

Mass Transit Railway Corporation Limited

Contract C4420 – Modifications to MTRC TST Station

Quarterly Environmental Monitoring and Audit Report

(December 2002 - February 2003)

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(December 2002 - February 2003)

Verified by: Glenn Frommer
Signed: *Glenn Frommer*
Position: Independent Environmental Checker
Date: 01 April 2003

EXECUTIVE SUMMARY

1 INTRODUCTION

- 1.1 Scope of the Report**
- 1.2 Structure of the Report**

2 PROJECT INFORMATION

- 2.1 Project Background**
- 2.2 Project Organisation**
- 2.3 Construction Programme**
- 2.2 Construction Activities**

3 ENVIRONMENTAL AUDIT AND MONITORING REQUIREMENTS

- 3.1 Monitoring Parameters**
- 3.2 Monitoring Locations**
- 3.3 Monitoring Quality Performance Limits**
- 3.4 Environmental Mitigation Measures**

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL

- 4.1 Monitoring Results**
- 4.2 Mitigation Measures Implemented**
- 4.3 Parameters Monitored**
- 4.4 Review of the Solid and Liquid Waste Management Status**

5 COMPLIANCE/NON-COMPLIANCE AND COMMENTS

- 5.1 Complaint**
- 5.2 Site Audit and Comments**
- 5.3 Proponent's Contacts and Hotline Telephone Number**

6 CONCLUSION

List of Reference

Table

Table 4.1 Summary of Noise Monitoring Results

Table 4.2 Summary of Air Quality Monitoring Results

Appendix A

Figure TSTEMA-001 Location of the works areas

Figure TSTEMA-002A Environmental Management Team

Figure TSTEMA-004 Air Monitoring Station

Figure TSTEMA-005 Noise Monitoring Station

Appendix B

Chart for Noise Level at NTST1

Chart for Noise Level at NTST2

Chart for Noise Level at NTST3

Chart for Dust Level at ATST1

Chart for Dust Level at ATST2

EXECUTIVE SUMMARY

This is the third quarterly EM&A summary report prepared to document the environmental monitoring and audit works conducted for the modification works of MTRC TST Station under Contract C4420. Monitoring works for noise and air impact from the construction works were carried out during the period from December 2002 to February 2003. In general, the Contractor have followed the recommended environmental mitigation measures and complied with relevant environmental regulations, permits and licenses. As piling and grouting works continued, the Contractor provided a reasonable effort to maintain and adjust the noise mitigation measures and close supervision to minimize noise generated from the Southern Works area.

With reference to the monitoring datas collected during the past three months and regular field observations, environmental conditions of the construction site were said to be satisfactory. There were no exceedance of action and limit level occurred in both air and noise impact monitoring at the agreed sensitive receivers. While there was no formal prosecution recorded in this reporting period, two complaints were received in December 2002.

1 INTRODUCTION

1.1 Scope of the Report

The MTRCL Environmental Team lead by the ET leader Dr. Kam Chan was responsible to provide baseline and impact environmental monitoring services for the Contract and supervise Contractor's performance on site environmental matters in order to comply with the requirements of the EIA, EM&A manual and environmental permit approved by the Environmental Protection Department of HKSAR.

This quarterly EM&A summary report to cover the environmental monitoring works in the period of December 2002 to February 2003.

1.2 Structure of the Report

The structure of the report is as follows:

Section 1: Introduction.

This section presents the scope and structure of the report.

Section 2: Project Information.

This section summarizes the project background and scope of the construction activities carried out in past three months.

Section 3: Environmental Monitoring and Audit Requirements.

This section includes the monitoring parameters, environmental quality performance limits (Action and Limit levels), and environmental mitigation measures, as recommended in the project EIA study final report.

Section 4: Implementation Status of Environmental Protection & Pollution Control.

This section presents the air and noise monitoring results over the past 3 months. It summarizes the environmental measures implemented during the reporting period. A review of the solid and liquid waste management status is also presented.

Section 5: Compliance/Non-compliance and Comments.

This section presents information on complaint(s), site audit and comments, and proponent's contacts and hotline telephone numbers.

Section 6: Conclusion.

This section summaries comments on the measured construction noise and dust levels and field observations.

2 PROJECT INFORMATION

2.1 Project Background

MTR Corporation Limited (MTRCL) proposed the need to modify the existing Tsim Sha Tsui Station in order to provide underground linkage of the planned new KCRC East Tsim Sha Tsui (ETS) Station. The project is being undertaken by the MTRCL and the major work includes construction of the southward concourse extension of approximately 80m and a subway of about 30m. The new concourse will accommodate the existing plant rooms and back-of-house accommodation at TST Station displaced by the future KCRC Mody Road Link, as well as provide a direct link from the TST Station concourse to the KCRC Middle Road Subway Link. Location of the work areas is shown on Appendix A Figure TSTEMA-001.

An EIA study (refer to EIA Report ref. R0305-3.01 dated May 2001) has been conducted by CH2M Hill (China) Limited (formerly named as EHS Consultants Limited) for the proposed TST Station modification works, in which more details regarding the Environmental Impact and Assessment of the Project are available. An EM&A Manual Revision E ref. R0424-1.01 issued at October 2002 has provided guidelines in the preparation of this quarterly Environmental Monitoring and Audit Report.

A Baseline Monitoring Report Revision A was issued at May 2002 by MTRCL. Baseline levels were established for both dust and noise, by which the performance of the construction Contractor is being measured in meeting required environmental protection standards and requirements under the Environmental Permit, during the course of the construction work.

2.2 Project Organisation

The key parties in an EM&A programme include the Contractor, the Project Engineer or Engineer's representative (ER), the Independent Environmental Checker (IEC), the Environmental Team (ET), and the Environmental Protection Department (EPD). It is currently planned that roles of ER and ET are both undertaken by MTRCL as in many other MTRCL's projects, involving its Project Engineers and Leader of Environmental Team. It is envisaged that such organization structure allow effective communication between the Project Engineers and the ET, and encourage the Contractor to perform with respect to the implementation of the required environmental mitigation measures to satisfy the project proponent's requirements. In addition, the IEC is responsible to check, review, verify and validate the overall environmental performance of the project.

An updated organization chart showing the line of communication with respect to the EM&A works is provided on Appendix A Figure TSTEMA-002A.

2.3 Construction Programme

The construction for modifications to the existing TST MTRCL Station is scheduled to commence in April 2002 and to be completed by early 2005. MTRCL is responsible for the overall programming of the construction works. It is recommended that the programming is such that environmental impacts are reduced as far as possible.

2.4 Construction Activities

Over the past three months, the weather was mainly fine or fair and had no affect to the construction activities significantly. The major construction works performed during the past three months period could be summarized as follow:-

Southern Works area (concerned construction site in EP)

- Pipe piling to the required founding levels at east of the Works Site.
- Drilling and grouting works along the installed pipe piles.
- Ground settlement and vibration monitoring.
- Installation of H-pile within the installed piles.
- Maintain and adjust the provided noise mitigation measures to suit the progressing site activities.
- Trial trench excavation for shifting existing cables.
- Sheetpiling works by silent pier.
- Excavation and installation of king posts.
- Excavation for pile capping beams.

Northern Works area

Reconstruction of Station Exit A2

- Installation of deep wells and observation wells.
- Pipe piling and grouting works.
- Excavation and removal of underground structure of old station exit.
- Diversion of existing utilities and HKCG gas pipes.

New escalator adit construction.

- Temporary supports to the existing cooling water mains and HKCG gas pipes.
- Excavation and shoring works for the passenger structure construction.
- TTM stage 4 at Nathan Road southbound fast lane near Humphrey Avenue.
- Sewage discharge pipe laying and manhole construction..

Internal Station Improvement Works

- Modification works of station control room.
- Construction of passenger lift from concourse level to platform level.
- Construction of the new police reporting centre.
- Removal of false ceiling and service ducts.
- Removal/realignment/relocation of AFC gates, glazed barriers and cables at concourse level.
- Removal of floor tiles at concourse level.
- Reclamation of customer service centre.

Peking Road Gyratory

- Maintenance/implementation of the traffic scheme.

Store at Ferry Street

- Fabrication and maintenance of construction equipment and plants.
- Cutting sheetpile into sections for piling/shoring works.

3 ENVIRONMENTAL AUDIT AND MONITORING REQUIREMENTS

3.1 Monitoring Parameters

For required noise parameters, refer to Item 5.1 of EM&A Manual Revision E ref. R0424-1.01 October 2002 submitted to EPD of HKSAR.

For required air quality parameters, refer to Item 6.1 of EM&A Manual Revision E ref. R0424-1.01 October 2002 submitted to EPD of HKSAR.

3.2 Monitoring Locations

Noise

Noise monitoring was undertaken at the following locations:

NTST1	Chungking Mansion
NTST2	TST Station Exit C1
NTST3	Wing Lok House (monitoring required only when there exists visual impact to progressively major site activities)

Air

Air monitoring was undertaken at the following locations:

ATST1 Imperial Hotel
ATST2 TST Station Exit E

Locations of the above agreed monitoring stations are shown on Appendix A Figure TSTEMA-04 & 05.

3.3 Environmental Quality Performance Limits

The environmental quality performance limits for construction noise and dust monitoring are shown as follows:-

Noise Action and Limit Levels

For all noise sensitive receivers, NTST1, NTST2 & NTST3, the action & limit levels are shown on Table 3.3C Limit Levels for Construction Noise of TST Extension Project Baseline Monitoring Report Revision A May 2002, submitted to EPD of HKSAR. Action levels are achieved when one complaint received.

Air Quality Action & Limit Levels

For the air sensitive receivers, ATST1 & ATST2, the action & limit levels for 1-hour TSP and 24-hour TSP refer to Table 2.4b & 2.4d of the Project Baseline Monitoring Report Revision A May 2002, submitted to EPD of HKSAR.

3.4 *Environmental Mitigation Measures*

In general, noise, dust and waste generated from the construction site have been controlled by the procedures set in Appendix I of EM&A Manual Revision E issued in October 2002. If the construction noise and dust exceeds the imposed Action and Limit Levels, event contingency plan for construction noise and dust stated in Table 5.2 & 6.2 of EM&A Manual would be followed to minimize the impacts to acceptable levels.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL

4.1 Monitoring Results

The results of construction phase noise monitoring conducted at the agreed air and noise sensitive receivers were reported in monthly EM&A reports. Tables 4.1 and 4.2 present the measured noise and dust levels with weather conditions from December 2002 to February 2003.

Table 4.1 Summary of Noise Monitoring Results (Leq30min)

Location	NTST1 (Chungking Mansion)							
	Date	Leq (30min)	Leq corrected (30min)	L10 (30min)	L90 (30min)	Allowable limit (30min)	Exceedance	Climate
	6/12/02	78.1	73.4	80.6	74.5	74	N	Clear
	9/12/02	78.1	72.8	80.7	73.8	74	N	Clear
	18/12/02	78.4	73.3	80.5	74.5	74	N	Clear
	23/12/02	78.2	73.9	80.1	76.2	74	N	Clear
	2/1/03	78.0	73.7	79.3	74.9	74	N	Clear
	7/1/03	78.3	73.7	79.5	75.5	74	N	Clear
	13/1/03	78.3	74.0	80.4	74.3	74	N	Clear
	22/1/03	78.6	74.0	80.7	74.0	74	N	Clear
	29/1/03	78.2	74.1	80.1	74.1	74	N	Clear
	5/2/03	78.1	73.2	80.4	73.0	74	N	Clear
	11/2/03	78.2	73.3	80.2	75.3	74	N	Cloudy
	19/2/03	77.8	73.1	80.3	74.8	74	N	Clear
	25/2/03	78.1	73.6	80.0	70.5	74	N	Cloudy
	NTST2 (TST Station EXIT C1)							
	5/12/02	78.7	74.8	79.3	75.8	75	N	Clear
	9/12/02	78.2	73.9	81.5	74.2	75	N	Clear
	17/12/02	77.4	70.5	80.0	74.0	75	N	Clear
	23/12/02	78.3	74.4	79.5	74.6	75	N	Clear
	30/12/02	78.2	74.2	79.5	74.8	75	N	Clear
	7/1/03	77.7	73.7	80.0	74.5	75	N	Clear
	13/1/03	78.2	73.5	80.3	73.8	75	N	Clear
	22/1/03	78.2	74.4	80.7	73.1	75	N	Clear
	29/1/03	77.9	73.4	80.0	73.2	75	N	Clear
	5/2/03	78.0	73.8	80.0	74.7	75	N	Clear
	11/2/03	77.6	70.3	80.5	73.5	75	N	Cloudy
	19/2/03	77.4	70.5	80.2	71.2	75	N	Clear
	25/2/03	76.4	65.8	78.5	71.0	75	N	Cloudy
	NTST3 (Wing Lok Bldg)							
	4/12/02	74.6	72.3	76.5	71.5	75.0	N	Clear
	10/12/02	71.8	64.8	73.8	69.3	75.0	N	Clear
	17/12/02	72.6	64.8	74.5	69.5	75.0	N	Clear
	23/12/02	72.1	60.3	73.8	70.4	75.0	N	Clear
	30/12/02	72.8	65.9	74.1	70.4	75.0	N	Clear
	7/1/03	74.7	71.6	75.5	73.0	75.0	N	Clear
	13/1/03	72.8	65.9	73.8	70.1	75.0	N	Clear

22/1/03	71.6	64.3	72.8	70.4	75.0	N	Clear
27/1/03	72.7	68.5	73.1	70.2	75.0	N	Clear
5/2/03	73.5	70.4	74.9	72.2	75.0	N	Clear
12/2/03	72.5	63.5	73.5	70.0	75.0	N	Cloudy
18/2/03	73.8	70.8	77.0	68.0	75.0	N	Clear
26/2/03	73.3	69.8	73.0	67.5	75.0	N	Clear

Notes ** Measured noise level Leq(30min) less than background noise
Leq(30min) corrected Measured noise level Leq(30min) with background correction

Table 4.2 Summary of Air Quality Monitoring Results (TSP)

Location	ATST1 (Imperial Hotel)					
Date	Sample Code	Sample Type	TSP ($\mu\text{g}/\text{m}^3$)	Action ($\mu\text{g}/\text{m}^3$)	Target ($\mu\text{g}/\text{m}^3$)	Climate
02/12/02	973651	Dust Sample	128.0	197	260	Clear
09/12/02	973656	Dust Sample	111.3	197	260	Clear
16/12/02	973653	Dust Sample	126.5	197	260	Clear
23/12/02	973662	Dust Sample	134.9	197	260	Clear
23/12/02	973659	Dust Sample	127.2	197	260	Clear
06/01/03	973669	Dust Sample	138.0	197	260	Clear
13/01/03	973616	Dust Sample	170.1	197	260	Clear
20/01/03	973653	Dust Sample	179.5	197	260	Clear
27/01/03	973662	Dust Sample	116.2	197	260	Clear
04/02/03	973636	Dust Sample	60.1	197	260	Clear
10/02/03	973645	Dust Sample	91.9	197	260	Clear
17/02/03	973648	Dust Sample	95.6	197	260	Clear
24/02/03	973649	Dust Sample	108.3	197	260	Clear
	ATST2 (TST Station EXIT E)					
02/12/02	973643	Dust Sample	103.6	194	260	Clear
09/12/02	973652	Dust Sample	130.0	194	260	Clear
16/12/02	973654	Dust Sample	141.2	194	260	Clear
23/12/02	973663	Dust Sample	119.7	194	260	Clear
30/12/02	973664	Dust Sample	140.9	194	260	Clear
06/01/03	973669	Dust Sample	138.0	194	260	Clear
13/01/03	973616	Dust Sample	170.1	194	260	Clear
20/01/03	973653	Dust Sample	179.5	194	260	Clear
27/01/03	973662	Dust Sample	116.2	194	260	Clear
04/02/03	973667	Dust Sample	62.2	194	260	Clear
10/02/03	973677	Dust Sample	75.6	194	260	Clear
17/02/03	973685	Dust Sample	80.5	194	260	Clear
24/02/03	973688	Dust Sample	95.2	194	260	Clear

4.2 Mitigation Measures Implemented

A summary of the mitigation measures implemented during the reporting period is listed as below.

- Regular site inspections provided by the Contractor to control the site environmental matters including the required noise mitigation measures stated in Environmental Permit.
- Located noisy equipment and activities as far from NSRs as practical.
- Employed quiet powered mechanical equipment and processes where possible.
- Scheduled construction activities to minimize exposure of nearby NSRs to high levels of noise and dust pollution from site.
- Turned off idle equipment and operated powered mechanical equipment only when necessary.
- Provided acoustic enclosures to road slab breaking plants.
- Operated powered mechanical equipment properly.
- Provided periodic maintenance to ensure powered mechanical equipment to be in good condition.
- CD waste and general refuse bagged and removed off asap.
- Dusty vehicle loads transported to and from the works areas covered with tarpaulin sheet and without overloading.
- Water spraying and plastic cover provided to minimize the dust impact generated during concrete removal activities.
- Controlled drop height of excavated materials not greater than 2.0m.
- Implement the waste management plan with proper control measures.
- Stand-by water pumps provided to prevent flooding from excavated pit/trench.
- Drip tray provided to collect any possible oil leak from oil drums being used.
- Site water managed and treated properly before disposal to the public drains.
- Regular joint inspections on site environmental issues among Contractor/MTRC carried out at weekly basis.

4.3 *Parameters Monitored*

Noise

During this monitoring period, regular noise monitoring were made once a week at logging interval of 5 minutes in 30 minutes.

13 sets of 5 minutes average L_{eq} , L_{10} and L_{90} (in A-Weighting) were measured at the agreed noise monitoring stations NTST1, NTST2 and NTST3 during this monitoring period.

Air

During this monitoring period, regular air monitoring were made once a week. 13 sets of 24 hr TSP monitoring results were obtained at the agreed air monitoring stations ATST1 & ATST2 during this monitoring period.

4.4 *Review of the Solid and Liquid Waste Management Status*

By field observation it was found that the Contractor have reasonably undertaken preventative measures to minimize the solid and liquid waste generated from the construction site. They have implemented the 3-R (reduce, reuse and recycle) principles in handling construction materials and liquid and solid waste.

Excavated material from site carefully were handled, bagged and delivered offsite under a trip ticket delivery system. For chemical waste and liquid disposal, the Contractor have set up a chemical waste store on site for temporary storage. Relevant chemical wastes were then collected by the licenced chemical waste collectors for proper treatment and disposal.

The following area summary of updated figures of construction wastes disposal:-

	Amount of construction wastes disposed		
	Inert Waste (to PFF) (m ³)	Non-inert Waste (to Landfill)	Chemical Waste (trip)
December 2002	82.5	337.5	0
January 2003	43.5	300	1
February 2003	997.5	150	0
Accumulated total from June 2002	1408.5	1582.5	1

5 COMPLIANCE/NON-COMPLIANCE AND COMMENTS

5.1 Complaints

Two incidents of environmental complaints were received during the reporting period; one noise complaint from a nearby shop on 28/12 and one diesel fume complaint on 11/12. The Contractor had taken immediate actions to resolve the problems incurred.

5.2 Site Audit and Comments

Site audits were taken by the Contractor from time to time in order to control different aspects of environmental impact from the construction site to minimum. Besides, weekly joint site walks lead by the senior staffs of MTRCL and the Contractor were carried out. Items concerned were raised and followed up for rectification as practicable as possible.

With reference to the collecting monitoring datas and field observations, environmental conditions of the works areas were said to be satisfactory in general. There were no exceedance of limit level of dust and noise control during this monitoring period.

As the concerned construction site, is located in the section of Nathan Road facing to Chungking Mansions and Imperial Hotel, the noise and dust level are mainly affected by the progressing pile piling works, the busy traffic on Nathan Road and the works activities performed on KCRC works sites at Mody Road and Middle Road. The noise levels measured at the agreed NSR were close to the allowable limits while the dust readings measured at the agreed ASR were in average below the action limits.

Contractor's performance on controlling solid and liquid waste on site were in general acceptable. The Contractor have reasonably undertaken preventative measures to control the waste generation to minimum. Test results of the samples taken from the desilted site water by the Contractor were found acceptable.

5.3 Proponent's Contacts and Hotline Telephone Number

The Main Contractor and Environmental Team have assigned the following persons as the first contact points in case of non-compliance of the environmental quality performance limits.

Mr. Danny Cheng	Environmental Manager of Kumagai Gumi	Site Office: 3190-5041 Mobile: 2208-7220
Mr. Takakeyima	Project Manager of Kumagai Gumi	Site Office: 2208-7220
Dr. Glenn Frommer	Sustainability Development Manager of MTRCL	Site Office: 2993-3543

6 **CONCLUSION**

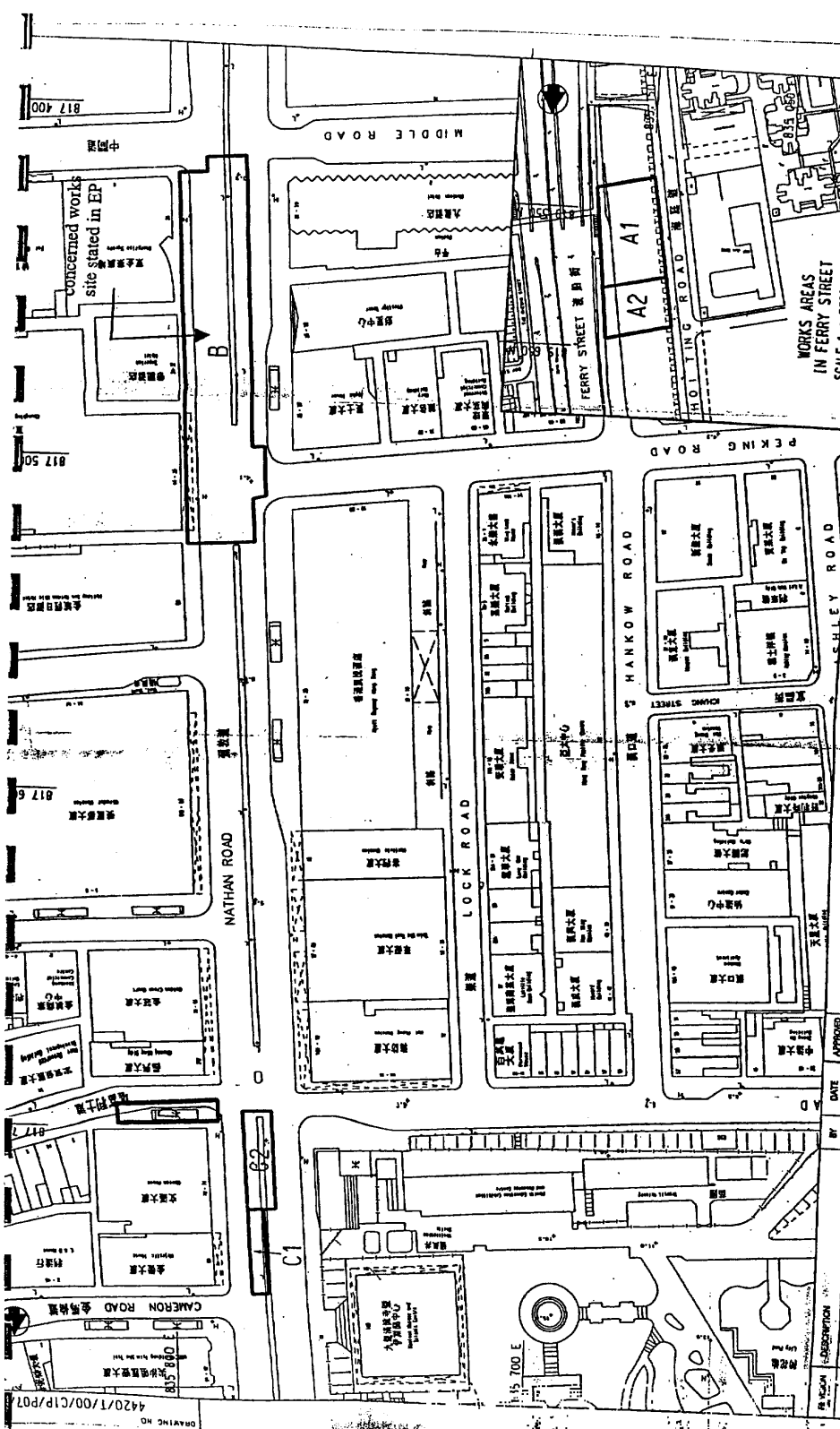
While different aspects of major civil work activities were carried out during this reporting period, the Contractor had reasonably provided their effort on close supervision and monitoring on environmental impacts generated from the construction works including noise, dust and water pollution.

Regular co-ordination meetings and joint site audits lead by the senior staffs from MTRCL and the Contractor were continuously held to discuss different aspect of environmental problems observed. Action items were raised and followed up by the Contractor as practicable as possible. Under the co-operation between the site staffs of MTRCL and the Contractor, there were only two formal complaints on site environmental have been received since the commencement of the construction works on June 2002.

Appendix A

Reference Figures

- Location of the works areas (Figure TSTEMA-001)
- Environmental Management Team (Figure TSTEMA-002A)
- Air Monitoring Station (Figure TSTEMA-004)
- Noise Monitoring Station (Figure TSTEMA-005)



4420/T/00/CI/P/P07
 CONCERNED WORKS
 site stated in EP

地鐵公司
MTR Corporation

ORIGINATOR
 MTR Corporation Limited
 PROJECT DIVISION

SCALE
 1 : 1000 (A3)
 1 : 2500 (A3)

DATE
 24.08.01

BY
 CHK 28.09.01

APPROVED
 JRT

CONTRACT 4420
 KEY PLAN OF WORKS AREAS
 APPENDIX "1"

WORKS AREAS
 IN FERRY STREET
 SCALE 1 : 2500 (A3)

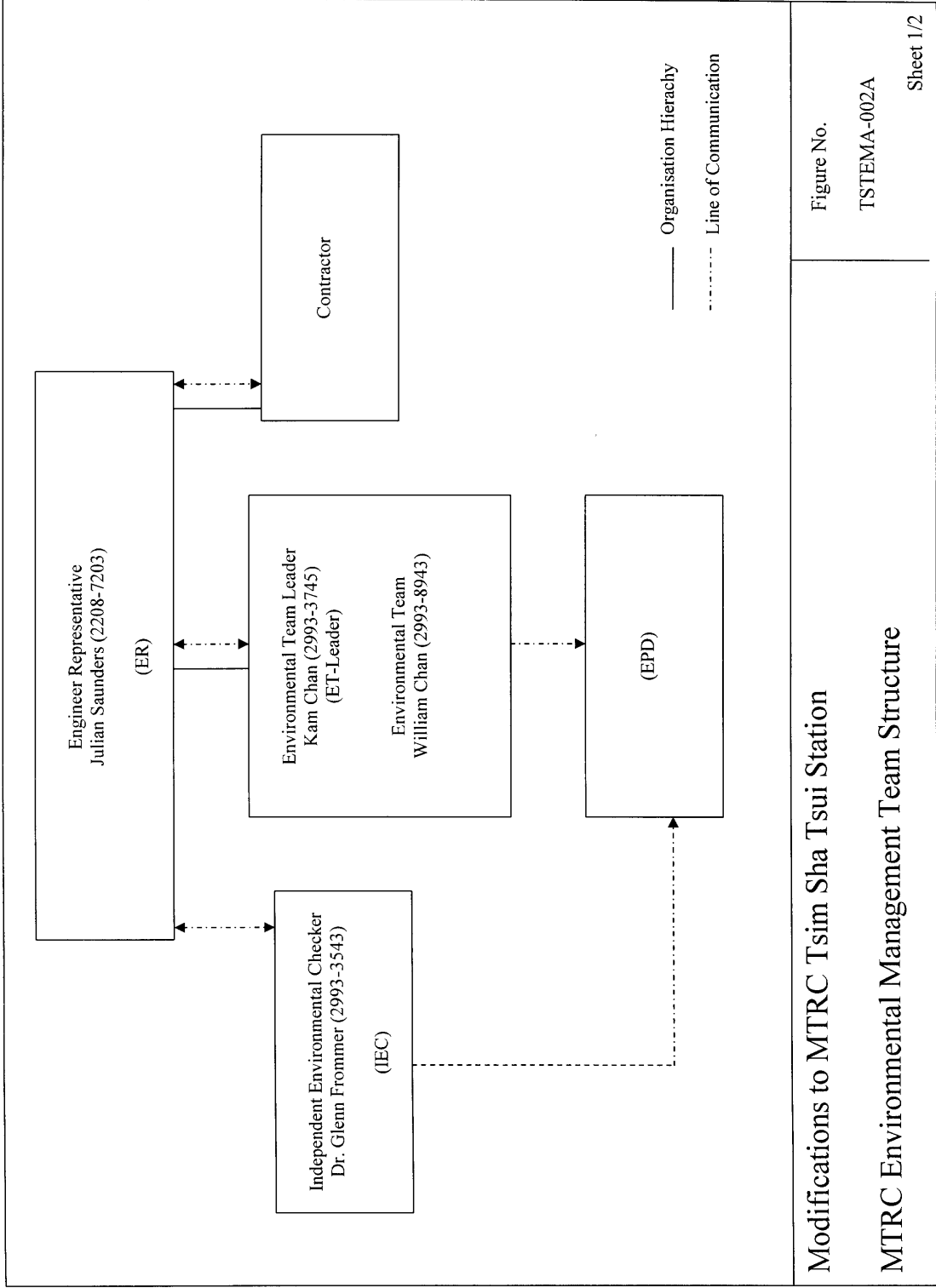
Figure No.
 TSTEMA-001

MTR TOWER
 TELFORD PLAZA - KOWLOON BAY
 HONG KONG
 TEL: 2863 2111 FAX: 2798 8822

SCALE	1 : 1000 (A3)	CHK REF	CHK
DATE	24.08.01	AS BUILT	CHK
DRAWN	LFB	DESIGNED	CHK
CHECKED	CHK	APPROVED	JRT

PROJECT DIVISION
 CIVIL PLANNING SECTION

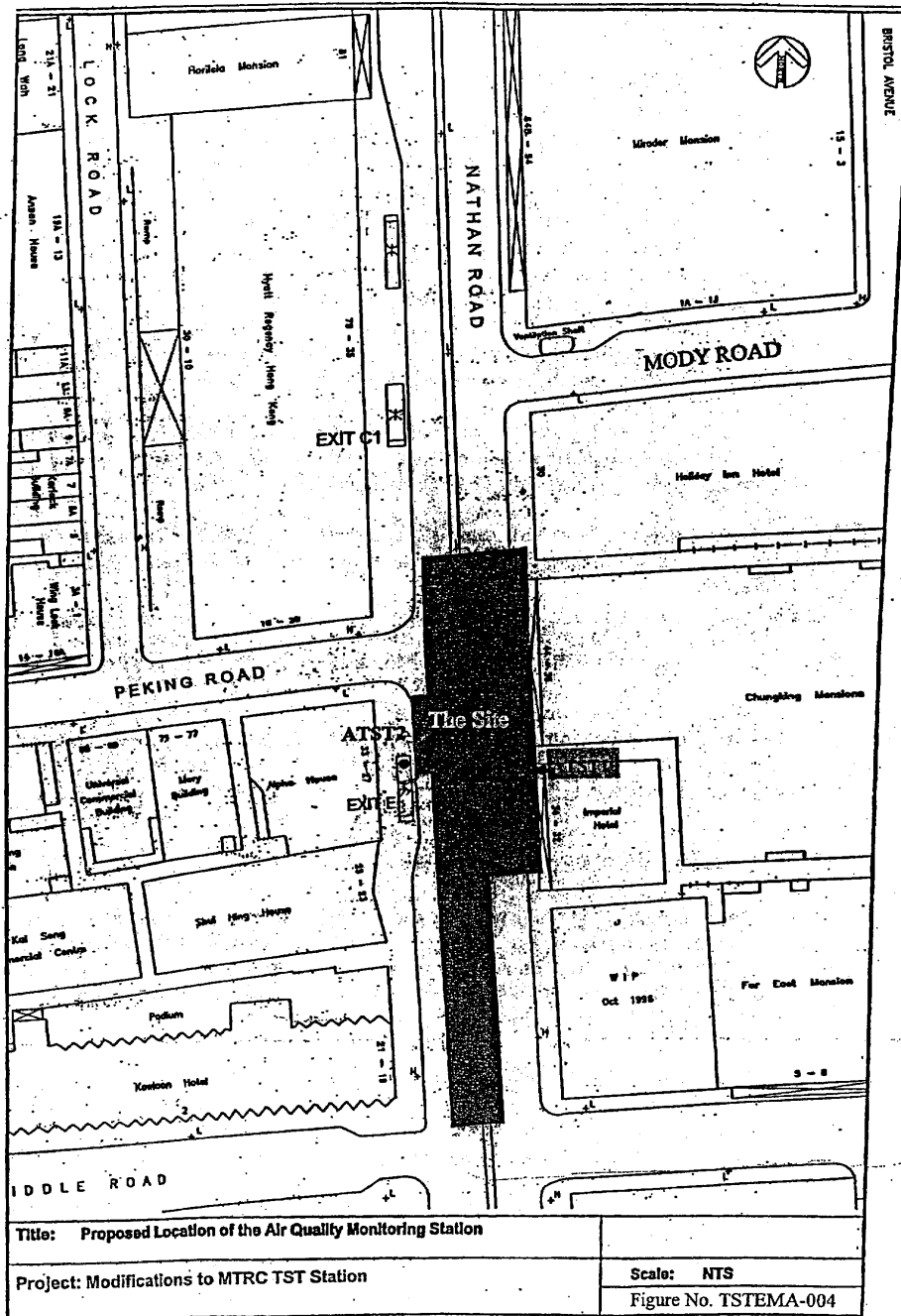
FOR THE USE OF THE CONTRACTOR AS SHOWN ON THE
 CONTRACT DOCUMENTS AND NOT TO BE USED FOR ANY OTHER PURPOSE.
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION
 PROVIDED TO HIM BY THE CLIENT AND FOR THE ACCURACY OF HIS OWN INFORMATION.

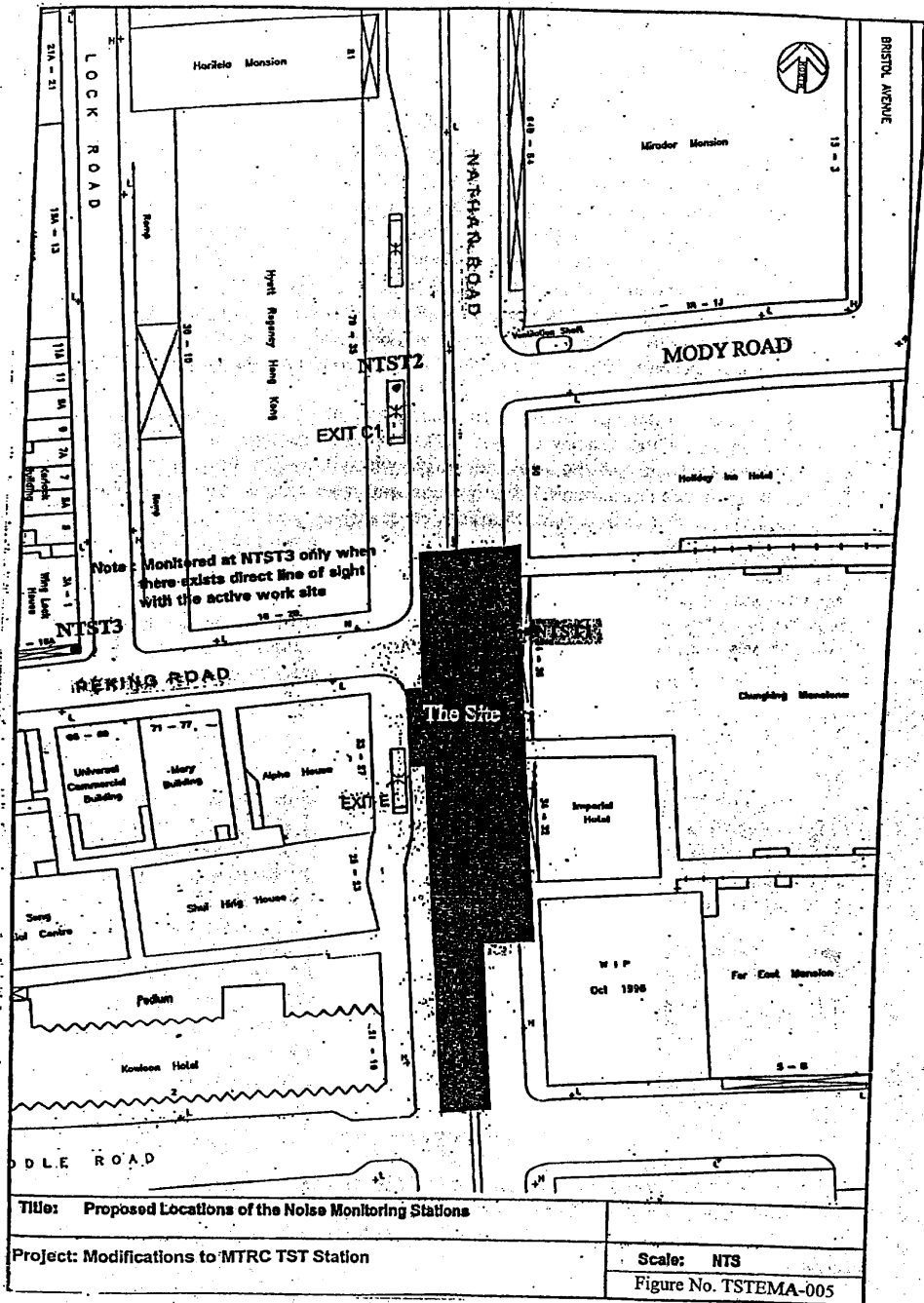


Modifications to MTRC Tsim Sha Tsui Station

MTRC Environmental Management Team Structure

Figure No.
TSTEMA-002A
Sheet 1/2



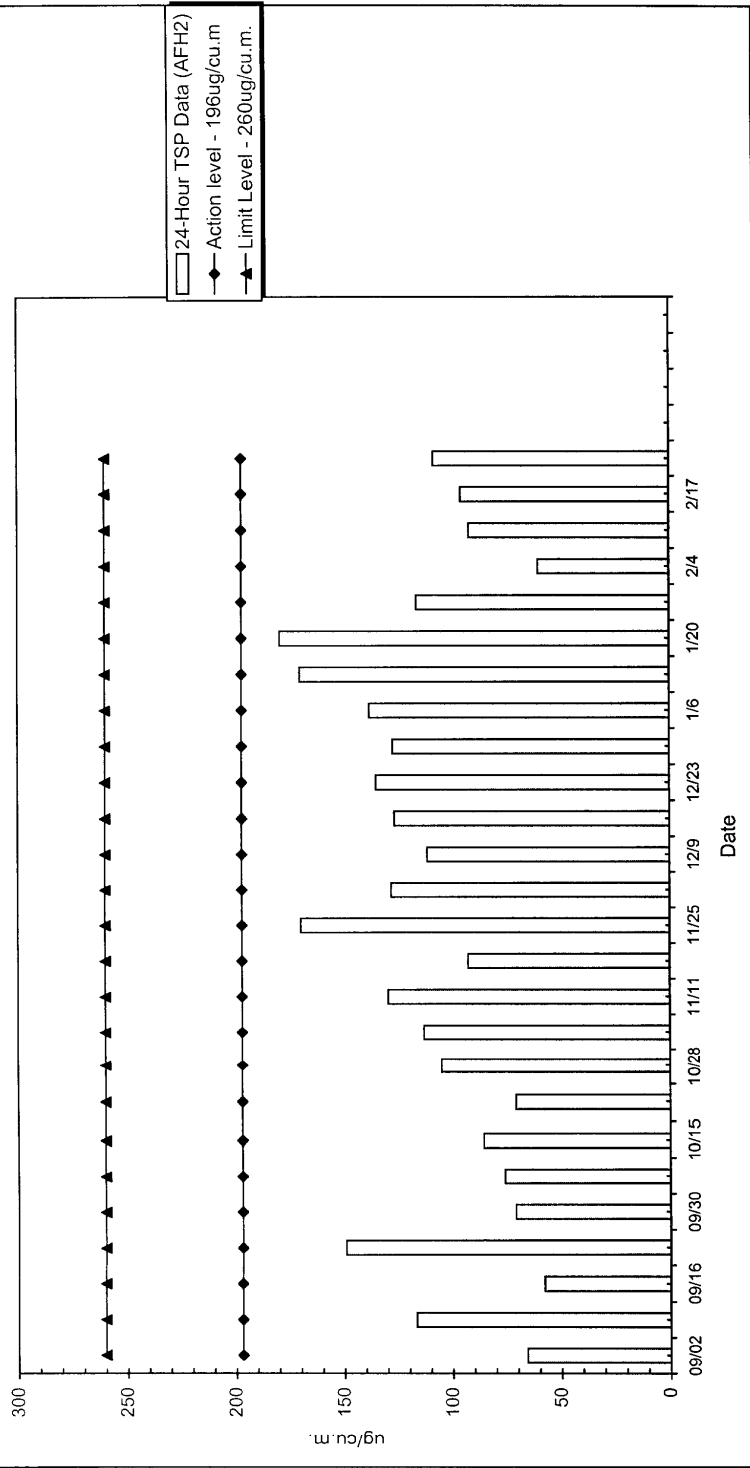


Appendix B

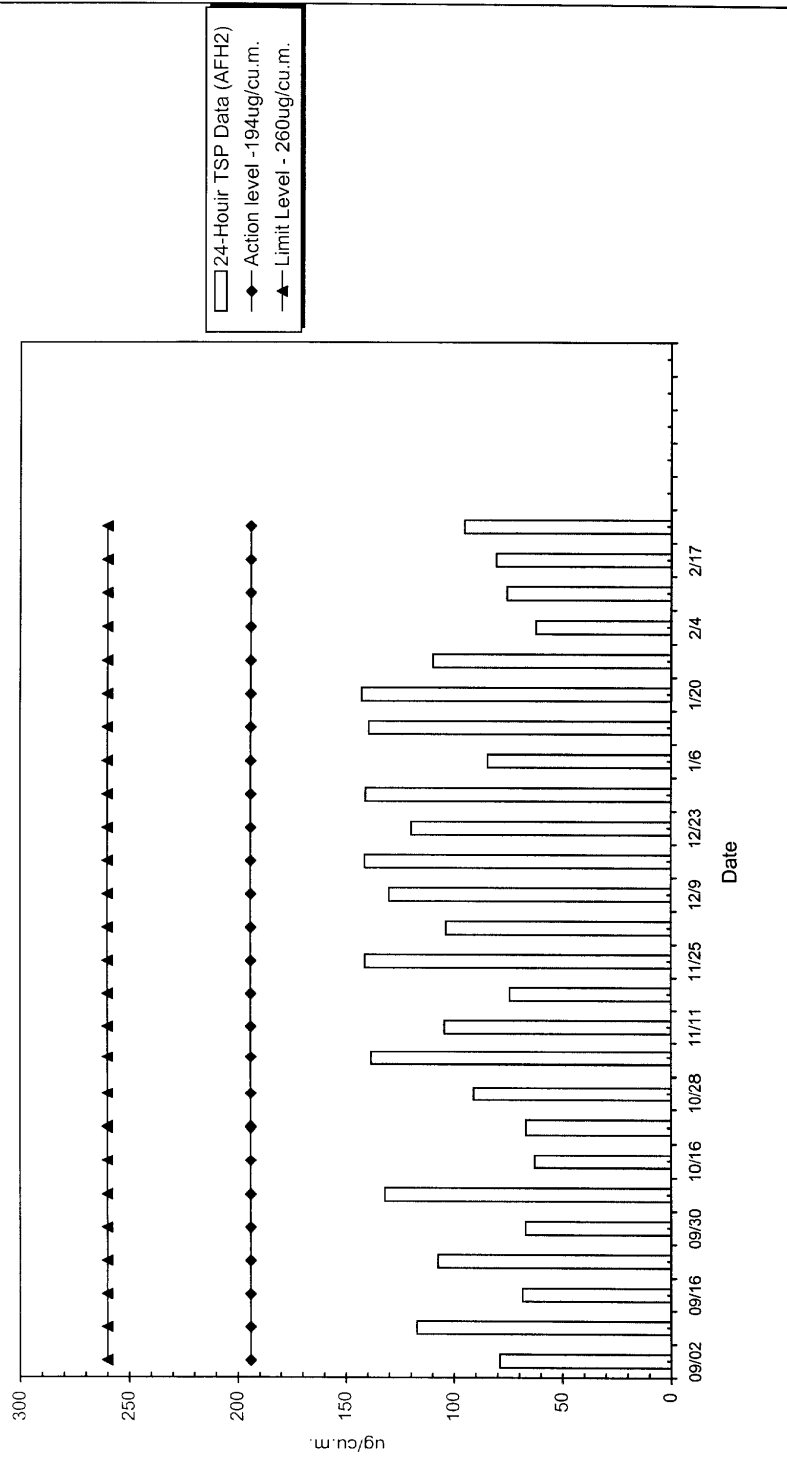
Environmental Monitoring Datas/Charts

- Chart for Noise Level at NTST1
- Chart for Noise Level at NTST2
- Chart for Noise Level at NTST3
- Chart for Dust Level at ATST1
- Chart for Dust Level at ATST2

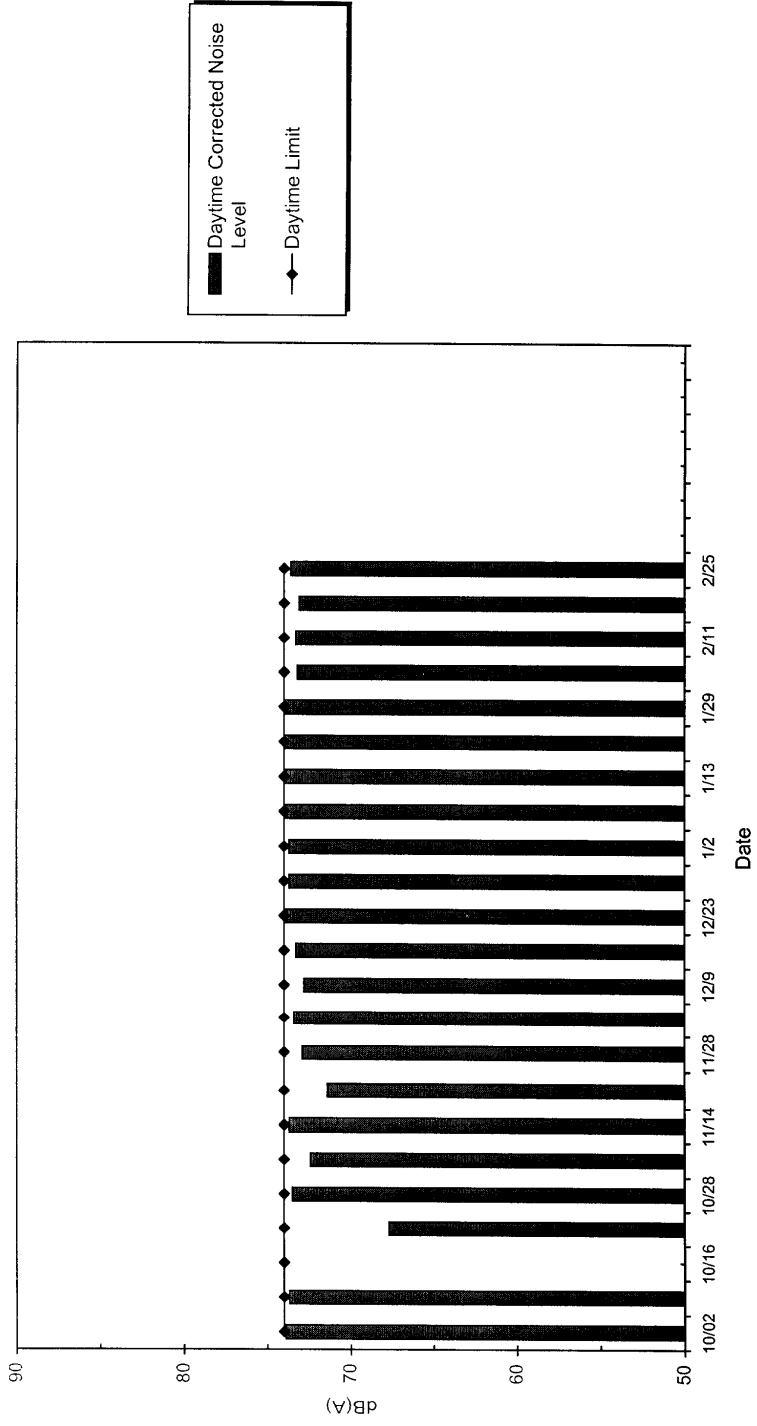
TST-C4420 24-Hour TSP Level at Imperial Hotel Canopy (Sept 2002 to Feb 2003)



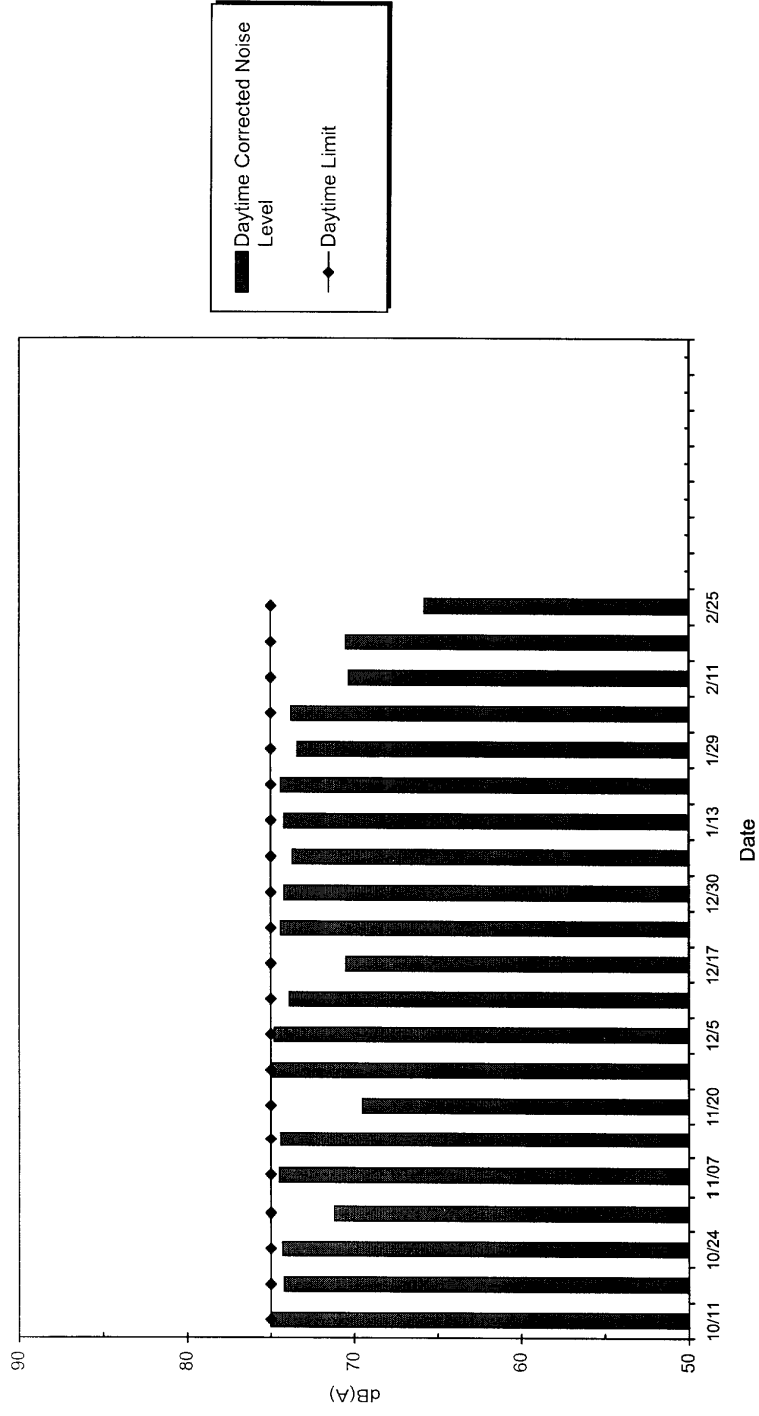
TST-C4420 24-Hour TSP Level at TST Station ExIT E (Sept. 2002 to Feb 2003)



TST-C4420 Noise Level at Monitoring Station NTS1 (Dec 02 to Feb 03)



TST-C4420 Noise Level at Monitoring Station NTST2 (Dec 02 to Feb 03)



TST-C4420 Noise Level at Monitoring Station NTST3 (Dec 2002 to Feb 03)

