

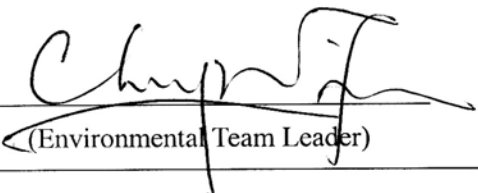
**Highways Department**

**Route 8 (previously known as Route 9) between  
Cheung Sha Wan & Sha Tin**

**Contract No. HY/2003/10 - Environmental Team for  
Lai Chi Kok Viaduct and Eagle's Nest Tunnel**

**Monthly EM&A Report  
Part II – Eagle's Nest Tunnel & Associated Works  
(Version 1.0)**

December 2006

Approved 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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## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
Introduction.....	1
Environmental Monitoring and Audit Works .....	1
Environmental Licenses and Permits.....	2
Key Information in the Reporting Month .....	2
<b>1. INTRODUCTION.....</b>	<b>3</b>
Background .....	3
Project Organizations.....	4
Construction Programme .....	4
Summary of EM&A Requirements .....	5
<b>2. AIR QUALITY.....</b>	<b>7</b>
Monitoring Requirements .....	7
Monitoring Locations .....	7
Monitoring Equipment.....	7
Monitoring Parameters, Frequency and Duration.....	7
Monitoring Methodology and QA/QC Procedure .....	8
Results and Observations.....	9
<b>3. NOISE.....</b>	<b>10</b>
Monitoring Requirements .....	10
Monitoring Locations .....	10
Monitoring Equipment.....	11
Monitoring Parameters, Frequency and Duration.....	11
Monitoring Methodology and QA/QC Procedures.....	11
Maintenance and Calibration .....	12
Results and Observations.....	12
<b>4. ENVIRONMENTAL AUDIT .....</b>	<b>13</b>
Site Audits.....	13
Review of Environmental Monitoring Procedures .....	13
Status of Environmental Licensing and Permitting .....	13
Implementation Status of Environmental Mitigation Measures .....	13
Summary of Exceedances .....	16
Implementation Status of Event Action Plans .....	17
Summary of Complaints and Prosecutions .....	17
<b>5. FUTURE KEY ISSUES.....</b>	<b>18</b>
Key Issues for the Coming Month.....	18
Monitoring Schedule for the Next Month.....	18
Construction Program for the Next Month .....	18
<b>6. CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>20</b>
Conclusions.....	20
Recommendations.....	20

## **LIST OF TABLES**

Table I	Summary Table for Events Recorded in the Reporting Month
Table II	Summary Table for Key Information in the Reporting Month
Table 1.1	Key Project Contacts
Table 2.1	Locations for Air Quality Monitoring
Table 2.2	Air Quality Monitoring Equipment
Table 2.3	Impact Dust Monitoring Parameters, Frequency and Duration
Table 3.1	Noise Monitoring Stations
Table 3.2	Noise Monitoring Equipment
Table 3.3	Noise Monitoring Parameters, Frequency and Duration
Table 4.1	Summary of Environmental Licensing and Permit Status
Table 4.2	Observations and Recommendations of Site Audit

## **LIST OF FIGURES**

Figure 1a	Locations of Monitoring Stations
Figure 1b	Locations of Monitoring Stations

## **LIST OF APPENDICES**

A	Action and Limit Levels for Air Quality and Noise
B	Copies of Calibration Certificates
C	Environmental Monitoring Schedules
D	Wind Data
E	1-hour TSP Monitoring Results and Graphical Presentations
F	24-hour TSP Monitoring Results and Graphical Presentations
G	Noise Monitoring Results and Graphical Presentations
H	Summary of Exceedance
I	Site Audit Summary
J	Event Action Plans
K	Environmental Mitigation Implementation Schedule (EMIS)
L	Construction Programme
M	Complaint Log

## **ABBREVIATION AND ACRONYM**

AL Levels	Action and Limit Levels
E / ER	Engineer/Engineer's Representative
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring and Audit
EMIS	Environmental Mitigation Implementation Schedule
EP	Environmental Permit
EPD	Environmental Protection Department
ET	Environmental Team
HVS	High Volume Sampler
IEC	Independent Environmental Checker
RE	Resident Engineer
RH	Relative Humidity
TSP	Total Suspended Particulates
TDD	Territory Development Department
QA/QC	Quality Assurance / Quality Control
SLM	Sound Level Meter
WMP	Waste Management Plan

## EXECUTIVE SUMMARY

### Introduction

- This is the 37<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for the “Route 8 (previously known as Route 9) between Cheung Sha Wan & Sha Tin, Lai Chi Kok Viaduct & Eagle's Nest Tunnel”. This report documents the findings of EM&A Works conducted in December 2006 for Contract No. HY/2003/02, Eagle's Nest Tunnel and Associated Works (the Project).
- The major site activities for civil works undertaken in the reporting month included soil nailing, road & drainage works, dampers, rendering earth works, cladding, fire services, hydro-mulching, retaining wall, louver installation/stone cladding DN200 DN200 twin water main, utility (draw pit/duct), cut slope & haul road, concreting of wing wall, watermain under portal building road work for NB tunnel, footbridge & toll collector construction, cabling work, laying of brick wall curtain wall/glazing installation, rock dowel, E&M cabling, sand backfilling, shotcreting and Tunnel Ventilation System.
- The major site activities for Traffic Control and Surveillance System (TCSS) works undertaken in the reporting month included:
  - Cable laying at SHT South Portal Building,
  - Cable laying at SHT North Portal Building
  - Cable laying at Tunnel
  - Cable laying at Butterfly Valley
  - Cable laying & control equipment installation at Administration Building
  - Cable laying at Ventilation Building

### Environmental Monitoring and Audit Works

- Environmental monitoring and audit works for the Project was performed regularly as stipulated in the EM&A Manual 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.
- Summary of events and actions taken in the reporting month is tabulated in **Table I**.

**Table I Summary of Events Recorded in the Reporting Month**

<i>Parameter</i>	<i>No. of Events</i>		<i>No. of Events Due to the Project</i>	<i>Action Taken</i>
	<i>Action Level</i>	<i>Limit Level</i>		
1-hr TSP	0	0	0	N/A
24-hr TSP	0	0	0	N/A
Noise	0	0	0	N/A

## Environmental Licenses and Permits

- Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, Registration of Chemical Waste Producer (RCWP), Construction Noise Permits (CNPs) and Water Discharge Licenses (WDLs). Total of 4 new CNPs were issued to the Project by EPD in the reporting month.

## Key Information in the Reporting Month

- Summary of key information in this reporting month is tabulated in **Table II**.

**Table II Summary Table for Key Information in the Reporting Month**

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Changes to the assumptions and key construction / operation activities recorded	0	---	N/A	N/A	---
Status of submissions under EP	0	---	N/A	N/A	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---
<b><u>Future Key Issues:</u></b>					
<p>Major site activities for civil works in the coming months include: Cut slope and haul road, road &amp; drainage works, rock dowel, TTA for watermains crossing Tai Po Road, Shotcreting, Earth works, Louvre, door installation &amp; stone cladding, louver &amp; door installation, louver/ cladding, door &amp; hand rail installation, louver installation/aluminium cladding lighting installation, VE panel, road work for NB tunnel, rock dowel, footbridge &amp; toll construction, door installation, rendering,, Plumbing &amp; drainage, E&amp;M cabling dmpers, dmpers, cladding, pumbing &amp; drainage, construction of car park shelter no.1, utility (ducting), painting (final), tunnel ventilation system, curtain wall, door &amp; glazing installation, shotcreting, vent shaft construction, fire services, hydro-mulching, testing of circuitry for tunnel lighting, high mast erection, T&amp;C for HV , LV cable &amp; switchboard, irrigation pipe and system, culvert A &amp; gabion wall, erection of sign gantries, lift installation, DN200 &amp; DN200 twin watermain, mechanical ventilation air condition, Tunnel Ventilation System.</p> <p>Major site activities for TCSS works in the coming months include: Cable-laying, field equipment installation and control equipment installation.</p> <p>The anticipated environmental issues will be mainly on dust impact from slope work, haul roads and soil nailing, noise nuisance from concreting and installation works.</p>					

## 1. INTRODUCTION

### Background

- 1.1 Route 9 (Kowloon Section) (R9K) (hereinafter call the R9K-Project) forms part of the Route 9 between Cheung Sha Wan and Sha Tin (R9-CSWST) project, which will be a new expressway connecting West Kowloon and Sha Tin. It will be the fourth external link between Sha Tin and Kowloon and will form an important link between the northeast New Territories and the west Kowloon, Lantau Island and the western New Territories. R9K is being managed and implemented by the Highways Department (HyD).
- 1.2 The engineering design of R9K is covered under Agreement No. CE 50/98 "Route 9 between Cheung Sha Wan and Sha Tin – Design Construction Assignment". The main consultant engaged under Agreement No. CE 50/98 is Maunsell Hyder Joint Venture (MHJV), who acts as the Engineer for the construction contracts. The works of R9K mainly comprise a 1.4km dual 3-lane Lai Chi Kok Viaduct from Lai Wan Interchange to Butterfly Valley; 0.5 km of dual 3-lane at-grade carriageway linking to the 2.1 km dual 3-lane twin-bore Eagle's Nest Tunnel with associated portal buildings; a toll plaza with an administration building located with the Sha Tin valley woodland; a ventilation building and an adit; associated noise barriers, noise enclosures, drainage, slope and landscape works; and electrical and mechanical works for the whole R9-CSWST. The remainder of the R9-CSWST forms the Sha Tin Section (R9S) of the project and is being managed and implemented separately by the Civil Engineering and Development Department (CEDD).
- 1.3 The R9-CSWST project is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO). An environmental impact assessment (EIA) report has been prepared in 1998 for the R9-CSWST project (1998 R9 EIA) to consider the key issues of noise, air quality, water quality, ecological, construction waste, landscape and visual, land use and cultural impacts, and identify possible mitigation measures.
- 1.4 An Updated Final EIA report was subsequently completed in August 1999 for the R9-CSWST project (1999 R9 EIA), to cater for some changes in R9K portion as mentioned in paragraph 1 of the report. The 1999 R9 EIA was endorsed by Environmental Protection Department (EPD) in November 1999. The 1998 R9 EIA and the 1999 R9 EIA (R9 EIA Reports) were included in the EIA register under the EIAO as report no. EIA-135/BC and AEIAR-022/1999 respectively. An Environmental Monitoring and Audit (EM&A) Manuals for each of the R9 EIA Reports (EM&A Manuals) were also included as part of the EIA reports in the register.
- 1.5 Subsequent to the endorsement of the R9 EIA Reports by EPD in November 1999, the project programme was deferred to start in 2002/2003 for completion by 2006/07. The implementation of the project was then separated into the R9S and R9K portion. An Environmental Permit (EP) No. EP-103/2001 was issued on 17 September 2001 for R9K to the HyD as Permit Holder and a varied EP No. EP-103/2001/A was subsequently issued on 20 May 2003 for R9K (R9K EP) to HyD as Permit Holder. A varied EP-103/2001/C was recently issued on 22 July 2005.

- 1.6 The major construction activities of two civil contracts of the R9K project, Contract No. HY/2003/01 entitled “Route 9 – Lai Chi Kok Viaduct” and Contract No. HY/2003/02 entitled “Route 9 – Eagle’s Nest Tunnel and Associated Works”, were commenced on 15<sup>th</sup> December 2003 for completion in April 2007.
- 1.7 “Route 9” was recently re-tiled as “Route 8 (previously known as Route 9)”. Cinotech Consultants Limited (Cinotech) was commissioned by HyD to undertake the Environmental Monitoring and Audit works for “Route 8 (previously known as Route 9) between Cheung Sha Wan and Sha Tin - Environmental Team (ET) for Lai Chi Kok Viaduct and Eagle’s Nest Tunnel (Contract No. HY/2003/10)”. Dr. Priscilla CHOY of Cinotech Consultants Ltd. was appointed as the ET Leader under Condition 2.2 of the EP. Mr. David YEUNG of CH2M HILL Hong Kong Ltd. was appointed as the IEC under Condition 2.1 of the EP. This is the 37<sup>th</sup> monthly EM&A report summarizing the EM&A works for the Project in December 2006.

### **Project Organizations**

- 1.8 Different parties with different levels of involvement in the project organization include:
- Project Proponent – Major Works Project Management Office (MWPMO) of Highways Department (HyD)
  - Engineer / Engineer’s Representative (E/ER) – Maunsell-Hyder Joint Venture (MHJV)
  - Environmental Team (ET) – Cinotech Consultants Limited
  - Independent Environmental Checker (IEC) – CH2M HILL Hong Kong Ltd.
  - Contractor – Leighton-Kumagai Joint Venture (LKJV)
  - Engineer’s Representative for TCSS works – Ove Arup & Partners Hong Kong Limited
  - Contractor for TCSS works – Delcan-Imtech-Gtech Joint Venture
- 1.9 The responsibilities of respective parties are detailed in Section 1.8.3 of the EM&A Manual (1999) of the Project.
- 1.10 The key contacts of the Project are shown in **Table 1.1**.

### **Construction Programme**

The major site activities for civil works undertaken in the reporting month included soil nailing, road & drainage works, dampers, rendering earth works, cladding, fire services, hydro-mulching, retaining wall, louver installation/ stone cladding DN200 DN200 twin water main, utility (draw pit/duct), cut slope & haul road, concreting of wing wall, watermain under portal building road work for NB tunnel, footbridge & toll collector construction, cabling work, laying of brick wall curtain wall/glazing installation, rock dowel, E&M cabling, sand backfilling, shotcreting and Tunnel Ventilation System.

- 1.11 The major site activities for TCSS works undertaken in the reporting month included:
- Cable-laying at SHT South Portal Building,
  - Cable-laying at SHT North Portal Building
  - Cable-laying at Tunnel
  - Cable-laying at Butterfly Valley
  - Cable-laying & control equipment installation at Administration building
  - Cable-laying at Ventilation Building



**Table 1.1 Key Project Contacts**

Party	Role	Name	Position	Phone No.	Fax No.
HyD	Permit Holder	Mr. Kroc Leung	SE2/R8K	2762 3662	2714 5198
		Mr. George Law	E4/R8K	2762 3675	
MHJV	Engineer	Mr. Conrad Ng	Project Manager	2605 6262	2691 2649
	Engineer's Representative	Mr. Peter Poon	CRE	3552 2500	2743 9200
		Mr. Eric Wong	RE (S & EP)	3552 2551	
		Ms. Sammie Chan	TO (EN)	3552 2605	
Cinotech	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089	3107 1388
		Mr. Jesse Yuen	Project Manager	2151 2091	
		Mr. Mitch Law	Project Coordinator	2151 2095	
		Mr. Ray Yan	Audit Team Leader	2947 8682	
		Mr. Henry Leung	Monitoring Team Leader	2151 2087	
CH2M	Independent Environmental Checker	Mr. David Yeung	Independent Environmental Checker	2507 2203	2507 2293
		Mr. Billy Yu	Assistant Independent Environmental Checker	2872 2949	
LKJV	Contractor	Mr. Ray Brewster	Project Director	9092 6128	2743 1600
		Mr. Danny Cheng	QA/E Manager	3552 2113	
ARUP	Engineer's Representative (TCSS)	Mr. Donald Leung	RE	2436 7489	2436 1803
		Mr. Joseph Chow	ARE	2436 7435	
DIGJV	Contractor (TCSS)	Ms. Joyce Chan	Quality Manager	2123 0845	2123 0889
Enquiries Hotline				3552 2226	-
Complaint Hotline				3552 2380	-

### Summary of EM&A Requirements

1.12 The EM&A programme requires construction phase monitoring for air quality and construction noise, and environmental site audit. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the project EIA study final report; and
- Environmental requirements in contract documents.

1.13 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 4 of this report.

- 1.14 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely dust and noise levels and audit works for the Project in the reporting month.

## 2. AIR QUALITY

### Monitoring Requirements

- 2.1 Monitoring of 1-hour and 24-hour TSP was conducted to monitor the air quality. The established Action/Limit Levels for the environmental monitoring works were shown in **Appendix A**.

### Monitoring Locations

- 2.2 Three designated monitoring stations, AM1, AM3 and AM4 was selected for impact dust monitoring for the Project. **Table 2.1** describes the air quality monitoring locations, which are also depicted in **Figure 1a** and **1b**.

**Table 2.1 Locations for Air Quality Monitoring**

Station	Description	Location
AM1	Yew Chung International School / PLK Choi Kai Yau School	Rooftop
AM3	Slope no. 07SW-D/FR4 near Garden Villa	On Ground
AM4	Government Quarters	Ground Floor <sup>1</sup>

Note: <sup>1</sup>The HVS was installed on the ground floor, which is close to the refuse collection station of the Government Quarters.

### Monitoring Equipment

- 2.3 **Table 2.2** summarizes the equipment used in the impact air monitoring programme. Copies of calibration certificates are attached in **Appendix B**.

**Table 2.2 Air Quality Monitoring Equipment**

Equipment	Model and Make	Quantity
Calibrator	GMW25; S/N: 1536	1
HVS Sampler	Graseby GMW Model GS2310 High Volume TSP Sampler and associated equipment and shelter	3

### Monitoring Parameters, Frequency and Duration

- 2.4 **Table 2.3** summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period. The air quality monitoring schedule for the reporting period is shown in **Appendix C**.

**Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration**

Parameters	Frequency
1-hr TSP	Three times / 6 days
24-hr TSP	Once / 6 days

### Monitoring Methodology and QA/QC Procedure

#### Instrumentation

- 2.5 Graseby GMW Model GS2310 TSP High Volume Sampler (HVS) was employed for 1-hour & 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50). Moreover, the HVS also met all the requirements in Sections 2.2 – 2.4 of the Updated EM&A Manual (1999).

#### Operating/Analytical Procedures

- 2.6 Operating/analytical procedures for the operation of HVS were as follows:
- A horizontal platform was provided with appropriate support to secure the samplers against gusty wind.
  - No two samplers were placed less than 2 meters apart.
  - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
  - A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
  - A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
  - No furnaces or incineration flues were nearby.
  - Airflow around the sampler was unrestricted.
  - The sampler was more than 20 meters from the drip line.
  - Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.
- 2.7 Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m<sup>3</sup>/min. and 1.4 m<sup>3</sup>/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50. For TSP sampling, fiberglass filters (G810) were used.
- 2.8 The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.
- 2.9 The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.

- 2.10 The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- 2.11 The shelter lid was closed and secured with the aluminum strip. The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number). After sampling, the filter was removed and sent to the laboratory for weighing. The elapsed time was also recorded.
- 2.12 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than  $\pm 3^\circ\text{C}$ ; the relative humidity (RH) should be  $< 50\%$  and not vary by more than  $\pm 5\%$ . A convenient working RH is 40%.

#### Maintenance/Calibration

- 2.13 The following maintenance/calibration was required for the HVS:
- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
  - High volume samplers were calibrated at bi-monthly intervals using GMW-25 Calibration Kit throughout all stages of the air quality monitoring.

#### **Results and Observations**

- 2.14 All TSP monitoring was conducted as scheduled in the reporting month.
- 2.15 No Action/Limit Level exceedance for both 1-hour TSP and 24-hour TSP was recorded in the reporting month.
- 2.16 Wind data monitoring equipment has been installed in Shatin Heights for logging wind speed and wind direction. These wind data is summarized in Appendix D.
- 2.17 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in Appendices E and F, respectively.

### 3. NOISE

#### Monitoring Requirements

- 3.1 Monitoring and audit of construction noise levels is required to be conducted, in accordance with the EM&A Manual, to ensure that any unacceptable noise impacts could be readily detected and timely and appropriate action be undertaken to rectify the situation.
- 3.2 The construction noise levels shall be measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ).  $L_{eq}$  (30min) shall be used as the monitoring parameter for the time period between 0700-1900 hours on normal weekdays. For all other time periods,  $L_{eq}$  (5min) shall be employed for comparison with the Noise Control Ordinance (NCO) criteria. As supplementary information for data auditing, statistical results such as  $L_{10}$  and  $L_{90}$  shall also be obtained for reference.
- 3.3 Three designated noise monitoring stations, namely NM1, NM5 & NM6 were selected for impact monitoring in accordance to the EM&A manual (1999) and the subsequent EPD approval of the relocations.
- 3.4 Noise monitoring is also required to be conducted at station NM7 in accordance with the EM&A Manual (1998). The noise monitoring at the station is required to be conducted under CEDD's construction Contract No. ST 89/02 "Sha Tin Heights Tunnel and Approaches" in accordance with the requirement of Environmental Permit No. EP104/2001/A. The impact noise monitoring results at station NM7 are also presented in this report.
- 3.5 **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

#### Monitoring Locations

- 3.6 Noise monitoring was conducted at four designated monitoring stations as summarized in Table 3.1. Figures 1a & 1b show the locations of these stations.

**Table 3.1 Noise Monitoring Stations**

Monitoring Station	Description	Location
NM1	Yew Chung International School / PKL Choi Kai Yau School	Rooftop
NM5	Villa Carlton	Ground Floor <sup>1</sup>
NM6	Government Quarters	Rooftop of Refuse Collection Station
NM7	Garden Villa	Rooftop

Note: <sup>1</sup> The noise measurement was taken at 2.3m above the ground floor of Villa Carlton, where has a line of sight of the construction site in the opposite.

## Monitoring Equipment

- 3.7 Table 3.2 summarizes the noise monitoring equipment model being used. Copies of calibration certificates are attached in **Appendix B**.

**Table 3.2 Noise Monitoring Equipment**

Equipment	Model and Make	Qty.
Integrating Sound Level Meter	B&K Model 2238	5
Calibrator	B&K 4231	2
Wind Speed Anemometer	RS232 Integral Vane Digital Anemometer	1

## Monitoring Parameters, Frequency and Duration

- 3.8 Table 3.3 summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix C**.

**Table 3.3 Noise Monitoring Parameters, Frequency and Duration**

Station	Parameter	Period <sup>1</sup>	Frequency	Measurement
NM1	L <sub>10</sub> (30 min.)dB(A) L <sub>90</sub> (30 min.)dB(A) L <sub>eq</sub> (30 min.)dB(A)	(a) 0700-1900 hrs. on weekdays (b) 1900-2300 hrs. on weekdays (c) 0700-2300 hrs. on holidays (d) 2300-0700 hrs on any days	Once per week	Façade
NM5				Façade
NM6				Free Field
NM7				Façade

Note: <sup>1</sup>(b), (c) and (d) will only be conducted if construction works are undertaken during these periods.

## Monitoring Methodology and QA/QC Procedures

- The Sound Level Meter was generally set on a tripod at a height of 1.2 m above the ground, depending to the actual monitoring condition.
- For free field measurement (if any), the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels were adjusted with a correction of +3 dB(A).
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - time measurement : 30 minutes / 5 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.

- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the  $L_{eq}$ ,  $L_{90}$  and  $L_{10}$  were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

### **Maintenance and Calibration**

- 3.9 The microphone head of the sound level meter and calibrator was cleaned with soft cloth regularly. The meters were sent to the supplier to check and calibrate on a yearly interval.

### **Results and Observations**

- 3.10 Noise monitoring was performed at the four designated locations as scheduled for the daytime period (0700-1900 hours) in this reporting month. Restricted-hour monitoring was also conducted at NM5, NM6 and NM7.
- 3.11 All the Construction Noise Levels (CNLs), except the monitoring (0700-1900 on weekdays) at NM1 and NM6, reported in this report were adjusted with the corresponding baseline level (i.e. Measured  $L_{eq}$  – Baseline  $L_{eq}$  = Measured CNL), in order to facilitate the interpretation of the noise exceedance.
- 3.12 Noise monitoring results and graphical presentations are shown in **Appendix G**.
- 3.13 No Action/Limit Level exceedance for noise monitoring was recorded in the reporting month.



#### 4. ENVIRONMENTAL AUDIT

##### Site Audits

- 4.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are provided in **Appendix I**.
- 4.2 Site audits for civil contract were conducted on 5<sup>th</sup>, 13<sup>th</sup>, 20<sup>th</sup> and 27<sup>th</sup> December 2006 by ET. Site audits for TCSS contract were conducted on 15<sup>th</sup>, 20<sup>th</sup> and 27<sup>th</sup> December 2006 by ET. No environmental deficiency was recorded for TCSS contract during site inspections. A joint site audit for civil works and TCSS works was conducted on 5<sup>th</sup> December 2006 with representatives from HyD, IEC, ER, the Contractor and ET.

##### Review of Environmental Monitoring Procedures

- 4.3 The monitoring works conducted by the monitoring team were inspected regularly. The following observations have been recorded for the monitoring works:

###### *Air Quality Monitoring*

- The monitoring team recorded all observations around the monitoring stations within and outside the construction site.
- The monitoring team recorded the temperature and weather conditions on the monitoring days.

###### *Noise Monitoring*

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- Major noise sources were identified and recorded. Other intrusive noise attributing to the result was trimmed off by pausing the monitoring temporarily.

##### Status of Environmental Licensing and Permitting

- 4.4 All permits/licenses obtained for the Project are summarized in **Table 4.1**. Total of 4 new CNPs were issued to the Project by EPD in the reporting month.

##### Implementation Status of Environmental Mitigation Measures

- 4.5 According to the Environmental Permit and the EM&A Manuals, the mitigation measures detailed in the documents are required to be implemented. An updated summary of the EMIS is provided in **Appendix K**.

**Table 4.1 Summary of Environmental Licensing and Permit Status**

Permit No.	Valid Period		Details	Status
	From	To		
<b>Environmental Permit (EP)</b>				
EP-103/2001/C	22/07/05	N/A	<p><u>Construction and operation of</u></p> <p>(a) All civil works (including highways, traffic, geotechnical, drainage, structural, architectural and landscaping works) for the Lai Chi Kok Viaduct, the interchange with Ching Cheung Road, the main road within Butterfly Valley and the Eagle's Nest Tunnel;</p> <p>(b) All E&amp;M works (including ventilation, Traffic Control &amp; Surveillance System (TCSS), toll collection system and lighting) for the whole Route 9 between Cheung Sha Wan and Sha Tin;</p> <p>(c) The permanent slope works above the northern portal of the Eagle's Nest Tunnel;</p> <p>(d) The architectural works (including fitting out and furnishings) of the portal buildings of the Sha Tin Heights Tunnel.</p>	Valid
<b>Registration of Chemical Waste Producer</b>				
WPN 5213-761-L2595-01	26/01/04	N/A	Regulation for disposal of spent oil and waste batteries arising from construction activities in all project areas.	Valid
<b>Water Discharge Licence</b>				
EP482/261/0327/I	03/05/04	31/05/09	Discharge of industrial trade effluent and effluent arising from construction activities at the construction site at Ventilation Adit on Tai Po Road (behind Shell Filling Station) opposite Pinehill Development Highways.	Valid
EP482/261/0326/I	01/04/04	30/04/09	Discharge of industrial trade effluent and effluent arising from construction activities at the construction site at Mui Kong Tsuen, Butterfly Valley, Lai Chi Kok, Kowloon.	Valid
No. 3156	23/02/04	22/02/09	Discharge of industrial trade effluent and all other wastewater arising from the works areas at North Portal of Route 9 – Eagle's Nest Tunnel and Associated Works (Contract HY/2003/02).	Valid
<b>Construction Noise Permit (CNP)</b>				
GW-RN0281-06	8/6/06	7/12/06	<p><i>Location:</i> Tunnel North Portal near Tai Po Road and Keng Hau Road</p> <p><i>Time period:</i> Any day between 2300 and 0700 on next day.</p>	Expired
GW-RN0282-06	8/6/06	7/12/06	<p><i>Location:</i> Tunnel South Portal near Garden Villa</p> <p><i>Time period:</i> Any day between 2300 and 0700 on next day.</p>	Expired
GW-RN0283-06	8/6/06	7/12/06	<p><i>Location:</i> Tunnel South Portal near Garden Villa</p> <p><i>Time period:</i> General holiday including Sundays between 0900 and 2300 and any day not being a general holiday including Sundays between 1900 and 2300.</p>	Expired

Permit No.	Valid Period		Details	Status
	From	To		
GW-RN0284-06	8/6/06	7/12/06	<i>Location:</i> Tunnel North Portal near Tai Po Road and Keng Hau Road <i>Time period:</i> General holiday including Sundays between 0900 and 2300 and any day not being a general holiday including Sundays between 1900 and 2300.	Superseded by GW-RN0473-06
GW-RW0392-06	6/8/06	5/2/07	<i>Location:</i> Tai Po Road Shell Petrol Filling Station and opposite to Villa Carlton <i>Time Period:</i> General holidays including Sundays between 0700-2300 and any day not being a general holiday between 1900-2300.	Valid
GW-RW0422-06	4/8/06	3/2/07	<i>Location:</i> Butterfly Valley <i>Time Period:</i> General holidays including Sundays between 0700-2300 and any day not being a general holiday between 1900-2300.	Valid
GW-RN0473-06	25/9/06	24/3/07	<i>Location:</i> Tunnel North Portal near Tai Po Road and Keng Hau Road <i>Time period:</i> General holiday including Sundays between 0700 and 2300 and any day not being a general holiday including Sundays between 1900 and 2300.	Valid
GW-RN0486-06	25/9/06	24/3/07	<i>Location:</i> ENT-North Portal <i>Time period:</i> Any day between 2300 and 0700 on next day.	Valid
GW-RN0487-06	10/10/06	9/4/07	<i>Location:</i> ENT-North Portal <i>Time Period:</i> General holidays including Sundays between 0700-2300 and any day not being a general holiday between 1900-2300.	Valid
GW-RN0488-06	10/10/06	9/4/07	<i>Location:</i> ENT-South Portal <i>Time Period:</i> Any day between 2300 and 0700 on next day.	Valid
GW-RN0489-06	10/10/06	9/4/07	<i>Location:</i> ENT-South Portal <i>Time Period:</i> General holidays including Sundays between 0700-2300 and any day not being a general holiday between 1900-2300.	Valid
GW-RN0492-06	11/11/06	10/5/07	<i>Location:</i> Administration Building <i>Time Period:</i> General holidays including Sundays between 0700-2300 and any day not being a general holiday between 1900-2300.	Valid
GW-RW0536-06	20/9/06	19/3/07	<i>Location:</i> Butterfly Valley <i>Time Period:</i> General holidays including Sundays between 0700-2300 and any day not being a general holiday between 1900-2300.	Valid
GW-RN0564-06	7/12/06	6/6/07	<i>Location:</i> SHT – South Portal Tunnel near Garden Villa <i>Time Period:</i> Any day between 2300-0700 on next day.	Valid (New)

Permit No.	Valid Period		Details	Status
	From	To		
GW-RN0565-06	8/12/06	7/6/07	<i>Location:</i> SHT – South Portal Tunnel near Garden Villa <i>Time Period:</i> General holidays including Sundays between 0700-2300 and any day not being a general holiday between 1900-2300.	Superseded by GW-RN0600-06 (New)
GW-RN0575-06	7/12/06	6/6/07	<i>Location:</i> SHT – South Portal Tunnel near Tai Po Road and Keng Hau Road <i>Time Period:</i> Any day between 2300-0700 on next day.	Valid (New)
GW-RN0600-06	18/12/06	17/6/07	<i>Location:</i> SHT - South Portal near Garden Villa <i>Time Period:</i> General holidays including Sundays between 0000-0700 and any day not being a general holiday between 1900-2400.	Valid (New)

- 4.6 No non-conformance was identified during the site inspections in the reporting month. The observations and recommendations are summarized in **Table 4.2**.
- 4.7 Spot checks on truck overloading were also conducted during the site inspections since June 2006. No overloading incident was observed during the site inspections in the reporting month.
- 4.8 The updated Waste Management Plan (Revision J) was certified by ET and verified by IEC on 11<sup>th</sup> December 2006.

#### **Summary of Exceedances**

##### *1-hr and 24-hr TSP Monitoring*

- 4.9 No Action/Limit Level exceedance for both 1-hour TSP and 24-hour TSP was recorded in the reporting month.

##### *Construction noise*

- 4.10 No Action/Limit Level exceedance for noise monitoring was recorded in the reporting month.

**Table 4.2 Observations and Recommendations of Site Audit for civil works**

<b>Parameters</b>	<b>Date</b>	<b>Observations / Recommendations</b>	<b>Remedial Actions</b>
<i>Air Quality</i>	5-Dec-06	<i>Reminder</i> - Stockpile of dusty material at Portion D4 near Shatin Heights Tunnel, which was being used during the inspection, was observed not to be covered properly. The Contractor was reminded to cover the stockpile properly once the works finished.	Rectification / improvement was observed during the site inspection on 13 December 2006.
<i>Waste/Chemical Management</i>	13-Dec-06	<i>Reminder</i> – Oil stain was observed on bare ground near Administration Building. The Contractor was reminded to clear the stain as soon as possible.	Rectification / improvement was observed during the site inspection on 20 December 2006.

**Implementation Status of Event Action Plans**

4.11 The Event Action Plans for air quality and noise are presented in **Appendix J**.

**Summary of Complaints and Prosecutions**

4.12 No environmental related complaint or prosecution was received in the reporting month.

4.13 There were 22 environmental complaints and no prosecution received since the commencement of the Project. The updated Complaint Log is shown in **Appendix M**.

## 5. FUTURE KEY ISSUES

### Key Issues for the Coming Month

5.1 Key issues to be considered in the coming months include:

- Potential dust emission from cut slope works and haul road construction at Butterfly Valley, soil nailing and vehicle movement on haul roads; and
- Noise generation from concreting and installation works at South Portal Building and Ventilation Building.

### Monitoring Schedule for the Next Month

5.2 The tentative environmental monitoring schedule for next month is shown in **Appendix C**.

### Construction Program for the Next Month

5.3 The tentative construction program for civil works is provided in **Appendix L**. The major construction activities for civil works in the coming months include:

#### *ENT Tunnel*

- VE panel, road work for NB tunnel, door installation, E&M cabling dampers, dampers, tunnel ventilation system, fire services and testing of circuitry for tunnel lighting

#### *Butterfly Valley*

- Cut slope and haul road, rock dowel, road and drainage works, DN200 & DN200 twin water-main, utility (Ducting), shotcreting, hydro-mulching, high mast erection, irrigation pipe & system, culvert A & gabion wall, erection of sign gantries.

#### *South Portal Building*

- Louvre & door installation, screeding, rendering, cladding, painting (final) plumbing & drainage, fire services, mechanical ventilation air condition, fire services, Tunnel Ventilation System and T&C for HV, LV cable & switchboard.

#### *North Portal Building*

- Louvre installation/stone cladding, rendering, plumbing & drainage, fire services, mechanical ventilation air condition, Tunnel Ventilation System, T&C for HV, LV cable & switchboard.

#### *Toll Plaza's Structures and Administration Building*

- Footbridge and Toll Collector construction, utility (draw pit/ ducting), drainage & road works, construction of car park shelter no.1, curtain wall & glazing installation, rendering, fire services mechanical ventilation air condition, plumbing & drainage, cabling, lift installation, T&C for HV, LV cable & switchboard and fire services.

*Ventilation Building & Tai Po Road*

- Louvre /cladding, door & handrail installation, vent shaft construction, rendering, earth works, TTA for watermain across Tai Po Road, plumbing & drainage, fire service, mechanical ventilation air condition, T&C for HV, LV cable & switchboard and Tunnel Ventilation System.

*SHT – South Portal Building*

- Louvre installation, aluminium cladding, screeding, rendering, tunnel ventilation system, plumbing & drainage, fire services, mechanical ventilation air conditioning, T&C for HV, LV cable & switchboard.

*SHT – North Portal Building*

- Louvre installation, aluminium cladding, screeding, rendering, tunnel ventilation system, plumbing & drainage, fire services, mechanical ventilation air conditioning, T&C for HV, LV cable & switchboard.

*SHT Tunnel & Remaining SHT/T3 Area*

- *Lighting installation, fire services & tunnel ventilation system.*

5.4 The tentative construction program for TCSS works is provided in **Appendix L**. The major site activities for TCSS works in the coming months include:

- Cable laying & field equipment installation at Tunnel
- Cable laying at Butterfly Valley
- Cable laying at Kiosk K3, K4
- Cable laying at South Portal Building
- Cable laying at North Portal Building
- Field equipment installation at Toll Plaza
- Cable laying & control equipment installation at Administration Building
- Control equipment at Ventilation Building

## 6. CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

- 6.1 Environmental monitoring works were performed in the reporting month and all monitoring results were checked and reviewed.
- 6.2 No Action/Limit Level exceedance for 1-hour TSP and 24-hours TSP was recorded in the reporting month.
- 6.3 No Action/Limit Level exceedance for noise monitoring was recorded in the reporting month.
- 6.4 No environmental complaint or prosecution was received in the reporting month.

### Recommendations

- 6.5 According to the environmental audit performed in the reporting month, the following recommendations were made:

#### *Water Impact*

- To review and implement temporary drainage system especially for the areas at Butterfly Valley and Toll Plaza.
- To closely monitor the capacity of existing de-silting facility on site, especially for the discharge at the site in Butterfly Valley and Toll Plaza.
- To keep the sedimentation facilities well maintained and perform de-silting regularly.
- To avoid accumulation of stagnant water on site.

#### *Dust Impact*

- To ensure that adequate water spray or other dust suppression measures are applied for slope cutting and the haul roads and stockpile on site.
- To cover idle soil slope surface and stockpile of dusty materials to prevent wind erosion.
- To ensure that all vehicles carrying dusty materials are properly covered before leaving the site.

#### *Noise Impact*

- To provide temporary noise barriers for noisy activities (such as breaking works).
- To reduce the number of noisy equipment in concurrent operation.



*Waste/Chemical Management*

- To ensure proper storage of chemical and chemical waste on site.
- To check for any accumulation of waste materials or rubbish on site.
- To avoid any discharge or accidental spillage of chemical waste or oil directly.

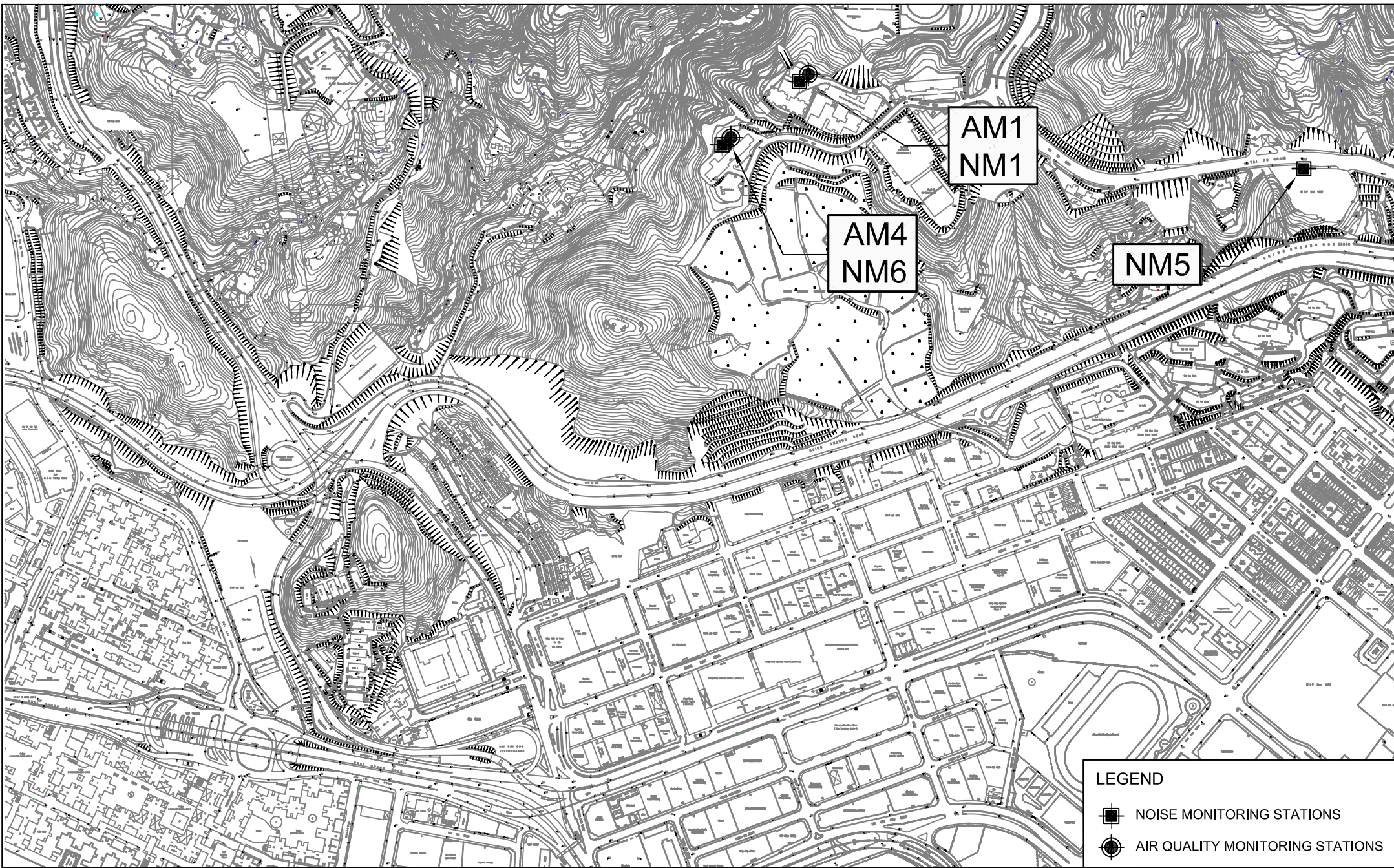
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## FIGURES

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LEGEND	
	NOISE MONITORING STATIONS
	AIR QUALITY MONITORING STATIONS

Title

ROUTE 8 (PREVIOUSLY KNOWN AS ROUTE 9) BETWEEN CHEUNG SHA WAN AND SHA TIN  
 CONTRACT NO. HY/2003/02 - EAGLE'S NEST TUNNEL AND ASSOCIATED WORKS

LOCATIONS OF MONITORING STATIONS

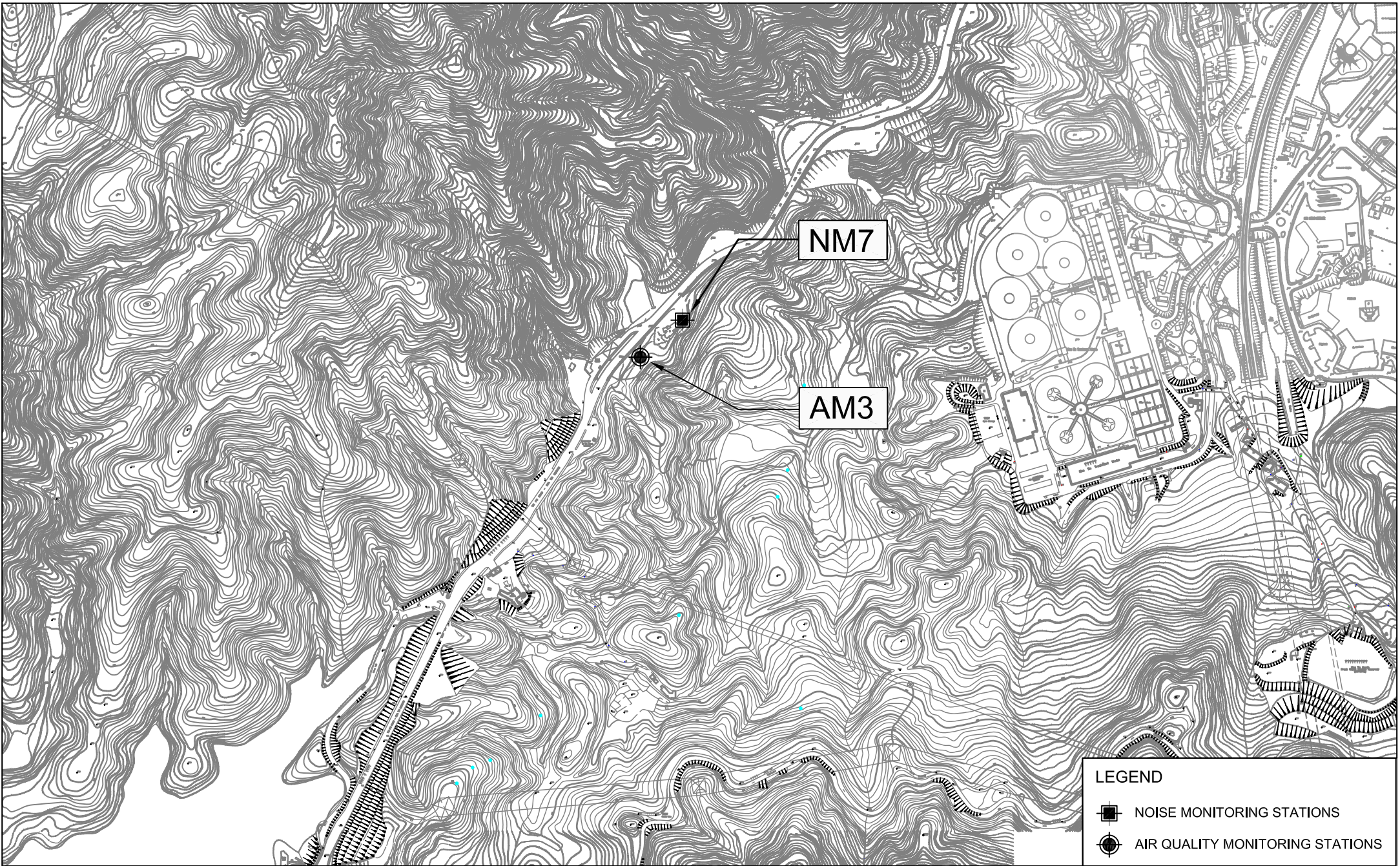
Scale  
1 : 6500 (A4)

Date  
2006

Project No.  
MA3024

Figure No.  
1a





LEGEND	
	NOISE MONITORING STATIONS
	AIR QUALITY MONITORING STATIONS

Title

ROUTE 8 (PREVIOUSLY KNOWN AS ROUTE 9) BETWEEN CHEUNG SHA WAN AND SHA TIN  
 CONTRACT NO. HY/2003/02 - EAGLE'S NEST TUNNEL AND ASSOCIATED WORKS

**LOCATIONS OF MONITORING STATIONS**

Scale  
 1 : 6500 (A4)

Date  
 2006

Project No.  
 MA3024

Figure No.  
 1b



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**APPENDIX A  
ACTION AND LIMIT LEVELS**

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## Appendix A - Action and Limit Levels (ENT)

### 1-Hour TSP

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM1	296	500
AM3	350	
AM4	294	

### 24-Hour TSP

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM1	168	260
AM3	200	
AM4	170	

### Construction Noise

Period	Action Level	Limit Level, dB(A)			
	for all stations	NM1	NM5	NM6	NM7
0700-1900 hrs on normal weekdays	When one documented complaint is received	70/65*	75	75	75
0700-2300 hrs on holidays & 1900-2300 hrs on all other days		-	70	65	60
2300-0700 hrs of next day		-	55	50	45

- (\*) Since NM1 is an educational institution, the noise Limit Level (0700-1900 hrs on normal days) is taken as 70 dB(A). The Limit Level will be reduced to 65 dB(A) during school examination periods.

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**APPENDIX B  
COPIES OF CALIBRATION  
CERTIFICATES**

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**High-Volume TSP Sampler  
5-POINT CALIBRATION DATA SHEET**

CINOTECH

File No. MA3024/18/0020

Station Po Leung Kuk Choi Kai Yau School  
 Date: 18-Nov-06  
 Equipment No.: A-01-18

Operator: WK  
 Next Due Date: 17-Jan-07  
 Serial No. 0723

Ambient Condition			
Temperature, Ta (K)	299	Pressure, Pa (mmHg)	765

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0575	Intercept, bc	0.0395
Last Calibration Date:	13-Mar-06	$mc \times Q_{std} + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	12-Mar-07	$Q_{std} = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y - axis
1	12.5	3.54	60.90	8.5	2.92
2	11.5	3.40	58.38	7.3	2.71
3	7.7	2.78	47.65	5.1	2.26
4	5.3	2.31	39.42	3.1	1.76
5	3.1	1.76	29.98	1.8	1.34

**By Linear Regression of Y on X**

Slope, mw = 0.0503 Intercept, bw = -0.1780  
 Correlation coefficient\* = 0.9977

\*If Correlation Coefficient < 0.990, check and recalibrate.

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Q_{std} + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point;  $W = (mw \times Q_{std} + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  3.93

Remarks: \_\_\_\_\_  
 \_\_\_\_\_

Conducted by: Wk. Tang Signature: King  
 Checked by: [Signature] Signature: [Signature]

Date: 18/11/06  
 Date: 18 Nov 2006



# High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA2027/A14/0019

Station Garden Vilia  
Date: 4-Oct-06  
Equipment No.: A-01-14

Operator: WK  
Next Due Date: 3-Dec-06  
Serial No. 1354

Ambient Condition			
Temperature, Ta (K)	300.8	Pressure, Pa (mmHg)	759.3

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0575	Intercept, bc	0.0395
Last Calibration Date:	13-Mar-06	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	12-Mar-07	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	[ΔW x (Pa/760) x (298/Ta)] <sup>1/2</sup> Y-axis
1	11.6	3.39	58.24	7.7	2.76
2	9.5	3.07	52.64	6.4	2.52
3	7.2	2.67	45.74	5.2	2.27
4	4.5	2.11	36.02	3.3	1.81
5	2.9	1.69	28.78	2.3	1.51

**By Linear Regression of Y on X**

Slope, mw = 0.0426 Intercept, bw : 0.2846  
Correlation coefficient\* = 0.9993

\*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation
From the TSP Field Calibration Curve, take Qstd = 43 CFM
From the Regression Equation, the "Y" value according to
$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$
Therefore, Set Point; W = (mw x Qstd + bw) <sup>2</sup> x (760 / Pa) x (Ta / 298) = <u>4.53</u>

Remarks: \_\_\_\_\_

Conducted by: Wk. Tang Signature: Wk. Tang Date: 4/10/06  
Checked by: H2 Signature: H2 Date: 4 Oct 06



# High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

**CINOTECH**

File No. MA3024/17/0022

Station Government Quarter  
 Date: 18-Nov-06  
 Equipment No.: A-01-17

Operator: WK  
 Next Due Date: 17-Jan-07  
 Serial No. 3460

Ambient Condition			
Temperature, Ta (K)	299	Pressure, Pa (mmHg)	765

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0575	Intercept, bc	0.0395
Last Calibration Date:	13-Mar-06	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	12-Mar-07	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	[ΔW x (Pa/760) x (298/Ta)] <sup>1/2</sup> Y-axis
1	13.0	3.61	62.12	7.9	2.82
2	10.9	3.31	56.82	6.7	2.59
3	8.3	2.89	49.50	5.4	2.33
4	5.5	2.35	40.16	3.3	1.82
5	3.2	1.79	30.47	1.9	1.38

**By Linear Regression of Y on X**

Slope, mw = 0.0458                      Intercept, bw : -0.0029  
 Correlation coefficient\* = 0.9981

\*If Correlation Coefficient < 0.990, check and recalibrate.

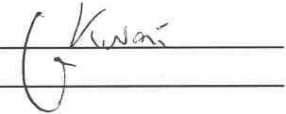
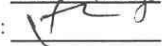
**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 43 CFM  
 From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W =  $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  3.85

Remarks: \_\_\_\_\_  
 \_\_\_\_\_

Conducted by: Wk Tang      Signature:       Date: 18/11/06  
 Checked by:       Signature: \_\_\_\_\_      Date: 18 Nov 2006

# WELLAB LTD.

Unit C, 1/F, Goldlion Holdings Center  
13-15 Yuen Shun Circuit,  
Shatin, Hong Kong.  
Tel: (852) 2898 7388  
Fax: (852) 2898 7076

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
1602-1610 Delta House,  
3 On Yiu Street,  
Shatin, N.T.

Test Report No.:	C/06/60502
Date of Issue:	2006-05-02
Date Received:	2006-05-01
Date Tested:	2006-05-01
Date Completed:	2006-05-02

**ATTN:** Mr. Henry Leung

Page: 1 of 1

### Certificate of Calibration

**Item for calibration:**

Description : RS232 Integral Vane Digital Anemometer  
Manufacturer : AZ Instrument  
Model No. : 451104  
Serial No. : 9020746  
Equipment No. : A-03-01

**Test conditions:**

Room Temperature : 21 degree Celsius  
Relative Humidity : 66%  
Pressure : 1018.4 kPa

**Methodology:**

The anemometer has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

**Results:**

	Reference Set Point	Instrument Readings
Measuring Air Velocity, m/s	2.00	2.00
Temperature, °C	21.0	21.0

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**  
Laboratory Manager



TISCH ENVIRONMENTAL, INC.  
 145 SOUTH MIAMI AVE.  
 VILLAGE OF CLEVELAND, OH 45002  
 513.467.9000  
 877.263.7610 TOLL FREE  
 513.467.9009 FAX  
 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 13, 2006 Rootsmeter S/N 9833620 Ta (K) - 294  
 Operator Tisch Orifice I.D. - 0993 Pa (mm) - 746.76

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3890	3.2	2.00
2	NA	NA	1.00	0.9850	6.3	4.00
3	NA	NA	1.00	0.8810	7.8	5.00
4	NA	NA	1.00	0.8410	8.6	5.50
5	NA	NA	1.00	0.6950	12.5	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9917	0.7139	1.4113	0.9957	0.7168	0.8874
0.9876	1.0026	1.9959	0.9916	1.0067	1.2549
0.9854	1.1185	2.2315	0.9894	1.1231	1.4030
0.9844	1.1706	2.3405	0.9884	1.1753	1.4715
0.9792	1.4090	2.8227	0.9832	1.4147	1.7747
Qstd slope (m) = 2.03154			Qa slope (m) = 1.27212		
intercept (b) = -0.03970			intercept (b) = -0.02496		
coefficient (r) = 0.99999			coefficient (r) = 0.99999		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol [(Pa-Diff. Hg)/760] (298/Ta)  
 Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]  
 Qa = Va/Time

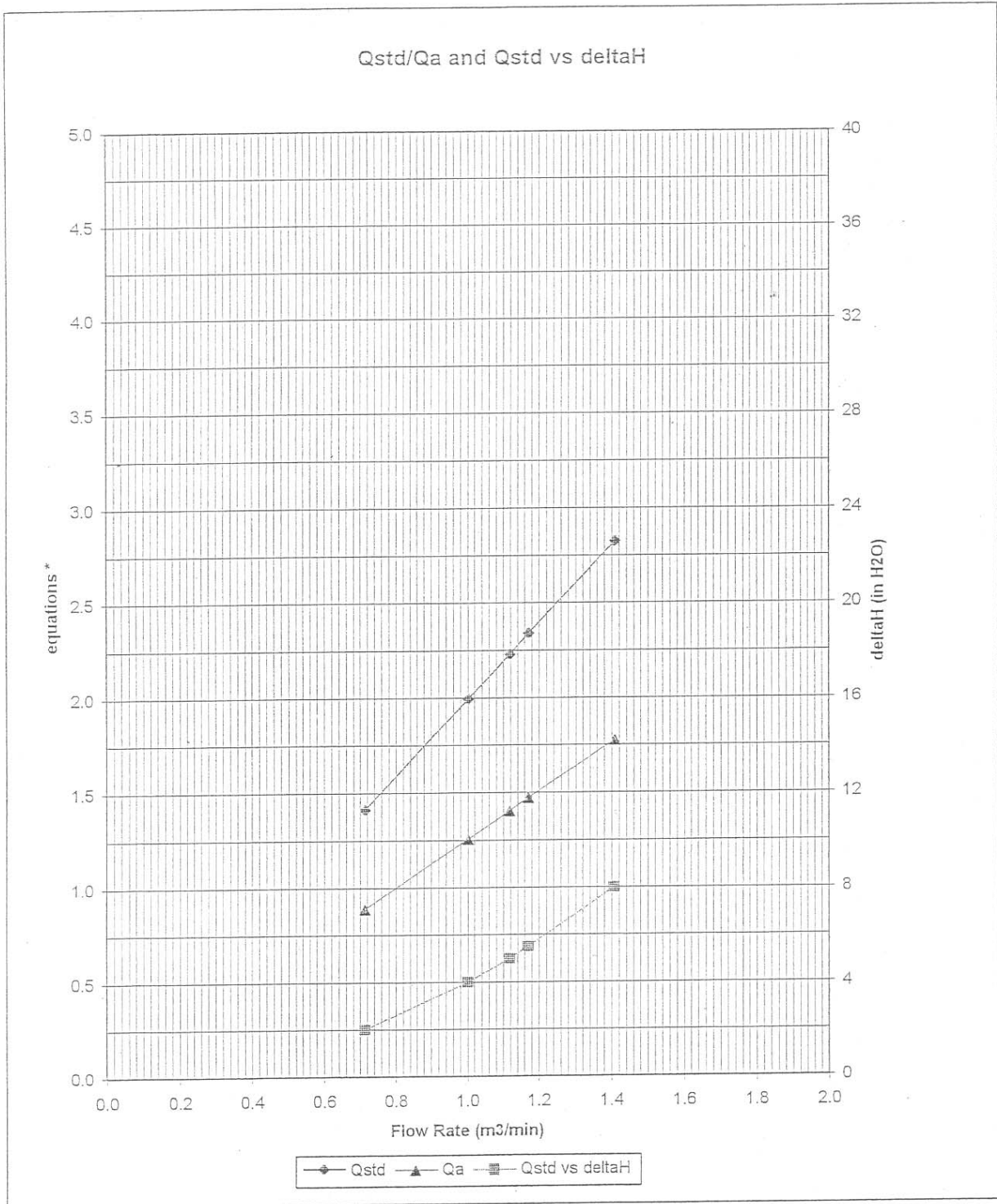
For subsequent flow rate calculations:

Qstd = 1/m{ [SQRT(H2O(Pa/760)(298/Ta))] - b}  
 Qa = 1/m{ [SQRT H2O(Ta/Pa)] - b}



TISCH ENVIROMENTAL, INC.  
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 VILLAGE OF CLEVES, OH 45002  
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 877.263.7610 TOLL FREE  
 513.467.9009 FAX  
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AIR POLLUTION MONITORING EQUIPMENT



\* y-axis equations:

Qstd series: 
$$\sqrt{\Delta H \left( \frac{P_a}{P_{std}} \right) \left( \frac{T_{std}}{T_a} \right)}$$

Qa series: 
$$\sqrt{(\Delta H (T_a / P_a))}$$

#0993

# WELLAB LTD.

Unit C, 1/F, Goldlion Holdings Center  
13-15 Yuen Shun Circuit,  
Shatin, Hong Kong.  
Tel: (852) 2898 7388  
Fax: (852) 2898 7076

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
1602-1610 Delta House,  
3 On Yiu Street,  
Shatin, N.T.

Test Report No.:	C/N/51216/1
Date of Issue:	2005-12-16
Date Received:	2005-12-15
Date Tested:	2005-12-15
Date Completed:	2005-12-16
Next Due Date:	2006-12-15

**ATTN:** Mr. Henry Leung

Page: 1 of 1

### Certificate of Calibration

#### Item for calibration:

Description	: Integrating Sound Level Meter
Manufacturer	: Brüel & Kjær
Model No.	: B&K 2238
Serial No.	: 2337665
Microphone No.	: 2289749
Equipment No.	: N-01-01

#### Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 63%

#### Test Specifications:

Performance checking at 94 and 114 dB

#### Methodology:

In-house method, according to manufacturer instruction manual

#### Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
Operation Manager

# WELLAB LTD.

Unit C, 1/F, Goldlion Holdings Center  
13-15 Yuen Shun Circuit,  
Shatin, Hong Kong.  
Tel: (852) 2898 7388  
Fax: (852) 2898 7076

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
1602-1610 Delta House,  
3 On Yiu Street,  
Shatin, N.T.

Test Report No.:	C/N/61215/1
Date of Issue:	2006-12-15
Date Received:	2006-12-14
Date Tested:	2006-12-15
Date Completed:	2006-12-15
Next Due Date:	2007-12-14

**ATTN:** Mr. Henry Leung

Page: 1 of 1

### Certificate of Calibration

#### Item for calibration:

Description	: Integrating Sound Level Meter
Manufacturer	: Brüel & Kjær
Model No.	: B&K 2238
Serial No.	: 2337665
Microphone No.	: 2289749
Equipment No.	: N-01-01

#### Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 60%

#### Test Specifications:

Performance checking at 94 and 114 dB

#### Methodology:

In-house method, according to manufacturer instruction manual

#### Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
\_\_\_\_\_  
**PATRICK TSE**  
Operation Manager





# WELLAB LTD.

Unit C, 1/F, Goldlion Holdings Center  
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## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
1602-1610 Delta House,  
3 On Yiu Street,  
Shatin, N.T.

Test Report No.:	C/N/61116/1
Date of Issue:	2006-11-16
Date Received:	2006-11-15
Date Tested:	2006-11-15
Date Completed:	2006-11-16
Next Due Date:	2007-11-15

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Page: 1 of 1

### Certificate of Calibration

#### Item for calibration:

Description	: Integrating Sound Level Meter
Manufacturer	: Brüel & Kjær
Model No.	: B&K 2238
Serial No.	: 2337666
Microphone No.	: 2289750
Equipment No.	: N-01-02

#### Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 59%

#### Test Specifications:

Performance checking at 94 and 114 dB

#### Methodology:

In-house method, according to manufacturer instruction manual

#### Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**

Operation Manager

# WELLAB LTD.

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Shatin, Hong Kong.  
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Fax: (852) 2898 7076

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
1601-1610 Delta House,  
3 On Yiu Street,  
Shatin, N.T.

Test Report No.:	C/N/60904-1
Date of Issue:	2006-09-04
Date Received:	2006-09-02
Date Tested:	2006-09-02
Date Completed:	2006-09-04
Next Due Date:	2007-09-03

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Page: 1 of 1

### Certificate of Calibration

#### Item for calibration:

Description	: Integrating Sound Level Meter
Manufacturer	: Brüel & Kjær
Model No.	: B&K 2238
Serial No.	: 2359311
Microphone No.	: 2346382
Equipment No.	: N-01-03

#### Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 64%

#### Test Specifications:

Performance checking at 94 and 114 dB

#### Methodology:

In-house method, according to manufacturer instruction manual

#### Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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*Patrick*

**PATRICK TSE**  
*Laborary Manager*

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## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
1602-1610 Delta House,  
3 On Yiu Street,  
Shatin, N.T.

Test Report No.:	C/N/60904-2
Date of Issue:	2006-09-04
Date Received:	2006-09-02
Date Tested:	2006-09-02
Date Completed:	2006-09-04
Next Due Date:	2007-09-03

**ATTN:** Mr. Henry Leung

Page: 1 of 1

### Certificate of Calibration

#### Item for calibration:

Description	: Integrating Sound Level Meter
Manufacturer	: Brüel & Kjær
Model No.	: B&K 2238
Serial No.	: 2359303
Equipment No.	: N-01-04

#### Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 63%
Pressure	: 1006.5hPa

#### Test Specifications:

Performance checking at 94 and 114 dB

#### Methodology:

In-house method, according to manufacturer instruction manual

#### Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**

Operation Manager

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## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
1602-1610 Delta House,  
3 On Yiu Street,  
Shatin, N.T.

Test Report No.:	C/N/61014/1
Date of Issue:	2006-10-14
Date Received:	2006-10-13
Date Tested:	2006-10-14
Date Completed:	2006-10-14
Next Due Date:	2007-10-13

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Page: 1 of 1

### Certificate of Calibration

**Item for calibration:**

Description	: Integrating Sound Level Meter
Manufacturer	: Brüel & Kjær
Model No.	: B&K 2238
Serial No.	: 2394976
Microphone No.	: 2407349
Equipment No.	: N-01-05

**Test conditions:**

Room Temperature	: 21 degree Celsius
Relative Humidity	: 60%

**Test Specifications:**

Performance checking at 94 and 114 dB

**Methodology:**

In-house method, according to manufacturer instruction manual

**Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

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**PATRICK TSE**

*Operation Manager*

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## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
1602-1610 Delta House,  
3 On Yiu Street,  
Shatin, N.T.

Test Report No.:	C/N/61116/2
Date of Issue:	2006-11-16
Date Received:	2006-11-15
Date Tested:	2006-11-15
Date Completed:	2006-11-16
Next Due Date:	2007-11-15

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Page: 1 of 1

### Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Project No.	: C13
Equipment No.	: N-02-01

### Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 59%
Pressure	: 1015.2 hPa

### Methodology:

The sound calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

### Results:

Sound Pressure Level	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

*Patrick .*

**PATRICK TSE**

*Operation Manager*

# WELLAB LTD.

Unit C, 1/F, Goldlion Holdings Center  
13-15 Yuen Shun Circuit,  
Shatin, Hong Kong.  
Tel: (852) 2898 7388  
Fax: (852) 2898 7076

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
1602-1610 Delta House,  
3 On Yiu Street,  
Shatin, N.T.

Test Report No.:	C/06/60304
Date of Issue:	2006-03-04
Date Received:	2006-03-03
Date Tested:	2006-03-03
Date Completed:	2006-03-04
Next Due Date:	2007-03-04

**ATTN:** Mr. Henry Leung

Page: 1 of 1

### Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2343007
Project No.	: C13
Equipment No.	: N-02-02

### Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 71%
Pressure	: 1020.1hPa

### Methodology:

The sound calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

### Results:

Sound Pressure Level	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.2 dB

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For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**

Operation Manager

# WELLAB LTD.

606 - 608 Cornell Centre,  
50 Wing Tai Road,  
Chai Wan, Hong Kong.  
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Fax: (852) 2898 7076

## TEST REPORT

**APPLICANT:** Cinotech Consultants Limited  
1601-1610 Delta House,  
3 On Yiu Street,  
Shatin, N.T.

Test Report No.:	C/N/60904-3
Date of Issue:	2006-09-04
Date Received:	2006-09-02
Date Tested:	2006-09-02
Date Completed:	2006-09-04
Next Due Date:	2007-09-03

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Page: 1 of 1

### Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2412367
Equipment No.	: N-02-03

### Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 63%
Pressure	: 1020.1hPa

### Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

### Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

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For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**  
Operation Manager



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**APPENDIX C  
ENVIRONMENTAL MONITORING AND  
AUDIT SCHEDULE**

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**Environmental Monitoring for Eagle's Nest Tunnel  
Tentative Air Quality and Noise Monitoring Schedule for December 2006**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>26-Nov</b>	27-Nov	28-Nov	29-Nov	30-Nov	1-Dec	2-Dec
	24 hr TSP	1 hr TSP Noise	1 hr TSP		1 hr TSP	24 hr TSP
<b>3-Dec</b>	4-Dec	5-Dec	6-Dec	7-Dec	8-Dec	9-Dec
	1 hr TSP Noise	1 hr TSP		1 hr TSP	24 hr TSP	
<b>10-Dec</b>	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	16-Dec
	1 hr TSP Noise			1 hr TSP 24 hr TSP	1 hr TSP	
<b>17-Dec</b>	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec	23-Dec
		1 hr TSP Noise	24 hr TSP	1 hr TSP	1 hr TSP	
<b>24-Dec</b>	<b>25-Dec</b>	<b>26-Dec</b>	27-Dec	28-Dec	29-Dec	30-Dec
			1 hr TSP Noise 24 hr TSP	1 hr TSP	1 hr TSP	

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

AM1 Yew Chung International School /Po Leung Kuk Choi Kai Yau School  
 AM3 Garden Villa  
 AM4 Government Quarters

NM1 Yew Chung International School /Po Leung Kuk Choi Kai Yau School  
 NM5 Villa Carlton  
 NM6 Government Quarters  
 NM7 Garden Villa

**Environmental Monitoring for Eagle's Nest Tunnel  
Tentative Air Quality and Noise Monitoring Schedule for January 2007**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>31-Dec</b>	<b>1-Jan</b>	2-Jan	3-Jan	4-Jan	5-Jan	6-Jan
		1 hr TSP Noise 24 hr TSP	1 hr TSP		1 hr TSP	
<b>7-Jan</b>	8-Jan	9-Jan	10-Jan	11-Jan	12-Jan	13-Jan
	24 hr TSP	1 hr TSP Noise		1 hr TSP	1 hr TSP	24 hr TSP
<b>14-Jan</b>	15-Jan	16-Jan	17-Jan	18-Jan	19-Jan	20-Jan
	1 hr TSP Noise	1 hr TSP		1 hr TSP	24 hr TSP	
<b>21-Jan</b>	22-Jan	23-Jan	24-Jan	25-Jan	26-Jan	27-Jan
	1 hr TSP Noise	1 hr TSP		24 hr TSP	1 hr TSP	
<b>28-Jan</b>	29-Jan	30-Jan	31-Jan	1-Feb	2-Feb	3-Feb
	1 hr TSP Noise	1 hr TSP	24 hr TSP	1 hr TSP		

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

AM1 Yew Chung International School /Po Leung Kuk Choi Kai Yau School  
 AM3 Garden Villa  
 AM4 Government Quarters

NM1 Yew Chung International School /Po Leung Kuk Choi Kai Yau School  
 NM5 Villa Carlton  
 NM6 Government Quarters  
 NM7 Garden Villa

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**APPENDIX D**  
**WIND DATA**

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## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
1-Dec-2006	00:00	2.7	W
1-Dec-2006	01:00	2.5	W
1-Dec-2006	02:00	1.7	WNW
1-Dec-2006	03:00	2.0	W
1-Dec-2006	04:00	2.0	W
1-Dec-2006	05:00	2.0	WSW
1-Dec-2006	06:00	2.2	WSW
1-Dec-2006	07:00	1.9	SW
1-Dec-2006	08:00	2.0	SW
1-Dec-2006	09:00	1.9	SW
1-Dec-2006	10:00	1.4	WSW
1-Dec-2006	11:00	2.3	W
1-Dec-2006	12:00	2.1	WNW
1-Dec-2006	13:00	2.2	W
1-Dec-2006	14:00	2.3	W
1-Dec-2006	15:00	2.2	W
1-Dec-2006	16:00	3.0	W
1-Dec-2006	17:00	2.5	WNW
1-Dec-2006	18:00	2.3	WNW
1-Dec-2006	19:00	1.7	WNW
1-Dec-2006	20:00	1.4	SW
1-Dec-2006	21:00	1.5	SSW
1-Dec-2006	22:00	2.0	SW
1-Dec-2006	23:00	2.3	SW
2-Dec-2006	00:00	2.3	SW
2-Dec-2006	01:00	1.9	SW
2-Dec-2006	02:00	2.6	SW
2-Dec-2006	03:00	2.3	W
2-Dec-2006	04:00	2.5	WSW
2-Dec-2006	05:00	2.0	W
2-Dec-2006	06:00	1.9	W
2-Dec-2006	07:00	1.9	W
2-Dec-2006	08:00	1.4	WNW
2-Dec-2006	09:00	1.3	W
2-Dec-2006	10:00	1.3	W
2-Dec-2006	11:00	1.8	W
2-Dec-2006	12:00	1.8	SSW
2-Dec-2006	13:00	2.2	SW
2-Dec-2006	14:00	2.1	WSW
2-Dec-2006	15:00	2.5	W
2-Dec-2006	16:00	2.3	WNW
2-Dec-2006	17:00	1.7	W
2-Dec-2006	18:00	1.7	WNW
2-Dec-2006	19:00	0.9	SSW
2-Dec-2006	20:00	0.9	WNW
2-Dec-2006	21:00	1.7	SW
2-Dec-2006	22:00	2.0	WNW
2-Dec-2006	23:00	1.8	WSW
3-Dec-2006	00:00	2.0	WSW
3-Dec-2006	01:00	2.5	W
3-Dec-2006	02:00	2.5	WSW
3-Dec-2006	03:00	2.2	W
3-Dec-2006	04:00	2.5	W
3-Dec-2006	05:00	2.9	SW

## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
3-Dec-2006	06:00	2.4	WNW
3-Dec-2006	07:00	2.5	WSW
3-Dec-2006	08:00	2.0	WSW
3-Dec-2006	09:00	2.6	W
3-Dec-2006	10:00	2.2	WSW
3-Dec-2006	11:00	2.2	WSW
3-Dec-2006	12:00	2.0	W
3-Dec-2006	13:00	2.2	WNW
3-Dec-2006	14:00	2.1	WNW
3-Dec-2006	15:00	2.5	WNW
3-Dec-2006	16:00	2.1	WNW
3-Dec-2006	17:00	1.9	WNW
3-Dec-2006	18:00	0.8	WNW
3-Dec-2006	19:00	0.4	WNW
3-Dec-2006	20:00	0.2	WSW
3-Dec-2006	21:00	0.1	SSW
3-Dec-2006	22:00	0.2	SW
3-Dec-2006	23:00	0.3	WNW
4-Dec-2006	00:00	1.6	WNW
4-Dec-2006	01:00	2.6	WNW
4-Dec-2006	02:00	3.1	WNW
4-Dec-2006	03:00	2.7	WNW
4-Dec-2006	04:00	2.1	WSW
4-Dec-2006	05:00	2.2	SSW
4-Dec-2006	06:00	1.9	SW
4-Dec-2006	07:00	2.1	WNW
4-Dec-2006	08:00	2.2	WNW
4-Dec-2006	09:00	2.9	WNW
4-Dec-2006	10:00	3.7	WNW
4-Dec-2006	11:00	3.4	WNW
4-Dec-2006	12:00	4.2	WNW
4-Dec-2006	13:00	4.1	WNW
4-Dec-2006	14:00	3.8	WNW
4-Dec-2006	15:00	2.5	WSW
4-Dec-2006	16:00	2.4	SW
4-Dec-2006	17:00	2.1	SW
4-Dec-2006	18:00	1.6	S
4-Dec-2006	19:00	0.6	S
4-Dec-2006	20:00	0.5	SSW
4-Dec-2006	21:00	0.5	SW
4-Dec-2006	22:00	0.6	SW
4-Dec-2006	23:00	0.4	SW
5-Dec-2006	00:00	0.8	WSW
5-Dec-2006	01:00	0.9	WSW
5-Dec-2006	02:00	1.1	WNW
5-Dec-2006	03:00	1.5	WNW
5-Dec-2006	04:00	1.8	WNW
5-Dec-2006	05:00	1.7	WNW
5-Dec-2006	06:00	1.4	W
5-Dec-2006	07:00	1.4	W
5-Dec-2006	08:00	1.6	WNW
5-Dec-2006	09:00	1.8	W
5-Dec-2006	10:00	1.9	WSW
5-Dec-2006	11:00	1.7	W

## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
5-Dec-2006	12:00	2.2	WSW
5-Dec-2006	13:00	2.3	SW
5-Dec-2006	14:00	2.1	SW
5-Dec-2006	15:00	2.1	SW
5-Dec-2006	16:00	1.9	WSW
5-Dec-2006	17:00	1.9	SW
5-Dec-2006	18:00	1.3	SW
5-Dec-2006	19:00	0.9	SW
5-Dec-2006	20:00	0.9	SW
5-Dec-2006	21:00	0.9	WSW
5-Dec-2006	22:00	0.9	WSW
5-Dec-2006	23:00	0.0	---
6-Dec-2006	00:00	0.0	---
6-Dec-2006	01:00	0.0	---
6-Dec-2006	02:00	0.0	---
6-Dec-2006	03:00	0.0	---
6-Dec-2006	04:00	0.0	---
6-Dec-2006	05:00	0.0	---
6-Dec-2006	06:00	1.3	WNW
6-Dec-2006	07:00	1.0	WSW
6-Dec-2006	08:00	1.2	WSW
6-Dec-2006	09:00	1.1	WNW
6-Dec-2006	10:00	1.3	WNW
6-Dec-2006	11:00	2.0	WNW
6-Dec-2006	12:00	2.4	W
6-Dec-2006	13:00	2.3	WSW
6-Dec-2006	14:00	2.1	WSW
6-Dec-2006	15:00	2.7	SW
6-Dec-2006	16:00	1.8	SW
6-Dec-2006	17:00	1.4	WNW
6-Dec-2006	18:00	1.8	WNW
6-Dec-2006	19:00	1.4	WNW
6-Dec-2006	20:00	1.4	WNW
6-Dec-2006	21:00	1.4	WSW
6-Dec-2006	22:00	0.9	WSW
6-Dec-2006	23:00	0.8	WNW
7-Dec-2006	00:00	0.7	WSW
7-Dec-2006	01:00	1.0	WSW
7-Dec-2006	02:00	1.0	WSW
7-Dec-2006	03:00	0.8	W
7-Dec-2006	04:00	1.1	SW
7-Dec-2006	05:00	1.0	WNW
7-Dec-2006	06:00	1.1	WSW
7-Dec-2006	07:00	1.3	WSW
7-Dec-2006	08:00	1.2	WSW
7-Dec-2006	09:00	1.2	WSW
7-Dec-2006	10:00	1.2	SW
7-Dec-2006	11:00	1.0	WSW
7-Dec-2006	12:00	1.7	WSW
7-Dec-2006	13:00	2.1	SW
7-Dec-2006	14:00	1.5	W
7-Dec-2006	15:00	2.1	SW
7-Dec-2006	16:00	1.9	WNW
7-Dec-2006	17:00	1.2	WSW

## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
7-Dec-2006	18:00	1.4	WSW
7-Dec-2006	19:00	1.5	W
7-Dec-2006	20:00	0.0	---
7-Dec-2006	21:00	0.0	---
7-Dec-2006	22:00	0.0	---
7-Dec-2006	23:00	1.8	WNW
8-Dec-2006	00:00	1.4	WNW
8-Dec-2006	01:00	1.3	WNW
8-Dec-2006	02:00	1.2	WNW
8-Dec-2006	03:00	1.5	W
8-Dec-2006	04:00	1.6	WNW
8-Dec-2006	05:00	2.0	WNW
8-Dec-2006	06:00	1.5	W
8-Dec-2006	07:00	1.8	W
8-Dec-2006	08:00	2.2	W
8-Dec-2006	09:00	1.5	W
8-Dec-2006	10:00	1.6	WNW
8-Dec-2006	11:00	2.1	WNW
8-Dec-2006	12:00	2.5	WNW
8-Dec-2006	13:00	2.5	W
8-Dec-2006	14:00	2.4	W
8-Dec-2006	15:00	1.5	WSW
8-Dec-2006	16:00	1.8	WSW
8-Dec-2006	17:00	1.3	WSW
8-Dec-2006	18:00	1.0	S
8-Dec-2006	19:00	0.0	S
8-Dec-2006	20:00	0.5	S
8-Dec-2006	21:00	0.8	S
8-Dec-2006	22:00	0.8	WSW
8-Dec-2006	23:00	0.7	WSW
9-Dec-2006	00:00	0.7	S
9-Dec-2006	01:00	1.0	S
9-Dec-2006	02:00	1.1	S
9-Dec-2006	03:00	1.3	S
9-Dec-2006	04:00	1.2	SW
9-Dec-2006	05:00	0.9	SW
9-Dec-2006	06:00	0.9	WSW
9-Dec-2006	07:00	0.8	SW
9-Dec-2006	08:00	0.4	S
9-Dec-2006	09:00	1.0	WSW
9-Dec-2006	10:00	2.1	SW
9-Dec-2006	11:00	1.5	SW
9-Dec-2006	12:00	1.6	W
9-Dec-2006	13:00	1.4	W
9-Dec-2006	14:00	1.8	W
9-Dec-2006	15:00	1.5	WSW
9-Dec-2006	16:00	1.4	SW
9-Dec-2006	17:00	1.5	W
9-Dec-2006	18:00	1.1	SW
9-Dec-2006	19:00	1.5	SW
9-Dec-2006	20:00	1.4	W
9-Dec-2006	21:00	1.3	WSW
9-Dec-2006	22:00	1.3	WSW
9-Dec-2006	23:00	1.3	WSW



## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
10-Dec-2006	00:00	1.5	NW
10-Dec-2006	01:00	1.0	N
10-Dec-2006	02:00	1.0	WNW
10-Dec-2006	03:00	0.8	W
10-Dec-2006	04:00	0.7	WSW
10-Dec-2006	05:00	0.5	SW
10-Dec-2006	06:00	0.8	W
10-Dec-2006	07:00	0.5	WSW
10-Dec-2006	08:00	0.7	WSW
10-Dec-2006	09:00	0.6	WSW
10-Dec-2006	10:00	1.1	WNW
10-Dec-2006	11:00	0.6	WNW
10-Dec-2006	12:00	0.8	NE
10-Dec-2006	13:00	0.9	NE
10-Dec-2006	14:00	1.0	NE
10-Dec-2006	15:00	2.2	WNW
10-Dec-2006	16:00	1.8	NW
10-Dec-2006	17:00	1.3	E
10-Dec-2006	18:00	0.4	E
10-Dec-2006	19:00	0.0	ESE
10-Dec-2006	20:00	0.0	ESE
10-Dec-2006	21:00	0.0	ESE
10-Dec-2006	22:00	0.0	ESE
10-Dec-2006	23:00	1.4	SE
11-Dec-2006	00:00	0.0	SE
11-Dec-2006	01:00	0.0	---
11-Dec-2006	02:00	0.0	W
11-Dec-2006	03:00	0.0	---
11-Dec-2006	04:00	0.0	---
11-Dec-2006	05:00	0.0	---
11-Dec-2006	06:00	0.0	WSW
11-Dec-2006	07:00	0.0	WSW
11-Dec-2006	08:00	0.0	WNW
11-Dec-2006	09:00	0.0	---
11-Dec-2006	10:00	0.4	W
11-Dec-2006	11:00	0.4	WNW
11-Dec-2006	12:00	0.9	N
11-Dec-2006	13:00	0.2	N
11-Dec-2006	14:00	1.3	W
11-Dec-2006	15:00	0.9	W
11-Dec-2006	16:00	0.3	WSW
11-Dec-2006	17:00	0.1	WSW
11-Dec-2006	18:00	1.3	WSW
11-Dec-2006	19:00	1.8	WSW
11-Dec-2006	20:00	1.8	WSW
11-Dec-2006	21:00	2.7	WSW
11-Dec-2006	22:00	2.2	SW
11-Dec-2006	23:00	2.7	WSW
12-Dec-2006	00:00	3.1	SW
12-Dec-2006	01:00	2.9	W
12-Dec-2006	02:00	1.8	W
12-Dec-2006	03:00	2.7	W
12-Dec-2006	04:00	2.7	W
12-Dec-2006	05:00	3.1	SW

## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
12-Dec-2006	06:00	2.6	SW
12-Dec-2006	07:00	4.0	WSW
12-Dec-2006	08:00	3.6	WSW
12-Dec-2006	09:00	4.0	WNW
12-Dec-2006	10:00	5.4	WNW
12-Dec-2006	11:00	4.9	WNW
12-Dec-2006	12:00	5.8	WNW
12-Dec-2006	13:00	5.9	WNW
12-Dec-2006	14:00	4.9	WNW
12-Dec-2006	15:00	4.0	WNW
12-Dec-2006	16:00	3.0	WSW
12-Dec-2006	17:00	3.5	WSW
12-Dec-2006	18:00	2.7	WNW
12-Dec-2006	19:00	1.5	WNW
12-Dec-2006	20:00	0.9	WNW
12-Dec-2006	21:00	0.4	WNW
12-Dec-2006	22:00	0.9	WNW
12-Dec-2006	23:00	1.3	WNW
13-Dec-2006	00:00	4.0	WNW
13-Dec-2006	01:00	4.9	W
13-Dec-2006	02:00	4.5	WSW
13-Dec-2006	03:00	3.1	WNW
13-Dec-2006	04:00	3.6	WNW
13-Dec-2006	05:00	3.6	W
13-Dec-2006	06:00	3.6	WNW
13-Dec-2006	07:00	3.4	WNW
13-Dec-2006	08:00	3.6	WNW
13-Dec-2006	09:00	3.8	W
13-Dec-2006	10:00	3.1	WNW
13-Dec-2006	11:00	1.3	WNW
13-Dec-2006	12:00	2.7	WNW
13-Dec-2006	13:00	2.8	WNW
13-Dec-2006	14:00	3.1	W
13-Dec-2006	15:00	3.6	WNW
13-Dec-2006	16:00	2.7	WNW
13-Dec-2006	17:00	2.8	WNW
13-Dec-2006	18:00	2.8	W
13-Dec-2006	19:00	2.8	W
13-Dec-2006	20:00	2.7	WNW
13-Dec-2006	21:00	1.8	SW
13-Dec-2006	22:00	1.8	SSW
13-Dec-2006	23:00	2.5	SSE
14-Dec-2006	00:00	2.5	NNE
14-Dec-2006	01:00	2.6	NNE
14-Dec-2006	02:00	2.9	NNE
14-Dec-2006	03:00	2.9	N
14-Dec-2006	04:00	3.4	N
14-Dec-2006	05:00	3.4	WSW
14-Dec-2006	06:00	4.5	W
14-Dec-2006	07:00	4.5	W
14-Dec-2006	08:00	4.6	W
14-Dec-2006	09:00	4.6	N
14-Dec-2006	10:00	3.5	N
14-Dec-2006	11:00	3.8	N

## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
14-Dec-2006	12:00	5.0	WNW
14-Dec-2006	13:00	5.0	WNW
14-Dec-2006	14:00	3.1	WNW
14-Dec-2006	15:00	4.0	WNW
14-Dec-2006	16:00	4.0	WNW
14-Dec-2006	17:00	4.5	WNW
14-Dec-2006	18:00	4.6	W
14-Dec-2006	19:00	4.5	WSW
14-Dec-2006	20:00	3.3	SW
14-Dec-2006	21:00	2.9	WSW
14-Dec-2006	22:00	2.3	WNW
14-Dec-2006	23:00	2.4	WNW
15-Dec-2006	00:00	2.1	WNW
15-Dec-2006	01:00	2.3	WNW
15-Dec-2006	02:00	2.4	WNW
15-Dec-2006	03:00	3.1	WNW
15-Dec-2006	04:00	3.9	WNW
15-Dec-2006	05:00	3.6	W
15-Dec-2006	06:00	3.7	WNW
15-Dec-2006	07:00	4.1	WSW
15-Dec-2006	08:00	2.8	SW
15-Dec-2006	09:00	2.3	WNW
15-Dec-2006	10:00	2.8	WNW
15-Dec-2006	11:00	1.9	WNW
15-Dec-2006	12:00	2.3	WSW
15-Dec-2006	13:00	3.2	WSW
15-Dec-2006	14:00	3.2	WNW
15-Dec-2006	15:00	3.7	WNW
15-Dec-2006	16:00	3.2	WSW
15-Dec-2006	17:00	1.0	WSW
15-Dec-2006	18:00	1.9	SW
15-Dec-2006	19:00	1.9	SW
15-Dec-2006	20:00	2.8	SW
15-Dec-2006	21:00	3.2	WSW
15-Dec-2006	22:00	3.2	WNW
15-Dec-2006	23:00	3.7	WNW
16-Dec-2006	00:00	3.7	WNW
16-Dec-2006	01:00	3.2	WNW
16-Dec-2006	02:00	4.1	WSW
16-Dec-2006	03:00	1.4	WSW
16-Dec-2006	04:00	0.0	---
16-Dec-2006	05:00	0.0	E
16-Dec-2006	06:00	0.0	---
16-Dec-2006	07:00	0.0	---
16-Dec-2006	08:00	0.0	---
16-Dec-2006	09:00	0.0	---
16-Dec-2006	10:00	0.0	---
16-Dec-2006	11:00	0.0	---
16-Dec-2006	12:00	0.0	E
16-Dec-2006	13:00	0.0	W
16-Dec-2006	14:00	0.5	WNW
16-Dec-2006	15:00	0.0	WNW
16-Dec-2006	16:00	0.0	SW
16-Dec-2006	17:00	0.0	SSW

## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
16-Dec-2006	18:00	1.4	SSW
16-Dec-2006	19:00	1.0	SW
16-Dec-2006	20:00	1.4	W
16-Dec-2006	21:00	1.0	WNW
16-Dec-2006	22:00	2.3	SW
16-Dec-2006	23:00	1.9	SW
17-Dec-2006	00:00	1.0	SW
17-Dec-2006	01:00	3.3	WSW
17-Dec-2006	02:00	1.9	WSW
17-Dec-2006	03:00	1.5	WNW
17-Dec-2006	04:00	1.9	WNW
17-Dec-2006	05:00	0.6	WNW
17-Dec-2006	06:00	1.5	WNW
17-Dec-2006	07:00	4.2	WNW
17-Dec-2006	08:00	4.2	WNW
17-Dec-2006	09:00	3.3	WNW
17-Dec-2006	10:00	1.5	WNW
17-Dec-2006	11:00	1.5	WNW
17-Dec-2006	12:00	0.3	WNW
17-Dec-2006	13:00	1.0	WSW
17-Dec-2006	14:00	1.0	WNW
17-Dec-2006	15:00	0.6	WNW
17-Dec-2006	16:00	0.3	WNW
17-Dec-2006	17:00	0.5	WNW
17-Dec-2006	18:00	0.0	W
17-Dec-2006	19:00	0.0	W
17-Dec-2006	20:00	0.0	W
17-Dec-2006	21:00	0.0	W
17-Dec-2006	22:00	0.0	W
17-Dec-2006	23:00	1.7	WSW
18-Dec-2006	00:00	1.7	WSW
18-Dec-2006	01:00	1.7	WSW
18-Dec-2006	02:00	2.2	WSW
18-Dec-2006	03:00	2.6	WSW
18-Dec-2006	04:00	1.7	WSW
18-Dec-2006	05:00	2.6	WSW
18-Dec-2006	06:00	2.2	SW
18-Dec-2006	07:00	1.3	WSW
18-Dec-2006	08:00	0.4	WSW
18-Dec-2006	09:00	0.4	WSW
18-Dec-2006	10:00	1.3	WSW
18-Dec-2006	11:00	1.3	WSW
18-Dec-2006	12:00	1.3	WSW
18-Dec-2006	13:00	1.3	WNW
18-Dec-2006	14:00	1.3	W
18-Dec-2006	15:00	0.8	WSW
18-Dec-2006	16:00	0.4	W
18-Dec-2006	17:00	0.5	WNW
18-Dec-2006	18:00	0.4	W
18-Dec-2006	19:00	0.4	W
18-Dec-2006	20:00	0.4	W
18-Dec-2006	21:00	2.6	WNW
18-Dec-2006	22:00	4.4	WNW
18-Dec-2006	23:00	5.3	W

## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
19-Dec-2006	00:00	3.5	WSW
19-Dec-2006	01:00	4.0	WNW
19-Dec-2006	02:00	4.0	WNW
19-Dec-2006	03:00	2.2	WNW
19-Dec-2006	04:00	3.1	WNW
19-Dec-2006	05:00	3.1	SW
19-Dec-2006	06:00	3.5	WSW
19-Dec-2006	07:00	2.6	SW
19-Dec-2006	08:00	2.1	WSW
19-Dec-2006	09:00	3.0	WNW
19-Dec-2006	10:00	2.1	WNW
19-Dec-2006	11:00	2.1	WNW
19-Dec-2006	12:00	2.5	WSW
19-Dec-2006	13:00	2.5	WNW
19-Dec-2006	14:00	4.8	WNW
19-Dec-2006	15:00	3.4	WNW
19-Dec-2006	16:00	3.0	WNW
19-Dec-2006	17:00	2.1	WNW
19-Dec-2006	18:00	3.4	W
19-Dec-2006	19:00	0.7	WSW
19-Dec-2006	20:00	1.2	WSW
19-Dec-2006	21:00	0.3	SW
19-Dec-2006	22:00	1.6	SW
19-Dec-2006	23:00	2.1	SW
20-Dec-2006	00:00	2.1	SW
20-Dec-2006	01:00	2.5	NW
20-Dec-2006	02:00	2.1	WNW
20-Dec-2006	03:00	2.1	WNW
20-Dec-2006	04:00	3.4	WNW
20-Dec-2006	05:00	1.6	WNW
20-Dec-2006	06:00	2.2	WNW
20-Dec-2006	07:00	2.2	WNW
20-Dec-2006	08:00	2.2	W
20-Dec-2006	09:00	2.6	W
20-Dec-2006	10:00	1.7	WSW
20-Dec-2006	11:00	2.2	WSW
20-Dec-2006	12:00	1.7	WNW
20-Dec-2006	13:00	2.6	WNW
20-Dec-2006	14:00	3.1	W
20-Dec-2006	15:00	3.1	WNW
20-Dec-2006	16:00	3.5	WNW
20-Dec-2006	17:00	0.0	ENE
20-Dec-2006	18:00	0.0	---
20-Dec-2006	19:00	0.0	---
20-Dec-2006	20:00	0.0	---
20-Dec-2006	21:00	0.0	---
20-Dec-2006	22:00	0.0	---
20-Dec-2006	23:00	3.9	WSW
21-Dec-2006	00:00	3.5	W
21-Dec-2006	01:00	3.5	WSW
21-Dec-2006	02:00	3.5	WNW
21-Dec-2006	03:00	3.5	WNW
21-Dec-2006	04:00	4.0	WNW
21-Dec-2006	05:00	3.1	WNW

## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
21-Dec-2006	06:00	2.6	WNW
21-Dec-2006	07:00	2.6	WNW
21-Dec-2006	08:00	2.2	WNW
21-Dec-2006	09:00	0.8	SW
21-Dec-2006	10:00	0.8	SW
21-Dec-2006	11:00	0.4	SSW
21-Dec-2006	12:00	0.8	WSW
21-Dec-2006	13:00	1.7	WSW
21-Dec-2006	14:00	1.7	WSW
21-Dec-2006	15:00	1.3	WSW
21-Dec-2006	16:00	2.6	WSW
21-Dec-2006	17:00	2.2	WSW
21-Dec-2006	18:00	2.2	WSW
21-Dec-2006	19:00	2.2	WSW
21-Dec-2006	20:00	2.2	WSW
21-Dec-2006	21:00	2.2	WSW
21-Dec-2006	22:00	2.2	SW
21-Dec-2006	23:00	3.1	WSW
22-Dec-2006	00:00	2.6	WSW
22-Dec-2006	01:00	2.6	SW
22-Dec-2006	02:00	2.6	WSW
22-Dec-2006	03:00	2.6	WSW
22-Dec-2006	04:00	3.5	SW
22-Dec-2006	05:00	2.6	WSW
22-Dec-2006	06:00	1.7	WSW
22-Dec-2006	07:00	0.8	WSW
22-Dec-2006	08:00	3.0	WNW
22-Dec-2006	09:00	1.7	WSW
22-Dec-2006	10:00	1.7	W
22-Dec-2006	11:00	1.3	WSW
22-Dec-2006	12:00	0.4	WNW
22-Dec-2006	13:00	0.8	W
22-Dec-2006	14:00	0.4	WNW
22-Dec-2006	15:00	1.7	WNW
22-Dec-2006	16:00	2.6	W
22-Dec-2006	17:00	2.6	SSW
22-Dec-2006	18:00	3.1	SSW
22-Dec-2006	19:00	3.1	SSW
22-Dec-2006	20:00	1.7	SSW
22-Dec-2006	21:00	2.2	SSW
22-Dec-2006	22:00	2.2	SW
22-Dec-2006	23:00	1.7	SW
23-Dec-2006	00:00	1.3	SW
23-Dec-2006	01:00	0.8	WSW
23-Dec-2006	02:00	0.0	---
23-Dec-2006	03:00	0.0	---
23-Dec-2006	04:00	0.0	---
23-Dec-2006	05:00	0.0	---
23-Dec-2006	06:00	0.0	---
23-Dec-2006	07:00	0.0	---
23-Dec-2006	08:00	0.0	WSW
23-Dec-2006	09:00	0.0	---
23-Dec-2006	10:00	0.0	---
23-Dec-2006	11:00	0.0	---

## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
23-Dec-2006	12:00	1.7	WNW
23-Dec-2006	13:00	1.3	WNW
23-Dec-2006	14:00	1.7	WNW
23-Dec-2006	15:00	1.3	WNW
23-Dec-2006	16:00	4.0	WNW
23-Dec-2006	17:00	6.2	WNW
23-Dec-2006	18:00	6.2	WNW
23-Dec-2006	19:00	5.8	WNW
23-Dec-2006	20:00	5.3	WNW
23-Dec-2006	21:00	5.3	WNW
23-Dec-2006	22:00	4.9	WNW
23-Dec-2006	23:00	3.1	SSW
24-Dec-2006	00:00	2.2	WSW
24-Dec-2006	01:00	1.7	W
24-Dec-2006	02:00	2.6	WSW
24-Dec-2006	03:00	2.6	WNW
24-Dec-2006	04:00	3.5	W
24-Dec-2006	05:00	4.0	WNW
24-Dec-2006	06:00	5.3	WNW
24-Dec-2006	07:00	2.0	WNW
24-Dec-2006	08:00	0.7	SSW
24-Dec-2006	09:00	1.6	WNW
24-Dec-2006	10:00	2.0	WNW
24-Dec-2006	11:00	2.0	WNW
24-Dec-2006	12:00	1.1	W
24-Dec-2006	13:00	2.0	WNW
24-Dec-2006	14:00	2.5	W
24-Dec-2006	15:00	2.5	SW
24-Dec-2006	16:00	2.0	W
24-Dec-2006	17:00	1.6	ESE
24-Dec-2006	18:00	2.5	SSE
24-Dec-2006	19:00	3.4	WSW
24-Dec-2006	20:00	3.4	SW
24-Dec-2006	21:00	2.9	W
24-Dec-2006	22:00	5.2	W
24-Dec-2006	23:00	4.7	WNW
25-Dec-2006	00:00	4.3	WNW
25-Dec-2006	01:00	3.4	W
25-Dec-2006	02:00	1.1	SSW
25-Dec-2006	03:00	0.7	SW
25-Dec-2006	04:00	0.7	SW
25-Dec-2006	05:00	3.4	SSW
25-Dec-2006	06:00	3.8	SW
25-Dec-2006	07:00	2.5	WSW
25-Dec-2006	08:00	3.8	WSW
25-Dec-2006	09:00	3.8	WNW
25-Dec-2006	10:00	4.3	WNW
25-Dec-2006	11:00	4.3	W
25-Dec-2006	12:00	2.9	W
25-Dec-2006	13:00	2.0	WNW
25-Dec-2006	14:00	0.0	---
25-Dec-2006	15:00	0.0	---
25-Dec-2006	16:00	0.0	---
25-Dec-2006	17:00	0.0	---

## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
25-Dec-2006	18:00	0.0	---
25-Dec-2006	19:00	0.0	ESE
25-Dec-2006	20:00	0.0	---
25-Dec-2006	21:00	1.2	
25-Dec-2006	22:00	1.6	SSW
25-Dec-2006	23:00	0.5	ESE
26-Dec-2006	00:00	0.3	ESE
26-Dec-2006	01:00	0.4	ESE
26-Dec-2006	02:00	0.5	W
26-Dec-2006	03:00	3.9	WNW
26-Dec-2006	04:00	4.3	WNW
26-Dec-2006	05:00	4.3	WNW
26-Dec-2006	06:00	3.4	W
26-Dec-2006	07:00	1.6	SSW
26-Dec-2006	08:00	1.2	WNW
26-Dec-2006	09:00	1.6	WNW
26-Dec-2006	10:00	3.4	WNW
26-Dec-2006	11:00	2.5	WNW
26-Dec-2006	12:00	3.4	WNW
26-Dec-2006	13:00	3.4	WNW
26-Dec-2006	14:00	3.4	WNW
26-Dec-2006	15:00	2.5	WNW
26-Dec-2006	16:00	2.2	WNW
26-Dec-2006	17:00	2.1	WNW
26-Dec-2006	18:00	1.9	WNW
26-Dec-2006	19:00	0.8	WNW
26-Dec-2006	20:00	0.8	WNW
26-Dec-2006	21:00	0.8	W
26-Dec-2006	22:00	1.2	W
26-Dec-2006	23:00	1.0	WNW
27-Dec-2006	00:00	1.3	WNW
27-Dec-2006	01:00	1.3	W
27-Dec-2006	02:00	1.2	WNW
27-Dec-2006	03:00	2.5	WNW
27-Dec-2006	04:00	3.1	WSW
27-Dec-2006	05:00	2.0	SW
27-Dec-2006	06:00	3.6	WSW
27-Dec-2006	07:00	2.6	W
27-Dec-2006	08:00	2.7	WSW
27-Dec-2006	09:00	2.2	WNW
27-Dec-2006	10:00	2.8	W
27-Dec-2006	11:00	3.8	SW
27-Dec-2006	12:00	2.8	WSW
27-Dec-2006	13:00	1.9	W
27-Dec-2006	14:00	1.3	WSW
27-Dec-2006	15:00	1.3	WNW
27-Dec-2006	16:00	1.1	W
27-Dec-2006	17:00	1.0	WNW
27-Dec-2006	18:00	0.9	W
27-Dec-2006	19:00	0.7	WNW
27-Dec-2006	20:00	0.8	W
27-Dec-2006	21:00	0.6	WNW
27-Dec-2006	22:00	1.8	WNW
27-Dec-2006	23:00	1.8	W



## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
28-Dec-2006	00:00	2.1	WNW
28-Dec-2006	01:00	2.5	W
28-Dec-2006	02:00	2.6	W
28-Dec-2006	03:00	2.5	WNW
28-Dec-2006	04:00	2.7	WNW
28-Dec-2006	05:00	2.7	WNW
28-Dec-2006	06:00	2.5	WNW
28-Dec-2006	07:00	4.7	WNW
28-Dec-2006	08:00	2.9	WNW
28-Dec-2006	09:00	1.5	WNW
28-Dec-2006	10:00	2.0	W
28-Dec-2006	11:00	2.0	W
28-Dec-2006	12:00	2.4	WNW
28-Dec-2006	13:00	1.1	WNW
28-Dec-2006	14:00	0.2	WNW
28-Dec-2006	15:00	0.2	WNW
28-Dec-2006	16:00	0.6	WNW
28-Dec-2006	17:00	2.0	W
28-Dec-2006	18:00	0.2	SW
28-Dec-2006	19:00	0.2	SW
28-Dec-2006	20:00	0.6	WSW
28-Dec-2006	21:00	2.0	SW
28-Dec-2006	22:00	2.0	WSW
28-Dec-2006	23:00	0.6	SW
29-Dec-2006	00:00	3.3	W
29-Dec-2006	01:00	2.4	W
29-Dec-2006	02:00	1.8	W
29-Dec-2006	03:00	1.6	W
29-Dec-2006	04:00	1.8	WNW
29-Dec-2006	05:00	2.1	WNW
29-Dec-2006	06:00	2.6	WNW
29-Dec-2006	07:00	2.5	WSW
29-Dec-2006	08:00	2.2	SW
29-Dec-2006	09:00	2.9	SW
29-Dec-2006	10:00	3.1	SW
29-Dec-2006	11:00	3.5	WSW
29-Dec-2006	12:00	3.2	WSW
29-Dec-2006	13:00	4.1	WNW
29-Dec-2006	14:00	4.2	SW
29-Dec-2006	15:00	3.3	WNW
29-Dec-2006	16:00	2.5	W
29-Dec-2006	17:00	2.8	WNW
29-Dec-2006	18:00	2.4	W
29-Dec-2006	19:00	2.1	W
29-Dec-2006	20:00	1.9	W
29-Dec-2006	21:00	1.8	SW
29-Dec-2006	22:00	1.2	SW
29-Dec-2006	23:00	1.2	WSW
30-Dec-2006	00:00	0.9	W
30-Dec-2006	01:00	0.9	WSW
30-Dec-2006	02:00	2.1	SW
30-Dec-2006	03:00	1.5	WSW
30-Dec-2006	04:00	2.6	SW
30-Dec-2006	05:00	3.2	SSW

## Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
30-Dec-2006	06:00	3.2	SSW
30-Dec-2006	07:00	2.8	SW
30-Dec-2006	08:00	1.8	SW
30-Dec-2006	09:00	0.0	WSW
30-Dec-2006	10:00	0.0	---
30-Dec-2006	11:00	0.0	---
30-Dec-2006	12:00	0.0	---
30-Dec-2006	13:00	0.0	---
30-Dec-2006	14:00	0.0	---
30-Dec-2006	15:00	0.0	---
30-Dec-2006	16:00	0.0	---
30-Dec-2006	17:00	2.7	SW
30-Dec-2006	18:00	2.2	SSW
30-Dec-2006	19:00	3.0	WSW
30-Dec-2006	20:00	3.1	W
30-Dec-2006	21:00	1.4	W
30-Dec-2006	22:00	1.2	W
30-Dec-2006	23:00	1.7	W
31-Dec-2006	00:00	3.2	SW
31-Dec-2006	01:00	3.2	WSW
31-Dec-2006	02:00	4.1	WSW
31-Dec-2006	03:00	4.6	SW
31-Dec-2006	04:00	5.9	WSW
31-Dec-2006	05:00	5.0	WSW
31-Dec-2006	06:00	5.0	WSW
31-Dec-2006	07:00	4.6	WSW
31-Dec-2006	08:00	4.6	WSW
31-Dec-2006	09:00	4.1	WSW
31-Dec-2006	10:00	4.1	WSW
31-Dec-2006	11:00	3.7	WNW
31-Dec-2006	12:00	3.2	WNW
31-Dec-2006	13:00	3.7	SW
31-Dec-2006	14:00	3.7	WSW
31-Dec-2006	15:00	4.1	WSW
31-Dec-2006	16:00	3.7	WSW
31-Dec-2006	17:00	2.8	WSW
31-Dec-2006	18:00	2.8	WSW
31-Dec-2006	19:00	2.1	WSW
31-Dec-2006	20:00	2.5	W
31-Dec-2006	21:00	2.6	WSW
31-Dec-2006	22:00	2.6	WNW
31-Dec-2006	23:00	2.7	WNW

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**APPENDIX E  
1-HOUR TSP MONITORING RESULTS  
AND GRAPHICAL PRESENTATION**

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## Appendix E - 1-hour TSP Monitoring Results

### Location AM1 - Po Leung Kuk Choi Kai Yau School

Date	Weather Condition	Filter Weight (g)		Flow Rate (m <sup>3</sup> /min.)		Elapse Time		Air Temp. (K)	Atmospheric Pressure(Pa)	Particulate weight(g)	Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
		Initial	Final	Initial	Final	Initial	Final							
1-Dec-06	Sunny	2.8682	2.8729	1.23	1.23	5153.0	5154.0	291.0	766.2	0.0047	1.23	73.8	1.0	63.7
4-Dec-06	Sunny	2.8882	2.8913	1.22	1.22	5178.0	5179.0	295.5	766.8	0.0031	1.22	73.3	1.0	42.3
5-Dec-06	Sunny	2.8795	2.8858	1.23	1.23	5179.0	5180.1	292.0	769.1	0.0063	1.23	76.7	1.0	82.1
7-Dec-06	Sunny	2.8495	2.8573	1.22	1.22	5180.1	5181.1	294.6	765.8	0.0078	1.22	73.3	1.0	106.4
11-Dec-06	Sunny	2.8703	2.8845	1.23	1.23	5205.1	5206.1	293.4	765.1	0.0142	1.23	73.4	1.0	193.4
14-Dec-06	Cloudy	2.8509	2.8613	1.23	1.23	5206.1	5207.1	289.3	765.7	0.0104	1.23	73.9	1.0	140.7
15-Dec-06	Rainy	2.8419	2.8462	1.22	1.22	5231.1	5232.1	292.9	763.3	0.0043	1.22	73.4	1.0	58.6
19-Dec-06	Sunny	2.8343	2.8405	1.24	1.24	5232.1	5233.1	286.9	770.9	0.0062	1.24	74.4	1.0	83.3
21-Dec-06	Sunny	2.8857	2.8904	1.24	1.24	5257.1	5258.1	288.9	769.5	0.0047	1.24	74.1	1.0	63.4
22-Dec-06	Sunny	2.8833	2.8873	1.24	1.24	5258.1	5259.1	288.1	769.1	0.0040	1.24	74.2	1.0	53.9
27-Dec-06	Sunny	2.8357	2.8469	1.23	1.23	5259.1	5260.1	290.7	766.0	0.0112	1.23	73.8	1.0	151.8
28-Dec-06	Sunny	2.8292	2.8335	1.22	1.22	5284.1	5285.1	293.7	765.9	0.0043	1.22	73.4	1.0	58.6
29-Dec-06	Windy	2.8561	2.8648	1.24	1.24	5285.1	5286.1	296.0	771.3	0.0087	1.24	74.6	1.0	116.7
													Min	42.3
													Max	193.4
													Average	93.5

### Location AM 3 - Garden Villa

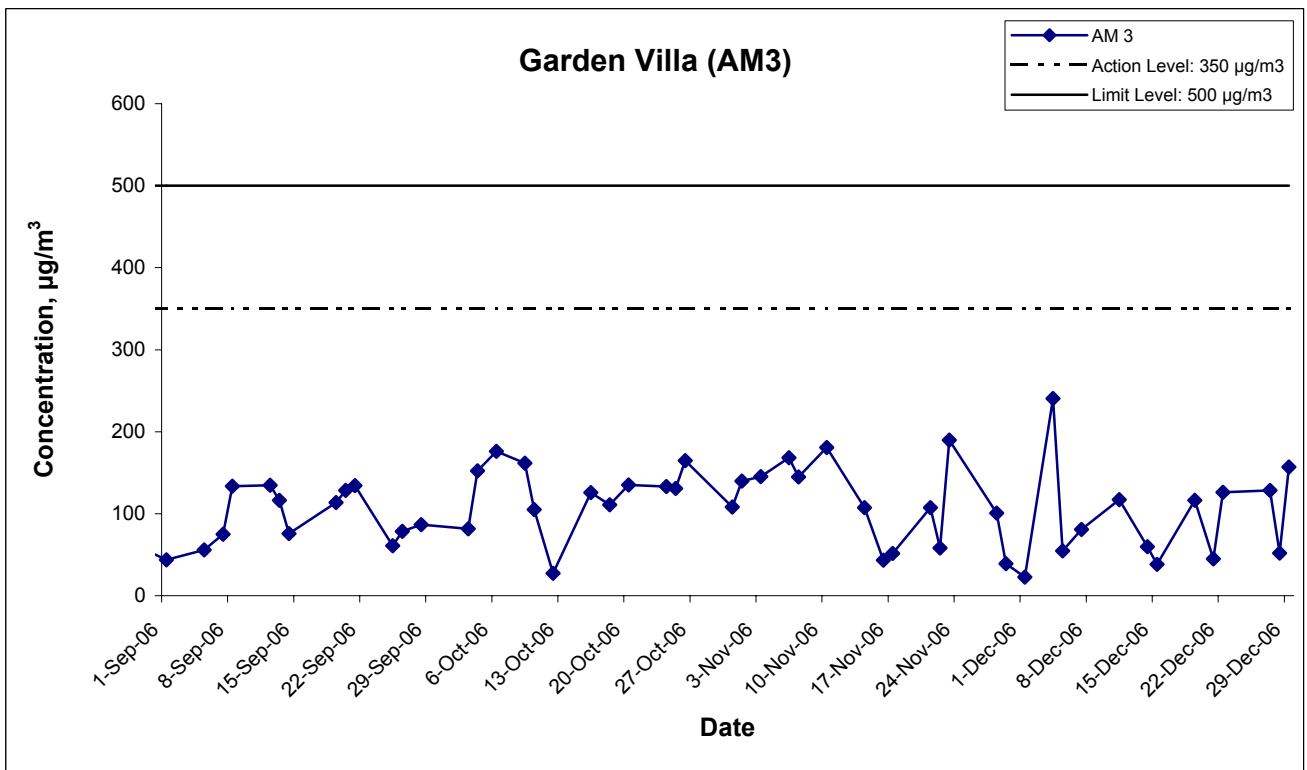
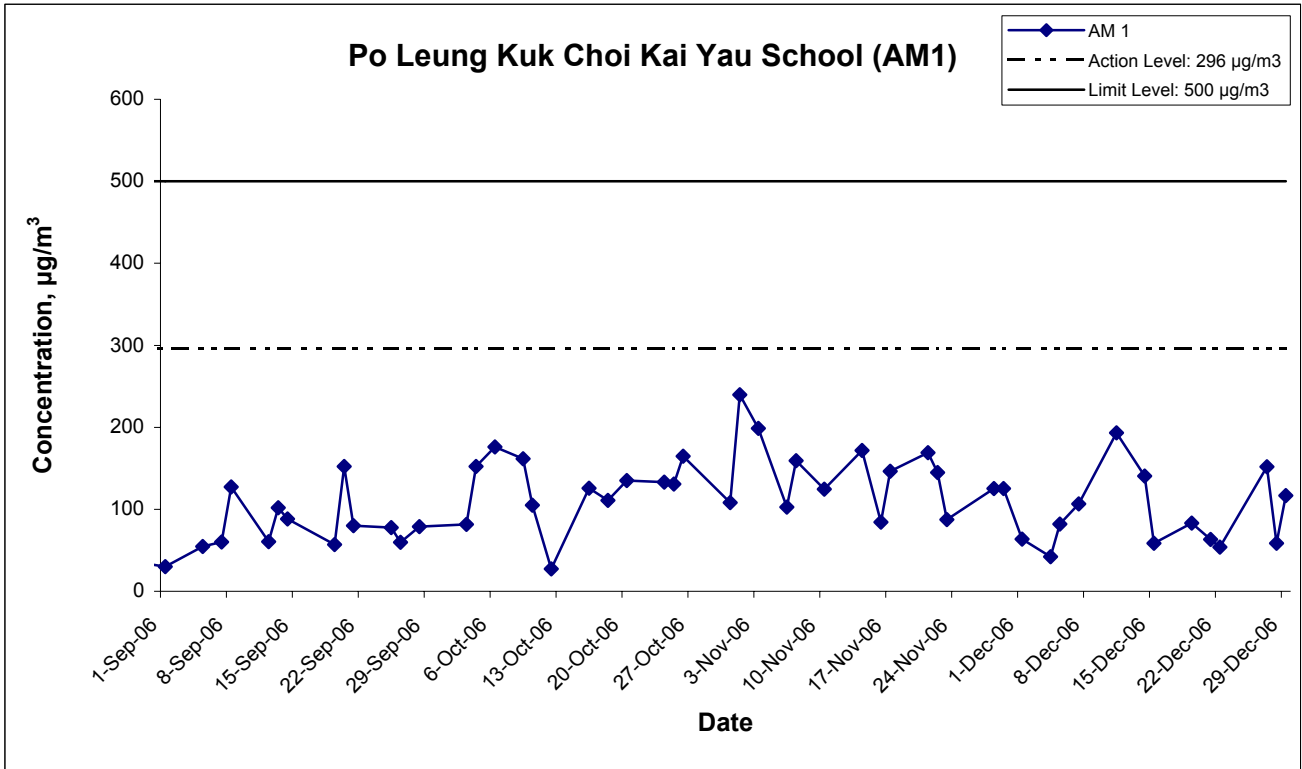
Date	Weather Condition	Filter Weight (g)		Flow Rate (m <sup>3</sup> /min.)		Elapse Time		Air Temp. (K)	Atmospheric Pressure(Pa)	Particulate weight(g)	Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
		Initial	Final	Initial	Final	Initial	Final							
1-Dec-06	Cloudy	2.8921	2.8938	1.24	1.24	5496.1	5497.1	295.5	766.8	0.0017	1.24	74.6	1.0	22.8
4-Dec-06	Cloudy	2.8727	2.8902	1.21	1.21	5521.1	5522.1	296.2	766.3	0.0175	1.21	72.8	1.0	240.4
5-Dec-06	Sunny	2.8523	2.8563	1.22	1.22	5522.1	5523.1	291.8	769.3	0.0040	1.22	73.3	1.0	54.6
7-Dec-06	Sunny	2.8593	2.8652	1.22	1.22	5135.5	5136.5	294.3	796.0	0.0059	1.22	73.0	1.0	80.9
11-Dec-06	Sunny	2.8365	2.8451	1.22	1.22	5048.1	5049.1	290.4	767.5	0.0086	1.22	73.4	1.0	117.2
14-Dec-06	Cloudy	2.9338	2.9382	1.22	1.22	5049.1	5050.1	289.1	765.9	0.0044	1.22	73.4	1.0	59.9
15-Dec-06	Cloudy	2.9135	2.9163	1.22	1.22	5074.1	5075.1	293.1	763.1	0.0028	1.22	73.0	1.0	38.4
19-Dec-06	Sunny	2.9031	2.9117	1.23	1.23	5075.1	5076.1	286.9	771.0	0.0086	1.23	73.9	1.0	116.4
21-Dec-06	Sunny	2.8941	2.8974	1.23	1.23	5100.1	5101.1	288.4	770.0	0.0033	1.23	73.7	1.0	44.8
22-Dec-06	Sunny	2.8818	2.8911	1.23	1.23	5101.1	5102.1	288.1	769.1	0.0093	1.23	73.7	1.0	126.3
27-Dec-06	Sunny	2.8864	2.8958	1.22	1.22	5102.1	5103.1	290.7	766.0	0.0094	1.22	73.3	1.0	128.3
28-Dec-06	Sunny	2.8967	2.9005	1.22	1.22	5127.1	5128.1	294.8	766.8	0.0038	1.22	72.9	1.0	52.1
29-Dec-06	Windy	2.8895	2.9011	1.23	1.23	5128.1	5129.1	286.0	771.3	0.0116	1.23	73.9	1.0	156.9
													Min	22.8
													Max	240.4
													Average	95.3

## Appendix E - 1-hour TSP Monitoring Results

### Location AM 4 - Government Quarters

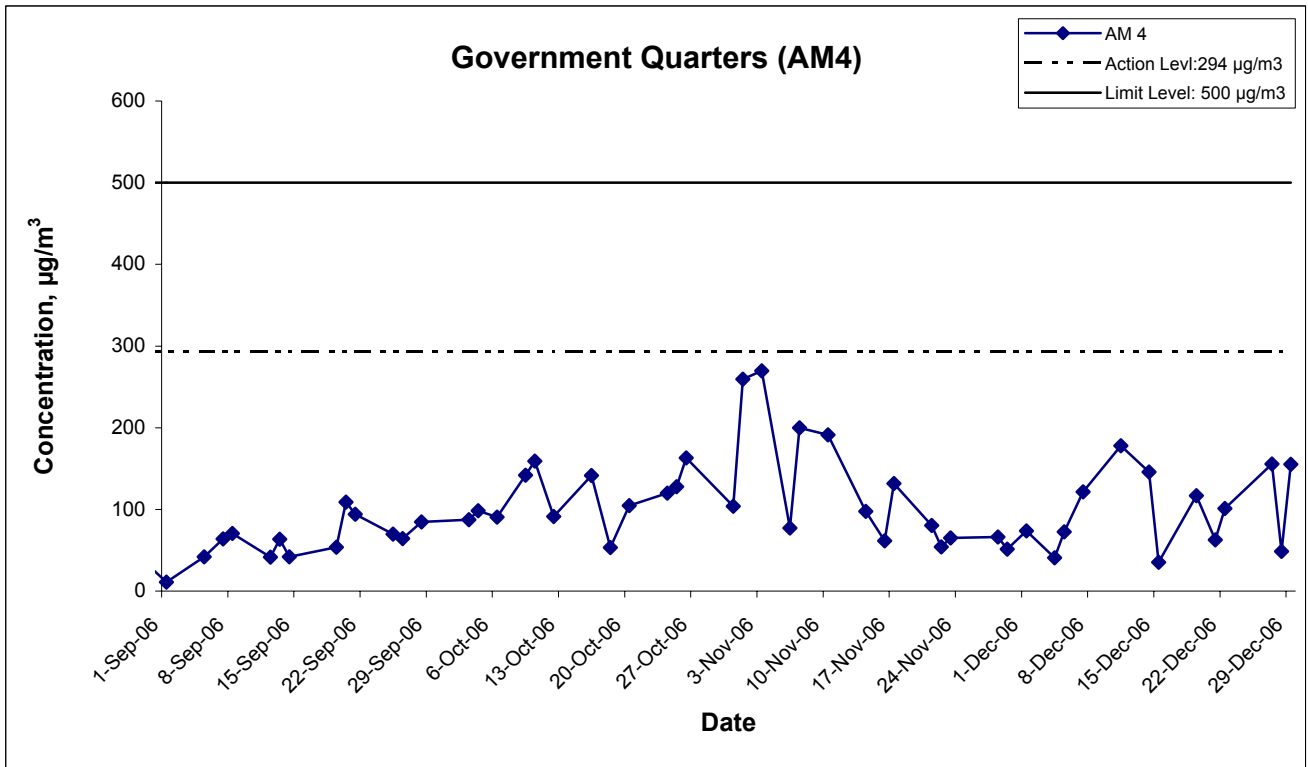
Date	Weather Condition	Filter Weight (g)		Flow Rate (m <sup>3</sup> /min.)		Elapse Time		Air Temp. (K)	Atmospheric Pressure(Pa)	Particulate weight(g)	Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
		Initial	Final	Initial	Final	Initial	Final							
1-Dec-06	Sunny	2.8583	2.8638	1.24	1.24	5108.5	5109.5	291.0	766.2	0.0055	1.24	74.5	1.0	73.8
4-Dec-06	Sunny	2.8979	2.9009	1.23	1.23	5133.5	5134.5	295.5	766.8	0.0030	1.23	74.0	1.0	40.6
5-Dec-06	Sunny	2.9023	2.9077	1.24	1.24	5134.5	5135.5	292.0	769.1	0.0054	1.24	74.5	1.0	72.5
7-Dec-06	Sunny	2.8635	2.8725	1.23	1.23	5023.1	5024.1	294.6	765.8	0.0090	1.23	74.0	1.0	121.6
11-Dec-06	Sunny	2.8633	2.8765	1.24	1.24	5160.5	5161.5	293.4	765.1	0.0132	1.24	74.1	1.0	178.0
14-Dec-06	Cloudy	2.8559	2.8668	1.25	1.24	5161.5	5162.5	289.3	765.7	0.0109	1.25	74.7	1.0	145.9
15-Dec-06	Rainy	2.8677	2.8703	1.24	1.24	5186.5	5187.5	292.9	763.3	0.0026	1.24	74.1	1.0	35.1
19-Dec-06	Sunny	2.8535	2.8623	1.25	1.25	5187.5	5188.5	286.9	770.9	0.0088	1.25	75.3	1.0	116.9
21-Dec-06	Sunny	2.8830	2.8877	1.25	1.25	5212.5	5213.5	288.9	769.5	0.0047	1.25	74.9	1.0	62.7
22-Dec-06	Sunny	2.8611	2.8687	1.25	1.25	5213.5	5214.5	288.1	769.1	0.0076	1.25	75.0	1.0	101.3
27-Dec-06	Sunny	2.8626	2.8742	1.24	1.24	5214.5	5215.5	290.7	766.0	0.0116	1.24	74.5	1.0	155.6
28-Dec-06	Sunny	2.8672	2.8708	1.24	1.24	5239.5	5240.5	293.7	765.9	0.0036	1.24	74.2	1.0	48.6
29-Dec-06	Windy	2.8877	2.8994	1.26	1.26	5240.5	5241.5	286.0	771.3	0.0117	1.26	75.4	1.0	155.2
													Min	35.1
													Max	178.0
													Average	100.6

### 1-hr TSP Levels



Title Route 8 (previously known as Route 9) between Cheung Sha Wan & Sha Tin Contract HY/2003/02 - Eagle's Nest Tunnel and Associated Works Graphical Presentation of 1-hour TSP Impact Monitoring Results	Scale N.T.S	Project No. MA3024	
	Date Dec 06	Appendix E	

### 1-hr TSP Levels



Title  
Route 8 (previously known as Route 9) between Cheung Sha Wan & Sha Tin  
Contract HY/2003/02 - Eagle's Nest Tunnel and Associated Works  
Graphical Presentation of 1-hour TSP Impact Monitoring  
Results

Scale  
N.T.S  
Date  
Dec 06

Project  
No. MA3024  
Appendix  
E



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**APPENDIX F  
24-HOUR TSP MONITORING RESULTS  
AND GRAPHICAL PRESENTATION**

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## Appendix F - 24-hour TSP Monitoring Results

### Location AM1 - Po Leung Kuk Choi Kai Yau School

Date	Weather Condition	Filter Weight (g)		Flow Rate (m <sup>3</sup> /min.)		Elapse Time		Air Temp. (K)	Atmospheric Pressure(Pa)	Particulate weight(g)	Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
		Initial	Final	Initial	Final	Initial	Final							
2-Dec-06	Sunny	2.8651	2.9224	1.23	1.23	5154.0	5178.0	288.8	766.9	0.0573	1.23	1776.8	24.0	32.2
8-Dec-06	Sunny	2.8706	2.9472	1.22	1.22	5181.1	5205.1	295.6	766.1	0.0766	1.22	1757.1	24.0	43.6
14-Dec-06	Rainy	2.8304	2.8606	1.23	1.23	5207.1	5231.1	289.3	765.7	0.0302	1.23	1774.1	24.0	17.0
20-Dec-06	Sunny	2.9225	3.0238	1.24	1.24	5233.1	5257.1	288.6	770.8	0.1013	1.24	1781.6	24.0	56.9
27-Dec-06	Sunny	2.8441	2.9696	1.23	1.23	5260.1	5284.1	291.4	765.4	0.1255	1.23	1767.9	24.0	71.0
													Min	17.0
													Max	71.0
													Average	44.1

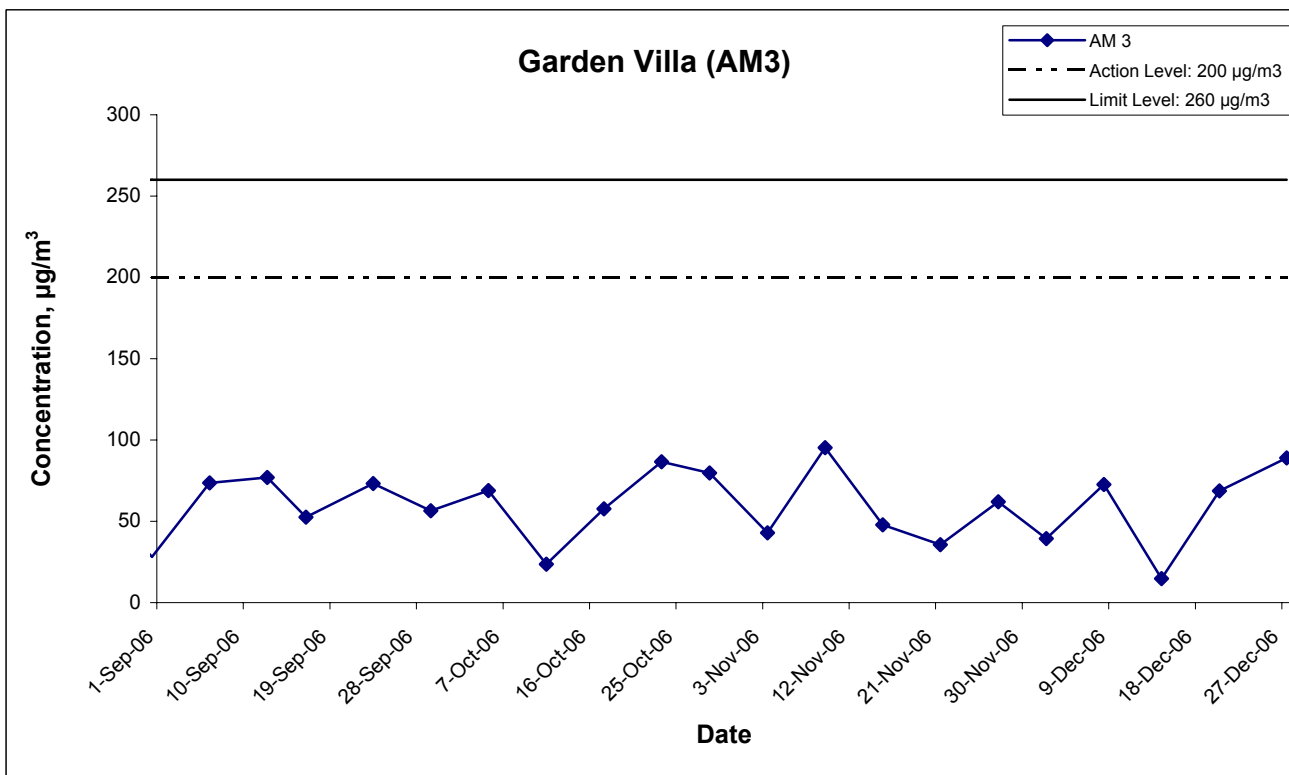
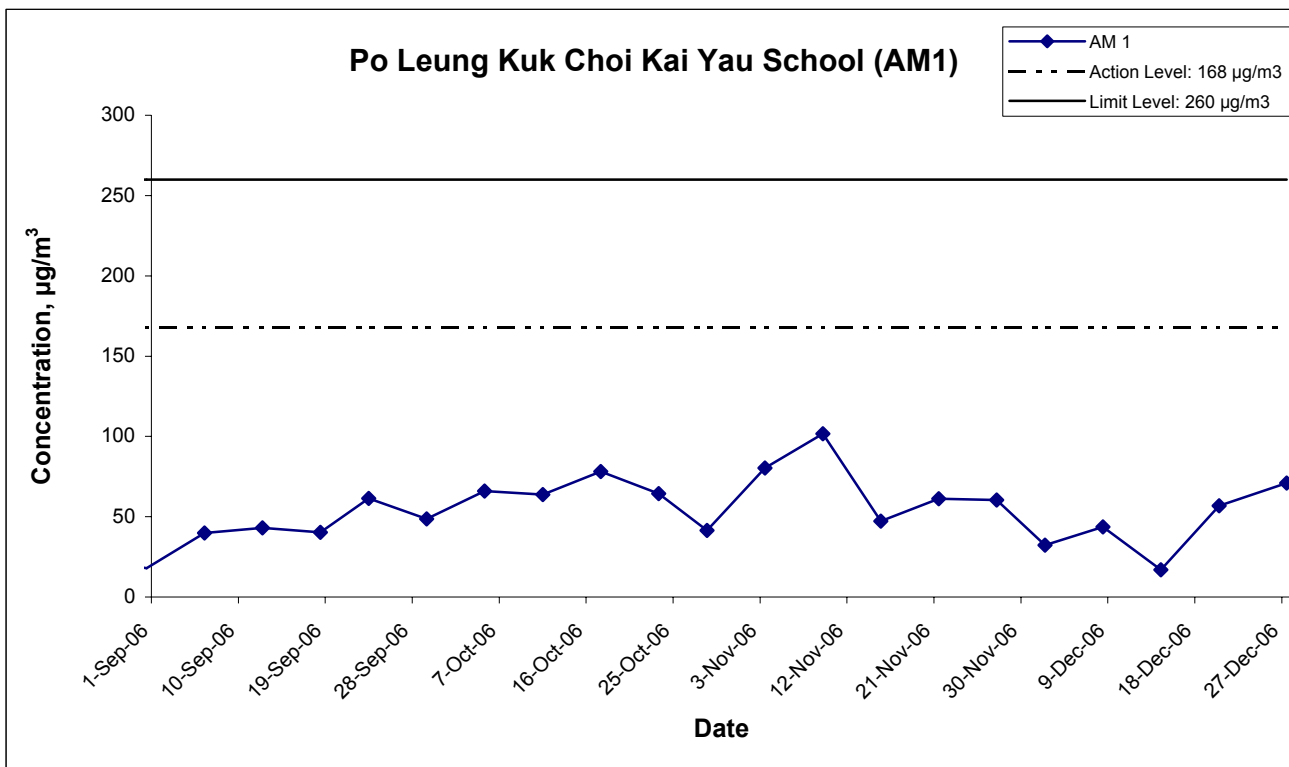
### Location AM 3 - Garden Villa

Date	Weather Condition	Filter Weight (g)		Flow Rate (m <sup>3</sup> /min.)		Elapse Time		Air Temp. (K)	Atmospheric Pressure(Pa)	Particulate weight(g)	Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
		Initial	Final	Initial	Final	Initial	Final							
2-Dec-06	Cloudy	2.8665	2.9358	1.23	1.23	5497.1	5521.1	288.6	767.0	0.0693	1.23	1764.6	24.0	39.3
8-Dec-06	Sunny	2.8474	2.9744	1.21	1.21	5024.1	5048.1	295.4	766.3	0.1270	1.21	1748.6	24.0	72.6
14-Dec-06	Cloudy	2.8442	2.8702	1.22	1.22	5050.1	5074.1	292.7	764.2	0.0260	1.22	1753.0	24.0	14.8
20-Dec-06	Sunny	2.8591	2.9805	1.23	1.23	5076.1	5100.1	288.6	770.8	0.1214	1.23	1767.9	24.0	68.7
27-Dec-06	Sunny	2.9061	3.0625	1.22	1.22	5103.1	5127.1	290.7	766.0	0.1564	1.22	1758.9	24.0	88.9
													Min	14.8
													Max	88.9
													Average	56.9

### Location AM 4 - Government Quarters

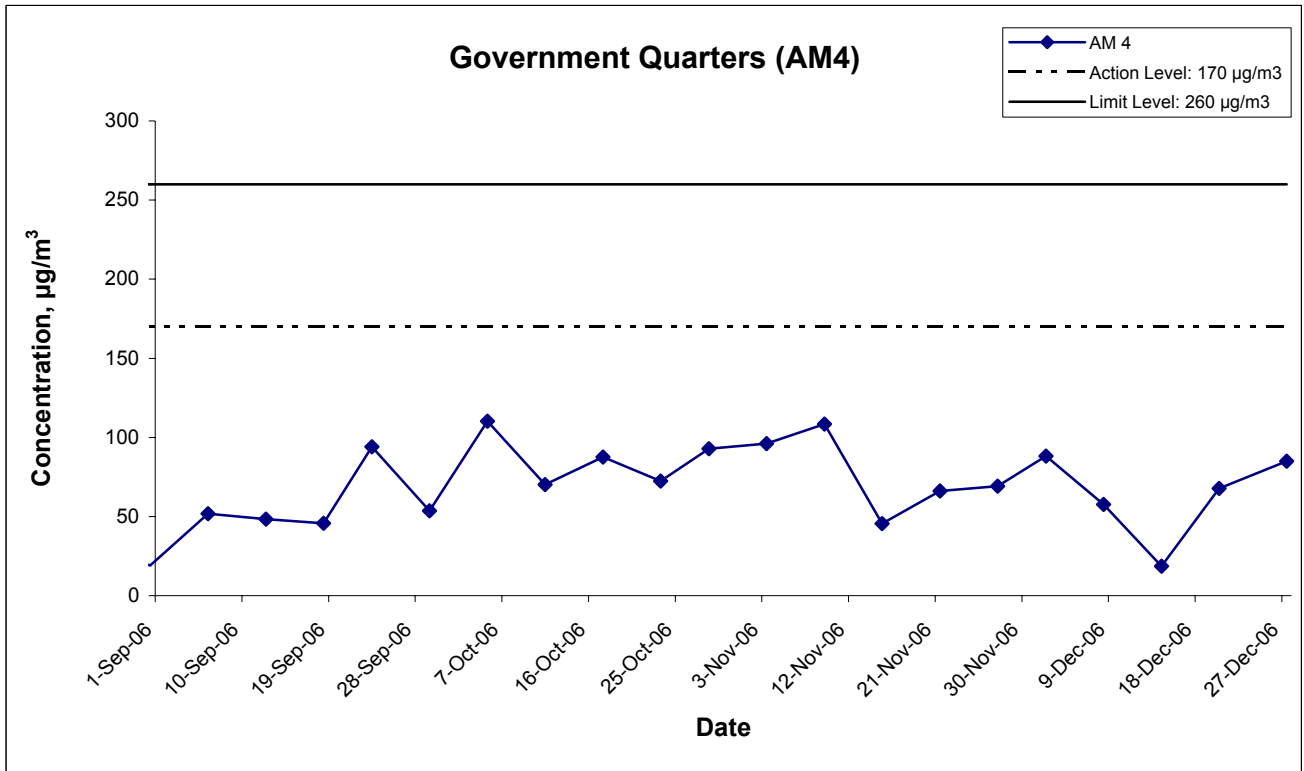
Date	Weather Condition	Filter Weight (g)		Flow Rate (m <sup>3</sup> /min.)		Elapse Time		Air Temp. (K)	Atmospheric Pressure(Pa)	Particulate weight(g)	Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )
		Initial	Final	Initial	Final	Initial	Final							
2-Dec-06	Sunny	2.8830	3.0414	1.25	1.25	5109.5	5133.5	288.8	766.9	0.1584	1.25	1795.6	24.0	88.2
8-Dec-06	Sunny	2.8893	2.9916	1.23	1.23	5136.5	5160.5	295.6	766.1	0.1023	1.23	1773.9	24.0	57.7
14-Dec-06	Rainy	2.8568	2.8901	1.25	1.24	5162.5	5186.5	289.3	765.7	0.0333	1.25	1792.7	24.0	18.6
20-Dec-06	Sunny	2.9092	3.0313	1.25	1.25	5188.5	5212.5	288.6	770.8	0.1221	1.25	1800.8	24.0	67.8
27-Dec-06	Sunny	2.8797	3.0314	1.24	1.24	5215.5	5239.5	291.4	765.4	0.1517	1.24	1785.9	24.0	84.9
													Min	18.6
													Max	88.2
													Average	63.4

### 24-hr TSP Levels



Title Route 8 (previously known as Route 9) between Cheung Sha Wan & Sha Tin Contract HY/2003/02 - Eagle's Nest Tunnel and Associated Works Graphical Presentation of 24-hour TSP Impact Monitoring Results	Scale N.T.S	Project No. MA3024	
	Date Dec 06	Appendix F	

## 24-hr TSP Levels



Title Route 8 (previously known as Route 9) between Cheung Sha Wan & Sha Tin Contract HY/2003/02 - Eagle's Nest Tunnel and Associated Works Graphical Presentation of 24-hour TSP Impact Monitoring Results	Scale N.T.S	Project No. MA3024	
	Date Dec 06	Appendix F	

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**APPENDIX G  
NOISE MONITORING RESULTS AND  
GRAPHICAL PRESENTATION**

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## Appendix G - Noise Monitoring Results

Location NM1 - Po Leung Kuk Choi Kai Yau School						
Date	Time	Weather	Unit: dB (A) (30-min)			Remarks
			Measured Noise Level			
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	
4-Dec-06	14:45	Sunny	69.7	72.0	62.5	
11-Dec-06	15:15	Fine	63.2	65.5	58.0	
19-Dec-06	10:50	Sunny	67.2	70.0	62.5	
27-Dec-06	09:15	Sunny	66.7	69.0	63.5	

Location NM5 - Villa Carlton								
Date	Time	Weather	Unit: dB (A) (30-min)			Remarks		
			Measured Noise Level				Baseline Level	Construction Noise Level
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>		L <sub>eq</sub>	L <sub>eq</sub>
4-Dec-06	14:00	Sunny	75.6	78.5	67.5	77.1	75.6, Measured ≤ Baseline	The major noise source was identified as traffic noise from Tai Po Road.
11-Dec-06	14:00	Fine	74.8	77.0	67.5		74.8, Measured ≤ Baseline	
19-Dec-06	10:00	Sunny	73.8	76.5	65.5		73.8, Measured ≤ Baseline	
27-Dec-06	10:05	Sunny	76.3	79.5	73.0		76.3, Measured ≤ Baseline	

Location NM6 - Government Quarters						
Date	Time	Weather	Unit: dB (A) (30-min)			Remarks
			Measured Noise Level			
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	
4-Dec-06	15:50	Sunny	67.0	69.5	60.5	
11-Dec-06	16:00	Fine	60.8	63.0	54.0	
19-Dec-06	11:30	Sunny	64.8	68.0	60.0	
27-Dec-06	11:00	Sunny	65.6	68.0	61.5	

Location NM7 - Garden Vilia								
Date	Time	Weather	Unit: dB (A) (30-min)			Remarks		
			Measured Noise Level				Baseline Level	Construction Noise Level
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>		L <sub>eq</sub>	L <sub>eq</sub>
4-Dec-06	16:55	Cloudy	68.2	70.5	64.5	59.0	67.6	
11-Dec-06	09:00	Sunny	69.1	71.5	65.5		68.7	
19-Dec-06	09:00	Sunny	68.1	70.5	63.5		67.5	
27-Dec-06	09:00	Sunny	66.7	68.5	63.5		65.9	

# Construction Noise Level (Leq) = Measured Noise Level (Leq) - Baseline Noise Level (Leq)

\*Bolded value indicated limit level exceedance

## Appendix G - Noise Monitoring Results

### Restricted Hours - 19:00 to 23:00 on normal weekdays

Location NM5 - Villa Carlton										
Date	Time	Weather	dB (A) (5-min)				Average L <sub>eq</sub>	Baseline Level	Construction Noise Level	Remarks
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>		L <sub>eq</sub>		
4-Dec-06	19:00	Fine	70.6	74.5	68.0	70.9	75.8	70.9, Measured ≤ Baseline	The major noise source was identified as traffic noise from Tai Po Road.	
	19:05		71.2	74.5	69.0					
	19:10		70.9	74.5	68.5					
11-Dec-06	19:00	Fine	68.4	73.0	66.5	69.5				
	19:05		70.2	73.5	67.5					
	19:10		69.6	73.5	67.0					
19-Dec-06	19:00	Fine	72.8	75.5	70.0	72.4				
	19:05		72.4	75.5	69.5					
	19:10		71.8	75.0	69.0					
27-Dec-06	19:00	Cloudy	71.7	76.0	68.5	71				
	19:05		69.9	75.0	68.0					
	19:10		71.3	75.5	68.0					

Location NM6 - Government Quarters										
Date	Time	Weather	dB (A) (5-min)				Average L <sub>eq</sub>	Baseline Level	Construction Noise Level	Remarks
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>		L <sub>eq</sub>		
4-Dec-06	19:40	Fine	54.6	58.0	53.0	54.7	56.1	54.7, Measured ≤ Baseline	-	
	19:45		54.5	58.0	53.0					
	19:50		55.0	58.5	53.5					
11-Dec-06	19:35	Fine	51.6	54.0	48.5	51.7				
	19:40		51.9	54.5	48.5					
	19:45		51.7	54.0	48.5					
19-Dec-06	19:50	Fine	54.8	58.0	50.5	54.9				
	19:55		55.0	58.5	51.0					
	20:00		54.8	58.0	51.0					
27-Dec-06	19:35	Cloudy	55.6	56.5	51.5	55.3				
	19:40		55.2	56.5	52.0					
	19:45		55.1	56.5	51.5					

Location NM7 - Garden Villa										
Date	Time	Weather	dB (A) (5-min)				Average L <sub>eq</sub>	Baseline Level	Construction Noise Level	Remarks
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>		L <sub>eq</sub>		
4-Dec-06	19:00	Cloudy	57.4	61.5	53.0	57.5	58.3	57.5, Measured ≤ Baseline	The major noise source was identified as traffic noise from Tai Po Road.	
	19:05		57.8	62.0	53.0					
	19:10		57.3	61.5	53.5					
11-Dec-06	19:00	Cloudy	58.2	60.0	54.0	58.3				
	19:05		58.4	59.5	54.0					
	19:10		58.2	59.5	53.5					
19-Dec-06	19:10	Cloudy	57.1	59.5	53.5	57.4				
	19:15		57.4	60.0	53.5					
	19:20		57.4	59.5	54.0					
27-Dec-06	19:00	Cloudy	58.3	59.5	55.0	58.3				
	19:05		58.2	59.5	55.5					
	19:10		58.5	59.5	55.0					

# Construction Noise Level (Leq) = Measured Noise Level (Leq) - Baseline Noise Level (Leq)

\*Bolted value indicated limit level exceedance

## Appendix G - Noise Monitoring Results

### Restricted Hours - 23:00 to 07:00 on normal weekdays

Location NM5 - Villa Carlton										
Date	Time	Weather	dB (A) (5-min)				Average L <sub>eq</sub>	Baseline Level	Construction Noise Level	Remarks
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>		L <sub>eq</sub>		
4-Dec-06	23:00	Fine	68.2	70.0	67.0	68.6	74.3	68.6, Measured ≤ Baseline	The major noise source was identified as traffic noise from Tai Po Road.	
	23:05		68.6	70.5	67.5					
	23:10		69.0	71.0	67.5					
11-Dec-06	23:00	Fine	70.1	73.0	68.5	70.7				
	23:05		69.8	73.0	68.0					
	23:10		70.7	73.0	68.5					
19-Dec-06	23:00	Fine	68.8	70.5	65.5	71.5				
	23:05		71.9	73.5	68.5					
	23:10		72.8	75.5	69.5					
27-Dec-06	23:00	Cloudy	68.8	73.0	65.0	69.3				
	23:05		69.3	73.5	66.0					
	23:10		69.7	73.5	66.5					

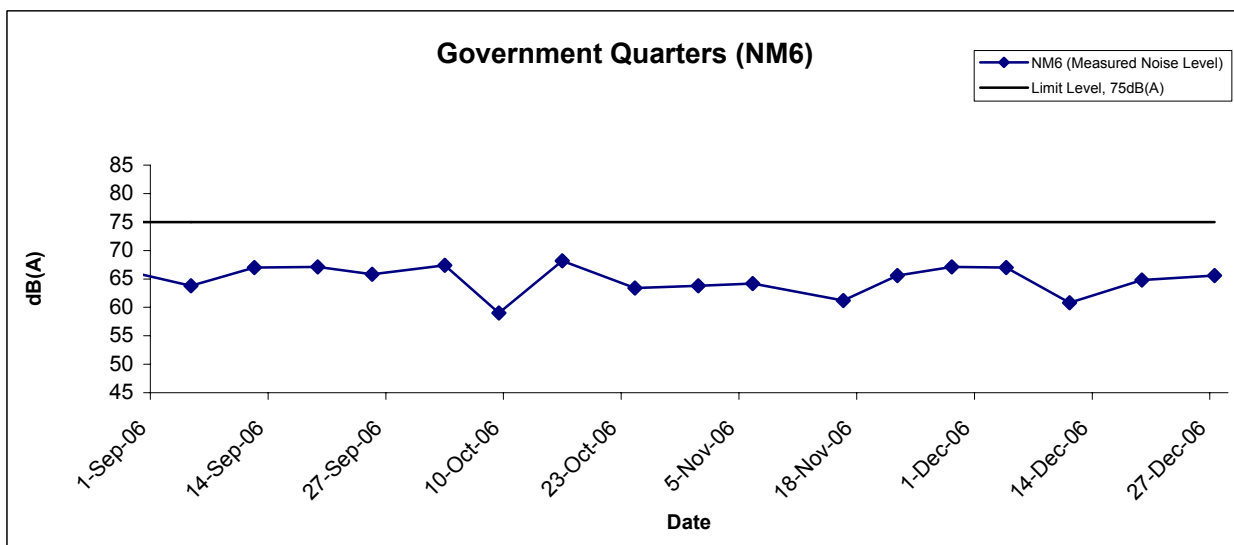
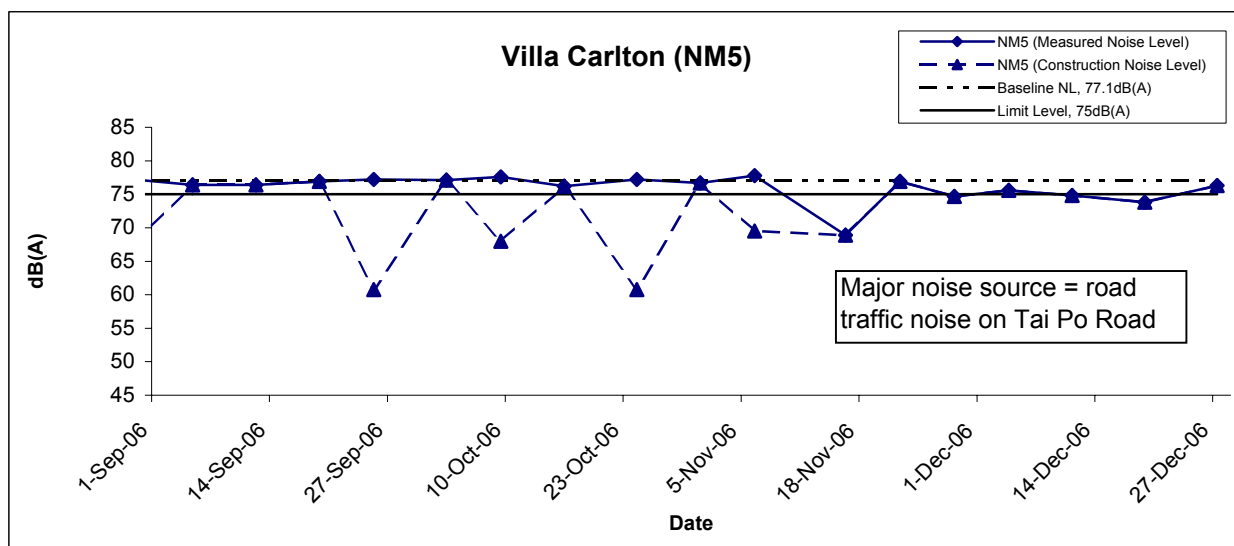
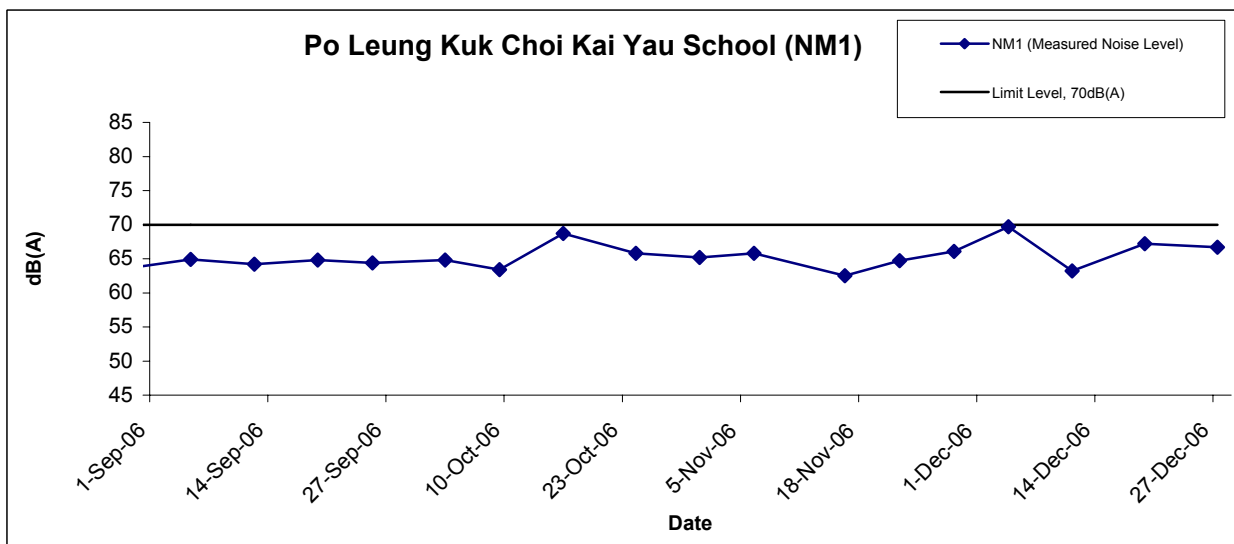
Location NM6 - Government Quarters										
Date	Time	Weather	dB (A) (5-min)				Average L <sub>eq</sub>	Baseline Level	Construction Noise Level	Remarks
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>		L <sub>eq</sub>		
4-Dec-06	23:25	Fine	52.2	54.0	48.5	52.2	52.8	52.2, Measured ≤ Baseline	The noise monitoring results are well within the range of Baseline Monitoring Level and there is no evidence showing that the dominant noise was generated from the construction activities.	
	23:30		52.6	54.0	48.5					
	23:35		51.8	54.0	47.5					
11-Dec-06	23:25	Fine	50.9	53.0	47.5	51.3				
	23:30		51.3	53.5	48.0					
	23:35		51.7	53.5	48.0					
19-Dec-06	23:25	Fine	49.5	51.5	48.0	49.9				
	23:30		50.2	52.0	48.0					
	23:35		50.1	52.0	48.0					
27-Dec-06	23:30	Cloudy	50.7	53.0	48.0	50.6				
	23:35		50.2	52.5	47.5					
	23:40		50.9	53.0	48.0					

Location NM7 - Garden Villa										
Date	Time	Weather	dB (A) (5-min)				Average L <sub>eq</sub>	Baseline Level	Construction Noise Level	Remarks
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>		L <sub>eq</sub>		
4-Dec-06	23:50	Fine	53.8	58.0	50.0	54.2	56.5	54.2, Measured ≤ Baseline	The major noise source was identified as traffic noise from Tai Po Road.	
	23:55		54.3	58.0	50.5					
	00:00		54.5	58.5	51.0					
11-Dec-06	23:50	Fine	53.1	56.5	50.5	53.1				
	23:55		52.8	56.5	50.5					
	00:00		53.4	56.5	51.0					
19-Dec-06	23:50	Fine	54.4	58.5	52.0	54.1				
	23:55		54.1	58.0	52.0					
	00:00		53.9	58.0	51.5					
27-Dec-06	23:55	Cloudy	55.2	57.5	51.5	54.8				
	00:00		54.8	57.0	51.0					
	00:05		54.5	57.0	51.0					

# Construction Noise Level (Leq) = Measured Noise Level (Leq) - Baseline Noise Level (Leq)

\*Bolted value indicated limit level exceedance

### Noise Levels

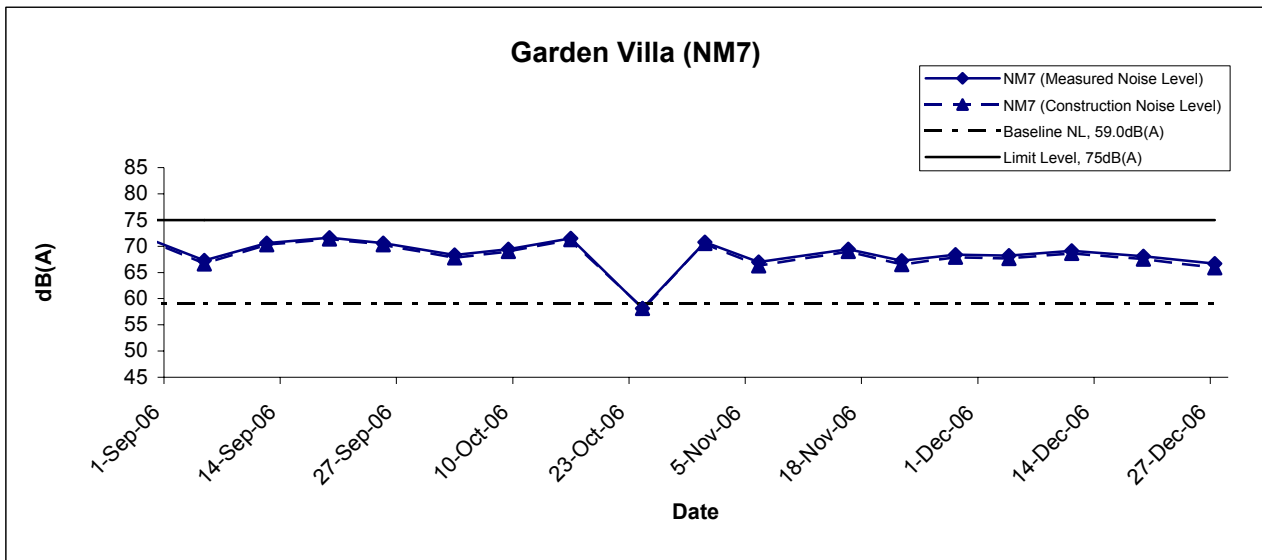


\* Construction Noise Level = Measured Noise Level - Baseline Level  
 (If the measured noise level is lower than the baseline level, the construction noise level will be taken as the measured one)

Title Route 8 (previously known as Route 9) between Cheung Sha Wan & Sha Tin Contract HY/2003/02 - Eagle's Nest Tunnel and Associated Works  Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA3024	
	Date Dec 06	Appendix G	



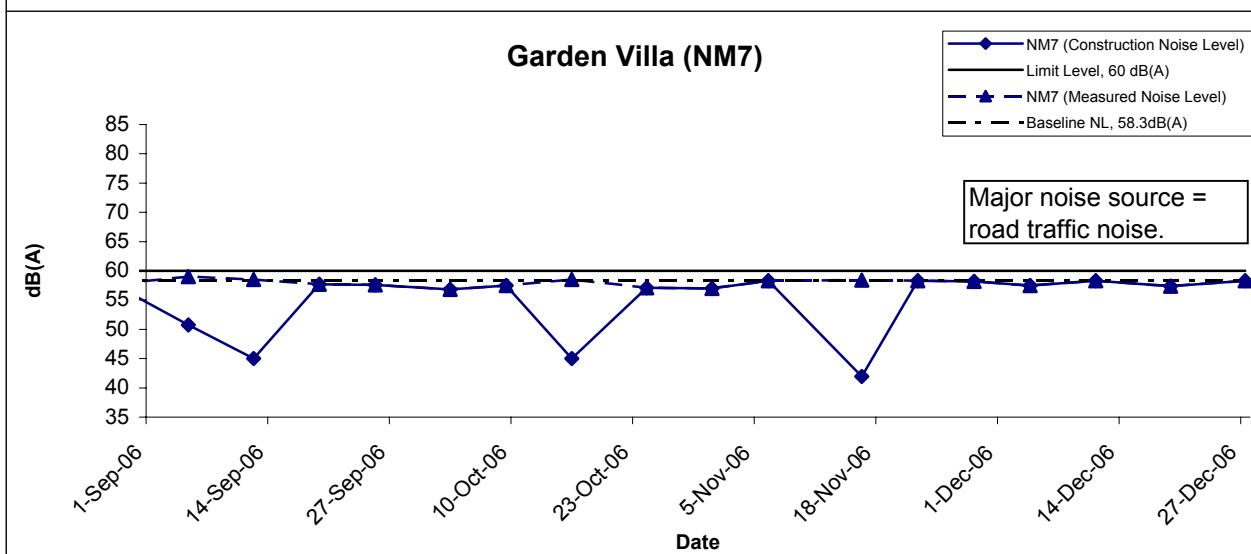
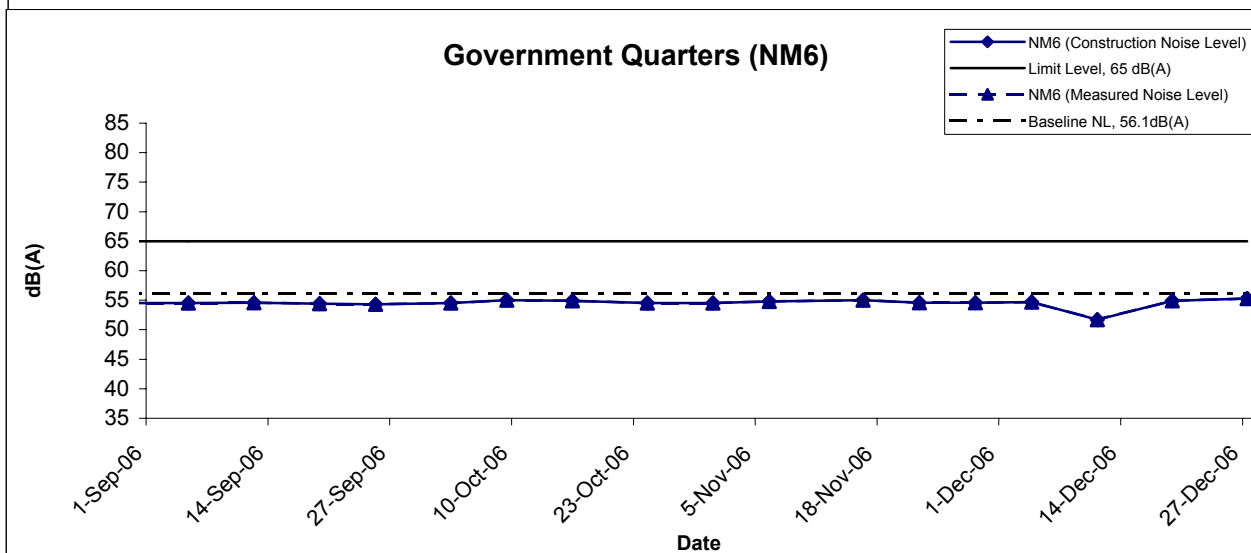
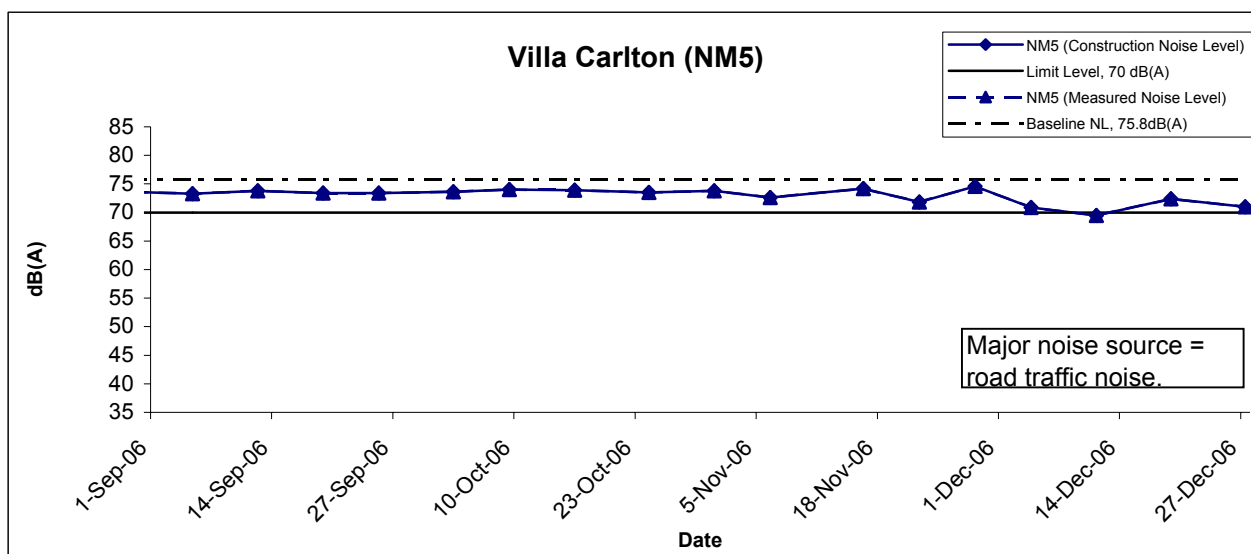
## Noise Levels



\* Construction Noise Level = Measured Noise Level - Baseline Level  
 (If the measured noise level is lower than the baseline level, the construction noise level will be taken as the measured one)

Title Route 8 (previously known as Route 9) between Cheung Sha Wan & Sha Tin Contract HY/2003/02 - Eagle's Nest Tunnel and Associated Works  Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA3024	CINOTECH
	Date Dec 06	Appendix G	

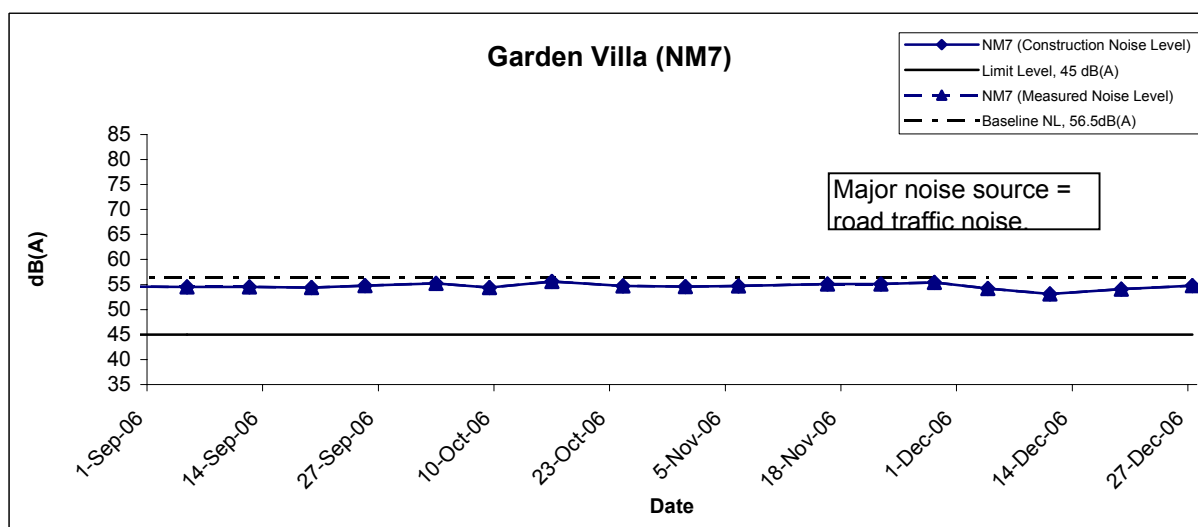
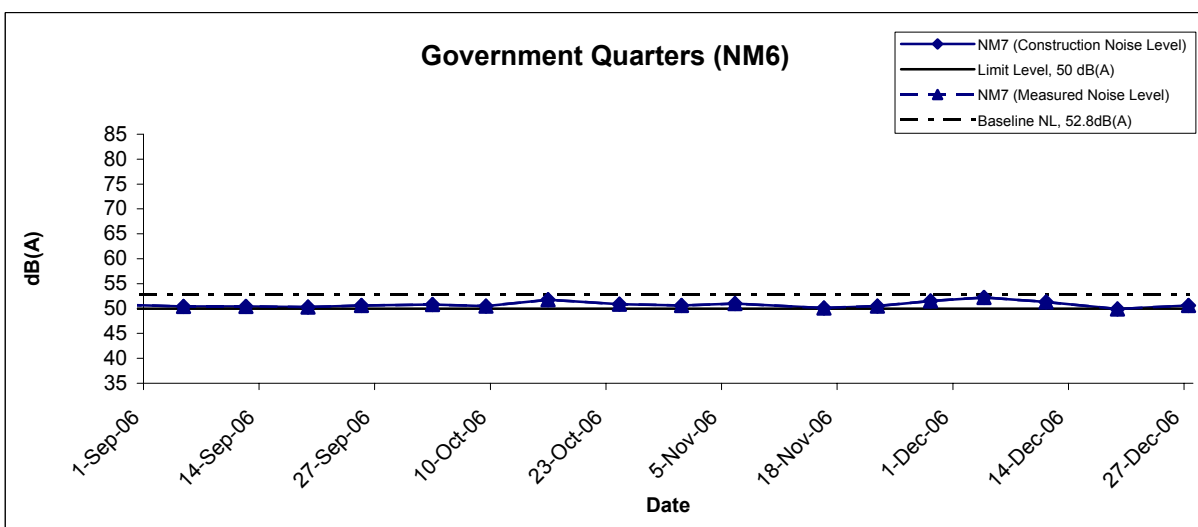
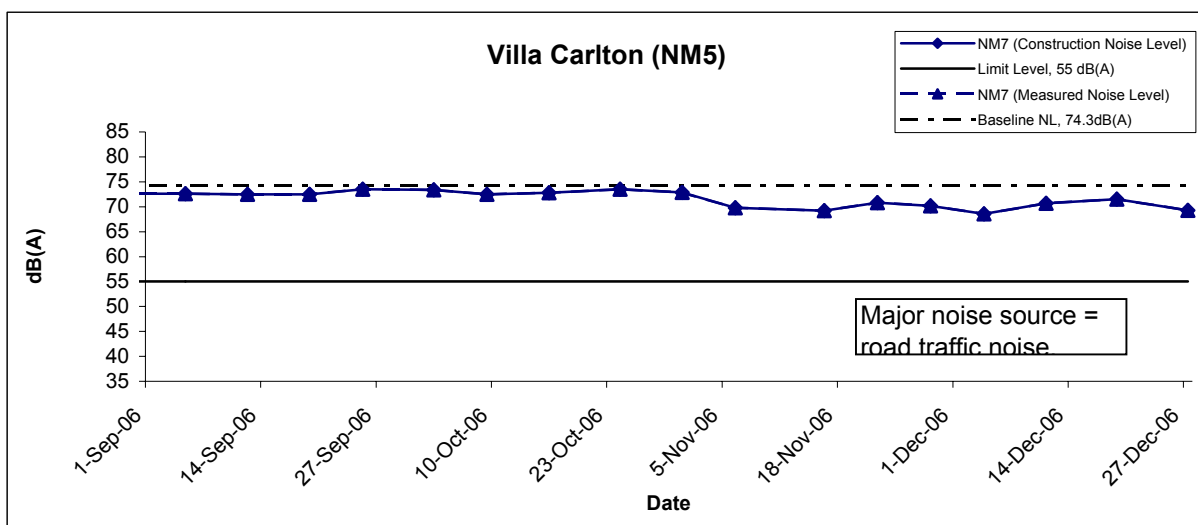
## Restricted Hours (19:00 to 23:00) - Noise Levels



\* Construction Noise Level = Measured Noise Level - Baseline Level  
 (If the measured noise level is lower than the baseline level, the construction noise level will be taken as the measured one)

Title Route 8 (previously known as Route 9) between Cheung Sha Wan & Sha Tin Contract HY/2003/02 - Eagle's Nest Tunnel and Associated Works  Graphical Presentation of Construction Noise Monitoring Results	Scale	Project No.	CINOTECH
	N.T.S	MA3024	
	Date	Appendix	
	Dec 06	G	

## Restricted Hours (23:00 to 07:00) - Noise Levels



\* Construction Noise Level = Measured Noise Level - Baseline Level  
 (If the measured noise level is lower than the baseline level, the construction noise level will be taken as the measured one)

Title Route 8 (previously known as Route 9) between Cheung Sha Wan & Sha Tin Contract HY/2003/02 - Eagle's Nest Tunnel and Associated Works  Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA3024	CINOTECH
	Date Dec 06	Appendix G	

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**APPENDIX H  
SUMMARY OF EXCEEDANCE**

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### **Summary of Exceedances Recorded in the Reporting Month**

**a) Exceedance Report for 1-hr TSP: (NIL)**

**b) Exceedance Report for 24-hr TSP: (NIL)**

**c) Exceedance Report for Construction Noise: (NIL)**

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

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**APPENDIX I  
SITE AUDIT SUMMARY**

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**Route 8 (previously known as Route 9) between Cheung Sha Wan and Sha Tin  
 Environmental Team for Lai Chi Kok Viaduct and Eagle's Nest Tunnel  
 Contract No. HY/2003/02 – Eagle's Nest Tunnel and Associated Works**

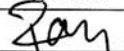
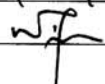
**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	61205-ENT
Date	5 December 2006 (Tue)
Time	14:00 – 16:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
61205E-01R	<p><b>A. Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>B. Air Quality</b></p> <ul style="list-style-type: none"> <li>Stockpile of dusty material at Portion D4 near Shatin Heights Tunnel, which was being used during the inspection, was observed not to be covered properly. The Contractor was reminded to cover the stockpile properly once the works finished.</li> </ul> <p><b>C. Noise</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>D. Waste / Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>E. Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>F. Others</b></p> <ul style="list-style-type: none"> <li>All environmental deficiencies identified in last audit (Ref. No.: 61129-ENT) on 29<sup>th</sup> November 2006 were rectified by the Contractor.</li> <li>Spot checking for dump truck (loaded) was carried out during site inspection for duration of 15 minutes. There was no dump truck with loads without proper cover leaving the construction site was observed.</li> </ul>	C8

	Name	Signature	Date
Recorded by	Mr. Ray Yan		6 December 2006
Checked by	Dr. Priscilla Choy		6 December 2006

*Route 8 (previously known as Route 9) between Cheung Sha Wan and Sha Tin  
 Environmental Team for Lai Chi Kok Viaduct and Eagle's Nest Tunnel  
 Contract No. HY/2003/02 – Eagle's Nest Tunnel and Associated Works*

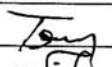

**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	61213-ENT
Date	13 December 2006 (Wed)
Time	9:20 – 11:30 a.m.

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
61213-01R	<p><b>A. Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>B. Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>C. Noise</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>D. Waste / Chemical Management</b></p> <ul style="list-style-type: none"> <li>Oil stain was observed on bare ground near Administration Building. The Contractor was reminded to clear the stain as soon as possible.</li> </ul> <p><b>E. Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>F. Others</b></p> <ul style="list-style-type: none"> <li>All environmental deficiencies identified in last audit (Ref. No.: 61205-ENT) on 5<sup>th</sup> December 2006 were rectified by the Contractor.</li> <li>Spot checking for dump truck (loaded) was carried out during site inspection for duration of 15 minutes. There was no dump truck with loads without proper cover leaving the construction site was observed.</li> </ul>	E2ii

	Name	Signature	Date
Recorded by	Tommy Ho		19 December 2006
Checked by	Dr. Priscilla Choy		19 December 2006



**Route 8 (previously known as Route 9) between Cheung Sha Wan and Sha Tin  
 Environmental Team for Lai Chi Kok Viaduct and Eagle's Nest Tunnel  
 Contract No. HY/2003/02 – Eagle's Nest Tunnel and Associated Works**

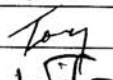
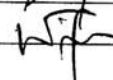
**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	61220-ENT
Date	20 December 2006 (Wed)
Time	9:15 – 11:45 a.m.

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><b>A. Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>B. Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>C. Noise</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>D. Waste / Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>E. Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>F. Others</b></p> <ul style="list-style-type: none"> <li>All environmental deficiencies identified in last audit (Ref. No.: 61213-ENT) on 13<sup>th</sup> December 2006 were rectified by the Contractor.</li> <li>Spot checking for dump truck (loaded) was carried out during site inspection for duration of 15 minutes. There was no dump truck with loads without proper cover leaving the construction site was observed.</li> </ul>	

	Name	Signature	Date
Recorded by	Tommy Ho		21 December 2006
Checked by	Dr. Priscilla Choy		21 December 2006

**Route 8 (previously known as Route 9) between Cheung Sha Wan and Sha Tin  
 Environmental Team for Lai Chi Kok Viaduct and Eagle's Nest Tunnel  
 Contract No. HY/2003/02 – Eagle's Nest Tunnel and Associated Works**

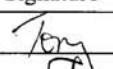
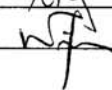
**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	61227-ENT
Date	27 December 2006 (Wed)
Time	9:15 – 11:30 a.m.

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><b>A. Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>B. Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>C. Noise</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>D. Waste / Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>E. Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>F. Others</b></p> <ul style="list-style-type: none"> <li>Follow-up on previous audit (Ref. No.: 61220-ENT), no environmental deficiency was identified during the site inspection.</li> <li>Spot checking for dump truck (loaded) was carried out during site inspection for duration of 15 minutes. There was no dump truck with loads without proper cover leaving the construction site was observed.</li> </ul>	

	Name	Signature	Date
Recorded by	Tommy Ho		27 December 2006
Checked by	Dr. Priscilla Choy		27 December 2006

**Route 8 (previously known as Route 9) between Cheung Sha Wan and Sha Tin  
 Environmental Team for Lai Chi Kok Viaduct and Eagle's Nest Tunnel  
 Contract No. HY/2003/02 – Eagle's Nest Tunnel and Associated Works**

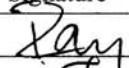
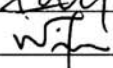
**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	61205-ENT-TCSS
Date	15 December 2006 (Fri)
Time	15:30 – 16:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><b>A. Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>B. Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>C. Noise</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>D. Waste / Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>E. Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>F. Others</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul>	

	Name	Signature	Date
Recorded by	Mr. Ray Yan		18 December 2006
Checked by	Dr. Priscilla Choy		18 December 2006

**Route 8 - Environmental Team for Lai Chi Kok Viaduct and Eagle's Nest Tunnel**  
**Contract No. HY/2003/05 – Traffic Control and Surveillance System**

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

**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	61220-ENT-TCSS
Date	20 December 2006 (Wed)
Time	9:15 – 11:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><b>A. Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>B. Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>C. Noise</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>D. Waste / Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>E. Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>F. Others</b></p> <ul style="list-style-type: none"> <li>Follow-up for previous audit session (Ref. No.: 61215-ENT-TCSS), no environmental deficiency was identified during the site inspection.</li> </ul>	

	Name	Signature	Date
Recorded by	Tommy Ho		21 December 2006
Checked by	Dr. Priscilla Choy		21 December 2006

**Route 8 - Environmental Team for Lai Chi Kok Viaduct and Eagle's Nest Tunnel**  
**Contract No. HY/2003/05 – Traffic Control and Surveillance System**



**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	61227-ENT-TCSS
Date	27 December 2006 (Wed)
Time	9:15 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p><b>A. Water Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>B. Air Quality</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>C. Noise</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>D. Waste / Chemical Management</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>E. Permit / Licenses</b></p> <ul style="list-style-type: none"> <li>No environmental deficiency was identified during the site inspection.</li> </ul> <p><b>F. Others</b></p> <ul style="list-style-type: none"> <li>Follow-up for previous audit session (Ref. No.: 61220-ENT-TCSS), no environmental deficiency was identified during the site inspection.</li> </ul>	

	Name	Signature	Date
Recorded by	Tommy Ho		27 December 2006
Checked by	Dr. Priscilla Choy		27 December 2006

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**APPENDIX J**  
**EVENT ACTION PLANS**

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## Appendix J - Event Action Plans

### Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	Contractor
<b>ACTION LEVEL</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source</li> <li>2. Inform ER &amp; IEC</li> <li>3. Repeat measurement to confirm finding</li> <li>4. Increase monitoring frequency to daily</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET</li> <li>2. Check Contractor's working methods</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor</li> <li>2. Check monitoring data and Contractor's working methods</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practice</li> <li>2. Amend working methods if appropriate</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source</li> <li>2. Inform ER &amp; IEC</li> <li>3. Repeat measurement to confirm findings</li> <li>4. Increase monitoring frequency to daily</li> <li>5. Discuss with ER &amp; for remedial actions required</li> <li>6. If exceedance continues, arrange meeting with ER &amp; IEC</li> <li>7. If exceedance stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Checking monitoring data submitted by ET</li> <li>2. Check Contractor's working methods</li> <li>3. Discuss with ET and Contractor on possible remedial measure</li> <li>4. Advise the ER &amp; ET on the effectiveness of the proposed remedial measures</li> <li>5. Supervise the implementation of the remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing</li> <li>2. Notify Contractor</li> <li>3. Check Contractor's working methods</li> <li>4. Discuss with ET, IEC and Contractor on proposed remedial actions</li> <li>5. Ensure remedial actions properly implemented</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial actions to ER within 3 working days of notification</li> <li>2. Implement the agreed proposals</li> <li>3. Amend proposal if appropriate</li> </ol>
<b>LIMIT LEVEL</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source</li> <li>2. Inform ER &amp; IEC and EPD</li> <li>3. Repeat measurement to confirm finding</li> <li>4. Increase monitoring frequency to daily</li> <li>5. Assess effectiveness of Contractor's</li> </ol>	<ol style="list-style-type: none"> <li>1. Checking monitoring data submitted by ET</li> <li>2. Check Contractor's working methods</li> <li>3. Discuss with ET and Contractor on possible remedial measure</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing</li> <li>2. Notify Contractor</li> <li>3. Check Contractor's working methods</li> <li>4. Discuss with ET, IEC and Contractor on</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance</li> <li>2. Submit proposals for remedial actions to ER within 3 working days of notification</li> </ol>

EVENT	ACTION			
	ET	IEC	ER	Contractor
	remedial actions and keep EPD and ER & IEC informed of the results	4. Advise the ER & ET on the effectiveness of the proposed remedial measures 5. Supervise the implementation of the remedial measures	proposed remedial actions 5. Ensure remedial actions properly implemented	3. Implement the agreed proposals 4. Amend proposal if appropriate
2. Exceedance for two or more consecutive samples	1. Identify source 2. Inform ER, IEC, Contractor and EPD the cause & actions taken for the exceedances 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily 5. Investigate the causes of exceedance 6. Carry out analysis of contractor's working procedures to determine possible mitigation to be implemented. 7. Arrange meeting with EPD, IEC and ER to discuss the remedial actions to be taken 8. Assess effectiveness of Contractor's remedial actions and keep EPD and ER & IEC informed of the results 9. If exceedance stops, cease additional monitoring	1. Checking monitoring data submitted by ET 2. Discuss amongst ER, ET and Contractor on possible remedial measures 3. Review Contractor's remedial measures whenever necessary to ensure their effectiveness and advise the ER accordingly 4. Supervise the implementation of the remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 4. Discuss amongst ET, IEC and the Contractor on proposed remedial actions 5. In consultation with IEC, agree with the contractor remedial measures to be implemented 6. Ensure remedial measure are properly implemented 7. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC, ER within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated



Event/Action Plan for Construction Noise

Exceedance	ACTION			
	ET	IEC	ER	Contractor
Action Level	<p>1. Discuss with the IEC and ER and seek to identify potential noise source</p> <p>2. Undertake noise measurement to confirm the validity of complaint</p> <p>3. Inform ER&amp;IEC in writing Discuss remedial actions required with ER&amp;IEC if an exceedance is recorded</p> <p>4. Increase monitoring frequency to demonstrate efficacy of remedial measures</p> <p>5. If exceedance continues, meet with ER&amp;IEC to review implementation of appropriate mitigation measures.</p> <p>6. If exceedance stops, cease additional monitoring</p>	<p>1. Review the analyzed results submitted by the ET</p> <p>2. Review the proposed remedial measures by the Contractor and advise the ER &amp; ET accordingly</p> <p>3. Supervise the implementation of remedial measures</p>	<p>1. Confirm receipt of notification of complaint and notify Contractor immediately</p> <p>2. Check monitoring data trends and Contractor's working methods</p> <p>3. Remind the Contractor of his contractual obligations and discuss with ET, IEC and Contractor on proposed remedial actions</p> <p>4. Assess the efficacy of remedial actions and keep the Contractor informed</p> <p>5. Inform complainant of actions taken</p>	<p>1. Submit proposals for remedial actions to ER within three working days of notification</p> <p>2. Amend proposals if required by the Engineer</p> <p>3. Implement the remedial actions immediately upon instruction</p> <p>4. Liaise with the ER to optimize the effectiveness of the agreed mitigation</p> <p>5. Amend proposal if appropriate</p>

Exceedance	ACTION			
	ET	IEC	ER	Contractor
Limit Level	<ol style="list-style-type: none"> <li>1. Repeat measurement to confirm findings</li> <li>2. Investigate the cause of the exceedance and identify the main source(s) of impact</li> <li>3. Inform ER&amp;IEC and EPD in writing</li> <li>4. Discuss remedial actions required with ER&amp;IEC</li> <li>5. Increase monitoring frequency to demonstrate efficacy of remedial measures</li> <li>6. Assess efficacy of remedial actions and keep ER &amp; IEC informed of the results</li> <li>7. If exceedance continues, meet with ER&amp;IEC to identify appropriate mitigation measures</li> <li>8. If exceedance stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET</li> <li>2. Review Contractor's remedial actions to assure their effectiveness and advise the ER &amp;ET accordingly</li> <li>3. Supervise the implementation of the remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance and notify Contractor</li> <li>2. Check monitoring data trends and Contractor's working methods</li> <li>3. Discuss with ET, IEC and Contractor on proposed remedial actions to be implemented</li> <li>4. Assess the efficacy of remedial actions and keep the Contractor informed</li> <li>5. If exceedance continuous, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is aborted</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance</li> <li>2. Submit proposals for remedial actions to ER immediately not more than 3 working days of notification</li> <li>3. Amend proposals if required by the ER</li> <li>4. Implement remedial actions immediately upon instruction</li> <li>5. Liaise with the ER to optimize the effectiveness of the agreed mitigation</li> <li>6. Resubmit proposals if problem still not under control</li> <li>7. Stop the relevant portion of works as determined by the ER until the exceedance is aborted</li> </ol>

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**APPENDIX K  
ENVIRONMENTAL MITIGATION  
IMPLEMENTATION SCHEDULE (EMIS)**

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## Appendix K - Summary of Environmental Mitigation Implementation Schedule

Types of Impacts	Mitigation Measures	Status
<b>Construction Dust</b>	<ul style="list-style-type: none"> <li>• Any stockpile of dusty materials or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water so as to maintain the entire surface wet.</li> <li>• A stockpile of dusty materials should not extend beyond the pedestrian barriers, fencing or traffic cones.</li> <li>• Vehicle washing facilities should be provided at every exit point.</li> <li>• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.</li> <li>• Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit.</li> <li>• Every main haul road should be sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet.</li> <li>• The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials.</li> <li>• Any stockpile of dusty materials should be either covered entirely by impervious sheeting, placed in an area sheltered on the top and the 3 sides or sprayed with water or a dust suppression chemical so as to maintain the entire surface wet.</li> <li>• All dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.</li> <li>• Every vehicle should be washed to remove any dusty materials from its body and wheels immediately before leaving a construction site.</li> <li>• The working area of any excavation should be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet.</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
<b>Construction Noise</b>	<ul style="list-style-type: none"> <li>• Only well-maintained plant should be operated on –site and plant should be serviced regularly during the construction works.</li> <li>• Machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.</li> <li>• Plant known to emit noise strongly in one direction, should where possible, be orientated to direct noise away from the NSRS.</li> <li>• Mobile plant should be sited as far away from NSRs as possible.</li> <li>• Material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> <li>• Use quiet plant and Working Method</li> <li>• Reduce the number of plant operating in critical areas close NSRs.</li> </ul>	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

Types of Impacts	Mitigation Measures	Status
	<ul style="list-style-type: none"> <li>Construct temporary and movable noise barriers</li> </ul>	^
Water Quality	<i>Construction Runoff and Drainage</i>	
	<ul style="list-style-type: none"> <li>Use of sediment traps and the adequate maintenance of drainage systems to prevent flooding and overflow.</li> <li>Boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilities runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates.</li> <li>All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment traps should be regularly cleaned and maintained. The temporarily diverted drainage should be reinstated to its original condition when the construction works has finished or the temporary diversion is no longer required</li> <li>Sand silt in the wash water from the wheel washing facilities, which ensure no earth, mud and debris is deposited on roads, should be settled out the removed before discharging into storm drains. A section of the road between the wheel washing bay and the public road should be paved with backfill to prevent wash water or other site runoff form entering public road drains.</li> <li>Oil interceptors should be provided in the drainage system and regularly emptied to prevent the release of oils and grease into the storm water drainage system after accidental spillage. The interceptor should have a bypass to prevent flushing during periods of heavy rain.</li> <li>Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks.</li> <li>Silt removal facilities, channels and manholes shall be suitably maintained with the deposited silt and grit being removed at least once a week, and at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.</li> <li>Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate intercepting channels shall be provided along the site boundary or at the locations agreed with the ET Leader. Rainwater pumped out from trenches or foundation excavations shall be discharged into silt removal facilities before discharge into storm drains.</li> <li>All generators, fuel and oil storage shall be within bunded areas. Drainage from the areas shall be connected to storm drains via a petrol interceptor.</li> </ul>	^ ^ ^ ^ ^ ^ ^ ^
	<i>Tunnelling Work</i>	
	<ul style="list-style-type: none"> <li>Temporary open storage of excavated materials should be covered with tarpaulin or similar fabric during rainstorms. Any washout of construction or excavated materials form the drill and blast tunnelling work should be diverted to the drainage system via appropriate sediment traps.</li> <li>Ground water pumped out of tunnels should be discharged into the drainage channels which incorporated sediment traps to enhance deposition rates and to remove silt.</li> </ul>	^ ^

Types of Impacts	Mitigation Measures	Status
	<ul style="list-style-type: none"> <li>• Spent grouts used in diaphragm wall construction should be collected in a separate slurry collection system, reconditioned and reused wherever practicable. The disposal of used grouting materials will only be permitted if it is treated to the TM standards before discharge to the storm drains or disposal to landfill.</li> </ul>	N/A
	<i>General Construction Activities</i>	
	<ul style="list-style-type: none"> <li>• Debris and rubbish on site should be collected, handled and disposed of properly to avoid entering the water column and cause water quality impacts.</li> <li>• All fuel tanks and storage areas will be provided with locks and be located on sealed areas (within bunds of a capacity equal to 110% of the storage capacity of the largest tank or 20% by volume of the fuel stored in that areas, whichever in the greatest).</li> </ul>	^ ^
	<i>Sewage Effluent</i>	
	<ul style="list-style-type: none"> <li>• Construction work force sewage discharges from fixed toilet facilities on-site should be connected to the nearby existing trunk sewer wherever feasible. However, for areas where existing trunk sewer is not available, it is recommended that appropriate and adequate on site portable chemical toilets should be provided by a licensed contractor who will be responsible for appropriate disposal and maintenance of these facilities.</li> <li>• It is considered that sewage discharges could also be treated by on-site septic tanks and soakaway. Minimum clearance away from streams and catchments and other requirements for the proposed septic tank and soakaway should be referred to EPD's Practice Note for Professional Persons, Drainage Plans.</li> </ul>	^ N/A
	<i>General</i>	
<b>Waste</b>	<ul style="list-style-type: none"> <li>• Training and instruction shall be given at a site to construction staff to increase awareness and draw attention to waste management issues and the need to minimise waste generation. The training requirement shall be included in the site waste management plan.</li> </ul>	^
	<i>Storage, Collection and Transportation of Waste</i>	
	<ul style="list-style-type: none"> <li>• Wastes shall be handled and stored in a manner to ensure that they are held securely without loss or leakage.</li> <li>• Authorised or licensed waste hauliers shall be used and they shall only collect wastes prescribed by their permits.</li> <li>• Waste shall be removed on a daily basis.</li> <li>• Waste storage area shall be maintained and cleaned on a daily basis.</li> <li>• Windblown litter and dust during transportation shall be minimised by either covering trucks or transporting wastes in enclosed containers.</li> <li>• Obtain necessary waste disposal permits from the appropriate authorities if they are required.</li> <li>• Wastes shall be disposed of at licensed waste disposal facilities.</li> <li>• Develop procedure such as ticketing system to facilitate tracking of loads, particularly for chemical waste, and to ensure that illegal disposal of wastes does not occur.</li> <li>• Maintain records of the quantities of wastes generated, recycled and disposed.</li> </ul>	^ ^ ^ ^ ^ ^ ^ ^

Types of Impacts	Mitigation Measures	Status
	<i>Surplus Excavated Materials</i>	
	<ul style="list-style-type: none"> <li>• Due to the high risk of loose material being washed into the existing nullah, stockpile materials should be properly compacted and covered from water erosion and located at least 10m away from the nullah wall.</li> </ul>	^
	<i>Construction and Demolition (C&amp;D) Waste</i>	
	<ul style="list-style-type: none"> <li>• Careful design, planning and good site management shall be adopted to minimise over-ordering and generation of waste materials such as concrete grouts.</li> <li>• The handling and disposal of bentonite slurries shall be undertaken in accordance with Practice Note for Professional Persons – Construction Site Drainage (ProPECC PN 1/94) on construction site drainage.</li> <li>• Construction and demolition (C&amp;D) material shall be segregated to inert and non-inert parts. The inert portion shall re-used at areas of reclamation or land formation, or to public filling area shall such allocation is deemed necessary. The non-inert portion shall be disposed of to landfill.</li> </ul>	^ N/A ^
	<i>Chemical Waste</i>	
<ul style="list-style-type: none"> <li>• Chemical waste that is produce during construction shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.</li> <li>• Containers used for the storage of chemical wastes should: <ul style="list-style-type: none"> <li>a. Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;</li> <li>b. Have a capacity of less than 450 litres unless the specifications have been approved by the EPD;</li> <li>c. Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Chemical Waste Regulations.</li> </ul> </li> <li>• The storage area for chemical wastes should: <ul style="list-style-type: none"> <li>a. Be clearly labelled and used solely for the storage of chemical waste;</li> <li>b. Be enclosed on at least 3 sides;</li> <li>c. Have an impermeable floor and bunding of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is largest;</li> <li>d. Have adequate ventilation;</li> <li>e. Be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary);</li> <li>f. Be arranged so that incompatible materials are adequately separated.</li> </ul> </li> <li>• Disposal of chemical waste shall be via a licensed waste collector; and to a facility licensed to receive chemical waste; or a reuser of the waste (under approval from EPD).</li> </ul>	^  ^       ^	

Types of Impacts	Mitigation Measures	Status
	<p><i>General Refuse</i></p> <ul style="list-style-type: none"> <li>General refuse generated on-site shall be stored in enclosed bins or compaction unit separate from C&amp;D and chemical wastes. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&amp;D and chemical wastes, on a daily for every second day basis to minimise odour, pest and litter impacts. The burning of refuse on construction sites is prohibited by law.</li> <li>Reusable rather than disposable dishware shall be used if feasible.</li> </ul>	<p>^</p> <p>^</p>
<p><b>Ecology</b></p>	<ul style="list-style-type: none"> <li>A sediment barrier shall be erected to minimize stream sedimentation at downstream of the project boundary of the Toll Plaza.</li> <li>Conduct a tree survey before commencement of the construction work.</li> <li>All measures recommended in the approved landscape proposals under Condition 2.4 in EP above shall be fully implemented in accordance with the details and time schedule set out in the submission.</li> <li>Loss of the adjacent woodland due to temporary land take shall be returned to the original status immediately.</li> <li>Wild and uncontrolled fire shall be strictly prohibited</li> <li>Fences shall be erected along the boundary of the construction sites at the Toll Plaza before commencement of works, to prevent tipping, vehicle movements, and encroachment of personnel onto adjacent wooded areas.</li> </ul>	<p>N/A</p> <p>^</p> <p>N/A</p> <p>N/A</p> <p>^</p> <p>N/A</p>
<p><b>Landscape and Visual Impact</b></p>	<ul style="list-style-type: none"> <li>Landscape mitigation measure 1 (LMM1) – Construction programming and management. The periphery of the works areas at street level shall be managed so that they do not appear cluttered, untidy and unattractive and inconvenient to pedestrians. For example, all hoarding shall be colorfully designed with interesting motifs demonstrating the work of Highways Department. Hoardings with bland colours shall be avoided.</li> <li>Landscape mitigation measure 2 (LMM2) – Advanced planting and erosion control works. Where possible, the transplantation of existing valuable trees, the stockpiling of topsoil, new planting and erosion control works shall be carried out as early as possible in the construction period instead of at the end. This will assist in maximizing the time for carrying out transplantation and new planting, resulting in a higher success rate for the survival of transplantation and new planting, resulting in a higher success rate for the survival of transplanted trees and the establishment of new screen trees. The stockpiling of topsoil will provide an abundant use of on-site material for growing media. During detailed design, the issue of stockpiling of topsoil in a manner that would avoid washing into the drainage scheme should be examined comprehensively.</li> <li>Measurement of vibration would also be carried out on a need basis during the piling work</li> </ul>	<p>^</p> <p>^</p> <p>^</p>

Remarks:

- |     |                                   |   |                                                |
|-----|-----------------------------------|---|------------------------------------------------|
| ^   | Compliance of mitigation measure; | X | Non-compliance of mitigation measure;          |
| N/A | Not Applicable;                   | • | Non-compliance but rectified by the contractor |



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**APPENDIX L**  
**CONSTRUCTION PROGRAMME**

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Data Date Run Date	20NOV06 29NOV06 09:32	<b>3 MONTH ROLLING PROGRAMME</b>										<input type="checkbox"/> Monthly Update <input type="checkbox"/> Detailed Works Progr.(DWP) r <input type="checkbox"/> Progress Bar <input type="checkbox"/> Critical Activity	
-----------------------	--------------------------	----------------------------------	--	--	--	--	--	--	--	--	--	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR		
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15
<b>GENERAL</b>																													
<b>Contract defined dates, stages and sections</b>																													
<b>Area Access &amp; Vacation Dates</b>																													
VCT_W2	Release of Portions - W2	0		22DEC06	0	0	0	337	0																				
<b>Stages of the Works</b>																													
KD07A	KD-7 TCSS Access Toll Plaza east (30.Jun.06)	0		02NOV06A	100	0	0		-105																				
<b>Submittals &amp; Approvals</b>																													
<b>Drawing Submittal &amp; Approval</b>																													
8034	Prep. & Sub. Independ't Serv. Dwgs for SHT&T3&LCK	48	04AUG04A	02DEC06	98	98	12	261	-165																				
8024	Engineer Comment / Approve ENT ISD Submissions	18	06AUG04A	28NOV06	85	85	8	-61	-165																				
8030	Res-sub. & Approv of ENT ISD	24	06SEP04A	02DEC06	70	70	12	-61	-165																				
8035	Engineer Comment / Approve SHT&T3LCK ISD Sub.	24	13SEP04A	03JAN07	85	85	36	261	-165																				
8032	Engineer Comment / Approve SHT&T3&LCK CSD Sub.	18	25OCT04A	06DEC06	90	90	15	261	-165																				
8036	Re-sub. & Approv of SHT & T3 & LCK ISD	36	31MAR05A	03JAN07	70	70	36	261	-165																				
8033	Re-sub. & Approv. of SHT & T3 & LCK CSD	24	28JUN05A	16DEC06	60	60	24	261	-165																				
8022	Engineer Comment / Approve ENT CSD Submissions	12	20NOV06	02DEC06	0	0	12	261	-165																				
8029	Re-sub. & Approv. of ENT CSD	24	04DEC06	03JAN07	0	0	24	261	-165																				

 © Primavera Systems, Inc.	<b>LEIGHTON - KUMUGAI JV</b>  <b>R8 - EAGLES'S NEST TUNNEL</b>  <b>CONTRACTORS TARGET PROGRAMME REV.1</b>			Proj. Name: W25E Layout: 3 MONTHS ROLLING PROGRAMME Filter: 3 MONTH ROLLING PROGRAMME Current Proj: W25E Target 1 Proj: BE02  Sheet 1 of 42			<b>LKJV/ENT/DWP/B</b>			
	Date		Revision		Checked		Approved			
20NOV06		Prog update Nov 06		GW		RB				

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP	OCT	NOV	DEC	JAN	FEB	MAR
										36	37	38	39	40	41	42
<b>LAI CHI KOK VIADUCT</b>																
<b>CONTRACT DEFINED DATES, STAGES &amp; SECTIONS</b>																
<b>PORTION ACCESS &amp; VACATION</b>																
ACS_M2	Access to Portions - M2	0		23DEC06*	0	0	0	-54	-234							
ACS_M3	Access to Portions - M3	0		23DEC06*	0	0	0	-250	-234							
ACS_M1	Access to Portions - M1	0		31JAN07*	0	0	0	-236	-273							
ACS_M11	Forecast Delay in Access to Portion M1	60	28APR06A	31JAN07	0	0	60	-195	0							
ACS_M12	Forecast Delay in Access to Portion M2	30	28APR06A	23DEC06	0	0	30	-47	0							
ACS_M13	Forecast Delay in Access to Portion M3	30	28APR06A	23DEC06	0	0	30	-208	0							
<b>Construction Works</b>																
<b>LCK Viaduct Noise Enclosure 1</b>																
8322	LckVd NE1-Elect Works 1st Fix	36	01FEB07*	22MAR07	0	0	36	-165	-225							
<b>LCK Viaduct Noise Enclosure 2</b>																
7400	LckVd NE2-Elect Works 1st Fix	36	01FEB07*	22MAR07	0	0	36	-165	-225							
<b>LCK Viaduct Noise Enclosure 3</b>																
6737	LckVd NE3 & Elect Works 1st Fix	72	01FEB07*	09MAY07	0	0	72	-195	-225							
<b>CMCS Leased Lines at Pump Houses</b>																
6817	E&M at Lai Po Rd Pump House	6	11JAN07	17JAN07	0	0	6	-43	-187							
6827	E&M at Wai Man Tsuen Pump House	6	11JAN07	17JAN07	0	0	6	-43	-181							
6807	E&M at Lai Wan Overpass Pump House	6	01FEB07	07FEB07	0	0	6	-61	-211							
<b>BUTTERFLY VALLEY</b>																
<b>Contract Key Dates &amp; Milestones</b>																
<b>Area Access &amp; Vacation Dates</b>																
ACS_A	Access to Portions - A	0	20OCT03A		100	100	0		-200							
CT_ABC	Release of Portions - A,B,C1,C2,C3,C4	0		22DEC06	0	0	0	337	0							
T_E1234	Release of Portions - E1,E2,E4,E5	0		22DEC06	0	0	0	337	0							
CT_I123	Release of Portions - I1,I2,I3	0		22DEC06	0	0	0	337	0							

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR									
										36	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26	3	10	17
<b>Construction Works</b>																																				
<b>BUTTERFLY VALLEY 3RD PARTY WORKS</b>																																				
TCSS at Butterfly valley Approach																																				
S2462	TCSS Access to Gantry MLS-CAP13 (NB) (15MAY06)	0		22NOV06	0	0	0	-159	-153																											
S2602	TCSS Access to Gantry MLS-CAP11 (NB) (15MAY06)	0		22NOV06	0	0	0	-159	-153																											
S2622	TCSS Access to Gantry MLS-CAP12 (SB) (11JUN06)	0		22NOV06	0	0	0	-137	-153																											
S2632	TCSS Access to VMS MLS-CAP 14,15 (11JUN06)	0		23NOV06	0	0	0	-138	-153																											
Noise Barrier Works by ACCIONA																																				
S2562	Access for 7m N.B. Works by Acciona at BV South	77	23JUN06A	13FEB07	0	0	71	226	-125																											
S2612	Access for S-Enclosure Works (Primary Elements)	90	08JUL06A	25APR07	0	0	121	-259	-154																											
S2662	1Access for 6m N.B. Works by Acciona at BV South	90	27SEP06A	17MAR07	0	0	92	-98	-101																											
<b>BUTTERFLY VALLEY E&amp;M WORKS</b>																																				
Noise Enclosure 6 at South Portal Area																																				
8372	LckVd NE6 - Elect Works 1st Fix	30	20NOV06*	08MAY07	0	0	30	-155	-144																											
8382	LckVd NE6 - Elect Works 2nd Fix	24	04DEC06	15MAY07	0	0	24	-155	-144																											
8392	LckVd NE6 - Elect Cabling ENT SPB to N.E.	9	27DEC06	22MAY07	0	0	9	-155	-144																											
8402	LckVd NE6 - Elect Works Fin Fix	12	27DEC06	22MAY07	0	0	12	-155	-144																											
Butterfly Valley Miscellaneous E&M Works																																				
8440	Butterfly Valley - Elect Works 1st Fix	42	27NOV06	17JAN07	0	0	42	-37	-71																											
8430	Butterfly Valley - Elect Works 2nd Fix	36	11DEC06	24JAN07	0	0	36	-37	-71																											
8410	Butterfly valley - Elect Works Fin Fix	24	04JAN07	31JAN07	0	0	24	-37	-71																											
8420	Butterfly Valley - Cabling	24	04JAN07	31JAN07	0	0	24	-37	-71																											
8400	Butterfly Valley - Ready for Energization	0		01FEB07	0	0	0	-37	-71																											
<b>MAJOR DRAINAGE DIVERSIONS</b>																																				
Filling																																				
S2680	Fill on top of Box Culvert 45 & culvert A	9	08DEC06	18DEC06	0	0	9	272	-148																											
Box Culvert																																				
S2800	Culvert A Structure & connection to Bay 45	18	18NOV06A	07DEC06	5	0	16	272	-148																											

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP	OCT	NOV	DEC	JAN	FEB	MAR																																		
										36	37	38	39	40	41	42																																		
<b>EARTHWORKS &amp; SLOPEWORKS</b>											11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26	5	12													
<b>BV-R1 Remaining Works</b>																																																		
S3240	BV-R1 - Construction of Lagging Wall	91	20MAR06A	18NOV06A	100		5	0		-90																																								
S2360	BV-R1 - Backfill	48	10MAY06A	30NOV06	70		0	10	287	-103																																								
<b>SLOPE SP-S2 &amp; SP-S3</b>																																																		
S2370	Remaining Works to Slopes SP-S3 & SP-S2	24	19JUL06A	12DEC06	5		0	20	-14	-143																																								
<b>SLOPE BV-S2</b>																																																		
20.500.130.180.035																																																		
103811	BV-S2 Berm 9 hydro-seeding & tensar mat	12	24OCT06A	14DEC06	50		0	6	-28	-163																																								
103812	BV-S2 Berm 10 hydro-seeding & tensar mat	12	27DEC06	10JAN07	0		0	12	-36	-171																																								
<b>SURFACE DRAINAGE</b>																																																		
103696	BV-S2 Berm 9 Surface drainage	14	01MAR06A	07DEC06	30		30	16	-36	-171																																								
103697	BV-S2 Berm 10 Surface drainage	14	08DEC06	23DEC06	0		0	14	-36	-171																																								
<b>SLOPE BV-S4</b>																																																		
S3580	Additional Soil Nails - Base of Pier 19	24	26SEP06A	31OCT06A	100		0	0		-107																																								
S3050	Complete Outstanding Soil Nails for BVS4 (5No.)	10	26OCT06A	13NOV06A	100		0	0		-42																																								
S3520	Remaining Raking Drains (11No.) & Hydroseeding	12	04NOV06A	13NOV06A	100		0	0		-30																																								
<b>SLOPE FINISHES</b>																																																		
102380	BV-S4/3a-4a & 5 hydro-seeding & tensarmat	12	12SEP05A	12JAN07	80		70	30	-222	-179																																								
101139	11nw/434 BV-S4/1-2-3bod-4b Hydro-seed/Tensarmat	18	13DEC06	05JAN07	0		0	18	-216	-179																																								
<b>SURFACE DRAINAGE</b>																																																		
103705	BV-S4/3 Surface Drainage	8	17MAR05A	12DEC06	75		70	20	-222	-179																																								
103706	BV-S4/4 Surface Drainage	12	07SEP05A	28DEC06	75		5	18	-222	-179																																								
<b>SLOPE SP-S1</b>																																																		
<b>SURFACE DRAINAGE</b>																																																		
103711	Sp-S1/4 Surface Drainage	7	06JUL04A	12DEC06	40		40	20	-14	-178																																								
<b>RC STRUCTURES</b>																																																		
<b>RETAINING WALL BV-R2</b>																																																		
<b>BACKFILLING</b>																																																		
101126	BV-R2(C) Granular Drain & Compacted Backfill	6	20NOV06	26NOV06	0		0	6	-13	-161																																								

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR	
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8
<b>ROADWORKS - North End of BV</b>																												
<b>Stormwater Drainage</b>																												
S2430	West Loop Rd. Drainage	20	19JAN06A	02DEC06	40	30	12	-49	-120																			
S2420	Outstanding East Loop Rd. Drainage	28	24AUG06A	22NOV06	90	0	3	-57	-150																			
S2630	250mm pipe connect E./W. stream + 3No. Chamber	24	11OCT06A	20NOV06A	100	0	0		-79																			
<b>Road Pavement &amp; Associated Work</b>																												
S2890	BV North - Kerbs & CPB to Sth Bound Carriageway	36	20SEP06A	20NOV06A	100	0	0		-21																			
S2252	BV North - Bitu Pavement to Sth Bnd Carrig'way	24	29SEP06A	26NOV06	85	0	4	-18	-20																			
S2232	BV North - Subbase to Sth Bound Carriageway	40	03OCT06A	16NOV06A	100	0	0		-36																			
S2262	BV North - Typ IV Pavement	40	19OCT06A	12JAN07	60	0	16	253	-48																			
S2222	BV North - Subbase to Nrth Bound Carriageway	43	11NOV06A	08JAN07	5	0	40	-52	-62																			
S2640	BV North - Kerbs & CPB to Nrth Bound Carriageway	36	13NOV06A	21DEC06	20	0	28	-40	-48																			
S2242	BV North - Bitu. Pavement to Nrth Bnd Carrig'way	24	27NOV06	15JAN07	0	0	24	-52	-60																			
S2920	Road Works to East Loop Rd Typ III (EVA)	13	06DEC06	20DEC06	0	0	13	-21	-143																			
S2900	Road Marking & White Lining (Staged for Access)	24	11DEC06	29JAN07	0	0	24	-52	-60																			
S3010	Installation of Road Signage (Sign Plates Only)	24	11DEC06	29JAN07	0	0	24	-52	-60																			
S2930	Road Works to West Loop Road Typ III (EVA)	13	11JAN07	25JAN07	0	0	13	-49	-120																			
<b>Miscellaneous Works</b>																												
S2870	Erect HML 1	4	04DEC06	07DEC06	0	0	4	-10	-148																			
S3100	Erect HML 2	4	04DEC06	07DEC06	0	0	4	-10	-177																			
S3450	Erect HML 3	4	04DEC06	07DEC06	0	0	4	-10	-126																			
S2670	Install Twin DN200 Pipes to SPB via E. Loop Rd	18	20OCT06A	06DEC06	40	0	11	-57	-143																			
S2690	Installation of DN200 Fire Hydrant Pipe and FH's	24	18NOV06A	14DEC06	5	0	22	-52	-76																			
S2690	Installation of Drip Feed Irrigation System	12	22DEC06	08JAN07	0	0	12	-34	-48																			
S2760	Kiosk K3 - required for TCSS	10	05OCT06A	16NOV06A	100	0	0		8																			

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB		MAR	
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1
<b>Miscellaneous Works</b>																											
S3000	Construct Recreated Stream	30	04DEC06	10JAN07	0	0	30	-49	-120																		
<b>ROADWORKS - South End of BV</b>																											
<b>Noise Barrier Footings &amp; Sign Gantries</b>																											
S2461	Sign gantry Installation MLS-CAP12	3	20NOV06	22NOV06	0	0	3	-137	-153																		
S3370	Signal Gantry Installation MLS-CAP14 & 15	4	20NOV06	23NOV06	0	0	4	-138	-153																		
S3380	Sign Gantry Installation MLS-CAP11,13	3	20NOV06	22NOV06	0	0	3	-159	-153																		
<b>Ducting &amp; Drawpits</b>																											
S2740	BV South - LV Ducts & Drawpits	20	01JUN06A	26NOV06	70	0	6	-66	-98																		
<b>Road Pavement &amp; Associated Work</b>																											
S2940	BV Sth - Trim Formation & S'base - Sth Bnd	26	01AUG06A	29NOV06	97	0	3	-39	-65																		
S2960	BV Sth - Kerbs & CPB to Sth Bound Carriageway	30	12AUG06A	06DEC06	90	0	3	-39	-49																		
S2510	BV Sth - Trim Formation & S'base - Nth Bnd	35	14AUG06A	28NOV06	75	0	8	-39	-66																		
S2960	BV Sth - Kerbs & CPB to Nrth Bound Carriageway	30	18SEP06A	06DEC06	60	0	16	-39	-44																		
S2970	BV Sth - Bitu. Pavement to Sth Bnd Carrig'way	20	20SEP06A	20DEC06	75	0	5	-39	-38																		
S2980	BV Sth - Bitu. Pavement to Nrth Bnd Carrig'way	23	06NOV06A	20DEC06	20	0	23	-39	-33																		
S2990	Road Marking & White Lining (Staged Access)	18	21DEC06	13JAN07	0	0	18	-39	-33																		
S3190	Installation of Road Signage (Sign Plates Only)	18	21DEC06	13JAN07	0	0	18	-39	-33																		
<b>Miscellaneous Works</b>																											
S2750	Kiosk K4	6	21SEP06A	16NOV06A	100	0	0		2																		
S2790	Installation of DN 200 Fire Hydrant Pipe & FH's	12	19OCT06A	29NOV06	24	0	9	288	-99																		
S2780	Install & Commission Weighbridge	24	21DEC06	20JAN07	0	0	24	-27	-33																		
S2850	Erect HML9	4	21DEC06	27DEC06	0	0	4	-25	-154																		
<b>LKJV Works at Abutment M</b>																											
S3440	200mm Watermain, valve pit & FH-6	12	19OCT06A	15NOV06A	100	0	0		-118																		
S3470	Ducting & drawpits in Portion B	12	20NOV06	02DEC06	0	0	12	-42	-121																		
S3420	Complete remaining roadworks within Portion B	36	04DEC06	17JAN07	0	0	36	-42	-121																		

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	Gantt Chart											
										SEP 36	OCT 37	NOV 38	DEC 39	JAN 40	FEB 41	MAR 42					
<b>DSD MAINTENANCE ROAD</b>																					
<b>DSD Maintenance Rd DSD1-1 (Acciona Interface)</b>																					
S3570	WSD Slope Reinstatement	18	11DEC06	03JAN07	0	0	18	-30	-141												
S2340	ACCIONA - Remove Crane Platform	18	20NOV06	09DEC06	0	0	18	-36	-165												
S2380	Complete DSD1-1 Surface Drainage & CP's	18	20NOV06*	09DEC06	0	0	18	-36	-51												
S2460	LKJV Regain Access at Pier 20	0		09DEC06	0	0	0	-36	-165												
S3140	Complete Sub-base & kerbs at DSD1-1	12	11DEC06	23DEC06	0	0	12	-36	-51												
S3150	Complete Surfacing at DSD1-1 (Type IV)	8	27DEC06	05JAN07	0	0	8	-32	-51												
<b>DSD Maintenance Rd DSD1 (Parallel to Channel)</b>																					
S3210	2 No. Cross Rd Pipes & Roadside Gullies	12	01MAR06A	23NOV06	80	80	4	-128	-165												
S2830	Twin DN200 Water Pipe	45	02MAY06A	11JAN07	25	1	33	-128	-165												
S2700	Access rd DSD1 -barrier footings	12	12JAN07	25JAN07	0	0	12	-61	-165												
S3390	Complete Formation at DSD1	6	12JAN07	18JAN07	0	0	6	-128	-165												
S3120	DN 200 Watermain Diversion EB18 - EB70	40	19JAN07	14MAR07	0	0	40	-128	-165												
S3220	Subbase & Kerbs	18	12JAN07	01FEB07	0	0	18	-61	-76												
S2720	Access rd DSD1 - Barriers	12	26JAN07	08FEB07	0	0	12	-61	-165												
S3160	REINSTATE BV ACCESS	0		08FEB07	0	0	0	-61	-80												
S3230	Surfacing (Type IV)	12	26JAN07	08FEB07	0	0	12	-61	-76												
<b>Terrain Mitigation</b>																					
<b>NTMM - BV-S2</b>																					
102350	NTMM - Afforestation of Area	60	22MAR06A	23DEC06	45	5	30	-24	-169												
<b>Landscaping &amp; Establishment</b>																					
101475	BV - Hard Landscaping	90	13JAN07	11MAY07	0	0	90	-222	-179												
<b>ENT SOUTH PORTAL VENTILATION BUILDING</b>																					
<b>SUBMITTALS &amp; APPROVALS</b>																					
<b>E&amp;M EQPT. &amp; MATERIAL APPROVALS</b>																					
1919	SP Bldg. - Approve doors details	24	07MAY05A	24NOV06	80	80	5	-129	-161												



Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP			OCT			NOV			DEC			JAN			FEB			MAR						
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19
<b>PROCUREMENT - MATERIAL</b>																																		
<b>ABWF WORKS</b>																																		
1951	SP.Bldg. - Procure aluminium composite cladding	180	19APR05A	01NOV06A	100	80	0		-128																									
1979	SP.Bldg. - Procure expanded metal mesh cladding	180	06JUN05A	29NOV06	80	80	9	-82	-166																									
2029	SP.Bldg. - Initial deliv alum composite cladding	0	02NOV06A		100	0	0		-52																									
2018	SP.Bldg. - Initial deliver fall arrest roof syst	0	20NOV06*		0	0	0	-25	-118																									
2019	SP.Bldg. - Initial deliver of slate cladding	0	20NOV06*		0	0	0	-49	-93																									
2020	SP.Bldg. - Initial deliver balust & metal works	0	20NOV06*		0	0	0	-25	-118																									
2025	SP.Bldg- Initial deliver exp metal mesh cladding	0	30DEC06*		0	0	0	-82	-113																									
<b>MAJOR EQUIPMENT DELIVERY</b>																																		
6033	EntSpBldg-Del. PD pump & tank to G/F	48	06MAR06A	30NOV06	80	56	10	287	-166																									
6034	EntSpBldg-Del. PD irrig. pump & tank to G/F	48	02MAY06A	30NOV06	80	0	10	287	-127																									
6163	EntSpBldg-Del. AFA & FM200 sys	48	15MAY06A	30NOV06	80	0	10	287	-105																									
6744	EntSpBldg-Del. MVAC MCC, & control sys to 3/F	48	15MAY06A	29DEC06	90	0	33	264	-140																									
6194	EntSpBldg-Del. CMCS & ELV equip't	48	01JUN06A	05JAN07	90	0	38	259	-116																									
<b>CONSTRUCTION</b>																																		
<b>South Portal Bldg. - CIVIL &amp; ABWF WORKS</b>																																		
<b>STRUCTURES</b>																																		
T2920	Backfilling at South Portal Building	18	18APR06A	08NOV06A	100	60	0		-146																									
<b>ABWF WORKS</b>																																		
<b>SB Bldg - Internal Works GF</b>																																		
T2660	ABWF Initial finishes & Doors to CLP Rm & GF	18	06APR06A	22NOV06	95	5	3	-24	-146																									
T2760	GF - Paint touch up & Doors	12	22NOV06	06DEC06	0	0	12	-8	-91																									
<b>SP Bldg - Internal Works 1F &amp; LP</b>																																		
T2770	1F & LP - Paint touch up & Doors	12	11DEC06	23DEC06	0	0	12	-24	-143																									
<b>SP Bldg - Internal Works 2F</b>																																		
T2780	2F - Paint touch up & Doors	12	29NOV06	12DEC06	0	0	12	-14	-56																									
<b>SP Bldg - Internal Works 3F</b>																																		
T2800	3F - Paint touch up & Doors	12	06DEC06	19DEC06	0	0	12	-20	-100																									

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
										36 11, 18, 25	37 2, 9, 16, 23, 30	38 6, 13, 20, 27, 4	39 11, 18, 25	40 1, 8, 15, 22, 29	41 5, 12, 19, 26	42 3, 12	
SP Bldg - Internal Works 4F & Above																	
T3150	Installation of Crane beam to underside of 6FL	12	20NOV06	02DEC06	0	0	12	-96	-122								
T2790	4F - Paint touch up & Doors	12	17JAN07	30JAN07	0	0	12	-53	-55								
Roof & External Facade																	
T2820	Ent SPB - Ext. Wall Waterproof Render	18	20JUL06A	12DEC06	20	0	20	-85	-124								
T2710	Ent SPB - Install Aluminum louvres & doors	90	26JUL06A	10MAR07	5	0	86	-129	-100								
T2400	Ent SPB - Alum. Comp Panel Cladding to Ext Walls	60	20NOV06	31JAN07	0	0	60	-73	-67								
T2530	Ent SPB - Roof Waterproofing & Test	12	20NOV06	02DEC06	0	0	12	-67	-101								
T2540	Ent SPB - Slate Cladding above NB/SB Carriageway	36	20NOV06	03JAN07	0	0	36	-49	-93								
T2730	Ent SPB - 25hk Roof Screed & Roofing Tiles	18	18DEC06	10JAN07	0	0	18	-67	-101								
T2410	Ent SPB - External Wall Painting	34	20DEC06	31JAN07	0	0	34	-85	-124								
T2390	Ent SPB - Expanded metal cladding to Ext Walls	36	30DEC06	10FEB07	0	0	36	-82	-113								
T2360	Ent SPB - GMS,S/S Channel, Balustrade & Railing	24	01FEB07	09MAR07	0	0	24	-85	-119								
<b>ENT South Portal Bldg. - BUILDING SERVICES</b>																	
<b>E &amp; M WORKS</b>																	
ENT South Portal Bldg (G/F) - E & M Works																	
EM1300	Installation of FS Pumps and Pipework at GF	18	25OCT06A	21NOV06	90	0	2	-8	-127								
T2320	Installation of Earth Mat at SP Bldg	30	08NOV06A	09DEC06	40	0	18	-107	-143								
ENT South Portal Bldg (1F/Lwr Plen) - E & M Work																	
EM1310	Installation of Compressor	18	20NOV06	09DEC06	0	0	18	-24	-143								
ENT South Portal Bldg (2F/Silencer) - E & M Work																	
EM1110	BS Works for Genset	18	24JUN06A	22NOV06	85	0	3	-89	-114								
EM1140	E&M Works in Corridors 2/F	24	24JUN06A	21NOV06	90	0	2	-122	-95								
EM1030	BS Works for HV Sw + Tx	12	12JUL06A	21NOV06	95	0	2	-119	-119								
EM1160	E&M Works in Risers	48	31JUL06A	05DEC06	95	0	2	-122	-76								
EM1120	Genset Installation	36	04SEP06A	09DEC06	60	0	18	-89	-93								
EM1175	BS Works for TVS Plenums	30	11SEP06A	20NOV06	50	0	1	-94	-99								

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
										36	37	38	39	40	41	42	
ENT South Portal Bldg (3F/ Fan Rm) - E & M Works																	
EM1070	LV Sw, MCC, UPS, LCC Installation	30	25JUL06A	06DEC06	95	0	2	-120	-100								
EM1060	BS Works for LV Sw, MCC, UPS, LCC	12	31JUL06A	21NOV06	95	0	2	-120	-118								
EM1150	E&M Works in Corridors 3/F	24	31JUL06A	21NOV06	95	0	2	-133	-94								
EM1090	BS Works for 110V Charger Rm	12	01AUG06A	28NOV06	95	0	2	-133	-88								
EM1170	Termination of overall Elect HV & LV Sys	30	15OCT06A	17JAN07	40	0	18	-138	-66								
ENT South Portal Bldg (4F/Up Pten) - E & M Work																	
EM1180	TVS Installation	100	22AUG06A	16JAN07	55	0	45	-96	-55								
Testing and Commissioning																	
EM1100	110V Charger Rm Installation + T&C	12	20NOV06	06DEC06	0	0	12	-133	-82								
EM1130	Genset Termination + T&C	12	20NOV06	16DEC06	0	0	12	-89	-87								
EM1080	LV Sw, MCC, UPS, LCC Termination + T&C	30	04DEC06	10JAN07	0	0	30	-132	-80								
EM1050	HV Sw + Tx Termination + T&C	30	06DEC06	12JAN07	0	0	30	-133	-62								
EM1190	Integrated E&M System T&C	52	16FEB07	04MAY07	0	0	52	-141	-70								
Statutory Inspection & Issued Certificates																	
EM1200	Submit WR1 to CLP	1	25JAN07	25JAN07	0	0	1	-144	-72								
EM1210	CLP insp.	18	26JAN07	15FEB07	0	0	18	-144	-72								
EM1220	Energization at ENT SP Bldg	0		15FEB07	0	0	0	-144	-72								
EM1320	Submit Form WWO46 for Water Supply to WSD	30	12JAN07	15FEB07	0	0	30	-86	-166								
EM1340	Water Supply Certificate issued	0		15FEB07	0	0	0	-86	-166								
<b>EAGLES NEST TUNNEL</b>																	
<b>Contract defined dates, stages &amp; sections</b>																	
<b>Area access &amp; vacation dates</b>																	
ACS_F1	Access to Portions - F1 (U/Gnd Sth Portal)	0	20OCT03A		100	100	0		-200								
ACS_F2	Access to Portions - F2 (U/Gnd Sth Tunnel)	0	20OCT03A		100	100	0		-200								
T_F12345	Release of Portions - F1,F2,F3,F4,F5	0		22DEC06	0	0	0	337	0								
T_GH134	Release of Portions - G,H1,H3,H4	0		22DEC06	0	0	0	337	0								

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR						
										36	37	38	39	40	41	42	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1
<b>Design &amp; Engineering - Temporary Works</b>																																	
<b>Permanent Works</b>																																	
Tunnel																																	
1668	Eng Approve Dsg X-passage/Adit Fire Doors	12	20NOV06	02DEC06	0	0	12	235	-165																								
1669	Issue Constr Dwgs X-passage/Adit Fire Doors	0		02DEC06	0	0	0	235	-165																								
<b>Procurement - Material</b>																																	
<b>Tunnelling Project Wide</b>																																	
1685	Order/Manufact/Del Fire Doors	50	04DEC06	02FEB07	0	0	50	235	-165																								
<b>Major Equipemnt Delivery</b>																																	
<b>Tunnelling Project Wide</b>																																	
NB Tunnel																																	
6891	EntRINb-Del. TVS control sys	48	14JAN06A	10NOV06A	100	90	0		-152																								
6888	EntRINb-Del. AFA & Linear sys	48	15MAY06A	10NOV06A	100	0	0		-125																								
6886	EntRINb-Del. CMCS & ELV sys	35	01JUN06A	10NOV06A	100	0	0		-61																								
SB Tunnel																																	
6797	EntRISb&VA-Del. TVS control sys	48	14JAN06A	10NOV06A	100	90	0		-152																								
6787	EntRISb&VA-Del. AFA & Linear sys	48	15MAY06A	10NOV06A	100	0	0		-77																								
6801	EntRISb&VA-Del. CMCS & ELV sys	72	01JUN06A	10NOV06A	100	0	0		-61																								
<b>Construction Works</b>																																	
<b>Tunnel Drive North Bound</b>																																	
Tunnel Finishing Works																																	
Bituminous Pavement																																	
3699	NB Base Course - RHS 650m Ch 3030->2380	4	28NOV06	01DEC06	0	0	4	-49	-156																								
3600	NB Base Course - RHS 650m Ch 2380->1730	4	02DEC06	06DEC06	0	0	4	-49	-156																								
3601	NB Base Course - RHS 650m Ch 1730->1080	4	07DEC06	11DEC06	0	0	4	-49	-156																								
3603	NB Base Course - LHS 650m Ch 3030->2380	4	12DEC06	15DEC06	0	0	4	-49	-156																								
3604	NB Base Course - LHS 650m Ch 2380->1730	4	16DEC06	20DEC06	0	0	4	-49	-156																								
3605	NB Base Course - LHS 650m Ch 1730->1080	4	21DEC06	27DEC06	0	0	4	-49	-156																								

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR							
										11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26
<b>VE Panel Installation</b>																																		
3616	NB - VE Panel Sub-Frame Installation	60	31OCT06A	16JAN07	21	0	47	-85	0																									
3656	NB - Niche Cabinets	50	05DEC06	28FEB07	0	0	50	-75	0																									
3636	NB - VE Panel Installation	55	12DEC06	16FEB07	0	0	55	-92	0																									
3646	NB - Bespoke Panels (Niches)	20	13FEB07	15MAR07	0	0	20	-78	0																									
<b>ENT NB TUNNEL - (E&amp;M) BUILDING SERVICES</b>																																		
<b>MVAC / Tunnel Ventilation Syst Above OHVD</b>																																		
277963	Ent NB - Install Motorised Smoke & Fire Dampers	72	04JAN06A	30NOV06	84	45	10	-131	-146																									
277964	Ent NB - Comp Air Pipes/Condts to E/P16 to E/P21	36	10FEB06A	21NOV06	95	40	2	-131	-132																									
277965	Ent NB - Comp Air Pipes/Condts to E/P15 to E/P8	36	27MAR06A	21NOV06	95	30	2	-131	-126																									
277966	Ent NB - Comp Air Pipes/ Condts to E/P1to E/P7	36	13JUN06A	30NOV06	95	0	2	-123	-98																									
277967	Ent NB - Cabling, Wiring and Termination	60	10OCT06A	23DEC06	50	0	30	-131	-82																									
277968	Ent NB - MVAC Testing and T&C	36	27DEC06	07FEB07	0	0	36	-131	-76																									
<b>Fire Protection System</b>																																		
277990	Ent NB - Install FS Conduit for Niches	54	07FEB06A	23NOV06	93	40	4	-111	-137																									
277991	Ent NB - Install brkts for detection sys @ C/L	60	29JUL06A	25NOV06	90	0	6	-111	-111																									
277992	Ent NB - Install detection system @ Ceiling Lvl	42	20SEP06A	09DEC06	90	0	5	-111	-81																									
277995	Ent NB - 100d FH / HR Pipeworks & Fittings @ G/L	60	10OCT06A	31JAN07	95	0	6	-123	-119																									
277996	Ent NB - FS Wiring and Terminations	30	10OCT06A	31JAN07	20	0	30	-123	-89																									
277994	Ent NB - Install Hose Reel Cabinets & Eqpt @ G/L	48	20NOV06	17JAN07	0	0	48	-123	-155																									
277997	Ent NB - FS. Testing and T&C	24	01FEB07	08MAR07	0	0	24	-123	-89																									
<b>Electrical Works Above OHVD</b>																																		
278000	Ent NB - HV & LV Mn/Submain Cables to CP21-CP11	72	22JUN06A	27NOV06	90	0	7	-138	-85																									
278001	Ent NB - HV & LV Mn/Submain Cables to CP01-CP10	72	26JUN06A	27NOV06	90	0	7	-138	-63																									
278003	Ent NB - Placing Sandfill and PC Covers	36	29AUG06A	11DEC06	70	0	11	-90	-51																									
<b>Electrical Works Below OHVD</b>																																		
278009	Ent NB - Conduit Works (Above & Below OHVD)	60	01MAR06A	23NOV06	98	30	4	-141	-127																									

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT		NOV		DEC		JAN		FEB		MAR										
										11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12
<b>Electrical Works Below OHVD</b>																																
279010	Ent NB - Earthing & Lighting Fixture @ C/Lvl	72	02MAY06A	30NOV06	98		2	8	-141	-104																						
279012	Ent NB - Cabling, Wirings&Term @ Ceiling/ Grd Lvl	48	13JUN06A	12FEB07	20		0	60	-141	-127																						
279011	Ent NB-Install CCTV, Camera, Eqpt @C/Lvl (By TCSS)	72	20NOV06	14FEB07	0		0	72	-71	-147																						
279083	Place Covers on C, Trough	18	13FEB07	13MAR07	0		0	18	-106	-127																						
279013	Ent NB - Lighting / Eqipt Testing and T&C	60	16FEB07	04MAY07	0		0	55	-144	-161																						
<b>Tunnel Drive South Bound</b>																																
<b>Tunnel Finishing Works</b>																																
<b>Bituminous Pavement</b>																																
1350	SB Wearing Course - RHS 650m Ch3030->2380	4	30JAN07	02FEB07	0		0	4	-82	-38																						
1370	SB Wearing Course - RHS 650m Ch 2380->1730	4	03FEB07	07FEB07	0		0	4	-82	-38																						
1390	SB Wearing Course - RHS 650m Ch 1730->1080	4	08FEB07	12FEB07	0		0	4	-82	-38																						
1360	SB Wearing Course - LHS 650m Ch3030->2380	4	13FEB07	16FEB07	0		0	4	-82	-38																						
1380	SB Wearing Course - LHS 650m Ch2380->1730	4	26FEB07	01MAR07	0		0	4	-82	-38																						
<b>VE Panel Installation</b>																																
3623	SB - VE Panel Sub-Frame Installation	60	21JUL06A	17NOV06A	100		0	0		0																						
3643	SB - VE Panel Installation	55	16AUG06A	11DEC06	67		0	19	-92	0																						
3663	SB - Niche Cabinets	50	20NOV06	19JAN07	0		0	50	-78	0																						
3653	SB - Bespoke Panels (Niches)	20	20JAN07	12FEB07	0		0	20	-78	0																						
<b>ENT SB TUNNEL - (E&amp;M) BUILDING SERVICES</b>																																
<b>MVAC / Tunnel Ventilation System Above OHVD</b>																																
279014	Ent SB - Install Motorised Smoke & Fire Dampers	72	31DEC06A	01DEC06	85	40	11	-113	-145																							
279015	Ent SB - Comp Air Pipes/Conds to E/P16 to E/P21	36	27MAR06A	21NOV06	95	58	2	-104	-148																							
279017	Ent SB - Comp Air Pipes/ Conds to E/P1 to E/P7	36	13JUN06A	01DEC06	95		0	2	-113	-109																						
279018	Ent SB - Cabling, Wiring and Termination	60	13JUN06A	15DEC06	90		0	8	-113	-61																						
279019	Ent SB - MVAC Testing and T&C	36	20NOV06	16JAN07	0		0	36	-112	-53																						
<b>Fire Protection System</b>																																
279035	Ent SB - Install detection system @ Ceiling Lvl	42	20SEP06A	24NOV06	90		0	5	-92	-94																						



Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR							
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19
<b>Electrical Works</b>																																		
279067	CP7 - Cabling, Wiring & Termination and Test	24	04JAN07	31JAN07	0	0	24	-125	-101																									
<b>ENT Cross Passages</b>																																		
<b>CROSS PASSAGES (CP1-CP6 &amp; CP8-CP21) - (E&amp;M) WORK</b>																																		
<b>Electrical Works</b>																																		
278074	(CP1-CP21) - Cable Containment & Equipt Support	60	07FEB06A	21NOV06	98	80	2	-134	-155																									
278077	(CP21-CP11) - MCCB/ MCB Brd,CMCS,Busbar,Switches	72	03MAY06A	06DEC06	90	0	7	-138	-107																									
278078	(CP1-CP10) - MCCB/ MCB Brd,CMCS,Busbar,Switches	72	03MAY06A	06DEC06	90	0	10	-138	-109																									
278075	(CP1-CP21) - Conduit,light,Signage fixt,Switches	60	17JUL06A	03JAN07	40	0	36	-144	-141																									
278079	(CP1-CP21) - HV & LV Cables Terminations & Test	60	08AUG06A	17JAN07	20	0	48	-138	-66																									
278076	(CP1-CP21) - Cabling, Wiring, Termination & Test	36	15AUG06A	24JAN07	70	0	11	-144	-123																									
278080	(CP1-CP21) - Cables Testing and T&C	36	20NOV06	14FEB07	0	0	36	-137	-66																									
<b>VENTILATION ADIT &amp; BUILDING</b>																																		
<b>Submittals &amp; Approvals</b>																																		
<b>ABWF &amp; Builders Works</b>																																		
1972	VA Bldg. - Approve door details	24	07MAY05A	29NOV06	70	70	9	-99	-165																									
<b>PROCUREMENT</b>																																		
<b>ARCHITECTURAL</b>																																		
1995	VA Bldg. - Procure aluminium composite cladding	90	19APR06A	01NOV06A	100	60	0		-128																									
2026	VA Bldg. - Procure expanded metal mesh cladding	60	06JUN05A	29NOV06	50	50	9	-86	-165																									
2032	VA Bldg. - Initial delivery doors	0	20OCT06A		100	0	0		-68																									
2038	VA Bldg. - Initial delivery alum comp cladding	0	02NOV06A		100	0	0		-68																									
2031	VA Bldg. - Initial delivery slate cladding	0	20NOV06*		0	0	0	-69	-80																									
2034	VA Bldg. - Initial delivery fall arrest roof sys	0	20NOV06*		0	0	0	-31	-111																									
2035	VA Bldg. - Initial delivery balust & metal works	0	20NOV06*		0	0	0	-31	-111																									
2043	VA Bldg. - Initial deliv exp metal mesh cladding	0	08JAN07		0	0	0	-86	-119																									
<b>MAJOR EQUIPMENT DELIVERY</b>																																		
7692	VaBldg-Del. PD irrig. pump & tank to G/F	48	07MAR06A	10NOV06A	100	55	0		-149																									



Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
										36	37	38	39	40	41	42	
<b>MAJOR EQUIPMENT DELIVERY</b>																	
6608	VaBldg-Del. PD pump & tank to G/F	48	02MAY06A	10NOV06A	100		0	0	-105								
6609	VaBldg-Del. FS pumps & tank to G/F	48	02MAY06A	10NOV06A	100		0	0	-106								
6698	VaBldg-Del. AFA & FM200 sys	48	15MAY06A	10NOV06A	100		0	0	-101								
6666	VaBldg-Del. CMCS & ELV equip't	48	01JUN06A	10NOV06A	100		0	0	-73								
<b>CONSTRUCTION WORKS</b>																	
<b>EXTERNAL WORKS</b>																	
<b>Drainage</b>																	
S1900	Petrol interceptor & Storm Drain at East Side	48	20NOV06	17JAN07	0		0	48	-137	-134							
S1940	Foul Drain Pipe & Holding Tank	24	20NOV06	16DEC06	0		0	24	-121	-134							
S1960	Storm Drain at West Side	24	20NOV06	16DEC06	0		0	24	-121	-148							
S1970	Storm Drain & Gullies at Access Apron	24	18DEC06	17JAN07	0		0	24	-121	-148							
<b>Ducting &amp; Drawpits</b>																	
S1910	Ducting & Drawpits	18	03JAN07	29JAN07	0		0	18	-137	-116							
S1980	HGC Ducting & Drawpits	18	30JAN07	27FEB07	0		0	18	-137	-116							
<b>Watermain Works</b>																	
S1950	Watermain & Valve Chambers at Building Apron	24	04JAN07	31JAN07	0		0	24	-121	-136							
S1990	Irrigation Pipework	18	01FEB07	01MAR07	0		0	18	-121	-136							
<b>Construction of Watermains Across Tai Po Rd</b>																	
SB3080	Stage 2 - Watermain Crossing Tai Po Rd	22	11OCT06A	06NOV06A	100		0	0	-53								
SB3090	Stage 3 - Watermain Crossing Tai Po Rd	22	07NOV06A	05DEC06	35		0	14	-79	-59							
SB3100	Stage 4 - Watermain Crossing Tai Po Rd	22	06DEC06	03JAN07	0		0	22	-79	-32							
SB3110	Stage 5 - Watermain Crossing Tai Po Rd	4	13JAN07	17JAN07	0		0	4	-51	-33							
SB3120	Stage 6 - Watermain Crossing Tai Po Rd	4	18JAN07	22JAN07	0		0	4	-51	-25							
SB3130	Stage 7 - Watermain Crossing Tai Po Rd	4	23JAN07	26JAN07	0		0	4	-51	-16							
SB3150	Stage 4(R) - Watermain Crossing Tai Po Rd	4	09JAN07	12JAN07	0		0	4	-51	0							

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV		DEC		JAN		FEB		MAR					
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8
<b>VENTILATION BUILDING</b>																												
<b>VA Building - Structure</b>																												
T2130	Installation of Exhaust Shaft Steelwork	18	20NOV06	09DEC06	0	0	18	-83	-151																			
T3130	Installation of Earth mat	30	20DEC06	26JAN07	0	0	30	-121	-144																			
T3140	Backfilling Around Ventillation Building	24	20NOV06	19DEC06	0	0	24	-121	0																			
<b>VA Building - ABWF</b>																												
T3030	ABWF - GL Paint Touch Up & Doors	12	27JAN07	09FEB07	0	0	12	-63	-91																			
T3040	ABWF - 1FL Paint Touch Up & Doors	12	27JAN07	09FEB07	0	0	12	-63	-91																			
T3050	ABWF - Fan Rooms & Plenums Touch Up & Doors	12	27JAN07	09FEB07	0	0	12	-63	-91																			
<b>VA Building - External Finishes</b>																												
T2050	VA Bldg. - Ext. Wall Waterproof Render	20	10JUL06A	23NOV06	80	0	4	-121	-132																			
T3060	VA Bldg. - Ext. Wall Waterproof Membrane	21	25JUL06A	30NOV06	85	0	10	-96	-137																			
T3080	VA Bldg. - Roof Waterproofing & Test	12	02NOV06A	26NOV06	80	0	6	-67	-121																			
T3110	VA Bldg. - Install Aluminum louvres & doors	60	11NOV06A	16FEB07	50	0	40	-99	-137																			
T3070	VA Bldg. - External Wall Painting	22	24NOV06	19DEC06	0	0	22	-121	-126																			
T2140	VA Bldg. - Slate Cladding	44	01DEC06	24JAN07	0	0	44	-79	-90																			
T3120	VA Bldg. - Alum Comp Panel Cladding to Ext Walls	60	01DEC06	12FEB07	0	0	60	-96	-93																			
T3090	VA Bldg. - 25thk Roof Screed & Roofing Tiles	18	11DEC06	03JAN07	0	0	18	-67	-121																			
T3100	VA Bldg. - GMS,S/S Channel, Balustrade & Railing	18	04JAN07	24JAN07	0	0	18	-67	-121																			
T2110	VA Bldg. - Expanded metal cladding to Ext Walls	22	08JAN07	01FEB07	0	0	22	-86	-119																			
T3105	VA Bldg. - Removed External Scaffolding	12	26FEB07	10MAR07	0	0	12	-99	-97																			
<b>E &amp; M WORKS</b>																												
Ventilation Adit Bldg (GF/Lwr Plen) - E & M Work																												
EM2040	BS Works for HV Sw + Tx	12	17JUL06A	21NOV06	98	0	2	-121	-139																			
EM2200	BS Works for Genset	18	01AUG06A	28NOV06	70	0	5	-116	-127																			
EM2260	E&M Works in Corridors G/F	24	01AUG06A	06DEC06	80	0	5	-116	-126																			

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
										36	37	38	39	40	41	42	
Ventilation Adit Bldg (GF/Lwr Pln) - E & M Work																	
EM2300	E&M Works in Risers	48	04AUG06A	20DEC06	95	0	5	-116	-92								
EM2310	BS Works in TVS Plenums	30	14AUG06A	06DEC06	50	0	15	-128	-115								
EM2220	Genset Installation	36	13SEP06A	12DEC06	60	0	15	-116	-103								
Ventilation Adit Bldg (1F) - E & M Work																	
EM2100	BS Works for LV Sw, MCC, UPS, LCC	12	18JUL06A	22NOV06	90	0	3	-119	-138								
EM2280	E&M Works in Corridors 1/F	24	04AUG06A	24NOV06	80	0	5	-106	-118								
EM2160	BS Works for 110V Charger Rm	12	11SEP06A	29NOV06	95	0	2	-119	-132								
EM2120	LV Sw, MCC, UPS, LCC Installation	30	02OCT06A	24NOV06	95	0	2	-110	-95								
EM2340	Termination of overall Elect HV & LV Sys	30	10OCT06A	26JAN07	20	0	24	-121	-91								
Ventilation Adit Bldg (2F/Upr Pln) - E & M Work																	
EM2320	TVS Installation	90	23AUG06A	03FEB07	81	0	18	-128	-83								
Testing and Commissioning																	
EM2080	HV Sw + Tx Termination + T&C	30	20NOV06	23DEC06	0	0	30	-95	-76								
EM2180	110V Charger Rm Installation + T&C	12	20NOV06	06DEC06	0	0	12	-119	-126								
EM2240	Genset Termination + T&C	12	20NOV06	19DEC06	0	0	12	-115	-97								
EM2140	LV Sw, MCC, UPS, LCC Termination + T&C	30	04DEC06	10JAN07	0	0	30	-119	-102								
EM2360	Integrated E&M System T&C	52	16FEB07	28APR07	0	0	52	-137	-72								
Statutory Inspection & Issued Certificates																	
EM2440	Permanent power energization from SHT NP Bldg	6	08FEB07	14FEB07	0	0	6	-137	-72								
EM3001	Submit Form WWO46 for Water Supply to WSD	30	01FEB07	15MAR07	0	0	30	-103	-56								
<b>EXTERNAL AREAS</b>																	
<b>LANDSCAPING &amp; ESTABLISHMENT WORKS</b>																	
T3180	Planting Works	18	02SEP06A	01MAR07	65	0	18	-73	-118								
<b>ENT NORTH PORTAL VENTILATION BUILDING</b>																	
<b>SUBMITTALS &amp; APPROVALS</b>																	
<b>ABWF &amp; Builders Works</b>																	
1954	NP Bldg. - Approve door details	24	06APR06A	29NOV06	80	80	9	-134	-166								

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR							
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19
<b>PROCUREMENT - MATERIAL</b>																																		
<b>ABWF WORKS</b>																																		
1967	NP.Bldg. - Procure aluminium composite cladding	180	19APR05A	01NOV06A	100	50	0		-128																									
1981	NP.Bldg. - Procure expanded metal cladding	180	06JUN05A	29NOV06	50	50	9	-88	-166																									
2050	NP.Bldg. - Initial deliv alum composite cladding	0	02NOV06A		100	0	0		-52																									
2051	NP.Bldg. - Initial delivery slate cladding	0	20NOV06*		0	0	0	-49	-106																									
2052	NP.Bldg. - Initial delivery balust & metal works	0	20NOV06*		0	0	0	-37	-118																									
2053	NP.Bldg. - Initial delivery fall arrest roof sys	0	20NOV06*		0	0	0	-37	-118																									
2039	NP.Bldg. - Initial delivery of doors	0	08JAN07*		0	0	0	-134	-157																									
2066	NP.Bldg. - Initial deliv expanded metal cladding	0	08JAN07*		0	0	0	-88	-119																									
<b>MAJOR EQUIPMENT DELIVERY</b>																																		
<b>ENT NORTH PORTAL BUILDING</b>																																		
6231	EntNpBldg-Del. FS pumps & tank to G/F	48	06MAR06A	10NOV06A	100	50	0		-148																									
6229	EntNpBldg-Del. PD pump & tank to G/F	48	15MAY06A	10NOV06A	100	0	0		-101																									
6359	EntNpBldg-Del. AFA & FM200 sys	48	15MAY06A	10NOV06A	100	0	0		-88																									
6288	EntNpBldg-Del. CMCS & ELV equipmt	48	01JUN06A	10NOV06A	100	0	0		-71																									
<b>CONSTRUCTION</b>																																		
<b>North Portal Bldg. - CIVIL &amp; ABWF WORKS</b>																																		
<b>STRUCTURE</b>																																		
T1390	NP Bldg - Exhaust Shaft (+110.38mPD)	18	24MAY06A	28NOV06	80	0	8	-101	-147																									
S1370	Construct earth mat	36	26OCT06A	28NOV06	80	0	8	-79	-129																									
<b>ABWF WORKS</b>																																		
<b>Internal Works GF</b>																																		
T1650	GF ABWF Initial finishes	18	04MAR06A	21NOV06	90	28	2	-47	-164																									
<b>NP Bldg - Internal Works 2F</b>																																		
T1600	2F ABWF Initial Finishes	18	06APR06A	24NOV06	95	28	5	-138	-168																									
<b>NP Bldg Internal Works 3F</b>																																		
T1880	3F - paint touch up & doors	12	11DEC06	23DEC06	0	0	12	-25	-117																									

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB		MAR						
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5
NP Building - Internal Works																																
T1620	4F ABWF initial finishes	12	24JUL06A	12DEC06	95	0	1	277	-147																							
NP Bldg - Roofing & External Facade																																
T2238	Ent NPB - Ext. Wall Waterproof Render	18	17JUL06A	05DEC06	20	0	14	-91	-153																							
T1740	Ent NPB - Install Aluminum louvres & doors	90	14AUG06A	10FEB07	60	0	36	-134	-118																							
T1800	Ent NPB - Roof Waterproofing & Test	12	20OCT06A	06DEC06	40	0	7	-82	-142																							
T1750	Ent NPB - Alum. Comp Panel Cladding to Ext Walls	60	20NOV06	31JAN07	0	0	60	-73	-67																							
T1780	Ent NPB - Slate cladding above NB/SB carriageway	36	20NOV06	03JAN07	0	0	36	-49	-106																							
T1730	Ent NPB - External Wall Painting	34	13DEC06	24JAN07	0	0	34	-91	-153																							
T1700	Ent NPB - 25thk Roof Screed & Roofing Tiles	18	21DEC06	13JAN07	0	0	18	-82	-142																							
T1770	Ent NPB - Expanded metal cladding to Ext Walls	36	08JAN07	26FEB07	0	0	36	-88	-119																							
T1790	Ent NPB - GMS,S/S Channel, Balustrade & Railing	24	25JAN07	01MAR07	0	0	24	-91	-151																							
ENT North Portal Bldg. - BUILDING SERVICES																																
E & M WORKS																																
ENT North Portal Bldg (G/F) - E & M Works																																
T1720	Installation of FS Pumps & Pipework at GF	18	15SEP06A	23NOV06	90	0	2	-47	-138																							
ENT North Portal Bldg (1F/Lwr Plen) - E & M Work																																
T1810	Installation of FM200 at 1F	12	04SEP06A	21NOV06	98	0	2	-67	-143																							
ENT North Portal Bldg (2F/Silence) - E & M Work																																
EM2930	BS Works for TVS Plenums	30	17JUN06A	06DEC06	50	0	15	-136	-136																							
EM2580	BS Works for HV Sw + Tx	12	20JUN06A	21NOV06	95	0	2	-121	-143																							
EM2700	BS Works for LV Sw	12	20JUN06A	21NOV06	95	0	2	-113	-143																							
EM2860	E&M Works in Corridors 2/F	24	17JUL06A	20NOV06	95	0	1	-96	-130																							
EM2800	BS Works for Genset	18	01AUG06A	29NOV06	50	0	9	-118	-144																							
EM2600	HV Sw + Tx Installation	18	08AUG06A	20OCT06A	100	0	0		-24																							
EM2900	E&M Works in Risers	48	10AUG06A	06DEC06	95	0	2	-97	-93																							
EM2720	LV Sw Installation	30	17AUG06A	06DEC06	90	0	12	-113	-125																							

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB		MAR																
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26	5	12	42				
ENT North Portal Bldg (3F/ Fan Rm) - E & M Works																																										
EM2640	BS Works for MCC, UPS, LCC	12	20JUN06A	21NOV06	95	0	2	-113	-141																																	
EM2880	E&M Works in Corridors 3/F	24	17JUL06A	21NOV06	95	0	2	-97	-129																																	
EM2760	BS Works for 110V Charger Rm	12	01AUG06A	24NOV06	95	0	5	-133	-144																																	
EM2820	Genset Installation	30	01SEP06A	06DEC06	50	0	15	-118	-114																																	
EM2660	MCC, UPS, LCC Installation	30	18SEP06A	05DEC06	90	0	4	-113	-129																																	
EM2920	Termination of overall Elect HV & LV Sys	30	15OCT06A	09FEB07	15	0	26	-133	-125																																	
EM2890	Compressor Room Installation	18	20NOV06	09DEC06	0	0	18	-83	-161																																	
ENT North Portal Bldg (4F/Up Plen) - E & M Work																																										
EM2940	TVS Installation	100	02AUG06A	26FEB07	69	0	41	-136	-108																																	
Testing and Commissioning																																										
EM2780	110V Charger Rm Installation + T&C	12	20NOV06	02DEC06	0	0	12	-133	-139																																	
EM2620	HV Sw + Tx Termination + T&C	30	04DEC06	10JAN07	0	0	30	-133	-60																																	
EM2680	MCC, LCC Termination + T&C	30	04DEC06	10JAN07	0	0	30	-125	-127																																	
EM2740	LV Sw Termination + T&C	30	04DEC06	10JAN07	0	0	30	-125	-123																																	
EM2840	Genset Termination + T&C	12	07DEC06	20DEC06	0	0	12	-118	-114																																	
Statutory Inspection & Issued Certificates																																										
EM3040	Permanent power energization from ENT SP Bldg	6	16FEB07	02MAR07	0	0	6	-144	-72																																	
<b>TOLL PLAZA &amp; ANCILLIARY STRUCTURES</b>																																										
<b>CONTRACT DEFINED DATES &amp; SECTIONS</b>																																										
<b>AREA ACCESS &amp; VACATION DATES</b>																																										
T_D1234	Release of Portions - D1,D2,D3,D4	0		22DEC06	0	0	0	337	0																																	
T_D5678	Release of Portions - D5,D6,D7,D8	0		22DEC06	0	0	0	337	0																																	
<b>SUBMITTALS &amp; APPROVALS</b>																																										
<b>ABWF &amp; BW SUBMITTALS</b>																																										
1522	TP/FB - Approve footbridge details	24	28JUL06A	02DEC06	60	50	12	285	-166																																	

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR							
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19
<b>Design &amp; Engineering - Temporary Works</b>																																		
<b>50.030.020</b>																																		
1244	Design/ICE Check Tool Booth Canopy	24	01DEC06A	28OCT06A	100		0	0		-124																								
1341	Eng Approve Dsg Tool Booth Canopy	12	01DEC06A	28OCT06A	100		0	0		-112																								
1358	Issue Constr Dwgs Tool Booth Canopy	0	01DEC06A	28OCT06A	100		0	0		-106																								
<b>Procurement - Major Material</b>																																		
2185	Order/Fabricate/Deliver Tool Booth Canopy	90	01DEC06A	28OCT06A	100		11	0		-68																								
<b>Construction Works</b>																																		
<b>Toll Plaza - TCSS Access</b>																																		
K1162	Toll Plaza - TCSS Access (East Side)	0		28NOV06	0		0	0	-125	-109																								
<b>TOLL PLAZA EAST SIDE</b>																																		
K1282	Provision of micro-satellite-office at East Loop	186	13MAR06A	31JAN07	35		17	60	-91	-95																								
K1232	Carriageway Drainage Prior to TCSS	36	27APR06A	23NOV06	90		10	4	-125	-137																								
K1222	Main carriageway Ducting & Drawpits	54	02MAY06A	30DEC06	80		0	10	-87	-114																								
S1170	FW Watermains Centre to Admin Bldg & FH12, FH13	36	02MAY06A	30NOV06	90		0	10	-71	-115																								
S1160	Installation of Ducting and Drawpits for TCSS	32	08MAY06A	28NOV06	90		0	4	-125	-109																								
K1212	Main Carid'way Drain (D3 & D4) - after stockpile	57	20MAY06A	25NOV06	90		0	6	-87	-114																								
K1242	Main carriageway - East Subbase and kerbs	53	16OCT06A	30JAN07	30		0	33	-87	-98																								
S1420	Road Pavement Surfacing (Flex & Rigid)	56	18OCT06A	16FEB07	25		0	42	-87	-98																								
K1182	East Loop Road - Drainage	28	20NOV06	21DEC06	0		0	28	-59	-165																								
K1252	E&M / Lighting works	24	20NOV06	16DEC06	0		0	24	-43	-153																								
K1192	East Loop Road - Formation & Roadworks	36	01FEB07	22MAR07	0		0	36	-91	-95																								
S1140	Furniture, signage (face only), white lining	18	26FEB07	17MAR07	0		0	18	-87	-98																								
S1190	HGC Ducting & Drawpits	24	08MAY06A	30DEC06	85		0	4	-87	-114																								
<b>TOLL PLAZA WEST SIDE</b>																																		
K1161	CSJV, Remove TAR1, drainage, formation (RE Wall)	66	24SEP05A	07NOV06A	100		60	0		-136																								

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
										36 11, 18, 25	37 2, 9, 16, 23, 30	38 6, 13, 20, 27	39 4, 11, 18, 25	40 1, 8, 15, 22, 29	41 5, 12, 19, 26	42 3, 10, 17, 24	
<b>TOLL PLAZA WEST SIDE</b>																	
K1231	CSJV Complete Drainage & Vacate part	24	31DEC06A	07NOV06A	100	60	0		-146								
K1201	West Loop Drainage Works	38	15JUN06A	12DEC06	95	25	2	241	-146								
K1241	Main Carriageway - West side drainage - FB-SHT	45	19JUN06A	24NOV06	90	0	5	-118	-105								
S1510	FW Waterminam Centre to Admin Bldg & FH12, FH13	24	10JUL06A	02DEC06	50	0	12	-113	-106								
K1221	Main Carriageway - West Subbase & kerbs	54	14OCT06A	25JAN07	30	0	38	-118	-62								
K1211	E&M / Lighting works	24	20NOV06	25JAN07	0	0	24	-74	-62								
S1310	Road Pavement Surfacing	57	09DEC06	16FEB07	0	0	57	-87	-65								
K1171	West Loop road - Roadworks	36	13DEC06	26JAN07	0	0	36	241	-146								
S1410	Furniture, signage (face only), white lining	18	26FEB07	17MAR07	0	0	18	-87	-65								
<b>TOLL PLAZA - works adjacent to building</b>																	
S1415	SHT SPB - Drainage & Ducting	18	28FEB06A	28NOV06	90	90	8	-3	-165								
S1427	Admin Bldg & Wshop - Drainage & ducting	36	07MAR06A	28NOV06	80	25	8	-33	-156								
S1380	ENT NPB - Drainage & Ducting	18	01APR06A	21NOV06	95	25	2	3	-169								
S1440	Install Earth Mat for Admin Bldg & SHT NP Bldg	36	06NOV06A	14DEC06	40	0	22	-93	-151								
S1400	ENT NPB - Kerbs & Rwks & misc Finishes	12	15NOV06A	02DEC06	10	0	12	-7	-157								
S1417	SHT SPB - Kerbs & Rwks & misc finishes	12	20NOV06	02DEC06	0	0	12	-7	-155								
S1437	Admin Bldg & Wshop - kerbs, Rwks & misc finishes	30	29NOV06	05JAN07	0	0	30	-33	-117								
<b>TOLL PLAZA COLLECTOR'S SUBWAY</b>																	
<b>ABWF</b>																	
101471	TP/CS - Internal Finishes Ptn A, B & C	24	20NOV06	16DEC06	0	0	24	-85	-151								
101472	TP/CS - Internal Finishes Ptn D	12	18DEC06	03JAN07	0	0	12	-85	-151								
S1290	Toll Subway - E&M	54	04JAN07	15MAR07	0	0	54	-85	-151								
<b>TOLL PLAZA FOOTBRIDGE</b>																	
<b>ABWF</b>																	
S1264	Installation of Aluminium Cladding	38	20NOV06	05JAN07	0	0	38	-117	-157								



Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
										36	37	38	39	40	41	42	
<b>ABWF</b>																	
S1250	Toll Ftbrdge - Finishes	54	10FEB07	26APR07	0	0	54	-117	-157								
S1340	Toll Plaza - Erection of Lift Steel Work	24	30MAY06A	23NOV06	95	0	4	-95	-145								
<b>E &amp; M WORKS</b>																	
S1200	Toll Plaza Footbridge - Lift Installation	72	24NOV06	27FEB07	0	0	72	-96	-146								
S1470	E&M Installation at Footbridge	30	06JAN07	09FEB07	0	0	30	-117	-157								
S1500	E&M Footbridge T&C	18	10FEB07	10MAR07	0	0	18	-81	-157								
<b>TOLL PLAZA BOOTHS</b>																	
S1220	Construd Toll Booths - 22No.	88	28OCT06A	03FEB07	50	0	44	-119	-60								
S1210	Construd Toll Islands 17 No.	51	13NOV06A	02JAN07	5	0	35	-119	-141								
S1300	Toll Booths All E&M, CMCS & TCS	54	16JAN07	27MAR07	0	0	54	-119	-69								
<b>ADMIN.BLDG. - WORKSHOP</b>																	
S1350	Workshop - External Finishes	60	03AUG06A	09DEC06	70	0	18	-13	-81								
S1320	Workshop - Remaining internal Finishes	36	20AUG06A	27NOV06	70	0	7	-2	-70								
S1280	Workshop - Install Roller Shutters	12	20NOV06	02DEC06	0	0	12	-7	-89								
<b>ADMINISTRATION BUILDING</b>																	
<b>SUBMITTALS &amp; APPROVALS</b>																	
<b>ABWF. MTRL SUBMITTALS</b>																	
1885	Admin Bldg. - Prep & submit wood ceiling details	24	20NOV04A	02DEC06	50	50	12	237	-166								
1881	Admin Bldg. - Prep & sub GRP water tank details	24	12JAN05A	02DEC06	50	50	12	231	-166								
1887	Admin Bldg. - Prep & sub suspend ceiling details	24	12AUG05A	02DEC06	50	50	12	201	-166								
1882	Admin Bldg. - Approve GRP water tank details	24	04DEC06	03JAN07	0	0	24	231	-166								
1886	Admin Bldg. - Approve wood ceiling details	24	04DEC06	03JAN07	0	0	24	237	-166								
1888	Admin Bldg. - Approve suspended ceiling details	24	04DEC06	03JAN07	0	0	24	201	-166								
<b>E&amp;M EQPT. / MTRL. SUBMITTALS</b>																	
8248	AdmBldg-Engineer to provide Cater'g equip detail	0	07APR05A		100	100	0		-166								

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP			OCT			NOV			DEC			JAN			FEB			MAR						
										11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26
<b>DESIGN &amp; ENGINEERING</b>																																		
<b>TEMPORARY WORKS</b>																																		
1373	Design/ICE Temp False/Formwork Admin Bldg	48	20NOV06	17JAN07	0	0	48	249	-165																									
<b>PROCUREMENT - MATERIAL</b>																																		
<b>ABWF WORKS</b>																																		
1904	Admin Bldg. - Procure wood ceiling	90	19JAN05A	02DEC06	87	87	12	235	-165																									
1902	Admin Bldg. - Procure GRP water tank	90	16MAR05A	02DEC06	87	87	12	255	-165																									
1905	Admin Bldg. - Procure suspended ceiling	120	09MAY05A	03JAN07	70	70	36	201	-165																									
1910	Admin Bldg. - Procure expanded metal cladding	90	06JUN05A	12DEC06	87	87	20	-113	-165																									
1938	Admin Bldg. - Initial delivery glass canopy	0	20NOV06*		0	0	0	-55	-144																									
2056	Admin Bldg. - Initial delivery sheet decking	0	20NOV06		0	0	0	297	-123																									
2059	Admin Bldg. - Initial deliv fall arrest roof syst	0	20NOV06*		0	0	0	-34	-118																									
2060	Admin Bldg. - Initial deliver balust & metal wks	0	20NOV06*		0	0	0	-34	-118																									
2058	Admin Bldg. - Initial delivery wood ceiling	0	03FEB07		0	0	0	235	-165																									
2063	Admin Bldg. - Initial delivery GRP water tank	0	08FEB07		0	0	0	231	-165																									
2061	Admin Bldg. - Initial del expanded metal cladding	0	13FEB07*		0	0	0	-113	-163																									
<b>MAJOR EQUIPMENT DELIVERY</b>																																		
<b>ADMINISTRATION BUILDING</b>																																		
6428	AdmBldg-Del. building vent. fans	48	06APR06A	10NOV06A	100	20	0		-136																									
6534	AdmBldg-Del. AFA & FM200 sys	48	15MAY06A	10NOV06A	100	0	0		-77																									
6476	AdmBldg-Del. CMCS, ELV & TCS equip1	72	01JUN06A	10NOV06A	100	0	0		-72																									
<b>CONSTRUCTION</b>																																		
<b>TCSS Access at Admin Bldg</b>																																		
T3350	TCSS Works Within Admin Bldg / Tunnel & Ext	140	15SEP06A	27APR07	0	0	110	-124	-99																									
<b>CIVIL &amp; ABWF WORKS</b>																																		
<b>ABWF</b>																																		
Admin Bldg (G/F) - Internal Work @ Grid 1 to 21																																		
T1682	AB (G/F to 1/F) - Staircase Finishing Works	30	18APR06A	01DEC06	65	5	11	-126	-148																									





Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP			OCT			NOV			DEC			JAN			FEB			MAR						
										36	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26
Admin Bldg (Roof/Fir) - Inter Works Grid 3 to 16																																		
T3280	AB R/F (Grid 3-16) - Wall Plaster & Flr Screed	18	28APR06A	20NOV06	95	50	1	-124	-167																									
T2250	AB R/F (Grid 3-16) - Ceiling & Wall Base Paint	12	15JUN06A	04DEC06	95	0	2	-124	-150																									
T2235	AB R/F (Grid 3-16) - Door Leaf & Final Paints	6	28DEC06	04JAN07	0	0	6	-32	-123																									
Admin Bldg - Upper Roof & External Facade																																		
T2890	AB Ext (GL 11-21) - Wall Waterproofing	18	28MAR06A	21OCT06A	100	40	0		-131																									
T2340	AB Ext (GL 11-21) - Slate Cladding	30	03APR06A	06DEC06	50	30	15	-49	-159																									
T2850	AB Ext (GL 1-11) - Install Louvres & Wdw Glazing	60	03APR06A	09DEC06	70	70	18	-83	-165																									
T2860	AB Ext (GL 11-21) - Install Louvres & Wdw Glazing	60	03APR06A	09DEC06	70	70	18	-83	-165																									
T2870	AB Ext URLR - Roof Screeding	18	30JUN06A	21NOV06	90	0	2	-90	-149																									
T2230	AB Ext (GL 6-11) - Curtain Wall & Glass Canopy	30	03JUL06A	23DEC06	80	0	6	-55	-123																									
T2232	AB Ext (GL 11-18) - Curtain Wall Installation	21	03JUL06A	09DEC06	80	0	5	-55	-141																									
T2880	AB Ext (GL 1-11) - Wall Waterproofing	18	20JUL06A	08NOV06A	100	0	0		-138																									
T2841	AB Ext URLR - Render&wall paint to Open Area Rf	12	25JUL06A	06DEC06	50	0	6	-90	-125																									
T2840	AB Ext URLR - Roof Waterproofing & Test	24	12AUG06A	19DEC06	40	0	15	-90	-149																									
T2330	AB Ext (GL 1-11) - Slate Cladding	45	15OCT06A	16DEC06	80	0	9	-49	-123																									
T2900	AB Ext URLR - Insulation & Conc Roof Tile	30	06NOV06A	26JAN07	20	0	24	-90	-137																									
T2830	AB Ext (GL 11-21) - Ceramic Wall Tiles	30	20NOV06	23DEC06	0	0	30	-85	-154																									
T2350	AB Ext (GL 1-11) - Ceramic Wall Tiles	30	27DEC06	31JAN07	0	0	30	-85	-154																									
T2915	AB Ext URLR - Install GMS, Balustrades & Railing	21	27JAN07	28FEB07	0	0	21	-90	-119																									
T2245	AB Ext (GL 1-21) - Remove External Scaffolding	12	13FEB07	27MAR07	0	0	12	-113	-139																									
T2270	AB Ext (GL 3-11) - Expanded metal mesh cladding	24	13FEB07	20MAR07	0	0	24	-89	-139																									
T2280	AB Ext (GL 11-16) - Expanded metal mesh cladding	24	13FEB07	20MAR07	0	0	24	-113	-163																									
<b>BUILDING SERVICES</b>																																		
Admin Bldg (G/F) - E & M Works																																		
EM3540	BS Works in G/F	90	01JUN06A	09JAN07	85	12	13	-126	-127																									

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR							
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19
<b>Admin Bldg (G/F) - E &amp; M Works</b>																																		
EM3620	E&M Works in Risers	90	12JUN06A	04DEC06	85	0	13	-98	-80																									
EM3220	BS Works for HV Sw + Tx	12	14JUN06A	21NOV06	95	0	2	-120	-155																									
EM3280	BS Works for LV Sw	12	14JUN06A	21NOV06	95	0	2	-120	-143																									
EM3340	BS Works for 110V Charger Rm	12	14JUN06A	21NOV06	95	0	2	-129	-155																									
EM3420	BS Works for Genset	12	14JUN06A	24NOV06	98	0	5	-120	-134																									
EM3300	LV Sw Installation	30	01OCT06A	20DEC06	40	0	18	-124	-130																									
<b>Admin Bldg (1/F) - E &amp; M Works</b>																																		
EM3560	BS Works in 1/F	90	08JUN06A	20DEC06	89	12	10	-112	-113																									
EM3380	BS Works for UPS Rm (2x)	12	03JUL06A	20NOV06	95	0	1	-128	-135																									
<b>Admin Bldg (2/F) - E &amp; M Works</b>																																		
EM3580	BS Works in 2/F	90	08JUN06A	13DEC06	85	0	18	-106	-68																									
<b>Admin Bldg (Int. &amp; Ext. Roof Lvl) - E &amp; M Works</b>																																		
EM3600	BS Works in R/F	78	06JUN06A	27DEC06	60	1	31	-116	-123																									
EM3190	Admin Bldg - Lift Installation	72	19JUN06A	27NOV06	95	0	7	-26	-16																									
EM3720	Chiller System in R/F (inc. All AC Units)	72	20JUN06A	23NOV06	95	0	4	-69	-13																									
EM3480	BS Works for MCC	12	03JUL06A	20NOV06	95	0	1	-118	-126																									
EM3500	MCC Installation	30	08AUG06A	22NOV06	90	0	3	-118	-98																									
<b>Admin Bldg - Testing and Commissioning</b>																																		
EM3640	Termination of overall Elect HV & LV Sys	36	10OCT06A	05FEB07	20	0	20	-129	-75																									
EM3360	110V Charger Rm Installation + T&C	12	22NOV06	06DEC06	0	0	12	-129	-105																									
EM3460	Genset Termination + T&C	12	22NOV06	06DEC06	0	0	12	-99	-93																									
EM3520	MCC Termination + T&C	30	23NOV06	29DEC06	0	0	30	-118	-98																									
EM3260	HV Sw + Tx Termination + T&C	30	06DEC06	12JAN07	0	0	30	-129	-92																									
EM3320	LV Sw Termination + T&C	30	06DEC06	12JAN07	0	0	30	-129	-105																									

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR	
										11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15
Admin Bldg - Statutory Inspection and Handover																												
EM3370	Admin Bldg - Lift Commissioning	24	28NOV06	27DEC06	0	0	24	-26	-16																			
EM3820	Permanent power energization from SHT NP Bldg	6	15FEB07	01MAR07	0	0	6	-143	-72																			
<b>SHATIN HEIGHTS SOUTH PORTAL BUILDING</b>																												
<b>CONTRACT DEFINED DATES &amp; SECTIONS</b>																												
<b>AREA ACCESS &amp; VACATION DATES</b>																												
ACS_J2	Access to - J2 (T.Plate & above) SH-S.Vent.Bldg.	0	10DEC06A		100	100	0		-200																			
ACS_D8	Access to Portion - D8	0	03JAN06A		100	100	0		-200																			
<b>SUBMITTALS &amp; APPROVALS</b>																												
<b>ABWF &amp; BW APPROVALS</b>																												
2000	SHT SPB - Approve doors details	24	07MAY06A	29NOV06	70	70	9	-102	-166																			
2074	SHT SPB - Approve aluminum composite cladding	24	13DEC06A	12DEC06	50	50	20	-33	-162																			
<b>PROCUREMENT - MATERIAL</b>																												
<b>ABWF WORKS</b>																												
2079	SHT SPB - Procure aluminum composite cladding	180	19APR06A	01NOV06A	100	50	0		-117																			
2077	SHT SPB - Procure expanded metal mesh cladding	180	06JUN06A	06DEC06	50	50	15	-108	-160																			
2086	SHT SPB - Initial deliv alum composite claddings	0	02NOV06A		100	0	0		-68																			
2082	SHT SPB - Initial delivery of slate cladding	0	20NOV06*		0	0	0	-49	-127																			
2083	SHT SPB - Initial deliv fall arrest roof syst.	0	20NOV06*		0	0	0	-25	-118																			
2084	SHT SPB - Initial delivery balustrd & metal work	0	20NOV06*		0	0	0	-25	-118																			
2081	SHT SPB - Initial delivery of doors	0	05JAN07*		0	0	0	-102	-164																			
2085	SHT SPB - Initial deliv expanded metal cladding	0	07FEB07*		0	0	0	-108	-158																			
<b>MAJOR EQUIPMENT DELIVERY</b>																												
<b>E&amp;M WORKS</b>																												
7157	ShtSpBldg-Del. FS pumps & tank to G/F	48	06MAR06A	10NOV06A	100	50	0		-149																			
7211	ShtSpBldg-Del. PD pump & tank to G/F	48	10APR06A	10NOV06A	100	0	0		-101																			
7231	ShtSpBldg-Del. PD irrig. pump & tank to G/F	48	10APR06A	10NOV06A	100	0	0		-101																			

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP			OCT			NOV			DEC			JAN			FEB			MAR						
										36	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26
<b>E&amp;M WORKS</b>																																		
7207	ShtSpBldg-Del. AFA & FM200 sys	48	15MAY06A	10NOV06A	100	0	0		-87																									
7087	ShtSpBldg-Del. CMCS & ELV equip't	48	01JUN06A	10NOV06A	100	0	0		-73																									
<b>CONSTRUCTION</b>																																		
<b>TCSS Access to SHT Sout Portal Bldg</b>																																		
EM6700	TCSS Containment in G/F	12	15NOV06A	06DEC06	50	0	6	-227	-151																									
EM6710	TCSS ACCESS GF (Room G01-G06, G08-G10)	0		29NOV06	0	0	0	-196	-167																									
EM6720	TCSS ACCESS GF(Room G07,G11,G12)	0		06DEC06	0	0	0	-227	-151																									
<b>CIVIL &amp; ABWF WORKS</b>																																		
AB5983	U/G Drainages and Utilities under bldg	24	01APR06A	23NOV06	85	0	4	-59	-145																									
AB5986	Backfill, G/F Slabs and Walls	24	20APR06A	07DEC06	85	0	4	-59	-133																									
<b>ABWF</b>																																		
AB6022	Remedy SHT Contractor Defects	25	12DEC06A	22NOV06	90	90	3	-227	-163																									
<b>ABWF at GF</b>																																		
AB5989	Initial Finishes to G/F	18	11FEB06A	29NOV06	50	5	9	-227	-157																									
AB6042	G/F Paint Touch Up & Doors	12	01DEC06	14DEC06	0	0	12	-17	-45																									
<b>ABWF at 1F &amp; LP</b>																																		
AB5995	Initial Finishes to Lower Plenum	12	10APR06A	29NOV06	95	15	5	-75	-157																									
AB6032	1F & LP Paint Touch Up & Doors	12	01DEC06	14DEC06	0	0	12	-17	-45																									
<b>ABWF at 2F</b>																																		
AB6052	2/F Paint Touch Up & Doors	12	01DEC06	14DEC06	0	0	12	-17	-45																									
<b>ABWF at 3F</b>																																		
AB6062	3/F Paint Touch Up & Doors	12	01DEC06	14DEC06	0	0	12	-17	-45																									
<b>ABWF at 4F and above</b>																																		
AB6004	Initial Finishes to 4/F and above	24	13APR06A	29NOV06	90	10	9	-68	-139																									
AB6072	4/F and above Paint Touch Up & Doors	12	01DEC06	14DEC06	0	0	12	-17	-45																									
<b>Roof &amp; External Facade</b>																																		
AB6018	Sht SPB - Ext. Wall Waterproof Render	21	02MAR06A	06DEC06	80	0	5	-76	-154																									
AB6017	Sht SPB - Ext. Wall Waterproof Membrane	24	04MAR06A	06DEC06	90	90	14	-102	-166																									



Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR							
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19
<b>Roof &amp; External Facade</b>																																		
AB6067	Sht SPB - Install Aluminum louvres & doors	75	15MAR06A	04JAN07	80		0	37	-102	-126																								
AB6077	Sht SPB - Alum. composite cladding to ext walls	60	07AUG06A	13JAN07	25		0	45	-58	-68																								
AB6047	Sht SPB - GMS, S/S Channel, Balustrade & Railing	18	14AUG06A	09FEB07	25		0	14	-81	-153																								
AB6037	Sht SPB - Roof Waterproofing & Test	12	20NOV06	19DEC06	0		0	14	-81	-165																								
AB6007	Sht SPB - Slate Cladding above NB/SB Carriageway	36	06DEC06	19JAN07	0		0	36	-63	-141																								
AB6027	Sht SPB - External Wall Painting	30	14DEC06	20JAN07	0		0	30	-76	-154																								
AB6057	Sht SPB - 25thk Roof Screed & Roofing Tiles	18	06JAN07	26JAN07	0		0	18	-81	-165																								
AB6034	Sht SPB - Expanded metal cladding to ext walls	30	07FEB07	21MAR07	0		0	30	-108	-168																								
<b>SHT South Portal Bldg. - BUILDING SERVICES</b>																																		
<b>E &amp; M WORKS</b>																																		
<b>SHT South Portal Bldg (G/F) - E &amp; M Works</b>																																		
EM6065	Installation of FS Pumps & Pipework at GF	18	15NOV06A	06DEC06	70		0	6	-80	-145																								
EM6063	E&M Access to G/F	0	30NOV06		0		0	0	-227	-157																								
<b>SHT South Portal Bldg (2F/Silencer) - E &amp; M Work</b>																																		
EM6080	BS Works for HV Sw + Tx	12	17JUL06A	21NOV06	95		0	2	-118	-138																								
EM6300	E&M Works in Corridors 2/F	24	17JUL06A	21NOV06	90		0	2	-104	-114																								
EM6240	BS Works for Genset	18	01AUG06A	24NOV06	75		0	5	-102	-135																								
EM6260	Genset Installation	36	14AUG06A	09DEC06	50		0	18	-120	-112																								
EM6100	HV Sw + Tx Installation	18	11SEP06A	06DEC06	95		0	2	-118	-120																								
<b>SHT South Portal Bldg (3F/Fan Rm) - E &amp; M Work</b>																																		
EM6140	BS Works for LV Sw, MCC, UPS, LCC	12	12JUN06A	21NOV06	95		0	2	-121	-138																								
EM6200	BS Works for 110V Charger Rm	12	12JUN06A	21NOV06	95		0	2	-125	-138																								
EM6320	E&M Works in Corridors 3/F	24	14JUL06A	20NOV06	95		0	1	-103	-113																								
EM6160	LV Sw, MCC, UPS, LCC Installation	30	16AUG06A	06DEC06	95		0	5	-113	-120																								
EM6360	Termination of overall Elect HV & LV Sys	30	10OCT06A	31JAN07	15		0	25	-125	-106																								

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR							
										11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26
SHT South Portal Bldg (4FIUpr Pten) - E & M Work																																		
EM6400	TVS Installation	100	12JUN06A	30NOV06	98	0	10	-75	-45																									
Testing and Commissioning																																		
EM6220	110V Charger Rm Installation + T&C	12	20NOV06	02DEC06	0	0	12	-125	-136																									
EM6120	HV Sw + Tx Termination + T&C	30	04DEC06	10JAN07	0	0	30	-107	-118																									
EM6180	LV Sw, MCC, UPS, LCC Termination + T&C	30	04DEC06	10JAN07	0	0	30	-125	-118																									
EM6280	Genset Termination + T&C	12	11DEC06	23DEC06	0	0	12	-120	-112																									
Statutory Inspection & Issued Certificates																																		
EM6500	Permit power energ. (From ENT SPB)	6	16FEB07	02MAR07	0	0	6	-144	-72																									
<b>SHT TUNNEL</b>																																		
<b>MAJOR EQUIPMENT DELIVERY</b>																																		
<b>SHT TUNNEL NORTHBOUND</b>																																		
7012	ShtRINb-Del. TVS control sys	48	24MAR06A	12DEC06	95	60	20	277	-176																									
7024	ShtRINb-Del. AFA & Linear sys	48	01JUN06A	06DEC06	90	0	15	282	-110																									
<b>SHT TUNNEL SOUTH BOUND</b>																																		
6959	ShtRISb-Del. TVS control sys	47	24MAR06A	05JAN07	90	40	38	259	-194																									
6947	ShtRISb-Del. CMCS & ELV sys	72	01JUN06A	29DEC06	90	0	33	264	-110																									
6971	ShtRISb-Del. AFA & Linear sys	48	01JUN06A	13DEC06	66	0	21	276	-116																									
<b>CONSTRUCTION</b>																																		
<b>SHT NORTHBOUND TUNNEL</b>																																		
<b>(E &amp; M) BUILDING SERVICES</b>																																		
MVAC / Tunnel Ventilation System Above OHVD																																		
207004	Sht NB - Install Motorized Smoke & Fire Damper	48	22FEB06A	30NOV06	82	80	10	-138	-166																									
207006	Sht NB - Comp Air Pipes/Condts to E/P1 to E/P5	36	12APR06A	07DEC06	95	5	2	-138	-159																									
207005	Sht NB - Comp Air Pipes/Condts to E/P10 to E/P6	36	20JUN06A	14DEC06	95	0	2	-138	-129																									
207007	Sht NB - Cabling, wiring and termination	24	20JUN06A	22DEC06	70	0	7	-138	-112																									
207008	Sht NB - MVAC Testing and T&C	12	23DEC06	09JAN07	0	0	12	-138	-112																									
Plumbing and Drainage																																		
214030	Sht NB - Pipe Testing & T&C	12	15MAY06A	21NOV06	90	0	2	-85	-127																									

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	Gantt Chart							
										SEP	OCT	NOV	DEC	JAN	FEB	MAR	
										36	37	38	39	40	41	42	
<b>Plumbing and Drainage</b>																	
214028	Sht NB - Pipe Connecdn, pumps, tanks to SP / NP	18	22NOV06	12DEC06	0	0	18	-85	-167								
<b>Fire Protection System</b>																	
221054	Sht NB - Install FS Conduits for Niches	30	22MAR06A	21NOV06	95	20	2	-93	-143								
221055	Sht NB - (150d) FS Main pipeworks @ G/L	34	06APR06A	21NOV06	98	10	2	-93	-137								
221057	Sht NB - Hose Reel Cabinets & Equipts	40	08MAY06A	06DEC06	90	0	4	-93	-109								
221052	Sht NB - Install brkt for detection sys @ C/L	30	20OCT06A	22NOV06	90	0	3	-85	-138								
221053	Sht NB - Install detection system @ Ceiling Lvl	24	25OCT06A	25NOV06	90	0	3	-85	-117								
221059	Sht NB - FS wiring & termination	24	09NOV06A	09DEC06	90	0	4	-93	-87								
221061	Sht NB - FS Testing and T&C	12	16NOV06A	21DEC06	20	0	10	-93	-85								
<b>Electrical Works Above OHVD</b>																	
228105	Sht NB-HV&LV Mn/Submain Cable Pulling (CP5-CP1)	24	15AUG06A	04DEC06	70	0	7	-134	-109								
228108	Sht NB-HV&LV Mn/Submain Cable Pulling (CP10-CP6)	24	15AUG06A	04DEC06	70	0	7	-140	-133								
228109	E&M Inspection & Access to Civil Contractor	0		11DEC06	0	0	0	-134	-109								
<b>Electrical Works Below OHVD</b>																	
235161	Sht NB - Conduits Works (Above & below OHVD)	48	01MAR06A	06DEC06	90	44	4	-129	-152								
235160	Sht NB - Brackets for Lightings @ Ceiling Level	48	14MAR06A	21NOV06	98	80	2	-129	-158								
235164	Sht NB - Tunnel Lightings Fixtures	60	26APR06A	19DEC06	90	5	6	-129	-134								
235165	Sht NB - Cabling, Wiring and Termination	36	30MAY06A	28DEC06	30	0	26	-129	-116								
235162	Sht NB - Tunnel Earthing to CP1-CP10	36	27OCT06A	12DEC06	50	0	18	-109	-140								
235163	Stn NB Access to Civil Contractor for Rd Pavement	0	20DEC06		0	0	0	-115	-134								
235166	Sht NB - Lighting Test and T&C	12	29DEC06	12JAN07	0	0	12	-121	-116								
235167	Stn NB Access to Civil Contractor for Top Layer	0		12JAN07	0	0	0	-121	-116								
<b>SHT SOUTHBOUND TUNNEL</b>																	
<b>(E &amp; M) BUILDING SERVICES</b>																	
<b>MVAC / Tunnel Ventilation System Above OHVD</b>																	
242270	Sht SB - Install Motorized Smoke & Fire Damper	48	02MAR06A	01DEC06	77	74	11	-122	-164								

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP			OCT				NOV				DEC				JAN				FEB				MAR						
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26	1	8	15	22
MVAC / Tunnel Ventilation System Above OHVD																																							
242272	Sht SB - Comp Air Pipes/Conds to E/P 1 to E/P5	36	08MAY06A	08DEC06	93		0	3	-122	-110																													
242273	Sht SB - Cabling, wiring and termination	24	20JUN06A	18DEC06	70		0	8	-122	-94																													
242274	Sht SB - MVAC Testing and T&C	12	19DEC06	04JAN07	0		0	12	-102	-94																													
Plumbing and Drainage																																							
249393	Sht SB - Pipe Testing and T&C	12	22JUN06A	22NOV06	75		0	3	-86	-104																													
249392	Sht SB - Pipe Connectn, pumps, tanks to SP / NP	18	23NOV06	13DEC06	0		0	18	-86	-134																													
Fire Protection System																																							
256516	Sht SB - Install FS Conduits for Niches	30	12JUN06A	22NOV06	96		0	3	-110	-84																													
256618	Sht SB - Hose Reel Cabinets & Equipts	40	30JUN06A	06DEC06	96		0	5	-110	-56																													
256614	Sht SB - Install brckt for detection sys @ C/L	30	04SEP06A	22NOV06	96		0	3	-110	-138																													
256515	Sht SB - Install detection system @ Ceiling Lvl	24	01OCT06A	06DEC06	50		0	12	-110	-126																													
256520	Sht SB - FS Wiring & Termination	24	10NOV06A	29DEC06	20		0	18	-110	-48																													
256521	Sht SB - FS Testing and T&C	12	30DEC06	13JAN07	0		0	12	-110	-48																													
Electrical Works Above OHVD																																							
263655	Sht SB-HV&LV Mn/Submain Cable Pulling (CP6-CP10)	24	10AUG06A	27NOV06	70		0	7	-140	-55																													
263658	Sht SB-HV&LV Mn/Submain Cable Pulling (CP1-CP5)	24	10AUG06A	27NOV06	70		0	7	-140	-79																													
263659	E&M Inspection & Access to Civil Contractor	0		04DEC06	0		0	0	-128	-55																													
Electrical Works Below OHVD																																							
270799	Sht SB - Conduits Works (Above & below OHVD)	48	01MAR06A	21NOV06	98		42	2	-123	-139																													
270798	Sht SB - Brackets for Lightings @ Ceiling Level	48	01JUN06A	21NOV06	98		0	2	-136	-142																													
270802	Sht SB - Tunnel Lightings Fixtures	60	27JUN06A	18NOV06A	100		0	0		-44																													
270800	Sht SB - Tunnel Earthing to CP1-CP10	36	01AUG06A	06DEC06	90		0	4	-136	-118																													
270803	Sht SB - Cabling, Wiring and Termination	36	01OCT06A	06JAN07	30		0	25	-136	-77																													
270801	Stn SB Access to Civil Contractr for Rd Pavement	0	20DEC06		0		0	0	-115	-130																													
270804	Sht SB - Lighting Test and T&C	12	08JAN07	20JAN07	0		0	12	-128	-77																													
270805	Stn SB Access to Civil Contractor for Top Layer	0		20JAN07	0		0	0	-128	-77																													

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR							
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19
<b>SHT CROSS PASSAGES (CP1 to CP10)</b>																																		
<b>(E &amp; M) BUILDING SERVICES</b>																																		
Electrical Works																																		
277957	(CP1-CP10) - Cable Containment & Equipmt Support	60	03MAY06A	22NOV06	98		2	3	-131	-110																								
277959	(CP1-CP10) - MCCB / MCB Bd, CMCS, Busbar, Switches	72	13JUN06A	27NOV06	90		0	7	-127	-57																								
277960	(CP1-CP10) - Conduit, light Fixture, Swt & Test	36	15AUG06A	14DEC06	40		0	22	-131	-108																								
277961	(CP1-CP10) - HV & LV Cables Termination & Test	48	18NOV06A	17JAN07	10		0	30	-146	-72																								
277962	(CP1-CP10) - Switchboard, CMCS, Eqpt, Testing	48	22NOV06	17JAN07	0		0	22	-146	-72																								
<b>SHT NORTH PORTAL BUILDING</b>																																		
<b>SUBMITTALS &amp; APPROVALS</b>																																		
<b>ABWF &amp; BUILDERS WORKS</b>																																		
2094	SHT NPB - Approve alum. composite claddings	24	13DEC05A	28NOV06	90		70	8	-110	-151																								
<b>PROCUREMENT - MATERIAL</b>																																		
<b>ABWF WORKS</b>																																		
2099	SHT NPB - Procure alum. composite claddings	180	19APR06A	09DEC06	50		50	18	-120	-161																								
2098	SHT NPB - Procure expanded metal claddings	180	06JUN05A	01NOV06A	100		50	0		-141																								
2103	SHT NPB - Initial deliv expanded metal claddings	0	02NOV06A		100		0	0		-78																								
2101	SHT NPB - Initial delivery of doors	0	20NOV06*		0		0	0	-26	-127																								
2102	SHT NPB - Initial delivery of slate claddings	0	20NOV06*		0		0	0	-79	-118																								
2104	SHT NPB - Initial deliv fall arrest roofing syst	0	20NOV06*		0		0	0	-43	-111																								
2106	SHT NPB - Initial deliv alum. composite cladding	0	20JAN07*		0		0	0	-120	-133																								
<b>MAJOR EQUIPMENT DELIVERY</b>																																		
<b>SHT NORTH PORTAL BUILDING</b>																																		
7379	ShtNpBldg-Del. FS pumps & tank to G/F	48	06MAR06A	24NOV06	90		0	5	292	-113																								
7325	ShtNpBldg-Del. Package AC Units	48	10APR06A	30NOV06	80		0	10	287	-118																								
7433	ShtNpBldg-Del. PD pump & tank to G/F	48	10APR06A	30NOV06	80		0	10	287	-118																								
7429	ShtNpBldg-Del. AFA & FM200 sys	48	15MAY06A	24NOV06	90		0	5	292	-110																								

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP	OCT	NOV	DEC	JAN	FEB	MAR																					
										36	37	38	39	40	41	42																					
<b>SHT NORTH PORTAL BUILDING</b>											11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26	5	12
7309	ShtNpBldg-Del. CMCS & ELV equip	48	01JUN06A	29DEC06	90	0	33	264	-111																												
<b>CONSTRUCTION</b>																																					
<b>TCSS Access to SHT North Portal Bldg</b>																																					
EM7286	TCSS Containment in 1/F	12	20NOV06	02DEC06	0	0	12	285	-149																												
EM7289	TCSS Containment in Lower Plenum	18	20NOV06	09DEC06	0	0	18	279	-144																												
EM7292	TCSS Containment in 2/F	18	20NOV06	09DEC06	0	0	18	279	-149																												
EM7295	TCSS Containment in 3/F and above	18	20NOV06	09DEC06	0	0	18	279	-144																												
EM7283	TCSS Containment in G/F	12	29NOV06	12DEC06	0	0	12	-193	-152																												
EM7290	TCSS ACCESS - GF (Room G02-G03, G04-G08)	0		28NOV06	0	0	0	-189	-162																												
EM7293	TCSS ACCESS - GF (Room G09,G15)	0		12DEC06	0	0	0	-193	-162																												
<b>CIVIL &amp; ABWF WORKS</b>																																					
AB7040	11U/G Drainages and Utilities under bldg	24	20JUL06A	02DEC06	50	0	12	271	-153																												
AB7060	Backfill, G/F Slabs and Walls	24	04SEP06A	19DEC06	40	0	14	271	-143																												
<b>ABWF Works</b>																																					
AB7130	Remedy defects to SHT Buildings	24	17DEC06A	21NOV06	95	50	2	-193	-168																												
<b>ABWF at GF</b>																																					
AB7080	Initial Finishes to G/F	18	26APR06A	28NOV06	95	7	8	-193	-162																												
AB7330	G/F paint Touch Up & Doors	12	15DEC06	30DEC06	0	0	12	-29	-36																												
<b>ABWF at 1F &amp; LP</b>																																					
AB7120	Initial Finishes to Lower Plenum	12	22APR06A	06DEC06	95	0	8	-87	-158																												
AB7320	1F & LP Paint Touch Up & Doors	12	15DEC06	30DEC06	0	0	12	-29	-36																												
<b>ABWF at 2F</b>																																					
AB7340	2/F Paint Touch Up & Doors	12	15DEC06	30DEC06	0	0	12	-29	-36																												
<b>ABWF at 3F</b>																																					
AB7350	3/F Paint Touch Up & Doors	12	15DEC06	30DEC06	0	0	12	-29	-36																												
<b>ABWF at 4F</b>																																					
AB7180	Initial Finishes to 4/F and above	24	02MAY06A	28NOV06	90	0	8	289	-140																												

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB			MAR							
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19
ABWF at 4F																																		
AB7360	4/F and above Paint Touch Up & Doors	12	16DEC06	30DEC06	0	0	12	-29	-36																									
Roofing & External Facade																																		
B70205	Sht NPB - Ext. Wall Waterproof Render	21	04MAY06A	05DEC06	80	0	5	-75	-149																									
AB7290	Sht NPB - Install Aluminum louvres & doors	75	06MAY06A	14DEC06	70	0	22	-47	-111																									
AB7280	Sht NPB - Alum. composite cladding to ext walls	60	16OCT06A	21MAR07	25	0	46	-120	-118																									
AB7220	Sht NPB - Expanded metal cladding to Ext Walls	30	22NOV06	28DEC06	0	0	30	-57	-95																									
AB7270	Sht NPB - Roof Waterproofing & Test	12	22NOV06	05DEC06	0	0	12	-87	-152																									
AB7310	Sht NPB - Slate Cladding above NB/SB Carriageway	36	22NOV06	05JAN07	0	0	36	-81	-120																									
AB7260	Sht NPB - External Wall Painting	30	13DEC06	19JAN07	0	0	30	-75	-149																									
AB7300	Sht NPB - 25hk Roof Screed & Roofing Tiles	18	20DEC06	12JAN07	0	0	18	-87	-152																									
AB7250	Sht NPB - GMS, S/S Channel, Balustrade & Railing	18	13JAN07	02FEB07	0	0	18	-87	-126																									
<b>Sht North Portal Bldg. - BUILDING SERVICES</b>																																		
<b>E &amp; M WORKS</b>																																		
SHT North Portal Bldg (G/F) - E & M Works																																		
EM7280	E&M Access to G/F	0	29NOV06		0	0	0	-198	-162																									
EM7281	Installation of FS Pumps & Pipework at GF	18	29NOV06	19DEC06	0	0	18	-91	-152																									
SHT North Portal Bldg (2F/Silence) - E & M Work																																		
EM7600	BS Works for TVS Plenums	30	26JUN06A	23NOV06	75	0	4	-87	-118																									
EM7460	BS Works for Genset	18	20JUL06A	04DEC06	30	0	13	-140	-144																									
EM7300	BS Works for HV Sw + Tx	12	01AUG06A	21NOV06	95	0	2	-132	-139																									
EM7520	E&M Works in Corridors 2/F	24	01AUG06A	28NOV06	90	0	3	-129	-121																									
EM7560	E&M Works in Risers	48	15AUG06A	05DEC06	95	0	2	-129	-86																									
EM7480	Genset Installation	30	01SEP06A	13DEC06	30	0	21	-140	-116																									
SHT North Portal Bldg (3F/Fan Rm) - E & M Work																																		
EM7360	BS Works for LV Sw, MCC, UPS, LCC	12	17JUL06A	21NOV06	95	0	2	-133	-134																									
EM7540	E&M Works in Corridors 3/F	24	01AUG06A	28NOV06	95	0	3	-129	-116																									

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP	OCT	NOV	DEC	JAN	FEB	MAR																					
										36	37	38	39	40	41	42																					
SHT North Portal Bldg (3F/Fan Rm) - E & M Work											11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12	19	26	5	12
EM7420	BS Works for 110V Charger Rm	12	15AUG06A	21NOV06	95	0	2	-137	-134																												
EM7380	LV Sw, MCC, UPS, LCC Installation	30	04SEP06A	06DEC06	95	0	2	-133	-116																												
EM7580	Termination of overall Elect HV & LV Sys	29	10OCT06A	17JAN07	50	0	10	-146	-72																												
SHT North Portal Bldg (4F/Upr Plen) - E & M Work																																					
EM7620	TVS Installation	100	17JUL06A	14DEC06	91	0	10	-87	-36																												
Testing and Commissioning																																					
EM7340	HV Sw + Tx Termination + T&C	30	16NOV06A	22DEC06	50	0	15	-132	-106																												
EM7500	Genset Termination + T&C	12	20NOV06	29DEC06	0	0	12	-140	-116																												
EM7400	LV Sw, MCC, UPS, LCC Termination + T&C	30	22NOV06	30DEC06	0	0	30	-137	-106																												
EM7440	110V Charger Rm Installation + T&C	12	22NOV06	06DEC06	0	0	12	-137	-134																												
EM7640	Integrated E&M System T&C	52	15FEB07	28APR07	0	0	52	-137	-72																												
Statutory Inspection & Issued Certificates																																					
EM7691	Room Available for CLP Equipment Installation	0	20NOV06*		0	0	0	-62	0																												
EM7660	Submit WR1 to CLP (SHT NP Bldg)	6	30DEC06	17JAN07	0	0	6	-146	-72																												
EM7680	CLP insp.	18	18JAN07	07FEB07	0	0	18	-145	-72																												
EM7700	CLP connection/ready for energization	0		07FEB07	0	0	0	-145	-72																												
EM7720	Permit power energ. (From SHT NPB)	6	08FEB07	14FEB07	0	0	6	-145	-72																												
<b>SHT RC ENCLOSURE &amp; T3 UNDERPASS</b>																																					
<b>MAJOR EQUIPMENT DELIVERY</b>																																					
<b>SHT RC FULL ENCLOSURE / T3 UNDERPASS</b>																																					
7507	Sht-N.R9-Del. TVS control sys	48	27FEB06A	12DEC06	95	0	20	277	-98																												
7519	Sht-N.R9-Del. AFA & Linear sys	48	15MAY06A	13DEC06	95	0	21	276	-129																												
7606	Sht-N.R9-Del. LCC to S & N Sw/R.	48	15MAY06A	28NOV06	90	0	8	289	-116																												
7614	Sht-N.R9-Del. MCC, & control sys to S LV S/R	48	15MAY06A	28NOV06	90	0	8	289	-116																												
7496	Sht-N.R9-Del. CMCS & ELV sys	48	01JUN06A	12DEC06	95	0	20	277	-98																												



Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP	OCT	NOV	DEC	JAN	FEB	MAR	
										36 11, 18, 25	37 2, 9, 16, 23, 30	38 6, 13, 20, 27	39 4, 11, 18, 25	40 1, 8, 15, 22, 29	41 5, 12, 19, 26	42 5, 12	
<b>INTERFACE DATES</b>																	
<b>SHT RC FULL ENCLOSURE / T3 UNDERPASS</b>																	
EM4020	LKJV - Possession of T3 Underpass	0	20NOV06*		0	0	0	-139	-145								
<b>CONSTRUCTION WORKS</b>																	
<b>SHT RC FULL ENCLOSURE / T3 UNDERPASS</b>																	
Koisk S1 at Shatin North Control Point																	
EM3950	Kiosk S1 - Structure & Fittings	24	03OCT06A	05DEC06	40	0	14	-139	-155								
EM3952	Kiosk S1 - Install E&M Works	18	20NOV06	19DEC06	0	0	18	-139	-149								
EM3960	Wighbridge S1 - Install	12	20NOV06	02DEC06	0	0	12	-18	-165								
EM3970	Weighbridge S1 - Test and T&C	30	04DEC06	10JAN07	0	0	30	-18	-165								
EM3954	Kiosk S1 - E&M Testing and T&C	6	20DEC06	28DEC06	0	0	6	-139	-149								
<b>RC Full Enclosure - LV Switch Room</b>																	
280070	E&M Access to Southern LV Switch Room	0	20NOV06		0	0	0	-145	-165								
280072	LV SW Rm - Cable Containment & Equipt Supports	24	20NOV06	16DEC06	0	0	24	-107	-165								
280074	LV SW Rm - SWGR, MCCB/ MCB Board, FS Panels	24	27NOV06	23DEC06	0	0	24	255	-135								
280076	LV SW Rm - Elect Lightings & Conduits	18	04DEC06	03JAN07	0	0	18	-107	-159								
280079	LV SW Rm - MCCB, MCB, LV Sw, FS panels Term & Test	18	11DEC06	10JAN07	0	0	18	255	-129								
280080	LV SW Rm - Connect HV / LV Cables from SHT NPB	24	11DEC06	10JAN07	0	0	24	255	-117								
280078	LV SW Rm - Lightings wiring, term & test	6	04JAN07	10JAN07	0	0	6	-107	-159								
<b>STN RC FULL ENCLOSURE (North Bound) - E&amp;M WORKS</b>																	
MVAC / Tunnel Ventilation System																	
280000	RCFE NB - Ductworks Supports / Containment @ C/L	36	18FEB06A	23NOV06	90	30	4	-119	-152								
280002	RCFE NB - MVAC Ducts, TVF & MSFD Units @ C/L	48	02MAR06A	30NOV06	95	25	5	-119	-140								
280004	RCFE NB - MVAC Pipeworks & Conduits @ C/L	30	08AUG06A	14DEC06	70	0	9	-119	-122								
280006	RCFE NB - Cabling, wiring and termination	24	15DEC06	15JAN07	0	0	24	-119	-122								
280008	RCFE NB - MVAC Testing and T&C	12	15FEB07	08MAR07	0	0	12	-145	-72								

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish	SEP		OCT			NOV			DEC			JAN			FEB		MAR							
										36	11	18	25	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	5	12
<b>Fire Protection System</b>																																	
280028	RCFE NB - (100d) FH / HR Pipeworks & Fittings	18	10JUL06A	26NOV06	95	0	2	-103	-91																								
280026	RCFE NB - FS Conduit, Hose Reel Cabinets & Eqpt.	16	31JUL06A	21NOV06	60	0	2	-103	-91																								
280029	RCFE NB - Install Smoke detector @ N1-N3	10	22NOV06	02DEC06	0	0	10	-91	-91																								
280030	RCFE NB - FS Wiring & Termination	24	27NOV06	23DEC06	0	0	24	-103	-91																								
280032	RCFE NB - FS Testing and T&C	12	15FEB07	08MAR07	0	0	12	-145	-72																								
<b>Electrical Works</b>																																	
280044	RCFE NB - Brackets for Lightings @ Ceiling Level	60	30MAY06A	09DEC06	70	0	18	-107	-123																								
280048	RCFE NB - Earthing, Lighting, Eqpt. @ C/L	48	26JUN06A	23DEC06	60	0	24	-83	-87																								
280034	RCFE NB - E&M Access to Southern LV Sw Room	0	20NOV06		0	0	0	-145	-129																								
280038	RCFE NB - HV & LV Cabling Works @ C Trough	36	20NOV06	03JAN07	0	0	36	-145	-129																								
280046	RCFE NB - Conduits Works @ Ceiling Level	36	11DEC06	24JAN07	0	0	36	-107	-123																								
280040	RCFE NB - Install Power Distn Panels & Test	30	04JAN07	07FEB07	0	0	30	-119	-129																								
280054	RCFE NB - Tunnel Signage, Wiring, Term & Test	40	08FEB07	03APR07	0	0	40	-119	-105																								
<b>STN RC FULL ENCLOSURE (South Bound) - E&amp;M WORKS</b>																																	
<b>MVAC / Tunnel Ventilation System</b>																																	
280082	RCFE SB - Ductworks Supports / Containment @ C/L	36	02MAR06A	23NOV06	90	30	4	-134	-152																								
280084	RCFE SB - MVAC Ducts, TVF & MSFD Units @ C/L	48	02MAR06A	14DEC06	95	26	5	-134	-162																								
280086	RCFE SB - MVAC Pipeworks & Conduits @ C/L	30	23OCT06A	04JAN07	60	0	15	-134	-137																								
280088	RCFE SB - Cabling, wiring and termination	24	05JAN07	01FEB07	0	0	24	-134	-137																								
280090	RCFE SB - MVAC Testing and T&C	12	15FEB07	08MAR07	0	0	12	-145	-72																								
<b>Fire Protection System</b>																																	
280098	RCFE SB - (100d) FH / HR Pipeworks & Fittings	18	03JUL06A	30NOV06	95	0	2	-107	-132																								
280096	RCFE SB - FS Conduit, Hose Reel Cabinets & Eqpt.	16	20NOV06	26NOV06	60	0	6	-107	-132																								
280100	RCFE SB - Install Smoke detector @ S1-S4	10	27NOV06	07DEC06	0	0	10	-95	-132																								
280102	RCFE SB - FS Wiring & Termination	24	01DEC06	30DEC06	0	0	24	-107	-132																								





**5-week Rolling Programme of Site Works**

Rev: 0

Item No.	Civil Area	Portion	Work Area	Activity	Jan-07																																		
					F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S				
					22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	Works Area	A	DIGJV Site Office	Grass cutting, pesticide spraying	R	N																																	
2	Works Area	A	Subcontractor warehouse	Material preparation for cable containment																																			
3	Works Area	A	DIGJV Site Office	Assemble of control cabinet	N																																		
4	Road T3	G	Road T3	Routine Checkings																																			
5	Road T3	G	Road T3 - Gantry 'GT110'	Installation of cable containment & Field equipment	N	R																																	
6	SHT	H1A, H1B, H1C	SHT (SB,NB, NPB, SPB)	Routine Checkings																																			
7	SHT	H1B & H1C	SHT Tunnel, NB & SB, (near CP01 & CP10)	[2], [4] & [5]Install cable containment cross tunnel & along tunnel	N																																		
8	SHT	H1C	SHT(N/B, then S/B)	TCSS Traffic field equipment installation		R																																	
9	SHT	H1A, H1B, H1C	SHT (S/B & N/B)	Cable laying																																			
10	SHT	H2	SHT - Open road Section	Routine Checkings																																			
11	SHT	H2	SHT- Open road Section	[3] Installation of control cabinet	R																																		
12	SHT	H2	SHT Open road section	Cable laying																																			
13	SHT	H3	SHT - RCFE	Routine Checkings																																			
14	SHT	H3	SHT - RCFE	[3]Installation of cable containment																																			
15	SHT	H3	SHT - RCFE	Cable laying																																			
16	SHT	H3	SHT - RCFE	Joint inspection for mockup cable containment																																			
17	ENT	I1, I2 & I3	ENT Tunnel (SB, NB, NPB, SPB, ADB, VB, Toll Plaza & Butterfly Valley)	Routine checkings																																			
18	ENT	I2	ENT Tunnel (S/B & N/B)	[3] Cable laying																																			
19	ENT	I3	ADB (Remaining Plant Room)	[3]Cable containment installation		R																																	
20	ENT	I3	ADB - Workshop (G/F TO 2/F)	Cable containment installation		R																																	
21	ENT	I1, I2 & I3	ENT - S/B & N/B	Cable laying																																			
22	LCKV	J1	LCKV	Routine checkings																																			
23	NWT	B & C	NWT (E/B, W/B & WCB)	Routine checkings																																			
24	NWT	B	NWT - E/B	[3]Cable containment installation	N																																		
25	NWT	B	NWT - W/B	[3]Cable containment installation	N																																		
26	NWT	B	NWT, E/B first, then W/B)	[3] cable laying																																			
27	NWT	C	NWT - WCB	[3] Video wall footing installation																																			
28	NWT	B	NWT, E/B & W/B	[3]TCSS Traffic field equipment installation																																			

**Legend :**  
 = Planned activity  
 = Work Done  
 = Public Holiday

R - Re-scheduled  
 N - New activity

**Note:**

- [1] Works depends on spatial co-ordination among related Main Contractor and TCSS.
- [2] Works Subject to Traffic Tube arrangement by CSCRJV
- [3] Works subject to condition of site access & civil provision.
- [4] Works subject to CSCRJV to relocate their containers in N/B
- [5] Works subject to coordination with other services
- [6] Works depend on ENT's contractor to complete their raised floor installation
- [7] Works depend on Civil Contractor to rectify their provision

Distribution: Aурp-Johnny Mak, Hara,Alex C, Franco L, Hamlyn K, Joseph C, KT Chan, Patrick L, Philip C, PF Li, Sharon H, Tony C, Wilson W, Winnie M, Donald L, Johnny L, Kenny C

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**APPENDIX M  
COMPLAINT LOG**

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## Appendix M - Complaint Log

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
40426	Butterfly Valley	26 April 2004	<p>A public noise complaint was recently received by EPD. The complaint was related to the noise generated from the Route 8 – ENT site near Butterfly Valley at the night time on 21 April 2004. EPD subsequently referred the complaint to the Environmental Team (ET) Leader of the Project on 23 April 2004.</p>	<p><u>Noise at night time</u> The information provided by the RSS indicated that no works were undertaken by the Contractor during the concerned period. The concerned noise might probably be due to a burglary case occurred at same night.</p> <p><u>Noise during day-time</u> It is believed that the day-time noise complaint was due to the site formation works of the Project. Considering the powered mechanical equipment used at the Butterfly Valley and the echo effect of the valley, ET believe that the day-time construction noise from the site at Butterfly Valley might cause nuisance to the nearby resident to some extent, though there was no noise level exceedance at the Government Quarters during our routine monitoring in last three months.</p> <p>The Contractor agreed to implement mitigation measures, including good site practices, selecting quieter plant and working methods and reduction in numbers of noisy plant operating currently, in order to mitigate noise impacts at the NSRs.</p>	Closed
40914	Garden Villa	<p>13-Sep-04 (by EPD)</p> <p>14-Sep-04 (by ET Leader)</p>	<p>Environmental Protection Department (EPD) received a public noise complaint on 13 September 2004 about construction noise generated from the Route 8 – Eagle’s Nest Tunnel and Associated Works (R8-ENT) Project, nearby by Garden Villa at Tai Po Road, Sha Tin. EPD subsequently referred the complaint to the Environmental Team (ET) Leader of the Project on 14 September 2004.</p> <p>The complaint was about general construction noise generated from a construction site nearby Garden Villa at Tai Po Road, Sha Tin. As informed by EPD,</p>	<p><u>Environmental Permits</u> A Construction Noise Permit (No. GW-RN0405-04) was obtained by the Contractor for the use of powered mechanical equipment (PME) in the concerned works area and use of TAR no.1 during restricted hours.</p> <p><u>Blasting Works</u> According to the information provided by the Resident Site Staff (RSS), for carrying out blasting works, a blasting permit should be issued by the Mines Division of Civil Engineering and Development Department (CEDD), but not under the jurisdiction of EPD. The CNP issued by EPD only specified the use of PME but not the blasting works during restricted hours.</p>	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
			<p>the complainant was particularly concerned of two issues:</p> <ol style="list-style-type: none"> <li>1. The complainant was informed by the Contractor (Leighton – Kumagai Joint Venture) that blasting works would be conducted during restricted hours. He worried about the noise nuisance would be induced by the blasting works.</li> <li>2. Noise nuisance from some site vehicles traveling on the Temporary Access Road (TAR no.1) near Garden Villa was noted by the complainant during restricted hours.</li> </ol>	<p>As advised by the RSS, the Contractor did intend to apply for a permit to the Mines Division of CEDD for blasting works during restricted hours. However, up to the time of preparation of this report, the Contractor still had not obtained the approval from the Mines Division and therefore, no blasting works were performed by the Contractor during restricted hours.</p> <p><u>Use of TAR no.1</u> According to Condition 3d of the above-mentioned CNP, there was restriction on the use of site vehicles traveling on TAR no.1.</p> <p>The usage of site vehicles on TAR no.1 in a 2-week period before the date of complaint, i.e. 30<sup>th</sup> August to 12<sup>th</sup> September 2004 showed that the only vehicle type using TAR no.1 for the concerned period was concrete truck and the number of vehicle pass was limited to 4 times per hour, which was in compliance with the above CNP's conditions.</p> <p>Regular noise monitoring was undertaken by ET at Garden Villa on 30<sup>th</sup> August and 6<sup>th</sup> September 2004 during restricted hours (1900 – 2300 hours). The monitoring results were 58.7 dB(A) and 58.6 dB(A), respectively, which were below the noise limit level of 60 dB(A). However, it should be noted that site vehicles were not used by the Contractor on TAR no.1 during restricted hours on these two monitoring day.</p> <p>Based on the information obtained, the validity for the noise complaint in associated with night-time blasting works could not be concluded under ET's investigation, since no blasting works had been performed by the Contractor during restricted hours at the time of the report preparation. Also, it should be highlighted that for carrying out blasting works, permission should be obtained by Mines Division of CEDD, but not under the control of EPD.</p> <p>For the use of TAR no.1, the RSS's records showed that the number of vehicle pass in the period between 30<sup>th</sup> August and 12<sup>th</sup> September 2004 was complied with the CNP's conditions. It should be noted that only a maximum of 3 concrete trucks</p>	

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				<p>passing the site entrance was recorded. Therefore, it was considered that the nuisance noted by the complainant was not due to the site vehicles adopted by the Contractor (LKJV).</p> <p>Nevertheless, the Contractor was reminded to ensure the compliance of the CNP conditions and adopt good site practice to minimize the construction noise.</p>	
41021	Garden Villa	<p>09-Oct-04 (by EPD)</p> <p>21-Oct-04 (by ET Leader)</p>	<p>Environmental Protection Department (EPD) received a public noise complaint on 9 October 2004 about construction noise generated from the Route 8 – Eagle’s Nest Tunnel and Associated Works (R8-ENT) Project, nearby by Garden Villa at Tai Po Road, Sha Tin. EPD subsequently referred the complaint to the Environmental Team (ET) Leader of the Project on 21 October 2004.</p> <p>The complaint was about nighttime construction noise generated from a construction site nearby Garden Villa at Tai Po Road, Sha Tin. As informed by EPD, the complainant was particularly concerned of two issues:</p> <ul style="list-style-type: none"> <li>• Construction works undertaken by the Contractor (Leighton–Kumagai Joint Venture) were noted after 2300 hour.</li> <li>• Some workers were noted leaving the site through Temporary Access Road (TAR) no.1 at around 2 am, causing nuisance to the residents in Garden Villa.</li> </ul>	<p>According to the information provided by the RSS, no construction activity was undertaken in the nighttime period (2300 – 0700 hours) at the concerned site area.</p> <p>LKJV did admit that some vehicles had been operating at midnight for transporting LKJV’s survey workers from the site. Inconsiderate behaviors were noted causing nuisance to Garden Villa residents:</p> <ol style="list-style-type: none"> <li>1. Driving the vehicles too fast, which generated excessive engine noise;</li> <li>2. Noise inside the vehicles (such as staff talking or radios) escaping through the open vehicle windows; and</li> <li>3. Vehicle beeping horn to request the guards to open the gate.</li> </ol> <p>In order to rectify the situation, LKJV had notified the relevant staff with the receipt of the complaint and urged them to take appropriate measures when using TAR1 at night:</p> <ol style="list-style-type: none"> <li>1. to drive slowly in order to reduce the engine noise, especially when approaching Garden Villa;</li> <li>2. to roll up the vehicle windows to contain any noise from talking or radios; and</li> <li>3. to prohibit beeping the vehicle horn for gate opening; instead, to park the car and approach the guard on foot.</li> </ol>	Closed



Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
41023	Government Quarters (Butterfly Valley)	20-Oct-04 (by MHJV)  23-Oct-04 (by ET Leader)	A public complaint was received by the Engineer's Representative (ER) of Route 8 – Eagle's Nest Tunnel and Associated Works (R8-ENT) Project on 20 <sup>th</sup> October 2004. The complaint was raised by a resident of the Government Quarters at Caldecott Road, concerning dust generation as a result of the construction activities at Butterfly Valley. The ER subsequently referred the complaint to the Environmental Team (ET) Leader of the Project on 23 <sup>rd</sup> October 2004.	<p>The complaint was considered valid based on:</p> <ol style="list-style-type: none"> <li>1. ER's site observations;</li> <li>2. ET's weekly site audit; and</li> <li>3. 1-hr TSP exceedance record.</li> </ol> <p>Also, the sources of dust generation were identified as</p> <ol style="list-style-type: none"> <li>1. 2 portions of the haul roads, one at Slope BV-S2 and one linking between South Portal Tunnel to Mui Kong Tsuen, were found to be dry.</li> <li>2. Dust impact due to the haulage of excavated materials at the South Portal.</li> </ol> <p>Enhanced dust suppression measures had been implemented by the Contractor:</p> <ul style="list-style-type: none"> <li>• added rockfill to the haul road between South Portal Tunnel and the Gully fill area;</li> <li>• maintained watering to haul road at Slope BV-S2;</li> <li>• requested the fill material supplier to ensure the material was in a damp condition before leaving quarry;</li> <li>• provided for material not dampened at the Quarry to be directed to the wheel wash for water spray before entering the site;</li> <li>• when cleaning drill holes along slope BV-S4 to ensure adequate water was available for flushing to suppress dust emission; AND</li> <li>• provided damper stockpiles of cleared material at BV-S2 before loading.</li> </ul> <p>Based on ER's site observations, most of the above mitigation measures have been implementing by the Contractor. Also, an additional water browser was delivered to site on 29<sup>th</sup> Oct 04. No significant fugitive dust emission has been found.</p> <p>During ET's site inspections on 27<sup>th</sup> Oct and 3<sup>rd</sup> Nov 2004, the situation was found improved. No deficiency relating to air quality impact was noted by ET during the two audit sessions.</p> <p>The results of air quality monitoring (1-hr and 24-hr TSP) in the period between 21<sup>st</sup> Oct and 2<sup>nd</sup> Nov 2004 were all found to be complied with the Action / Limit Levels.</p>	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
41124	Government Quarters (Butterfly Valley)	21-Nov-04 (by LKJV)  24-Nov-04 (by ET Leader)	A public complaint was received by the Contractor of Route 8 – Eagle’s Nest Tunnel and Associated Works (R8-ENT) Project on 21 <sup>st</sup> November 2004 (Sunday). The complaint was concerned about excessive noise generation from construction machinery at Butterfly Valley on the same day. The Engineer’s Representative (ER) subsequently referred the complaint to the Environmental Team (ET) Leader of the Project on 24 <sup>th</sup> November 2004.	According to the ER, the only construction activity at Butterfly Valley undertaken on 21 <sup>st</sup> Nov 04 was formation of access road near Slope BV-S2. The activity only involved operations of 1 no. of excavator and 1 no. of dump truck with grab, which complied with the condition stipulated in a valid CNP GW-RW0484-04, which was hold by the Contractor.  Routine noise monitoring was conducted on 21 <sup>st</sup> and 28 <sup>th</sup> Nov 2004 at NM6. All the measured noise levels (48.5 to 56.4 dB(A)) were well below the noise limit level. In addition, the measurement results were within the baseline noise level.  Therefore, the complaint was considered to be invalid. Nevertheless, the Contractor was reminded to ensure the compliance of the conditions stipulated in CNP. The Contractor was also recommended to adopt good site practice in order to minimize the construction noise.	Closed
41201	Government Quarters (Butterfly Valley)	01-Dec-04 (by MHJV & ET Leader)	A public complaint was received by the Engineer’s Representative (ER) of Route 8 – Eagle’s Nest Tunnel and Associated Works (R8-ENT) Project on 1 <sup>st</sup> December 2004. The complaint was raised by a resident of the Government Quarters at Caldecott Road, concerning dust generation at Butterfly Valley. The Environmental Team (ET) of the Project was informed with the complaint on the same day.  The resident complained that a large portion of the excavated slopes was not properly covered, which caused dust nuisance to her.	The complaint was considered valid based on: 1. ER’s site observations; 2. ET’s weekly site audit  Upon receipt of the complaint, a series dust control measures had been implemented by the Contractor, such as covering of the exposed slopes with appropriate sheeting, regular watering to the haul roads and excavated slope faces, etc.  During the ET’s weekly site audit on 08-Dec-04 together with the representative of HyD, IEC, ER and the Contractor, the above mitigation measures were observed. The idle slopes at BVS2 had been covered by tarpaulin sheeting and erosion mat. The left exposed slope surfaces at BVS2 were under excavation, thus being unable to be covered.  According to the ER, the complainant has expressed his satisfaction to the site condition on 07-Dec-04, after the implementation of dust mitigation measures by the	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				<p>Contractor.</p> <p>However, owing to the prevailing of the dry season, the Contractor was reminded to ensure the dust control measures are effectively implemented.</p>	
50125	Garden Villa (North Portal)	<p>21-Jan-05 (by EPD)</p> <p>25-Jan-05 (by ET Leader)</p>	<p>Environmental Protection Department (EPD) received a public noise complaint on 21 January 2005 about construction noise and dust generated from the Route 8 – Eagle’s Nest Tunnel and Associated Works (R8-ENT) Project, nearby by Garden Villa at Tai Po Road, Sha Tin. EPD subsequently referred the complaint to the Environmental Team (ET) Leader of the Project on 25 January 2005.</p> <p>The complaint was about construction noise and dust generated from a construction site nearby Garden Villa at Tai Po Road, Sha Tin. The complainant was particularly concerned of two issues:</p> <ol style="list-style-type: none"> <li>1. Noise from tunnel blasting work carrying out at around 7:30am and 10:00pm; and</li> <li>2. Dump trucks without covering of canvas when leaving the construction site.</li> </ol>	<p><b><u>Noise from blasting</u></b> For carrying out the blasting, the Contractor had obtained the permit from relevant authority. The ET’s noise monitoring results did not show any exceedance for the measurement taken when blasting was in place. It should be highlighted that for carrying out blasting works, permission should be obtained by Mines Division of CEDD, but not under the control of EPD. In order to minimize the nuisance from the works, the Contractor was recommended:</p> <ul style="list-style-type: none"> <li>• To inform the residents around the area about the time of blasting in advance; and</li> <li>• To re-schedule the blasting time table, if possible, in order to avoid nuisance.</li> </ul> <p><b><u>Uncovered dump trucks</u></b> In order to evaluate the situation, two inspections were carried out by the ET at Garden Villa on 27-Jan and 28-Jan-05 to identify the dump trucks leaving the site with uncovered load. On 27-Jan-05, 3 nos. of trucks, which were working for ENT Project, was noted by-passing Garden Villa without proper cover.</p> <p>Enhanced control (penalty system) was implemented by the Contractor after the inspection on 27-Jan. During the inspection on 28-Jan-05, 24 nos. of dump trucks for ENT Project were found leaving the site. No non-compliance was noted for the trucks working for ENT Project.</p> <p>LKJV was reminded to keep closely monitoring on the condition and the effectiveness of the proposed control measures.</p>	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
50308	Garden Villa (North Portal)	05-Mar-05 (by EPD)  08-Mar-05 (by ET Leader)	<p>EPD received a public complaint on 5 March 2005 about construction noise and dust generated from the construction sites of Route 8 – Eagle’s Nest Tunnel and Associated Works (R8-ENT) and Route 8 - Sha Tin Heights Tunnel and Approaches (R8-SHT), nearby by Garden Villa at Tai Po Road, Sha Tin. EPD subsequently referred the complaint to the Environmental Team (ET) Leader of the Project on 8 March 2005.</p> <p>The complaint was about construction noise and dust generated from the construction sites nearby Garden Villa at Tai Po Road, Sha Tin. The complainant was particularly concerned of the following issues:</p> <ol style="list-style-type: none"> <li>1. Nighttime &amp; Sunday construction noise</li> <li>2. Noise from tunnel blasting at early morning and nighttime</li> <li>3. Dust from construction activities</li> </ol>	<p><i>Nighttime &amp; Sunday construction noise</i></p> <ul style="list-style-type: none"> <li>• no exceedance for noise monitoring</li> <li>• restricted hour works were found complied with the CNPs</li> <li>• records of vehicular trips on TAR1 did not show non-compliance of CNP conditions</li> </ul> <p><i>Noise from tunnel blasting at early morning and nighttime</i></p> <ul style="list-style-type: none"> <li>• no exceedance for noise monitoring</li> <li>• valid blasting permit had been obtained from CEDD</li> <li>• blasting work is not under the jurisdiction of EPD</li> </ul> <p><i>Dust from construction activities</i></p> <ul style="list-style-type: none"> <li>• dump trucks with uncovered / inadequately covered materials were observed leaving site</li> <li>• no exceedance for TSP monitoring</li> <li>• enhanced dust suppression measures had been implemented by the Contractor</li> </ul> <p><u>Conclusions</u> The complaint against the dust issue (uncovered / inadequately covered dump trucks) was considered justifiable. The Contractor was reminded to review the current checking system. Continuous spot checks would be performed by ET and RSS.</p>	Closed
50330	Garden Villa (TAR1)	30-Mar-05 (by EPD & ET Leader)	<p>Environmental Protection Department (EPD) received a public complaint on 30<sup>th</sup> March 2005 about construction noise from the sites of Route 8 – Eagle’s Nest Tunnel and Associated Works (R8-ENT) near Garden Villa at Tai Po Road, Sha Tin.</p> <p>The complaint, which was lodged by a resident of Garden Villa on 29<sup>th</sup> March 2005, was about the noise generated by heavy vehicles traveling in and out of the construction site near Garden Villa. According to the complaint, the noise was made from 7am onwards.</p>	<p>The site of concern was likely to be the Temporary Access Road no.1 (TAR1) connecting Tai Po Road and the construction sites of R8-ENT and Route 8 - Sha Tin Heights Tunnel and Approaches (R8-SHT).</p> <p>The time period of concern was within normal working hours (7am to 7pm) on a weekday not being holidays. According to the EM&amp;A Manual, the criterion of construction noise in term of <math>L_{eq-30min}</math> within this period is 75 dB(A) for domestic premises.</p> <p>Since the commencement of the Project, no exceedance of daytime noise criterion of 75 dB(A) was recorded at Station AM3 (Garden Villa). During the 2-hour measurement period of the ad-hoc monitoring (0700-0900 hrs), all the measured noise levels (<math>L_{eq-30min}</math>) were below the daytime noise</p>	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				<p>criterion of 75 dB(A).</p> <p>Based on the results of routine noise monitoring and the ad-hoc measurement on 1<sup>st</sup> April 2005 at Garden Villa, no exceedance of daytime noise criterion of 75 dB(A) was recorded. The complaint lodged is therefore considered not justifiable.</p> <p>In order to minimize the nuisance generated by the vehicle use at Garden Villa, the Contractor has proposed to limit the frequency of trucks existing from TAR1 at a rate of one truck per minute during the time period of concern (7am to 8:30am).</p>	
50415	Government Quarters	<p>09-Apr-05 (by EPD)</p> <p>15-Apr-05 (by ET Leader)</p>	<p>The complaint, which was lodged by a resident of 7/F, 38B, 8-10 Caldecott Road (Governmental Quarters) on 9<sup>th</sup> April 2005, was about the noise generated by the construction works at the Butterfly Valley during daytime. The complainant mentioned that the instant noise level taken by himself was 78 to 82 dB(A).</p> <p>EPD subsequently referred the complaint to the Environmental Team (ET) Leader of the Project on 15<sup>th</sup> April 2005.</p> <p>The time period of concern was within normal working hours (7am to 7pm) on a weekday not being public holidays. According to the EM&amp;A Manual, the criterion of construction noise in term of L<sub>eq</sub>-30min within this period is 75 dB(A) for domestic premises.</p>	<p>Governmental Quarters (Station NM6) is one of the designated noise monitoring stations in the EM&amp;A programme. Routine monitoring is undertaken on a weekly basis in accordance with the EM&amp;A Manual.</p> <p>Since the commencement of the Project, no exceedance of daytime noise criterion of 75 dB(A) was recorded at this station.</p> <p>Ad-hoc measurement was conducted at the complainant's premises on 22 Apr 05. The measured noise level was 69.0 dB(A), which was well below the daytime noise criterion of 75 dB(A).</p> <p>Based on the results of routine noise monitoring and the ad-hoc measurements conducted in the complainant premises, no exceedance of daytime noise criterion of 75 dB(A) was recorded. The complaint lodged is therefore considered not justifiable.</p>	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
50419	Government Quarters	<p>15-Apr-05 (by EPD)</p> <p>19-Apr-05 (by ET Leader)</p>	<p>The complaint was lodged by a resident of 8-10 Caldecott Road (Government Quarters) on 15<sup>th</sup> April 2005 to EPD as well as the Chief Resident Engineer of the Project.</p> <p>EPD subsequently referred the complaint to the Environmental Team (ET) Leader of the Project on 19<sup>th</sup> April 2005.</p> <p>The complainant mentioned that they had experienced quite a lot of noise emanating from the tunnel drilling area after 11pm over several nights and most particularly at the night of 14<sup>th</sup> April 2005 and at 4am on 15<sup>th</sup> April 2005.</p>	<p>The site of concern was likely to be the South Portal. For carrying out construction works at this area during restricted hours, two Construction Noise Permits (CNPs no. GW-RW0085-05 and GW-RW0086-06) were obtained by the Contractor in accordance with the requirements stipulated in Noise Control Ordinance.</p> <p>According to the information provided by the Resident Site Staff and the Contractor, the construction activities undertaken in the period between 11<sup>th</sup> and 15<sup>th</sup> April 2005 from 1900 to 0700 hours included drilling, breaking, trimming, set up of rock drill, installation of arch-rib and grouting.</p> <p>The powered mechanical equipment (PME) involved in the above works included backhoe, rock drill, loader, dumper, shot-crete machine, group pump, mobile platform and grout machine, which were covered by the CNPs.</p> <p>According to the routine monitoring results, for the time period between 2300-0700 hours, the measured noise levels exceeded the corresponding noise Limit Level of 50dB(A). However, the measured levels were found within the range of baseline level and below the average baseline level.</p> <p>Based on the routine noise monitoring results at Station NM6, the measured noise levels for the period between 2300-0700 hours were below the baseline noise level, which was comparable to the ambient level. According to the RSS's record, the PME items operated during the concerned period were found covered by the 2 CNPs hold by the Contractor.</p> <p>Based on the available information, there is not enough evidence to prove whether the complaint against nighttime construction noise generated in the concerned period (11<sup>th</sup> to 15<sup>th</sup> April 2005) is justifiable or not.</p>	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
50512	Yew Chung International School	12-May-05	<p>On 11 May 05, a notice was sent to Yew Chung International School (YCIS) by the Contractor, providing their tentative blasting schedule on 12 May 05. It was shown that one of the blasting operations was scheduled at 09:30am, at when an examination was being held in YCIS.</p> <p>Upon receipt of the notice, a representative of YCIS lodged a complaint to the Contractor via the Project's hotline at 07:40 on 12 May 2005. The complainant expressed her objection to the blasting operation taken at 09:30am when the examination was taken place.</p> <p>The Contractor then agreed on one occasion only to delay the tunnel blast planned for 9:30am until 9:50am (i.e. 5 min after the examination). The complainant satisfied but did expect no future blasting during the examination period. According to the Engineer's Representative, the Contractor did not wish to make any commitment to ensure no blasting would be taken within the examination period.</p>	<p>A 1-day continuous noise measurement was conducted by the Environmental Team at Station NM1 on 26 May 05. According to the ER's record, two blasting operations were taken in the vicinity of YCIS on 26 May 05. One surface blast was taken at Butterfly Valley at 15:42 and one tunnel blasting was taken at South Portal at 16:56.</p> <p>The measurement results showed that the noise impact in term of Leq-5min and Leq-30min arising from the blasting operations was insignificant. No exceedance of construction noise criterion for examination period was recorded (Leq-30min &lt; 65dB(A)).</p> <p>The complaint lodged was therefore considered not justifiable.</p> <p>However, in order to minimize the potential nuisance arising from the blasting noise and the siren sounds prior to blasting, the Contractor was recommended to consider scheduling the blasting operations beyond the examination periods.</p>	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
50610	Government Quarters	10-Jun-05	<p>On 10 June 2005, the Resident Site Staff (Maunsell-Hyder Joint Venture) received a complaint from a resident of the Government Quarters at Caldecott Road. The complaint was concerned about the construction dust generation as a result of the construction activities of the Project at Butterfly Valley.</p> <p>The complainant had not specified which construction activities had contributed to the dust generation.</p>	<p><i>Site Observations</i></p> <p>According to the RSS's preliminary investigation, it was considered that soil nailing at Slope BV-S2 was the dominant dust source and was likely to be the activity of concern. The dust suppression measures taken were found inadequate to control the dust dispersion from the works. Noticeable dust dispersion from the soil nailing work could be observed.</p> <p><i>Corrective Actions</i></p> <p>After the Contractor was notified by the RSS of the complaint, immediate action was taken by the Contractor on the same day (10 June 2005).</p> <p>The dust mitigation measures for the soil nailing were enhanced. An additional thicker cover was used. Also, continuous water spray was applied to suppress the dust emission.</p> <p><i>Environmental Outcome</i></p> <p>The RSS made a response to the complainant on 10 June 2005. The complainant was informed of the rectification actions taken by the Contractor. No further adverse comment was received from the complainant.</p> <p><i>Conclusions</i></p> <p>Based on the RSS's information, this complaint is considered to be valid and related to the construction activities of the Project. However, corrective action had been taken by the Contractor immediately and the situation was found improved.</p>	Closed



Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
50712	A scattered house near South Portal and Tai Po Road Water Treatment Works Staff Quarters	12-Jul-05	<p>On 12 July 2005, a resident, whose house is located near South Portal and Tai Po Road Water Treatment Works Staff Quarters, lodged a complaint to the Contractor via the Project's hotline at 11:40am. The complainant expressed his concern on the nuisance caused by the blasting works at early morning (before 07:00 hours) and late night (after 23:00 hours).</p>	<p><i>Site Activity</i></p> <p>According to the information provided by the RSS, tunnel blasting works have been taken place in the concerned period in north bound tunnel from the Ventilation Adit towards the direction of the South Portal.</p> <p><i>Environmental Requirements</i></p> <p>In the EP, the EM&amp;A Manual of the Project and the NCO, no requirement is specified for the control of blasting operation and the associated environmental impact, such as blasting noise.</p> <p>It should be highlighted that for carrying out blasting works, permission should be obtained by Mines Division of CEDD, but not under the jurisdiction of EPD.</p> <p>For carrying out the above-mentioned blasting operations, the Contractor has obtained a valid blasting permit from CEDD under the Dangerous Goods Ordinance (Cap. 295). Under this permit, the Contractor is allowed to carry out 24-hour blasting works within the designated area.</p> <p><i>Contractor's Actions</i></p> <p>Though the blasting noise is not under the control of any environmental related regulation and the Contractor is allowed to carry out 24-hour blasting, the Contractor would try to keep the blasts of concern undertaken between 07:00 to 23:00 hours. This arrangement could effectively reduce the potential nuisance to the residents within the more sensitive time period (23:00 to 07:00 on next day).</p> <p><i>Conclusions</i></p> <p>The subjected blasting operations were carried out by the Contractor under a valid blasting permit. The complaint lodged is therefore considered not justifiable.</p>	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
50809	Government Quarters (8-10 Caldecott Road)	09-Aug-05	<p>On 9 August 2005, a resident of 8-10 Caldecott Road (Government Quarters) lodged a complaint to the Contractor via the Project's hotline at 14:30. The complainant expressed her concern on the nuisance caused by the blasting works undertaken at Butterfly Valley.</p> <p>Noise impact arising from the blasting works was one of the issues raised by the complainant.</p>	<p><i>Ad-hoc Noise Measurement</i></p> <p>An ad-hoc noise measurement was carried out on the roof of Government Quarters during a surface blast on 16 August 2005. According to the record of the RSS and the site observation, a surface blasting was undertaken at Butterfly Valley at around 15:38 on the monitoring day.</p> <p>The results show that the measured noise level in term of Leq-30min, i.e. 69.1 dB(A) during the surface blasting was well below the daytime construction noise criterion of 75 dB(A).</p> <p><i>Conclusion and Recommendation</i></p> <p>According to the results of ad-hoc noise measurement taken at Government Quarters on 16 August 2005, the measured noise levels (Leq-30min) did not exceed the noise criterion of 75 dB(A). In addition, the subjected blasting operations were carried out by the Contractor under a valid blasting permit. For the concern of noise impact, the complaint was considered not justifiable.</p>	Closed
50830	Government Quarters (8-10 Caldecott Road)	30-Aug-05	<p>The RSS received a public complaint from a resident of Government Quarters addressing two noise issues:</p> <ol style="list-style-type: none"> <li>1. Noise nuisance caused by drilling works at Butterfly Valley;</li> <li>2. Noise nuisance due to blasting 0045 hrs of 28 August 2005.</li> </ol>	<p><i>Noise Measurement</i></p> <p>No exceedance was recorded for the routine noise monitoring at NM6 (Government Quarters). Ad-hoc noise measurement was conducted on 1 and 2 Sept 05. All measured noise levels complied with the noise criteria.</p> <p><i>Conclusion</i></p> <p>The complaint was considered not justifiable. However, the Contractor had taken proactive actions in order to minimize the nuisance of the residents, (1) to stop the rock breaking works at BVS2 and (2) to install temporary noise barriers for drilling works.</p>	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
50928	Government Quarters (8-10 Caldecott Road)	28-Sept-05	A resident of Government Quarters complaint about a blast undertaken at 0215hr on 28 Sept 05.	<p><i>Environmental Monitoring</i></p> <p>After receiving the complaint, the ET carried out a continuous noise measurement at Station NM6 (Government Quarters) from 29 to 30 September 2005. All the measured noise levels in term of Leq-5min are close to the baseline noise level. The noise levels after correction of baseline levels were all below the noise criterion of 50 dB(A).</p> <p><i>Conclusion</i></p> <p>The subjected blasting operations were carried out by the Contractor under a valid blasting permit. In addition, no noise exceedance was recorded for the ad-hoc noise monitoring. The complaint lodged is therefore considered not justifiable.</p>	Closed
51025	Caldecott Hill (2 Caldecott Road)	25-Oct-05	<p>A public complaint was received by the MWPMO of Highways Department on 25 October 2005. The complaint was subsequently refereed to the RSS and Environmental Team of Route 8 – Eagle’s Nest Tunnel and Associated Works (R8-ENT) Project.</p> <p>The complaint was lodged by the management company of Caldecott Hill (No.2 Caldecott Road). It was about dust generation when construction vehicles, particularly dump trucks and concrete trucks, traveling along the Water Treatment Works (WTW) access road and its junction with Caldecott Road.</p> <p>According to the photos provided by the complainant, noticeable dust generation was observed during construction vehicles movement on the roads of concern.</p>	<p><i>Site Observations</i></p> <p>Ad-hoc site inspections were carried out on 25 and 26 Oct 05. On 26 Oct 05, the WTW access road was observed dry. Deposition of dusty materials was noted. Significant dust generation was identified during vehicle movement.</p> <p><i>Contractor’s Actions</i></p> <p>Mitigation actions were taken by the Contractor:</p> <ol style="list-style-type: none"> <li>1. One labour was appointed to water spray the concerned road junction and clear up of dusty materials deposited on the WTW access road.</li> <li>2. Regular watering on access road by hose pipe was performed to keep the road wet.</li> <li>3. All vehicles would be wheel-washed and loads of dusty materials would be covered before leaving the site.</li> </ol> <p><i>Conclusions</i></p> <p>Based on the site observations, this complaint was considered to be valid and related to the Project works. However, enhanced dust mitigation measures were taken by the Contractor and the situation was found improved.</p>	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
51031	Po Leung Kuk Choi Kai Yau School	31-Oct-05	The resident site staff (MHJV) of R8-ENT received a complaint from the Principal of PLKCKY School. She commented that the blasting noise (nighttime and daytime) at Butterfly Valley became louder than before.	An ad-hoc noise measurement was taken by ET on 5 Nov 05 to evaluate the noise impact due to daytime surface blasting at the BV. The measurement results revealed that there has been no exceedance of noise level criteria.  The complaint was therefore considered not justifiable.	Closed
51101	Butterfly Valley (Government Quarters)	1-Nov-05	<p>On 1 Nov 05, the Resident Site Staff received a complaint from a resident of the Government Quarters. On 2 Nov 05, a complaint of similar natures and same location was received by the Environmental Protection Department.</p> <p>The complainant was concerned about the following environmental issues:</p> <ol style="list-style-type: none"> <li>Noise nuisance due to tunnel blasting works undertaken at midnights and in early mornings (3am to 5am);</li> <li>Noise nuisance due to operation of a generator after 11pm;</li> <li>Construction dust and daytime noise due to processing and stockpiling of crushed rocks at Butterfly Valley;</li> <li>Noise nuisance due to works outside tunnel in the early morning of 2 Nov 05.</li> </ol>	<p><u>Item 1: Noise nuisance due to tunnel blasting</u> For carrying out the above-mentioned blasting operations, the Contractor has obtained a valid blasting permit from CEDD. Under this permit, the Contractor is allowed to carry out 24-hour blasting works. As advised by the Contractor, all the blasting operations had been completed by 12 Nov 05.</p> <p><u>Item 2: Noise due to operation of a generator after 11pm</u> According to the Construction Noise Permit issued by EPD, one generator was allowed to be operated after 11pm at South Portal area outside the tunnel. In view of the provision of acoustic enclosure and the separation distance from the generator to Government Quarters (around 300m), the noise impact arising from this generator onto the residents of the Quarters was believed to be insignificant. During the ET's investigation on 11 Nov 05, no engine-like noise generated from the construction site could be identified.</p> <p><u>Item 3: Dust and noise due to handling of crushed rocks</u> No noise exceedance was recorded. During the weekly site inspections, deficiencies regarding inadequate dust mitigation measures for the crushed rock processing and stockpiling were occasionally observed. Dry / uncovered stockpiles and dust emissions from crushed rocks handling were sometimes noted.</p> <p><u>Item 4: Noise from works out of tunnel in morning of 2 Nov 05</u> According to the RSS's site records, there has been no activity outside the tunnel in the early morning of 2 November 2005. Work was undertaken deep inside the tunnel during the concerned period. The mentioned noise nuisance might not be related to R8-ENT Project. An ad-hoc noise measurement was carried out by ET from 8 to 10 November 2005 in order to evaluate the noise at Quarter's residents and no exceedance was recorded.</p>	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				<p><u>Conclusion</u></p> <p>Based on the information obtained, environmental monitoring results and site observations, this complaint was considered not justifiable, except for the concern of dust nuisance due to crushed rock processing.</p>	
51205	Caldecott Road junction	5-Dec-05	<p>The complaint was lodged by the management company of Villa Carlton. The complainant mentioned that several complaints from the occupants of Villa Carlton were received, against the dust emission when they drove to Kowloon via the Caldecott Road Junction. She also considered that the amount of water spraying by the Contractor was insufficient to suppress dust emission at Caldecott Road Junction.</p>	<p><u>Complaint Record</u></p> <p>A similar complaint (Log no. 51025) was received on 25 Oct 05 from Caldecott Hill. Significant dust emission was noted when construction vehicles traveling along the WTW access road and its junction with Caldecott Road.</p> <p>With implementation of enhanced dust mitigation measures, the situation was found improved and satisfactory.</p> <p><u>Site Observations</u></p> <p>Since Nov 05, in order to observe the Contractor's actions taken for the above-mentioned complaint, the area of interest was included during the weekly environmental audit. No deficiency had been noted at this area during the audit.</p> <p>After receiving this new complaint (Log no.51205), several ad-hoc site inspections were carried out on 6, 8 and 14 Dec 05. In addition, the RSS of the Project had carried out daily checking of the condition of the Caldecott Road Junction.</p> <p>Sufficient dust mitigation measures had been implemented by the Contractor. The condition was found satisfactory. Therefore, this complaint was considered not justifiable.</p> <p>However, it is noted that the Contractor had stepped up dust mitigation measures to further improve the condition at Caldecott Road junction.</p>	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
60204	Garden Villa	4-Jan-06 (by ETL)	<p>A public complaint was received by the Environmental Protection Department on 3 January 2006. The complaint was subsequently referred to the Environmental Team of Route 8 – Eagle’s Nest Tunnel and Associated Works (R8-ENT) Project on 4 January 2006.</p> <p>According to EPD’s information, the complaint was lodged by a complainant, who walked along Tai Po Road on 1-2 January 2006. The following information was given by EPD for our investigation:</p> <ul style="list-style-type: none"> <li>• Time of concern: 1-2 January 2006 (Daytime)</li> <li>• Suspected site area of concern: ENT’s Toll Plaza and Administration Building.</li> <li>• Dust and noise nuisance was noted by the complainant when he passed Garden Villa.</li> <li>• Noise from wood saw and crane or alike was noted.</li> </ul>	<p><b>A. Construction Noise Impact</b></p> <p>According to the Contractor’s information, construction activities were carried out on 1 and 2 Jan 06, including:</p> <ul style="list-style-type: none"> <li>• Erection and dismantling of formwork</li> <li>• Fixing water pipe</li> </ul> <p>All the equipment operated by the Contractor on 1-2 Jan 06 complied with the permissible equipment stated in the CNP.</p> <p>On 1 Jan 06, noise monitoring was carried out. All the results complied with the noise criterion.</p> <p><b>B. Construction Dust Impact</b></p> <p>Erection and dismantling of formwork and fixing water pipe were considered not dust emissive in nature.</p> <p>For stockpiles of materials in Toll Plaza area, dust mitigation measures had been implementing by the Contractor. The condition in term of dust control was found satisfactory during the audit sessions on 4 and 11 Jan 06.</p> <p>Since December 2005, all TSP monitoring results complied with the Action / Limit Level.</p> <p><b>Conclusion</b></p> <p>Based on the information given, site observations and environmental monitoring results, this complaint was considered not justifiable.</p> <p>Nevertheless, the Contractor was reminded to adopt good site practice to minimize the environmental impacts at the nearby sensitive receivers</p>	Closed