

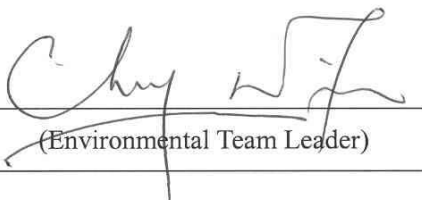
**Territory Development Department  
NT EAST Development Office**

**Contract No. ST89/02**

**Sha Tin Heights Tunnel and Approaches**

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

February to April 2004

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 fifth 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 February to April 2004.
2. The construction activities undertaken in this reporting quarter were:
  - Excavation works;
  - Backfilling;
  - Tunneling;
  - Soil nails installation;
  - 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-hr TSP monitoring was conducted as scheduled during the reporting period.
5. At Station A4 (Garden Villa), three (3) Action Level exceedances were recorded on 24<sup>th</sup> February, 24<sup>th</sup> March and 6<sup>th</sup> April 2004. According to ET’s investigation, the exceedances were due to the operation of excavators, dump trucks and loaders within the site area. Repeat measurements were conducted on 26<sup>th</sup> February, 26<sup>th</sup> March and 7<sup>th</sup> April 2004 respectively. No further exceedance was recorded and no further action is required.

##### 24-hr TSP Monitoring

6. All 24-hr TSP monitoring was conducted as scheduled during the reporting period.
7. Two (2) Action Level exceedances were recorded at Station A2 and A3 on 13<sup>th</sup> February 2004. However, the exceedances were due to poor ambient air quality which is not related to the Project.

#### *Construction Noise*

8. All construction noise monitoring was conducted as scheduled during the reporting month.
9. One (1) Limit Level exceedance was recorded at Station N7 (Lau Pak Lok Secondary School) on 9<sup>th</sup> February 2004. According to ET’s investigation, all the exceedance were due to the construction works of T3 and were not related to the Project.

**Environmental Complaint and Prosecution**

10. No environmental prosecution was recorded in the reporting quarter.
11. A total of one (1) complaint has been received in the reporting period. The complaint was about the dust nuisance generated from the Project at Shatin Heights. According to ET's investigation, the Contractor has enhanced mitigation measures. No non-compliance of dust level was recorded and observed after implementation of mitigations. The investigation report was submitted to EPD on 29<sup>th</sup> March 2004.

**Environmental Licensing and Permitting**

12. License/Permits granted to the Project include the Environmental Permit (EP), Construction Noise Permits (CNP), Waste Disposal (Chemical Waste) License and Water Discharge Permit.
13. A CNP (CNP No. GW-TN0197-04) was issued by EPD in the reporting quarter on 26<sup>th</sup> April 2004.

**Future Key Issues**

14. Excavation works, geotechnical works (soil nail), drainage works and site formation works will be the major construction activities for the coming quarter. The anticipated environmental impact will be mainly on dust and noise due to earthworks.

## 1. INTRODUCTION

- 1.1 Sha Tin Heights Tunnel and Approaches (SHT) (hereinafter called the “Project”) forms part of the Route 9 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 project, is being managed and implemented by Territory Development Department (TDD).
- 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 (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 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 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 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 4<sup>th</sup> October 2001 for the Project.
- 1.5 The works of the SHT is constructed under TDD’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 TDD to undertake the Environmental Team (ET) Services for the Project. This is the fifth Quarterly EM&A report summarizing the EM&A works for the Project between February and April 2004.

## 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 TDD, 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		
		Feb 04	Mar 04	Apr 04
1.	Excavation works	✓	✓	✓
2.	Backfilling	✓	✓	✓
3.	Tunneling	✓	✓	✓
4.	Soil nails installation	✓	-	-
5.	Bored pile foundation	✓	✓	✓
6.	Construction of Retaining Wall	-	✓	✓
7.	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.

4.4 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.

##### *1-hr TSP*

4.5 At Station A4 (Garden Villa), three (3) Action Level exceedances were recorded on 24<sup>th</sup> February, 24<sup>th</sup> March and 6<sup>th</sup> April 2004. According to ET's investigation, the exceedances were due to the operation of excavators, dump trucks and loaders within the site area. Repeat measurements were conducted on 26<sup>th</sup> February, 26<sup>th</sup> March and 7<sup>th</sup> April 2004 respectively. No further exceedance was recorded and no further action is required.

##### *24-hr TSP*

4.6 Two (2) Action Level exceedances were recorded at Station A2 and A3 on 13<sup>th</sup> February 2004. However, the exceedances were due to poor ambient air quality which is not related to the Project.

##### **Noise**

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

4.8 One (1) Limit Level exceedance was recorded at Station N7 (Lau Pak Lok Secondary School) on 9<sup>th</sup> February 2004. According to ET's investigation, all the exceedance were due to the construction works of T3 and were not related to the Project.

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 observed in the U-channel at Che Kung Mui Road. Improvement was observed in the follow-up audits.
- 5.3 At the site boundary between the Project “Eagle’s Nest Tunnel and Associated Works” (ENT) and the Project “Sha Tin Heights Tunnel and Approaches” (SHT), sufficient water treatment was provided by the Contractor of ENT and no muddy water discharge from ENT was observed at the audit session on 26<sup>th</sup> February 2004.
- 5.4 The Contractor was reminded to clear all water ponds after rainstorm.
- 5.5 In the audit session on 29<sup>th</sup> April 2004, the Contractor was reminded to frequent desilt the box culvert at Retaining Wall No.3.

##### *Air Quality*

- 5.6 At the audit session on 11<sup>th</sup> February 2004, the Contractor was reminded to increase the frequency of water spraying at Portion 9 and 3A. Improvement was observed at the audit session on 19<sup>th</sup> February 2004.
- 5.7 At the audit session on 19<sup>th</sup> February 2004, black smoke generated from a bulldozer was observed at South Portal. According to ER’s information, the situation has been rectified on the same day.
- 5.8 Good conditions on air quality were observed during the audit sessions in the reporting month. The Contractor was reminded to maintain this good practice during the construction phase.

##### *Chemical and Waste Management*

- 5.9 No environmental deficiency was observed during these subsequent site inspections.

##### *Noise*

- 5.10 No environmental deficiency was observed during these subsequent site inspections.

##### *Permit / Licenses*

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

**Status of Environmental Licensing and Permitting**

- 5.12 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**

- 5.13 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 At Station A4 (Garden Villa), three (3) Action Level exceedances were recorded on 24<sup>th</sup> February, 24<sup>th</sup> March and 6<sup>th</sup> April 2004. According to ET's investigation, the exceedances were due to the operation of excavators, dump trucks and loaders within the site area. Repeat measurements were conducted on 26<sup>th</sup> February, 26<sup>th</sup> March and 7<sup>th</sup> April 2004 respectively. No further exceedance was recorded and no further action is required.

#### *24-hr TSP*

- 6.2 Two (2) Action Level exceedances were recorded at Station A2 and A3 on 13<sup>th</sup> February 2004. However, the exceedances were due to poor ambient air quality which is not related to the Project.

#### *Noise*

- 6.3 One (1) Limit Level exceedance was recorded at Station N7 (Lau Pak Lok Secondary School) on 9<sup>th</sup> February 2004. According to ET's investigation, all the exceedance were due to the construction works of T3 and were not related to the Project.

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

- 6.4 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

- 6.5 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 at Portion 8 to incorporate with the modify 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 A total of one (1) complaint has been received in the reporting period. The complaint was about the dust nuisance generated from the Project at Shatin Heights. According to ET's investigation, the Contractor has enhanced mitigation measures. No non-compliance of dust level was recorded and observed after implementation of mitigations. The investigation report was submitted to EPD on 29<sup>th</sup> March 2004.

## **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, geotechnical works (soil nail), drainage works and site formation works will be the major construction activities for the coming quarter. The anticipated environmental impact will be mainly on surface runoff due to in wet season.