

**Civil Engineering & Development Department
NT EAST Development Office**

Contract No. ST89/02

Sha Tin Heights Tunnel and Approaches

**Environmental Monitoring and Audit
Quarterly Report (Version 1.0)**

November 2004 to January 2005

Certified By


(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

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EXECUTIVE SUMMARY

1. This is the ninth Environmental Monitoring and Audit (EM&A) Quarterly Summary Report prepared by Cinotech Consultants Limited for the “Sha Tin Heights Tunnel and Approaches” (the Project). This summary report presents EM&A works performed in the period between November 2004 to January 2005.
2. The construction activities undertaken in this reporting quarter were:
 - Excavation works;
 - Backfilling;
 - Tunneling;
 - Bored pile foundation;
 - Construction of Retaining Wall; and
 - Drainage works

Environmental Monitoring Works

3. Environmental monitoring for the Project was performed regularly as stipulated in the EM&A Manuals and the results were checked and reviewed. Site audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

Air Quality

1-hr TSP Monitoring

4. All 1-hour TSP monitoring was conducted as scheduled except at Garden Villa air monitoring location in this reporting quarter. 1-hour TSP air monitoring at such location has been suspended from 20 December 2004 due to the noise nuisance generated to the residents. Another suitable location for air monitoring was chosen. We are now arranging the installation and power connection of the air monitoring equipment.
5. Action level exceedance was recorded at A3 on 26 January 2005.
6. Limit level exceedance was recorded at A2 on 28 January 2005.
7. According to our field observation, the exceedance on 26 January 2005 at A3 was believed due to the movement of mobile crane, excavator, lorry and roller at the construction site of T3. The exceedance on 28 January 2005 at A2 was due to the poor ambient air quality caused by smog and nearby traffic dust. Thus, there is no direct evidence showing such exceedances were due to the Project.

24-hr TSP Monitoring

8. All 24-hour TSP monitoring was conducted as scheduled except at Garden Villa air monitoring location. 24-hour TSP air monitoring at such location has been suspended from 7 December 2004 due to the noise nuisance generated to the residents during nighttime. Another suitable location for air monitoring was chosen. We are now arranging the installation and power connection of the air monitoring equipment. In addition, no monitoring result was also recorded at Shatin Heights monitoring station on 10 January 2005 due to the power disruption of the air monitoring equipment.

9. No Action/Limit Level exceedance was recorded in the reporting quarter.

Construction Noise

10. All construction noise monitoring was conducted as in this reporting quarter.
11. No Action/Limit Level exceedance was recorded in the reporting month.

Environmental Complaint and Prosecution

12. No environmental prosecution was recorded in the reporting quarter.
13. No environmental complaint was received in the reporting quarter.

Environmental Licensing and Permitting

14. License/Permits granted to the Project include the Environmental Permit (EP), Construction Noise Permits (CNP), Waste Disposal (Chemical Waste) License and Water Discharge Permit.
15. Total four CNPs (GW-RN0572-04, GW-RN0637-04, GW-RN0690-04 and GW-RN0691-04) were issued by EPD in the reporting quarter.

Future Key Issues

16. Excavation works, drainage works and tunneling works will be the major construction activities for the coming quarter. The anticipated environmental impact will be mainly on fugitive dust emission during present dry season.

1. INTRODUCTION

- 1.1 Sha Tin Heights Tunnel and Approaches (SHT) (hereinafter called the “Project”) forms part of the Route 9 (Formerly Route 8) between Cheung Sha Wan and Sha Tin project, which will be a new expressway connecting west Kowloon and Sha Tin. The Project, the entrusted portion of the Route 9 (Formerly Route 8) project, is being managed and implemented by Civil Engineering & Development Department (CEDD).
- 1.2 The Project works mainly comprise the site formation for a toll plaza at the valley of Sha Tin Heights, the construction of 1 km long dual three-lane tunnels under Sha Tin Heights, a 0.6 km long dual two-lane tunnel approach road in Tai Wai, two slip road viaducts with approximately total length of 1 km connecting to Che Kung Miu Road, associated noise barriers and noise enclosures, drainage, slope works and landscape works. The remainder of the Route 9 (Formerly Route 8) (Main Portion, R9K) project forms the Kowloon Section and is being managed and implemented separately by Highways Department.
- 1.3 The Project is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 449, EIAO). An environmental impact assessment (EIA) report has been prepared in 1998 for the Route 9 (Formerly Route 8) project to consider the key issues of noise, air quality, water quality, ecological, construction waste, landscape and visual, land use and culture impacts, and identify possible mitigation measures. An updated Final EIA report was subsequently completed in August 1999 to cater for some changes in the main portion. The 1998 and 1999 Route 9 (Formerly Route 8) EIA (R9 EIA Reports) reports were included in the EIA register under the EIAO as report number EIA-135/BC and AEIAR-022/1999 respectively. EM&A Manuals for each of the R9 EIA reports were also included as part of the EIA reports in the register.
- 1.4 Subsequent to the endorsement of the R9 EIA reports by EPD in November 1999, the R9 project was deferred to start in 2002/2003 for completion by 2006/07. The implementation of the Route 9 (Formerly Route 8) project was then separated into the SHT and R9K portions. Meanwhile further design amendments had also been proposed for the SHT during the detailed design stage to resolve various engineering constraints. In view of these changes, an Environmental Review on the SHT was undertaken to update the findings of the R9 EIA reports. The Environmental Review report for R9S was completed in September 2001 and an Environmental Permit No. EP-104/2001 was issued on 4th October 2001 for the Project.
- 1.5 The works of the SHT is constructed under CEDD’s construction Contract No. ST 89/02 “Sha Tin Heights Tunnel and Approaches”. The site layout of the Project is shown in Figure 1.
- 1.6 Cinotech Consultants Limited (Cinotech) was commissioned by CEDD to undertake the Environmental Team (ET) Services for the Project. This is the ninth Quarterly EM&A report summarizing the EM&A works for the Project between November 2004 to January 2005.

2. PROJECT CHARACTERISTICS

Project Organization and Contacts of Key Management

- 2.1 An organization structure and the line of communication were set up for the Project between the CEDD, Engineer Representative (ER), Independent Environmental Checker (IEC), the Contractor and Environmental Team (ET). The organization chart and contact details are shown in Appendix A and Figure 3.

Construction Programme and Synopsis of Work

- 2.2 The construction programme is presented in Appendix B. The site activities during the reporting period are summarized in Table 2.1.

Table 2.1 Summary of Works Undertaken in the Reporting Months

Item	Work Activity	Month		
		November 04	December 04	January 05
1.	Excavation works	✓	✓	✓
2.	Backfilling	✓	✓	✓
3.	Tunneling	✓	✓	✓
4.	Bored pile foundation	✓	✓	✓
5.	Construction of Retaining Wall	✓	✓	✓
6.	Drainage works	✓	✓	✓

3. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Monitoring Parameters and Monitoring Locations

- 3.1 The EM&A Manuals designate locations for the ET to monitor environmental impacts in terms of air quality and noise due to the Project. The Project area and monitoring locations are depicted in Figures 2a and 2b. Appendix C gives details of monitoring requirements.

Monitoring Methodology and Calibration Details

- 3.2 Monitoring works/equipments were conducted/calibrated regularly in accordance with the EM&A Manuals. Copies of calibration certificates are attached in the appendices of the Monthly Reports.

Environmental Quality Performance Limits (Action and Limit Levels)

- 3.3 The environmental quality performance limits, i.e. Action and Limit Levels were derived from the baseline monitoring results. Should the measured environmental quality parameters exceed the Action/Limit Levels, the respective action plans would be implemented. The Action/Limit Levels for each environmental parameter are given in Appendix D.

Environmental Mitigation Measures

- 3.4 Relevant mitigation measures as recommended in the project EIA report have been stipulated in the EM&A Manuals for the Contractor to implement. A list of mitigation measures is given in Appendix E.

4. MONITORING RESULTS

4.1 The summary exceedance report in this reporting quarter is presented in Appendix J.

Weather Conditions

4.2 The weather during monitoring sessions was mainly sunny or cloudy. The weather conditions for each individual monitoring session were presented in the field record sheets.

Air Quality

4.3 All 1-hr and 24-hr TSP monitoring was conducted as scheduled during the reporting period except the air monitoring location at Garden Villa. 1-hour and 24-hour TSP air monitoring at such location have been suspended from 20 and 7 December 2004 respectively due to the noise nuisance generated to the residents. Another suitable location for air monitoring was chosen. We are now arranging the installation and power connection of the air monitoring equipment.

4.4 Action level exceedance was recorded at A3 on 26 January 2005 and Limit level exceedance was recorded at A2 on 28 January 2005.

4.5 According to our field observation, the exceedance on 26 January 2005 at A3 was believed due to the movement of mobile crane, excavator, lorry and roller at the construction site of T3. The exceedance on 28 January 2005 at A2 was due to the poor ambient air quality caused by smog and nearby traffic dust. There is no direct evidence showing such exceedances were due to the Project.

4.6 The monitoring data of 1-hr and 24-hr TSP Levels are shown in the appendices of the Monthly Reports. The graphical presentations of the monitoring results are shown in Appendix F.

Noise

4.7 All construction noise monitoring was conducted as scheduled during the reporting quarter.

4.8 No Action/Limit Level exceedance was recorded in the reporting quarter.

4.9 The noise monitoring data are attached in the appendices of the Monthly Reports. The graphical plots of the noise monitoring results in this reporting quarter are shown in Appendix G.

5. AUDIT RESULTS

Implementation Status of Environmental Mitigation Measures

- 5.1 The implementation status of environmental mitigation measures (EMIS) is given in Appendix G.

Site Audit Summary

Water Quality

- 5.2 Stagnant water was found at South Portal Building and in u-channel at Portion 3C. The Contractor was reminded to remove stagnant water on site more frequently.
- 5.3 The Contractor was reminded to clean the sediment tank more frequently at Portion 8. All the de-silting facilities should be maintained in a good working condition.
- 5.4 The Contractor was reminded to provide a sedimentation tank to settle groundwater before discharging out from the site at Che Kung Miu Road.

Air Quality

- 5.5 Dusty material was generated from rock breaking process by backhoe was observed at Portion 2C. Such event was rectified by Contractor immediately. The Contractor was reminded to provide sufficient dust control on site especially for present dry season.
- 5.6 Fugitive dust was generated during rock breaking process by backhoe at Portion 2B and drilling works at Portion 9. The Contractor was reminded to provide sufficient dust control on site especially for present dry season.
- 5.7 Fugitive dust emission from loading rock material was observed at Portion 9 (rock stockpile). The Contractor was reminded to increase the watering frequency for dust suppression.

Chemical and Waste Management

- 5.8 Oil drums placed on bare ground were observed at Portion 9, Che Kung Miu Road near KCRC station and North Portal Building. The Contractor was reminded to provide drip trays for oil drum(s).
- 5.9 General refuses were found at Portal Building (South Portal) and steel bending yard near Portion Building. The Contractor was reminded to remove the refuse regularly.
- 5.10 C & D waste was found at retaining wall G. The Contractor was reminded to remove the C & D waste more frequently.
- 5.11 Empty chemical drum placed on bare ground was found at South Portal Building. The Contractor was reminded to provide a drip tray for all oil and fuel storage.

Noise

- 5.12 The noise label posted on an air compressor at Che Kung Miu Road was found damaged. The Constructor was reminded to provide a proper noise label for each air compressor.

Permit / Licenses

- 5.13 No violation was observed during these subsequent site inspections.

Status of Environmental Licensing and Permitting

- 5.14 Environmental licenses and permits including Environmental Permit for the Project, Construction Noise Permits (CNPs), Waste Disposal (Chemical Waste) License and Water Discharge Permit were in place and valid during this reporting quarter. A summary status of licenses and permits is given in Appendix H.

Advice on Solid Waste Management Status

- 5.15 The solid waste generated from the Project site office was mainly general refuse that was collected by a licensed collector on an as need basis.

6. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS)

Summary of Exceedances

1-hr TSP

- 6.1 Action level exceedance was recorded at A3 on 26 January 2005.
- 6.2 Limit level exceedance was recorded at A2 on 28 January 2005.
- 6.3 According to our field observation, the exceedance on 26 January 2005 at A3 was believed due to the movement of mobile crane, excavator, lorry and roller at the construction site of T3. The exceedance on 28 January 2005 at A2 was due to the poor ambient air quality caused by smog and nearby traffic dust. There is no direct evidence showing such exceedances were due to the Project.
- 6.4 No Action/Limit Level exceedance due to the Project was recorded in the reporting quarter.

24-hr TSP

- 6.5 No Action/Limit Level exceedance was recorded in the reporting quarter.

Noise

- 6.6 No Action/Limit Level exceedance was recorded in the reporting quarter.

Review of the Reasons for and the Implications of Non-compliance

- 6.7 There was no non-compliance from the site audits in this reporting quarter. The observations and recommendations made in each individual site audit session were attached in the Monthly Reports.

Summary of Actions Taken

- 6.8 In this reporting quarter, the following mitigation measures were implemented:
- Drip trays for oil storage of oil buckets have been provided;
 - Excavated/dusty materials have been covered by tarpaulin or water sprayed;
 - Wheel washing facilities were provided;
 - Groundwater pumped out was recycled via sediment tanks; and
 - ‘AquaSep’ has been setup to incorporate with the modified desilting system.

7. ENVIRONMENTAL COMPLAINTS

Complaints Log

- 7.1 All complaints have been handled in accordance with the EM&A Manuals. The implementation status of the complaint handling procedure is summarized in Appendix I.
- 7.2 One complaint was received in the reporting period.
- 7.3 Such complaint was received on 1 December 2004 at 23:12. The complainant complained the construction noise emitted after 19:00 from the construction site which near K. K. Terrace.
- 7.4 According to the RSS and the Contractor, one unit Rock Drill (hydraulic) was operated inside T1N tunnel and one unit Pneumatic Breaker was operated inside T2N tunnel during the time period of 19:00-23:00 on 1 December 2004. These two plants were operated in different tunnel and at staggered time. All the tunneling works should be conducted within a fully enclosure situation by closing the blasting door entirely. The Contractor did comply with the CNP conditions on the time of concern.
- 7.5 In addition, no shotcreting works were conducted during the time period of 19:00-23:00 on 1 December 2004. As such, no concrete lorry mixer had traveled through Temporary Access Road No. 3 which is near K. K. Terrace during such period.
- 7.6 There is insufficient evidence to establish the complaint based on the available information from the “Notice of Complaint”, the RSS, the Contractor and monitoring records.
- 7.7 It is recommended the Contractor should notify the nearby residents in advance with the working schedule of construction work during restricted hours and strictly comply with all noise mitigation measures.

8. NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

- 8.1 No environmental prosecution was recorded in the reporting quarter.

9. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

- 9.1 Excavation works, drainage works and tunneling works will be the major construction activities for the coming quarter. The anticipated environmental impact will be mainly on surface runoff and construction dust due to the transition of wet season to dry season.