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 1.1)

February 2007

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.

CINOTECH accepts no responsibility for changes made to this report by third parties.

CINOTECH CONSULTANTS LTD
Room 1602-1610, Delta House,
3 On Yiu Street,
Shatin, NT, Hong Kong
Tel: (852) 2151 2083 Fax: (852) 3107 1388
Email: info@cinotech.com.hk

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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 39th 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 February 2007 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 Sreeding, Rendering, Fire Services, Mechanical Ventilation Air Conditioning, T&C for HV, LV cable & switchboard, road works, Plumbing & drainage and Tunnel Ventilation System.

- The major site activities for Traffic Control and Surveillance System (TCSS) works undertaken in the reporting month included:
  - Cable Laying;
  - Field Equipment Installation;
  - Control Equipment Installation;
  - Antenna Pole Installation; and
  - Highmast Installation.

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

Parameter	***No. of Events***		***No. of Events Due to the Project***	***Action Taken***
	Action Level	***Limit Level***		
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). Two 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	---

Future Key Issues:

Major site activities for civil works in the coming months include:
- Louvre / Cladding, Door & Hand Rail Installation;
- Shotcreting;
- Screeding;
- Rendering;
- Vent Shaft erection;
- Tunnel Ventilation System;
- T&C for HV, LV cable & switchboard;
- Fire Services;
- Mechanical Ventilation Air Conditioning; and
- Drainage Works & Road works.

Major site activities for TCSS works in the coming months include:
- Cable Laying;
- Field Equipment Installation;
- Control Equipment Installation;
- Antenna Pole Installation; and
- Highmast Installation.

The anticipated environmental issues will be mainly on dust impact from shotcreting, drainage and road works.

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 15th 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 39th monthly EM&A report summarizing the EM&A works for the Project in February 2007.

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 Sreeding, Rendering, Fire Services, Mechanical Ventilation Air Conditioning, T&C for HV, LV cable & switchboard, road works, Plumbing & drainage and Tunnel Ventilation System.

1.11 The major site activities for TCSS works undertaken in the reporting month included:

- Cable Laying;
- Field Equipment Installation;
- Control Equipment Installation;
- Antenna Pole Installation; and
- Highmast Installation.

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. Edmond Wu	Audit Team Leader	2151 2092	
		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[(1)]	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[(2)]

Note: [(1)] Yew Chung International School / PLK Choi Kai Yau School had ceased operated and been demolished since February 2007. The air monitoring at AM1 has been suspended since February 2007, as verified by IEC on 7th February 2007.
[(2)] 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^3/min. and 1.4 m^3/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 ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±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 except the monitoring at AM1 was cancelled in the reporting month. Yew Chung International School / PLK Choi Kai Yau School (AM1) had ceased operated and been demolished since February 2007, therefore the air monitoring at AM1 has been suspended since February 2007.

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 three 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[(1)]	Yew Chung International School / PKL Choi Kai Yau School	Rooftop
NM5	Villa Carlton	Ground Floor[(2)]
NM6	Government Quarters	Rooftop of Refuse Collection Station
NM7	Garden Villa	Rooftop

Note: [(1)] Yew Chung International School / PLK Choi Kai Yau School had ceased operated and been demolished since February 2007. The noise monitoring at NM1 has been suspended since February 2007, as verified by IEC on 7th February 2007.

[(2)] 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[1]	Frequency	Measurement
NM1	L_{10}(30 min.)dB(A) L_{90}(30 min.)dB(A) L_{eq}(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: [1](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 three designated locations as scheduled except the monitoring on 22nd February 2007 at NM7 was rescheduled to 21st February 2007 for the daytime period (0700-1900 hours) in this reporting month. Restricted-hour monitoring was also conducted at NM5, NM6 and NM7.

3.11 Yew Chung International School / PLK Choi Kai Yau School (NM1) had ceased operated and been demolished since February 2007, therefore the noise monitoring at NM1 has been suspended since February 2007.

3.12 All the Construction Noise Levels (CNLs), except the monitoring (0700-1900 on weekdays) at NM6, reported in this report were adjusted with the corresponding baseline level (i.e. Measured Leq – Baseline Leq = Measured CNL), in order to facilitate the interpretation of the noise exceedance.

3.13 Noise monitoring results and graphical presentations are shown in **Appendix G**.

3.14 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 7th and 14th February 2007 by ET. The site audit for Civil contract on week 3 of February 2007 was cancelled since major works in ENT was not commenced after Lunar New Year during that week.

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 valid permits/licenses obtained for the Project are summarized in **Table 4.1**. Two 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		
Environmental Permit (EP)				
EP-103/2001/C	22/07/05	N/A	Construction and operation of (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; (b) All E&M works (including ventilation, Traffic Control & Surveillance System (TCSS), toll collection system and lighting) for the whole Route 9 between Cheung Sha Wan and Sha Tin; I The permanent slope works above the northern portal of the Eagle's Nest Tunnel; (d) The architectural works (including fitting out and furnishings) of the portal buildings of the Sha Tin Heights Tunnel.	Valid
Registration of Chemical Waste Producer				
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
Water Discharge Licence				
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
Construction Noise Permit (CNP)				
GW-RW0392-06	6/8/06	5/2/07	*Location:* Tai Po Road Shell Petrol Filling Station and opposite to Villa Carlton *Time Period*: General holidays including Sundays between 0700-2300 and any day not being a general holiday between 1900-2300.	Expired
GW-RW0422-06	4/8/06	3/2/07	*Location:* Butterfly Valley *Time Period*: General holidays including Sundays between 0700-2300 and any day not being a general holiday between 1900-2300.	Expired

Permit No.	Valid Period		Details	Status
	From	To		
GW-RN0473-06	25/9/06	24/3/07	*Location:* Tunnel North Portal near Tai Po Road and Keng Hau Road *Time period:* 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	*Location:* ENT-North Portal *Time period:* Any day between 2300 and 0700 on next day.	Valid
GW-RN0487-06	10/10/06	9/4/07	*Location:* ENT-North Portal *Time Period:* 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	*Location:* ENT-South Portal *Time Period:* Any day between 2300 and 0700 on next day.	Valid
GW-RN0489-06	10/10/06	9/4/07	*Location:* ENT-South Portal *Time Period:* 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	*Location:* Administration Building *Time Period:* 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	*Location:* Butterfly Valley *Time Period*: 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	*Location:* SHT – South Portal Tunnel near Garden Villa *Time Period:* Any day between 2300-0700 on next day.	Valid
GW-RN0575-06	7/12/06	6/6/07	*Location:* SHT – South Portal Tunnel near Tai Po Road and Keng Hau Road *Time Period:* Any day between 2300-0700 on next day.	Valid
GW-RN0600-06	18/12/06	17/6/07	*Location:* SHT - South Portal near Garden Villa *Time Period:* General holidays including Sundays between 0000-0700 and any day not being a general holiday between 1900-2400.	Valid
GW-RW0016-07	4/2/07	3/8/07	*Location:* Butterfly Valley *Time Period:* 0000-2400 (general holiday including Sundays) and 0000-0700 & 1900-2400 (any day not being a general holiday).	Valid

Permit No.	Valid Period		Details	Status
	From	To		
GW-RW0017-07	6/2/07	5/8/07	*Location:* Construction site adjacent to Tai Po Road Shell Petrol Filling Station and opposite to Villa Carlton *Time Period:* 0000-2400 (general holiday including Sundays) and 0000-0700 & 1900-2400 (any day not being a general holiday).	Valid

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.

Summary of Exceedances

1-hr and 24-hr TSP Monitoring

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

Construction noise

4.9 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

Parameters	Date	Observations / Recommendations	Remedial Actions
Waste/Chemical Management	14-Feb-07	*Reminder* - General refuse was observed inside u-channels at Portion D2 (North Portal Building) and Portion D6 (Toll Plaza) areas. The Contractor was reminded to clear the waste as soon as possible.	This item will be follow up in the next site inspection.

Implementation Status of Event Action Plans

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

Summary of Complaints and Prosecutions

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

4.12 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 shotcreting, drainage and road works.

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, door installation, E&M cabling dampers, dampers, tunnel ventilation system , fire services and testing of circuitry for tunnel lighting

Butterfly Valley
- Haul road, rock dowel, road and drainage works, DN200 & DN200 twin water-main, utility, shotcreting, hydro-mulching, high mast erection, irrigation pipe & system, culvert A & gabion wall, erection of sign gantries.

South Portal Building
- Louvre/ Cladding, Door & Hand Rail installation, screeding, plumbing & drainage, vent shaft erection, fire services, mechanical ventilation air condition, Tunnel Ventilation System and T&C for HV, LV cable & switchboard.

North Portal Building
- Louvre/ Cladding, Door & Hand Rail installation, fire services, mechanical ventilation air condition, Tunnel Ventilation System, T&C for HV, LV cable & switchboard.

Toll Plaza's Structures and Administration Building
- Footbridge(metal cladding), utility (draw pit/ ducting), 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

Ventilation Building & Tai Po Road

- Louvre /cladding, door & handrail installation, vent shaft construction, rendering, earth works, 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, screeding, painting, 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, screeding, painting, 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 & cabling works

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 and control cabinet installation at Tunnel
- Cable laying, field equipment installation, control cabinet installation and highmast installation at Butterfly Valley
- Cable laying at Kiosk K3, K4
- Cable laying, control equipment installation and antenna pole installation at South Portal Building
- Cable laying, control equipment installation and antenna pole installation at North Portal Building
- Cable laying and field equipment installation at Toll Plaza
- Cable laying, control equipment installation and antenna pole installation at Administration Building
- Cable laying, control equipment installation and antenna pole installation 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.

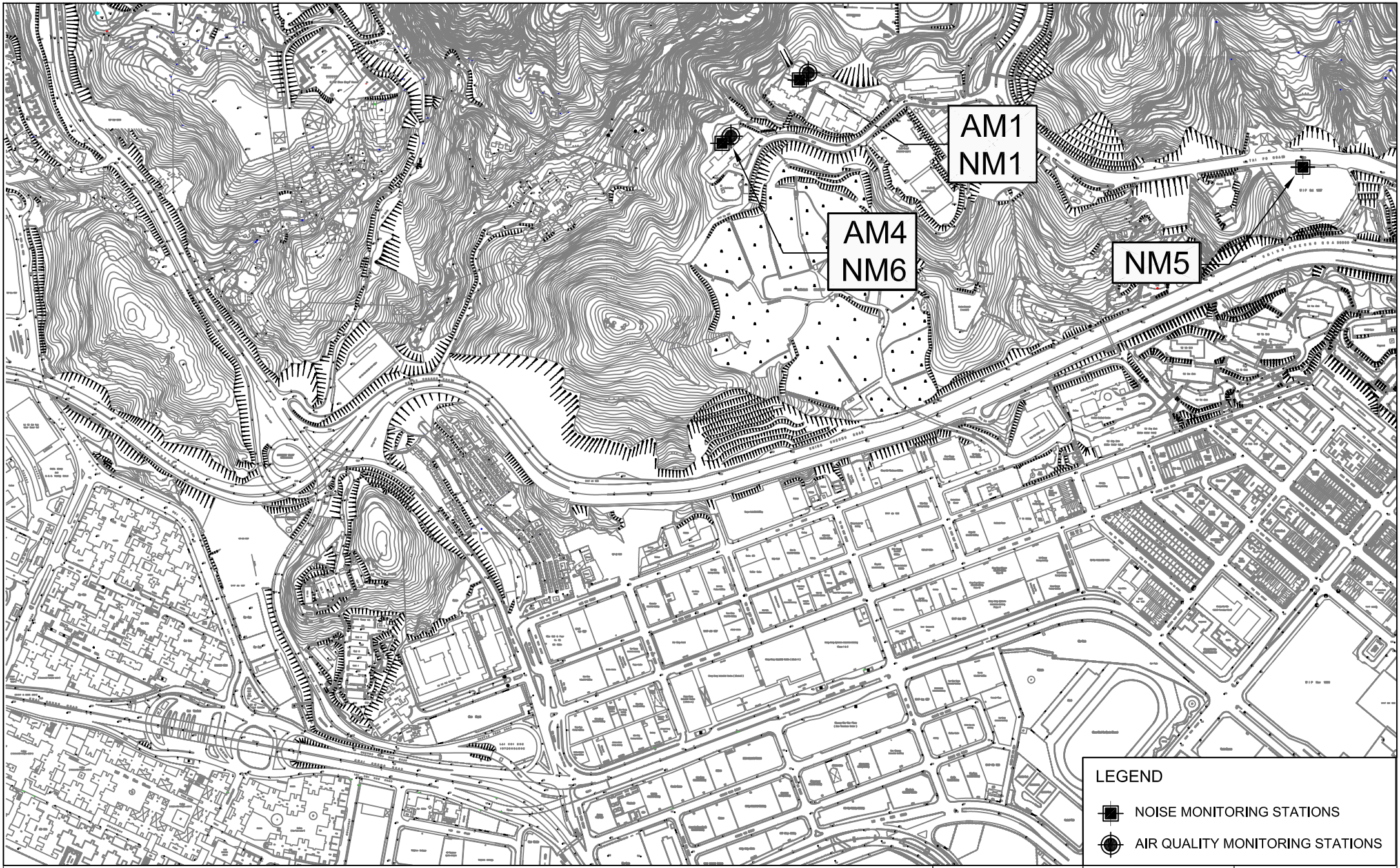
Noise Impact

- 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.

FIGURES



Title

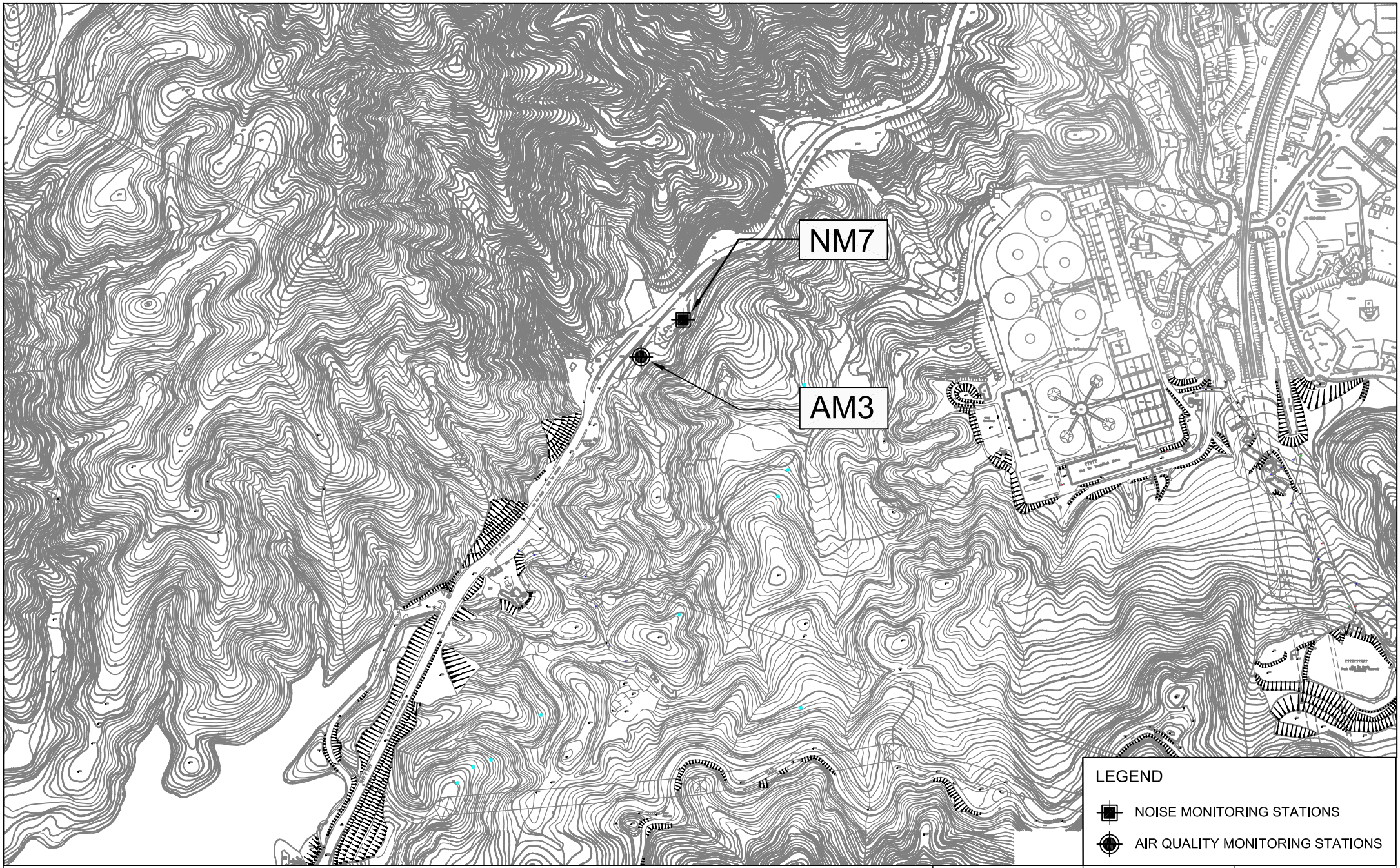
ROUTE 8 (PREVIOUSLY KNOWN AS ROUTE 9) BETWEEN CHEUNG SHA WAN AND SHA TIN
CONTRACT NO. HY/2003/02 - EAGLE'S NEST TUNNEL AND ASSOCIATED WORKS

LOCATIONS OF MONITORING STATIONS

Scale	Project No.
1 : 6500 (A4)	MA3024
Date	Figure No.
2006	1a

CINOTECH consultants limited

F:\PEOJECTS\MA3024\DRAWING\IMPACT\ENT\FIGURE 1a.DWG



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	Project No.
1 : 6500 (A4)	MA3024
Date	Figure No.
2006	1b

CINOTECH consultants limited

F:\PEOJECTS\MA3024\DRAWING\IMPACT\ENT\FIGURE 1b.DWG

APPENDIX A
ACTION AND LIMIT LEVELS

Appendix A - Action and Limit Levels (ENT)

1-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM1	296	500
AM3	350	
AM4	294	

24-Hour TSP

Location	Action Level, µg/m^3	Limit Level, µg/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.

APPENDIX B
COPIES OF CALIBRATION CERTIFCATES

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA2027/A14/0021

Station: Garden Vilia | Operator: WK

Date: 1-Feb-07 | Next Due Date: 31-Mar-07

Equipment No.: A-01-14 | Serial No. 1354

Ambient Condition			
Temperature, Ta (K)	290.2	Pressure, Pa (mmHg)	771.8

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

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	12.5	3.61	62.10	9.3	3.11
2	10.8	3.36	57.68	8.2	2.92
3	7.1	2.72	46.64	5.3	2.35
4	5.2	2.33	39.81	3.2	1.83
5	3.1	1.80	30.58	2.1	1.48

By Linear Regression of Y on X

Slope , mw = 0.0539 **Intercept, bw =** -0.2146

Correlation coefficient* = 0.9956

*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 x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **4.24**

Remarks:

Conducted by: W K Tang Signature: Date: 1/2/07

Checked by: Signature: Date: 1 Feb 2007

F:\Equipment\Calibration\HVS\A-01-14\20070201

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA3024/17/0023

Station: Government Quarter — Operator: WK
Date: 17-Jan-07 — Next Due Date: 16-Mar-07
Equipment No.: A-01-17 — Serial No. 3460

Ambient Condition			
Temperature, Ta (K)	289.3	Pressure, Pa (mmHg)	767.4

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

Calibration of TSP Sampler

Calibration Point	Orfice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (CFM) **X - axis**	ΔW (HVS), in. of oil	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	12.0	3.53	60.75	8.7	3.01
2	10.7	3.34	57.33	7.3	2.76
3	8.0	2.88	49.48	5.6	2.41
4	5.6	2.41	41.29	3.2	1.82
5	3.0	1.77	30.03	1.7	1.33

By Linear Regression of Y on X

Slope , mw = 0.0549 **Intercept, bw =** -0.3586

Correlation coefficient* = 0.9964

*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 x Qstd + bw = [ΔW x (Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; W = (mw x Qstd + bw)^2 x (760 / Pa) x (Ta / 298) = **3.86**

Remarks:

Conducted by: W.K. Tang Signature: Date: 17/1/07

Checked by: Signature: Date: 17 January 07

F:\Equipment\Calibration\HVS\A-01-17\20070117

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.

ATTN: **Mr. Henry Leung**

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
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.

PATRICK TSE
Laboratory Manager

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, 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

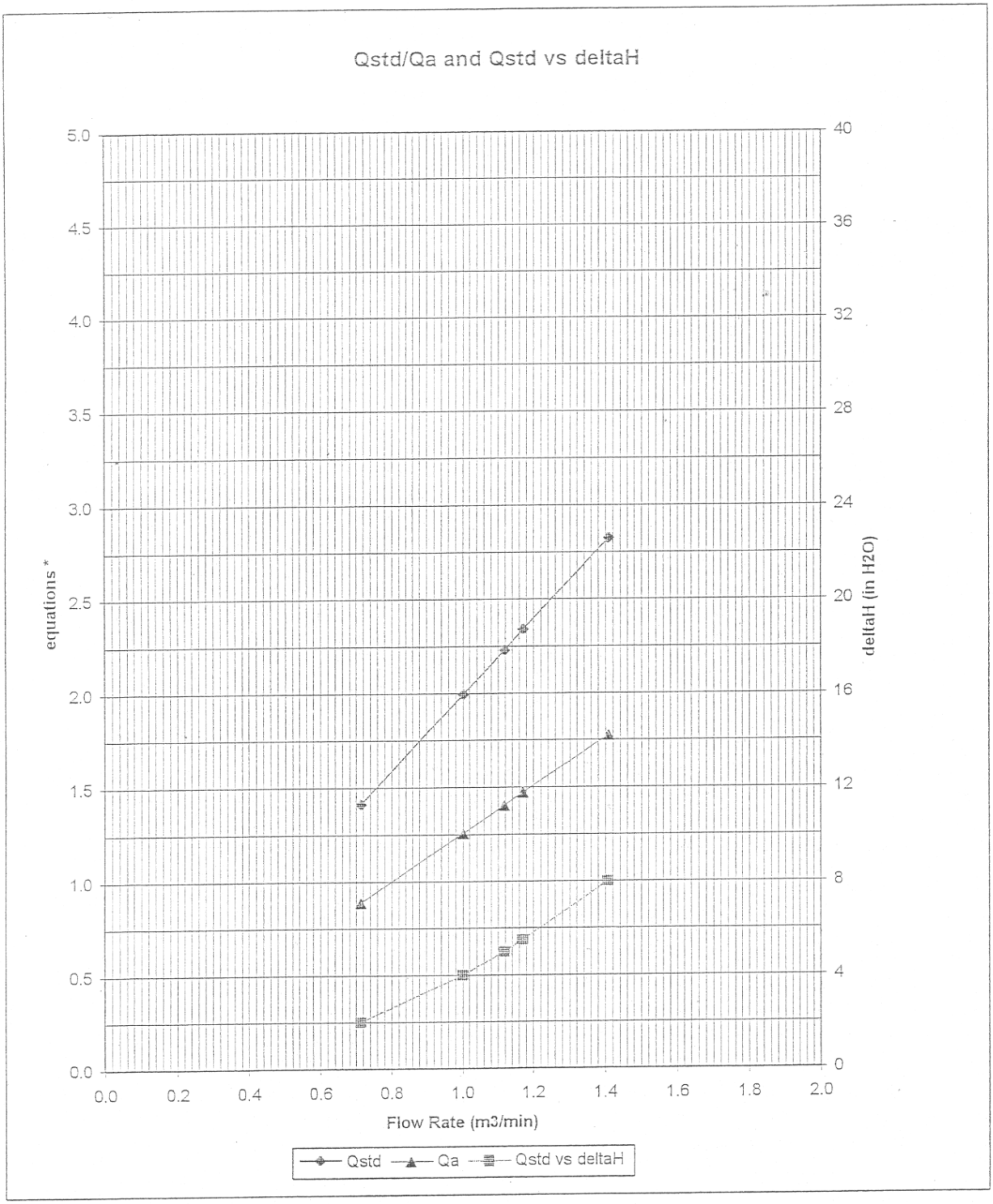
Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

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

AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series: $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$

Qa series: $\sqrt{(\Delta H\ (Ta\ /\ Pa))}$

#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.

ATTN: **Mr. Henry Leung**

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
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 Temperatre	: 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

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.

ATTN: **Mr. Henry Leung**

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
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 Temperatre	: 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

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**
1601-1610 Delta House,
3 On Yiu Street,
Shatin, N.T.

ATTN: **Mr. Henry Leung**

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
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 Temperatre	: 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

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick .

PATRICK TSE
Laborary 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.

ATTN: **Mr. Henry Leung**

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
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 Temperatre	: 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

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.

ATTN: **Mr. Henry Leung**

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
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 Temperatre	: 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

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.

ATTN: **Mr. Henry Leung**

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
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 Temperatre	: 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**

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 Temperatre	: 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

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick.

PATRICK TSE
Operation Manager

WELLAB LTD.

606 - 608 Cornell Centre,
50 Wing Tai Road,
Chai Wan, Hong Kong.
Tel: (852) 2898 7388
Fax: (852) 2898 7076

TEST REPORT

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

ATTN: **Mr. Henry Leung**

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
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 Temperatre	: 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

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick.

PATRICK TSE
Operation Manager

APPENDIX C
ENVIRONMENTAL MONITORING AND AUDIT SCHEDULE

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

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

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 March 2007

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

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

AM3	Garden Villa
AM4	Government Quarters

NM5	Villa Carlton
NM6	Government Quarters
NM7	Garden Villa

APPENDIX D
WIND DATA

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
1-Feb-2007	00:00	2.7	WSW
1-Feb-2007	01:00	2.7	W
1-Feb-2007	02:00	2.2	WSW
1-Feb-2007	03:00	3.1	WSW
1-Feb-2007	04:00	3.6	WSW
1-Feb-2007	05:00	2.7	WSW
1-Feb-2007	06:00	4.0	WSW
1-Feb-2007	07:00	1.8	W
1-Feb-2007	08:00	0.4	WSW
1-Feb-2007	09:00	1.3	WNW
1-Feb-2007	10:00	0.4	WSW
1-Feb-2007	11:00	0.4	W
1-Feb-2007	12:00	0.0	WNW
1-Feb-2007	13:00	0.9	WNW
1-Feb-2007	14:00	0.9	WNW
1-Feb-2007	15:00	0.4	W
1-Feb-2007	16:00	0.0	---
1-Feb-2007	17:00	0.0	---
1-Feb-2007	18:00	1.8	W
1-Feb-2007	19:00	0.9	WNW
1-Feb-2007	20:00	2.2	WNW
1-Feb-2007	21:00	0.9	WNW
1-Feb-2007	22:00	0.9	W
1-Feb-2007	23:00	2.2	SW
2-Feb-2007	00:00	1.3	W
2-Feb-2007	01:00	1.8	WSW
2-Feb-2007	02:00	2.2	SW
2-Feb-2007	03:00	2.2	WSW
2-Feb-2007	04:00	0.9	WSW
2-Feb-2007	05:00	0.9	WNW
2-Feb-2007	06:00	0.9	WNW
2-Feb-2007	07:00	0.0	WSW
2-Feb-2007	08:00	0.9	SW
2-Feb-2007	09:00	1.8	WNW
2-Feb-2007	10:00	2.7	WNW
2-Feb-2007	11:00	4.0	WNW
2-Feb-2007	12:00	2.2	WNW
2-Feb-2007	13:00	3.1	WSW
2-Feb-2007	14:00	1.3	WNW
2-Feb-2007	15:00	2.2	WSW
2-Feb-2007	16:00	1.8	W
2-Feb-2007	17:00	2.2	WNW
2-Feb-2007	18:00	2.2	W
2-Feb-2007	19:00	1.3	WNW
2-Feb-2007	20:00	2.7	WNW
2-Feb-2007	21:00	2.7	WNW
2-Feb-2007	22:00	1.8	WNW
2-Feb-2007	23:00	4.5	WNW
3-Feb-2007	00:00	1.3	WNW
3-Feb-2007	01:00	0.9	WSW
3-Feb-2007	02:00	1.3	WSW
3-Feb-2007	03:00	0.4	S
3-Feb-2007	04:00	0.0	SSW
3-Feb-2007	05:00	0.0	---

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
3-Feb-2007	06:00	0.0	---
3-Feb-2007	07:00	0.0	---
3-Feb-2007	08:00	0.0	SW
3-Feb-2007	09:00	2.2	SSW
3-Feb-2007	10:00	2.7	WNW
3-Feb-2007	11:00	1.8	WSW
3-Feb-2007	12:00	0.9	WSW
3-Feb-2007	13:00	0.0	---
3-Feb-2007	14:00	0.0	---
3-Feb-2007	15:00	0.0	---
3-Feb-2007	16:00	0.0	---
3-Feb-2007	17:00	0.9	WNW
3-Feb-2007	18:00	0.9	WNW
3-Feb-2007	19:00	0.9	WNW
3-Feb-2007	20:00	1.8	WNW
3-Feb-2007	21:00	1.3	WNW
3-Feb-2007	22:00	1.3	WNW
3-Feb-2007	23:00	1.8	WNW
4-Feb-2007	00:00	1.3	NW
4-Feb-2007	01:00	0.9	NNE
4-Feb-2007	02:00	1.3	WSW
4-Feb-2007	03:00	1.3	S
4-Feb-2007	04:00	0.0	---
4-Feb-2007	05:00	0.0	SSW
4-Feb-2007	06:00	0.0	---
4-Feb-2007	07:00	0.0	SSW
4-Feb-2007	08:00	0.0	SSE
4-Feb-2007	09:00	0.4	S
4-Feb-2007	10:00	3.6	W
4-Feb-2007	11:00	1.8	WSW
4-Feb-2007	12:00	0.9	WSW
4-Feb-2007	13:00	0.4	WSW
4-Feb-2007	14:00	0.0	NNE
4-Feb-2007	15:00	0.0	---
4-Feb-2007	16:00	0.0	WNW
4-Feb-2007	17:00	0.0	---
4-Feb-2007	18:00	2.2	WNW
4-Feb-2007	19:00	0.4	WNW
4-Feb-2007	20:00	0.4	NW
4-Feb-2007	21:00	1.3	WNW
4-Feb-2007	22:00	2.2	WNW
4-Feb-2007	23:00	1.3	W
5-Feb-2007	00:00	2.2	W
5-Feb-2007	01:00	2.2	W
5-Feb-2007	02:00	2.7	WSW
5-Feb-2007	03:00	3.6	W
5-Feb-2007	04:00	3.1	WSW
5-Feb-2007	05:00	3.1	WSW
5-Feb-2007	06:00	3.1	WSW
5-Feb-2007	07:00	3.6	W
5-Feb-2007	08:00	1.3	SW
5-Feb-2007	09:00	0.9	W
5-Feb-2007	10:00	0.9	WNW
5-Feb-2007	11:00	0.0	WSW

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
5-Feb-2007	12:00	1.8	WNW
5-Feb-2007	13:00	0.4	WSW
5-Feb-2007	14:00	1.8	WNW
5-Feb-2007	15:00	0.4	W
5-Feb-2007	16:00	0.0	---
5-Feb-2007	17:00	0.0	W
5-Feb-2007	18:00	2.7	W
5-Feb-2007	19:00	0.0	NW
5-Feb-2007	20:00	1.8	WNW
5-Feb-2007	21:00	2.2	W
5-Feb-2007	22:00	0.9	WNW
5-Feb-2007	23:00	1.8	WSW
6-Feb-2007	00:00	2.2	SW
6-Feb-2007	01:00	0.9	W
6-Feb-2007	02:00	2.2	SW
6-Feb-2007	03:00	2.2	SW
6-Feb-2007	04:00	2.2	SW
6-Feb-2007	05:00	0.4	WNW
6-Feb-2007	06:00	0.9	WNW
6-Feb-2007	07:00	0.0	W
6-Feb-2007	08:00	0.0	SW
6-Feb-2007	09:00	1.3	WNW
6-Feb-2007	10:00	1.3	WNW
6-Feb-2007	11:00	3.1	WNW
6-Feb-2007	12:00	0.9	W
6-Feb-2007	13:00	3.1	WNW
6-Feb-2007	14:00	2.2	W
6-Feb-2007	15:00	1.3	SW
6-Feb-2007	16:00	0.9	WNW
6-Feb-2007	17:00	1.3	WNW
6-Feb-2007	18:00	0.9	W
6-Feb-2007	19:00	2.7	WNW
6-Feb-2007	20:00	2.2	WNW
6-Feb-2007	21:00	3.6	WNW
6-Feb-2007	22:00	3.6	WNW
6-Feb-2007	23:00	2.7	W
7-Feb-2007	00:00	4.0	WNW
7-Feb-2007	01:00	2.2	WSW
7-Feb-2007	02:00	1.8	WSW
7-Feb-2007	03:00	2.7	WSW
7-Feb-2007	04:00	2.7	SW
7-Feb-2007	05:00	1.8	WNW
7-Feb-2007	06:00	1.3	W
7-Feb-2007	07:00	1.3	WNW
7-Feb-2007	08:00	1.8	WNW
7-Feb-2007	09:00	1.8	WNW
7-Feb-2007	10:00	1.3	WNW
7-Feb-2007	11:00	1.3	WNW
7-Feb-2007	12:00	2.2	WNW
7-Feb-2007	13:00	2.7	WNW
7-Feb-2007	14:00	0.9	WSW
7-Feb-2007	15:00	0.4	WNW
7-Feb-2007	16:00	2.2	W
7-Feb-2007	17:00	3.6	WNW

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
7-Feb-2007	18:00	3.1	WNW
7-Feb-2007	19:00	3.6	WNW
7-Feb-2007	20:00	4.0	WNW
7-Feb-2007	21:00	4.0	WNW
7-Feb-2007	22:00	3.1	WNW
7-Feb-2007	23:00	4.5	WNW
8-Feb-2007	00:00	1.8	WNW
8-Feb-2007	01:00	1.8	WSW
8-Feb-2007	02:00	0.4	WSW
8-Feb-2007	03:00	0.9	SW
8-Feb-2007	04:00	1.3	SSW
8-Feb-2007	05:00	1.8	SSW
8-Feb-2007	06:00	3.1	WSW
8-Feb-2007	07:00	3.1	WSW
8-Feb-2007	08:00	1.3	WSW
8-Feb-2007	09:00	2.7	WSW
8-Feb-2007	10:00	2.7	WSW
8-Feb-2007	11:00	1.3	WNW
8-Feb-2007	12:00	2.2	W
8-Feb-2007	13:00	2.7	WSW
8-Feb-2007	14:00	4.0	WSW
8-Feb-2007	15:00	4.0	WSW
8-Feb-2007	16:00	4.9	WSW
8-Feb-2007	17:00	3.6	WSW
8-Feb-2007	18:00	3.6	WNW
8-Feb-2007	19:00	4.0	WSW
8-Feb-2007	20:00	4.5	WSW
8-Feb-2007	21:00	4.9	WSW
8-Feb-2007	22:00	3.6	WSW
8-Feb-2007	23:00	2.7	WNW
9-Feb-2007	00:00	3.6	WSW
9-Feb-2007	01:00	3.1	WSW
9-Feb-2007	02:00	3.6	WSW
9-Feb-2007	03:00	3.6	WSW
9-Feb-2007	04:00	3.1	WSW
9-Feb-2007	05:00	2.2	WSW
9-Feb-2007	06:00	1.8	WSW
9-Feb-2007	07:00	1.8	WSW
9-Feb-2007	08:00	1.3	W
9-Feb-2007	09:00	2.2	WSW
9-Feb-2007	10:00	2.2	WSW
9-Feb-2007	11:00	1.8	WSW
9-Feb-2007	12:00	3.1	WSW
9-Feb-2007	13:00	3.1	WSW
9-Feb-2007	14:00	2.7	WSW
9-Feb-2007	15:00	3.1	SW
9-Feb-2007	16:00	3.6	WSW
9-Feb-2007	17:00	5.4	WNW
9-Feb-2007	18:00	4.0	WNW
9-Feb-2007	19:00	3.6	WSW
9-Feb-2007	20:00	4.0	WSW
9-Feb-2007	21:00	3.6	WSW
9-Feb-2007	22:00	2.7	WSW
9-Feb-2007	23:00	1.8	SW

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
10-Feb-2007	00:00	2.2	SW
10-Feb-2007	01:00	0.9	SSW
10-Feb-2007	02:00	1.3	S
10-Feb-2007	03:00	0.0	SW
10-Feb-2007	04:00	0.0	---
10-Feb-2007	05:00	0.0	---
10-Feb-2007	06:00	0.0	---
10-Feb-2007	07:00	0.0	---
10-Feb-2007	08:00	0.0	---
10-Feb-2007	09:00	0.0	W
10-Feb-2007	10:00	0.9	WSW
10-Feb-2007	11:00	1.8	W
10-Feb-2007	12:00	2.2	WSW
10-Feb-2007	13:00	3.1	WSW
10-Feb-2007	14:00	2.7	SW
10-Feb-2007	15:00	2.2	WSW
10-Feb-2007	16:00	3.1	WSW
10-Feb-2007	17:00	5.4	WNW
10-Feb-2007	18:00	5.8	WNW
10-Feb-2007	19:00	4.9	WNW
10-Feb-2007	20:00	3.6	WNW
10-Feb-2007	21:00	3.6	WNW
10-Feb-2007	22:00	2.7	WNW
10-Feb-2007	23:00	2.2	WNW
11-Feb-2007	00:00	1.3	WNW
11-Feb-2007	01:00	0.0	SW
11-Feb-2007	02:00	0.0	---
11-Feb-2007	03:00	0.0	---
11-Feb-2007	04:00	0.0	---
11-Feb-2007	05:00	0.0	---
11-Feb-2007	06:00	0.0	SW
11-Feb-2007	07:00	0.0	---
11-Feb-2007	08:00	0.0	---
11-Feb-2007	09:00	0.0	---
11-Feb-2007	10:00	0.0	---
11-Feb-2007	11:00	0.0	---
11-Feb-2007	12:00	0.0	---
11-Feb-2007	13:00	0.0	---
11-Feb-2007	14:00	0.0	SSW
11-Feb-2007	15:00	0.0	---
11-Feb-2007	16:00	0.0	---
11-Feb-2007	17:00	1.3	WNW
11-Feb-2007	18:00	3.6	WNW
11-Feb-2007	19:00	4.0	WNW
11-Feb-2007	20:00	3.6	WNW
11-Feb-2007	21:00	2.7	WNW
11-Feb-2007	22:00	2.2	WNW
11-Feb-2007	23:00	1.3	WNW
12-Feb-2007	00:00	1.3	WNW
12-Feb-2007	01:00	0.4	NE
12-Feb-2007	02:00	0.0	---
12-Feb-2007	03:00	0.0	---
12-Feb-2007	04:00	0.0	---
12-Feb-2007	05:00	0.0	---

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
12-Feb-2007	06:00	0.0	---
12-Feb-2007	07:00	0.0	---
12-Feb-2007	08:00	0.0	---
12-Feb-2007	09:00	0.0	---
12-Feb-2007	10:00	0.0	---
12-Feb-2007	11:00	0.0	---
12-Feb-2007	12:00	0.0	SW
12-Feb-2007	13:00	1.3	WNW
12-Feb-2007	14:00	0.4	WNW
12-Feb-2007	15:00	2.2	WNW
12-Feb-2007	16:00	1.3	WSW
12-Feb-2007	17:00	2.2	WNW
12-Feb-2007	18:00	1.8	WNW
12-Feb-2007	19:00	1.3	WNW
12-Feb-2007	20:00	0.4	SSW
12-Feb-2007	21:00	2.2	WNW
12-Feb-2007	22:00	1.8	WNW
12-Feb-2007	23:00	0.4	WSW
13-Feb-2007	00:00	0.0	WNW
13-Feb-2007	01:00	0.9	W
13-Feb-2007	02:00	0.9	W
13-Feb-2007	03:00	0.9	W
13-Feb-2007	04:00	1.3	W
13-Feb-2007	05:00	2.7	WNW
13-Feb-2007	06:00	2.2	WNW
13-Feb-2007	07:00	3.6	WNW
13-Feb-2007	08:00	2.2	WNW
13-Feb-2007	09:00	3.1	WNW
13-Feb-2007	10:00	4.0	WSW
13-Feb-2007	11:00	2.7	WNW
13-Feb-2007	12:00	2.7	W
13-Feb-2007	13:00	1.3	W
13-Feb-2007	14:00	0.4	WNW
13-Feb-2007	15:00	3.6	WNW
13-Feb-2007	16:00	3.1	WNW
13-Feb-2007	17:00	2.2	WNW
13-Feb-2007	18:00	4.5	W
13-Feb-2007	19:00	4.0	WNW
13-Feb-2007	20:00	2.7	W
13-Feb-2007	21:00	1.3	WNW
13-Feb-2007	22:00	1.3	WNW
13-Feb-2007	23:00	0.9	SW
14-Feb-2007	00:00	1.3	W
14-Feb-2007	01:00	0.4	SW
14-Feb-2007	02:00	0.0	---
14-Feb-2007	03:00	0.9	W
14-Feb-2007	04:00	1.8	WNW
14-Feb-2007	05:00	1.3	WNW
14-Feb-2007	06:00	1.8	W
14-Feb-2007	07:00	2.7	W
14-Feb-2007	08:00	2.2	W
14-Feb-2007	09:00	2.2	WNW
14-Feb-2007	10:00	1.3	W
14-Feb-2007	11:00	1.3	SW

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
14-Feb-2007	12:00	0.9	SW
14-Feb-2007	13:00	2.2	WNW
14-Feb-2007	14:00	0.0	WSW
14-Feb-2007	15:00	1.8	WNW
14-Feb-2007	16:00	1.3	WSW
14-Feb-2007	17:00	2.2	W
14-Feb-2007	18:00	2.2	WNW
14-Feb-2007	19:00	0.4	WNW
14-Feb-2007	20:00	0.9	NW
14-Feb-2007	21:00	0.4	W
14-Feb-2007	22:00	0.9	WNW
14-Feb-2007	23:00	2.2	WNW
15-Feb-2007	00:00	2.2	WNW
15-Feb-2007	01:00	1.3	W
15-Feb-2007	02:00	0.9	SSW
15-Feb-2007	03:00	0.4	SW
15-Feb-2007	04:00	0.4	SW
15-Feb-2007	05:00	0.9	SW
15-Feb-2007	06:00	0.9	WNW
15-Feb-2007	07:00	1.8	SW
15-Feb-2007	08:00	1.8	WNW
15-Feb-2007	09:00	1.8	WNW
15-Feb-2007	10:00	1.8	WNW
15-Feb-2007	11:00	4.0	WNW
15-Feb-2007	12:00	3.6	WNW
15-Feb-2007	13:00	1.8	W
15-Feb-2007	14:00	0.9	SW
15-Feb-2007	15:00	0.9	WSW
15-Feb-2007	16:00	1.8	WNW
15-Feb-2007	17:00	3.1	WNW
15-Feb-2007	18:00	3.1	WNW
15-Feb-2007	19:00	2.2	WNW
15-Feb-2007	20:00	2.7	WNW
15-Feb-2007	21:00	2.2	WNW
15-Feb-2007	22:00	1.8	WNW
15-Feb-2007	23:00	1.8	WNW
16-Feb-2007	00:00	0.9	WNW
16-Feb-2007	01:00	0.0	W
16-Feb-2007	02:00	0.0	---
16-Feb-2007	03:00	0.0	---
16-Feb-2007	04:00	0.0	---
16-Feb-2007	05:00	0.0	W
16-Feb-2007	06:00	1.8	WNW
16-Feb-2007	07:00	3.1	WNW
16-Feb-2007	08:00	2.2	WNW
16-Feb-2007	09:00	1.3	WNW
16-Feb-2007	10:00	2.2	WSW
16-Feb-2007	11:00	2.7	WSW
16-Feb-2007	12:00	3.1	WSW
16-Feb-2007	13:00	2.2	WSW
16-Feb-2007	14:00	1.8	WSW
16-Feb-2007	15:00	1.8	WSW
16-Feb-2007	16:00	1.8	WSW
16-Feb-2007	17:00	2.7	W

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
16-Feb-2007	18:00	3.1	WNW
16-Feb-2007	19:00	3.1	WNW
16-Feb-2007	20:00	2.2	WNW
16-Feb-2007	21:00	2.2	WNW
16-Feb-2007	22:00	2.2	WNW
16-Feb-2007	23:00	1.8	WNW
17-Feb-2007	00:00	2.2	WNW
17-Feb-2007	01:00	0.9	W
17-Feb-2007	02:00	0.4	W
17-Feb-2007	03:00	0.9	W
17-Feb-2007	04:00	0.0	---
17-Feb-2007	05:00	0.4	SSW
17-Feb-2007	06:00	0.0	WSW
17-Feb-2007	07:00	0.9	SW
17-Feb-2007	08:00	1.8	SW
17-Feb-2007	09:00	2.7	SW
17-Feb-2007	10:00	3.1	SW
17-Feb-2007	11:00	2.7	W
17-Feb-2007	12:00	1.8	SW
17-Feb-2007	13:00	2.2	WNW
17-Feb-2007	14:00	1.3	WNW
17-Feb-2007	15:00	0.9	W
17-Feb-2007	16:00	1.3	W
17-Feb-2007	17:00	1.8	WNW
17-Feb-2007	18:00	2.2	WNW
17-Feb-2007	19:00	1.8	WNW
17-Feb-2007	20:00	2.2	WNW
17-Feb-2007	21:00	1.8	WNW
17-Feb-2007	22:00	2.7	W
17-Feb-2007	23:00	1.8	WNW
18-Feb-2007	00:00	1.3	WNW
18-Feb-2007	01:00	1.3	W
18-Feb-2007	02:00	0.0	W
18-Feb-2007	03:00	0.0	---
18-Feb-2007	04:00	0.0	---
18-Feb-2007	05:00	0.0	SSW
18-Feb-2007	06:00	0.9	SSW
18-Feb-2007	07:00	1.3	SSW
18-Feb-2007	08:00	3.6	WNW
18-Feb-2007	09:00	2.7	WNW
18-Feb-2007	10:00	0.9	WNW
18-Feb-2007	11:00	0.4	WNW
18-Feb-2007	12:00	0.0	---
18-Feb-2007	13:00	0.0	---
18-Feb-2007	14:00	0.0	S
18-Feb-2007	15:00	0.0	---
18-Feb-2007	16:00	0.4	SSE
18-Feb-2007	17:00	1.3	WNW
18-Feb-2007	18:00	0.9	WNW
18-Feb-2007	19:00	1.8	WNW
18-Feb-2007	20:00	0.9	WNW
18-Feb-2007	21:00	0.9	W
18-Feb-2007	22:00	1.8	W
18-Feb-2007	23:00	2.7	WNW

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
19-Feb-2007	00:00	1.3	W
19-Feb-2007	01:00	1.8	WNW
19-Feb-2007	02:00	0.4	WNW
19-Feb-2007	03:00	2.7	WNW
19-Feb-2007	04:00	2.7	WSW
19-Feb-2007	05:00	2.7	WNW
19-Feb-2007	06:00	1.3	WSW
19-Feb-2007	07:00	0.4	WSW
19-Feb-2007	08:00	0.0	---
19-Feb-2007	09:00	0.4	WNW
19-Feb-2007	10:00	0.0	---
19-Feb-2007	11:00	0.0	WNW
19-Feb-2007	12:00	0.0	WNW
19-Feb-2007	13:00	2.7	WNW
19-Feb-2007	14:00	3.1	WNW
19-Feb-2007	15:00	3.6	WNW
19-Feb-2007	16:00	2.7	W
19-Feb-2007	17:00	0.4	W
19-Feb-2007	18:00	1.3	W
19-Feb-2007	19:00	1.8	W
19-Feb-2007	20:00	0.9	W
19-Feb-2007	21:00	2.2	W
19-Feb-2007	22:00	1.8	W
19-Feb-2007	23:00	2.2	W
20-Feb-2007	00:00	2.2	WNW
20-Feb-2007	01:00	4.0	WNW
20-Feb-2007	02:00	1.8	WNW
20-Feb-2007	03:00	2.7	WNW
20-Feb-2007	04:00	4.0	WNW
20-Feb-2007	05:00	4.9	WNW
20-Feb-2007	06:00	3.6	W
20-Feb-2007	07:00	0.4	WSW
20-Feb-2007	08:00	1.3	W
20-Feb-2007	09:00	1.8	W
20-Feb-2007	10:00	2.7	WNW
20-Feb-2007	11:00	4.0	WNW
20-Feb-2007	12:00	1.8	WNW
20-Feb-2007	13:00	1.3	WNW
20-Feb-2007	14:00	1.3	WNW
20-Feb-2007	15:00	0.9	WNW
20-Feb-2007	16:00	3.1	WNW
20-Feb-2007	17:00	2.7	W
20-Feb-2007	18:00	2.7	WNW
20-Feb-2007	19:00	3.1	W
20-Feb-2007	20:00	3.6	WNW
20-Feb-2007	21:00	3.6	WNW
20-Feb-2007	22:00	3.6	WNW
20-Feb-2007	23:00	2.7	WNW
21-Feb-2007	00:00	1.8	W
21-Feb-2007	01:00	1.3	WSW
21-Feb-2007	02:00	0.9	WSW
21-Feb-2007	03:00	0.4	SW
21-Feb-2007	04:00	0.9	SSW
21-Feb-2007	05:00	1.3	WSW

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
21-Feb-2007	06:00	1.3	WNW
21-Feb-2007	07:00	0.9	WNW
21-Feb-2007	08:00	0.9	WNW
21-Feb-2007	09:00	0.4	WNW
21-Feb-2007	10:00	0.0	---
21-Feb-2007	11:00	0.0	WNW
21-Feb-2007	12:00	0.4	W
21-Feb-2007	13:00	1.8	WNW
21-Feb-2007	14:00	1.8	WNW
21-Feb-2007	15:00	2.2	WNW
21-Feb-2007	16:00	1.3	WNW
21-Feb-2007	17:00	2.2	W
21-Feb-2007	18:00	3.6	WNW
21-Feb-2007	19:00	4.5	WNW
21-Feb-2007	20:00	4.0	WNW
21-Feb-2007	21:00	1.8	WNW
21-Feb-2007	22:00	1.8	WNW
21-Feb-2007	23:00	0.4	WNW
22-Feb-2007	00:00	0.9	ESE
22-Feb-2007	01:00	0.4	ESE
22-Feb-2007	02:00	0.0	---
22-Feb-2007	03:00	0.0	ESE
22-Feb-2007	04:00	0.0	---
22-Feb-2007	05:00	0.0	SW
22-Feb-2007	06:00	0.0	WSW
22-Feb-2007	07:00	0.0	SW
22-Feb-2007	08:00	0.4	WNW
22-Feb-2007	09:00	0.9	WNW
22-Feb-2007	10:00	0.9	W
22-Feb-2007	11:00	0.9	WNW
22-Feb-2007	12:00	0.4	WNW
22-Feb-2007	13:00	0.0	SSE
22-Feb-2007	14:00	0.0	---
22-Feb-2007	15:00	0.9	SW
22-Feb-2007	16:00	0.9	WNW
22-Feb-2007	17:00	2.2	WNW
22-Feb-2007	18:00	2.7	W
22-Feb-2007	19:00	2.2	W
22-Feb-2007	20:00	3.1	WNW
22-Feb-2007	21:00	2.2	WNW
22-Feb-2007	22:00	2.2	WNW
22-Feb-2007	23:00	1.3	SW
23-Feb-2007	00:00	2.7	WNW
23-Feb-2007	01:00	1.8	WNW
23-Feb-2007	02:00	2.2	WNW
23-Feb-2007	03:00	0.9	WSW
23-Feb-2007	04:00	2.2	WNW
23-Feb-2007	05:00	2.7	WNW
23-Feb-2007	06:00	2.2	WNW
23-Feb-2007	07:00	2.2	W
23-Feb-2007	08:00	0.9	WNW
23-Feb-2007	09:00	0.4	W
23-Feb-2007	10:00	0.4	W
23-Feb-2007	11:00	0.0	---

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
23-Feb-2007	12:00	0.9	W
23-Feb-2007	13:00	0.0	NW
23-Feb-2007	14:00	0.0	---
23-Feb-2007	15:00	0.0	WNW
23-Feb-2007	16:00	2.7	WNW
23-Feb-2007	17:00	0.9	WNW
23-Feb-2007	18:00	1.3	WNW
23-Feb-2007	19:00	0.4	WNW
23-Feb-2007	20:00	0.4	WNW
23-Feb-2007	21:00	0.9	WNW
23-Feb-2007	22:00	0.9	W
23-Feb-2007	23:00	1.8	WNW
24-Feb-2007	00:00	1.8	WNW
24-Feb-2007	01:00	2.7	WNW
24-Feb-2007	02:00	3.1	WNW
24-Feb-2007	03:00	2.7	WNW
24-Feb-2007	04:00	2.2	WNW
24-Feb-2007	05:00	2.7	WNW
24-Feb-2007	06:00	2.2	WNW
24-Feb-2007	07:00	0.9	WNW
24-Feb-2007	08:00	0.9	WNW
24-Feb-2007	09:00	0.0	NW
24-Feb-2007	10:00	0.0	NW
24-Feb-2007	11:00	0.0	WSW
24-Feb-2007	12:00	0.9	WNW
24-Feb-2007	13:00	0.4	WSW
24-Feb-2007	14:00	1.3	SW
24-Feb-2007	15:00	0.9	SW
24-Feb-2007	16:00	1.3	WSW
24-Feb-2007	17:00	2.7	WNW
24-Feb-2007	18:00	1.3	W
24-Feb-2007	19:00	2.7	WSW
24-Feb-2007	20:00	1.8	WSW
24-Feb-2007	21:00	2.7	WNW
24-Feb-2007	22:00	2.7	W
24-Feb-2007	23:00	2.2	WNW
25-Feb-2007	00:00	2.2	WNW
25-Feb-2007	01:00	1.3	WNW
25-Feb-2007	02:00	2.2	WNW
25-Feb-2007	03:00	0.4	WNW
25-Feb-2007	04:00	0.9	WSW
25-Feb-2007	05:00	0.4	WSW
25-Feb-2007	06:00	1.8	WNW
25-Feb-2007	07:00	1.8	WNW
25-Feb-2007	08:00	1.3	SW
25-Feb-2007	09:00	0.9	WSW
25-Feb-2007	10:00	0.4	W
25-Feb-2007	11:00	1.8	WNW
25-Feb-2007	12:00	2.2	WNW
25-Feb-2007	13:00	2.7	WNW
25-Feb-2007	14:00	2.2	W
25-Feb-2007	15:00	1.8	WNW
25-Feb-2007	16:00	1.8	WNW
25-Feb-2007	17:00	3.6	WNW

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
25-Feb-2007	18:00	4.0	WNW
25-Feb-2007	19:00	2.2	WNW
25-Feb-2007	20:00	2.2	WNW
25-Feb-2007	21:00	1.8	W
25-Feb-2007	22:00	2.2	W
25-Feb-2007	23:00	2.7	SW
26-Feb-2007	00:00	1.3	W
26-Feb-2007	01:00	1.3	W
26-Feb-2007	02:00	0.4	WSW
26-Feb-2007	03:00	0.4	SSW
26-Feb-2007	04:00	0.9	SW
26-Feb-2007	05:00	0.9	W
26-Feb-2007	06:00	1.8	SW
26-Feb-2007	07:00	2.7	WSW
26-Feb-2007	08:00	2.7	SW
26-Feb-2007	09:00	2.7	WSW
26-Feb-2007	10:00	2.2	WSW
26-Feb-2007	11:00	2.2	WSW
26-Feb-2007	12:00	2.2	WSW
26-Feb-2007	13:00	2.2	WSW
26-Feb-2007	14:00	2.7	WNW
26-Feb-2007	15:00	4.0	WNW
26-Feb-2007	16:00	4.9	WNW
26-Feb-2007	17:00	4.0	WNW
26-Feb-2007	18:00	4.5	WNW
26-Feb-2007	19:00	3.6	WNW
26-Feb-2007	20:00	2.2	WNW
26-Feb-2007	21:00	3.6	WNW
26-Feb-2007	22:00	3.6	WNW
26-Feb-2007	23:00	3.1	WNW
27-Feb-2007	00:00	3.1	WNW
27-Feb-2007	01:00	2.2	WNW
27-Feb-2007	02:00	1.3	SSW
27-Feb-2007	03:00	0.9	S
27-Feb-2007	04:00	0.0	S
27-Feb-2007	05:00	0.0	---
27-Feb-2007	06:00	0.0	---
27-Feb-2007	07:00	0.0	SW
27-Feb-2007	08:00	0.4	SW
27-Feb-2007	09:00	0.9	NW
27-Feb-2007	10:00	1.3	SW
27-Feb-2007	11:00	0.4	WNW
27-Feb-2007	12:00	0.4	NW
27-Feb-2007	13:00	0.9	WNW
27-Feb-2007	14:00	1.3	WNW
27-Feb-2007	15:00	2.2	WNW
27-Feb-2007	16:00	3.6	WNW
27-Feb-2007	17:00	2.7	WNW
27-Feb-2007	18:00	2.2	WNW
27-Feb-2007	19:00	1.8	WNW
27-Feb-2007	20:00	2.2	WNW
27-Feb-2007	21:00	2.2	WNW
27-Feb-2007	22:00	1.3	WNW
27-Feb-2007	23:00	0.9	WNW

Appendix D - Wind Data

Date	Time	Wind Speed m/s	Direction
28-Feb-2007	00:00	2.7	WNW
28-Feb-2007	01:00	0.4	SW
28-Feb-2007	02:00	0.0	---
28-Feb-2007	03:00	0.0	---
28-Feb-2007	04:00	0.0	---
28-Feb-2007	05:00	0.0	---
28-Feb-2007	06:00	0.0	SSE
28-Feb-2007	07:00	0.0	---
28-Feb-2007	08:00	0.0	---
28-Feb-2007	09:00	0.0	---
28-Feb-2007	10:00	0.0	---
28-Feb-2007	11:00	0.0	---
28-Feb-2007	12:00	0.0	---
28-Feb-2007	13:00	0.0	---
28-Feb-2007	14:00	0.0	---
28-Feb-2007	15:00	0.0	---
28-Feb-2007	16:00	0.0	W
28-Feb-2007	17:00	0.9	NW
28-Feb-2007	18:00	2.2	WNW
28-Feb-2007	19:00	2.7	WNW
28-Feb-2007	20:00	3.1	WNW
28-Feb-2007	21:00	2.7	WNW
28-Feb-2007	22:00	2.2	NW
28-Feb-2007	23:00	2.7	WSW

APPENDIX E
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results

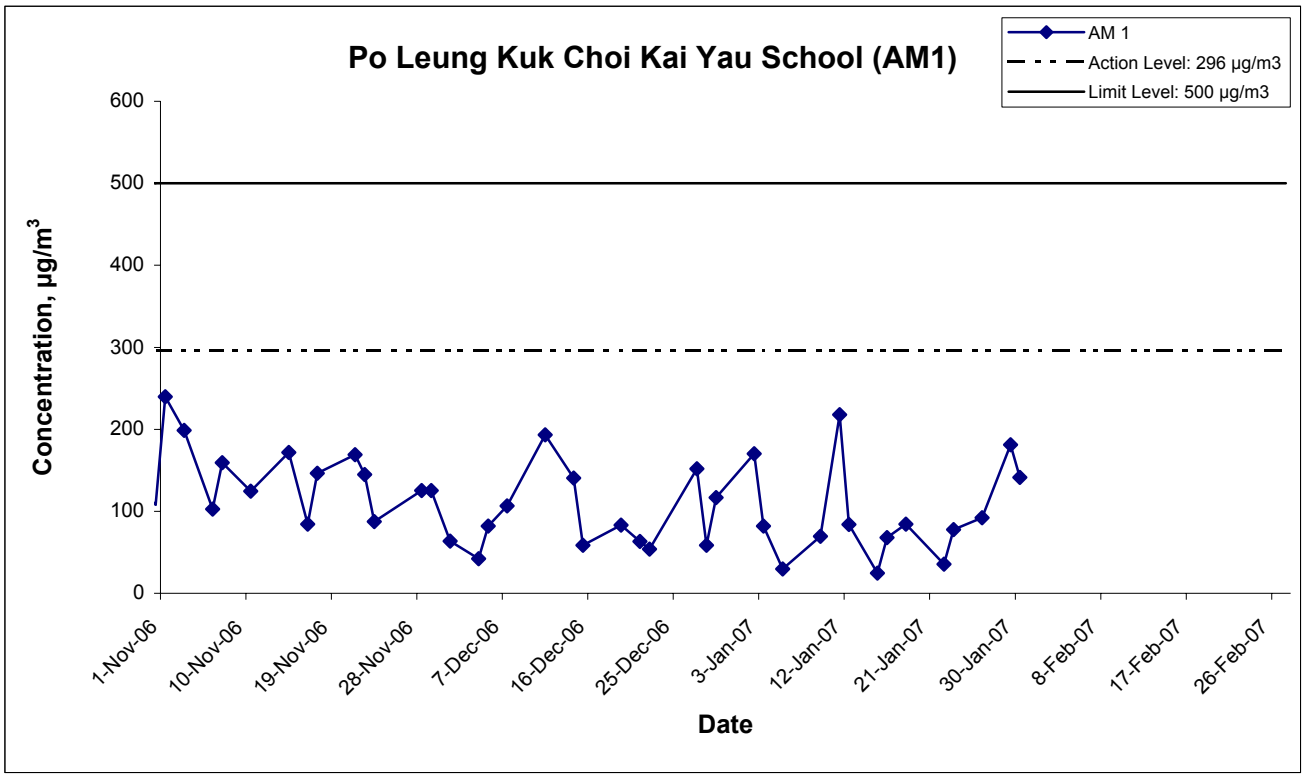
Location AM 3 - Garden Villa

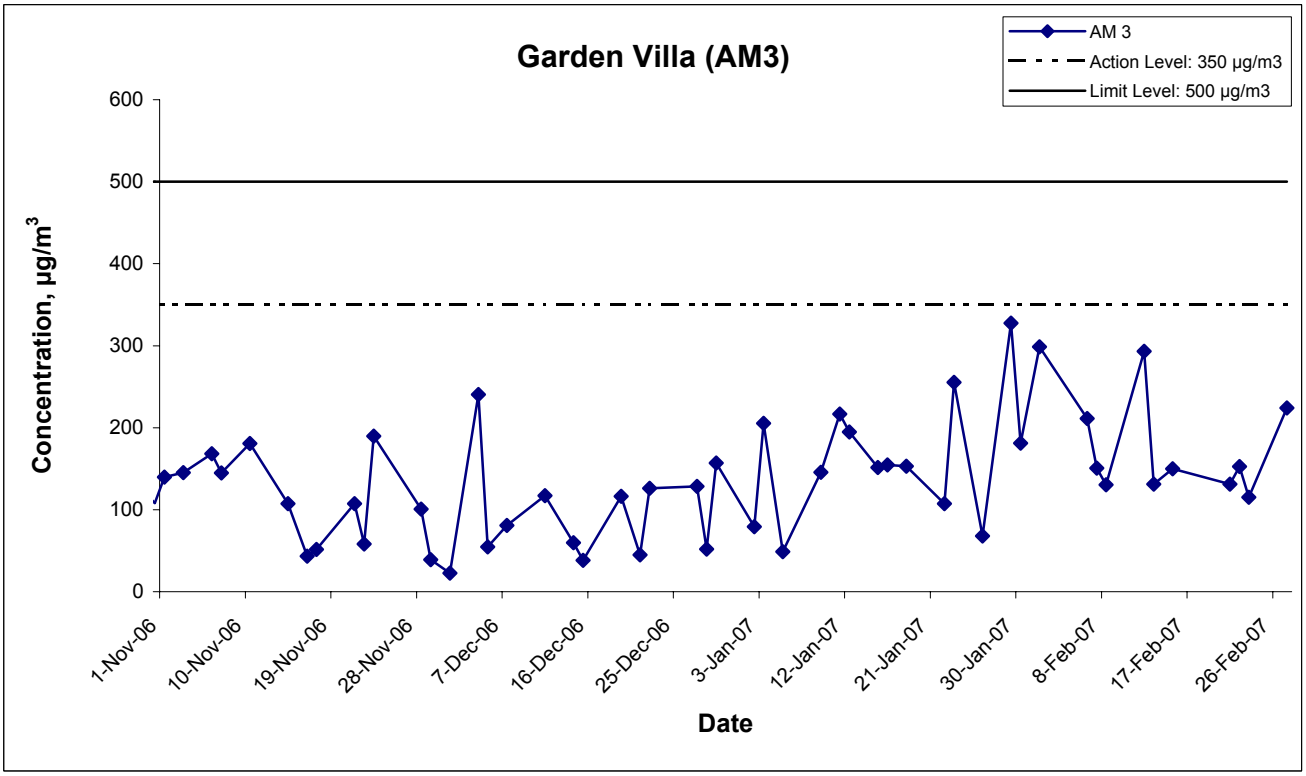
Date	Weather Condition	Filter Weight (g)		Flow Rate (m^3/min.)		Elapse Time		Air Temp. (K)	Atmospheric Pressure(Pa)	Particulate weight(g)	Av. flow (m^3/min)	Total vol. (m^3)	Sampling Time(hrs.)	Conc. ($\mu g/m^3$)
		Initial	Final	Initial	Final	Initial	Final							
1-Feb-07	Sunshine	2.8610	2.8827	1.21	1.21	5287.1	5288.1	290.3	771.7	0.0217	1.21	72.7	1.0	298.6
6-Feb-07	Sunshine	2.8472	2.8625	1.21	1.21	5288.1	5289.1	290.9	767.3	0.0153	1.21	72.4	1.0	211.3
7-Feb-07	Sunshine	2.8682	2.8791	1.21	1.21	5313.1	5314.1	292.3	768.2	0.0109	1.21	72.3	1.0	150.8
8-Feb-07	Cloudy	2.8277	2.8371	1.20	1.20	5314.1	5315.1	293.3	765.5	0.0094	1.20	72.2	1.0	130.3
12-Feb-07	Sunshine	2.8363	2.8575	1.21	1.20	5315.1	5316.1	291.7	766.4	0.0212	1.21	72.3	1.0	293.3
13-Feb-07	Sunshine	2.8412	2.8506	1.20	1.20	5340.1	5341.1	295.5	763.7	0.0094	1.20	71.8	1.0	131.0
15-Feb-07	Sunshine	2.8369	2.8477	1.20	1.20	5341.1	5342.1	292.7	765.6	0.0108	1.20	72.1	1.0	149.7
21-Feb-07	Cloudy	2.8543	2.8637	1.19	1.19	5366.1	5367.1	296.5	762.3	0.0094	1.19	71.6	1.0	131.3
22-Feb-07	Cloudy	2.8805	2.8915	1.20	1.20	5367.1	5368.1	292.9	762.2	0.0110	1.20	72.0	1.0	152.8
23-Feb-07	Sunshine	2.9010	2.9093	1.20	1.20	5392.1	5393.1	292.6	763.1	0.0083	1.20	72.1	1.0	115.2
27-Feb-07	Sunshine	2.8970	2.9132	1.20	1.20	5393.1	5394.1	291.2	764.9	0.0162	1.20	72.3	1.0	224.1
													Min	115.2
													Max	298.6
													Average	180.8

Location AM 4 - Government Quarters

Date	Weather Condition	Filter Weight (g)		Flow Rate (m^3/min.)		Elapse Time		Air Temp. (K)	Atmospheric Pressure(Pa)	Particulate weight(g)	Av. flow (m^3/min)	Total vol. (m^3)	Sampling Time(hrs.)	Conc. ($\mu g/m^3$)
		Initial	Final	Initial	Final	Initial	Final							
1-Feb-07	Sunshine	2.8736	2.8877	1.22	1.22	5399.5	5422.5	290.5	771.5	0.0141	1.22	73.4	23.0	192.0
6-Feb-07	Sunshine	2.8848	2.8992	1.22	1.22	5400.5	5401.5	290.9	767.3	0.0144	1.22	73.2	1.0	196.7
7-Feb-07	Sunshine	2.8507	2.8551	1.22	1.22	5425.5	5426.5	292.9	767.7	0.0044	1.22	73.0	1.0	60.3
8-Feb-07	Sunshine	2.8714	2.8782	1.22	1.22	5426.5	5427.5	293.3	767.5	0.0068	1.22	73.0	1.0	93.2
12-Feb-07	Sunshine	2.8918	2.8998	1.22	1.22	5427.5	5428.5	291.9	766.3	0.0080	1.22	73.1	1.0	109.5
13-Feb-07	Sunshine	2.8653	2.8785	1.21	1.21	5452.5	5453.5	295.9	763.3	0.0132	1.21	72.5	1.0	182.0
15-Feb-07	Sunshine	2.8832	2.8919	1.22	1.22	5453.5	5454.5	293.0	765.4	0.0087	1.22	72.9	1.0	119.3
21-Feb-07	Cloudy	2.8575	2.8644	1.21	1.21	5478.5	5479.5	293.5	764.1	0.0069	1.21	72.8	1.0	94.8
22-Feb-07	Cloudy	2.8897	2.8963	1.21	1.21	5479.5	5480.5	292.9	762.2	0.0066	1.21	72.8	1.0	90.7
23-Feb-07	Cloudy	2.8527	2.8592	1.21	1.21	5504.5	5505.5	292.8	762.9	0.0065	1.21	72.8	1.0	89.3
27-Feb-07	Sunshine	2.8552	2.8682	1.22	1.22	5505.5	5506.5	291.2	764.9	0.0130	1.22	73.1	1.0	177.9
													Min	60.3
													Max	196.7
													Average	127.8

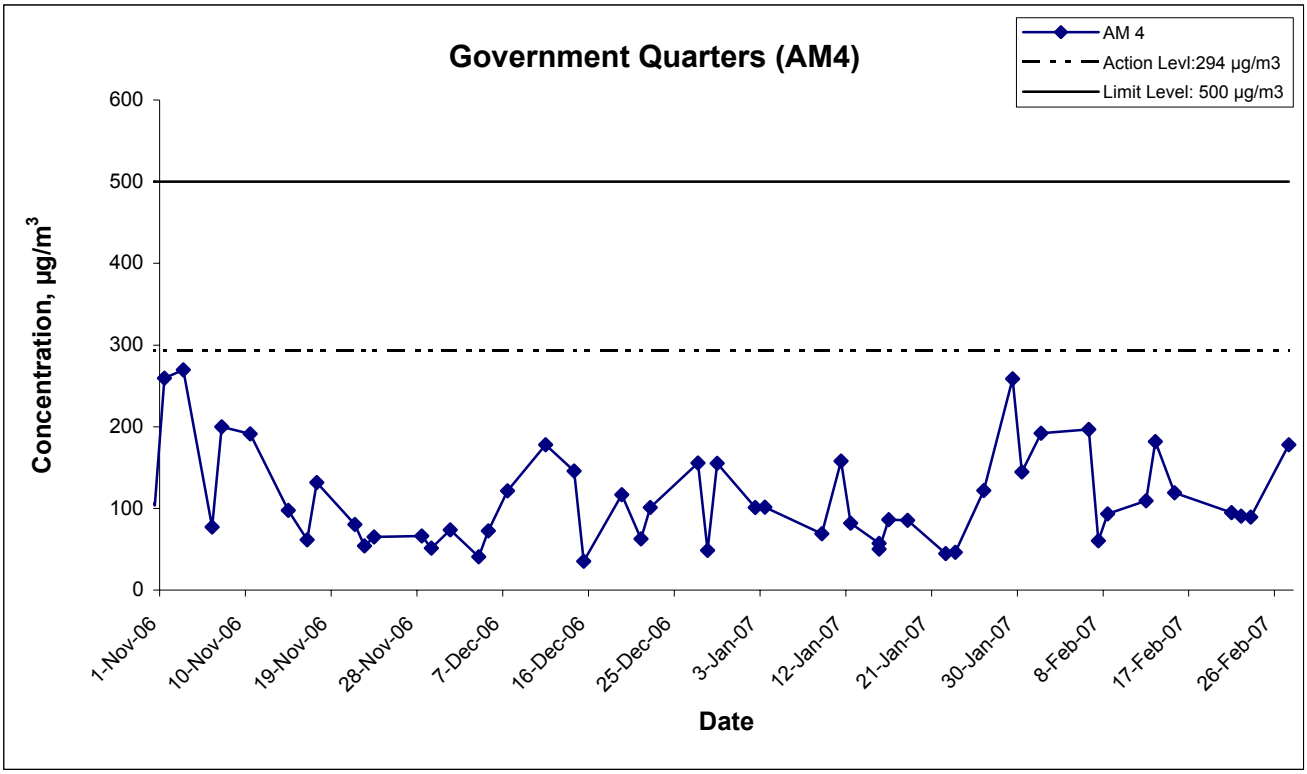
1-hr TSP Levels





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: Feb 07	Project No.: MA3024 Appendix: E	CINOTECH

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	CINOTECH
	Date: Feb 07	Appendix: E	

APPENDIX F
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix F - 24-hour TSP Monitoring Results

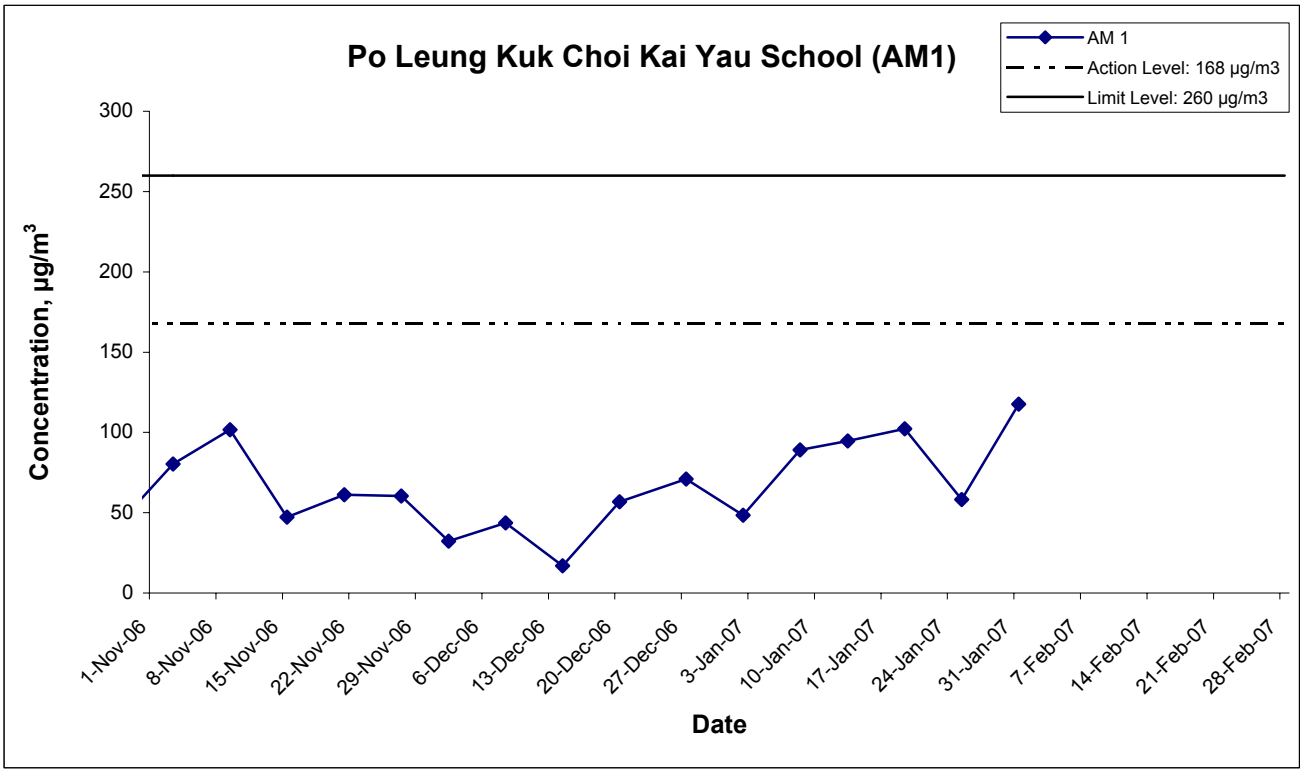
Location AM 3 - Garden Villa

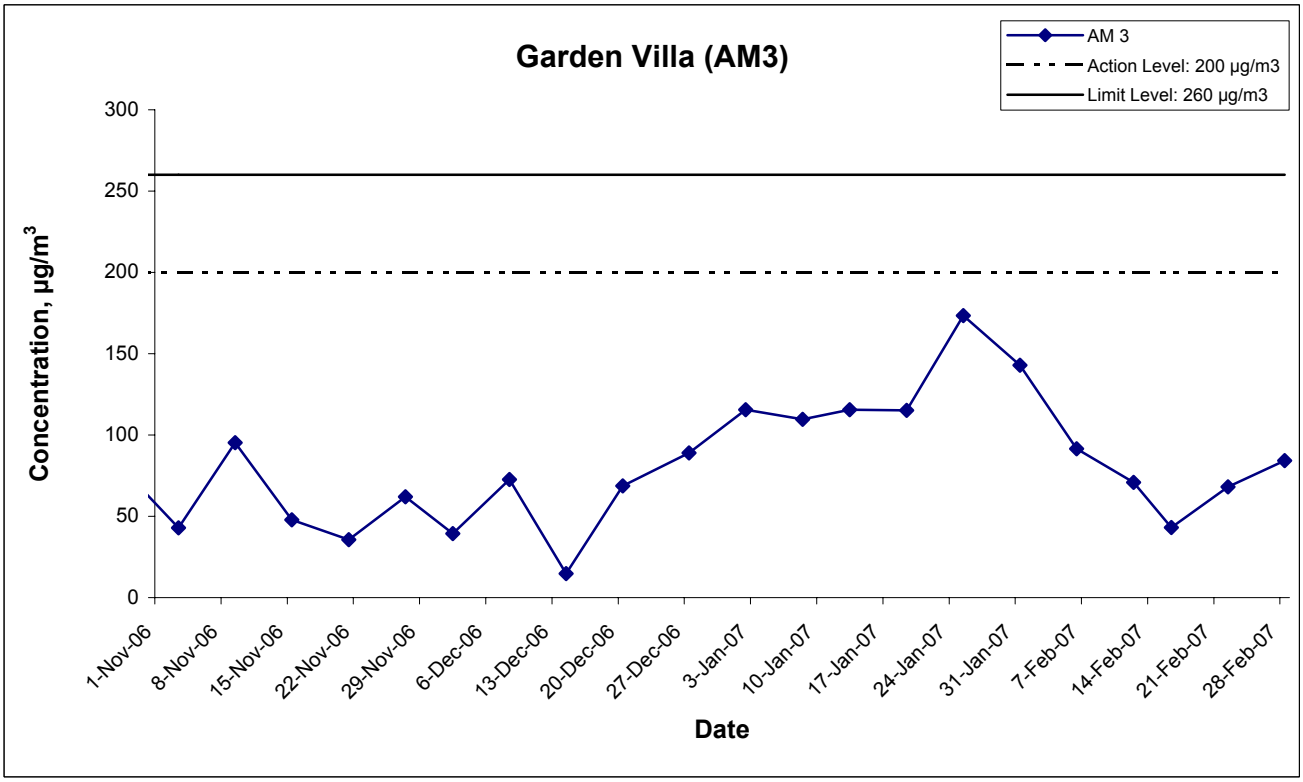
Date	Weather Condition	Filter Weight (g)		Flow Rate (m^3/min.)		Elapse Time		Air Temp. (K)	Atmospheric Pressure(Pa)	Particulate weight(g)	Av. flow (m^3/min)	Total vol. (m^3)	Sampling Time(hrs.)	Conc. (μg/m^3)
		Initial	Final	Initial	Final	Initial	Final							
6-Feb-07	Sunshine	2.8568	3.0159	1.21	1.21	5289.1	5313.1	290.7	767.5	0.1591	1.21	1738.8	24.0	91.5
12-Feb-07	Sunshine	2.8947	3.0178	1.21	1.21	5316.1	5340.1	291.7	766.4	0.1231	1.21	1735.0	24.0	71.0
16-Feb-07	Cloudy	2.8833	2.9571	1.19	1.19	5342.1	5366.1	297.1	761.0	0.0738	1.19	1715.1	24.0	43.0
22-Feb-07	Sunshine	2.9033	3.0211	1.20	1.20	5368.1	5392.1	292.9	762.2	0.1178	1.20	1727.4	24.0	68.2
28-Feb-07	Sunshine	2.8744	3.0202	1.20	1.20	5394.1	5418.1	292.6	764.5	0.1458	1.20	1730.5	24.0	84.3
													Min	43.0
													Max	91.5
													Average	71.6

Location AM 4 - Government Quarters

Date	Weather Condition	Filter Weight (g)		Flow Rate (m^3/min.)		Elapse Time		Air Temp. (K)	Atmospheric Pressure(Pa)	Particulate weight(g)	Av. flow (m^3/min)	Total vol. (m^3)	Sampling Time(hrs.)	Conc. (μg/m^3)
		Initial	Final	Initial	Final	Initial	Final							
6-Feb-07	Sunshine	2.9034	2.9926	1.22	1.22	5401.5	5425.5	291.1	766.9	0.0892	1.22	1756.1	24.0	50.8
12-Feb-07	Sunshine	2.8741	2.9762	1.22	1.22	5428.5	5452.5	291.9	766.3	0.1021	1.22	1753.4	24.0	58.2
16-Feb-07	Cloudy	2.8583	3.0167	1.21	1.21	5454.5	5478.5	293.3	761.9	0.1584	1.21	1745.7	24.0	90.7
22-Feb-07	Cloudy	2.8921	2.9201	1.21	1.21	5480.5	5504.5	293.1	762.1	0.0280	1.21	1746.3	24.0	16.0
28-Feb-07	Sunshine	2.8545	2.9461	1.22	1.22	5506.5	5530.5	292.6	764.5	0.0916	1.22	1749.9	24.0	52.3
													Min	16.0
													Max	90.7
													Average	53.6

24-hr TSP Levels

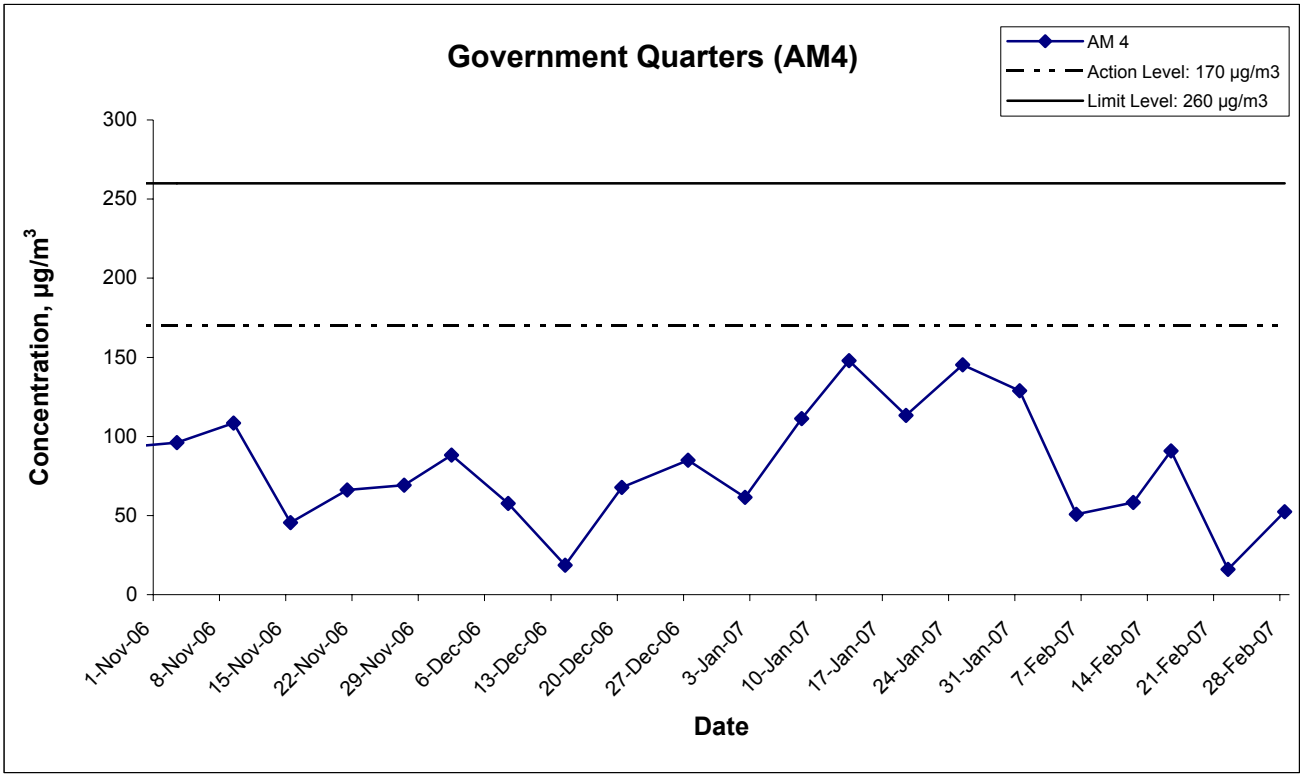




Title	Scale	Project No.
Route 8 (previously known as Route 9) between Cheung Sha Wan & Sha Tin Contract HY/2003/02 - Eagle's Nest Tunnel and Associated Works Graphical Presentation of 24-hour TSP Impact Monitoring Results	N.T.S	MA3024
	Date: Feb 07	Appendix: F

CINOTECH

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	CINOTECH
	Date: Feb 07	Appendix: F	

APPENDIX G
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATION

Appendix G - Noise Monitoring Results

Location NM5 - Villa Carlton								
Date	Time	Weather	Unit: dB (A) (30-min)					Remarks
			Measured Noise Level			Baseline Level	Construction Noise Level	
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	
8-Feb-07	09:14	Sunny	73.9	76.0	68.5	77.1	73.9, Measured ≤ Baseline	The major noise source was identified as traffic noise from Tai Po Road.
12-Feb-07	10:00	Sunny	75.3	79.0	71.5		75.3, Measured ≤ Baseline	
22-Feb-07	13:15	Cloudy	74.7	76.5	70.5		74.7, Measured ≤ Baseline	

Location NM6 - Government Quarters						
Date	Time	Weather	Unit: dB (A) (30-min)			Remarks
			Measured Noise Level			
			L_{eq}	L_{10}	L_{90}	
8-Feb-07	10:00	Sunny	52.2	54.0	47.5	-
12-Feb-07	11:30	Sunny	63.9	68.5	60.0	
22-Feb-07	11:45	Cloudy	59.2	62.0	56.0	

Location NM7 - Garden Vilia								
Date	Time	Weather	Unit: dB (A) (30-min)					Remarks
			Measured Noise Level			Baseline Level	Construction Noise Level	
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}	
8-Feb-07	09:00	Cloudy	70.7	73.0	66.5	59.0	70.4	-
12-Feb-07	09:15	Sunny	70.6	72.5	67.5		70.3	
21-Feb-07	10:30	Cloudy	56.8	58.5	56.0		56.8, Measured ≤ Baseline	

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)				Baseline Level	Construction Noise Level	Remarks
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}	
8-Feb-07	19:00	Cloudy	71.2	74.5	67.5	71.3	75.8	71.3, Measured ≤ Baseline	The major noise source was identified as traffic noise from Tai Po Road.
	19:05		71.2	74.5	67.5				
	19:10		71.6	74.5	68.0				
12-Feb-07	19:00	Cloudy	72.7	74.5	69.5	72.8		72.8, Measured ≤ Baseline	
	19:05		72.8	75.0	69.5				
	19:10		72.8	75.0	69.5				
22-Feb-07	19:00	Cloudy	72.8	74.5	68.0	73.0		73.0, Measured ≤ Baseline	
	19:05		73.1	74.5	68.0				
	19:10		73.0	75.0	68.0				

Location NM6 - Government Quarters									
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level	Remarks
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}	
8-Feb-07	19:35	Cloudy	53.2	58.0	48.5	53.3	56.1	53.3, Measured ≤ Baseline	-
	19:40		53.1	58.0	48.5				
	19:45		53.7	58.0	48.5				
12-Feb-07	19:35	Cloudy	53.7	56.0	49.5	53.5		53.5, Measured ≤ Baseline	
	19:40		53.4	56.0	49.5				
	19:45		53.4	56.0	49.5				
22-Feb-07	19:35	Cloudy	52.8	55.0	49.5	53.2		53.2, Measured ≤ Baseline	
	19:40		53.4	55.0	49.5				
	19:45		53.5	56.0	49.5				

Location NM7 - Garden Villa									
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level	Remarks
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}	
8-Feb-07	19:10	Cloudy	58.4	60.5	54.5	58.2	58.3	58.2, Measured ≤ Baseline	The major noise source was identified as traffic noise from Tai Po Road.
	19:15		58.1	61.0	54.5				
	19:20		58.1	61.0	54.0				
12-Feb-07	19:30	Cloudy	57.6	60.0	54.0	57.5		57.5, Measured ≤ Baseline	
	19:35		57.4	60.0	53.5				
	19:40		57.6	60.0	54.0				
21-Feb-07	19:00	Cloudy	59.7	61.0	56.0	59.3		52.4	
	19:05		59.5	61.0	56.5				
	19:10		58.7	60.5	56.0				

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 - 23:00 to 07:00 on normal weekdays

Location NM5 - Villa Carlton									
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level	Remarks
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}	
8-Feb-07	23:00	Cloudy	71.0	74.0	67.0	70.7	74.3	70.7, Measured ≤ Baseline	The major noise source was identified as traffic noise from Tai Po Road.
	23:05		70.6	73.5	67.0				
	23:10		70.6	73.5	67.0				
12-Feb-07	23:00	Cloudy	72.1	74.5	69.0	72.2		72.2, Measured ≤ Baseline	
	23:05		72.0	74.5	69.0				
	23:10		72.5	75.0	69.5				
22-Feb-07	23:00	Cloudy	70.5	73.5	67.5	70.6		70.6, Measured ≤ Baseline	
	23:05		70.6	73.5	68.0				
	23:10		70.8	73.5	68.0				

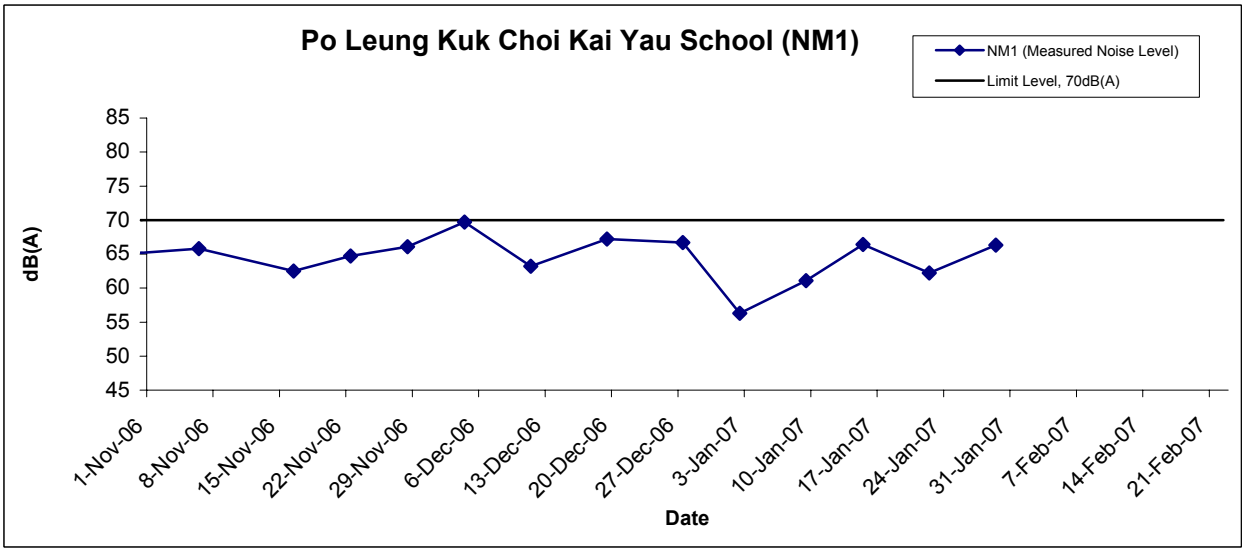
Location NM6 - Government Quarters									
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level	Remarks
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}	
8-Feb-07	23:25	Cloudy	50.1	53.0	47.0	50.3	52.8	·50.3, Measured ≤ Baseline	The noise monitoring results are well within the range of Baseline Monitoring Level and there is no evidence showing that the dominant noise was generated from the construction activities.
	23:30		50.2	53.0	47.0				
	23:35		50.6	53.5	47.0				
12-Feb-07	23:25	Cloudy	51.3	54.0	47.0	51.3		·51.3, Measured ≤ Baseline	
	23:30		51.4	54.0	47.5				
	23:35		51.3	54.0	47.5				
22-Feb-07	23:25	Cloudy	51.0	53.0	48.0	50.8		·50.8, Measured ≤ Baseline	
	23:30		50.7	53.0	48.0				
	23:35		50.6	53.0	48.0				

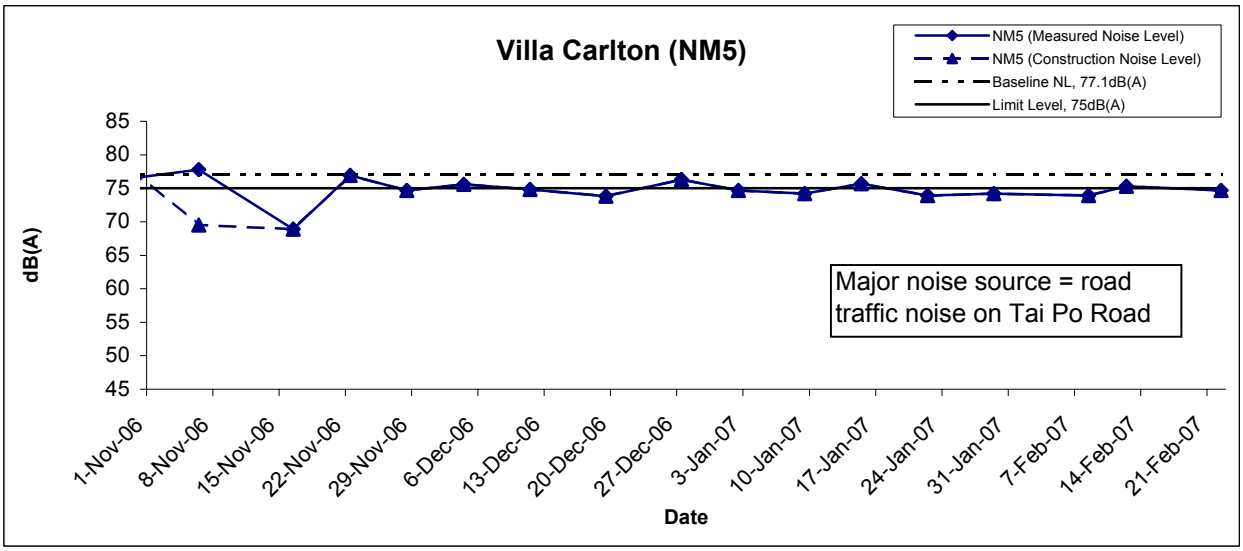
Location NM7 - Garden Villa									
Date	Time	Weather	dB (A) (5-min)				Baseline Level	Construction Noise Level	Remarks
			L_{eq}	L_{10}	L_{90}	Average L_{eq}	L_{eq}	L_{eq}	
8-Feb-07	23:50	Cloudy	53.7	58.0	50.5	53.8	56.5	·53.8, Measured ≤ Baseline	The major noise source was identified as traffic noise from Tai Po Road.
	23:55		53.9	58.0	50.5				
	00:00		53.9	58.0	50.5				
12-Feb-07	23:50	Cloudy	53.8	57.5	50.0	54.0		·54.0, Measured ≤ Baseline	
	23:55		53.9	57.5	50.0				
	00:00		54.2	58.0	50.5				
21-Feb-07	23:50	Cloudy	54.8	57.0	50.0	54.6		·54.6, Measured ≤ Baseline	
	23:55		54.7	57.0	50.5				
	00:00		54.4	57.0	50.0				

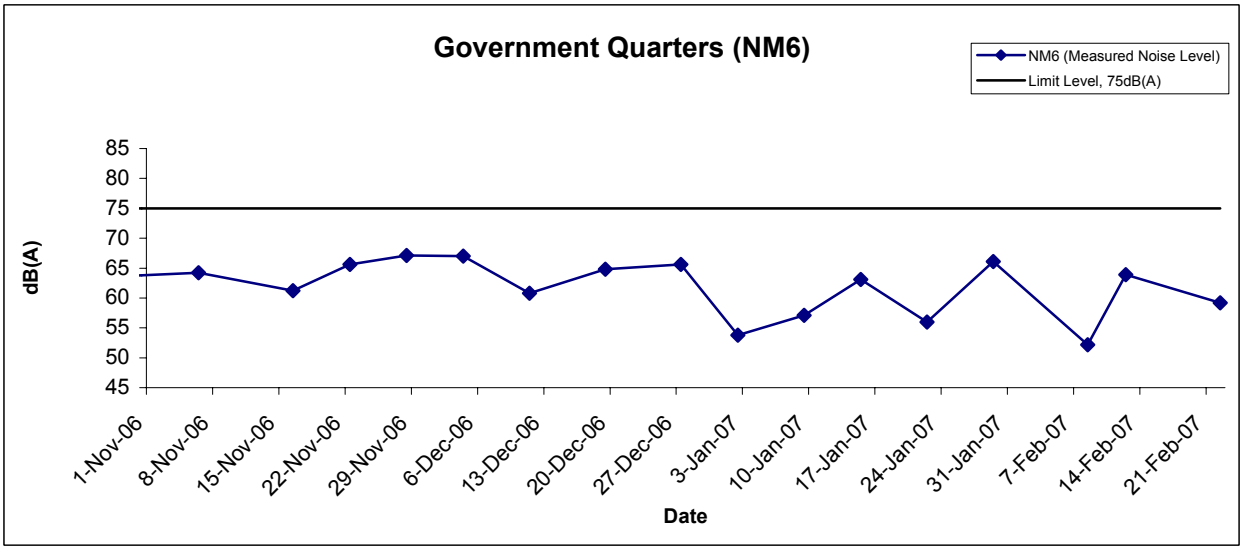
Construction Noise Level (Leq) = Measured Noise Level (Leq) - Baseline Noise Level (Leq)

*Bolded value indicated limit level exceedance

Noise Levels



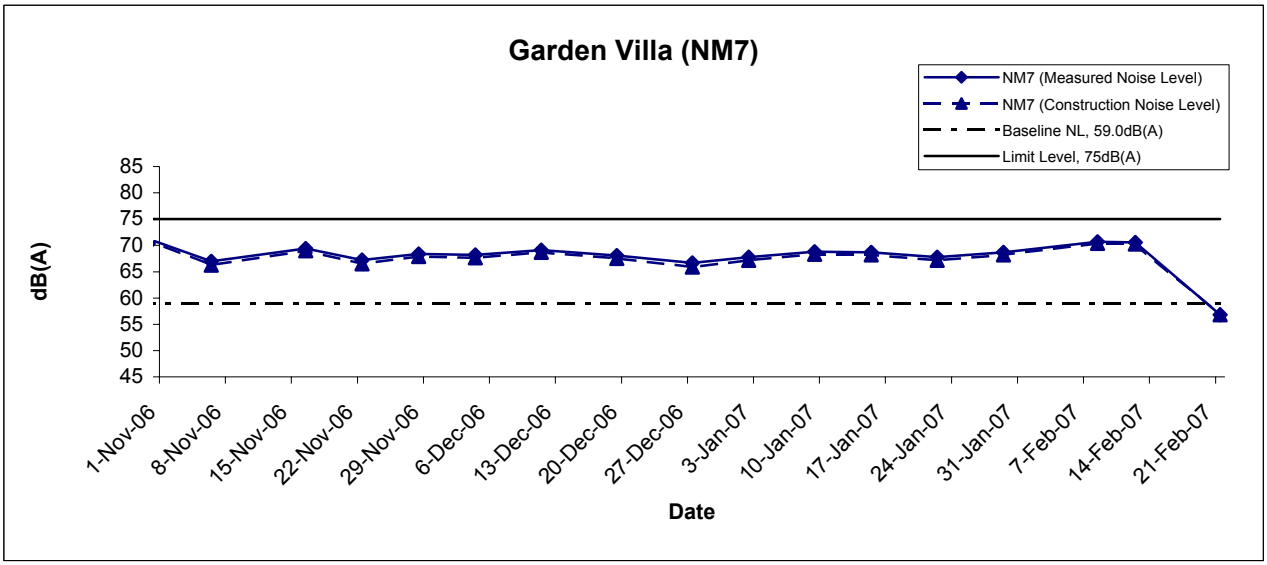




* Construction Noise Level = Measured Noise Level - Baseline Level
(If the measured noise level is lower than the baseline level, the construction noise level will be taken as the meaured one)

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: Feb 07	Appendix: G	

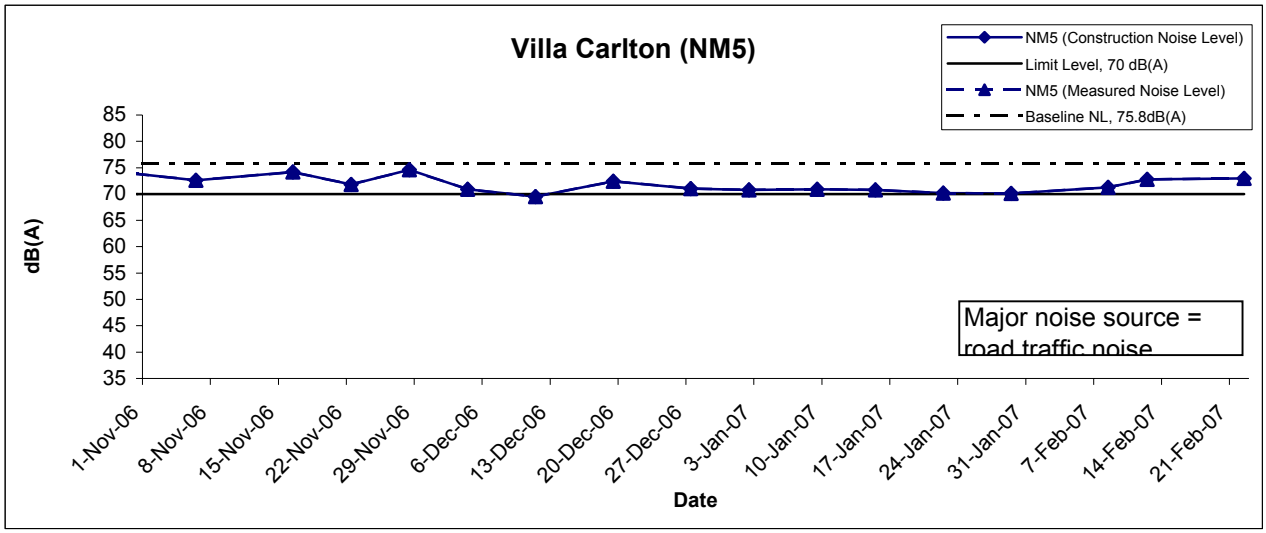
Noise Levels

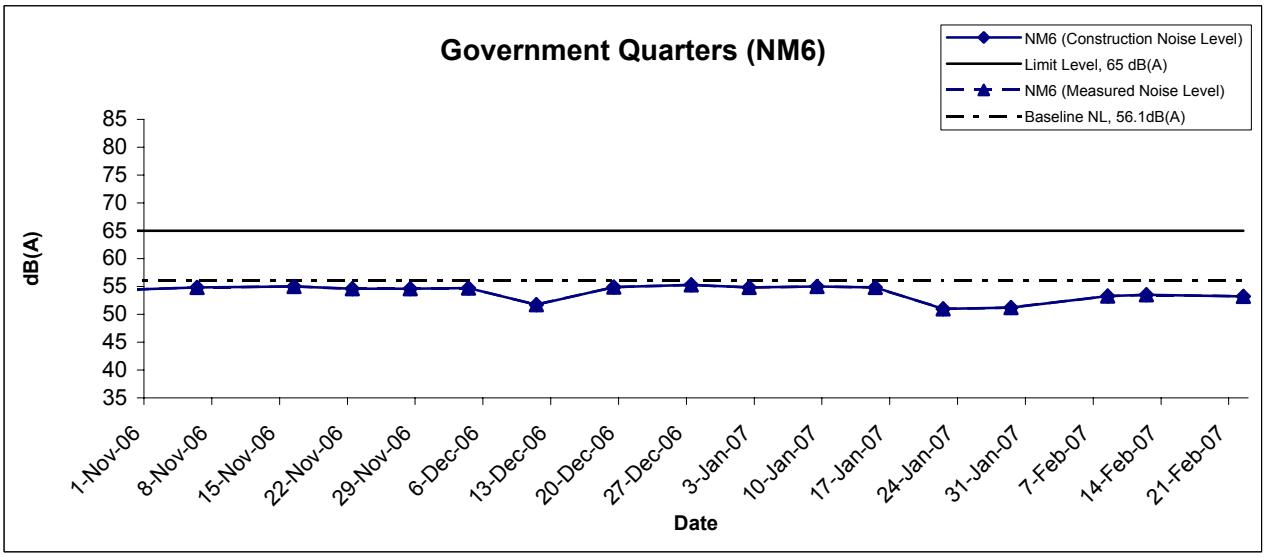


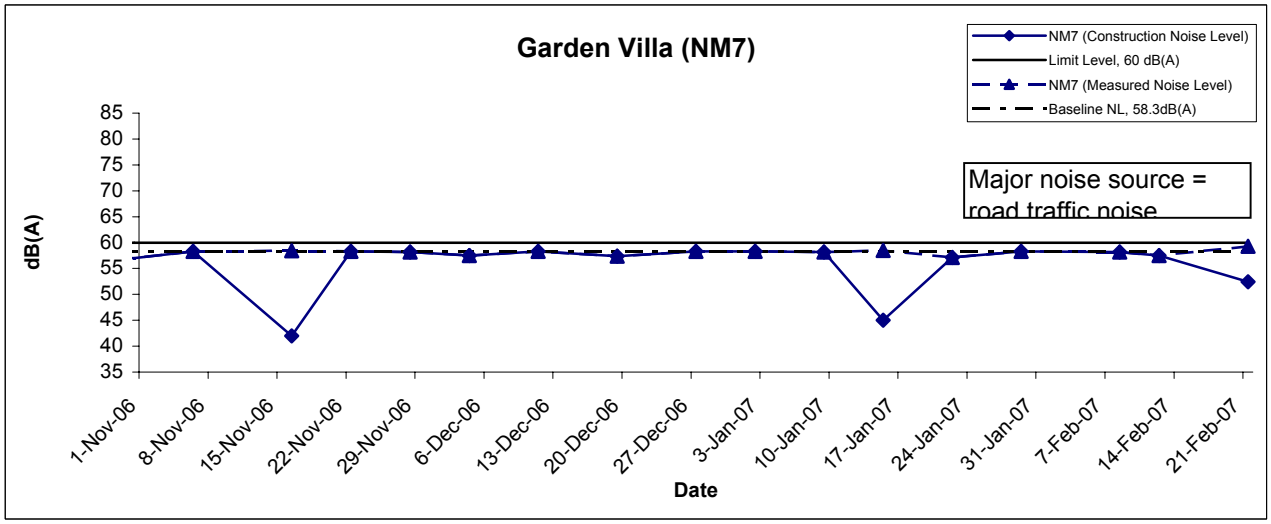
* Construction Noise Level = Measured Noise Level - Baseline Level
(If the measured noise level is lower than the baseline level, the construction noise level will be taken as the meaured one)

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: Feb 07	Appendix: G	

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



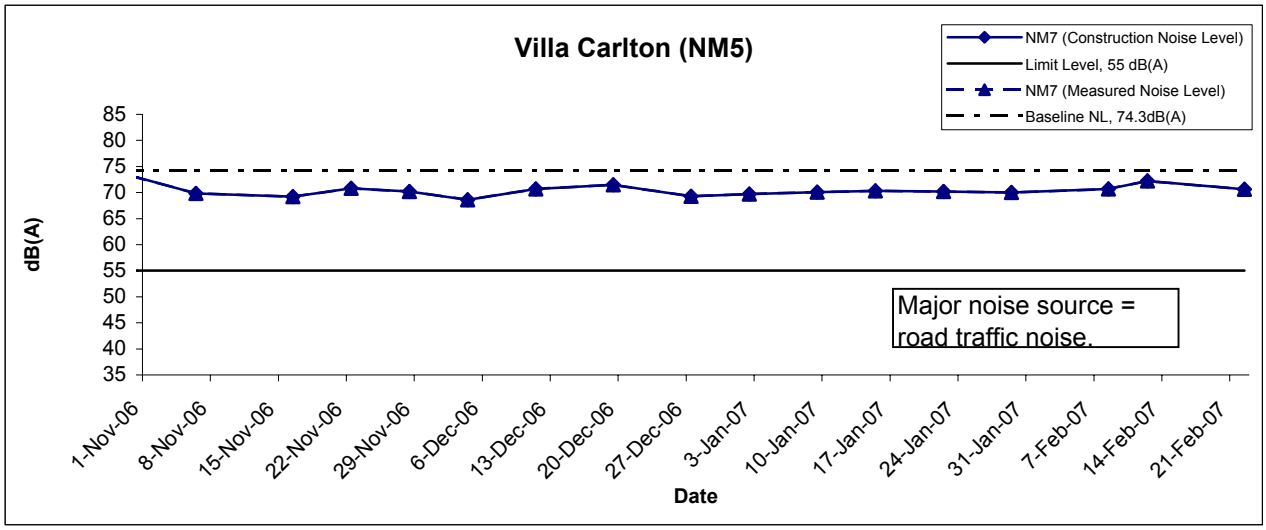


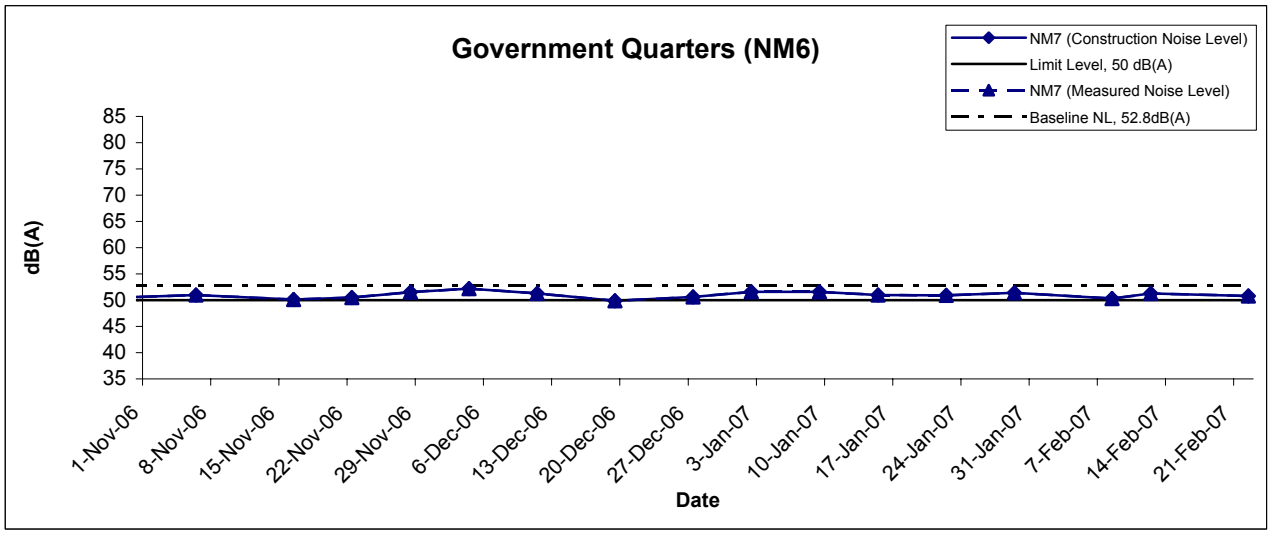


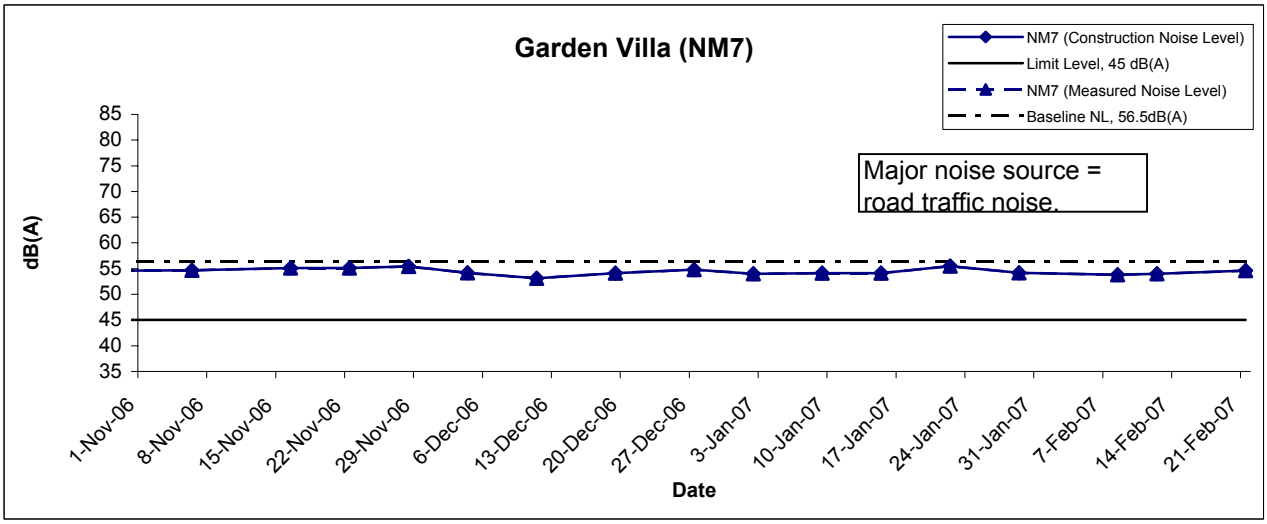
* Construction Noise Level = Measured Noise Level - Baseline Level
(If the measured noise level is lower than the baseline level, the construction noise level will be taken as the meaured one)

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 Date: Feb 07	Project No.: MA3024 Appendix: G	CINOTECH

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 meaured 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	Scale: N.T.S	Project No.: MA3024	CINOTECH
Graphical Presentation of Construction Noise Monitoring Results	Date: Feb 07	Appendix: G	

APPENDIX H
SUMMARY OF EXCEEDANCE

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.

APPENDIX I
SITE AUDIT SUMMARY

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	70207-ENT
Date	7 February 2007 (Wed)
Time	9:30 – 11:30 a.m.

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

Ref. No.	Remarks/Observations	Related Item No.
	A. Water Quality • No environmental deficiency was identified during the site inspection. ***B. Air Quality*** • No environmental deficiency was identified during the site inspection. ***C. Noise*** • No environmental deficiency was identified during the site inspection. ***D. Waste / Chemical Management*** • No environmental deficiency was identified during the site inspection. ***E. Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***F. Others*** • Follow-up on previous audit (Ref. No.: 70131-ENT), no environmental deficiency was observed during site inspection. • Spot checking for dump truck (loaded) was carried out during site inspection. No dump truck leaving the construction site was observed.	

	Name	Signature	Date
Recorded by	Ray Yan	Ray.	7 February 2007
Checked by	Edmond Wu		7 February 2007

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	70214-ENT
Date	14 February 2007 (Wed)
Time	9:30 – 11:45 a.m.

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

Ref. No.	Remarks/Observations	Related Item No.
70214E-01	***A. Water Quality*** • No environmental deficiency was identified during the site inspection. ***B. Air Quality*** • No environmental deficiency was identified during the site inspection. ***C. Noise*** • No environmental deficiency was identified during the site inspection. ***D. Waste / Chemical Management*** • General refuse was observed inside u-channels at Portion D2 (North Portal Building) and Portion D6 (Toll Plaza) areas. The Contractor was reminded to clear the waste as soon as possible. ***E. Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***F. Others*** • Follow-up on previous audit (Ref. No.: 70207-ENT), no environmental deficiency was observed during site inspection. • Spot checking for dump truck (loaded) was carried out during site inspection. No dump truck leaving the construction site was observed.	E11

	Name	Signature	Date
Recorded by	Ray Yan		14 February 2007
Checked by	Edmond Wu		14 February 2007

APPENDIX J
EVENT ACTION PLANS

Appendix J - Event Action Plans

Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	ER	Contractor
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source 2. Inform ER & IEC 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily	1. Check monitoring data submitted by ET 2. Check Contractor's working methods	1. Notify Contractor 2. Check monitoring data and Contractor's working methods	1. Rectify any unacceptable practice 2. Amend working methods if appropriate
2. Exceedance for two or more consecutive samples	1. Identify source 2. Inform ER & IEC 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily 5. Discuss with ER & for remedial actions required 6. If exceedance continues, arrange meeting with ER & IEC 7. If exceedance stops, cease additional monitoring	1. Checking monitoring data submitted by ET 2. Check Contractor's working methods 3. Discuss with ET and Contractor on possible remedial measure 4. Advise the ER & ET on the effectiveness of the proposed remedial measures 5. Supervise the implementation of the remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Check Contractor's working methods 4. Discuss with ET, IEC and Contractor on proposed remedial actions 5. Ensure remedial actions properly implemented	1. Submit proposals for remedial actions to ER within 3 working days of notification 2. Implement the agreed proposals 3. Amend proposal if appropriate
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source 2. Inform ER & IEC and EPD 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily 5. Assess effectiveness of Contractor's	1. Checking monitoring data submitted by ET 2. Check Contractor's working methods 3. Discuss with ET and Contractor on possible remedial measure	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Check Contractor's working methods 4. Discuss with ET, IEC and Contractor on	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to ER within 3 working days of notification

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

Exceedance	ACTION			
	ET	IEC	ER	Contractor
Limit Level	1. Repeat measurement to confirm findings 2. Investigate the cause of the exceedance and identify the main source(s) of impact 3. Inform ER&IEC and EPD in writing 4. Discuss remedial actions required with ER&IEC 5. Increase monitoring frequency to demonstrate efficacy of remedial measures 6. Assess efficacy of remedial actions and keep ER & IEC informed of the results 7. If exceedance continues, meet with ER&IEC to identify appropriate mitigation measures 8. If exceedance stops, cease additional monitoring	1. Check monitoring data submitted by ET 2. Review Contractor's remedial actions to assure their effectiveness and advise the ER &ET accordingly 3. Supervise the implementation of the remedial measures	1. Confirm receipt of notification of exceedance and notify Contractor 2. Check monitoring data trends and Contractor's working methods 3. Discuss with ET, IEC and Contractor on proposed remedial actions to be implemented 4. Assess the efficacy of remedial actions and keep the Contractor informed 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	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to ER immediately not more than 3 working days of notification 3. Amend proposals if required by the ER 4. Implement remedial actions immediately upon instruction 5. Liaise with the ER to optimize the effectiveness of the agreed mitigation 6. Resubmit proposals if problem still not under control 7. Stop the relevant portion of works as determined by the ER until the exceedance is aborted

APPENDIX K
ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

Appendix K - Summary of Environmental Mitigation Implementation Schedule

Types of Impacts	Mitigation Measures	Status
Construction Dust	• 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.	^
	• A stockpile of dusty materials should not extend beyond the pedestrian barriers, fencing or traffic cones.	^
	• Vehicle washing facilities should be provided at every exit point.	^
	• 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.	^
	• 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.	^
	• Every main haul road should be sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet.	^
	• 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.	^
	• Any stockpile of dusty materials should be either covered entirely be 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.	^
	• 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.	^
	• Every vehicle should be washed to remove any dusty materials from its body and wheels immediately before leaving a construction site.	^
	• 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.	^
Construction Noise	• Only well-maintained plant should be operated on –site and plant should be serviced regularly during the construction works.	^
	• Machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	^
	• Plant know to emit noise strongly in one direction, should where possible, be orientated to direct noise away from the NSRS.	^
	• Mobile plant should be sited as far away from NSRs as possible.	^
	• Material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	^
	• Use quite plant and Working Method	^
	• Reduce the number of plant operating in critical areas close NSRs.	^

Types of Impacts	Mitigation Measures	Status
	• Construct temporary and movable noise barriers	^
Water Quality	*Construction Runoff and Drainage*	
	• Use of sediment traps and the adequate maintenance of drainage systems to prevent flooding and overflow.	^
	• 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.	^
	• 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	^
	• 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.	^
	• 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.	^
	• Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks.	^
	• 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.	^
	• 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.	^
	• 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.	^
	Tunnelling Work	
	• 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.	^
	• 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.	^

Types of Impacts	Mitigation Measures	Status
	• Spend 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.	N/A
	General Construction Activities	
	• Debris and rubbish on site should be collected, handled and disposed of properly to avoid entering the water column and cause water quality impacts. • 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).	^ ^
	Sewage Effluent	
	• Construction work force sewage discharges form 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. • It is considered that sewage discharges could also be treated by on-site septic tanks and soakaway. Minimum clearance away form 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.	^ N/A
Waste	*General*	
	• 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.	^
	Storage, Collection and Transportation of Waste	
	• Wastes shall be handled and stored in a manner to ensure that they are held securely without loss or leakage. • Authorised or licensed waste hauliers shall be used and they shall only collect wastes prescribed by their permits. • Waste shall be removed on a daily basis. • Waste storage area shall be maintained and cleaned on a daily basis. • Windblown litter and dust during transportation shall be minimised by either covering trucks or transporting wastes in enclosed containers. • Obtain necessary waste disposal permits from the appropriate authorities if they are required. • Wastes shall be disposed of at licensed waste disposal facilities. • 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. • Maintain records of the quantities of wastes generated, recycled and disposed.	^ ^ ^ ^ ^ ^ ^ ^ ^

Types of Impacts	Mitigation Measures	Status
	Surplus Excavated Materials	
	• 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.	^
	Construction and Demolition (C&D) Waste	
	• Careful design, planning and good site management shall be adopted to minimise over-ordering and generation of waste materials such as concrete grouts.	^
	• 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.	N/A
	• Construction and demolition (C&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.	^
	Chemical Waste	
	• 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.	^
	• Containers used for the storage of chemical wastes should: a. Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; b. Have a capacity of less than 450 litres unless the specifications have been approved by the EPD; c. Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Chemical Waste Regulations.	^
	• The storage area for chemical wastes should: a. Be clearly labelled and used solely for the storage of chemical waste; b. Be enclosed on at least 3 sides; 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; d. Have adequate ventilation; e. Be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); f. Be arranged so that incompatible materials are adequately separated.	^
	• 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).	^

Types of Impacts	Mitigation Measures	Status
	General Refuse	
	• General refuse generated on-site shall be stored in enclosed bins or compaction unit separate from C&D and chemical wastes. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&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.	^
	• Reusable rather than disposable dishware shall be used if feasible.	^
Ecology	• A sediment barrier shall be erected to minimize stream sedimentation at downstream of the project boundary of the Toll Plaza.	N/A
	• Conduct a tree survey before commencement of the construction work.	^
	• 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.	N/A
	• Loss of the adjacent woodland due to temporary land take shall be returned to the original status immediately.	N/A
	• Wild and uncontrolled fire shall be strictly prohibited	^
	• 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.	N/A
Landscape and Visual Impact	• 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.	^
	• 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.	^
	• Measurement of vibration would also be carried out on a need basis during the piling work	^

Remarks:

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

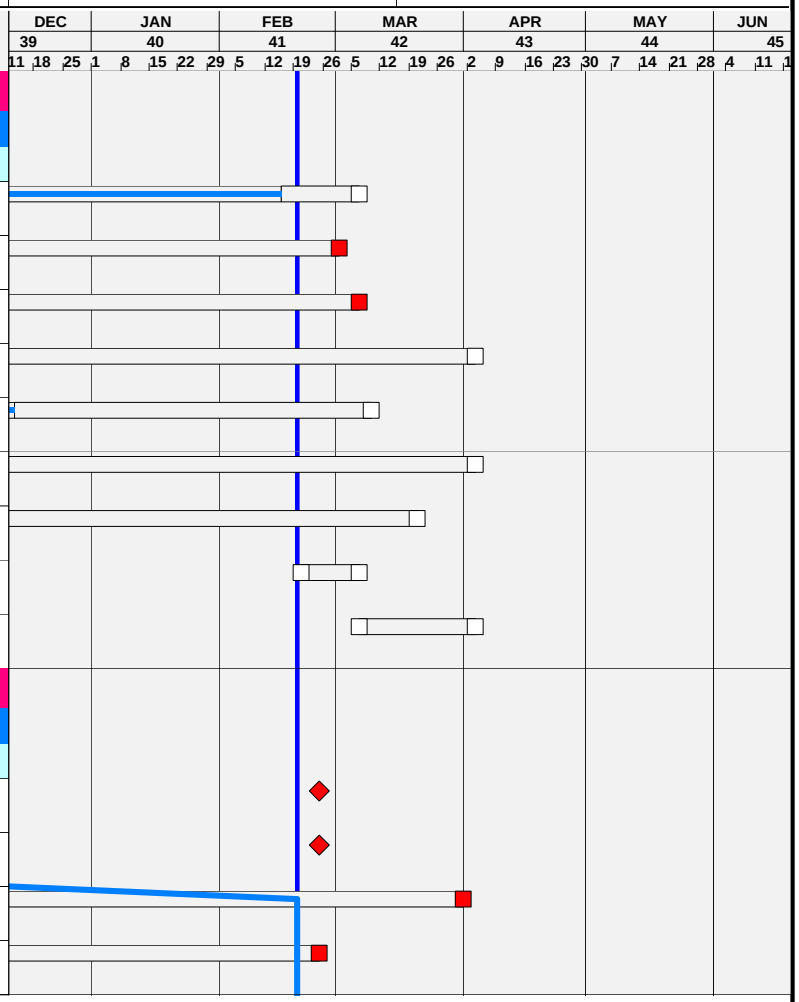
APPENDIX L
CONSTRUCTION PROGRAMME

Data Date 20FEB07
Run Date 01MAR07 14:44

3 MONTH ROLLING PROGRAMME

Monthly Update
Detailed Works Progr.(DWP) r
Progress Bar
Critical Activity

Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
GENERAL									
Submittals & Approvals									
Drawing Submittal & Approval									
8034	Prep.& Sub. Independ't Serv. Dwgs for SHT&T3&LCK	48	04AUG04A	06MAR07	98	98	12	191	-239
8024	Engineer Comment / Approve ENT ISD Submissions	18	06AUG04A	01MAR07	85	85	8	-135	-239
8030	Res-sub. & Approv of ENT ISD	24	06SEP04A	06MAR07	70	70	12	-135	-239
8035	Engineer Comment / Approve SHT&T3LCK ISD Sub.	24	13SEP04A	03APR07	85	85	36	191	-239
8032	Engineer Comment / Approve SHT&T3&LCK CSD Sub.	18	25OCT04A	09MAR07	90	90	15	191	-239
8036	Re-sub. & Approv of SHT & T3 & LCK ISD	36	31MAR05A	03APR07	70	70	36	191	-239
8033	Re-sub. & Approv. of SHT & T3 & LCK CSD	24	28JUN05A	20MAR07	60	60	24	191	-239
8022	Engineer Comment / Approve ENT CSD Submissions	12	21FEB07	06MAR07	0	0	12	191	-239
8029	Re-sub. & Approv. of ENT CSD	24	07MAR07	03APR07	0	0	24	191	-239
LAI CHI KOK VIADUCT									
CONTRACT DEFINED DATES, STAGES & SECTIONS									
PORTION ACCESS & VACATION									
ACS_M2	Access to Portions - M2	0		24FEB07*	0	0	0	-117	-297
ACS_M3	Access to Portions - M3	0		24FEB07*	0	0	0	-313	-297
ACS_M11	Frecast Delay in Access to Portion M1	60	28APR06A	31MAR07	0	0	34	-243	0
ACS_M12	Forecast Delay in Access to Portion M2	30	28APR06A	24FEB07	0	0	4	-95	0



Leighton - Kumagai Joint Venture

LEIGHTON - KUMAGAI JV

R8 - EAGLES'S NEST TUNNEL

CONTRACTORS TARGET PROGRAMME REV.1

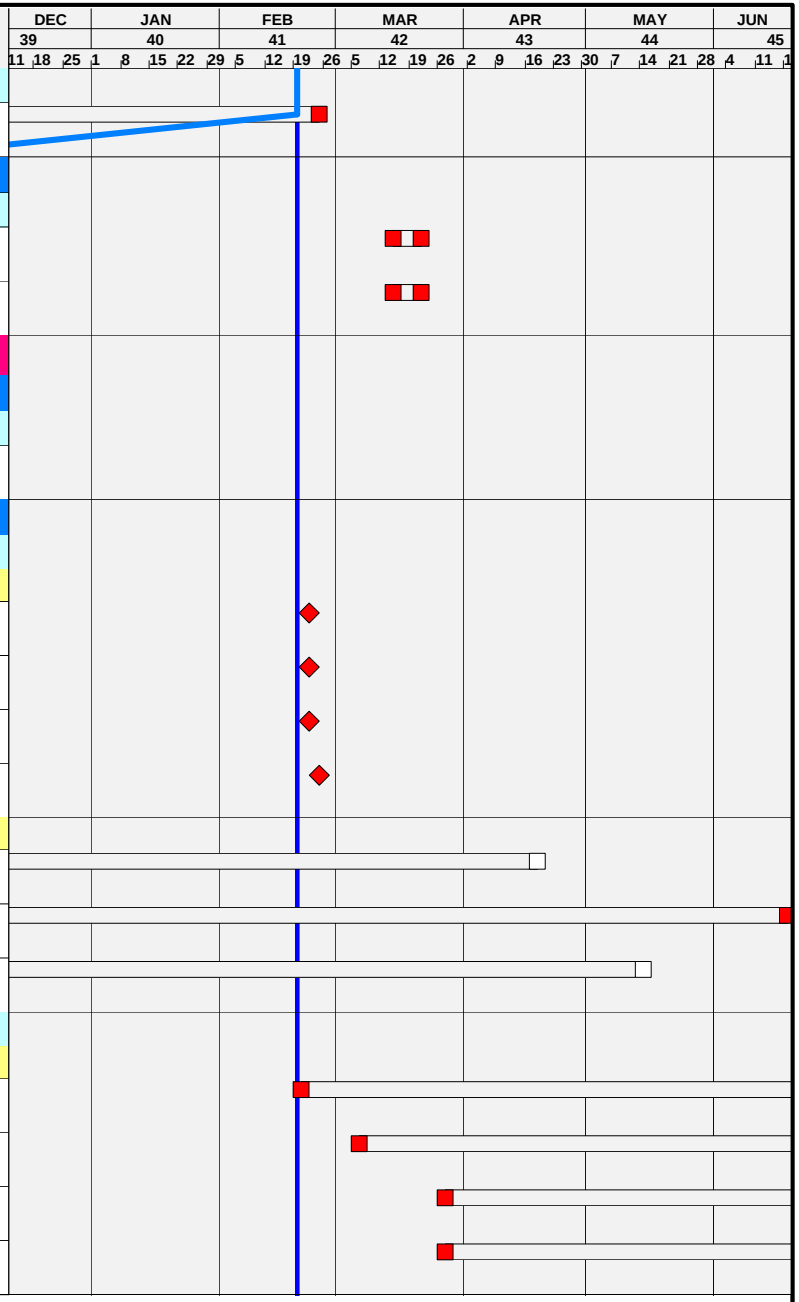
Proj. Name: W28E
Layout: 3 MONTHS ROLLING PROGRAMME
Filter: 3 MONTH ROLLING PROGRAMME
Current Proj: W28E
Target 1 Proj: BE02

Sheet 1 of 34

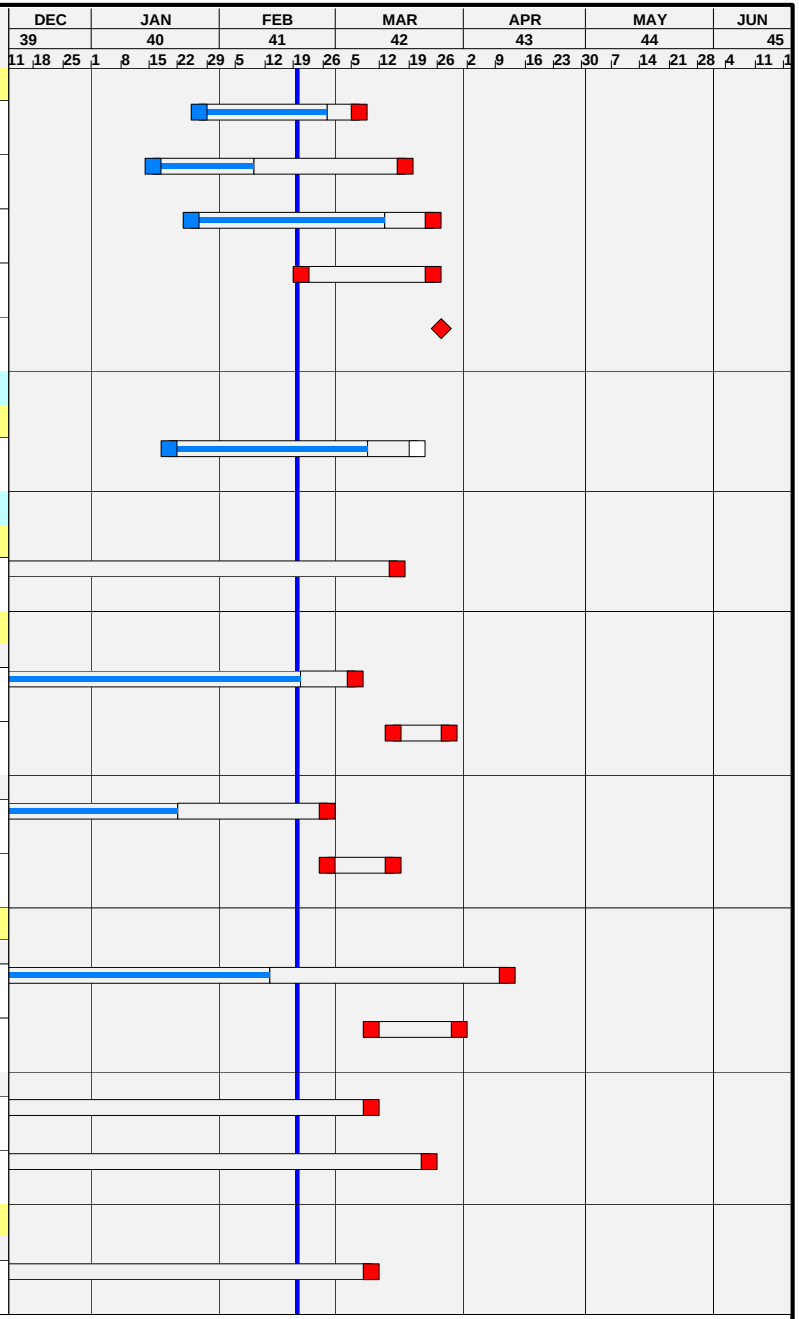
LKJV/ENT/DWP/B

Date	Revision	Checked	Approved
20FEB07	Prog update Feb 07	GW	RB

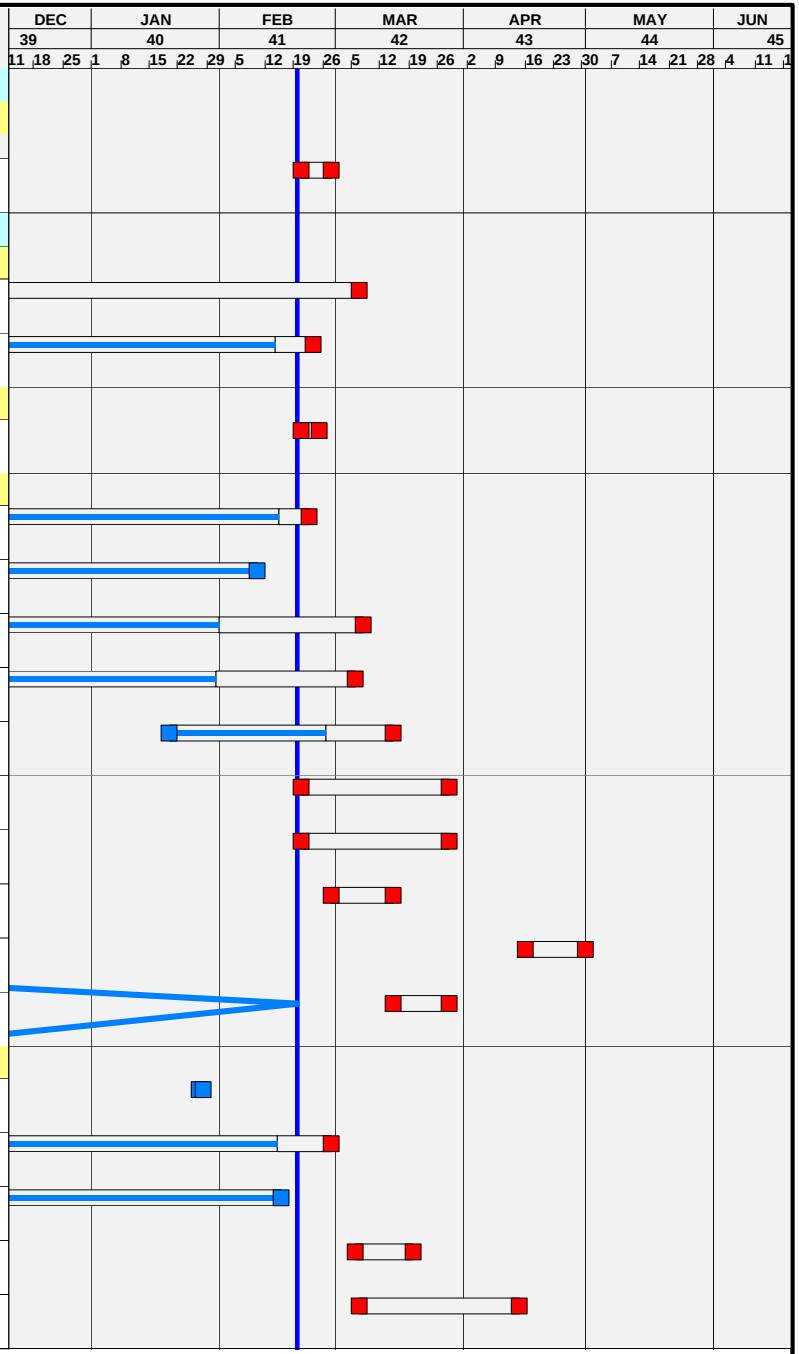
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
PORTION ACCESS & VACATION									
ACS_M13	Forecast Delay in Access to Portion M3	30	28APR06A	24FEB07	0	0	4	-256	0
Construction Works									
CMCS Leased Lines at Pump Houses									
6817	E&M at Lai Po Rd Pump House	6	15MAR07	21MAR07	0	0	6	-94	-238
6827	E&M at Wai Man Tsuen Pump House	6	15MAR07	21MAR07	0	0	6	-94	-232
BUTTERFLY VALLEY									
Contract Key Dates & Milestones									
Area Access & Vacation Dates									
ACS_A	Access to Portions - A	0	20OCT03A		100	100	0		-292
Construction Works									
BUTTERFLY VALLEY 3RD PARTY WORKS									
TCSS at Butterfly valley Approach									
S2462	TCSS Access to Gantry MLS-CAP13 (NB) (15MAY06)	0		22FEB07	0	0	0	-232	-226
S2602	TCSS Access to Gantry MLS-CAP11 (NB) (15MAY06)	0		22FEB07	0	0	0	-232	-226
S2622	TCSS Access to Gantry MLS-CAP12 (SB) (11JUN06)	0		22FEB07	0	0	0	-210	-226
S2402	TCSS Access to Gantry MLS-CAP16 (S.E.) (11JUN06)	0		24FEB07	0	0	0	-212	-107
Noise Barrier Works by ACCIONA									
S2562	Access for 7m N.B. Works by Acciona at BV South	77	23JUN06A	18APR07	30	0	45	182	-173
S2612	Access for S-Enclosure Works (Primary Elements)	90	08JUL06A	18JUN07	0	0	95	-212	-202
S2662	1Access for 5m N.B. Works by Acciona at BV South	90	27SEP06A	14MAY07	0	0	66	161	-149
BUTTERFLY VALLEY E&M WORKS									
Noise Enclosure 6 at South Portal Area									
8372	LckVd NE6 - Elect Works 1st Fix	30	21FEB07*	30JUN07	0	0	30	-203	-192
8382	LckVd NE6 - Elect Works 2nd Fix	24	07MAR07	09JUL07	0	0	24	-203	-192
8392	LckVd NE6 - Elect Cabling ENT SPB to N.E.	9	28MAR07	16JUL07	0	0	9	-203	-192
8402	LckVd NE6 - Elect Works Fin Fix	12	28MAR07	16JUL07	0	0	12	-203	-192



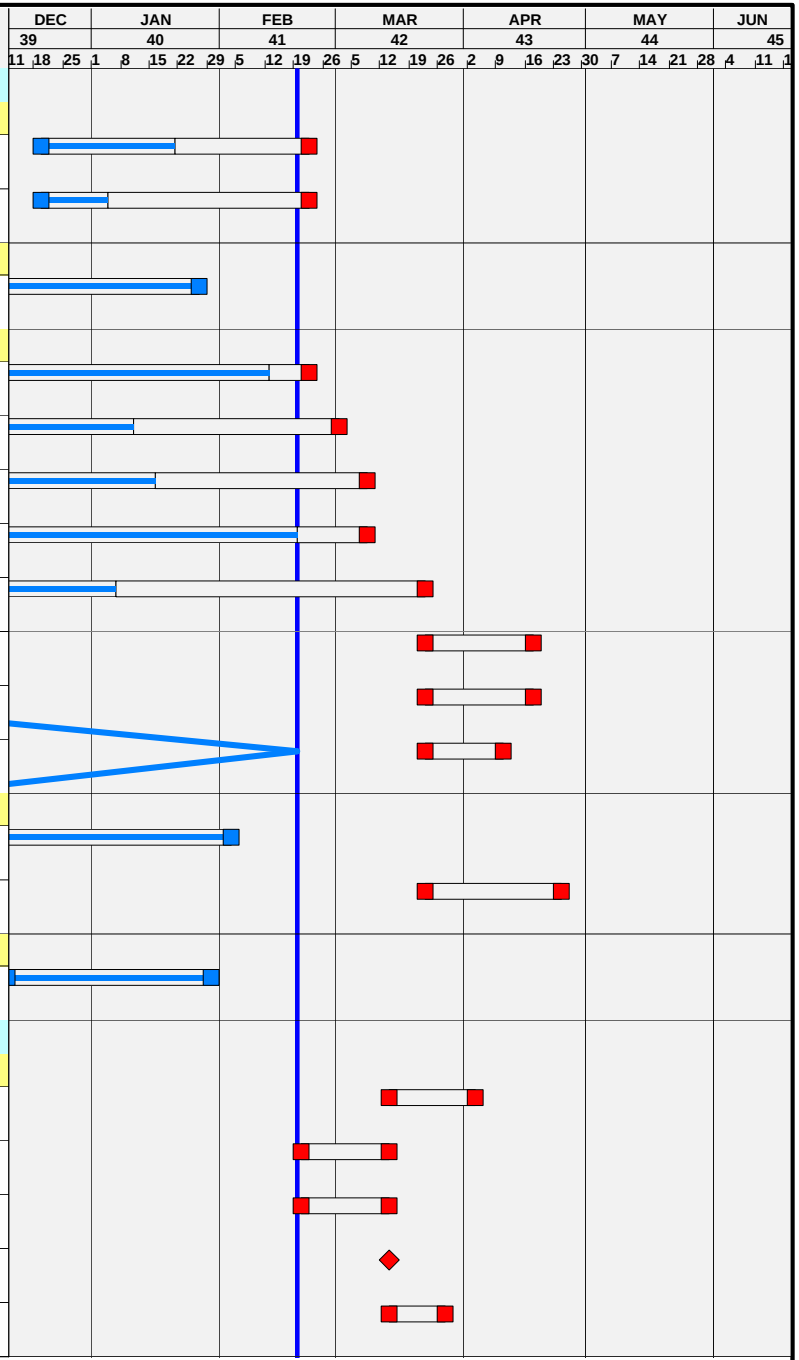
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Butterfly Valley Miscellaneous E&M Works									
8440	Butterfly Valley - Elect Works 1st Fix	42	27JAN07A	06MAR07	80	0	12	-79	-109
8430	Butterfly Valley - Elect Works 2nd Fix	36	16JAN07A	17MAR07	40	0	22	-79	-113
8420	Butterfly Valley - Cabling	24	25JAN07A	24MAR07	80	0	8	-79	-113
8410	Butterfly valley - Elect Works Fin Fix	24	21FEB07	24MAR07	0	0	24	-79	-113
8400	Butterfly Valley - Ready for Energization	0		26MAR07	0	0	0	-79	-113
MAJOR DRAINAGE DIVERSIONS									
Filling									
S2680	Fill on top of Box Culvert 45 & culvert A	9	20JAN07A	20MAR07	80	0	7	203	-221
EARTHWORKS & SLOPEWORKS									
SLOPE SP-S2 & SP-S3									
S2370	Remaining Works to Slopes SP-S3 & SP-S2	24	19JUL06A	15MAR07	5	0	20	-88	-217
SLOPE BV-S2									
20.500.130.180.035									
103811	BV-S2 Berm 9 hydro-seeding & tensar mat	12	24OCT06A	05MAR07	90	0	6	-91	-226
103812	BV-S2 Berm 10 hydro-seeding & tensar mat	12	15MAR07	28MAR07	0	0	12	-99	-234
SURFACE DRAINAGE									
103696	BV-S2 Berm 9 Surface drainage	14	01MAR06A	26FEB07	90	30	5	-99	-234
103697	BV-S2 Berm 10 Surface drainage	14	27FEB07	14MAR07	0	0	14	-99	-234
SLOPE BV-S4									
SLOPE FINISHES									
102380	BV-S4/3a-4a & 5 hydro-seeding & tensarmat	12	12SEP05A	11APR07	90	70	30	-182	-248
101139	11nw/434 BV-S4/1-2-3bcd-4b Hydro-seed/Tensarmat	18	10MAR07	30MAR07	0	0	18	-176	-248
SURFACE DRAINAGE									
103705	BV-S4/3 Surface Drainage	8	17MAR05A	09MAR07	80	70	15	-182	-248
103706	BV-S4/4 Surface Drainage	12	07SEP05A	23MAR07	75	5	18	-182	-248
SLOPE SP-S1									
SURFACE DRAINAGE									
103711	Sp-S1/4 Surface Drainage	7	06JUL04A	09MAR07	75	40	15	-83	-247



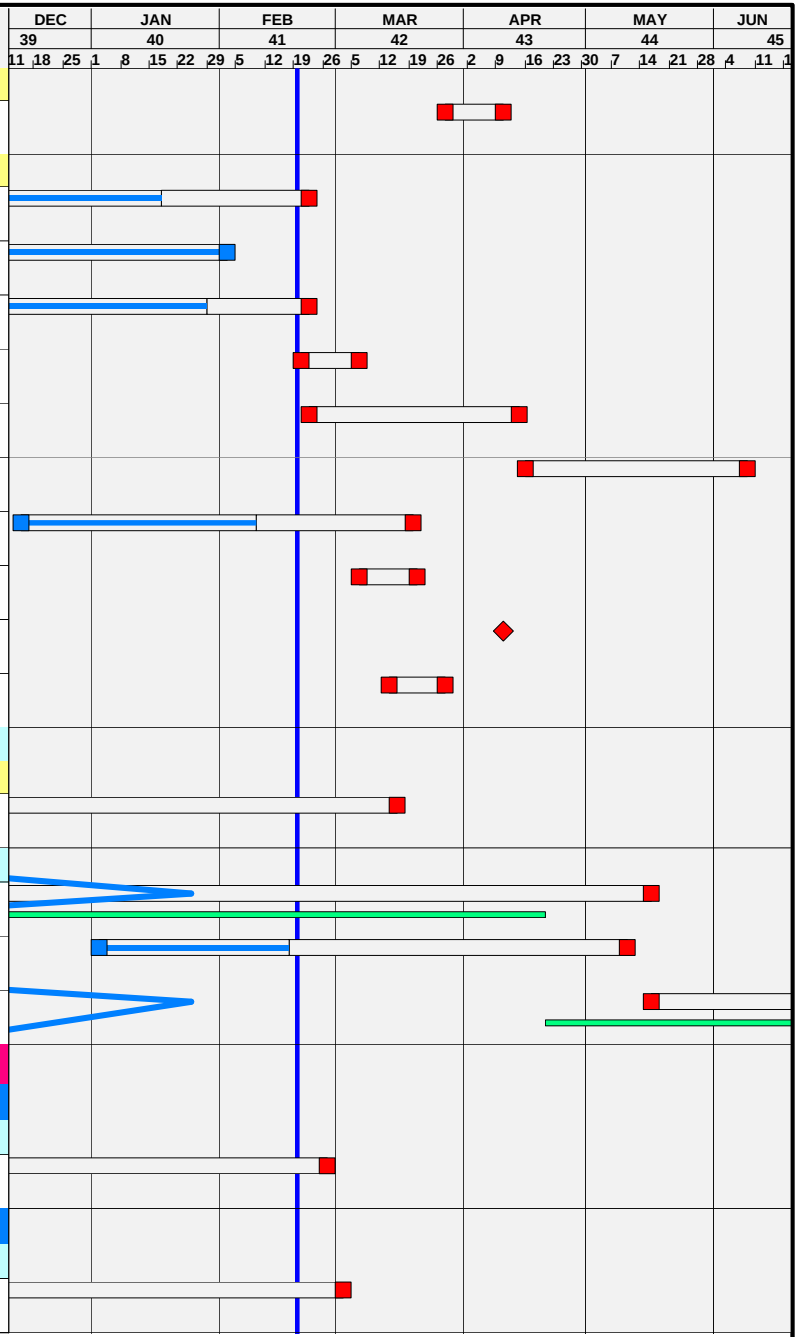
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
RC STRUCTURES									
RETAINING WALL BV-R2									
BACKFILLING									
101126	BV-R2(C) Granular Drain & Compacted Backfill	6	21FEB07	27FEB07	0	0	6	-87	-235
ROADWORKS - North End of BV									
Stormwater Drainage									
S2430	West Loop Rd. Drainage	20	19JAN06A	06MAR07	40	30	12	-123	-194
S2420	Outstanding East Loop Rd. Drainage	28	24AUG06A	23FEB07	95	0	3	-123	-224
Noise Barrier Footings & Sign Gantries									
S3360	Installation of Sign Gantry on Semi Encl.	4	21FEB07	24FEB07	0	0	4	-212	-107
Road Pavement & Associated Work									
S2252	BV North - Bitu Pavement to Sth Bnd Carrig'way	24	29SEP06A	22FEB07	95	0	2	-92	-90
S2262	BV North - Typ IV Pavement	40	19OCT06A	09FEB07A	100	0	0		-72
S2222	BV North - Subbase to Nrth Bound Carriageway	43	11NOV06A	07MAR07	70	0	13	-99	-109
S2540	BV North - Kerbs & CPB to Nrth Bound Carriageway	36	13NOV06A	05MAR07	70	0	11	-97	-105
S2242	BV North - Bitu. Pavement to Nrth Bnd Carrig'way	24	20JAN07A	14MAR07	70	0	7	-99	-107
S2900	Road Marking & White Lining (Staged for Access)	24	21FEB07	28MAR07	0	0	24	-99	-107
S3010	Installation of Road Signage (Sign Plates Only)	24	21FEB07	28MAR07	0	0	24	-99	-107
S2920	Road Works to East Loop Rd Typ III (EVA)	13	28FEB07	14MAR07	0	0	13	-87	-209
S2930	Road Works to West Loop Road Typ III (EVA)	13	16APR07	30APR07	0	0	13	-123	-194
S3660	NEW ACTIVITY - Road Pavement Friction Course	12	15MAR07	28MAR07	0	0	12	-99	0
Miscellaenous Works									
S3450	Erect HML 3	4	27JAN07A	27JAN07A	100	0	0		-167
S2670	Install Twin DN200 Pipes to SPB via E. Loop Rd	18	20OCT06A	27FEB07	90	0	3	-123	-209
S2590	Installation of DN200 Fire Hydrant Pipe and FH's	24	18NOV06A	15FEB07A	100	0	0		-127
S2690	Installation of Drip Feed Irrigation System	12	06MAR07	19MAR07	0	0	12	-91	-105
S3000	Construct Recreated Stream	30	07MAR07	14APR07	0	0	30	-123	-194



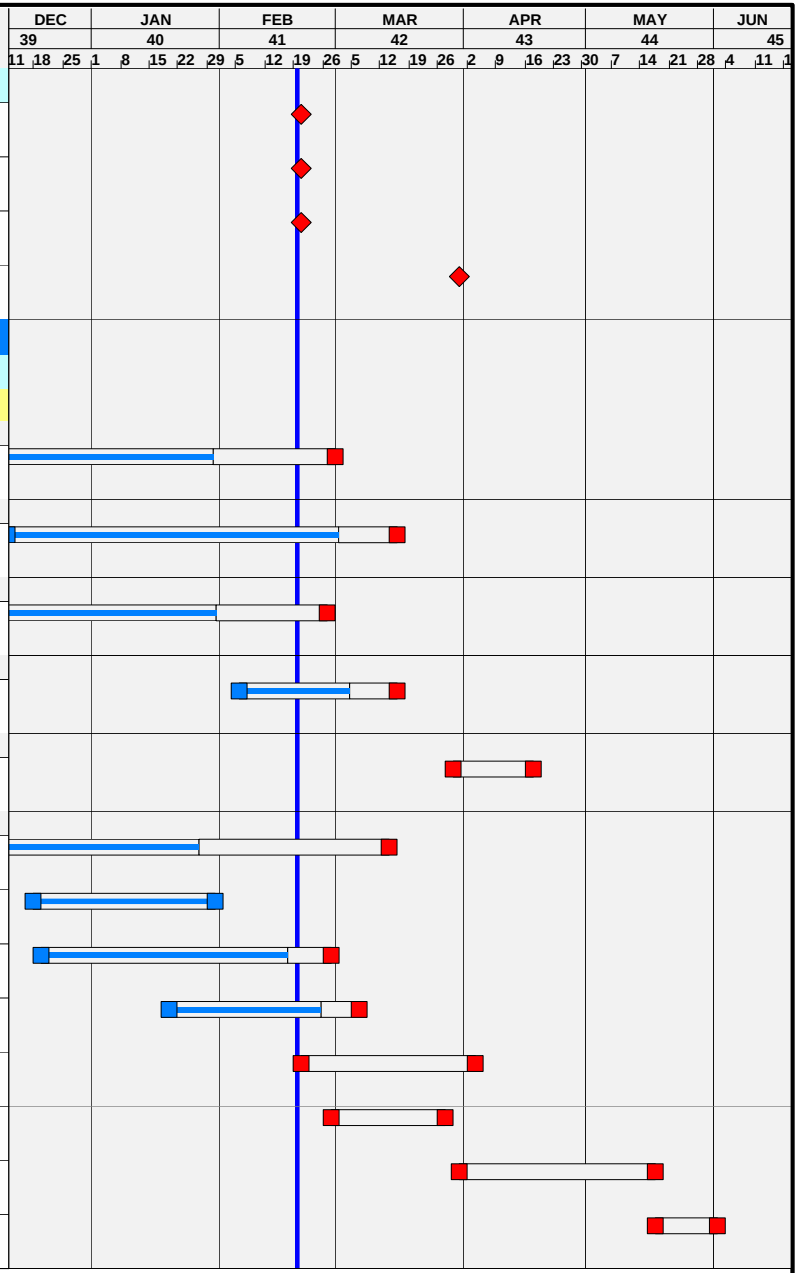
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
ROADWORKS - South End of BV									
Noise Barrier Footings & Sign Gantries									
S2461	Sign gantry Installation MLS-CAP12	3	20DEC06A	22FEB07	50	0	2	-210	-226
S3380	Sign Gantry Installation MLS-CAP11,13	3	20DEC06A	22FEB07	25	0	2	-232	-226
Ducting & Drawpits									
S2740	BV South - LV Ducts & Drawpits	20	01JUN06A	26JAN07A	100	0	0		-138
Road Pavement & Associated Work									
S2960	BV Sth - Kerbs & CPB to Sth Bound Carriageway	30	12AUG06A	22FEB07	95	0	2	-100	-110
S2510	BV Sth - Trim Formation & S'base - Nth Bnd	35	14AUG06A	01MAR07	75	0	8	-112	-129
S2950	BV Sth - Kerbs & CPB to Nrth Bound Carriageway	30	18SEP06A	08MAR07	70	0	9	-112	-117
S2970	BV Sth - Bitu. Pavement to Sth Bnd Carrig'way	20	20SEP06A	08MAR07	90	0	2	-100	-99
S2980	BV Sth - Bitu. Pavement to Nrth Bnd Carrig'way	23	06NOV06A	22MAR07	45	0	10	-112	-106
S2990	Road Marking & White Lining (Staged Access)	18	23MAR07	17APR07	0	0	18	-112	-106
S3190	Installation of Road Signage (Sign Plates Only)	18	23MAR07	17APR07	0	0	18	-112	-106
S3670	NEW ACTIVITY - Road Pavement Friction Course	12	23MAR07	10APR07	0	0	12	-106	0
Miscellaneous Works									
S2790	Installation of DN 200 Fire Hydrant Pipe & FH's	12	19OCT06A	03FEB07A	100	0	0		-153
S2780	Install & Commission Weighbridge	24	23MAR07	24APR07	0	0	24	-100	-106
LKJV Works at Abutment M									
S3420	Complete remaining roadworks within Portion B	36	11DEC06A	29JAN07A	100	0	0		-131
DSD MAINTENANCE ROAD									
DSD Maintenance Rd DSD1-1 (Acciona Interface)									
S3570	WSD Slope Reinstatement	18	14MAR07	03APR07	0	0	18	-104	-215
S2340	ACCIONA - Remove Crane Platform	18	21FEB07	13MAR07	0	0	18	-106	-239
S2380	Complete DSD1-1 Surface Drainage & CP's	18	21FEB07*	13MAR07	0	0	18	-106	-125
S2460	LKJV Regain Access at Pier 20	0		13MAR07	0	0	0	-106	-239
S3140	Complete Sub-base & kerbs at DSD1-1	12	14MAR07	27MAR07	0	0	12	-106	-125



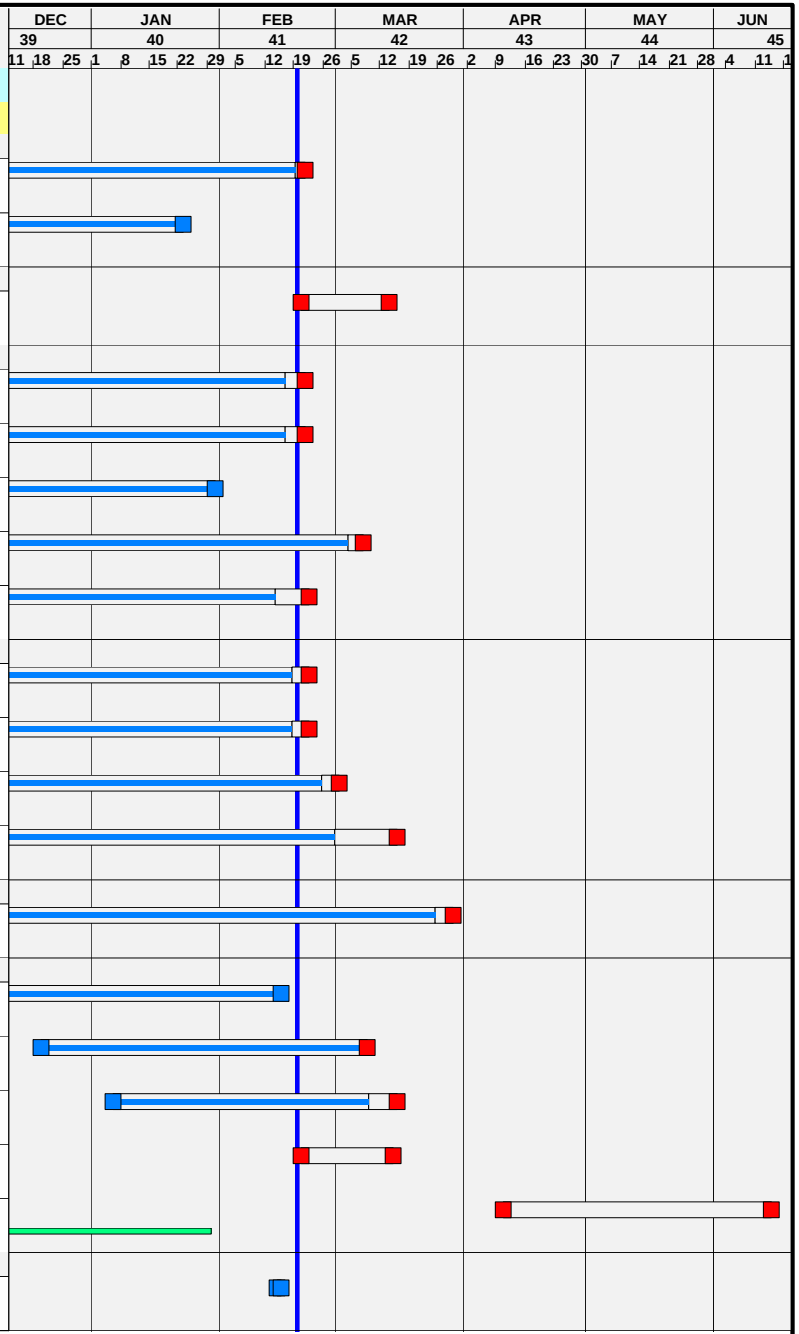
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
DSD Maintenance Rd DSD1-1 (Acciona Interface)									
S3150	Complete Surfacing at DSD1-1 (Type IV)	8	28MAR07	10APR07	0	0	8	-106	-125
DSD Maintenanace Rd DSD1 (Parallel to Channel)									
S3210	2 No. Cross Rd Pipes & Roadside Gullies	12	01MAR06A	22FEB07	90	80	2	-129	-237
S2830	Twin DN200 Water Pipe	45	02MAY06A	02FEB07A	100	1	0		-184
S3390	Complete Formation at DSD1	6	02DEC06A	22FEB07	70	0	2	-155	-192
S2700	Access rd DSD1 -barrier footings	12	21FEB07	06MAR07	0	0	12	-92	-196
S3120	DN 200 Watermain Diversion EB18 - EB70	40	23FEB07	14APR07	0	0	40	-155	-192
S2730	Construct Recreated Stream	45	16APR07	08JUN07	0	0	45	-155	-173
S3220	Subbase & Kerbs	18	15DEC06A	19MAR07	60	0	5	-98	-112
S2720	Access rd DSD1 - Barriers	12	07MAR07	20MAR07	0	0	12	-92	-196
S3160	REINSTATE BV ACCESS	0		10APR07	0	0	0	-106	-125
S3230	Surfacing (Type IV)	12	14MAR07	27MAR07	0	0	12	-98	-113
Terrain Mitigation									
NTMM - BV-S2									
102350	NTMM - Afforestation of Area	60	22MAR06A	15MAR07	55	5	20	-88	-233
Landscaping & Establishment									
101476	BV - Soft Landscaping & Planting	100	03JUN06A	16MAY07	38	0	30	-66	-22
101475	BV - Hard Landscaping	90	03JAN07A	10MAY07	36	0	24	-156	-182
101477	BV - Establishment works	365	17MAY07	15MAY08	0	0	365	-173	-26
ENT SOUTH PORTAL VENTILATION BUILDING									
SUBMITTALS & APPROVALS									
E&M EQPT.& MATERIAL APPROVALS									
1919	SP.Bldg. - Approve doors details	24	07MAY05A	26FEB07	80	80	5	-139	-235
PROCUREMENT - MATERIAL									
ABWF WORKS									
1979	SP.Bldg. - Procure expanded metal mesh cladding	180	06JUN05A	02MAR07	80	80	9	-156	-239



Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
ABWF WORKS									
2018	SP.Bldg. - Initial deliver fall arrest roof syst	0	21FEB07*		0	0	0	-99	-192
2019	SP.Bldg. - Initial deliver of slate cladding	0	21FEB07*		0	0	0	-123	-167
2030	SP.Bldg. - Initial deliver balust & metal works	0	21FEB07*		0	0	0	-99	-192
2025	SP.Bldg- Initial deliver exp metal mesh cladding	0	31MAR07*		0	0	0	-156	-187
CONSTRUCTION									
South Portal Bldg. - CIVIL & ABWF WORKS									
ABWF WORKS									
SB Bldg - Internal Works GF									
T2760	GF - Paint touch up & Doors	12	22NOV06A	28FEB07	70	0	6	-75	-158
SP Bldg - Internal Works 1F & LP									
T2770	1F & LP - Paint touch up & Doors	12	11DEC06A	15MAR07	85	0	2	-88	-207
SP Bldg - Internal Works 2F									
T2780	2F - Paint touch up & Doors	12	29NOV06A	26FEB07	70	0	4	-73	-115
SP Bldg - Internal Works 3/F									
T2800	3F - Paint touch up & Doors	12	06FEB07A	15MAR07	70	0	6	-88	-168
SP Bldg - Internal Works 4F & Above									
T2790	4F - Paint touch up & Doors	12	30MAR07	17APR07	0	0	12	-112	-114
Roof & External Facade									
T2710	Ent SPB - Install Aluminum louvres & doors	90	26JUL06A	13MAR07	80	0	18	-139	-106
T2730	Ent SPB - 25thk Roof Screed & Roofing Tiles	18	18DEC06A	30JAN07A	100	0	0		-118
T2410	Ent SPB - External Wall Painting	34	20DEC06A	27FEB07	85	0	6	-105	-144
T2400	Ent SPB - Alum. Comp Panel Cladding to Ext Walls	60	20JAN07A	06MAR07	80	0	12	-99	-93
T2540	Ent SPB - Slate Cladding above NB/SB Carriageway	36	21FEB07	03APR07	0	0	36	-123	-167
T2360	Ent SPB - GMS,S/S Channel, Balustrade & Railing	24	28FEB07	27MAR07	0	0	24	-105	-139
T2390	Ent SPB - Expanded metal cladding to Ext Walls	36	31MAR07	17MAY07	0	0	36	-156	-187
T2365	Ent SPB - Removed External Scaffolding	12	18MAY07	01JUN07	0	0	12	-156	-150



Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
ENT South Portal Bldg. - BUILDING SERVICES									
E & M WORKS									
ENT South Portal Bldg (G/F) - E & M Works									
EM1300	Installation of FS Pumps and Pipework at GF	18	25OCT06A	21FEB07	98	0	1	-75	-200
T2320	Installation of Earth Mat at SP Bldg	30	08NOV06A	22JAN07A	100	0	0		-177
ENT South Portal Bldg (1F/Lwr Plen) - E & M Work									
EM1310	Installation of Compressor	18	21FEB07	13MAR07	0	0	18	-88	-217
ENT South Portal Bldg (2F/Silencer) - E & M Work									
EM1110	BS Works for Genset	18	24JUN06A	21FEB07	98	0	1	-158	-186
EM1140	E&M Works in Corridors 2/F	24	24JUN06A	21FEB07	98	0	1	-159	-168
EM1030	BS Works for HV Sw + Tx	12	12JUL06A	30JAN07A	100	0	0		-176
EM1120	Genset Installation	36	04SEP06A	07MAR07	98	0	2	-158	-162
EM1175	BS Works for TVS Plenums	30	11SEP06A	22FEB07	95	0	2	-155	-174
ENT South Portal Bldg (3F/ Fan Rm) - E & M Works									
EM1060	BS Works for LV Sw, MCC, UPS, LCC	12	31JUL06A	22FEB07	98	0	2	-160	-192
EM1150	E&M Works in Corridors 3/F	24	31JUL06A	22FEB07	98	0	2	-166	-168
EM1090	BS Works for 110V Charger Rm	12	01AUG06A	01MAR07	98	0	2	-166	-162
EM1170	Termination of overall Elect HV & LV Sys	30	15OCT06A	15MAR07	90	0	5	-166	-112
ENT South Portal Bldg (4F/Upr Plen) - E & M Work									
EM1180	TVS Installation	100	22AUG06A	29MAR07	98	0	5	-155	-114
Testing and Commissioning									
EM1050	HV Sw + Tx Termination + T&C	30	04DEC06A	15FEB07A	100	0	0		-91
EM1100	110V Charger Rm Installation + T&C	12	20DEC06A	08MAR07	98	0	3	-166	-156
EM1080	LV Sw, MCC, UPS, LCC Termination + T&C	30	06JAN07A	15MAR07	90	0	3	-166	-132
EM1130	Genset Termination + T&C	12	21FEB07	14MAR07	0	0	12	-158	-156
EM1190	Integrated E&M System T&C	52	11APR07	14JUN07	0	0	52	-179	-108
Statutory Inspection & Issued Certificates									
EM1210	CLP insp.	18	15FEB07A	15FEB07A	100	0	0		-72



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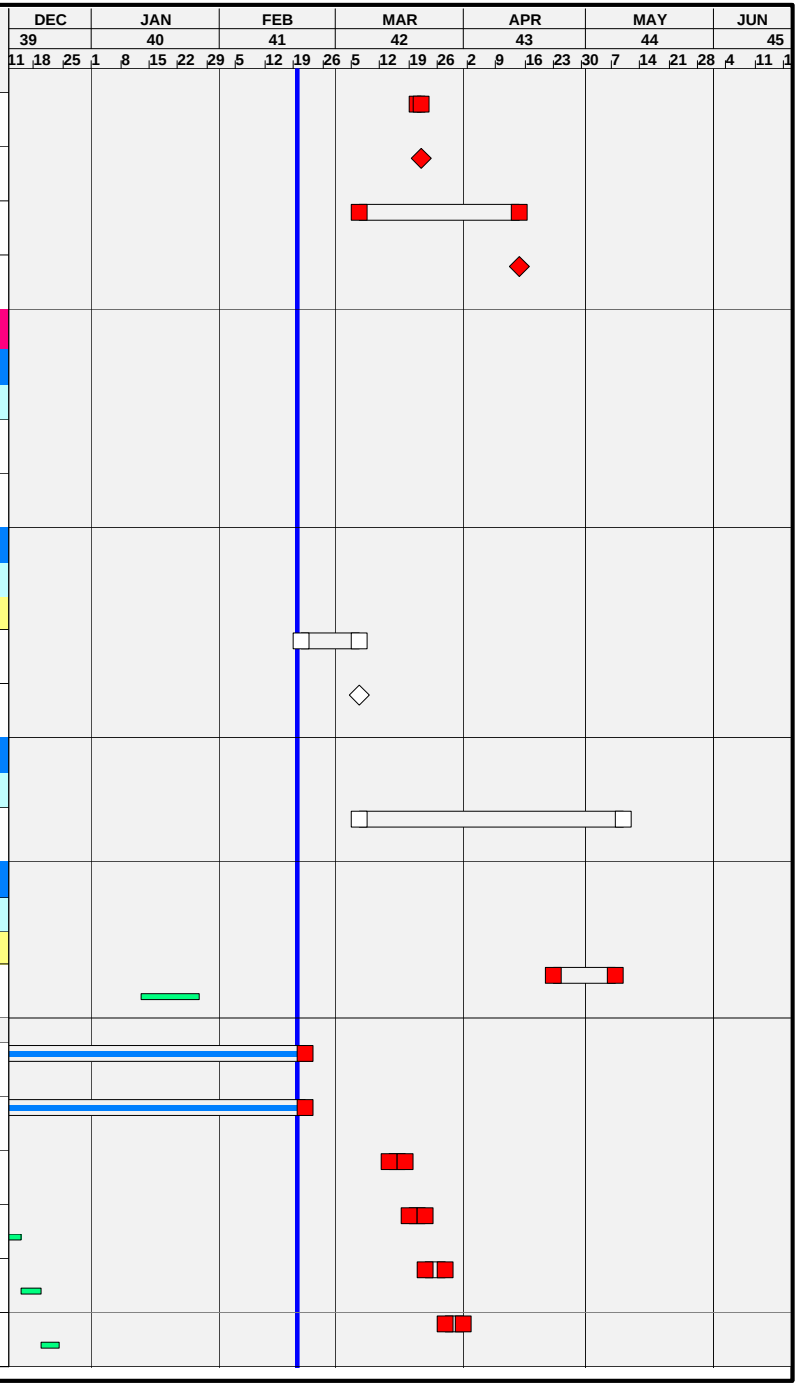
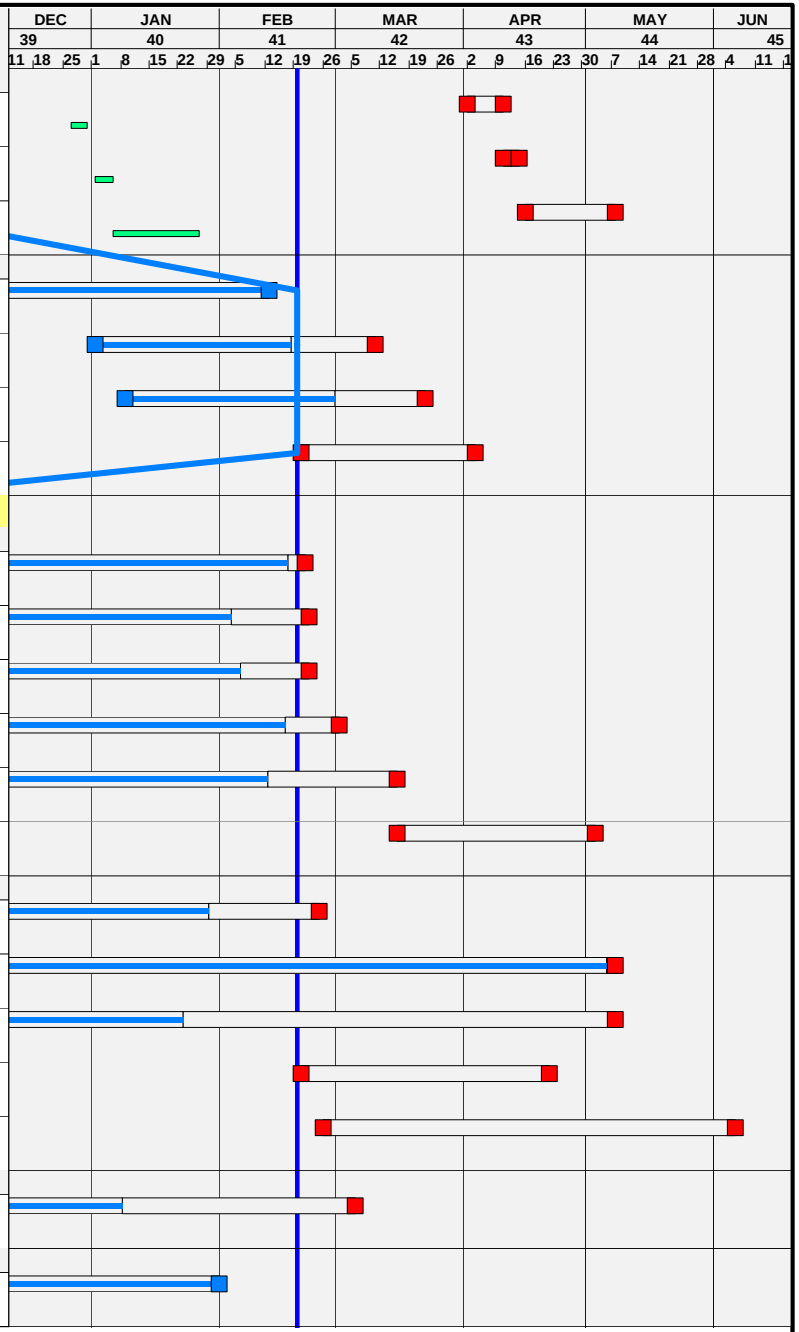
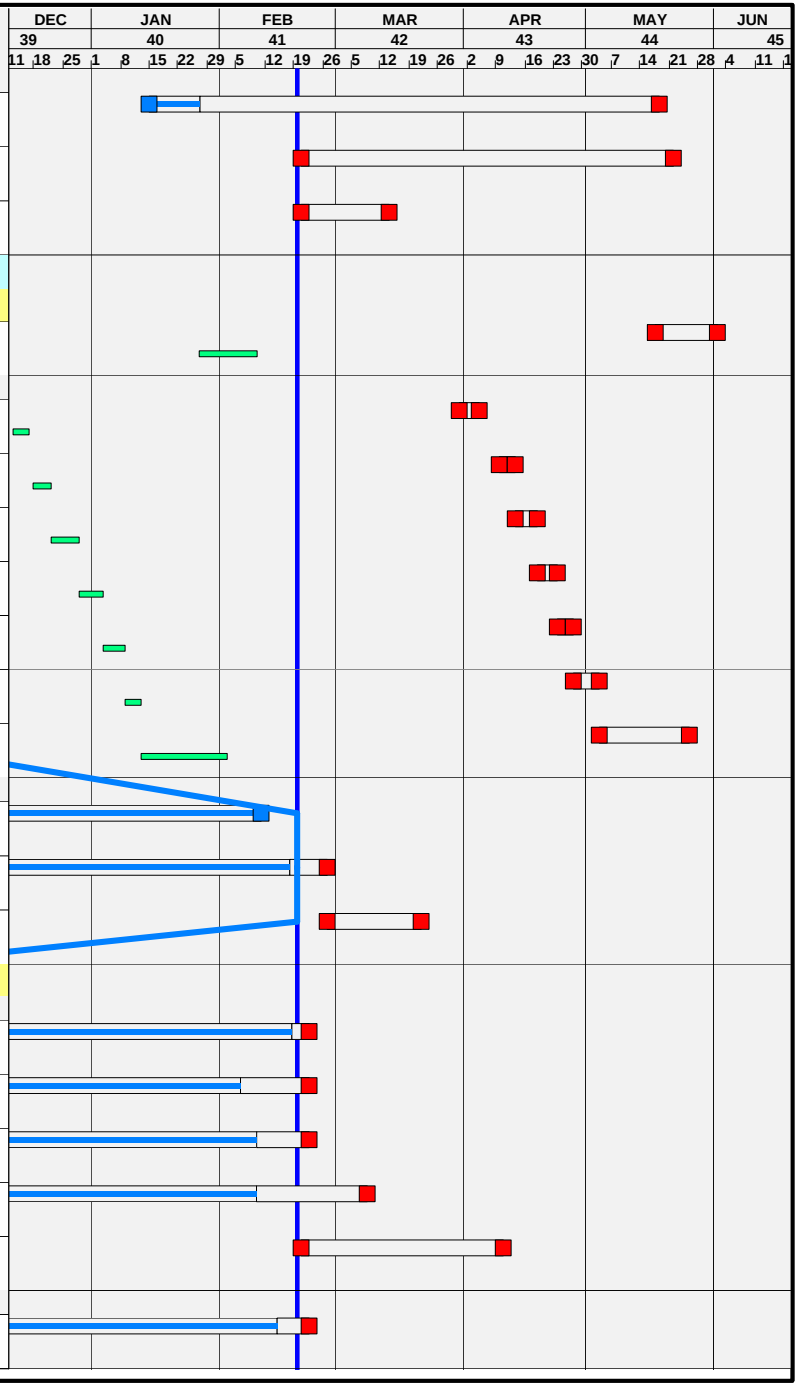
Statutory Inspection & Issued Certificates									
EM1200	Submit WR1 to CLP	1	21MAR07	21MAR07	0	0	1	-170	-116
EM1220	Energization at ENT SP Bldg	0		21MAR07	0	0	0	-170	-98
EM1320	Submit Form WWO46 for Water Supply to WSD	30	07MAR07	14APR07	0	0	30	-129	-208
EM1340	Water Supply Certificate issued	0		14APR07	0	0	0	-129	-208
EAGLES NEST TUNNEL									
Contract defined dates, stages & sections									
Area access & vacation dates									
ACS_F1	Access to Portions - F1 (U/Gnd Sth Portal)	0	20OCT03A		100	100	0		-292
ACS_F2	Access to Portions - F2 (U/Gnd Sth Tunnel)	0	20OCT03A		100	100	0		-292
Design & Engineering - Temporary Works									
Permanent Works									
Tunnel									
1668	Eng Approve Dsg X-passage/Adit Fire Doors	12	21FEB07	06MAR07	0	0	12	165	-239
1669	Issue Constr Dwgs X-passage/Adit Fire Doors	0		06MAR07	0	0	0	165	-239
Procurement - Material									
Tunnelling Project Wide									
1685	Order/Manufact/Del Fire Doors	50	07MAR07	09MAY07	0	0	50	165	-239
Construction Works									
Tunnel Drive North Bound									
Tunnel Finishing Works									
1443	NB Cleaning/Inspection & Install Induction Loop	12	23APR07	07MAY07	0	0	12	-110	-78
Bituminous Pavement									
3601	NB Base Course - RHS 650m Ch 1730->1080	4	28NOV06A	21FEB07	98	0	1	-93	-212
3605	NB Base Course - LHS 650m Ch 1730->1080	4	28NOV06A	21FEB07	98	0	1	-93	-200
1349	NB Wearing Course - RHS 650m Ch3030->2380	4	14MAR07	17MAR07	0	0	4	-110	-78
1359	NB Wearing Course - RHS 650m Ch2380->1730	4	19MAR07	22MAR07	0	0	4	-110	-78
1369	NB Wearing Course - RHS 650m Ch1730->1080	4	23MAR07	27MAR07	0	0	4	-110	-78
1379	NB Wearing Course - LHS 650m Ch3030->2380	4	28MAR07	31MAR07	0	0	4	-110	-78



Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Bituminous Pavement									
1389	NB Wearing Course - LHS 650m Ch2380->1730	4	02APR07	10APR07	0	0	4	-110	-78
1399	NB Wearing Course - LHS 650m Ch1730->1080	4	11APR07	14APR07	0	0	4	-110	-78
1339	NB Road Marking 1950m	18	16APR07	07MAY07	0	0	18	-110	-78
VE Panel Installation									
3616	NB - VE Panel Sub-Frame Installation	60	31OCT06A	12FEB07A	100	0	0		0
3636	NB - VE Panel Installation	55	02JAN07A	10MAR07	70	0	11	-108	0
3656	NB - Niche Cabinets	50	09JAN07A	22MAR07	70	0	15	-98	0
3646	NB - Bespoke Panels (Niches)	20	21FEB07	03APR07	0	0	20	-98	0
ENT NB TUNNEL - (E&M) BUILDING SERVICES									
MVAC / Tunnel Ventilation Syst Above OHVD									
277963	Ent NB - Install Motorised Smoke & Fire Dampers	72	04JAN06A	21FEB07	99	45	1	-176	-211
277964	Ent NB - Comp Air Pipes/Condts to E/P16 to E/P21	36	10FEB06A	22FEB07	95	40	2	-170	-206
277965	Ent NB - Comp Air Pipes/Condts to E/P15 to E/P8	36	27MAR06A	22FEB07	95	30	2	-176	-200
277966	Ent NB - Comp Air Pipes/ Condts to E/P1to E/P7	36	13JUN06A	01MAR07	95	0	2	-176	-170
277967	Ent NB - Cabling, Wiring and Termination	60	10OCT06A	15MAR07	80	0	12	-176	-146
277968	Ent NB - MVAC Testing and T&C	36	16MAR07	02MAY07	0	0	36	-176	-140
Fire Protection System									
277990	Ent NB - Install FS Conduit for Niches	54	07FEB06A	24FEB07	93	40	4	-136	-211
277995	Ent NB - 100d FH / HR Pipeworks & Fittings @ G/L	60	10OCT06A	07MAY07	99	0	2	-177	-193
277996	Ent NB - FS Wiring and Terminations	30	10OCT06A	07MAY07	50	0	15	-177	-163
277994	Ent NB - Install Hose Reel Cabinets & Eqpt @ G/L	48	21FEB07	21APR07	0	0	48	-177	-229
277997	Ent NB - FS Testing and T&C	24	26FEB07	05JUN07	0	0	24	-177	-163
Electrical Works Above OHVD									
278003	Ent NB - Placing Sandfill and PC Covers	36	29AUG06A	05MAR07	70	0	11	-156	-117
Electrical Works Below OHVD									
278012	Ent NB - Cabling,Wirings&Term @ Ceiling/ Grd Lvl	48	13JUN06A	31JAN07A	100	0	0		-117



Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Electrical Works Below OHVD									
278013	Ent NB - Lighting / Equipt Testing and T&C	60	15JAN07A	18MAY07	10	0	45	-164	-177
278011	Ent NB-Install CCTV,Camera,Eqpt @C/Lvl (By TCSS)	72	21FEB07	21MAY07	0	0	72	-139	-221
278083	Place Covers on C, Trough	18	21FEB07	13MAR07	0	0	18	-110	-131
Tunnel Drive South Bound									
Tunnel Finishing Works									
2172	SB Cleaning/Inspection & Install Induction Loop	12	18MAY07	01JUN07	0	0	12	-131	-87
Bituminous Pavement									
1350	SB Wearing Course - RHS 650m Ch3030->2380	4	31MAR07	04APR07	0	0	4	-131	-87
1370	SB Wearing Course - RHS 650m Ch 2380->1730	4	10APR07	13APR07	0	0	4	-131	-87
1390	SB Wearing Course - RHS 650m Ch1730->1080	4	14APR07	18APR07	0	0	4	-131	-87
1360	SB Wearing Course - LHS 650m Ch3030->2380	4	19APR07	23APR07	0	0	4	-131	-87
1380	SB Wearing Course - LHS 650m Ch2380->1730	4	24APR07	27APR07	0	0	4	-131	-87
1400	SB Wearing Course - LHS 650m Ch1730->1080	4	28APR07	03MAY07	0	0	4	-131	-87
1340	SB Road Marking	18	04MAY07	25MAY07	0	0	18	-131	-87
VE Panel Installation									
3643	SB - VE Panel Installation	55	16AUG06A	10FEB07A	100	0	0		0
3663	SB - Niche Cabinets	50	28NOV06A	26FEB07	90	0	5	-103	0
3653	SB - Bespoke Panels (Niches)	20	27FEB07	21MAR07	0	0	20	-87	0
ENT SB TUNNEL - (E&M) BUILDING SERVICES									
MVAC / Tunnel Ventillation System Above OHVD									
278014	Ent SB - Install Motorised Smoke & Fire Dampers	72	31DEC05A	22FEB07	99	40	2	-177	-210
278015	Ent SB - Comp Air Pipes/Condts to E/P16 to E/P21	36	27MAR06A	22FEB07	95	58	2	-177	-222
278017	Ent SB - Comp Air Pipes/ Condts to E/P1 to E/P7	36	13JUN06A	22FEB07	95	0	2	-177	-174
278018	Ent SB - Cabling, Wiring and Termination	60	13JUN06A	08MAR07	90	0	8	-177	-126
278019	Ent SB - MVAC Testing and T&C	36	21FEB07	10APR07	0	0	36	-177	-118
Fire Protection System									
278035	Ent SB - Install detection system @ Ceiling Lvl	42	20SEP06A	22FEB07	95	0	2	-160	-155



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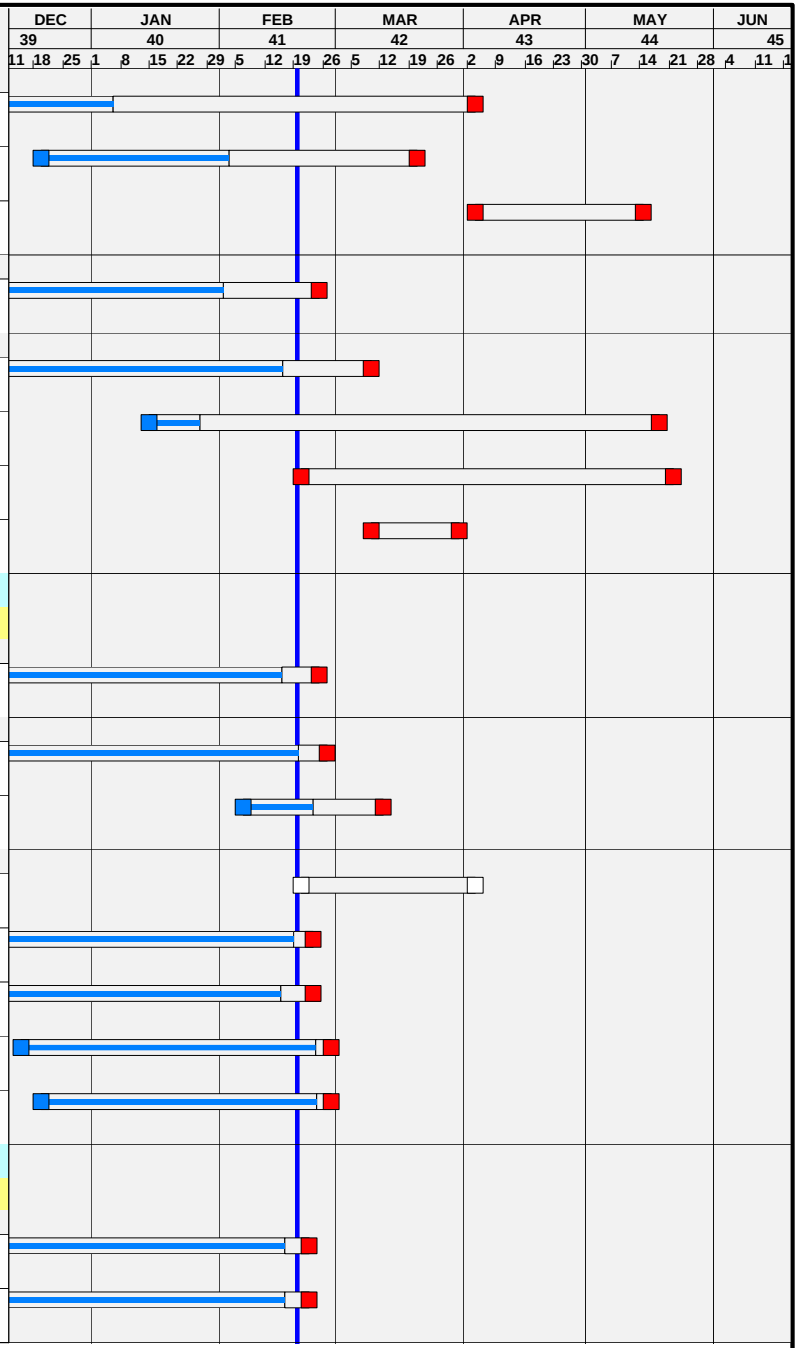
	Fire Protection System								
278039	Ent SB - FS Wiring and Terminations	30	10OCT06A	03APR07	50	0	15	-179	-153
278037	Ent SB - Install Hose Reel Cabinets & Eqpt @ G/L	48	20DEC06A	20MAR07	50	0	24	-179	-195
278040	Ent SB - FS Testing and T&C	24	04APR07	14MAY07	0	0	24	-179	-159
	Electrical Works Above OHVD								
278046	Ent SB - Placing Sandfill and PC Covers	36	07JUL06A	24FEB07	90	0	4	-149	-98
	Electrical Works Below OHVD								
278055	Ent SB - Cabling,Wirings&Term @ Ceiling/ Grd Lvl	48	07AUG06A	09MAR07	90	0	15	-154	-122
278056	Ent SB - Lighting / Equipt Testing and T&C	60	15JAN07A	18MAY07	10	0	45	-164	-153
278054	Ent SB-Install CCTV,Camera,Eqpt @C/Lvl (by TCSS)	72	21FEB07	21MAY07	0	0	72	-139	-203
278096	Place Covers on C. Trough	18	10MAR07	30MAR07	0	0	18	-131	-122
Vent Adit Tunnel / Cross Passage 7									
	ENT CROSS PASSAGE CP07 - (E&M) BUILDING SERVICES								
	MVAC / Tunnel Ventillation System Above OHVD								
278059	CP7 - Cabling, Wiring, Termination & Test	18	28AUG06A	24FEB07	95	0	2	-143	-173
	Fire Protection System								
278062	CP7 - Cabling, Wiring, FS detectn & Alarm Bell	48	10OCT06A	26FEB07	95	0	5	-156	-144
278063	CP7 - FS Termination & Test	24	07FEB07A	12MAR07	50	0	12	-156	-132
	Electrical Works								
278086	HGC - Cabling	36	21FEB07	03APR07	0	0	36	191	-166
278066	CP7 - Install Conduit, lighting & switches @ C/L	48	03JUL06A	23FEB07	98	0	3	-145	-142
278069	CP7 - HV/ LV Cabling, Wiring & Term to CP7 LV Rm	48	20SEP06A	23FEB07	95	0	3	-145	-142
278070	CP7 - HV / LV Cables Testing and T&C	24	15DEC06A	27FEB07	95	0	3	-145	-121
278067	CP7 - Cabling, Wiring & Termination and Test	24	20DEC06A	27FEB07	95	0	3	-145	-121
ENT Cross Passages									
	CROSS PASSAGES (CP1-CP6 & CP8-CP21) - (E&M) WORK								
	Electrical Works								
278077	(CP21-CP11) - MCCB/ MCB Brd,CMCS,Busbar,Switches	72	03MAY06A	22FEB07	98	0	2	-171	-169
278078	(CP1-CP10) - MCCB/ MCB Brd,CMCS,Busbar,Switches	72	03MAY06A	22FEB07	98	0	2	-171	-171



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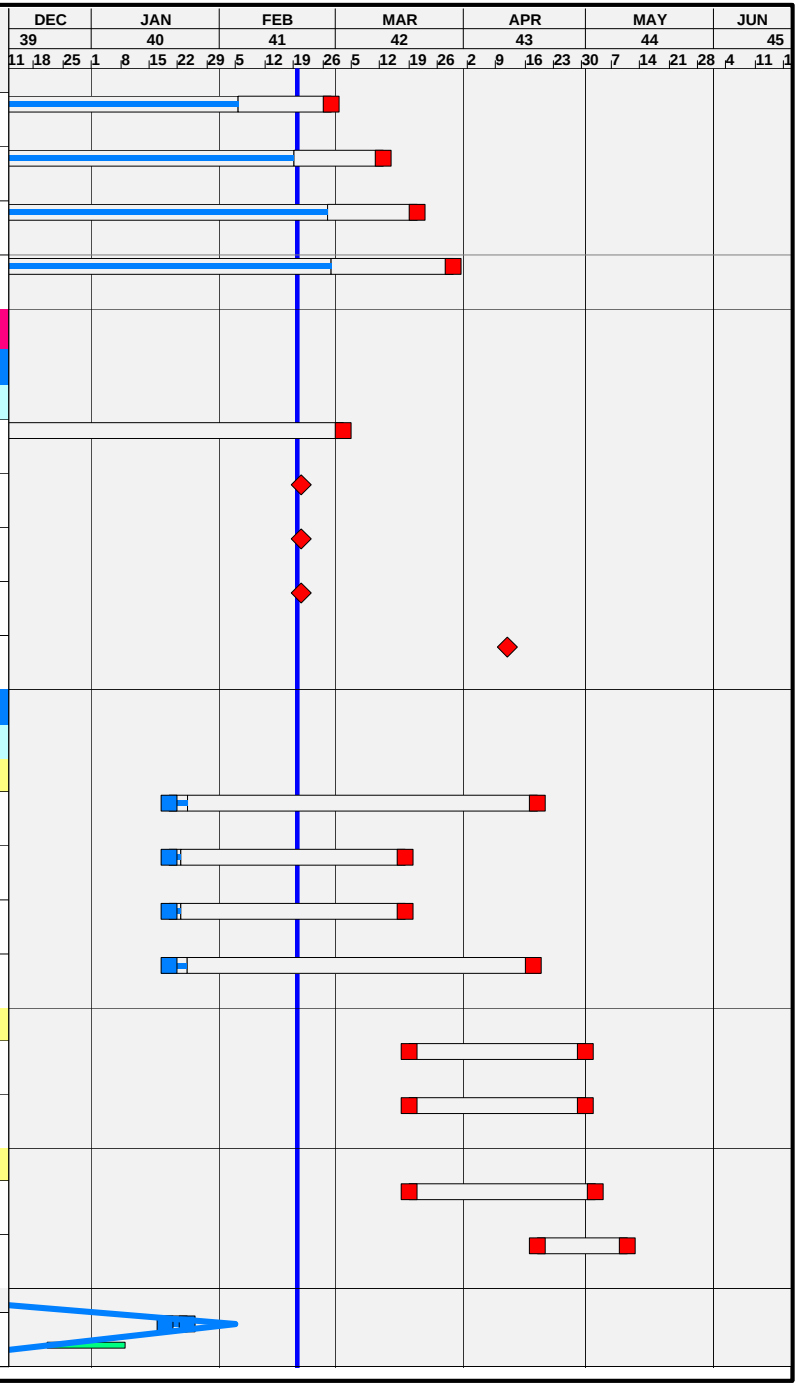
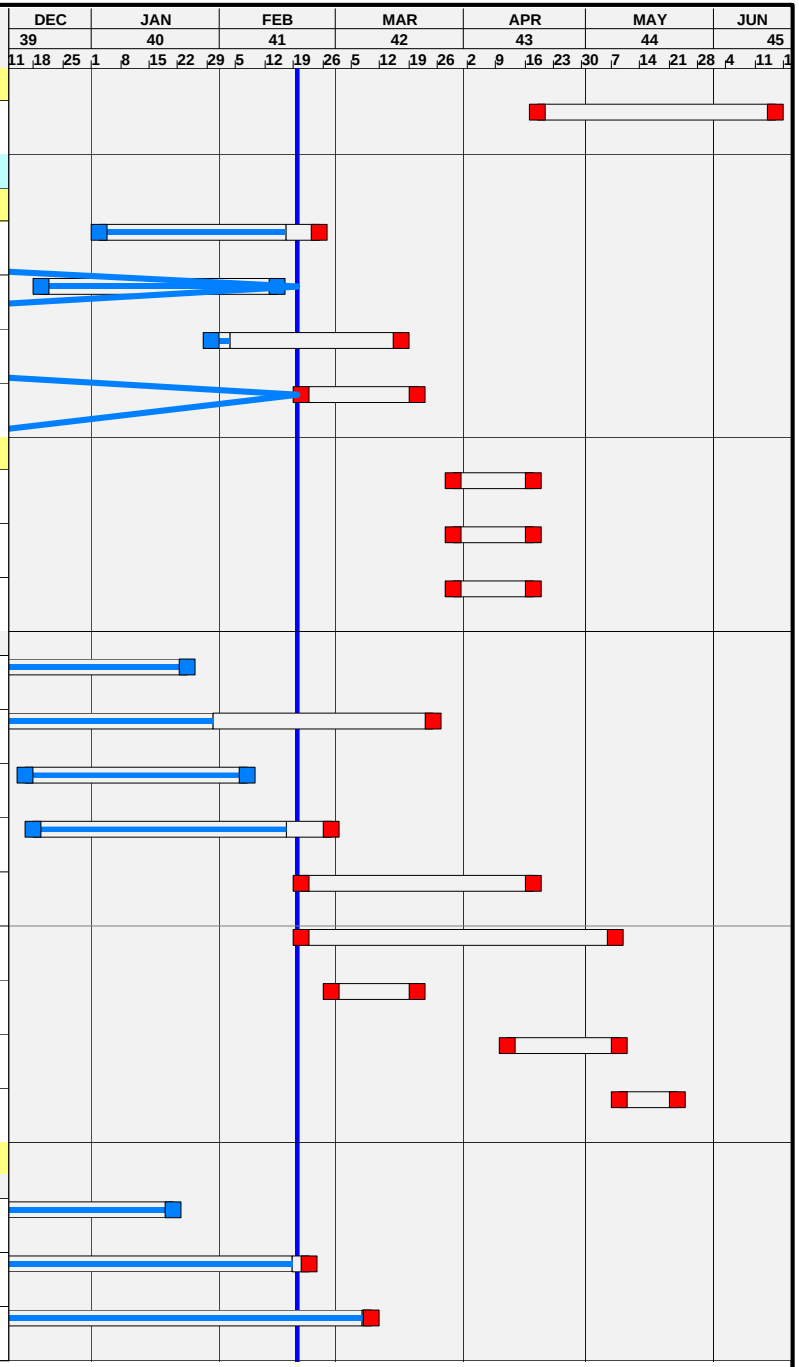
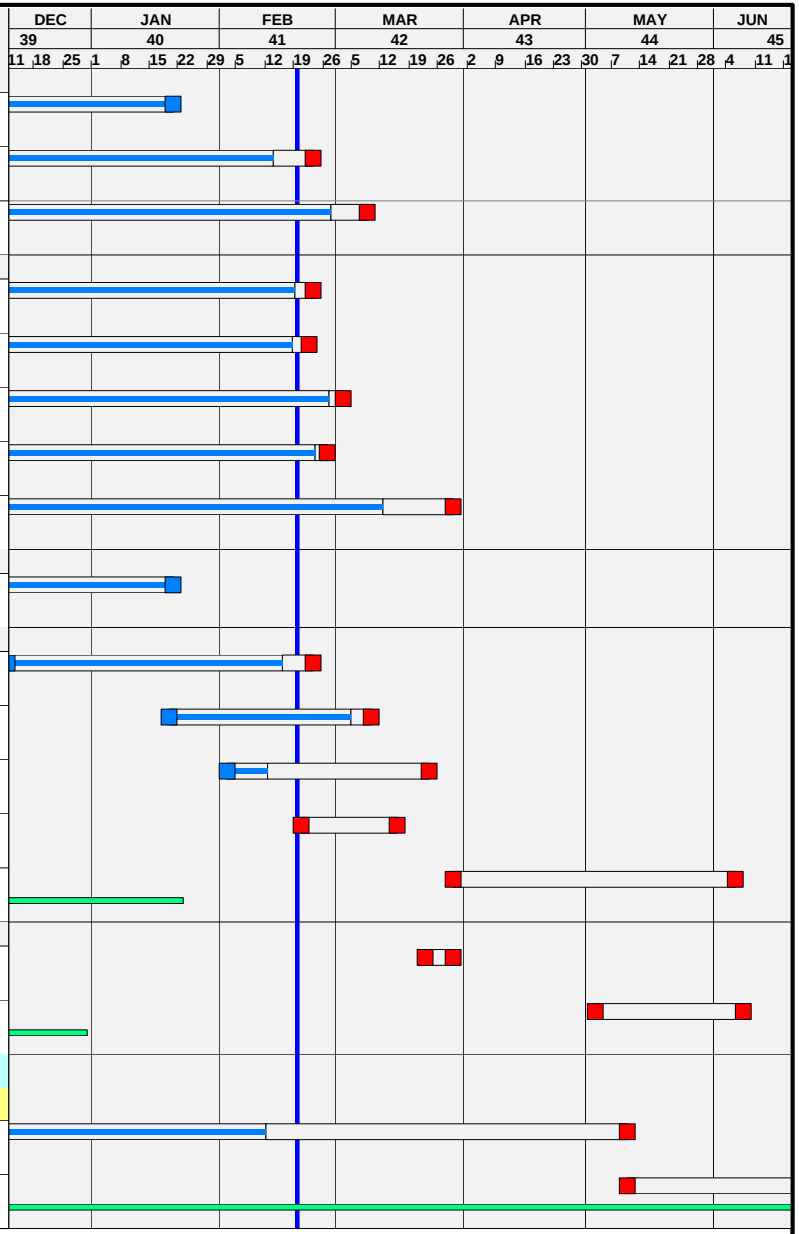
Electrical Works									
278075	(CP1-CP21) - Conduit,light,Signage fixt,Switches	60	17JUL06A	27FEB07	90	0	6	-170	-185
278079	(CP1-CP21) - HV & LV Cables Terminations & Test	60	08AUG06A	12MAR07	90	0	6	-171	-109
278076	(CP1-CP21) - Cabling, Wiring, Termination & Test	36	15AUG06A	20MAR07	90	0	4	-170	-167
278080	(CP1-CP21) - Cables Testing and T&C	36	01NOV06A	29MAR07	80	0	7	-171	-100
VENTILATION ADIT & BUILDING									
PROCUREMENT									
ARCHITECTURAL									
2026	VA Bldg. - Procure expanded metal mesh cladding	60	06JUN05A	02MAR07	50	50	9	-160	-239
2031	VA Bldg. - Initial delivery slate cladding	0	21FEB07*		0	0	0	-143	-154
2034	VA Bldg. - Initial delivery fall arrest roof sys	0	21FEB07*		0	0	0	-105	-185
2035	VA Bldg. - Initial delivery balust & metal works	0	21FEB07*		0	0	0	-105	-185
2043	VA Bldg. - Initial deliv exp metal mesh cladding	0	12APR07		0	0	0	-160	-193
CONSTRUCTION WORKS									
EXTERNAL WORKS									
Drainage									
S1900	Petrol interceptor & Storm Drain at East Side	48	20JAN07A	18APR07	5	0	45	-180	-205
S1940	Foul Drain Pipe & Holding Tank	24	20JAN07A	17MAR07	5	0	22	-169	-206
S1960	Storm Drain at West Side	24	20JAN07A	17MAR07	5	0	22	-175	-220
S1970	Storm Drain & Gullies at Access Apron	24	20JAN07A	17APR07	5	0	22	-175	-218
Ducting & Drawpits									
S1910	Ducting & Drawpits	18	19MAR07	30APR07	0	0	18	-169	-187
S1980	HGC Ducting & Drawpits	18	19MAR07	30APR07	0	0	18	-169	-169
Watermain Works									
S1950	Watermain & Valve Chambers at Building Apron	24	19MAR07	02MAY07	0	0	24	-175	-206
S1990	Irrigation Pipework	18	19APR07	10MAY07	0	0	18	-180	-195
Construction of Watermains Across Tai Po Rd									
SB3130	Stage 7 - Watermain Crossing Tai Po Rd	4	19JAN07A	23JAN07A	100	0	0		-13



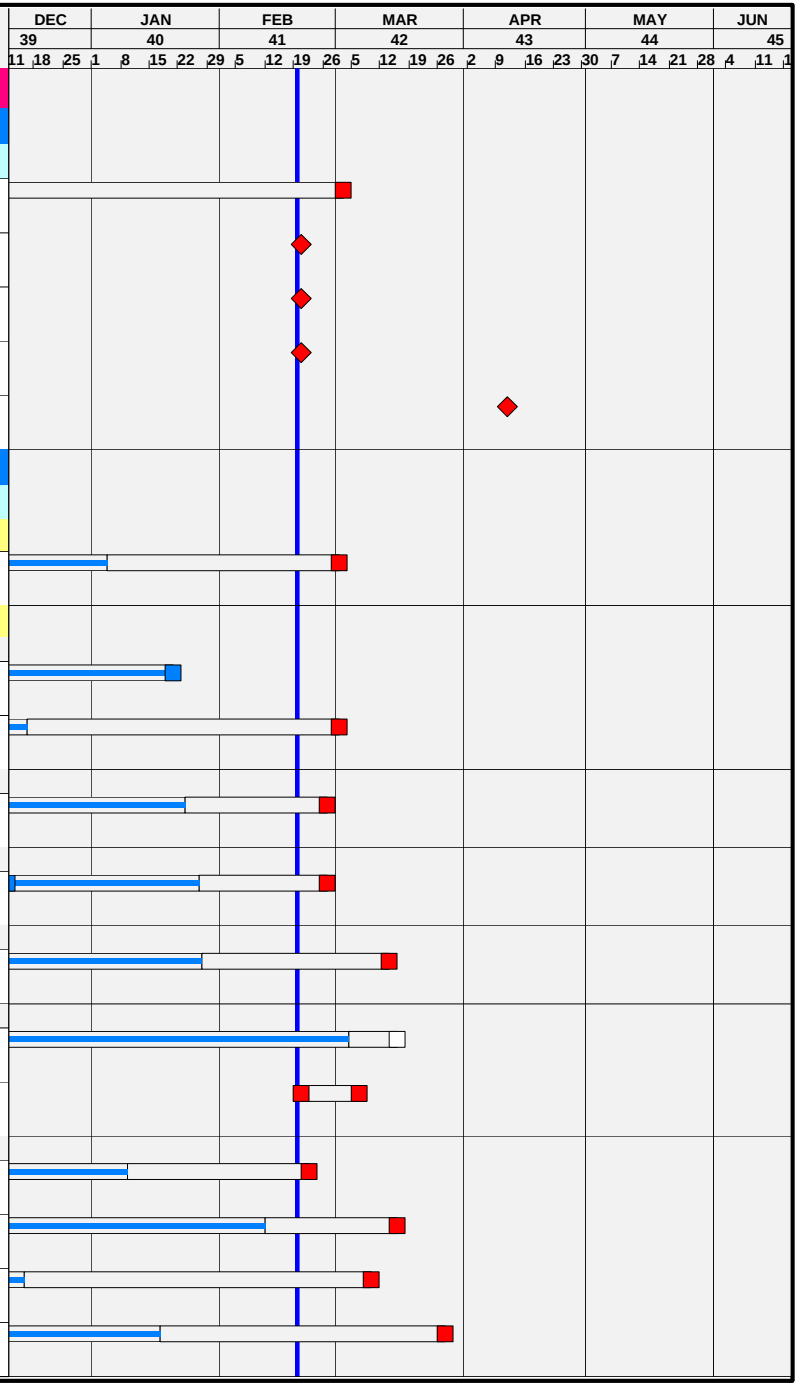
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Road Pavement & Associated Work									
S1920	Preparation and Block Paving	48	19APR07	15JUN07	0	0	48	-180	-159
VENTILATION BUILDING									
VA Building - Structure									
T2130	Installation of Exhaust Shaft Steelwork	24	03JAN07A	24FEB07	85	0	4	-127	-211
T3140	Backfilling Around Ventillation Building	24	20DEC06A	14FEB07A	100	0	0		0
T3130	Installation of Earth mat	24	30JAN07A	16MAR07	10	0	21	-160	-183
T3380	NEW ACTIVITY - Complete Tunnel Eart Tape	24	21FEB07	20MAR07	0	0	24	-169	0
VA Building - ABWF									
T3030	ABWF - GL Paint Touch Up & Doors	12	30MAR07	17APR07	0	0	12	-113	-141
T3040	ABWF - 1FL Paint Touch Up & Doors	12	30MAR07	17APR07	0	0	12	-113	-141
T3050	ABWF - Fan Rooms & Plenums Touch Up & Doors	12	30MAR07	17APR07	0	0	12	-113	-141
VA Building - External Finishes									
T2050	VA Bldg. - Ext. Wall Waterproof Render	20	10JUL06A	23JAN07A	100	0	0		-181
T3110	VA Bldg. - Install Aluminum louvres & doors	60	11NOV06A	24MAR07	60	0	24	-127	-165
T3090	VA Bldg. - 25thk Roof Screed & Roofing Tiles	18	16DEC06A	07FEB07A	100	0	0		-151
T3070	VA Bldg. - External Wall Painting	22	18DEC06A	27FEB07	85	0	6	-111	-180
T2140	VA Bldg. - Slate Cladding	44	21FEB07	17APR07	0	0	44	-143	-154
T3120	VA Bldg. - Alum Comp Panel Cladding to Ext Walls	60	21FEB07	07MAY07	0	0	60	-159	-157
T3100	VA Bldg. - GMS,S/S Channel, Balustrade & Railing	18	28FEB07	20MAR07	0	0	18	-111	-165
T2110	VA Bldg. - Expanded metal cladding to Ext Walls	22	12APR07	08MAY07	0	0	22	-160	-193
T3105	VA Bldg. - Removed External Scaffolding	12	09MAY07	22MAY07	0	0	12	-160	-158
E & M WORKS									
Ventilation Adit Bldg (GF/Lwr Plen) - E & M Work									
EM2040	BS Works for HV Sw + Tx	12	17JUL06A	20JAN07A	100	0	0		-188
EM2200	BS Works for Genset	18	01AUG06A	22FEB07	98	0	2	-164	-195
EM2260	E&M Works in Corridors G/F	24	01AUG06A	09MAR07	99	0	1	-171	-200



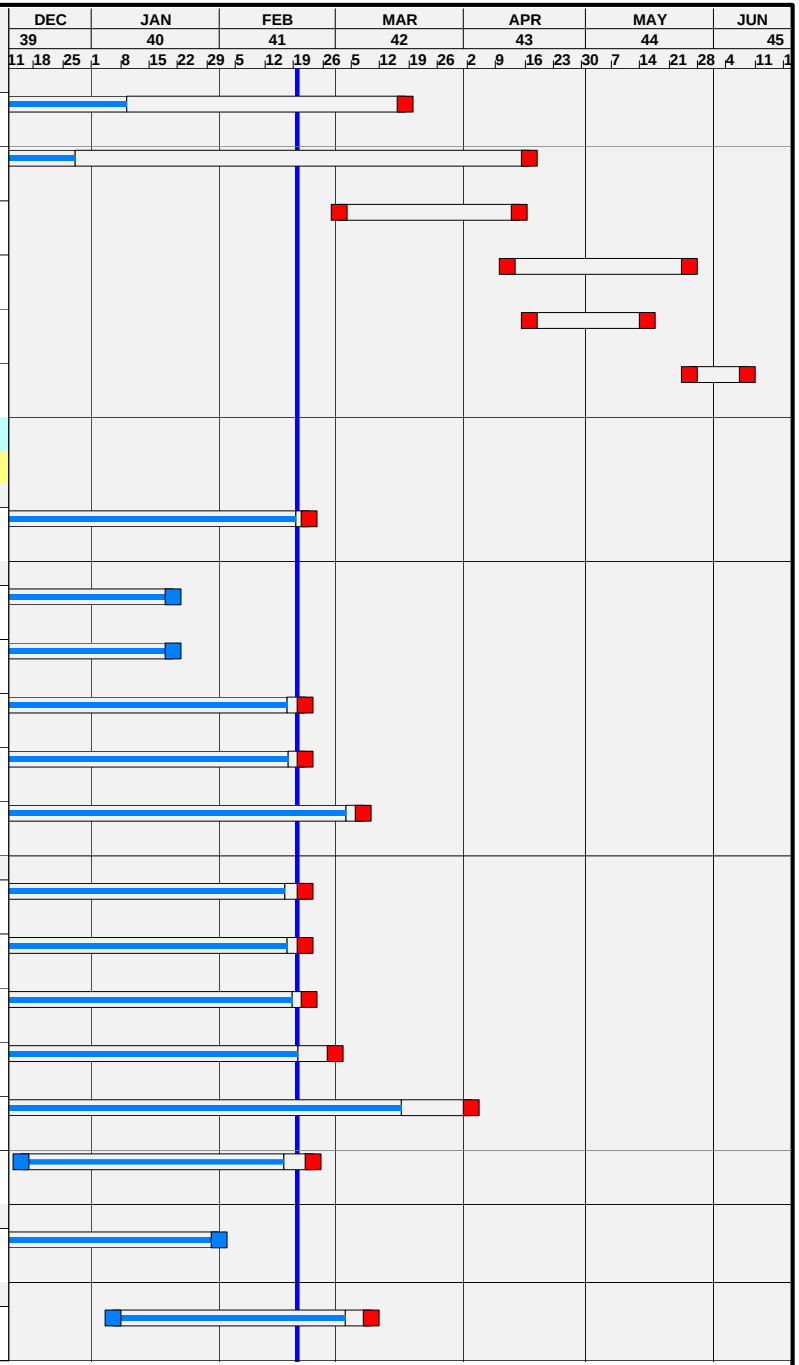
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Ventilation Adit Bldg (GF/Lwr Plen) - E & M Work									
EM2300	E&M Works in Risers	48	04AUG06A	20JAN07A	100	0	0		-116
EM2310	BS Works in TVS Plenums	30	14AUG06A	23FEB07	95	0	3	-154	-177
EM2220	Genset Installation	36	13SEP06A	08MAR07	95	0	2	-164	-171
Ventilation Adit Bldg (1F) - E & M Work									
EM2100	BS Works for LV Sw, MCC, UPS, LCC	12	18JUL06A	23FEB07	98	0	3	-171	-212
EM2280	E&M Works in Corridors 1/F	24	04AUG06A	22FEB07	98	0	2	-158	-189
EM2160	BS Works for 110V Charger Rm	12	11SEP06A	02MAR07	98	0	2	-169	-206
EM2120	LV Sw, MCC, UPS, LCC Installation	30	02OCT06A	26FEB07	98	0	2	-169	-169
EM2340	Termination of overall Elect HV & LV Sys	30	10OCT06A	29MAR07	90	0	5	-171	-141
Ventilation Adit Bldg (2F/Upr Plen) - E & M Work									
EM2320	TVS Installation	90	23AUG06A	20JAN07A	100	0	0		-71
Testing and Commissioning									
EM2080	HV Sw + Tx Termination + T&C	30	11DEC06A	23FEB07	90	0	3	-142	-123
EM2180	110V Charger Rm Installation + T&C	12	20JAN07A	09MAR07	90	0	3	-169	-200
EM2140	LV Sw, MCC, UPS, LCC Termination + T&C	30	03FEB07A	23MAR07	20	0	24	-169	-161
EM2240	Genset Termination + T&C	12	21FEB07	15MAR07	0	0	12	-164	-165
EM2360	Integrated E&M System T&C	52	30MAR07	05JUN07	0	0	52	-171	-106
Statutory Inspection & Issued Certificates									
EM2440	Permanent power energization from SHT NP Bldg	6	23MAR07	29MAR07	0	0	6	-171	-106
EM3001	Submit Form WWO46 for Water Supply to WSD	30	03MAY07	07JUN07	0	0	30	-173	-126
EXTERNAL AREAS									
LANDSCAPING & ESTABLISHMENT WORKS									
T3180	Planting Works	18	02SEP06A	10MAY07	65	0	18	-132	-177
T3200	Establishment Works	365	11MAY07	09MAY08	0	0	365	-167	-223



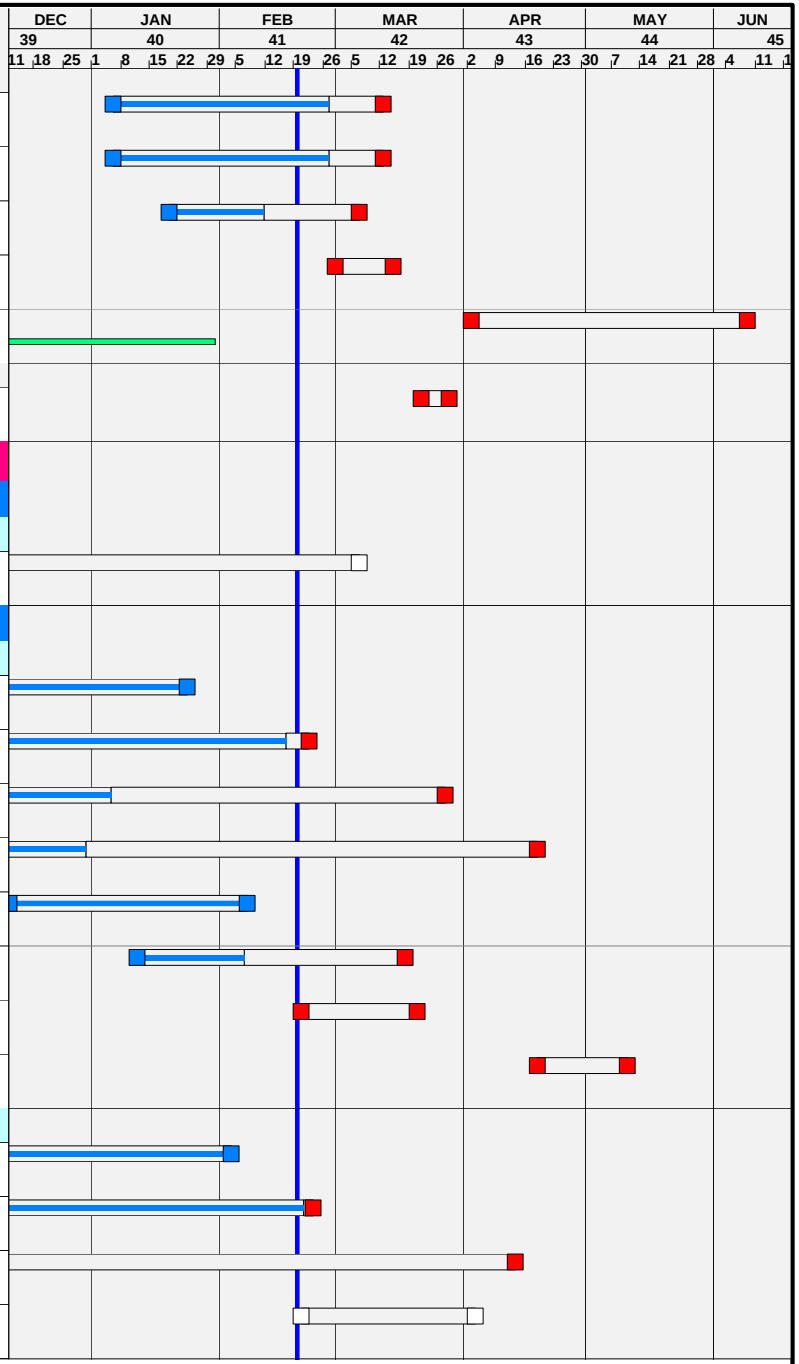
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
ENT NORTH PORTAL VENTILATION BUILDING									
PROCUREMENT - MATERIAL									
ABWF WORKS									
1981	NP.Bldg. - Procure expanded metal cladding	180	06JUN05A	02MAR07	50	50	9	-162	-239
2051	NP.Bldg. - Initial delivery slate cladding	0	21FEB07*		0	0	0	-123	-180
2052	NP.Bldg. - Initial delivery balust & metal works	0	21FEB07*		0	0	0	-111	-192
2053	NP.Bldg. - Initial delivery fall arrest roof sys	0	21FEB07*		0	0	0	-111	-192
2066	NP.Bldg. - Initial deliv expanded metal cladding	0	12APR07*		0	0	0	-162	-193
CONSTRUCTION									
North Portal Bldg. - CIVIL & ABWF WORKS									
STRUCTURE									
T1390	NP Bldg - Exhaust Shaft (+110.38mPD)	18	24MAY06A	01MAR07	80	0	8	-159	-221
ABWF WORKS									
Internal Works GF									
T1650	GF ABWF Initial finishes	18	04MAR06A	20JAN07A	100	28	0		-203
T1910	GF - paint touch up & doors	12	27NOV06A	01MAR07	20	0	8	-77	-103
NP Bldg - Internal Works 1F									
T1920	1F - paint touch up & doors	12	20NOV06A	26FEB07	65	0	5	-74	-100
NP Bldg - Internal Works 2F									
T1930	2F - paint touch up & doors	12	11DEC06A	26FEB07	60	0	5	-74	-100
NP Bldg Internal Works 3/F									
T1880	3F - paint touch up & doors	12	20NOV06A	13MAR07	60	0	5	-87	-179
NP Building - Internal Works									
T1620	4F ABWF initial finishes	12	24JUL06A	15MAR07	95	0	1	207	-221
T1950	4F - paint touch up & doors	12	21FEB07	06MAR07	0	0	12	-81	-107
NP Bldg - Roofing & External Facade									
T2238	Ent NPB - Ext. Wall Waterproof Render	18	17JUL06A	22FEB07	80	0	2	-153	-215
T1740	Ent NPB - Install Aluminum louvres & doors	90	14AUG06A	15MAR07	85	0	13	-159	-143
T1800	Ent NPB - Roof Waterproofing & Test	12	20OCT06A	09MAR07	40	0	7	-154	-216
T1750	Ent NPB - Alum. Comp Panel Cladding to Ext Walls	60	09NOV06A	27MAR07	50	0	30	-117	-111



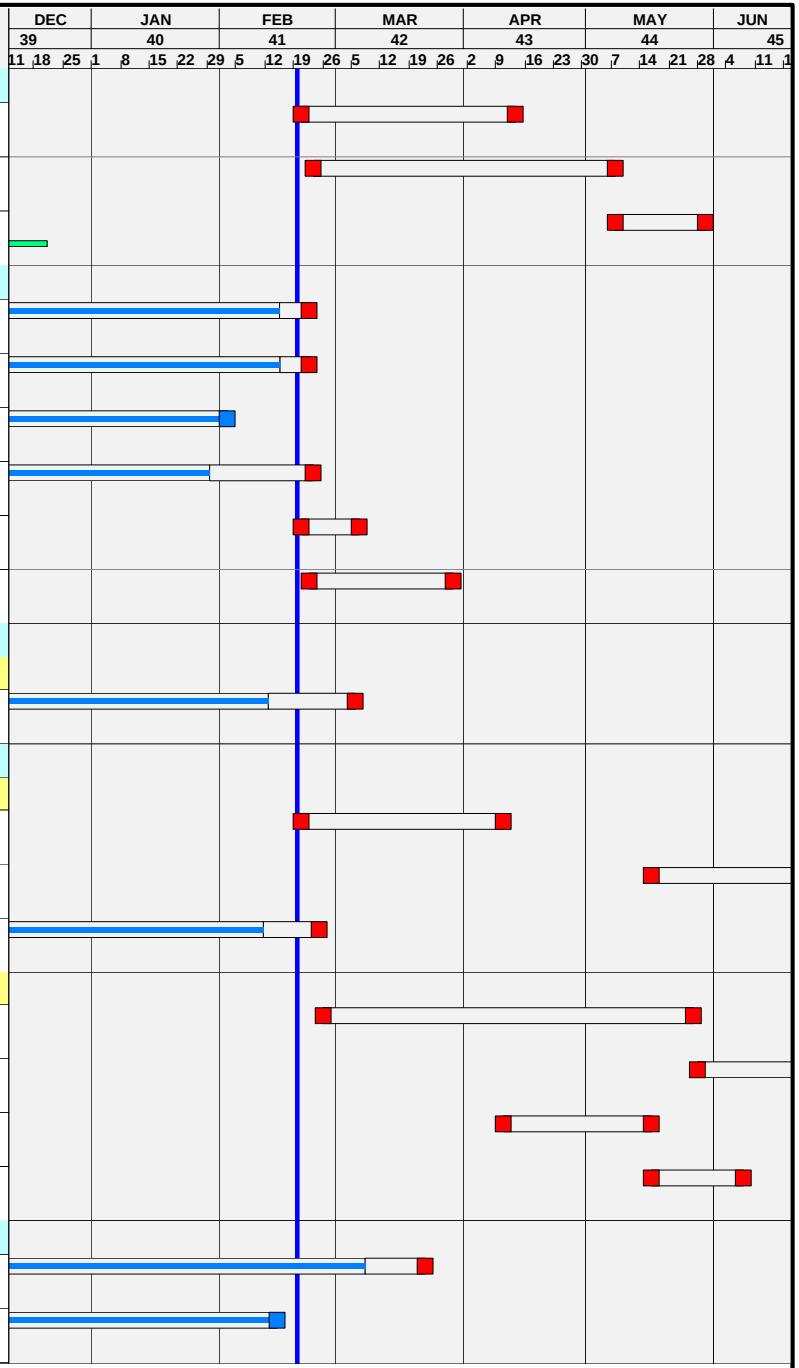
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
NP Bldg - Roofing & External Facade									
T1780	Ent NPB - Slate cladding above NB/SB carriageway	36	25NOV06A	17MAR07	40	0	22	-123	-166
T1700	Ent NPB - 25thk Roof Screed & Roofing Tiles	18	08DEC06A	16APR07	15	0	16	-154	-214
T1730	Ent NPB - External Wall Painting	34	02MAR07	14APR07	0	0	34	-153	-215
T1770	Ent NPB - Expanded metal cladding to Ext Walls	36	12APR07	25MAY07	0	0	36	-162	-193
T1790	Ent NPB - GMS,S/S Channel, Balustrade & Railing	24	17APR07	15MAY07	0	0	24	-154	-214
T1795	Ent NPB - Removed External Scaffolding	12	26MAY07	08JUN07	0	0	12	-162	-156
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	22FEB07	98	0	2	-119	-210
ENT North Portal Bldg (2F/Silencer) - E & M Work									
EM2580	BS Works for HV Sw + Tx	12	20JUN06A	20JAN07A	100	0	0		-192
EM2700	BS Works for LV Sw	12	20JUN06A	20JAN07A	100	0	0		-192
EM2860	E&M Works in Corridors 2/F	24	17JUL06A	21FEB07	98	0	1	-170	-204
EM2800	BS Works for Genset	18	01AUG06A	21FEB07	98	0	1	-163	-210
EM2900	E&M Works in Risers	48	10AUG06A	07MAR07	98	0	1	-170	-166
ENT North Portal Bldg (3F/ Fan Rm) - E & M Works									
EM2640	BS Works for MCC, UPS, LCC	12	20JUN06A	21FEB07	98	0	1	-170	-214
EM2880	E&M Works in Corridors 3/F	24	17JUL06A	21FEB07	98	0	1	-170	-202
EM2760	BS Works for 110V Charger Rm	12	01AUG06A	22FEB07	98	0	2	-174	-215
EM2820	Genset Installation	30	01SEP06A	28FEB07	95	0	2	-163	-180
EM2920	Termination of overall Elect HV & LV Sys	30	15OCT06A	02APR07	90	0	5	-174	-166
EM2890	Compressor Room Installation	18	15DEC06A	23FEB07	90	0	3	-142	-210
ENT North Portal Bldg (4F/Upr Plen) - E & M Work									
EM2940	TVS Installation	100	02AUG06A	31JAN07A	100	0	0		-93
Testing and Commissioning									
EM2620	HV Sw + Tx Termination + T&C	30	06JAN07A	09MAR07	90	0	3	-159	-107



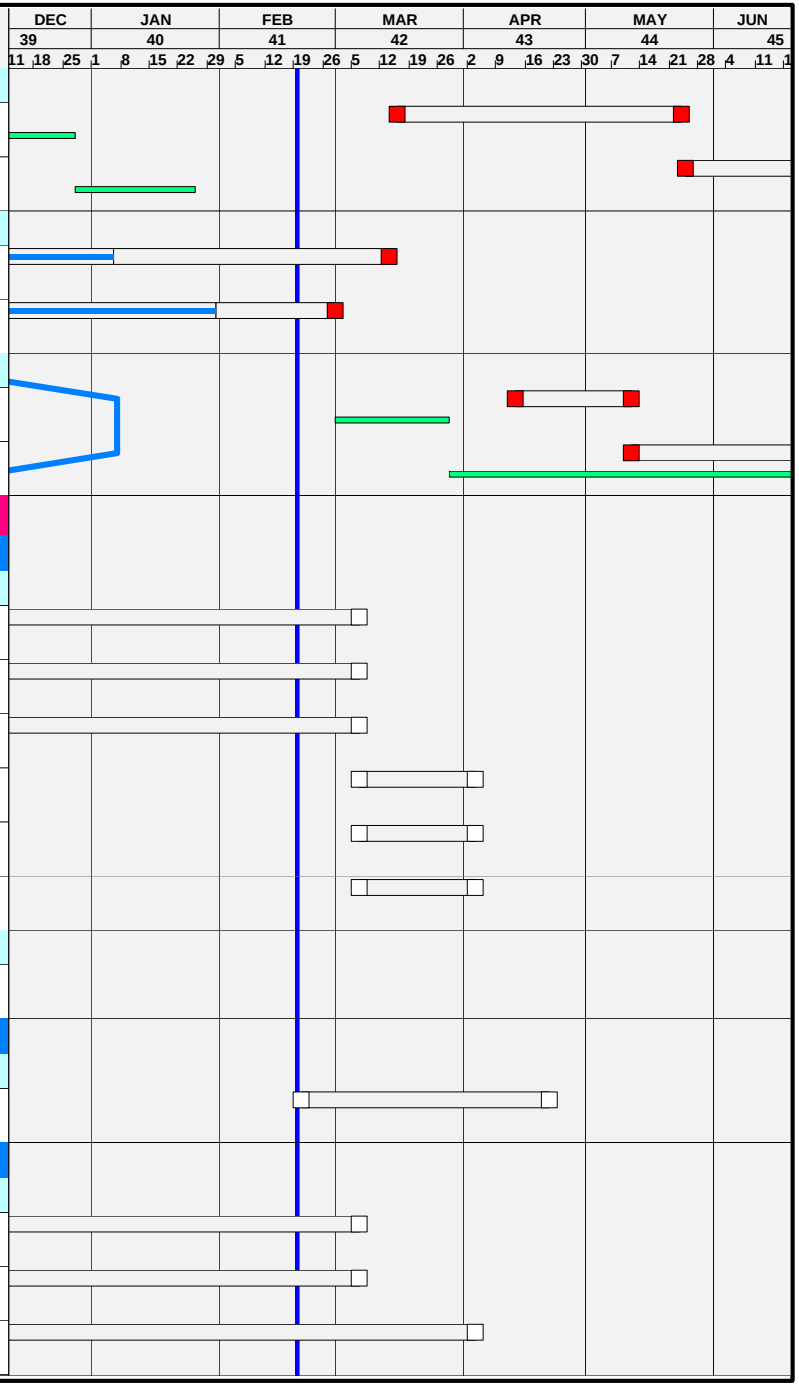
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Testing and Commissioning									
EM2680	MCC, LCC Termination + T&C	30	06JAN07A	12MAR07	80	0	5	-174	-176
EM2740	LV Sw Termination + T&C	30	06JAN07A	12MAR07	80	0	5	-174	-172
EM2780	110V Charger Rm Installation + T&C	12	20JAN07A	06MAR07	50	0	12	-174	-213
EM2840	Genset Termination + T&C	12	01MAR07	14MAR07	0	0	12	-163	-180
EM2960	Integrated E&M System T&C	52	03APR07	08JUN07	0	0	52	-174	-102
Statutory Inspection & Issued Certificates									
EM3040	Permanent power energization from ENT SP Bldg	6	22MAR07	28MAR07	0	0	6	-170	-98
TOLL PLAZA & ANCILLIARY STRUCTURES									
SUBMITTALS & APPROVALS									
ABWF & BW SUBMITTALS									
1522	TP/FB - Approve footbridge details	24	28JUL05A	06MAR07	50	50	12	215	-239
Construction Works									
TOLL PLAZA EAST SIDE									
S1170	FW Watermains Centre to Admin Bldg & FH12, FH13	36	02MAY06A	23JAN07A	100	0	0		-158
K1212	Main Carid'way Drain (D3 & D4) - after stockpile	57	20MAY06A	22FEB07	98	0	2	-132	-184
K1242	Main carriageway - East Subbase and kerbs	53	16OCT06A	27MAR07	50	0	26	-132	-143
S1420	Road Pavement Surfacing (Flex & Rigid)	56	18OCT06A	18APR07	40	0	34	-132	-143
K1182	East Loop Road - Drainage	28	12DEC06A	07FEB07A	100	0	0		-203
K1192	East Loop Road - Formation & Roadworks	36	12JAN07A	17MAR07	40	0	22	-91	-95
K1252	E&M / Lighting works	24	21FEB07	20MAR07	0	0	24	-117	-227
S1140	Furniture, signage (face only), white lining	18	19APR07	10MAY07	0	0	18	-132	-143
TOLL PLAZA WEST SIDE									
K1241	Main Carriageway - West side drainage - FB-SHT	45	19JUN06A	03FEB07A	100	0	0		-163
S1510	FW Waterminam Centre to Admin Bldg & FH12, FH13	24	10JUL06A	23FEB07	99	0	3	-178	-171
K1221	Main Carriageway - West Subbase & kerbs	54	14OCT06A	13APR07	30	0	38	-178	-122
K1171	West Loop road - Roadworks	36	21FEB07	03APR07	0	0	36	191	-200



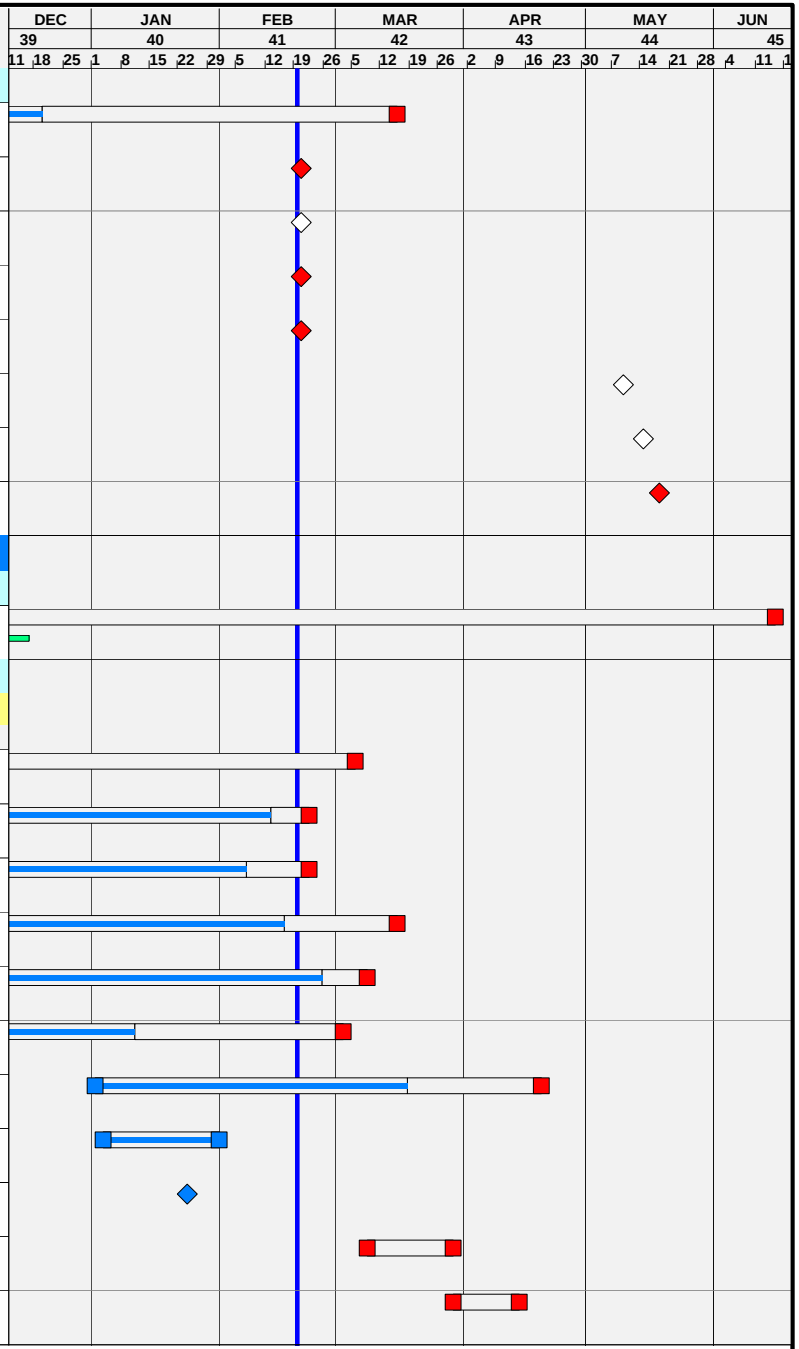
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
TOLL PLAZA WEST SIDE									
K1211	E&M / Lighting works	24	21FEB07	13APR07	0	0	24	-134	-122
S1310	Road Pavement Surfacing	57	24FEB07	07MAY07	0	0	57	-147	-125
S1410	Furniture, signage (face only), white lining	18	08MAY07	29MAY07	0	0	18	-147	-125
TOLL PLAZA - works adjacent to building									
S1415	SHT SPB - Drainage & Ducting	18	28FEB06A	22FEB07	98	90	2	-71	-233
S1427	Admin Blg & Wshop - Drainage & ducting	36	07MAR06A	22FEB07	98	25	2	-101	-224
S1440	Install Earth Mat for Admin Bldg & SHT NP Bldg	36	06NOV06A	02FEB07A	100	0	0		-191
S1400	ENT NPB - Kerbs & Rwks & misc Finishes	12	15NOV06A	23FEB07	75	0	3	-72	-222
S1417	SHT SPB - Kerbs & Rwks & misc finishes	12	21FEB07	06MAR07	0	0	12	-81	-229
S1437	Admin Blg & Wshop - kerbs, Rwks & misc finishes	30	23FEB07	29MAR07	0	0	30	-101	-185
TOLL PLAZA COLLECTOR'S SUBWAY									
ABWF									
S1290	Toll Subway - E&M	54	20NOV06A	05MAR07	80	0	11	-80	-146
TOLL PLAZA FOOTBRIDGE									
ABWF									
S1264	Installation of Aluminium Cladding	38	21FEB07	10APR07	0	0	38	-191	-231
S1250	Toll Ftbrdge - Finishes	54	17MAY07	21JUL07	0	0	54	-191	-231
S1340	Toll Plaza - Erection of Lift Steel Work	24	30MAY06A	24FEB07	95	0	4	-169	-219
E & M WORKS									
S1200	Toll Plaza Footbridge - Lift Installation	72	26FEB07	26MAY07	0	0	72	-169	-219
S1450	Toll Plaza Footbridge - Lift Commissioning	24	28MAY07	25JUN07	0	0	24	-169	-219
S1470	E&M Installation at Footbridge	30	11APR07	16MAY07	0	0	30	-191	-231
S1500	E&M Footbridge T&C	18	17MAY07	07JUN07	0	0	18	-155	-231
TOLL PLAZA BOOTHS									
S1220	Construct Toll Booths - 22No.	88	28OCT06A	22MAR07	90	0	10	-147	-97
S1210	Construct Toll Islands 17 No.	51	13NOV06A	14FEB07A	100	0	0		-178



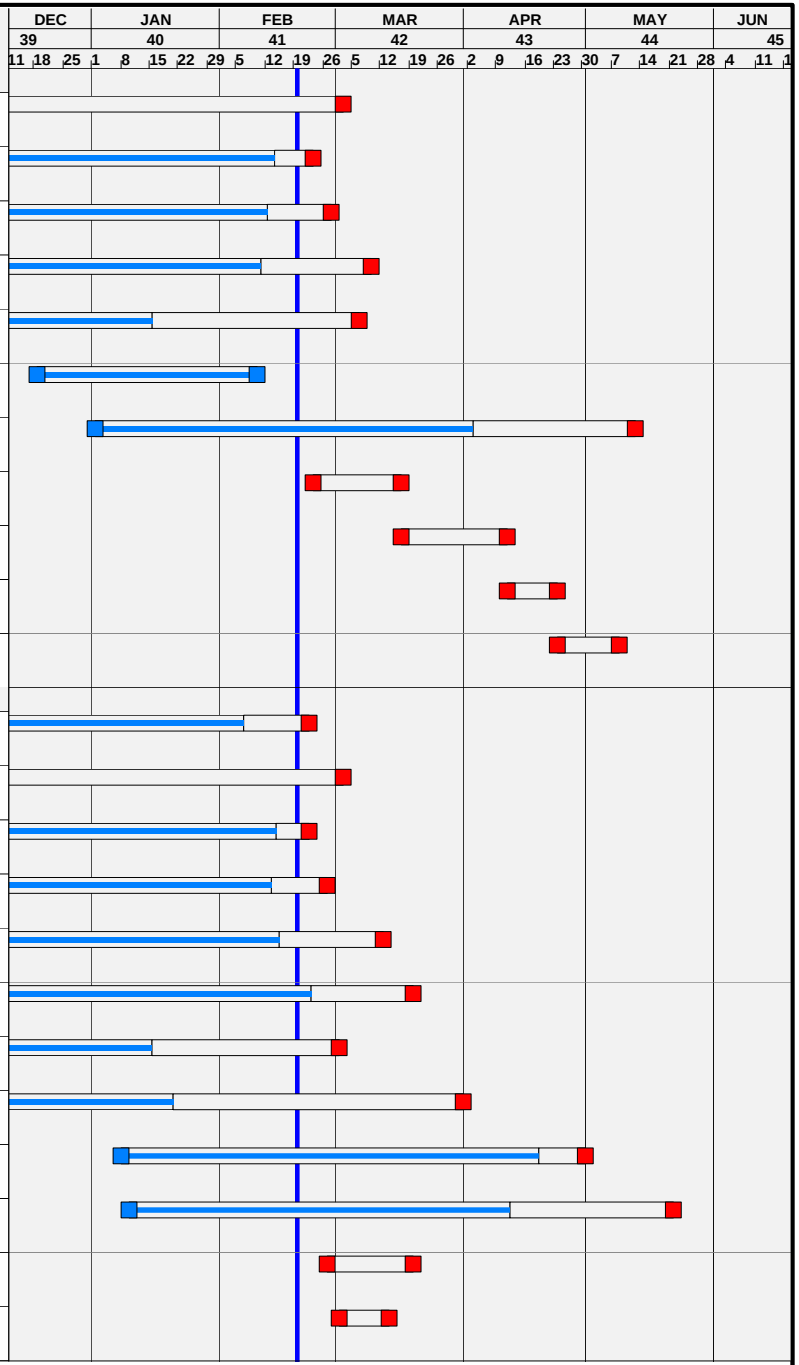
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
TOLL PLAZA BOOTHS									
S1300	Toll Booths All E&M, CMCS & TCS	54	16MAR07	23MAY07	0	0	54	-167	-117
S1460	Toll Booths E&M - T&C	24	25MAY07	22JUN07	0	0	24	-167	-117
ADMIN.BLDG. - WORKSHOP									
S1350	Workshop - External Finishes	60	03AUG06A	13MAR07	70	0	18	-87	-155
S1320	Workshop - Remaining internal Finishes	36	20AUG06A	28FEB07	85	0	7	-76	-144
LANDSCAPING & ESTABLISHMENT WORKS									
S1480	Planting Works at Toll Plaza	24	14APR07	11MAY07	0	0	24	-62	-38
S1490	Establishment Works at Toll Plaza	365	12MAY07	10MAY08	0	0	365	-168	-44
ADMINISTRATION BUILDING									
SUBMITTALS & APPROVALS									
ABWF. MTRL SUBMiTTALS									
1885	Admin.Bldg. - Prep & submit wood ceiling details	24	20NOV04A	06MAR07	50	50	12	167	-239
1881	Admin.Bldg. - Prep & sub GRP water tank details	24	12JAN05A	06MAR07	50	50	12	161	-239
1887	Admin.Bldg. - Prep & sub suspend ceiling details	24	12AUG05A	06MAR07	50	50	12	131	-239
1882	Admin.Bldg. - Approve GRP water tank details	24	07MAR07	03APR07	0	0	24	161	-239
1886	Admin.Bldg. - Approve wood ceiling details	24	07MAR07	03APR07	0	0	24	167	-239
1888	Admin.Bldg. - Approve suspended ceiling details	24	07MAR07	03APR07	0	0	24	131	-239
E&M EQPT. / MTRL. SUBMITTALS									
8248	AdmBldg-Engineer to provide Cater'g equip detail	0	07APR05A		100	100	0		-239
DESIGN & ENGINEERING									
TEMPORARY WORKS									
1373	Design/ICE Temp False/Formwork Admin Bldg	48	21FEB07	21APR07	0	0	48	179	-239
PROCUREMENT - MATERIAL									
ABWF WORKS									
1904	Admin.Bldg. - Procure wood ceiling	90	19JAN05A	06MAR07	87	87	12	165	-239
1902	Admin.Bldg. - Procure GRP water tank	90	16MAR05A	06MAR07	87	87	12	185	-239
1905	Admin.Bldg. - Procure suspended ceiling	120	09MAY05A	03APR07	70	70	36	131	-239



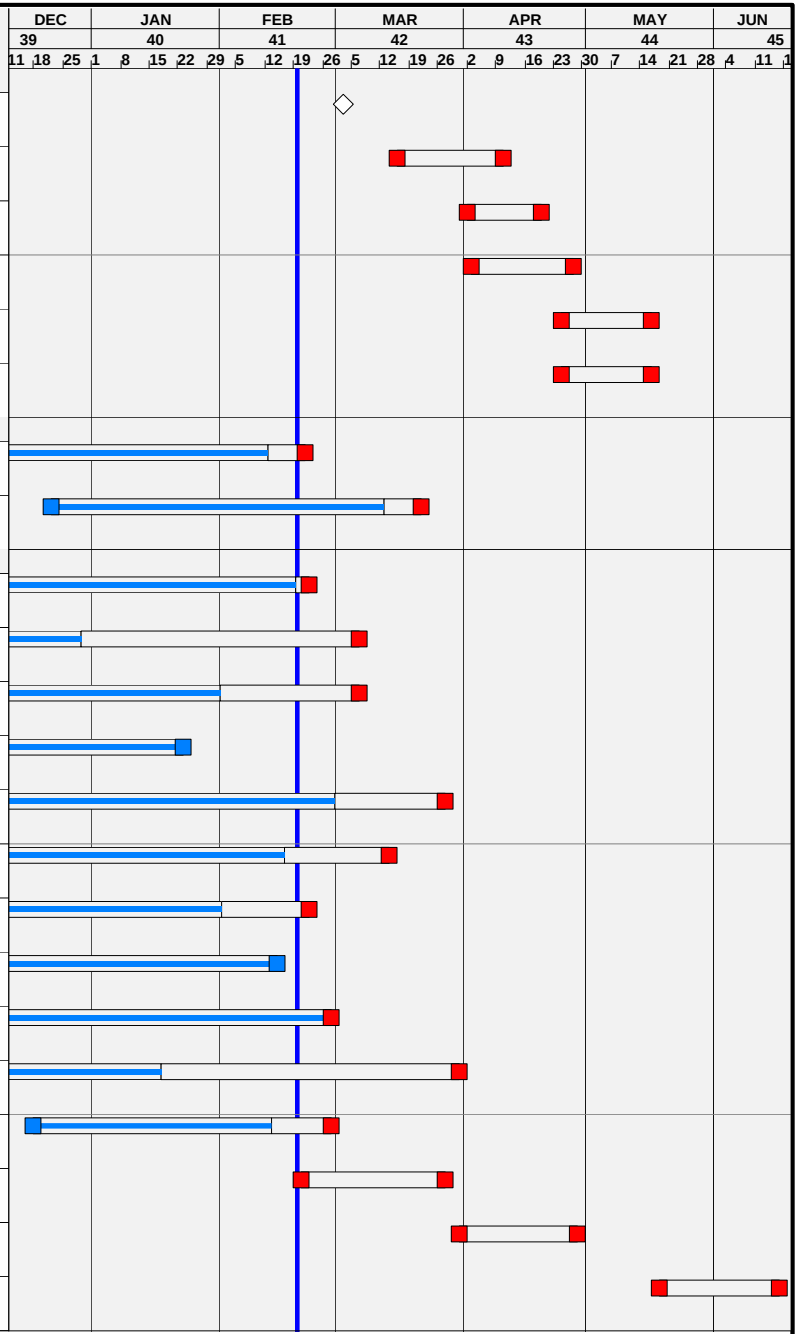
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
ABWF WORKS									
1910	Admin.Bldg. - Procure expanded metal cladding	90	06JUN05A	15MAR07	87	87	20	-181	-239
1938	Admin.Bldg. - Initial delivery glass canopy	0	21FEB07*		0	0	0	-129	-218
2056	Admin.Bldg. - Initial delivery sheet decking	0	21FEB07		0	0	0	227	-197
2059	Admin.Bldg.- Initial deliv fall arrest roof syst	0	21FEB07*		0	0	0	-108	-192
2060	Admin.Bldg. - Initial deliver balust & metal wks	0	21FEB07*		0	0	0	-108	-192
2058	Admin.Bldg. - Initial delivery wood ceiling	0	10MAY07		0	0	0	165	-239
2063	Admin.Bldg. - Initial delivery GRP water tank	0	15MAY07		0	0	0	161	-239
2061	Admin.Bldg.- Initial del expanded metal cladding	0	19MAY07*		0	0	0	-181	-237
CONSTRUCTION									
TCSS Access at Admin Bldg									
T3350	TCSS Works Within Admin Bldg / Tunnel & Ext	140	15SEP06A	15JUN07	0	0	80	-168	-143
CIVIL & ABWF WORKS									
ABWF									
Admin Bldg (G/F) - Internal Work @ Grid 1 to 21									
T1682	AB (G/F to 1/F) - Staircase Finishing Works	30	18APR06A	05MAR07	65	5	11	-169	-222
T1685	AB G/F (Grid 1-21) - Wall Plaster & Flr Screed	20	19APR06A	22FEB07	97	10	2	-171	-227
T1680	AB G/F (Grid 1-21) - Windows & door frames	18	24APR06A	22FEB07	95	56	2	-171	-233
T1975	AB G/F (Grid 1-21) - Base Skirting	18	15JUN06A	15MAR07	90	0	2	-95	-162
T2995	AB G/F (Grid 1-21) - Wall & Ceiling Base Paint	30	02AUG06A	08MAR07	95	0	6	-169	-203
T2990	AB G/F (Grid 1-21) - Tileworks & Sanitary Fixt	30	15SEP06A	02MAR07	70	0	9	-169	-218
T2150	AB G/F (Grid 1-21) - Door Leaf & Final Paints	12	02JAN07A	19APR07	70	0	4	-115	-182
T3285	Rm (G39/G40/G45/G46) - Door Leaf & Final Paints	4	04JAN07A	31JAN07A	100	0	0		-134
T3275	AB G/F (Critical Rooms) - Access to E&M Works	0		23JAN07A	100	0	0		-197
T1970	AB G/F (Grid 1-21) - Install Ceiling Grids	18	09MAR07	29MAR07	0	0	18	-115	-203
T2160	AB G/F (Grid 1-21) - Install Ceiling Panels	10	30MAR07	14APR07	0	0	10	-115	-192



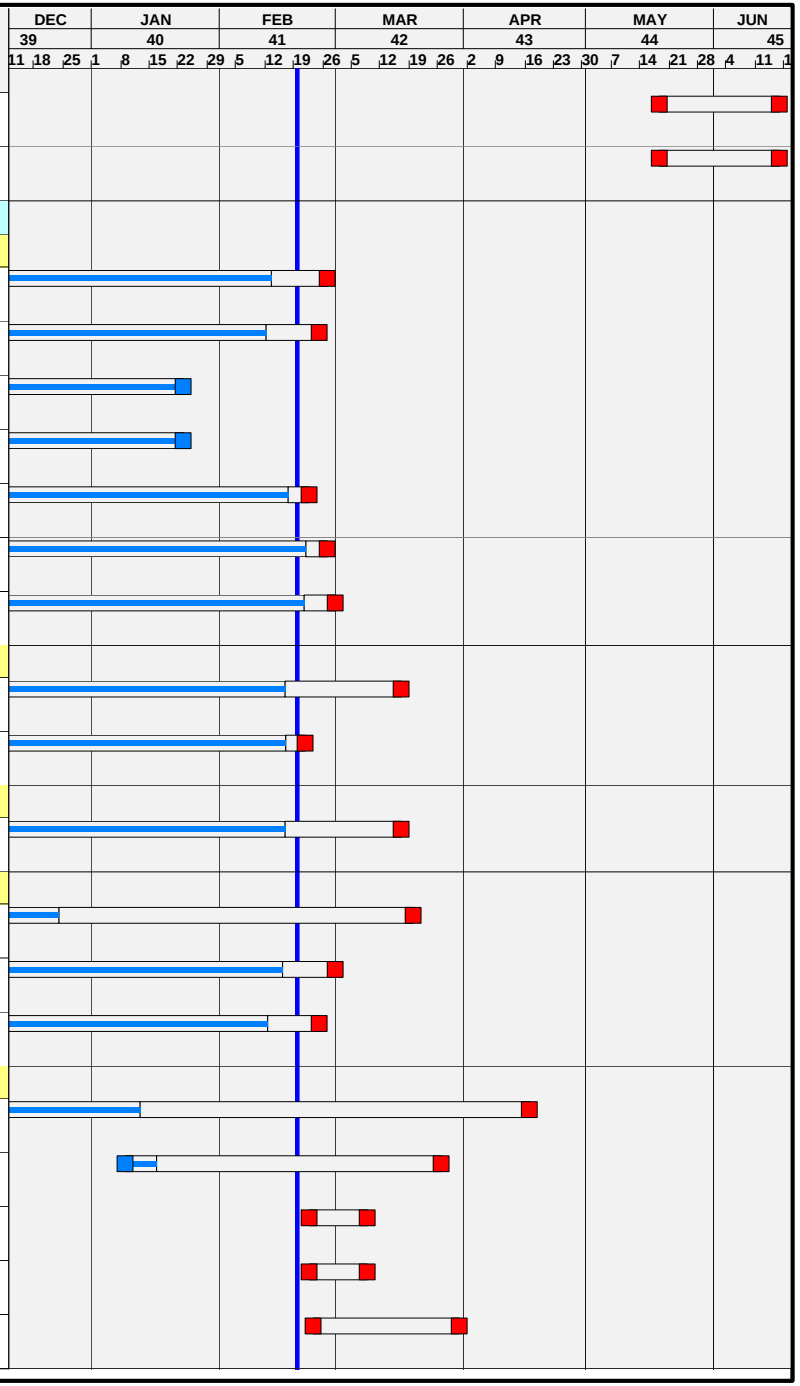
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Admin Bldg (1/F) - Internal Work @ Grid 1 to 18									
T1982	AB (1/F to 2/F) - Staircase Finishing Works	30	18APR06A	02MAR07	70	5	9	-78	-220
T1985	AB 1/F (Grid 1-18) - Wall Plaster & Flr Screed	24	18APR06A	23FEB07	97	35	3	-168	-227
T1980	AB 1/F (Grid 1-18) - Wdws & Door Frames	18	24APR06A	27FEB07	95	56	6	-165	-236
T2165	AB 1/F (Grid 1-18) - Install Skirting	14	15JUN06A	09MAR07	90	0	2	-84	-138
T2010	AB 1/F (Grid 1-18) - Tileworks & Sanitary Fixt	21	20SEP06A	06MAR07	70	0	9	-165	-230
T3268	UPS&UPS Bat Rm (112/115) - Door Lf & Final Paint	6	19DEC06A	09FEB07A	100	0	0		-165
T2170	AB 1/F (Grid 1-18) - Door Leaf & Final Paints	12	02JAN07A	12MAY07	70	0	4	-134	-190
T2012	AB 1/F (Grid 10-18) - Proprietary Toilet Cubicle	18	24FEB07	16MAR07	0	0	18	-168	-227
T3000	AB 1/F (Grid 1-18) - Install Ceiling Grids	18	17MAR07	11APR07	0	0	18	-134	-198
T2185	AB 1/F (Grid 1-18) - Install Ceiling Panels	10	12APR07	23APR07	0	0	10	-134	-198
T3015	AB 1/F (Grid 1-18) - Floor Carpets	12	24APR07	08MAY07	0	0	12	-134	-198
Admin Bldg (2/F) - Internal Work @ Grid 1 to 18									
T2060	AB 2/F (Grid 1-18) - Wdws & Door Frames	12	11APR06A	22FEB07	95	50	2	-168	-235
T2062	AB (2/F to Rf/Lvl) - Staircase Finishing Works	30	18APR06A	02MAR07	70	5	9	-168	-220
T2065	AB 2/F (Grid 1-18) - Wall Plaster & Flr Screed	24	01JUN06A	22FEB07	97	0	2	-149	-217
T3025	AB 2/F (Tel, Comp, Cont Rm) - Plaster & Screed	12	01JUN06A	26FEB07	95	0	5	-159	-232
T2190	AB 2/F (Grid 1-18) - Base Skirting	21	03JUL06A	12MAR07	90	0	3	-86	-111
T1860	AB 2/F (Tel, Comp, Cont Rm) - Base Skirting	12	15JUL06A	19MAR07	90	0	2	-92	-114
T2020	AB 2/F (Grid 1-18) - Tileworks & Sanitary Fixt	18	01OCT06A	01MAR07	70	0	6	-149	-205
T3055	AB 2/F (Tel, Comp, Cont Rm) - Raised Floors	21	11NOV06A	31MAR07	50	0	11	-123	-149
T1865	AB 2/F (Tel, Comp, Cont) - Door Lf & Final Paint	12	08JAN07A	30APR07	90	0	2	-124	-140
T2220	AB 2/F (Grid 1-18) - Door Leaf & Final Paints	12	10JAN07A	21MAY07	70	0	4	-141	-163
T3045	AB 2/F (Tel, Comp, Cont Rm) - Ceiling Grids	18	27FEB07	19MAR07	0	0	18	-124	-171
T2028	AB 2/F (Grid 1-18) - Proprietary Toilet Cubicle	10	02MAR07	13MAR07	0	0	10	-149	-205



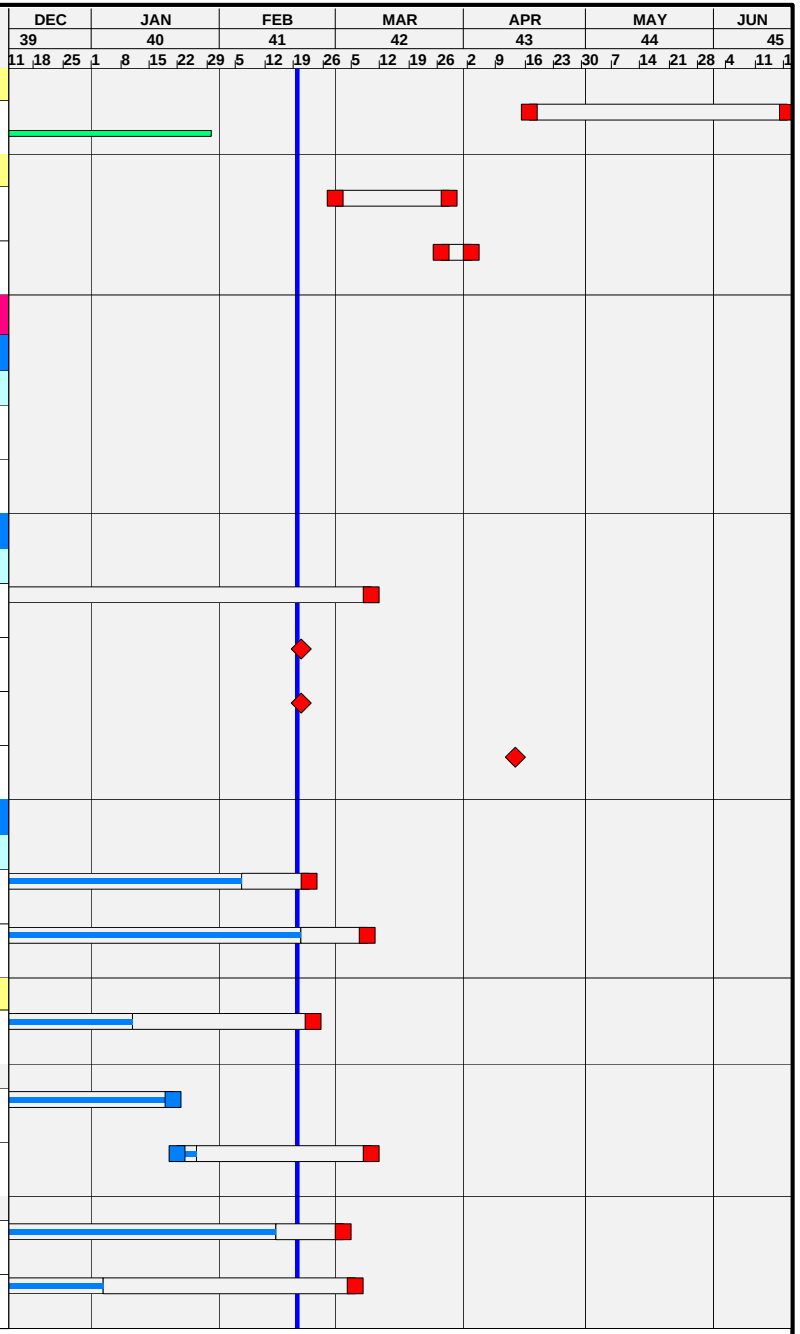
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Admin Bldg (2/F) - Internal Work @ Grid 1 to 18									
T2035	AB 2/F (Non-Critical Room) - Access to E&M Works	0		02MAR07	0	0	0	218	-199
T2045	AB 2/F (Grid 1-18) - Install Ceiling Grids	18	16MAR07	10APR07	0	0	18	-141	-186
T3068	AB 2/F (Corridor & Cont Rm) - Floor Carpets	12	02APR07	19APR07	0	0	12	-117	-149
T3065	AB 2/F (Corridor & Cont Rm) - Ceiling Panels	18	03APR07	27APR07	0	0	18	-124	-150
T2058	AB 2/F (Grid 1-18) - Install Ceiling Panels	18	25APR07	16MAY07	0	0	18	-141	-171
T2068	AB 2/F (Grid 1-18) - Floor Carpets	18	25APR07	16MAY07	0	0	18	-141	-183
Admin Bldg (Roof/Flr) - Inter Works Grid 3 to 16									
T3280	AB R/F (Grid 3-16) - Wall Plaster & Flr Screed	18	28APR06A	21FEB07	97	50	1	-180	-231
T2235	AB R/F (Grid 3-16) - Door Leaf & Final Paints	6	22DEC06A	21MAR07	90	0	2	-94	-185
Admin Bldg - Upper Roof & External Facade									
T2340	AB Ext (GL 11-21) - Slate Cladding	30	03APR06A	22FEB07	99	30	2	-105	-220
T2850	AB Ext (GL 1-11) - Install Louvres & Wdw Glazing	60	03APR06A	06MAR07	80	70	12	-151	-233
T2860	AB Ext (GL 11-21)- Install Louvres & Wdw Glazing	60	03APR06A	06MAR07	90	70	6	-151	-233
T2870	AB Ext UR/LR - Roof Screeding	18	30JUN06A	22JAN07A	100	0	0		-199
T2230	AB Ext (GL 6-11) - Curtain Wall & Glass Canopy	30	03JUL06A	27MAR07	90	0	3	-129	-197
T2232	AB Ext (GL 11-18) - Curtain Wall Installation	21	03JUL06A	13MAR07	90	0	5	-129	-215
T2841	AB Ext UR/LR - Render&wall paint to Open Area Rf	12	25JUL06A	22FEB07	90	0	2	-141	-187
T2840	AB Ext UR/LR - Roof Waterproofing & Test	24	12AUG06A	14FEB07A	100	0	0		-195
T2330	AB Ext (GL 1-11) - Slate Cladding	45	15OCT06A	27FEB07	99	0	4	-105	-179
T2900	AB Ext UR/LR - Insulation & Conc Roof Tile	30	06NOV06A	30MAR07	50	0	15	-141	-188
T2350	AB Ext (GL 1-11) - Ceramic Wall Tiles	30	18DEC06A	27FEB07	80	0	6	-105	-174
T2830	AB Ext (GL 11-21) - Ceramic Wall Tiles	30	21FEB07	27MAR07	0	0	30	-141	-228
T2915	AB Ext UR/LR- Install GMS, Balustrades & Railing	21	31MAR07	28APR07	0	0	21	-141	-170
T2245	AB Ext (GL 1-21) - Remove External Scaffolding	12	19MAY07	16JUN07	0	0	12	-181	-207



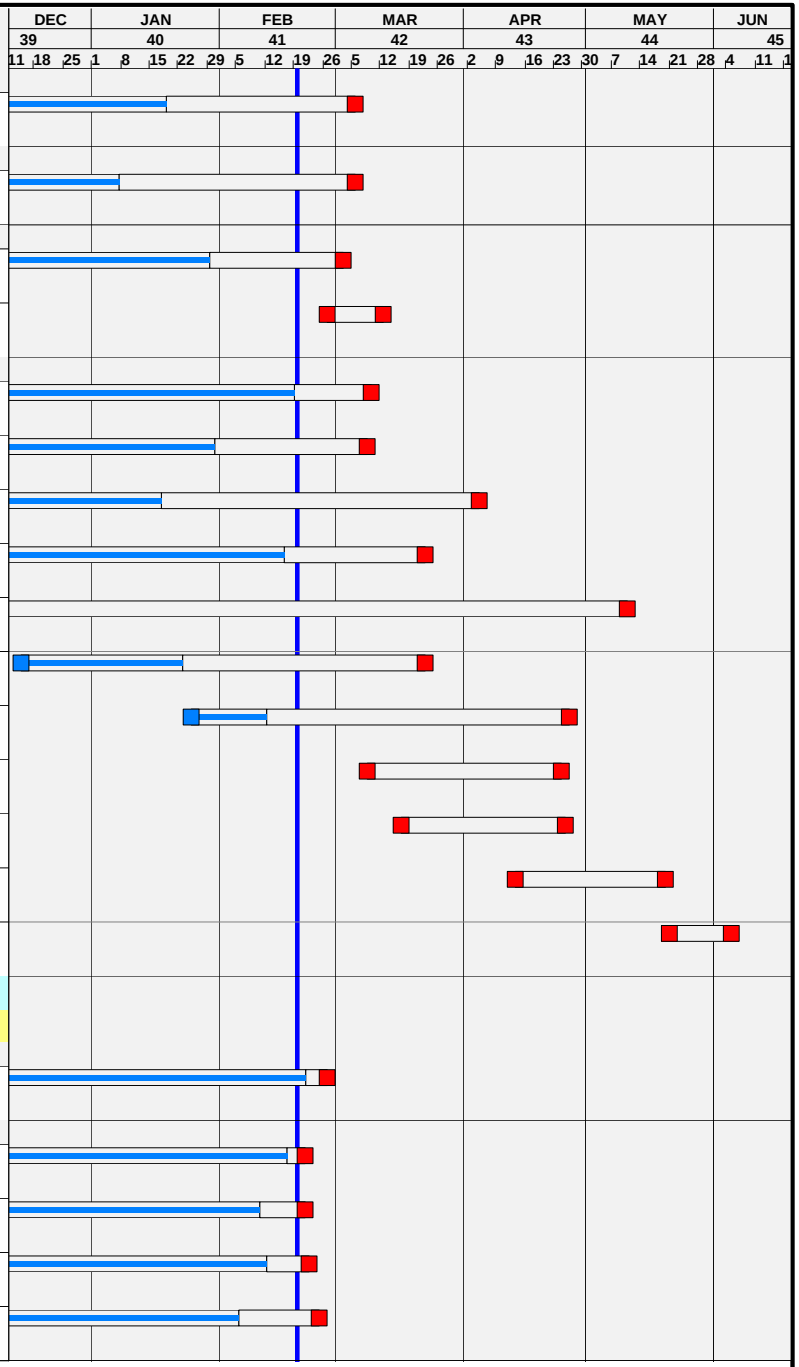
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Admin Bldg - Upper Roof & External Facade									
T2270	AB Ext (GL 3-11) - Expanded metal mesh cladding	24	19MAY07	16JUN07	0	0	24	-163	-213
T2280	AB Ext (GL 11-16) - Expanded metal mesh cladding	24	19MAY07	16JUN07	0	0	24	-181	-237
BUILDING SERVICES									
Admin Bldg (G/F) - E & M Works									
EM3540	BS Works in G/F	90	01JUN06A	26FEB07	95	12	5	-152	-165
EM3620	E&M Works in Risers	90	12JUN06A	24FEB07	95	0	4	-151	-145
EM3220	BS Works for HV Sw + Tx	12	14JUN06A	22JAN07A	100	0	0		-205
EM3280	BS Works for LV Sw	12	14JUN06A	22JAN07A	100	0	0		-193
EM3340	BS Works for 110V Charger Rm	12	14JUN06A	22FEB07	98	0	2	-176	-229
EM3420	BS Works for Genset	12	14JUN06A	26FEB07	98	0	5	-174	-208
EM3300	LV Sw Installation	30	01OCT06A	28FEB07	95	0	2	-174	-184
Admin Bldg (1/F) - E & M Works									
EM3560	BS Works in 1/F	90	08JUN06A	16MAR07	90	12	9	-168	-181
EM3380	BS Works for UPS Rm (2x)	12	03JUL06A	21FEB07	98	0	1	-182	-209
Admin Bldg (2/F) - E & M Works									
EM3580	BS Works in 2/F	90	08JUN06A	16MAR07	90	0	9	-168	-142
Admin Bldg (Int. & Ext. Roof Lvl) - E & M Works									
EM3600	BS Works in R/F	78	06JUN06A	19MAR07	70	1	23	-170	-189
EM3190	Admin Bldg - Lift Installation	72	19JUN06A	28FEB07	95	0	7	-100	-90
EM3720	Chiller System in R/F (inc. All AC Units)	72	20JUN06A	24FEB07	95	0	4	-143	-87
Admin Bldg - Testing and Commissioning									
EM3640	Termination of overall Elect HV & LV Sys	36	10OCT06A	16APR07	50	0	8	-182	-128
EM3260	HV Sw + Tx Termination + T&C	30	09JAN07A	26MAR07	10	0	15	-176	-151
EM3360	110V Charger Rm Installation + T&C	12	23FEB07	08MAR07	0	0	12	-176	-179
EM3460	Genset Termination + T&C	12	23FEB07	08MAR07	0	0	12	-161	-167
EM3520	MCC Termination + T&C	30	24FEB07	30MAR07	0	0	30	-180	-172



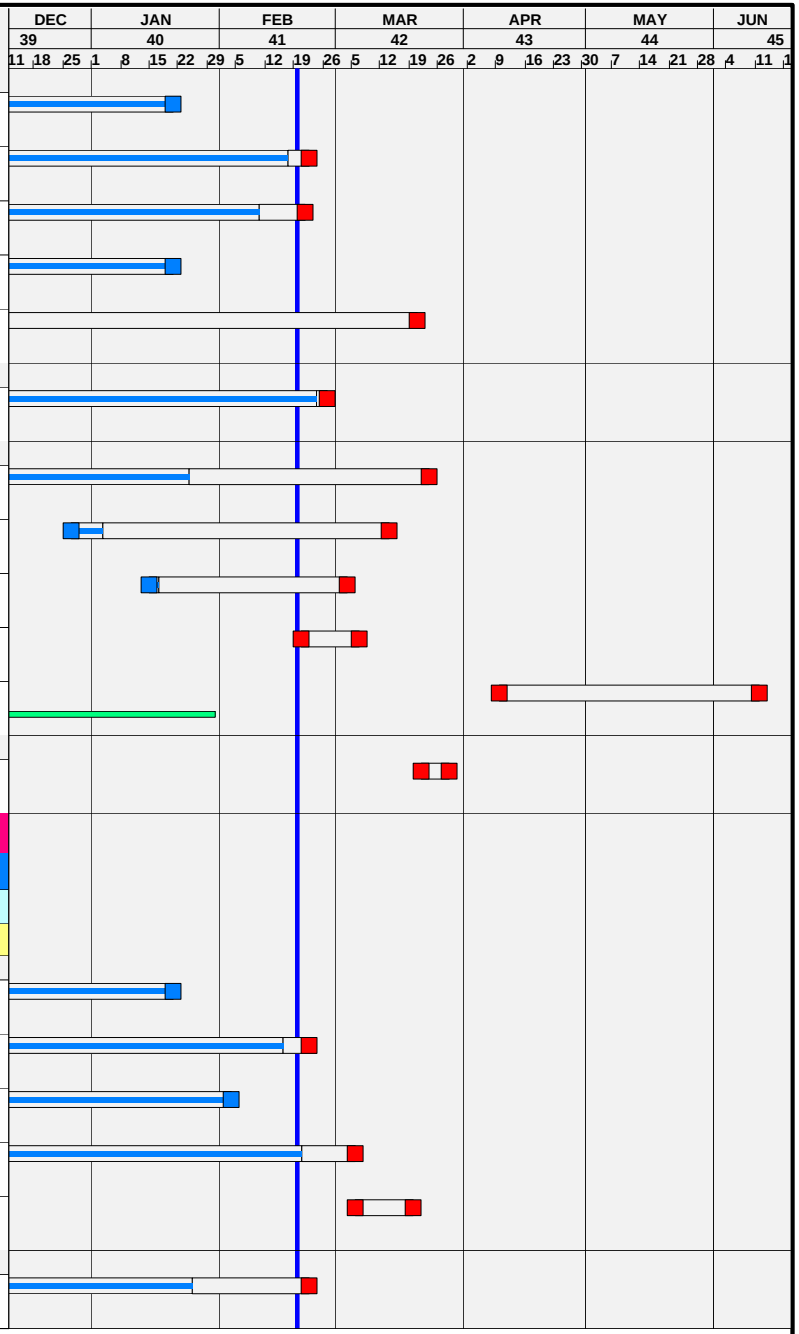
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Admin Bldg - Testing and Commissioning									
EM3740	Integrated E&M System T&C	52	17APR07	18JUN07	0	0	52	-182	-111
Admin Bldg - Statutory Inspection and Handover									
EM3370	Admin Bldg - Lift Commissioning	24	01MAR07	28MAR07	0	0	24	-100	-90
EM3820	Permanent power energization from SHT NP Bldg	6	27MAR07	02APR07	0	0	6	-174	-103
SHATIN HEIGHTS SOUTH PORTAL BUILDING									
CONTRACT DEFINED DATES & SECTIONS									
AREA ACCESS & VACATION DATES									
ACS_J2	Access to - J2 (T.Plate & above) SH-S.Vent.Bldg.	0	10DEC05A		100	100	0		-292
ACS_D8	Access to Portion - D8	0	03JAN06A		100	100	0		-292
PROCUREMENT - MATERIAL									
ABWF WORKS									
2077	SHT SPB - Procure expanded metal mesh cladding	180	06JUN05A	09MAR07	50	50	15	-158	-234
2082	SHT SPB - Initial delivery of slate cladding	0	21FEB07*		0	0	0	-123	-201
2083	SHT SPB - Initial deliv fall arrest roof syst.	0	21FEB07*		0	0	0	-99	-192
2085	SHT SPB - Initial deliv expanded metal cladding	0	14APR07*		0	0	0	-158	-208
CONSTRUCTION									
CIVIL & ABWF WORKS									
AB5983	U/G Drainages and Utilities under bldg	24	01APR06A	22FEB07	95	0	2	-131	-217
AB5986	Backfill, G/F Slabs and Walls	24	20APR06A	08MAR07	95	0	2	-131	-205
ABWF									
AB6022	Remedy SHT Contractor Defects	25	12DEC05A	23FEB07	90	90	3	-176	-237
ABWF at GF									
AB5989	Initial Finishes to G/F	18	11FEB06A	20JAN07A	100	5	0		-199
AB6042	G/F Paint Touch Up & Doors	12	22JAN07A	09MAR07	10	0	10	-84	-112
ABWF at 1F & LP									
AB5995	Initial Finishes to Lower Plenum	12	10APR06A	02MAR07	95	15	5	-144	-231
AB6032	1F & LP Paint Touch Up & Doors	12	03NOV06A	05MAR07	50	0	6	-80	-108



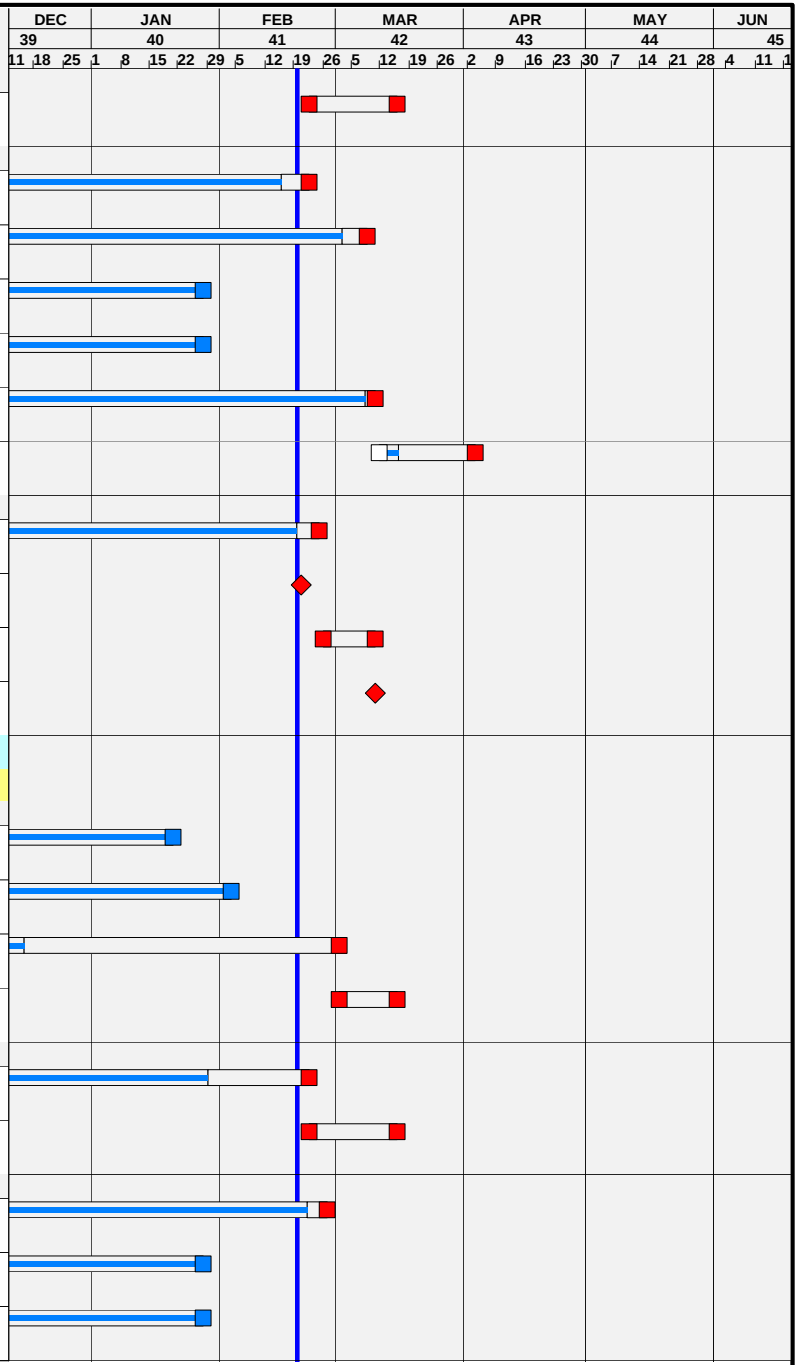
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
ABWF at 2F									
AB6052	2/F Paint Touch Up & Doors	12	11NOV06A	05MAR07	60	0	6	-80	-108
ABWF at 3F									
AB6062	3/F Paint Touch Up & Doors	12	11NOV06A	05MAR07	50	0	6	-80	-108
ABWF at 4F and above									
AB6004	Initial Finishes to 4/F and above	24	13APR06A	02MAR07	90	10	9	-132	-213
AB6072	4/F and above Paint Touch Up & Doors	12	27FEB07	12MAR07	0	0	12	-86	-114
Roof & External Facade									
AB6018	Sht SPB - Ext. Wall Waterproof Render	21	02MAR06A	09MAR07	95	0	2	-150	-228
AB6017	Sht SPB - Ext. Wall Waterproof Membrane	24	04MAR06A	08MAR07	90	90	14	-176	-239
AB6067	Sht SPB - Install Aluminum louvres & doors	75	15MAR06A	04APR07	80	0	37	-176	-200
AB6077	Sht SPB - Alum. composite cladding to ext walls	60	07AUG06A	22MAR07	85	0	9	-113	-123
AB6047	Sht SPB - GMS, S/S Channel, Balustrade & Railing	18	14AUG06A	10MAY07	25	0	14	-150	-222
AB6037	Sht SPB - Roof Waterproofing & Test	12	15DEC06A	22MAR07	40	0	7	-121	-239
AB6057	Sht SPB - 25thk Roof Screed & Roofing Tiles	18	25JAN07A	26APR07	20	0	14	-121	-235
AB6007	Sht SPB - Slate Cladding above NB/SB Carriageway	36	09MAR07	24APR07	0	0	36	-137	-215
AB6027	Sht SPB - External Wall Painting	30	17MAR07	25APR07	0	0	30	-150	-228
AB6034	Sht SPB - Expanded metal cladding to ext walls	30	14APR07	19MAY07	0	0	30	-158	-208
AB6048	Sht SPB - Removed External Scaffolding	12	21MAY07	04JUN07	0	0	12	-158	-168
SHT South Portal Bldg. - BUILDING SERVICES									
E & M WORKS									
SHT South Portal Bldg (G/F) - E & M Works									
EM6065	Installation of FS Pumps & Pipework at GF	18	15NOV06A	26FEB07	95	0	2	-144	-209
SHT South Portal Bldg (2F/Silencer) - E & M Work									
EM6080	BS Works for HV Sw + Tx	12	17JUL06A	21FEB07	98	0	1	-162	-211
EM6300	E&M Works in Corridors 2/F	24	17JUL06A	21FEB07	95	0	1	-162	-187
EM6240	BS Works for Genset	18	01AUG06A	22FEB07	95	0	2	-155	-206
EM6260	Genset Installation	36	14AUG06A	24FEB07	90	0	4	-159	-172



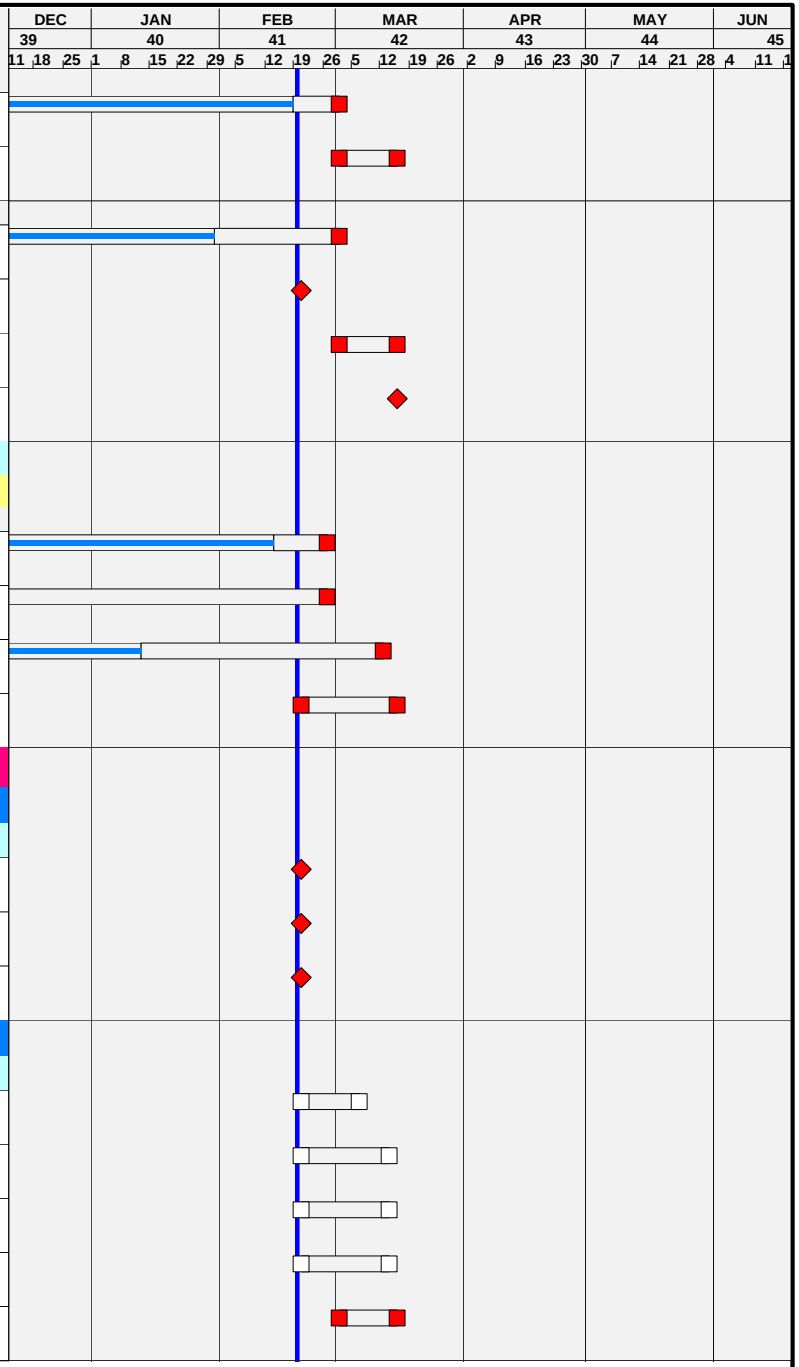
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
SHT South Portal Bldg (3F/Fan Rm) - E & M Work									
EM6140	BS Works for LV Sw, MCC, UPS, LCC	12	12JUN06A	20JAN07A	100	0	0		-187
EM6200	BS Works for 110V Charger Rm	12	12JUN06A	22FEB07	98	0	2	-166	-212
EM6320	E&M Works in Corridors 3/F	24	14JUL06A	21FEB07	95	0	1	-162	-187
EM6160	LV Sw, MCC, UPS, LCC Installation	30	16AUG06A	20JAN07A	100	0	0		-157
EM6360	Termination of overall Elect HV & LV Sys	30	10OCT06A	20MAR07	25	0	10	-163	-144
SHT South Portal Bldg (4F/Upr Plen) - E & M Work									
EM6400	TVS Installation	100	12JUN06A	26FEB07	99	0	5	-144	-114
Testing and Commissioning									
EM6120	HV Sw + Tx Termination + T&C	30	27NOV06A	23MAR07	50	0	15	-166	-177
EM6180	LV Sw, MCC, UPS, LCC Termination + T&C	30	27DEC06A	13MAR07	10	0	10	-163	-168
EM6280	Genset Termination + T&C	12	15JAN07A	03MAR07	5	0	6	-159	-166
EM6220	110V Charger Rm Installation + T&C	12	21FEB07	06MAR07	0	0	12	-166	-210
EM6420	Integrated E&M System T&C	52	10APR07	11JUN07	0	0	52	-176	-104
Statutory Inspection & Issued Certificates									
EM6500	Perm't power energ. (From ENT SPB)	6	22MAR07	28MAR07	0	0	6	-170	-98
SHT TUNNEL									
CONSTRUCTION									
SHT NORTHBOUND TUNNEL									
(E & M) BUILDING SERVICES									
MVAC / Tunnel Ventillation System Above OHVD									
207004	Sht NB - Install Motorized Smoke & Fire Damper	48	22FEB06A	20JAN07A	100	80	0		-207
207006	Sht NB - Comp Air Pipes/Condts to E/P1 to E/P5	36	12APR06A	22FEB07	98	5	2	-162	-219
207005	Sht NB - Comp Air Pipes/Condts to E/P10 to E/P6	36	20JUN06A	03FEB07A	100	0	0		-170
207007	Sht NB - Cabling, wiring and termination	24	20JUN06A	05MAR07	95	0	3	-162	-168
207008	Sht NB - MVAC Testing and T&C	12	06MAR07	19MAR07	0	0	12	-162	-168
Plumbing and Drainage									
214030	Sht NB - Pipe Testing & T&C	12	15MAY06A	22FEB07	90	0	2	-159	-201



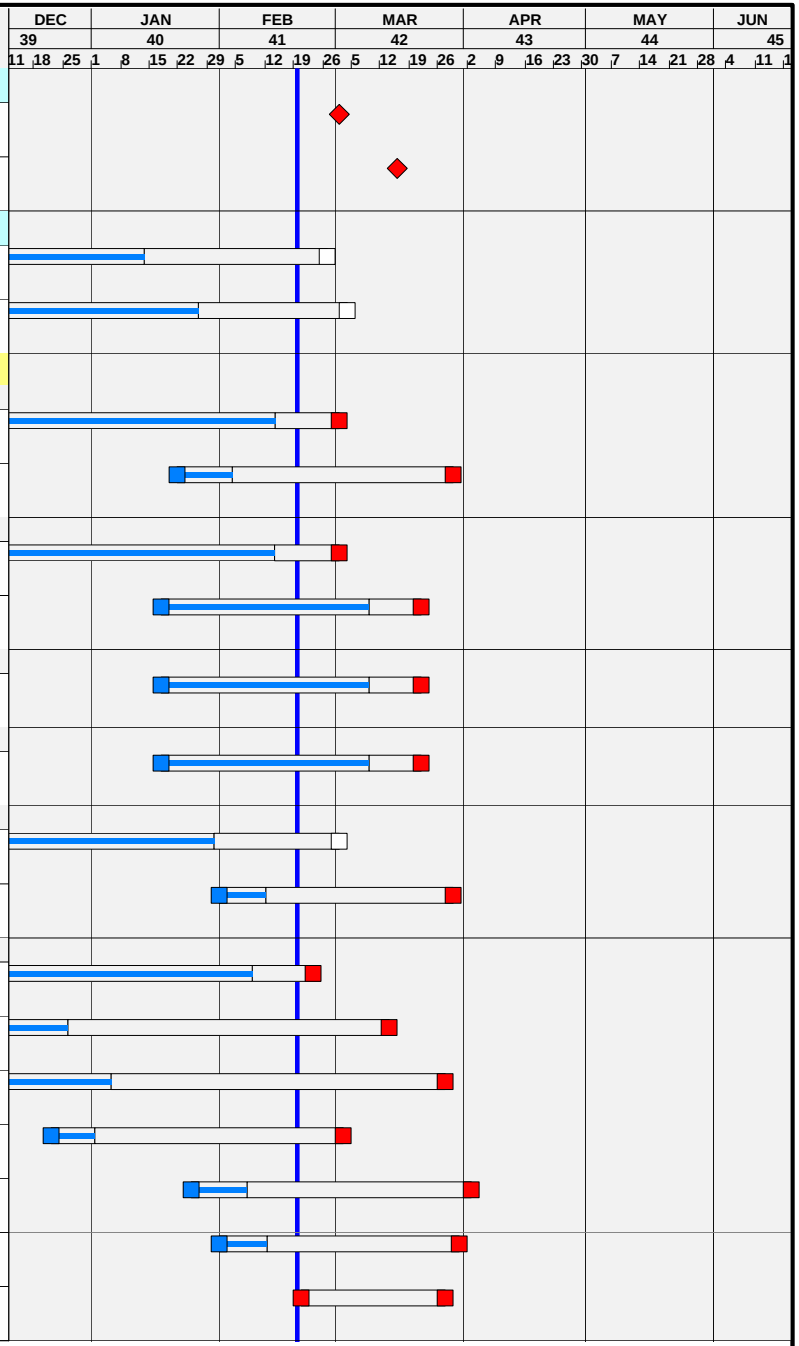
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
	Plumbing and Drainage								
214028	Sht NB - Pipe Connectn, pumps, tanks to SP / NP	18	23FEB07	15MAR07	0	0	18	-159	-231
	Fire Protection System								
221054	Sht NB - Install FS Conduits for Niches	30	22MAR06A	22FEB07	98	20	2	-175	-217
221057	Sht NB - Hose Reel Cabinets & Equipts	40	08MAY06A	08MAR07	98	0	2	-175	-183
221052	Sht NB - Install brckt for detection sys @ C/L	30	20OCT06A	27JAN07A	100	0	0		-192
221053	Sht NB - Install detection system @ Ceiling Lvl	24	25OCT06A	27JAN07A	100	0	0		-168
221059	Sht NB - FS wiring & termination	24	09NOV06A	10MAR07	98	0	2	-175	-159
221061	Sht NB - FS Testing and T&C	12	12MAR07	03APR07	20	0	20	-175	-167
	Electrical Works Below OHVD								
235165	Sht NB - Cabling, Wiring and Termination	36	30MAY06A	24FEB07	98	0	4	-167	-162
235163	Stn NB Access to Civil Contractr for Rd Pavement	0	21FEB07		0	0	0	-163	-182
235166	Sht NB - Lighting Test and T&C	12	26FEB07	10MAR07	0	0	12	-167	-162
235167	Stn NB Access to Civil Contractor for Top Layer	0		10MAR07	0	0	0	-167	-162
	SHT SOUTHBOUND TUNNEL								
	(E & M) BUILDING SERVICES								
	MVAC / Tunnel Ventilation System Above OHVD								
242270	Sht SB - Install Motorized Smoke & Fire Damper	48	02MAR06A	20JAN07A	100	74	0		-204
242272	Sht SB - Comp Air Pipes/Condts to E/P1 to E/P5	36	08MAY06A	03FEB07A	100	0	0		-156
242273	Sht SB - Cabling, wiring and termination	24	20JUN06A	01MAR07	70	0	8	-162	-151
242274	Sht SB - MVAC Testing and T&C	12	02MAR07	15MAR07	0	0	12	-159	-151
	Plumbing and Drainage								
249393	Sht SB - Pipe Testing and T&C	12	22JUN06A	22FEB07	90	0	2	-159	-177
249392	Sht SB - Pipe Connectn, pumps, tanks to SP / NP	18	23FEB07	15MAR07	0	0	18	-159	-207
	Fire Protection System								
256518	Sht SB - Hose Reel Cabinets & Equipts	40	30JUN06A	26FEB07	98	0	5	-159	-120
256514	Sht SB - Install brckt for detection sys @ C/L	30	04SEP06A	27JAN07A	100	0	0		-192
256515	Sht SB - Install detection system @ Ceiling Lvl	24	01OCT06A	27JAN07A	100	0	0		-168



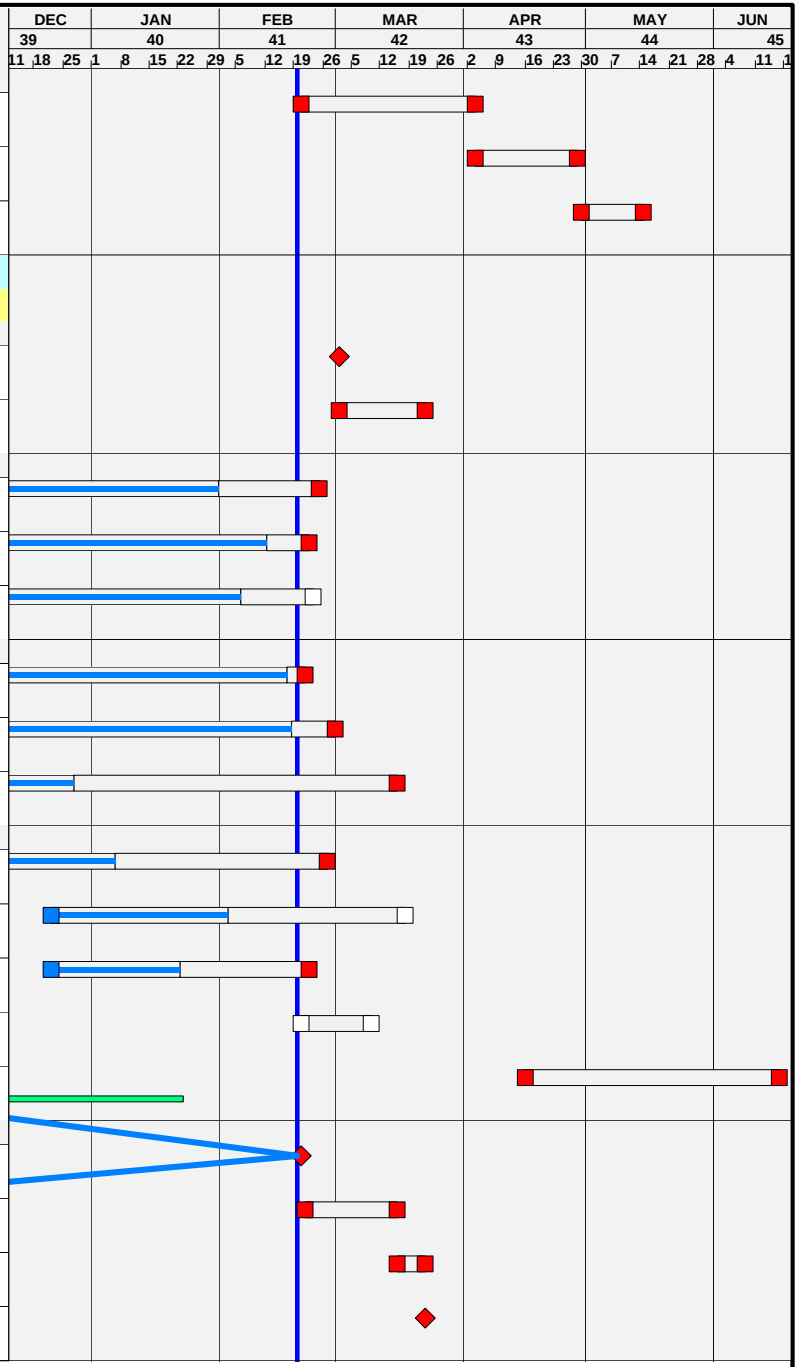
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
	Fire Protection System								
256520	Sht SB - FS Wiring & Termination	24	10NOV06A	01MAR07	90	0	3	-159	-97
256521	Sht SB - FS Testing and T&C	12	02MAR07	15MAR07	0	0	12	-159	-97
	Electrical Works Below OHVD								
270803	Sht SB - Cabling, Wiring and Termination	36	01OCT06A	01MAR07	80	0	8	-171	-120
270801	Stn SB Access to Civil Contractr for Rd Pavement	0	21FEB07		0	0	0	-163	-178
270804	Sht SB - Lighting Test and T&C	12	02MAR07	15MAR07	0	0	12	-171	-120
270805	Stn SB Access to Civil Contractor for Top Layer	0		15MAR07	0	0	0	-171	-120
	SHT CROSS PASSAGES (CP1 to CP10)								
	(E & M) BUILDING SERVICES								
	Electrical Works								
277959	(CP1-CP10) - MCCB / MCB Bd,CMCS,Busbar,Switches	72	13JUN06A	26FEB07	95	0	5	-174	-129
277960	(CP1-CP10) - Conduit, light Fixture, Swt & Test	36	15AUG06A	26FEB07	40	0	5	-171	-165
277961	(CP1-CP10) - HV & LV Cables Termination & Test	48	15NOV06A	12MAR07	50	0	4	-171	-115
277962	(CP1-CP10) - Switchboard, CMCS, Eqpt, Testing	48	21FEB07	15MAR07	0	0	20	-174	-118
	SHT NORTH PORTAL BUILDING								
	PROCUREMENT - MATERIAL								
	ABWF WORKS								
2102	SHT NPB - Initial delivery of slate claddings	0	21FEB07*		0	0	0	-153	-192
2104	SHT NPB - Initial deliv fall arrest roofing syst	0	21FEB07*		0	0	0	-117	-185
2106	SHT NPB - Initial deliv alum. composite cladding	0	21FEB07*		0	0	0	-129	-157
	CONSTRUCTION								
	TCSS Access to SHT North Portal Bldg								
EM7286	TCSS Containment in 1/F	12	21FEB07	06MAR07	0	0	12	215	-223
EM7289	TCSS Containment in Lower Plenum	18	21FEB07	13MAR07	0	0	18	209	-218
EM7292	TCSS Containment in 2/F	18	21FEB07	13MAR07	0	0	18	209	-223
EM7295	TCSS Containment in 3/F and above	18	21FEB07	13MAR07	0	0	18	209	-218
EM7283	TCSS Containment in G/F	12	02MAR07	15MAR07	0	0	12	-267	-226



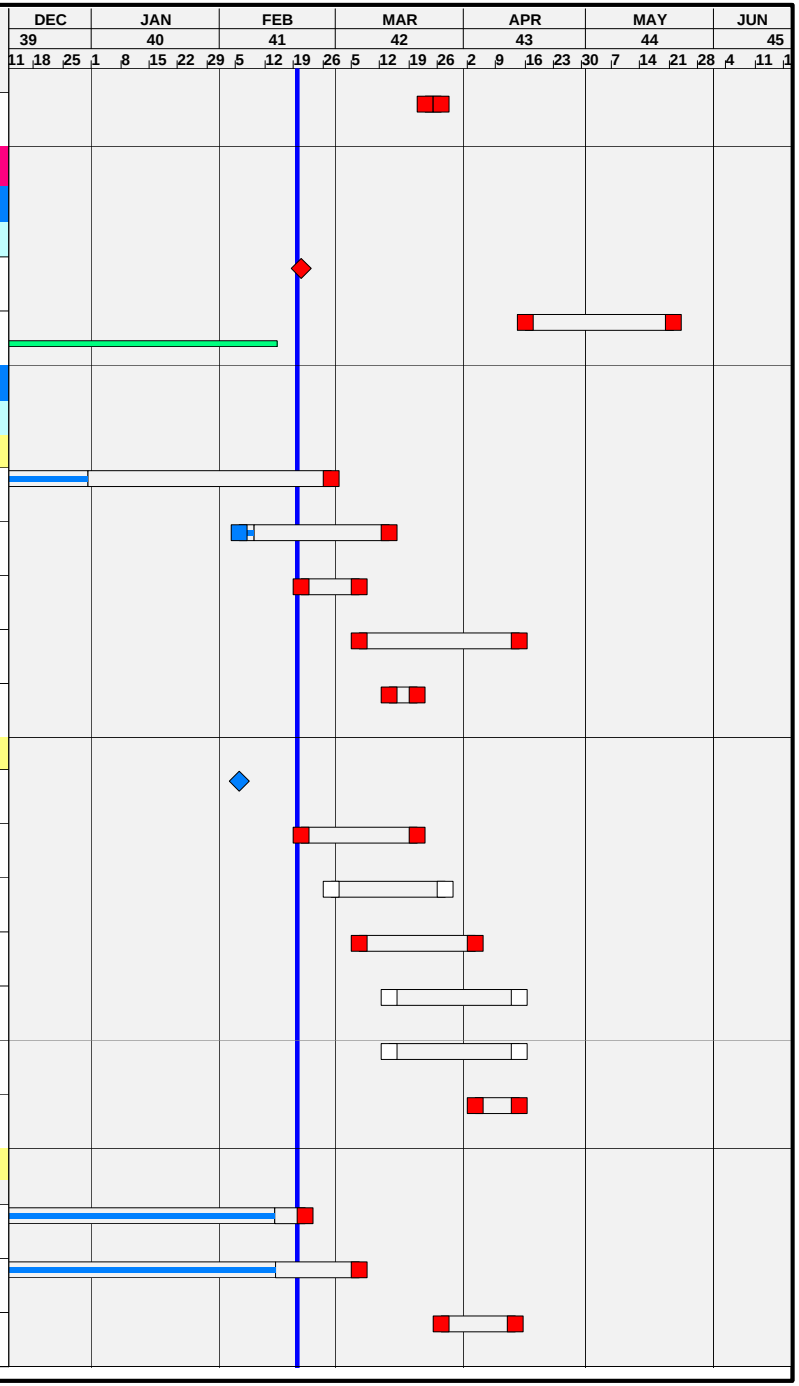
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
TCSS Access to SHT North Portal Bldg									
EM7290	TCSS ACCESS - GF (Room G02-G03, G04-G08)	0		01MAR07	0	0	0	-263	-226
EM7293	TCSS ACCESS - GF (Room G09,G15)	0		15MAR07	0	0	0	-267	-226
CIVIL & ABWF WORKS									
AB7040	11U/G Drainages and Utilities under bldg	24	20JUL06A	26FEB07	80	0	5	217	-220
AB7060	Backfill, G/F Slabs and Walls	24	04SEP06A	03MAR07	80	0	5	217	-201
ABWF Works									
ABWF at GF									
AB7080	Initial Finishes to G/F	18	25APR06A	01MAR07	95	7	8	-267	-226
AB7330	G/F paint Touch Up & Doors	12	22JAN07A	29MAR07	20	0	10	-101	-108
ABWF at 1F & LP									
AB7120	Initial Finishes to Lower Plenum	12	22APR06A	01MAR07	95	0	8	-161	-226
AB7320	1F & LP Paint Touch Up & Doors	12	18JAN07A	21MAR07	80	0	3	-94	-101
ABWF at 2F									
AB7340	2/F Paint Touch Up & Doors	12	18JAN07A	21MAR07	80	0	3	-94	-101
ABWF at 3F									
AB7350	3/F Paint Touch Up & Doors	12	18JAN07A	21MAR07	80	0	3	-94	-101
ABWF at 4F									
AB7180	Initial Finishes to 4/F and above	24	02MAY06A	01MAR07	90	0	8	219	-214
AB7360	4/F and above Paint Touch Up & Doors	12	01FEB07A	29MAR07	20	0	10	-101	-108
Roofing & External Facade									
B70205	Sht NPB - Ext. Wall Waterproof Render	21	04MAY06A	23FEB07	95	0	3	-132	-212
AB7290	Sht NPB - Install Aluminum louvres & doors	75	06MAY06A	13MAR07	75	0	18	-117	-181
AB7280	Sht NPB - Alum. composite cladding to ext walls	60	16OCT06A	27MAR07	50	0	30	-129	-127
AB7270	Sht NPB - Roof Waterproofing & Test	12	22DEC06A	02MAR07	15	0	9	-152	-221
AB7300	Sht NPB - 25thk Roof Screed & Roofing Tiles	18	25JAN07A	02APR07	20	0	14	-152	-217
AB7260	Sht NPB - External Wall Painting	30	01FEB07A	30MAR07	20	0	24	-132	-206
AB7220	Sht NPB - Expanded metal cladding to Ext Walls	30	21FEB07	27MAR07	0	0	30	-129	-167



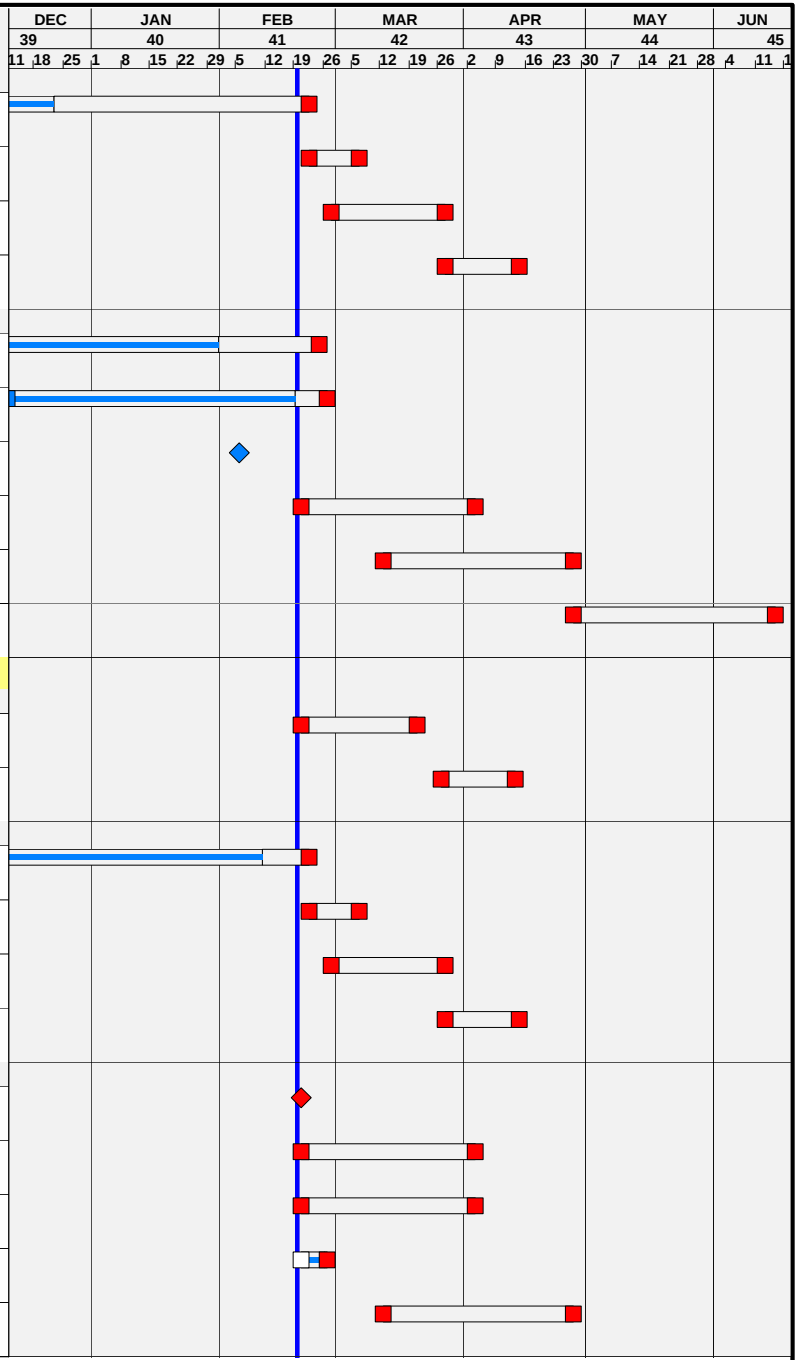
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Roofing & External Facade									
AB7310	Sht NPB - Slate Cladding above NB/SB Carriageway	36	21FEB07	03APR07	0	0	36	-153	-192
AB7250	Sht NPB - GMS, S/S Channel, Balustrade & Railing	18	04APR07	28APR07	0	0	18	-153	-192
AB7255	Sht NPB - Removed External Scaffolding	12	30APR07	14MAY07	0	0	12	-153	-151
Sht North Portal Bldg. - BUILDING SERVICES									
E & M WORKS									
SHT North Portal Bldg (G/F) - E & M Works									
EM7280	E&M Access to G/F	0	02MAR07		0	0	0	-267	-226
EM7281	Installation of FS Pumps & Pipework at GF	18	02MAR07	22MAR07	0	0	18	-165	-226
SHT North Portal Bldg (2F/Silencer) - E & M Work									
EM7600	BS Works for TVS Plenums	30	26JUN06A	24FEB07	90	0	4	-161	-192
EM7520	E&M Works in Corridors 2/F	24	01AUG06A	22FEB07	95	0	2	-162	-189
EM7480	Genset Installation	30	01SEP06A	23FEB07	90	0	3	212	-172
SHT North Portal Bldg (3F/Fan Rm) - E & M Work									
EM7360	BS Works for LV Sw, MCC, UPS, LCC	12	17JUL06A	21FEB07	98	0	1	-174	-207
EM7540	E&M Works in Corridors 3/F	24	01AUG06A	28FEB07	95	0	3	-167	-189
EM7580	Termination of overall Elect HV & LV Sys	29	10OCT06A	15MAR07	50	0	5	-174	-118
Testing and Commissioning									
EM7340	HV Sw + Tx Termination + T&C	30	16NOV06A	26FEB07	50	0	3	-161	-156
EM7400	LV Sw, MCC, UPS, LCC Termination + T&C	30	22DEC06A	17MAR07	50	0	5	205	-168
EM7440	110V Charger Rm Installation + T&C	12	22DEC06A	22FEB07	50	0	2	-161	-196
EM7500	Genset Termination + T&C	12	21FEB07	09MAR07	0	0	12	212	-172
EM7640	Integrated E&M System T&C	52	16APR07	16JUN07	0	0	52	-181	-116
Statutory Inspection & Issued Certificates									
EM7691	Room Available for CLP Equipment Installation	0	21FEB07*		0	0	0	-136	0
EM7660	Submit WR1 to CLP (SHT NP Bldg)	6	22FEB07	15MAR07	0	0	6	-174	-118
EM7680	CLP insp.	6	16MAR07	22MAR07	0	0	6	-174	-106
EM7700	CLP connection/ready for energization	0		22MAR07	0	0	0	-174	-106



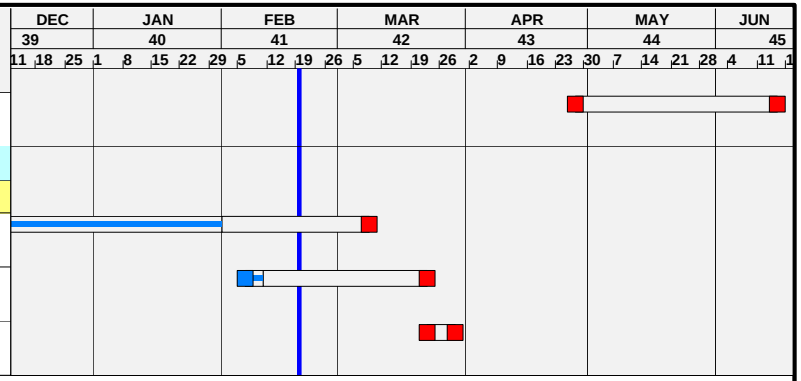
Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Statutory Inspection & Issued Certificates									
EM7720	Perm't power energ. (From SHT NPB)	3	23MAR07	26MAR07	0	0	3	-174	-103
SHT RC ENCLOSURE & T3 UNDERPASS									
INTERFACE DATES									
SHT RC FULL ENCLOSURE / T3 UNDERPASS									
EM4020	LKJV - Posession of T3 Underpass	0	21FEB07*		0	0	0	-82	-219
EM4030	Integrated T&C	30	16APR07	21MAY07	0	0	30	-147	-74
CONSTRUCTION WORKS									
SHT RC FULL ENCLOSURE / T3 UNDERPASS									
Koisk S1 at Shatin North Control Point									
EM3950	Kiosk S1 - Structure & Fittings	24	03OCT06A	27FEB07	60	0	6	-74	-221
EM3952	Kiosk S1 - Install E&M Works	18	06FEB07A	13MAR07	10	0	15	-74	-215
EM3960	Wighbridge S1 - Install	12	21FEB07	06MAR07	0	0	12	-92	-239
EM3970	Weighbridge S1 - Test and T&C	30	07MAR07	14APR07	0	0	30	-92	-239
EM3954	Kiosk S1 - E&M Testing and T&C	6	14MAR07	20MAR07	0	0	6	-74	-215
RC Full Enclosure - LV Switch Room									
280070	E&M Access to Southern LV Switch Room	0	06FEB07A		100	0	0		-229
280072	LV SW Rm - Cable Containment & Equipt Supports	24	21FEB07	20MAR07	0	0	24	-181	-239
280074	LV SW Rm - SWGR, MCCB/ MCB Board, FS Panels	24	28FEB07	27MAR07	0	0	24	185	-209
280076	LV SW Rm - Elect Lightings & Conduits	18	07MAR07	03APR07	0	0	18	-181	-233
280079	LV SW Rm - MCCB,MCB,LV Sw,FS panels Term & Test	18	14MAR07	14APR07	0	0	18	185	-203
280080	LV SW Rm - Connect HV / LV Cables from SHT NPB	24	14MAR07	14APR07	0	0	24	185	-191
280078	LV SW Rm - Lightings wiring, term & test	6	04APR07	14APR07	0	0	6	-181	-233
STN RC FULL ENCLOSURE (North Bound) - E&M WORKS									
MVAC / Tunnel Ventillation System									
280000	RCFE NB - Ductworks Supports / Containment @ C/L	36	18FEB06A	21FEB07	98	30	1	-157	-223
280006	RCFE NB - Cabling, wiring and termination	24	25NOV06A	06MAR07	80	0	5	-129	-162
280008	RCFE NB - MVAC Testing and T&C	12	27MAR07	13APR07	0	0	12	-146	-103



Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Fire Protection System									
280026	RCFE NB - FS Conduit, Hose Reel Cabinets & Eqpt.	16	31JUL06A	22FEB07	70	0	2	-147	-165
280029	RCFE NB - Install Smoke detector @ N1-N3	10	23FEB07	06MAR07	0	0	10	-135	-165
280030	RCFE NB - FS Wiring & Termination	24	28FEB07	27MAR07	0	0	24	-147	-165
280032	RCFE NB - FS Testing and T&C	12	28MAR07	14APR07	0	0	12	-147	-104
Electrical Works									
280048	RCFE NB - Earthing, Lighting, Equipt. @ C/L	48	26JUN06A	24FEB07	90	0	4	-131	-135
280046	RCFE NB - Conduits Works @ Ceiling Level	36	11DEC06A	26FEB07	90	0	5	-132	-148
280034	RCFE NB - E&M Access to Southern LV Sw Room	0	06FEB07A		100	0	0		-193
280038	RCFE NB - HV & LV Cabling Works @ C Trough	36	21FEB07	03APR07	0	0	36	-180	-203
280040	RCFE NB - Install Power Distn Panels & Test	30	13MAR07	27APR07	0	0	30	-180	-190
280054	RCFE NB - Tunnel Signage, Wiring, Term & Test	40	28APR07	15JUN07	0	0	40	-180	-166
STN RC FULL ENCLOSURE (South Bound) - E&M WORKS									
MVAC / Tunnel Ventillation System									
280088	RCFE SB - Cabling, wiring and termination	24	21FEB07	20MAR07	0	0	24	-141	-174
280090	RCFE SB - MVAC Testing and T&C	12	27MAR07	13APR07	0	0	12	-146	-103
Fire Protection System									
280096	RCFE SB - FS Conduit, Hose Reel Cabinets & Eqpt.	16	01NOV06A	22FEB07	90	0	2	-147	-202
280100	RCFE SB - Install Smoke detector @ S1-S4	10	23FEB07	06MAR07	0	0	10	-135	-202
280102	RCFE SB - FS Wiring & Termination	24	28FEB07	27MAR07	0	0	24	-147	-202
280104	RCFE SB - FS Testing and T&C	12	28MAR07	14APR07	0	0	12	-147	-104
Electrical Works									
280110	RCFE SB - E&M Access to Southern LV Sw Room	0	21FEB07*		0	0	0	-180	-203
280112	RCFE SB - HV & LV Cabling Works @ C Trough	36	21FEB07	03APR07	0	0	36	-180	-203
280118	RCFE SB - Conduits Works @ Ceiling Level	36	21FEB07	03APR07	0	0	36	-163	-179
280120	RCFE SB - Earthing, Lighting, Equipt. @ C/L	48	21FEB07	26FEB07	90	0	5	-132	-136
280114	RCFE SB - Install Power Distn Panels & Test	30	13MAR07	27APR07	0	0	30	-180	-190



Act. ID	Activity Description	Orig Dur	Early Start	Early Finish	% Compl.	Target 1 % Comp	Rem Dur	Total Float	Variance Early Finish
Electrical Works									
280124	RCFE SB - Tunnel Signage, Wiring, Term & Test	40	28APR07	15JUN07	0	0	40	-180	-166
T3 UNDERPASS									
Kiosks S2 at T3 Underpass Portal									
EM3980	Kiosk S2 - Structure & Fittings	24	11SEP06A	08MAR07	80	0	14	-82	-209
EM4000	Kiosk S2 - Install E&M Works	18	07FEB07A	22MAR07	10	0	15	-82	-203
EM4002	Kiosk S2 - E&M Testing and T&C	6	23MAR07	29MAR07	0	0	6	-82	-203



Delcan-Imtech-GTECH Joint Venture
Contract No. HY/2003/05
Route 8 - Traffic Control and Surveillance System

道易通聯營公司
DELCAN-IMTECH-GTECH
JOINT VENTURE

Record Date: 02-03-2007

5-week Rolling Programme of Site Works
Rev: 0

Item No.	Civil Area	Portion	Work Area	Activity	[8]Type of major equipment / plant to be used	Fenb 07					Mar-07																															
						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	M	T	W	T	F	S	S
						24	25	26	27	28	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	26	27	28	29	30	31	1
1	Works Area	A	DIGJV Site Office	Pesticide spraying	N.A.				N			R																														
2	Works Area	A	Subcontractor warehouse	Material preparation for cable containment / Cable laying	N.A.																																					
3	Works Area	A	DIGJV Site Office	Assemble of control cabinet	N.A.	N			N	N	N																															
4	Road T3	G	Road T3	Routine Checkings	Van																																					
5	Road T3	G	Road T3 / Road Gantry	[3]Installation of Field equipment (Gantry refer: ADS1-T3,FADS1-T3 & DS7-SHT)	Special design lorry	R		R	R	R	R	R																														
6	SHT	H1A, H1B, H1C	SHT (SB,NB, NPB, SPB)	Routine Checkings	Van																																					
7	SHT	H1B & H1C	SHT(N/B, then S/B)	TCSS Traffic field equipment installation	Scissor lift						R	R																														
8	SHT	H1A, H1B, H1C	SHT (S/B & N/B)	Cable laying	Special design lorry				N	N																																
9	SHT	H1A	SHT NPB, G/F - 1/F	[1] & [3]Installation of cable containment	Metal scaffolding	R																																				
10	SHT	H1A	SHT SPB, G/F - 1/F	[1] & [3]Installation of cable containment	Metal scaffolding							R																														
11	SHT	H1C	SHT - CP, LV switch room	Wiring of control cabinet	Van																																					
12	SHT	H1A	SHT - SPB & NPB	Antenna mounting bracket	Van																																					
13	SHT	H1A	SHT - SPB & NPB (L/P & U/P)	Dismantle of cable conduit	Van			R	R	R	R	R																														
14	SHT	H1B & H1C	SHT - N/B & S/B	Cable termination	Scissor lift																																					
15	SHT	H1A	SHT - NPB (G/F - U/P)	FRP joint site inpsection	Van					N																																
16	SHT	H2	SHT - Open road Section	Routine Checkings	Van																																					
17	SHT	H2	SHT Open road section	Cable laying	special design lorry																																					
18	SHT	H2	SHT Open road section	[3]Remedial work of cable containment	special design lorry																																					
19	SHT	H2	SHT Open road section	Fibre cable splicing and termination	Van	R																																				
20	SHT	H3	SHT - RCFE	Routine Checkings	Van																																					
21	SHT	H3	SHT - RCFE (S/B first, then N/B)	[1] & [3]Installation of cable containment	Special design lorry																																					
22	SHT	H3	SHT - RCFE	Cable laying	Special design lorry			R	R	R	R	R																														
23	ENT	I1, I2 & I3	ENT Tunnel (SB, NB, NPB, SPB, ADB, VB, Toll Plaza & Butterfly Valley)	Routine checkings	Van																																					
24	ENT	I2	ENT Tunnel (S/B & N/B)	[3] Cable laying	Special design lorry			R			R																															
25	ENT	I2	ENT Tunnel (S/B & N/B)	[3]TCSS Traffic field equipment	Scissor lift			R	R	R	R	R																														
26	ENT	I2	ENT - CP, LV switch room	[2][3] Cable containment	Van			R	R	R	R	R																														
27	ENT	I1 & I3	ENT - NPB / SPB (1/F & R/F)	Cable Containment	Metal scaffolding																																					
28	ENT	I1 & I3	ENT - NPB/SPB (G/F, 2/F & R/F)	Outdoor's cable containment	Metal scaffolding																																					
29	ENT	I1 & I3	ENT - SPB/SPB	Antenna mounting bracket	Van																																					
30	ENT	I1 & I3	ENT -SPB/NPB (L/P & U/P)	Dismantle of cable conduit	Van			R	R	R	R	R																														
31	ENT	I3	ENT - ADB (Control Rm, Computer Rm, Telecom Rm. & Dark Rm, 2/F and R/F)	Cable containment	Van	R				N	N	N																														
32	ENT	I3	ENT - Workshop Block	Cable Containment	Van			R	R																																	
33	ENT	I2	ENT - Vent. Building (ELV Equip. Rm)	Cable Containment	Van				R																																	
34	ENT	I2	ENT - S/B & N/B	Cable Containment	Scissor lift			N	N	N																																
35	ENT	I2	ENT - S/B & N/B	Cable testing	Scissor lift																																					
36	ENT	I1	ENT -Butterfly Valley (Gantry GT104 & ADS 1)	[3]TCSS Traffic field equipment	Special design lorry	N		N																																		
37	ENT	I3	ENT - Toll plaza, Subway	[3] Cable laying	Special design lorry																																					
38	ENT	I3	ENT - ADB, G/F - 2/F	[3] Cable wiring	Metal scaffolding			N	N	N	N	N																														
39	LCKV	J1	LCKV	Routine checkings	Van																																					
40	NWT	B & C	NWT (E/B, W/B & WEB)	Routine checkings	Van																																					
41	NWT	B	NWT - E/B	[3]Cable containment installation	Scissor lift			R	R	R																																
42	NWT	B	NWT - W/B	[3]Cable containment installation	Scissor lift			R	R	R																																
43	NWT	B	NWT, E/B & W/B	[3] cable laying	Special design lorry			R	R	R	R																															
44	NWT	B	NWT, E/B & W/B	[3]TCSS Traffic field equipment installation	Scissor lift					R	R	R																														
45	NWT	B	NWT - CP, TCSS Room	Cable containment installation	Van			R	R			R																														
46	NWT	C	NWT, WEB (control room)	Video wall & console installation	Van						R	R																														
47	NWT	B	NWT, E/B & W/B	[2]Cable termination & testing	Scissor lift																																					
48	NWT	B	NWT, E/B & W/B	[2] & [8]Cable bracket for leaky coaxial cable	Scissor lift																																					

Legend :
= Planned activity
= Work Done
= Public Holiday

R - Re-scheduled
N - New activity
A - Awaiting of site access

Distribution: Arup-Johnny Mac, 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

Remark: The schedule only shows the anticipated works planned and shall be subject to changes which will be reported by daily labour forecast on ad-hoc bases.

Note:
[1] Works depends on spatial co-ordination among related Main Contractor and TCSS.
[2] Works Subject to Traffic Tube arrangement
[3] Works subject to condition of site access & civil provision.
[4] Works subject to SCURVY 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
[8] Works subject to the site access of the major equipment.

APPENDIX M
COMPLAINT LOG

Appendix M - Complaint Log

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
40426	Butterfly Valley	26 April 2004	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.	<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. <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. 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.	Closed
40914	Garden Villa	13-Sep-04 (by EPD) 14-Sep-04 (by ET Leader)	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. 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,	<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. <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.	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
			the complainant was particularly concerned of two issues: 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. 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.	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. <u>Use of TAR no.l</u> According to Condition 3d of the above-mentioned CNP, there was restriction on the use of site vehicles traveling on TAR no.1. The usage of site vehicles on TAR no.1 in a 2-week period before the date of complaint, i.e. 30th August to 12th 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. Regular noise monitoring was undertaken by ET at Garden Villa on 30th August and 6th 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. 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. For the use of TAR no.1, the RSS's records showed that the number of vehicle pass in the period between 30th August and 12th September 2004 was complied with the CNP's conditions. It should be noted that only a maximum of 3 concrete trucks	

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				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). Nevertheless, the Contractor was reminded to ensure the compliance of the CNP conditions and adopt good site practice to minimize the construction noise.	
41021	Garden Villa	09-Oct-04 (by EPD) 21-Oct-04 (by ET Leader)	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. 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: • Construction works undertaken by the Contractor (Leighton–Kumagai Joint Venture) were noted after 2300 hour. • 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.	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. 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: 1. Driving the vehicles too fast, which generated excessive engine noise; 2. Noise inside the vehicles (such as staff talking or radios) escaping through the open vehicle windows; and 3. Vehicle beeping horn to request the guards to open the gate. 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: 1. to drive slowly in order to reduce the engine noise, especially when approaching Garden Villa; 2. to roll up the vehicle windows to contain any noise from talking or radios; and 3. to prohibit beeping the vehicle horn for gate opening; instead, to park the car and approach the guard on foot.	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 20th 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 23rd October 2004.	The complaint was considered valid based on: 1. ER's site observations; 2. ET's weekly site audit; and 3. 1-hr TSP exceedance record. Also, the sources of dust generation were identified as 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. 2. Dust impact due to the haulage of excavated materials at the South Portal. Enhanced dust suppression measures had been implemented by the Contractor: • added rockfill to the haul road between South Portal Tunnel and the Gully fill area; • maintained watering to haul road at Slope BV-S2; • requested the fill material supplier to ensure the material was in a damp condition before leaving quarry; • provided for material not dampened at the Quarry to be directed to the wheel wash for water spray before entering the site; • when cleaning drill holes along slope BV-S4 to ensure adequate water was available for flushing to suppress dust emission; AND • provided damper stockpiles of cleared material at BV-S2 before loading. 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 29th Oct 04. No significant fugitive dust emission has been found. During ET's site inspections on 27th Oct and 3rd Nov 2004, the situation was found improved. No deficiency relating to air quality impact was noted by ET during the two audit sessions. The results of air quality monitoring (1-hr and 24-hr TSP) in the period between 21st Oct and 2nd Nov 2004 were all found to be complied with the Action / Limit Levels.	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 21st 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 24th November 2004.	According to the ER, the only construction activity at Butterfly Valley undertaken on 21st 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 21st and 28th 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 1st 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
				Contractor. However, owing to the prevailing of the dry season, the Contractor was reminded to ensure the dust control measures are effectively implemented.	
50125	Garden Villa (North Portal)	21-Jan-05 (by EPD) 25-Jan-05 (by ET Leader)	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. 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: 1. Noise from tunnel blasting work carrying out at around 7:30am and 10:00pm; and 2. Dump trucks without covering of canvas when leaving the construction site.	**Noise from blasting** 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: • To inform the residents around the area about the time of blasting in advance; and • To re-schedule the blasting time table, if possible, in order to avoid nuisance. **Uncovered dump trucks** 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. 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. LKJV was reminded to keep closely monitoring on the condition and the effectiveness of the proposed control measures.	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)	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. 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: 1. Nighttime & Sunday construction noise 2. Noise from tunnel blasting at early morning and nighttime 3. Dust from construction activities	*Nighttime & Sunday construction noise* • no exceedance for noise monitoring • restricted hour works were found complied with the CNPs • records of vehicular trips on TAR1 did not show non-compliance of CNP conditions *Noise from tunnel blasting at early morning and nighttime* • no exceedance for noise monitoring • valid blasting permit had been obtained from CEDD • blasting work is not under the jurisdiction of EPD *Dust from construction activities* • dump trucks with uncovered / inadequately covered materials were observed leaving site • no exceedance for TSP monitoring • enhanced dust suppression measures had been implemented by the Contractor <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.	Closed
50330	Garden Villa (TAR1)	30-Mar-05 (by EPD & ET Leader)	Environmental Protection Department (EPD) received a public complaint on 30th 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. The complaint, which was lodged by a resident of Garden Villa on 29th 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.	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). The time period of concern was within normal working hours (7am to 7pm) on a weekday not being holidays. According to the EM&A Manual, the criterion of construction noise in term of L_{eq}-30min within this period is 75 dB(A) for domestic premises. 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 (L_{eq}-30min) were below the daytime noise	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				criterion of 75 dB(A). Based on the results of routine noise monitoring and the ad-hoc measurement on 1st 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. 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).	
50415	Government Quarters	09-Apr-05 (by EPD) 15-Apr-05 (by ET Leader)	The complaint, which was lodged by a resident of 7/F, 38B, 8-10 Caldecott Road (Governmental Quarters) on 9th 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). EPD subsequently referred the complaint to the Environmental Team (ET) Leader of the Project on 15th April 2005. The time period of concern was within normal working hours (7am to 7pm) on a weekday not being public holidays. According to the EM&A Manual, the criterion of construction noise in term of L_{eq}-30min within this period is 75 dB(A) for domestic premises.	Governmental Quarters (Station NM6) is one of the designated noise monitoring stations in the EM&A programme. Routine monitoring is undertaken on a weekly basis in accordance with the EM&A Manual. Since the commencement of the Project, no exceedance of daytime noise criterion of 75 dB(A) was recorded at this station. 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). 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.	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
50419	Government Quarters	15-Apr-05 (by EPD) 19-Apr-05 (by ET Leader)	The complaint was lodged by a resident of 8-10 Caldecott Road (Government Quarters) on 15th April 2005 to EPD as well as the Chief Resident Engineer of the Project. EPD subsequently referred the complaint to the Environmental Team (ET) Leader of the Project on 19th April 2005. 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 14th April 2005 and at 4am on 15th April 2005.	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. According to the information provided by the Resident Site Staff and the Contractor, the construction activities undertaken in the period between 11th and 15th April 2005 from 1900 to 0700 hours included drilling, breaking, trimming, set up of rock drill, installation of arch-rib and grouting. 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. 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. 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. Based on the available information, there is not enough evidence to prove whether the complaint against nighttime construction noise generated in the concerned period (11th to 15th April 2005) is justifiable or not.	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
50512	Yew Chung International School	12-May-05	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. 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. 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.	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. 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 < 65dB(A)). The complaint lodged was therefore considered not justifiable. 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.	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
50610	Government Quarters	10-Jun-05	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. The complainant had not specified which construction activities had contributed to the dust generation.	*Site Observations* 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. *Corrective Actions* 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). 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. *Environmental Outcome* 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. *Conclusions* 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.	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	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).	*Site Activity* 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. *Environmental Requirements* In the EP, the EM&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. 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. 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. *Contractor's Actions* 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). *Conclusions* The subjected blasting operations were carried out by the Contractor under a valid blasting permit. The complaint lodged is therefore considered not justifiable.	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	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. Noise impact arising from the blasting works was one of the issues raised by the complainant.	*Ad-hoc Noise Measurement* 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. 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). *Conclusion and Recommendation* 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.	Closed
50830	Government Quarters (8-10 Caldecott Road)	30-Aug-05	The RSS received a public complaint from a resident of Government Quarters addressing two noise issues: 1. Noise nuisance caused by drilling works at Butterfly Valley; 2. Noise nuisance due to blasting 0045 hrs of 28 August 2005.	*Noise Measurement* 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. *Conclusion* 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.	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.	*Environmental Monitoring* 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). *Conclusion* 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.	Closed
51025	Caldecott Hill (2 Caldecott Road)	25-Oct-05	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. 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. According to the photos provided by the complainant, noticeable dust generation was observed during construction vehicles movement on the roads of concern.	*Site Observations* 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. *Contractor's Actions* Mitigation actions were taken by the Contractor: 1. One labour was appointed to water spray the concerned road junction and clear up of dusty materials deposited on the WTW access road. 2. Regular watering on access road by hose pipe was performed to keep the road wet. 3. All vehicles would be wheel-washed and loads of dusty materials would be covered before leaving the site. *Conclusions* 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.	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	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. The complainant was concerned about the following environmental issues: 1. Noise nuisance due to tunnel blasting works undertaken at midnights and in early mornings (3am to 5am); 2. Noise nuisance due to operation of a generator after 11pm; 3. Construction dust and daytime noise due to processing and stockpiling of crushed rocks at Butterfly Valley; 4. Noise nuisance due to works outside tunnel in the early morning of 2 Nov 05.	*Item 1: Noise nuisance due to tunnel blasting* 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. *Item 2: Noise due to operation of a generator after 11pm* 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. *Item 3: Dust and noise due to handling of crushed rocks* 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. *Item 4: Noise from works out of tunnel in morning of 2 Nov 05* 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.	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
				Conclusion 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.	
51205	Caldecott Road junction	5-Dec-05	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.	*Complaint Record* 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. With implementation of enhanced dust mitigation measures, the situation was found improved and satisfactory. *Site Observations* 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. 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. Sufficient dust mitigation measures had been implemented by the Contractor. The condition was found satisfactory. Therefore, this complaint was considered not justifiable. However, it is noted that the Contractor had stepped up dust mitigation measures to further improve the condition at Caldecott Road junction.	Closed

Log Ref.	Location of Concern	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
60204	Garden Villa	4-Jan-06 (by ETL)	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. 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: • Time of concern: 1-2 January 2006 (Daytime) • Suspected site area of concern: ENT's Toll Plaza and Administration Building. • Dust and noise nuisance was noted by the complainant when he passed Garden Villa. • Noise from wood saw and crane or alike was noted.	**A. Construction Noise Impact** According to the Contractor's information, construction activities were carried out on 1 and 2 Jan 06, including: • Erection and dismantling of formwork • Fixing water pipe All the equipment operated by the Contractor on 1-2 Jan 06 complied with the permissible equipment stated in the CNP. On 1 Jan 06, noise monitoring was carried out. All the results complied with the noise criterion. **B. Construction Dust Impact** Erection and dismantling of formwork and fixing water pipe were considered not dust emissive in nature. 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. Since December 2005, all TSP monitoring results complied with the Action / Limit Level. **Conclusion** Based on the information given, site observations and environmental monitoring results, this complaint was considered not justifiable. Nevertheless, the Contractor was reminded to adopt good site practice to minimize the environmental impacts at the nearby sensitive receivers	Closed