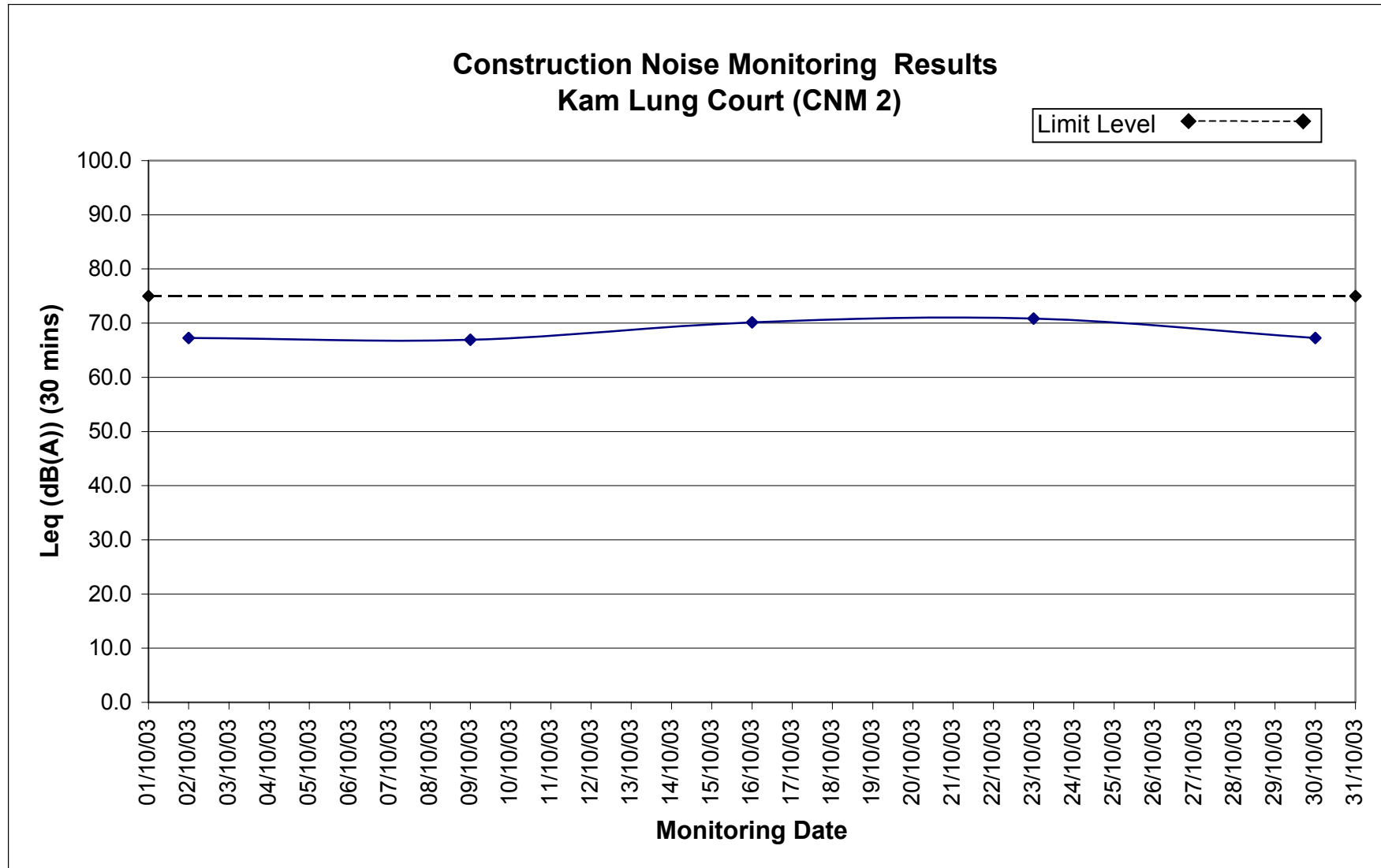
Time Period 7:00-19:00

| Date | Start Time | Duration (min) | Measurement Results | | | | | | | | |
|----------|------------|----------------|-------------------------|-------------------------|----------------------------------|------|------|------|------|-----------------------------------|------|
| | | | L ₉₀ (dB(A)) | L ₁₀ (dB(A)) | L _{eq} (dB(A)) (5 mins) | | | | | L _{eq} (dB(A)) (30 mins) | |
| 02/10/03 | 10:20 | 30 | 62.9 | 70.2 | 65.2 | 66.8 | 68.9 | 69.1 | 66.4 | 67.1 | 67.3 |
| 09/10/03 | 10:20 | 30 | 63.7 | 68.9 | 67.5 | 67.4 | 66.7 | 66.5 | 66.3 | 67.2 | 66.9 |
| 16/10/03 | 10:20 | 30 | 67.5 | 71.9 | 68.6 | 70.0 | 70.0 | 70.1 | 70.7 | 71.4 | 70.1 |
| 23/10/03 | 10:41 | 30 | 67.7 | 72.7 | 69.4 | 69.0 | 71.2 | 71.7 | 71.6 | 72.1 | 70.8 |
| 30/10/03 | 10:38 | 30 | 63.9 | 68.8 | 66.4 | 66.0 | 66.9 | 67.9 | 69.8 | 66.5 | 67.3 |



APPENDIX G
GRAPHICAL REPRESENTATION OF
CONSTRUCTION NOISE MONITORING DATA







APPENDIX H
WEATHER CONDITIONS
DURING THE MONITORING PERIOD

Contract No.

HY/2001/18

**Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction****Major Activity and Weather Condition During Baseline Monitoring****Monitoring Location: Wu Kwai Sha New Village (CNM 1)**

| Date | Start Time | Weather Condition | Major Activities | Other Activities |
|-------------|-------------------|--------------------------|-------------------------|------------------------------------|
| 02/10/03 | 09:45 | Sunny | Piling Works | Pedestrian , Traffic |
| 09/10/03 | 09:45 | Sunny | Backhoe | Pedestrian , Traffic |
| 16/10/03 | 09:45 | Sunny | Backhoe | Pedestrian , Traffic , Dog Barking |
| 23/10/03 | 10:00 | Sunny | Backhoe | Pedestrian , Traffic , Dog Barking |
| 30/10/03 | 09:58 | Sunny | Nil | pedestrian , Traffic |

Contract No.

HY/2001/18

**Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction****Major Activity and Weather Condition During Baseline Monitoring****Monitoring Location: Kam Lung Court (CNM 2)**

| Date | Start Time | Weather Condition | Major Activities | Other Activities |
|-------------|-------------------|--------------------------|-------------------------|-------------------------|
| 02/10/03 | 10:20 | Sunny | Piling Works , Backhoe | Pedestrian , Traffic |
| 09/10/03 | 10:20 | Sunny | Backhoe | Pedestrian , Traffic |
| 16/10/03 | 10:20 | Sunny | Concreting , Backhoe | Pedestrian , Traffic |
| 23/10/03 | 10:41 | Sunny | Nil | Pedestrian , Traffic |
| 30/10/03 | 10:38 | Sunny | Truck | Pedestrian , Traffic |



APPENDIX I
CONSTRUCTION NOISE MONITORING LIMIT ACTION LEVEL

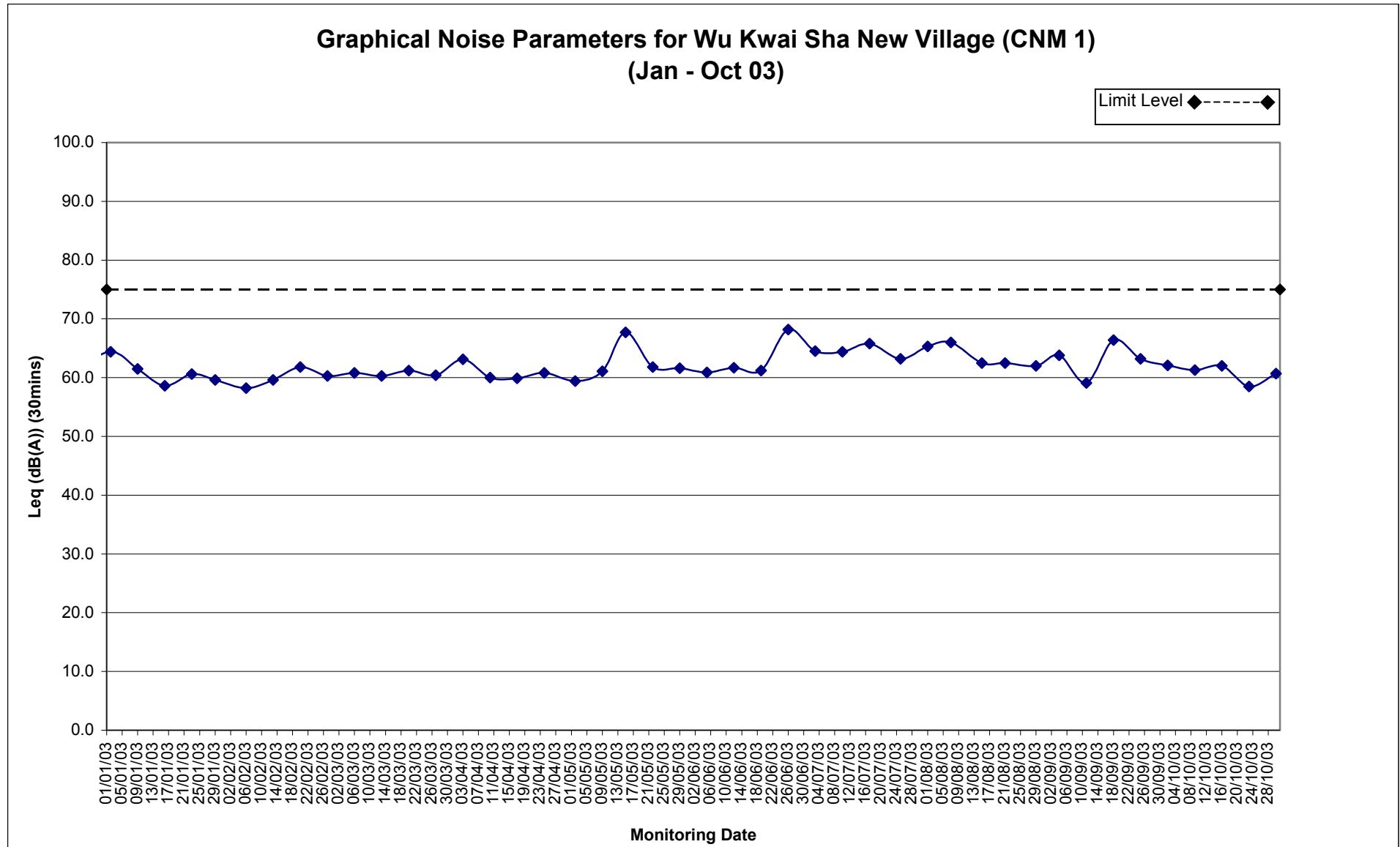
According to Section 2.7 of the *EM & A Manual*, the Action and Limit Noise Levels are summarised in the following table:

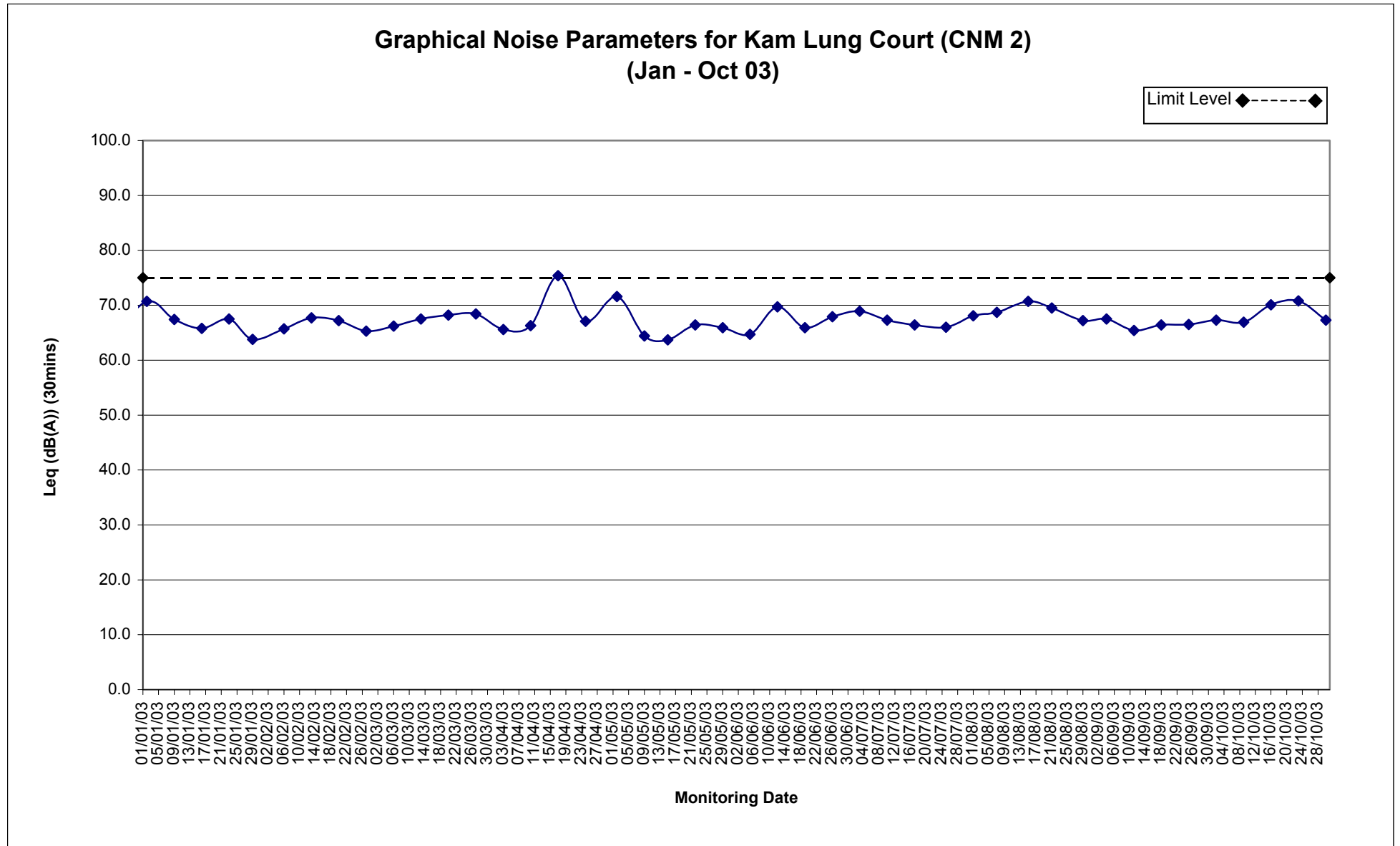
| Time Period | Action | Limit Level |
|---|---|-------------|
| 0700-1900 hours on normal weekdays | When one documented complaint is received | 75 dB(A) |
| 0700-2300 hours on holidays; and 1900-2300 hours on all other days | | 70 dB(A) |
| 2300-0700 hours of next day | | 55 dB(A) |

Note: The noise limit level for all the NSRs within this contract is 75dB(A).



APPENDIX J
GRAPHICAL PLOTS OF TRENDS OF MONITORED PARAMETERS







APPENDIX K
CONSTRUCTION NOISE MONITORING SCHEDULES
OCTOBER 2003 AND NOVEMBER 2003

Job No. : G/2563.01

Contract No. HY/2001/18

Sai Sha Road Widening between Kam Ying Road and Future Trunk Road T7 Junction

Construction Noise Monitoring Schedule**October – November 2003**

| Location Point | Monitoring Parameter | Measurement Start Time | | | | |
|----------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| | | 02/10/2003 (Thursday) | 09/10/2003 (Thursday) | 16/10/2003 (Thursday) | 23/10/2003 (Thursday) | 30/10/2003 (Thursday) |
| CNM 1 | L _{eq} (30 min) | 09:45 | 09:45 | 09:45 | 10:00 | 09:58 |
| CNM 2 | L _{eq} (30 min) | 10:20 | 10:20 | 10:20 | 10:41 | 10:38 |

| Location Point | Monitoring Parameter | Measurement Start Time | | | | |
|----------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
| | | 06/11/2003 (Thursday) | 13/11/2003 (Thursday) | 20/11/2003 (Thursday) | 27/11/2003 (Thursday) | |
| CNM 1 | L _{eq} (30 min) | 10:00 | 10:00 | 10:00 | 10:00 | |
| CNM 2 | L _{eq} (30 min) | 10:40 | 10:40 | 10:40 | 10:40 | |

* Note: In case of poor weather condition on the monitoring date, we will inform the Contractor to arrange another construction noise impact monitoring in a day in the same week.



APPENDIX L
STATISTICS FOR ENVIRONMENTAL COMPLAINTS

**Contract No. HY/2001/18
Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction**

**Statistic for Environmental Complaint
October 2003**

