

# **Territory Development Department**

**Contract No. ST 77/01**

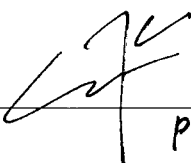
**Sha Tin New Town, Stage II  
Road D15 Linking Lok Shun Path  
and Tai Po Road**

**Monthly Environmental Monitoring & Audit Report -  
November 2002**

**Sha Tin New Town, Stage II Road D15 Linking Lok Shun Path and  
Tai Po Road (Contract No. ST 77/01)**

**Monthly Environmental Monitoring & Audit Report –  
November 2002**

Checked in accordance with EML QP22  
Environmental Team Leader



PP KLPun

## Table of Contents

<b>1.</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	BACKGROUND .....	1
<b>2.</b>	<b>ENVIRONMENTAL STATUS.....</b>	<b>3</b>
2.1	AIR QUALITY.....	3
	2.1.1 Monitoring Requirements.....	3
	2.1.2 Monitoring Locations.....	3
	2.1.3 Summary of Monitoring Results.....	3
2.2	NOISE .....	6
	2.2.1 Monitoring Requirements.....	6
	2.2.2 Monitoring Locations.....	6
	2.2.3 Summary of Monitoring Results.....	6
<b>3.</b>	<b>ENVIRONMENTAL AUDIT .....</b>	<b>9</b>
3.1	GENERAL .....	9
3.2	ASSESSMENT OF ENVIRONMENTAL MONITORING RESULTS .....	9
3.3	ENVIRONMENTAL COMPLAINTS .....	10
3.4	ASSESSMENT OF MITIGATION MEASURES.....	11
<b>4.</b>	<b>FUTURE KEY ISSUE AND RECOMMENDATION .....</b>	<b>12</b>

<b>Appendix A</b>	<b>Action and Limit Levels</b>
<b>Appendix B</b>	<b>Tentative Schedule for Impact Air Quality and Noise Monitoring</b>
<b>Appendix C</b>	<b>24-Hour TSP Impact Monitoring Results and Plots</b>
<b>Appendix D</b>	<b>1-Hour TSP Impact Monitoring Results and Plots</b>
<b>Appendix E</b>	<b>Daytime 0700-1900Hrs Impact Noise Monitoring Results and Plots</b>
<b>Appendix F</b>	<b>Weather Conditions During Monitoring Periods</b>
<b>Appendix G</b>	<b>Event and Action Plan for Air Quality and Noise</b>
<b>Appendix H</b>	<b>Project Organisation and Contacts of Key Personnel</b>
<b>Appendix I</b>	<b>Summary Records of Complaints Received</b>
<b>Appendix J</b>	<b>Updated Construction Program</b>

### List of Tables

Table 2.1	Air Quality Monitoring Locations
Table 2.2	Summary of 24 and 1-hour TSP Monitoring Results
Table 2.3	Noise Monitoring Locations
Table 2.4	Summary of Noise Monitoring Results
Table 3.1	Summary of Site Inspection during the Reporting Period
Table 3.2	Summary of Environmental Monitoring
Table 3.3	Summary of Non-Compliance with Relevant Criteria
Table 3.4	Environmental Complaints / Enquiry Received for the Reporting Month
Table 3.5	Summary of Total Number of Complaints Received to Date
Table 3.6	Summary of Major Mitigation Measures at the Site

### List of Figure

Figure 1.1	Project Area
Figure 2.1	Air Quality Monitoring Locations
Figure 2.2	Noise Monitoring Locations

## EXECUTIVE SUMMARY

The impact environmental monitoring report was prepared by Environmental Management Limited (EML) for Environmental Monitoring & Audit (EM&A) Services of Sha Tin New Town, Stage II Road D15 Linking Lok Shun Path and Tai Po Road. This report discusses the EM&A services that had been carried out in November 2002.

Environmental monitoring for this Project included both air quality and noise measurements. The parameters measured for air quality are 24-hour and 1-hour Total Suspended Particulate (TSP) while for noise monitoring, the A-weighted continuous sound pressure level ( $L_{eq}$ ) as well as percentile levels ( $L_{10}$  and  $L_{90}$ ) were measured.

The major construction activities in this reporting period included:

- Utility diversion
- Slope cutting
- Drainage works
- Fabrication precast beams A3 - A4
- Construction of pile caps at A2, A3 A4 and pier A3, A4
- Piling works at Pier C2
- Construction of pile Cap & Pier C2
- Procurement, manufacturing and testing of bridge bearing at Bridge A, B and C
- Retaining walls & stairs, including Wall 4, Wall 7 & Stair 7, Wall 8, Wall 11 & Stair 4
- Noise barrier, including demolition existing retaining wall for noise barrier No.1 and fabrication noise barrier
- Drainage works (other than slope drainage), including construction of box culvert and pipe

Over the reporting period, two exceedances in Action Level were noted for the monitored 24-hour TSP levels. The exceedances were measured at monitoring station A1 and A3 from 27 to 28 November (Time 10:30am to 10:30am next day). From discussion with MCAL, it was noted that at the time of the exceedances, filling activities were carried out near Station A1 while bore piling works were conducted near Station A3. It was also informed by MCAL that there were other construction activities (not related to Road D15 Project) carried out near Station A1. It was reminded to the Contractor that additional impervious sheetings should be placed around the working area and that regular water spraying of the site should be conducted in order to minimize the potential dust impacts to nearby residents.

In addition, the fugitive dust emission from the site was noted during the site inspection, in particular when the vehicles pass through unpaved road. It was recommended to the Contractor that more frequent water spraying of area which are likely to generate dust should be implemented and more sprinklers should be installed on the site in order to suppress the potential impact from the dust emission.

## 1. INTRODUCTION

### 1.1 Background

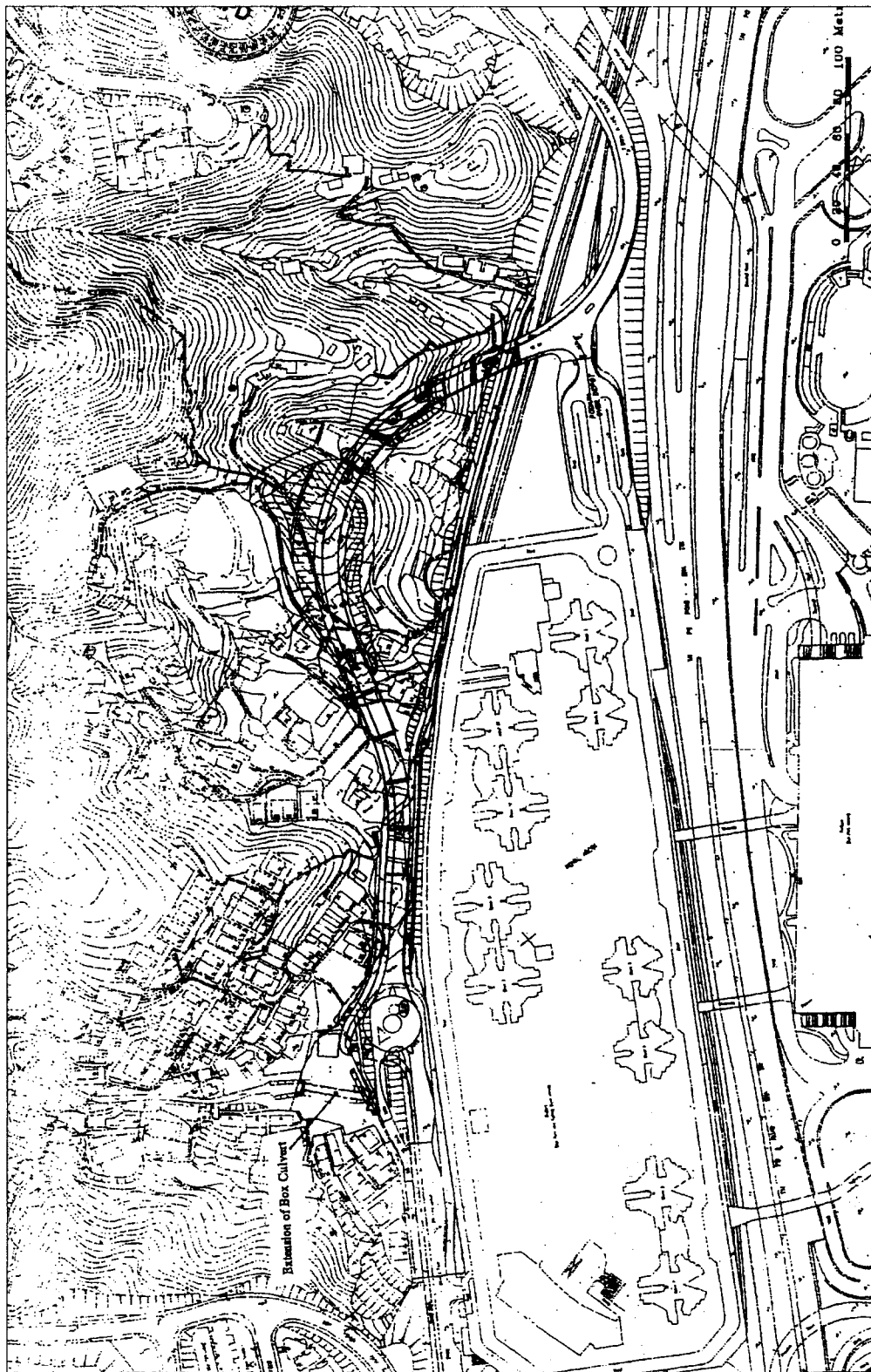
Environmental Management Limited (EML) was appointed by Maunsell Consultants Asia Ltd. as the Environmental Specialist for the project *Sha Tin New Town, Stage II Road Linking Lok Shun Path and Tai Po Road* (Contract No. ST 77/01).

The responsibilities of the Environmental Team included:

- Monitor the noise and air quality data as required in the Environmental Monitoring and Audit (EM&A) Manual;
- Analyse the monitoring data and review the success of EM&A program to cost effectively confirm the adequacy of mitigatory measures implemented and validity of the Environmental Impact Assessment Study predictions and to identify any adverse environmental impacts arising;
- Carry out site inspection to investigate and audit the Contractor's site practice, equipment and work methodologies with respect to pollution control and environmental mitigation, and anticipate environmental issues for proactive action before problems arise;
- Review the proposal for mitigation measures submitted by Contractor in accordance with Event and Action Plans;
- Propose any improvement or other alternative mitigation measures should Contractor's proposal be found to be inadequate;
- Adhere to the procedures for carrying out complaint investigation;
- Audit and prepare EM&A reports on environmental monitoring data and site environmental conditions and;
- Report on EM&A results to Engineer, the ER and EPD.

This is the monthly EM&A report for November 2002. This monthly report describes the results of the impact air quality and noise monitoring works in the reporting period as well as the environmental status and issues of Road D15 Construction Site. In addition, if required, any remedial/follow-up actions undertaken as a result of non-compliance with relevant environmental criteria or complaints related to Road D15 Construction Site would also be discussed.

The project area of Road D15 Construction Site is shown in **Figure 1.1**.



**Figure 1.1 Project Area**

## 2. ENVIRONMENTAL STATUS

### 2.1 Air Quality

#### 2.1.1 Monitoring Requirements

In accordance with the EM&A Manual, air quality impact monitoring was conducted in terms of 1-hour and 24-hour TSP at the designated monitoring locations.

Continuous 24-hour TSP monitoring was performed once in every six days while 1-hour TSP monitoring was performed 3 times in every 6 days. The Action and Limit (AL) levels for air quality is attached in **Appendix A** while the tentative monitoring schedules for the current and next reporting months are attached in **Appendix B**.

#### 2.1.2 Monitoring Locations

The designated impact air quality monitoring stations are listed in **Table 2.1** and are shown in **Figure 2.1**.

**Table 2.1 Air Quality Monitoring Locations**

Monitoring Station	Location
A1	Village house at Lok Lo Ha Village
A2	Lok Lo Ha Village House No. 104
A3	Village House near Tsun King Road

#### 2.1.3 Summary of Monitoring Results

In this report, the results for the impact air quality monitoring conducted in November 2002 at the three designated locations were evaluated. **Table 2.2** summarises the ranges and mean of the 24-hour and 1-hour TSP monitoring results carried out in the reporting period. Detailed results, including graphical plots and relevant field logs, are presented in **Appendix C** and **D**. Meanwhile, **Appendix F** shows the meteorological conditions during the monitoring days.

**Table 2.2 Summary of 24 and 1-hour TSP Monitoring Results**

Parameter	Monitoring Location	Mean TSP Levels ( $\mu\text{g}/\text{m}^3$ )	Range ( $\mu\text{g}/\text{m}^3$ )	No. of Exceedance	
				Action Levels	Limit Levels
24 – hour TSP	A1	106.2	73 – 172	1	0
	A2	80.6	57 – 152	0	0
	A3	78.0	52 – 162	1	0
1 – hour TSP	A1	177.7	119 – 269	0	0
	A2	144.9	85 – 226	0	0
	A3	128.5	70 – 241	0	0

Two measured 24-hour TSP levels at monitoring station A1 and A3 had exceeded the relevant Action Level shown in **Appendix A**. The measured levels of  $172\mu\text{g}/\text{m}^3$  at Station A1 and  $162\mu\text{g}/\text{m}^3$  at Station A3 were measured from 27 to 28 November (Time 10:30am to 10:30am next day). The exceedance at Station A1 is  $164\mu\text{g}/\text{m}^3$  or approximately 10.2% above the Action Level while the exceedance at Station A3 is  $9\mu\text{g}/\text{m}^3$  or approximately 5.9% above the Action Level. Consequently, the Event and Action Plan for Air Quality as set out in **Appendix G** was triggered and the details are discussed in **Section 3.2**.

Over the reporting period, the local weather conditions during the monitoring were mainly sunny or cloudy. From field logs, the major dust sources during samplings near the designated stations included road dusts, vehicle emissions from traffic in Lok Shun Path and construction works at Road D15 Site. The major construction works carried out at Road D15 Site over the reporting period were mainly utility diversion, slope cutting, drainage works, fabrication precast beams, piling works, retaining walls & stairs and noise barrier. Meanwhile, it was also observed that there were construction activities carried out by sites that were not related to this Project in the vicinity of the monitoring stations.

Comparing with previous monitoring results, apart from two 24-hour TSP exceedances in Action Level at monitoring station A1 and A3, the measured mean 24-hour TSP levels at all stations as well as the measured mean 1-hour TSP levels at Station A1 and A2 are higher in this reporting period. In particular the mean 24-hour TSP at Station A1 was 185.7% higher than the value measured in the last monthly report.



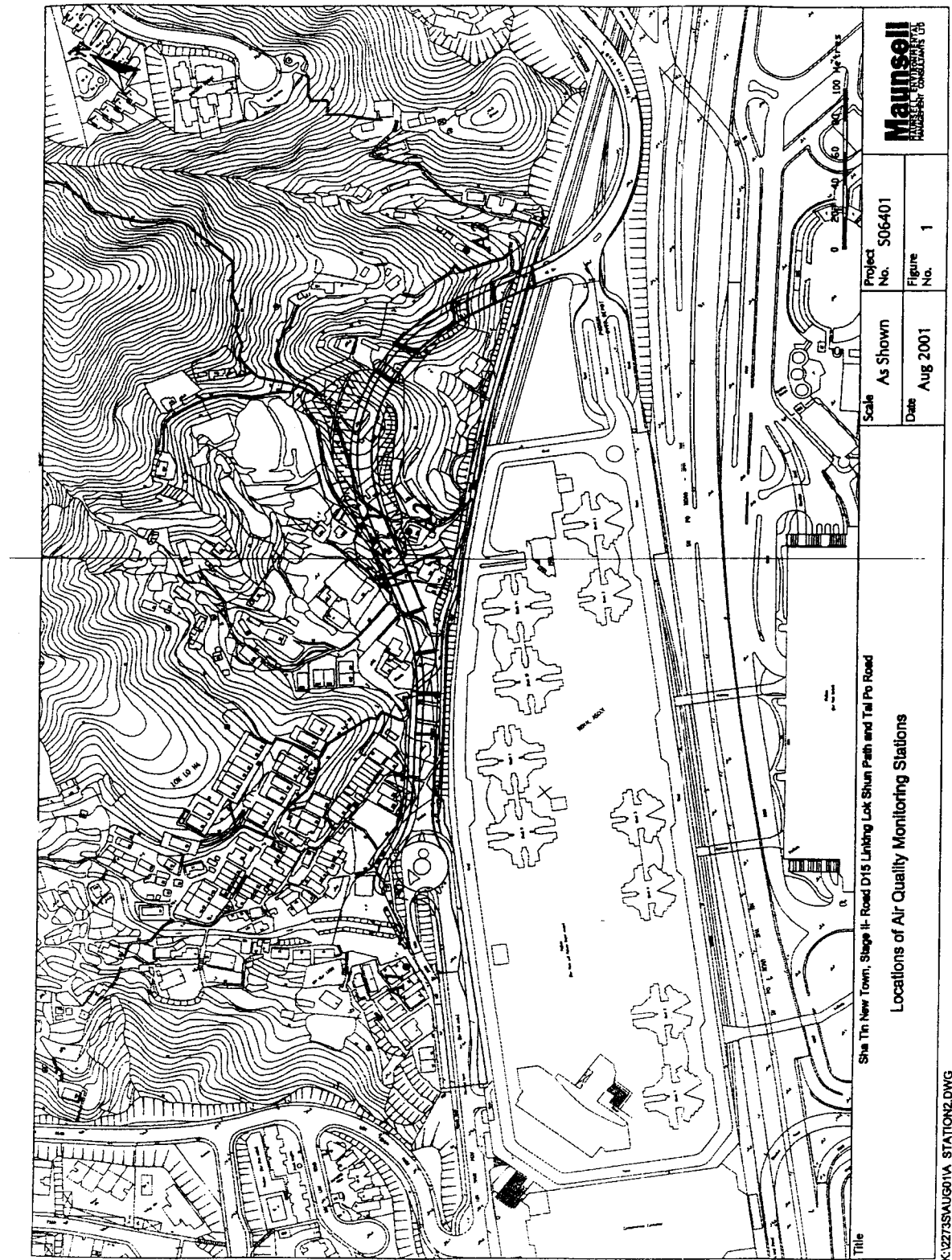


Figure 2.1 Air Quality Monitoring Locations

## 2.2 Noise

### 2.2.1 Monitoring Requirements

Impact noise monitoring was conducted once in every six days at the five designated monitoring locations in accordance with specifications in the EM&A Manual. The duration of sampling was 30 minutes. The Action and Limit levels for noise monitoring are attached in **Appendix A** while the tentative monitoring schedules for the current and next reporting months are attached in **Appendix B**.

### 2.2.2 Monitoring Locations

The impact noise monitoring locations are presented in **Table 2.3** and shown in **Figure 2.2**.

**Table 2.3 Noise Monitoring Locations**

Monitoring Location	Measurement	Location
N1	Façade	Lok Lo Ha Village House No. 3B
N2	Façade	Lok Lo Ha Village House No. 32A
N3	Façade	Royal Ascot Block 9, Flat C
N4	Façade	Lok Lo Ha Village House No. 97
N5	Façade	Village near Royal Ascot

### 2.2.3 Summary of Monitoring Results

In this report, the results for the impact noise monitoring conducted in November 2002 at the five designated locations were evaluated. The monitoring results obtained are summarised in **Table 2.4** below. Detailed results, including graphical plots and relevant field logs, are presented in **Appendix E**. Meanwhile, **Appendix F** shows the meteorological conditions during the monitoring days.

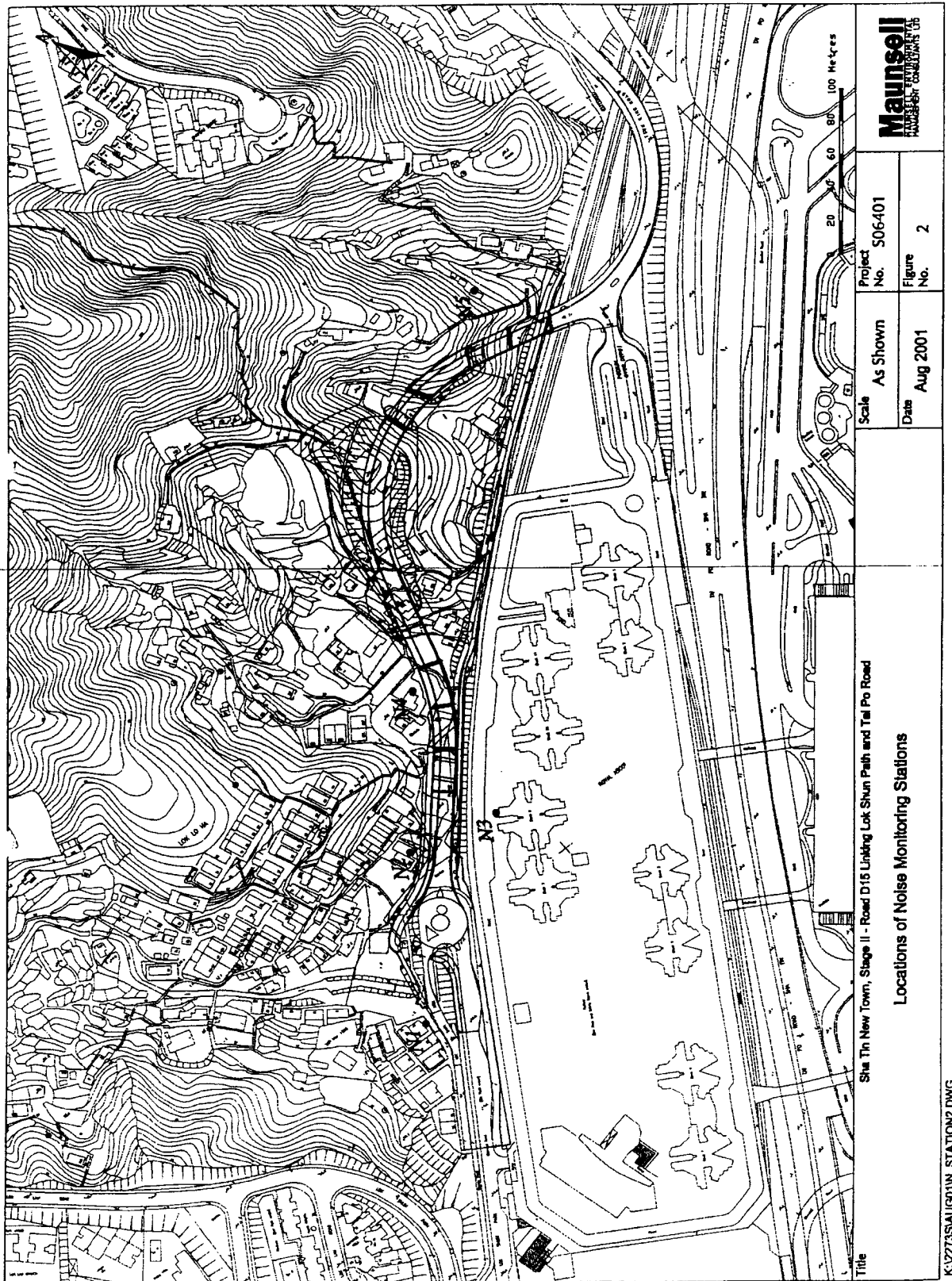
**Table 2.4 Summary of Noise Monitoring Results**

Parameter	Monitoring Location	Range of Results dB(A)	No. of Exceedance	
			Action Levels	Limit Levels
30-minute Noise Measurement (Leq)	N1	61.7 – 71.6	0	0
	N2	60.6 – 70.5		0
	N3	57.9 – 61.2		0
	N4	58.2 – 68.4		0
	N5	59.3 – 61.4		0

As shown in the table above, all noise monitoring data recorded were below the criteria as set out in the Action and Limit levels in **Appendix A**.

Over the reporting period, the local weather conditions during the sampling were mainly sunny or cloudy, while all monitoring was conducted with wind speed of below 1.3m/s. Traffic and construction activities were the major noise sources identified at the five monitoring locations. Meanwhile, the carrying out of excavation, breaking, and crane operation, concrete lorry mixing and dump truck that related to Powered Mechanical Equipment (PME) were noted at all five monitoring stations during sampling.

Comparing with the monitoring results recorded in the last reporting period, the measured noise levels in this month were similar at Station N1 and N2 while measured noise levels were slightly lower at Station N3, N4 and N5 (lower from 3.8dB(A) to 4.6dB(A)). The highest level was recorded at Station N1 (71.6dB(A)) again and occurred in the afternoon of 22 November. According to field log, the major noise source at that time was the operation of tracked excavator.



**Figure 2.2 Noise Monitoring Locations**

### 3. ENVIRONMENTAL AUDIT

#### 3.1 General

In the last monthly EM&A report, two environmental issues were raised as follows:

- One exceedance in 1-hour TSP level was noted around Station A1. It was recommended to the Contractor that impervious sheetings be placed around the working area in order to minimize dust impacts.
- Improvements in the mitigation measures of the stream north-east of Lok Shun Path Roundabout are required.

From site inspection, improvements in the above dust and water pollution control measures were noted.

**Table 3.1 Summary of Site Inspection during the Reporting Period**

Date	Type of Inspection
1 November 2002 (Friday)	Regular Site Inspection
7 November 2002 (Thursday)	Regular Site Inspection
14 November 2002 (Thursday)	Regular Site Inspection
22 November 2002 (Friday)	Regular Site Inspection

Over the reporting period, the major construction work at the Site include:

- Utility diversion
- Slope cutting
- Drainage works
- Fabrication precast beams A3 - A4
- Construction of pile caps at A2, A3 A4 and pier A3, A4
- Piling works at Pier C2
- Construction of pile Cap & Pier C2
- Procurement, manufacturing and testing of bridge bearing at Bridge A, B and C
- Retaining walls & stairs including Wall 4, Wall 7 & Stair 7, Wall 8, Wall 11 & Stair 4
- Noise barrier, including demolition existing retaining wall for noise barrier No.1 and fabrication noise barrier
- Drainage works(other than slope drainage), including construction of box culvert and pipe

#### 3.2 Assessment of Environmental Monitoring Results

In this reporting month, there were in total two incidents where the monitoring results had exceeded the Action Level specified in **Appendix A**. The exceedances occurred for 24-hour TSP measured from 27 to 28 November (time: 10:30am to 10:30am next day) at monitoring station A1 and A3 respectively. The monitoring results were already discussed in **Section 2** of the report and are summarized in **Table 3.2** and **Table 3.3** below.

**Table 3.2 Summary of Environmental Monitoring**

Item	Parameter	Monitoring Period	Total No. of Samples Taken (on all stations)	No. of Exceedance	
				Action Levels	Limit Levels
1	24 – hour TSP	01/11/02 to 30/11/02	15	2	0
2	1 – hour TSP	01/11/02 to 30/11/02	45	0	0
3	30-minute Noise Measurement (Leq)	01/11/02 to 30/11/02	25	0	0

**Table 3.3 Summary of Non-Compliance with Relevant Criteria**

Location	Parameter	Date & Time of Exceedance	Measured Level ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Type of Exceedance
Village House at Lok Lo Ha Village (Station A1)	24-hour TSP	10:30am on 27/11/02 to 10:30am on 28/11/02	172	156	Action Level (by $16\mu\text{g}/\text{m}^3$ )
Village House near Tsun King Road (A3)			162	153	Action Level (by $9\mu\text{g}/\text{m}^3$ )

As shown in **Table 3.3**, the measured level of  $172\mu\text{g}/\text{m}^3$  at Station A1 is  $16\mu\text{g}/\text{m}^3$  or approximately 10.2% above the Action Level while the measured level of  $162\mu\text{g}/\text{m}^3$  at Station A3 is  $9\mu\text{g}/\text{m}^3$  or approximately 5.9% above the Action Level. Since exceedances in Action Level had occurred, the Event and Action Plan for Air Quality attached in **Appendix G** was triggered. From discussion with MCAL, it was noted that at the time of the exceedances, filling activities were carried out near Station A1 while bore piling works were conducted near Station A3. It was also informed by MCAL that there were other construction activities (not related to Road D15 Project) carried out near Station A1. No exceedances were recorded in the subsequent dust monitoring. In order to minimise dust impacts, it is reminded to the Contractor that additional impervious sheetings should be placed around the working area and that regular water spraying should be conducted.

### 3.3 Environmental Complaints

No environmental complaints had been received against the construction site in this reporting month. **Table 3.4** shows the summary record for this reporting month while **Table 3.5** summarises the complaint statistics from the commencement of the Project to date. **Appendix I** listed the details of all the complaints received on the construction site.

**Table 3.4 Environmental Complaints / Enquiry Received in the Reporting Month**

Complaint No.	Received date & Time	Description (inc. location/ nature of complaint)	Follow-up Action Taken	Recommended Mitigation Measures	Status/ Remarks
N/a	N/a	N/a	N/a	N/a	N/a

**Table 3.5 Summary of Total Number of Complaints Received to date**

Total No. of Complaints to date	No. of Complaints in this reporting period	No. of Active Complaints	No. of Inactive/Closed Complaints
2	0	N/a	2

### 3.4 Assessment of Mitigation Measures

Table 3.6 presented the status of the major mitigation measures identified during site inspection.

**Table 3.6 Summary of Major Mitigation Measures at the Site**

Type	Mitigation Measure	Comments
Noise	Temporary purposed-built Noise Barrier	<ul style="list-style-type: none"> <li>Constructed based on the design in the Construction Noise Mitigation Proposal.</li> </ul>
Water	Wheel Washing Facility	<ul style="list-style-type: none"> <li>Installed and in operation.</li> </ul>
	Sand/Silt Removal Facilities	<ul style="list-style-type: none"> <li>Wastewater treatment systems are installed to treat site-runoffs and water from piling works</li> <li>Another treatment system was installed to treat wastewater from piling works near Bridge C.</li> </ul>
	Measures along stream-banks north-east of Lok Shun Path Roundabout	<ul style="list-style-type: none"> <li>Concrete, sandbags, sump pits and pumps were placed/installed along the banks to prevent construction debris and site run-off from entering the stream untreated.</li> </ul>
	Diversion of Stream Course via drainage pipe	<ul style="list-style-type: none"> <li>Installed at the existing channel.</li> </ul>
Wastewater	Water Reuse at wheel washing facility and site investigation drilling works.	Implemented
Land Contamination	Metal trays are placed underneath stationary machines where there are potential of oil leakage	Implemented
Air	Provide plastic sheeting covers on exposed soils	Implemented
	Regular water spraying on areas where there is likely generation of dust	Implemented
	Impervious sheeting was placed around the working area near monitoring station A1	Implemented

As discussed in **Section 3.2**, additional impervious sheeting should be placed around the working area near monitoring station A1 and A3 in order to prevent potential dust impacts on nearby residents. The monitoring results at monitoring station A1 and A3 will be observed closely for any further exceedances in the following months.

In addition, the fugitive dust emission from the site was noted during the site inspection, in particular when vehicles pass through unpaved road. It was recommended to the Contractor that more frequent water spraying of the site should be implemented, including the addition of sprinklers.

#### 4. FUTURE KEY ISSUE AND RECOMMENDATION

There are two environmental issues that will need to be addressed in the next reporting month:

- Additional impervious sheetings should be placed around the working area near monitoring station A1 and A3. Closer attention will be paid on the dust monitoring results, in particular at Station A1 and A3, for any exceedances in Action and Limit Levels;
- More frequent water spraying on area likely to generate dust should be implemented, which include the installation of additional sprinklers.

The updated work program for the following months are attached in **Appendix J** while the monitoring tentative schedule for the next reporting month are attached in **Appendix B**.



---

**APPENDIX A:**

**Action and Limit Levels**

---

**Action and Limit Levels for 24-hour TSP**

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
A1	156	260
A2	155	
A3	153	

**Action and Limit Levels for 1-hour TSP**

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
A1	371	500
A2	378	
A3	368	

**Action / Limit Levels for Construction Noise**

Time Period	Action Level	Limit Level
0700-1900 hours on normal weekdays	When one documented complaint is received	75* dB(A)
0700-2300 hours on holidays; and 1900-2300 hours on all other days		60/65/70** dB(A)
2300- 0700 hours of next day		45/50/55** dB(A)

\*\* to be selected based on Area Sensitivity Rating

Note: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

---

**APPENDIX B:**

**Tentative Schedule for Impact  
Air Quality and Noise  
Monitoring**

---

1. Tentative Schedule for Current Reporting Month – November 2002

FROM :

25606553 NO. : 25606553

Oct. 22 2002 04:05

Contract No. ST77/01  
 Sha Tin New Town, Stage II  
 Road D15 Linking Lok Shun Path and Tai Po Road

Tentative Time Schedule for Construction Phase Dust Monitoring for November 2002

Nov-02	Day	Start Time	
		24-hr TSP	1-hr TSP
1	Fri	x	x
2	Sat	x	x
3	Sun	x	x
4	Mon	x	x
5	Tue	10:30	09:00
6	Wed	x	11:00&14:00
7	Thu	x	x
8	Fri	x	x
9	Sat	x	x
10	Sun	x	x
11	Mon	10:30	09:00
12	Tue	x	11:00&14:00
13	Wed	x	x
14	Thu	x	x
15	Fri	10:30	09:00
16	Sat	x	x
17	Sun	x	x
18	Mon	x	11:00&14:00
19	Tue	x	x
20	Wed	x	x
21	Thu	10:30	09:00
22	Fri	x	11:00&14:00
23	Sat	x	x
24	Sun	x	x
25	Mon	x	x
26	Tue	x	x
27	Wed	10:30	09:00
28	Thu	x	11:00&14:00
29	Fri	x	x
30	Sat	x	x



FROM :

25606553 NO. : 25606553

Oct. 22 2002 04:05PM F

Contract No. ST77/01  
 Sha Tin New Town, Stage II  
 Road D15 Linking Lok Shun Path and Tai Po Road  
 Tentative Time Schedule for Construction Phase Noise Monitoring for November 2002

Nov-02	Day	Start Time				
		N1	N2	N3	N4	N5
1	Fri	x	x	x	x	x
2	Sat	x	x	x	x	x
3	Sun	x	x	x	x	x
4	Mon	x	x	x	x	x
5	Tue	x	x	x	x	x
6	Wed	14:30	13:30	11:30	10:45	10:00
7	Thu	x	x	x	x	x
8	Fri	x	x	x	x	x
9	Sat	x	x	x	x	x
10	Sun	x	x	x	x	x
11	Mon	x	x	x	x	x
12	Tue	14:30	13:30	11:30	10:45	10:00
13	Wed	x	x	x	x	x
14	Thu	x	x	x	x	x
15	Fri	x	x	x	x	x
16	Sat	x	x	x	x	x
17	Sun	x	x	x	x	x
18	Mon	14:30	13:30	11:30	10:45	10:00
19	Tue	x	x	x	x	x
20	Wed	x	x	x	x	x
21	Thu	x	x	x	x	x
22	Fri	14:30	13:30	11:30	10:45	10:00
23	Sat	x	x	x	x	x
24	Sun	x	x	x	x	x
25	Mon	x	x	x	x	x
26	Tue	x	x	x	x	x
27	Wed	x	x	x	x	x
28	Thu	14:30	13:30	11:30	10:45	10:00
29	Fri	x	x	x	x	x
30	Sat	x	x	x	x	x

88/70/2/185

E M L		
22 OCT 2002		
CIRC	ACT	DATE
SH		
FILE		

Post-it* Fax Note	7671	Date 22-10-02	# of pages 2
To	Lawrence Tso	From	Sxin
Co/Dept	EML	Co	Envirotech
Phone #		Phone #	
Fax #	28906901	Fax #	25606553

2. Tentative Schedule for Next Reporting Month – December 2002

Contract No. S177/01  
 Sha Tin New Town, Stage II  
 Road D15 Linking Lok Shun Path and Tai Po Road

Tentative Time Schedule for Construction Phase Dust Monitoring for December 2002

Dec-02	Day	Start Time	
		24-hr TSP	1-hr TSP
1	Sun	x	x
2	Mon	x	x
3	Tue	12:30	09:00&11:00
4	Wed	x	14:00
5	Thu	x	x
6	Fri	x	x
7	Sat	x	x
8	Sun	x	x
9	Mon	12:30	09:00&11:00
10	Tue	x	14:00
11	Wed	x	x
12	Thu	x	x
13	Fri	12:30	09:00&11:00
14	Sat	x	x
15	Sun	x	x
16	Mon	x	14:00
17	Tue	x	x
18	Wed	x	x
19	Thu	x	x
20	Fri	12:30	09:00&11:00
21	Sat	x	x
22	Sun	x	x
23	Mon	x	14:00
24	Tue	x	x
25	Wed	x	x
26	Thu	x	x
27	Fri	10:30	09:00
28	Sat	x	x
29	Sun	x	x
30	Mon	x	09:00&11:00
31	Tue	x	x

APPROVED

E M L	
1	14-12-2002
CRC	14-12-2002
HL	14-12-2002
FILE NO:	14-12-2002

Post-it Fax Note 10/11

To	Wong Lam
Co/Dept	15722
Project	28/10/02
Fax #	28916791
Date	10/11/2002
From	Fax
By	28916791
Page #	1 of 3

Contract No. ST77/01  
 Sha Tin New Town, Stage II  
 Road D15 Linking Lok Shun Path and Tai Po Road  
 Tentative Time Schedule for Construction Phase Noise Monitoring for December 2002

Dec-02	Day	Start Time				
		N1	N2	N3	N4	N5
1	Sun	x	x	x	x	x
2	Mon	x	x	x	x	x
3	Tue	14:30	13:30	11:30	10:45	10:00
4	Wed	x	x	x	x	x
5	Thu	x	x	x	x	x
6	Fri	x	x	x	x	x
7	Sat	x	x	x	x	x
8	Sun	x	x	x	x	x
9	Mon	14:30	13:30	11:30	10:45	10:00
10	Tue	x	x	x	x	x
11	Wed	x	x	x	x	x
12	Thu	x	x	x	x	x
13	Fri	14:30	13:30	11:30	10:45	10:00
14	Sat	x	x	x	x	x
15	Sun	x	x	x	x	x
16	Mon	x	x	x	x	x
17	Tue	x	x	x	x	x
18	Wed	x	x	x	x	x
19	Thu	x	x	x	x	x
20	Fri	14:30	13:30	11:30	10:45	10:00
21	Sat	x	x	x	x	x
22	Sun	x	x	x	x	x
23	Mon	x	x	x	x	x
24	Tue	x	x	x	x	x
25	Wed	x	x	x	x	x
26	Thu	x	x	x	x	x
27	Fri	14:30	13:30	11:30	10:45	10:00
28	Sat	x	x	x	x	x
29	Sun	x	x	x	x	x
30	Mon	x	x	x	x	x
31	Tue	x	x	x	x	x

---

**APPENDIX C:**

**24-Hour TSP Impact  
Monitoring Results and Plots**

---



### 1. 24-hour TSP Monitoring Results

#### Monitoring Station A1 (Lok Lo Ha Village House No. 3B)

Date	Filter Weight (g)		Flow Rate (m <sup>3</sup> /min.)		Elapse Time		Total Sampling Time (min.)	Conc. (µg/m <sup>3</sup> )	Weather Condition
	Initial	Final	Initial	Final	Initial	Final			
5-Nov-02	2.7998	2.9179	1.11	1.11	10603.11	10627.11	1440	74	Fine
11-Nov-02	2.8508	3.0462	1.11	1.11	10630.11	10654.11	1440	122	Fine
15-Nov-02	2.7687	2.9125	1.11	1.11	10657.11	10681.11	1440	90	Fine
21-Nov-02	2.8870	3.0044	1.11	1.11	10684.11	10708.11	1440	73	Fine
27-Nov-02	2.8111	3.0868	1.11	1.11	10711.11	10735.11	1440	172	Cloudy
							Min	73	
							Max	172	
							Average	106.2	

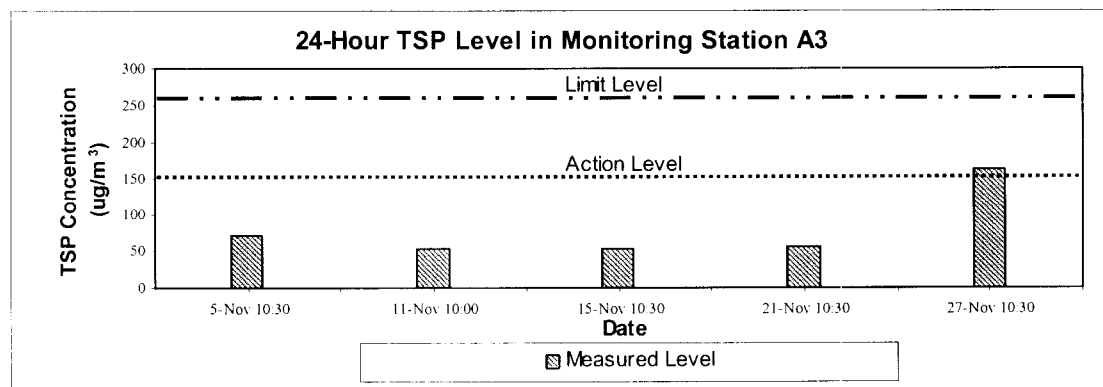
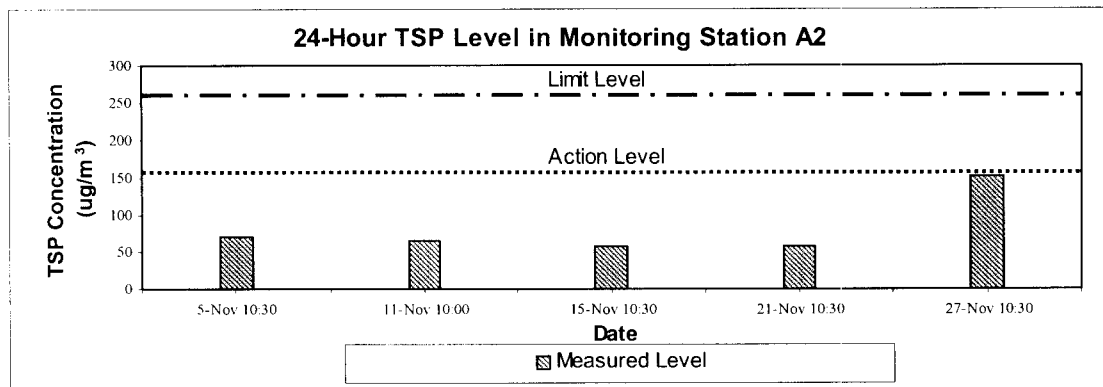
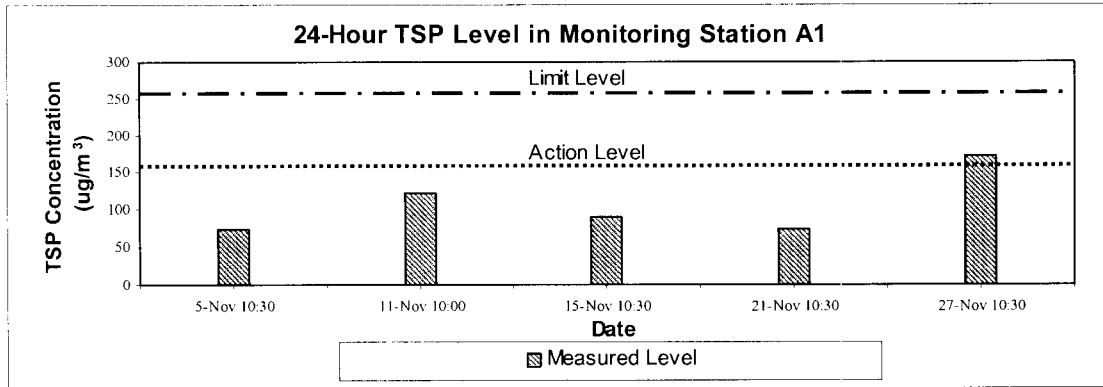
#### Monitoring Station A2 (Lok Lo Ha Village House No. 104)

Date	Filter Weight (g)		Flow Rate (m <sup>3</sup> /min.)		Elapse Time		Total Sampling Time (min.)	Conc. (µg/m <sup>3</sup> )	Weather Condition
	Initial	Final	Initial	Final	Initial	Final			
5-Nov-02	2.7600	2.8922	1.27	1.27	1058.43	1082.43	1440	72	Fine
11-Nov-02	2.8455	2.9638	1.27	1.27	1085.45	1169.45	1440	65	Fine
15-Nov-02	2.7863	2.8897	1.27	1.27	1112.46	1136.46	1440	57	Fine
21-Nov-02	2.8333	2.9371	1.27	1.27	1139.46	1163.46	1440	57	Fine
27-Nov-02	2.8421	3.1198	1.27	1.27	1166.46	1190.46	1440	152	Cloudy
							Min	57	
							Max	152	
							Average	80.6	

**Monitoring Station A3 (Village House near Tsun King Road)**

Date	Filter Weight (g)		Flow Rate (m <sup>3</sup> /min.)		Elapse Time		Total Sampling Time (min.)	Conc. (µg/m <sup>3</sup> )	Weather Condition
	Initial	Final	Initial	Final	Initial	Final			
5-Nov-02	2.7543	2.8793	1.24	1.24	9780.84	9804.84	1440	70	Fine
11-Nov-02	2.8632	2.9566	1.24	1.24	9807.84	9831.84	1440	52	Fine
15-Nov-02	2.8711	2.9648	1.24	1.24	9834.84	9858.84	1440	52	Fine
21-Nov-02	2.8502	2.9467	1.24	1.24	9861.84	9885.84	1440	54	Fine
27-Nov-02	2.8383	3.1275	1.24	1.24	9888.84	9912.84	1440	162	Cloudy
							Min	52	
							Max	162	
							Average	78.0	

## 2. Plots for 24-hour Monitoring Results



---

**APPENDIX D:**

**1-Hour TSP Impact  
Monitoring Results and Plots**

---

## 1. 1-hour TSP Monitoring Results

### Station A1 (Lok Lo Ha Village House No. 3B)

Date	Time of sampling	Concentration, $\mu\text{g}/\text{m}^3$
5-Nov-02	0900 – 1000	210
6-Nov-02	1100 – 1200	146
6-Nov-02	1400 – 1500	119
11-Nov-02	0900 – 1000	149
12-Nov-02	1100 – 1200	269
12-Nov-02	1400 – 1500	165
15-Nov-02	0900 – 1000	192
18-Nov-02	1100 – 1200	186
18-Nov-02	1400 – 1500	162
21-Nov-02	0900 – 1000	132
22-Nov-02	1100 – 1200	158
22-Nov-02	1400 – 1500	215
27-Nov-02	0900 – 1000	243
28-Nov-02	1100 – 1200	164
28-Nov-02	1400 – 1500	156
	Average	177.7
	Min	119
	Max	269

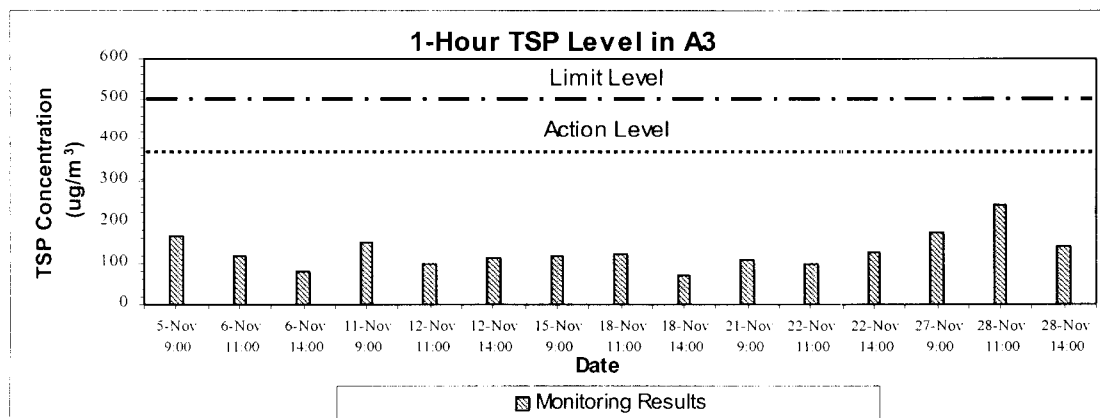
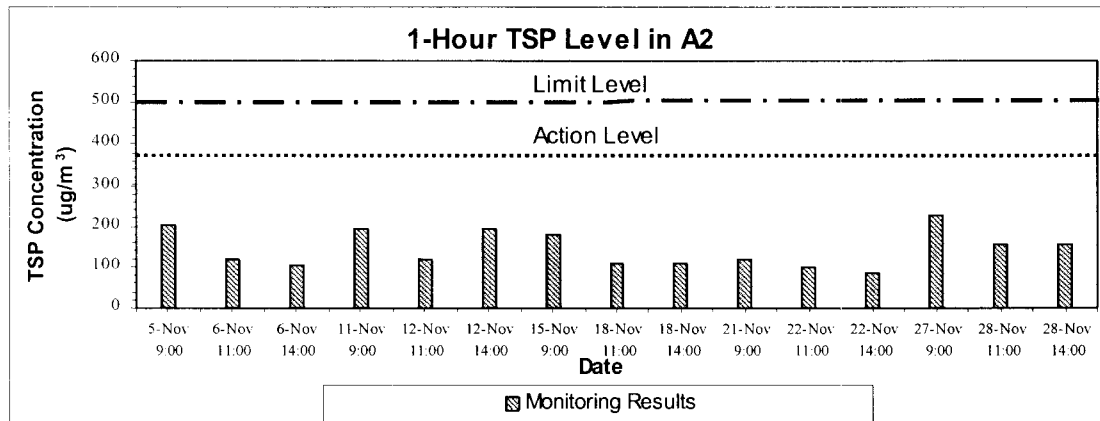
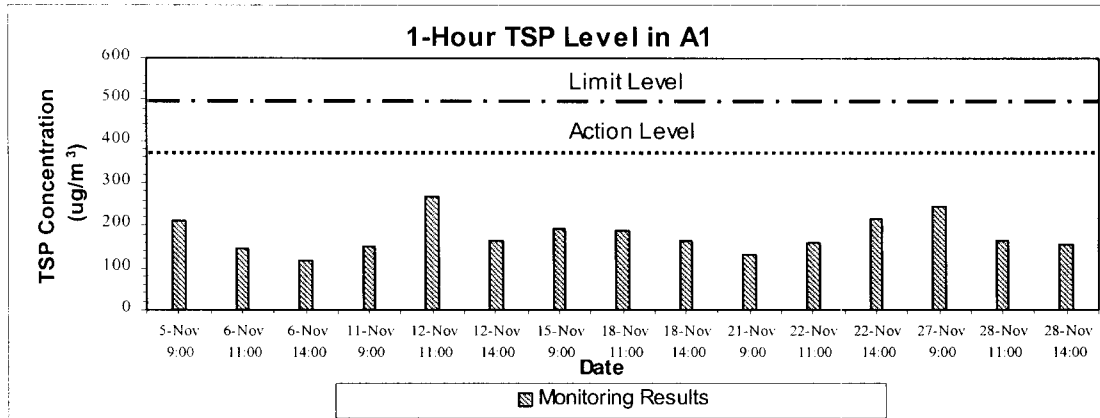
### Station A2 (Lok Lo Ha Village House No. 104)

Date	Time of sampling	Concentration, $\mu\text{g}/\text{m}^3$
5-Nov-02	0900 – 1000	205
6-Nov-02	1100 – 1200	118
6-Nov-02	1400 – 1500	106
11-Nov-02	0900 – 1000	196
12-Nov-02	1100 – 1200	118
12-Nov-02	1400 – 1500	194
15-Nov-02	0900 – 1000	181
18-Nov-02	1100 – 1200	110
18-Nov-02	1400 – 1500	109
21-Nov-02	0900 – 1000	118
22-Nov-02	1100 – 1200	97
22-Nov-02	1400 – 1500	85
27-Nov-02	0900 – 1000	226
28-Nov-02	1100 – 1200	154
28-Nov-02	1400 – 1500	157
	Average	144.9
	Min	85
	Max	226

**Station A3 (Village House near Tsun King Road)**

<b>Date</b>	<b>Time of sampling</b>	<b>Concentration, <math>\mu\text{g}/\text{m}^3</math></b>
5-Nov-02	0900 – 1000	163
6-Nov-02	1100 – 1200	120
6-Nov-02	1400 – 1500	81
11-Nov-02	0900 – 1000	152
12-Nov-02	1100 – 1200	98
12-Nov-02	1400 – 1500	114
15-Nov-02	0900 – 1000	116
18-Nov-02	1100 – 1200	125
18-Nov-02	1400 – 1500	70
21-Nov-02	0900 – 1000	110
22-Nov-02	1100 – 1200	97
22-Nov-02	1400 – 1500	126
27-Nov-02	0900 – 1000	175
28-Nov-02	1100 – 1200	241
28-Nov-02	1400 – 1500	140
	Average	128.5
	Min	70
	Max	241

## 2. Plots of 1-hour TSP Monitoring Results



---

**APPENDIX E:**

**Daytime 07:00 -19:00Hrs  
Impact Noise Monitoring  
Results and Plots**

---



## 1. Noise Monitoring Results

### Monitoring Station N1 (Lok Lo Ha Village House No.3B)

Date	Noise Level for 30 min, dB(A)			
	Time of Sampling	L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>
6-Nov-02	1430 – 1500	66.0	68.2	61.0
12-Nov-02	1408 – 1438	61.7	63.8	55.8
18-Nov-02	1355 – 1425	63.6	67.4	58.8
22-Nov-02	1340 – 1410	71.6	74.0	68.1
28-Nov-02	1340 – 1410	70.7	72.9	68.0

Min	61.7	63.8	55.8
Max	71.6	74.0	68.1

### Monitoring Station N2 (Lok Lo Ha Village House No.32A)

Date	Noise Level for 30 min, dB(A)			
	Time of Sampling	L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>
6-Nov-02	1325 – 1355	67.3	69.3	61.5
12-Nov-02	1325 – 1355	60.6	63.1	57.7
18-Nov-02	1315 – 1345	70.4	72.4	63.5
22-Nov-02	1305 – 1335	70.5	73.8	64.6
28-Nov-02	1130 – 1200	65.9	70.1	57.0

Min	60.6	63.1	57.0
Max	70.5	73.8	64.6

### Monitoring Station N3 (Royal Ascot Block 9, Flat C)

Date	Noise Level for 30 min, dB(A)			
	Time of Sampling	L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>
6-Nov-02	1133 – 1203	60.7	63.6	56.6
12-Nov-02	1126 – 1156	61.1	63.3	56.8
18-Nov-02	1115 – 1145	61.2	63.8	55.2
22-Nov-02	1130 – 1200	61.1	64.3	52.4
28-Nov-02	1300 – 1330	57.9	59.2	55.1

Min	57.9	59.2	52.4
Max	61.2	64.3	56.8

**Monitoring Station N4 (Lok Lo Ha Village House No.97)**

Date	Noise Level for 30 min, dB(A)			
	Time of Sampling	L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>
6-Nov-02	1047 – 1117	68.0	72.3	61.3
12-Nov-02	1047 – 1117	68.4	70.9	59.6
18-Nov-02	1029 – 1059	58.9	62.1	54.9
22-Nov-02	1015 – 1045	58.2	60.7	52.3
28-Nov-02	1020 – 1050	58.2	60.5	54.0

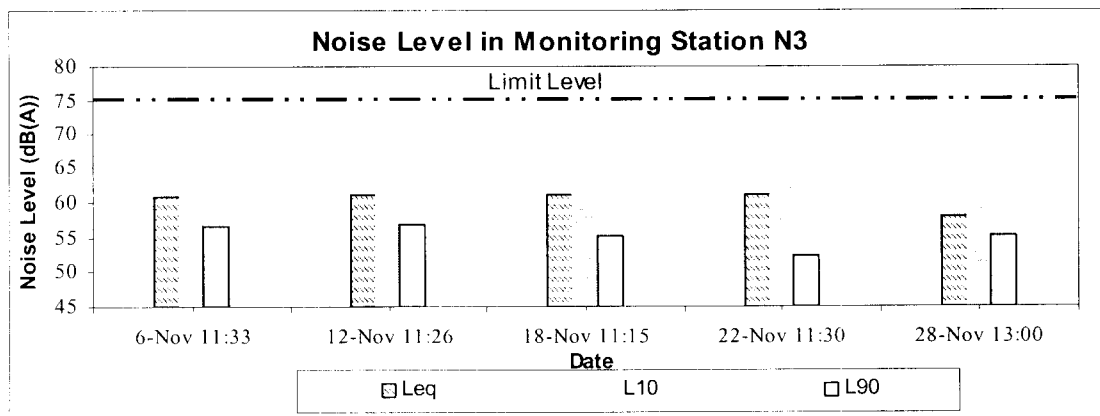
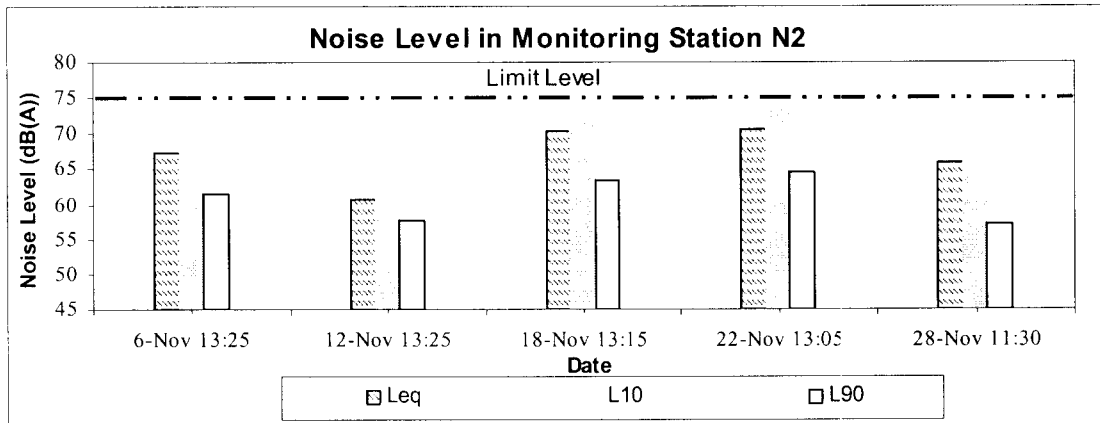
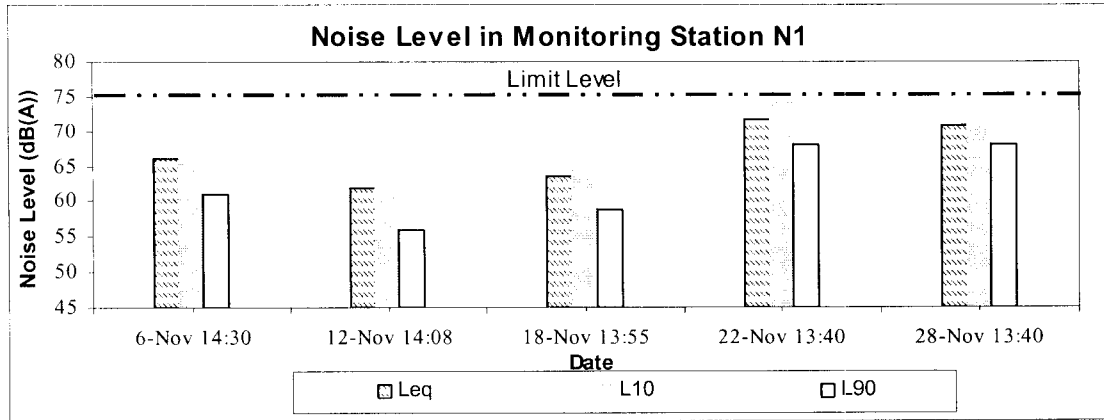
Min	58.2	60.5	52.3
Max	68.4	72.3	61.3

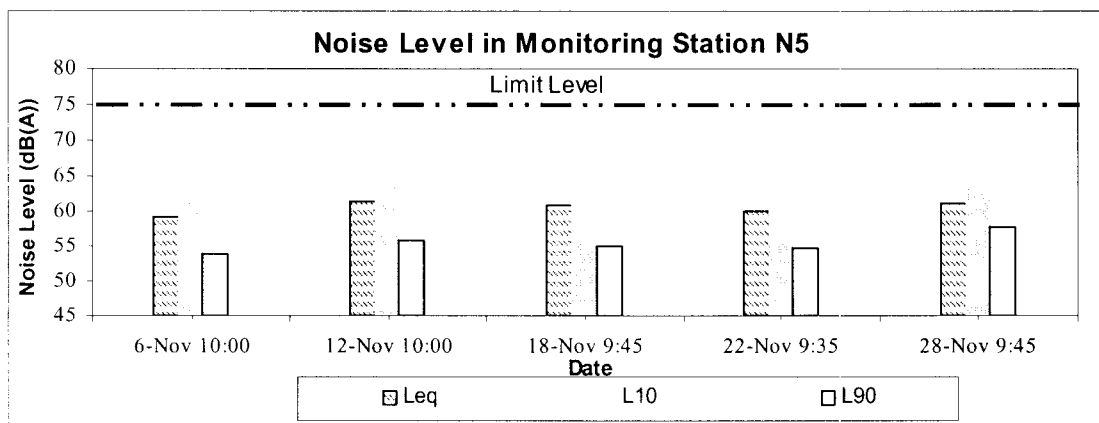
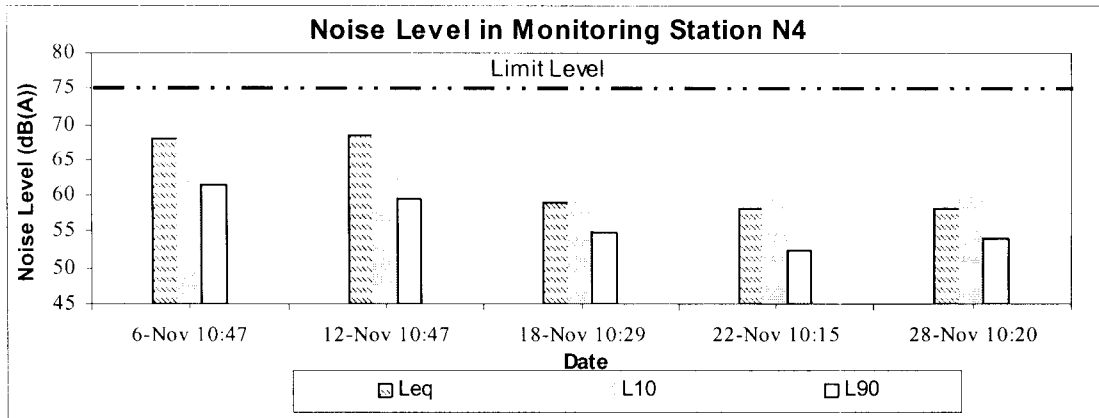
**Monitoring Station N5 (Village House near Royal Ascot)**

Date	Noise Level for 30 min, dB(A)			
	Time of Sampling	L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>
6-Nov-02	1000 – 1030	59.3	63.2	54.0
12-Nov-02	1000 – 1030	61.4	65.6	55.9
18-Nov-02	0945 – 1015	60.9	65.1	54.9
22-Nov-02	0935 – 1005	59.9	64.1	54.7
28-Nov-02	0945 – 1015	61.0	63.4	57.8

Min	59.3	63.2	54.0
Max	61.4	65.6	57.8

## 2. Plots of Noise Monitoring Results





---

**APPENDIX F:**

**Weather Conditions During  
Monitoring Periods**

---

**Weather Condition during Monitoring Period  
(From 3 to 30 November 2002)**

Date	Weather	Mean Air Temperature (°C)	Wind Speed (m/s)	Mean Relative Humidity (%)
5-Nov-02	Fine	20.6	1.3 – 1.5	61
6-Nov-02	Sunny	21.7	0.5 – 0.7	67
11-Nov-02	Fine	23.9	N/A	83
12-Nov-02	Sunny	24.7	0.5	79
15-Nov-02	Fine	25.7	1.0	83
18-Nov-02	Cloudy	20.4	0.3 – 0.9	69
21-Nov-02	Fine	22.3	0.8 – 1.0	72
22-Nov-02	Fine	20.6	0.9 – 1.0	72
27-Nov-02	Cloudy – Fine	19.1	0.9 – 1.0	64
28-Nov-02	Cloudy	18.6	0.9	87

---

**APPENDIX G:**

**Event and Action Plan for Air  
Quality and Noise**

---

## Event / Action Plan for Air Quality

EVENT	ACTION		
	ET	Engineer	CONTRACTOR
<b>ACTION LEVEL</b>			
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform the Engineer and Contractor;</li> <li>3. Repeat measurement to confirm finding; and</li> <li>4. Increase monitoring frequency to daily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor; and</li> <li>2. Check monitoring data and Contractor's working methods.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practice, if any; and</li> <li>2. Amend working methods if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform the Engineer and Contractor;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency to daily.</li> <li>5. Discuss with Engineer for remedial actions required;</li> <li>6. If exceedance continues, arrange meeting with the engineer; and</li> <li>7. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Check monitoring data and Contractor's working methods;</li> <li>4. Discuss with ET and Contractor on potential remedial actions; and</li> <li>5. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for mitigation measures to the Engineer within 3 working days of notification;</li> <li>2. Implement the agreed proposals; and</li> <li>3. Amend proposal if appropriate.</li> </ol>
<b>LIMIT LEVEL</b>			
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform the Engineer and Contractor;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Assess effectiveness of Contractor's remedial actions and keep EPD and the Engineer informed of results.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Check monitoring data and Contractor's working methods;</li> <li>4. Discuss with ET and Contractor on potential remedial actions; and</li> <li>5. Ensure remedial action properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to the Engineer within 3 working days of notification;</li> <li>3. Implement the agreed proposals; and</li> <li>4. Amend proposal if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform the Engineer and Contractor;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency to daily.</li> <li>5. Investigate the causes of exceedance;</li> <li>6. Arrange meeting with EPD and the Engineer to discuss the remedial actions to be taken;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep EPD and the Engineer informed of the results; and</li> <li>8. If exceedance stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>4. Discuss among ET and Contractor on potential remedial actions;</li> <li>5. Review Contractor's remedial action whenever necessary to assure their effectiveness; and</li> <li>6. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to the Engineer within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the Engineer until the exceedance is abated.</li> </ol>



**Event / Action Plan for Construction Noise**

EVENT	ACTION	
	ET	Contractor
Action Level	<ol style="list-style-type: none"> <li>1. Notify the Engineer and Contractor;</li> <li>2. Analyze investigation;</li> <li>3. Require Contractor to propose measures for the analyzed noise problem; and</li> <li>4. Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to Environmental Team and the Engineer; and</li> <li>2. Implement noise mitigation proposals.</li> </ol>
Limit Level	<ol style="list-style-type: none"> <li>1. Notify the Engineer and Contractor;</li> <li>2. Notify EPD; and</li> <li>3. Require Contractor to implement mitigation measures; and increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Implement mitigation measures; and</li> <li>2. Prove to Environmental Team and the Engineer effectiveness of measures applied.</li> </ol>

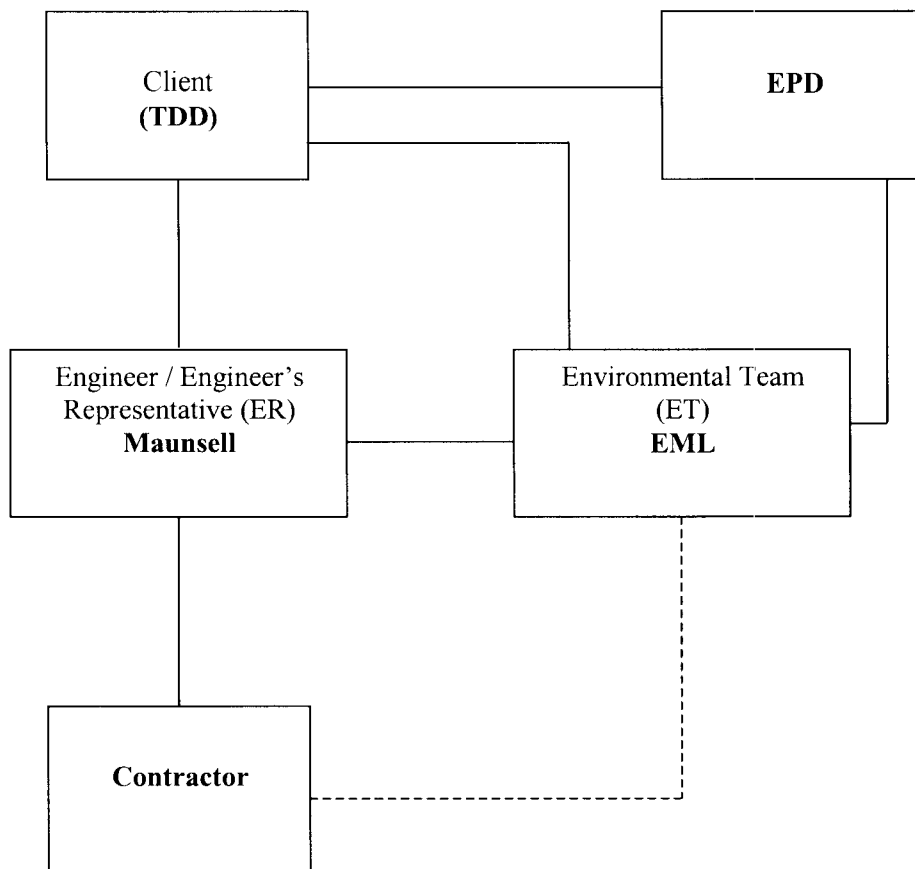
---

**APPENDIX H:**

**Project Organisation and  
Contacts of Key Personnel**

---

**Figure H.1: Project Management Structure**



**Contacts of Key Personnel:**

Organisation	Nature of Duty	Contact Personnel	Contact Number	
			Telephone	Fax
Territory Development Department (TDD)	Client	Mr. Stephen Wong	2301-1376	2721-8630
Maunsell Consultants Asia Ltd. (MCAL)	Engineer	Mr. Alan Kwong	2602-3433	2691-2649
Environmental Management Ltd. (EML)	Environmental Team	Mr. Lawrence Tsui	2890-1090	2890-6901

---

**APPENDIX I:**

**Summary Records of  
Complaints Received**

---

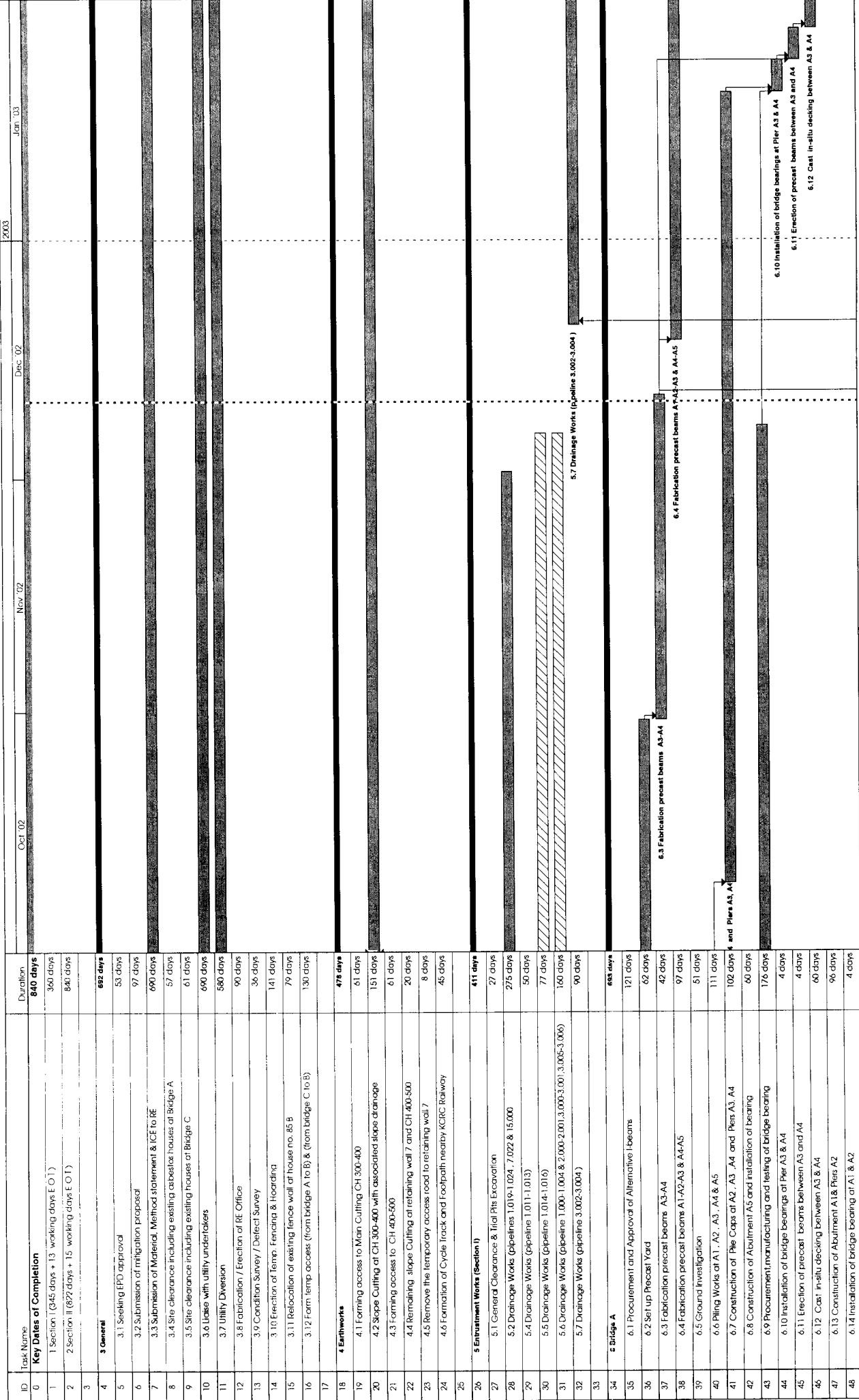
Complaint No.	Received date & Time	Description (inc. location/ nature of complaint)	Follow-up Action Taken	Recommended Measures	Status/ Remarks
C02-N1	Morning, 29/7/2002	<p>Around 9:30am on 29/7/02, police came on site to investigate a complaint of noise pollution emitted during rock breaking which carried out by the Contractor near the Site Office (near the box culvert and north Lok Shun Path Roundabout). The Contractor immediately halted the activity in response to police's advice</p>	<ul style="list-style-type: none"> <li>Ad hoc site inspection was carried out on 31/7/02, jointly with the Engineer and Contractor</li> <li>The complaint log sheet, the investigation findings and recommendations on mitigation measures were submitted to the Engineer and Contractor.</li> <li>A letter, addressing to the complainant, will be sent to the police.</li> </ul>	<p>Mitigation actions:</p> <ul style="list-style-type: none"> <li>Excavator-mounted breaker shall not be carried out within 125m from any nearby noise sensitive receivers and;</li> <li>Temporary purposed built barrier should be installed whenever there are high noise level construction activities.</li> </ul>	<p>The complaint was considered as ad hoc rather than continuous. It is therefore considered not necessary to increase the noise monitoring frequency</p> <p>File Closed.</p>
C02-N2	Night-time, 7 August, 2002	<ul style="list-style-type: none"> <li>Nearby residents complained to police that a generator in Road D15 Site was operating in night-time near Lok Lo Ha Village.</li> <li>Police came to the site to investigate the complaint and inform watchmen to turn off the operating generator at around 8:30pm.</li> <li>The complaint was valid as it concerned with construction noise during the restricted hours.</li> </ul>	<ul style="list-style-type: none"> <li>Ad hoc site inspection was carried out on 8 August 02, jointly with the Engineer and Contractor and ET.</li> <li>The complaint log sheet, the investigation findings and recommendations on mitigation measures were submitted to the Engineer and Contractor.</li> <li>A letter in both English and Chinese, addressing to the complainant, has been sent to the police.</li> </ul>	<p>Mitigation actions:</p> <ul style="list-style-type: none"> <li>Under the Noise Control Ordinance, the carrying out of general construction work using powered mechanical equipment (including generators) during the restricted hours (between 7 p.m. and 7 a.m. or at any time on a general holiday (including Sunday) is prohibited unless a valid Construction Noise Permit is in force;</li> <li>A watchmen or site staff should be employed to check daily that all generators and plants are switched off after the permissible working hours.</li> </ul>	<p>File Closed.</p>

---

**APPENDIX J:**

**Updated Construction  
Program**

---



Project: Key Dates of Completion  
 Date: Wed 11/12/2002

Task Progress: [Bar with diagonal lines]

Task: [Bar with horizontal lines]

Critical Task: [Bar with vertical lines]

Critical Task Progress: [Bar with diagonal lines]

Milestone: [Diamond symbol]

Summary: [Bar with horizontal lines]

Rollled Up Task: [Bar with diagonal lines]

Rollled Up Critical Task: [Bar with vertical lines]

Rollled Up Milestone: [Diamond symbol]

External Tasks: [Bar with horizontal lines]

Split: [Arrow symbol]

Project Summary: [Bar with horizontal lines]

Page 1

ID	Task Name	Duration	2003	2002	2001
49	6.15 Erection of precast beams between A1 & A2	4 days			
50	6.16 Cast in-situ decking between A1 & A2	44 days			
51	6.17 Erection of precast beams between A2 & A3	4 days			
52	6.18 Cast in-situ decking between A2 & A3	44 days			
53	6.19 Erection of precast beams between A4 & A5	4 days			
54	6.20 Cast in-situ decking between A4 & A5	45 days			
55	6.21 Edge parapet A1-A4	81 days			
56	6.22 Edge parapet between A4 & A5	32 days			
57	6.23 Paving	21 days			
58					
59	<b>7 Bridge B</b>	<b>618 days</b>			
60	7.1 Fabrication of precast beams	62 days			
61	7.2 Temporary Access (B1-B2)	25 days			
62	7.3 Ground Investigation	45 days			
63	<b>7.4 Piling Works at Abutment B1 &amp; B2</b>	<b>168 days</b>			
64	a) Piling Work at B1	45 days			
65	b) Piling Work at B2	34 days			
66	<b>7.5 Construction of Abutment B1, B2 and stair 6</b>	<b>125 days</b>			
67	a) Abutment B1	70 days			
68	b) Abutment B2	70 days			
69	c) Stair 6	45 days			
70	<b>7.6 Procurement, manufacturing and testing of bridge bearing</b>	<b>200 days</b>			
71	7.7 Installation of bridge bearing at B1 & B2	14 days			
72	7.8 Erection of precast beams from B1 to B2	7 days			
73	7.9 Cast in-situ decking between B1 and B2	54 days			
74	7.10 Edge parapet	35 days			
75	7.11 Paving	45 days			
76					
77	<b>8 Bridge C</b>	<b>827 days</b>			
78	8.1 Fabrication of precast beams	63 days			
79	8.2 Ground Investigation at Pier C2	29 days			
80	8.3 Ground Investigation at Abutment C1	29 days			
81	8.4 Piling Works for Abutment C1	45 days			
82	8.5 Piling Works for Pier C2	67 days			
83	8.6 Construction of Abutment C1	70 days			
84	8.7 Construction of Pile Cap & Pier C2	80 days			
85	8.8 Procurement, manufacturing and testing of bridge bearing	160 days			
86	8.9 Installation of bridge bearing at C2 & existing deck	8 days			
87	8.10 Erection of precast beams from existing deck to C2	7 days			
88	8.11 Cast in-situ decking from existing deck to C2	60 days			
89	8.12 Installation of bridge bearing at C1	8 days			
90	8.13 Erection of precast beams from C1 to C2	7 days			
91	8.14 Cast in-situ decking between C1 and C2	50 days			
92	8.15 Edge parapet	83 days			
93	8.16 Paving	55 days			
94					
95	<b>9 Retaining Walls &amp; Stairs</b>	<b>516 days</b>			
96	9.1 Wall 1	108 days			
97	9.2 Wall 2	107 days			

Project: Kw. Pk. of Completion Date: Wed 11/12/02

Task Progress: [Legend]

Critical Task Progress: [Legend]

Milestone Summary: [Legend]

Rollled Up Task Progress: [Legend]

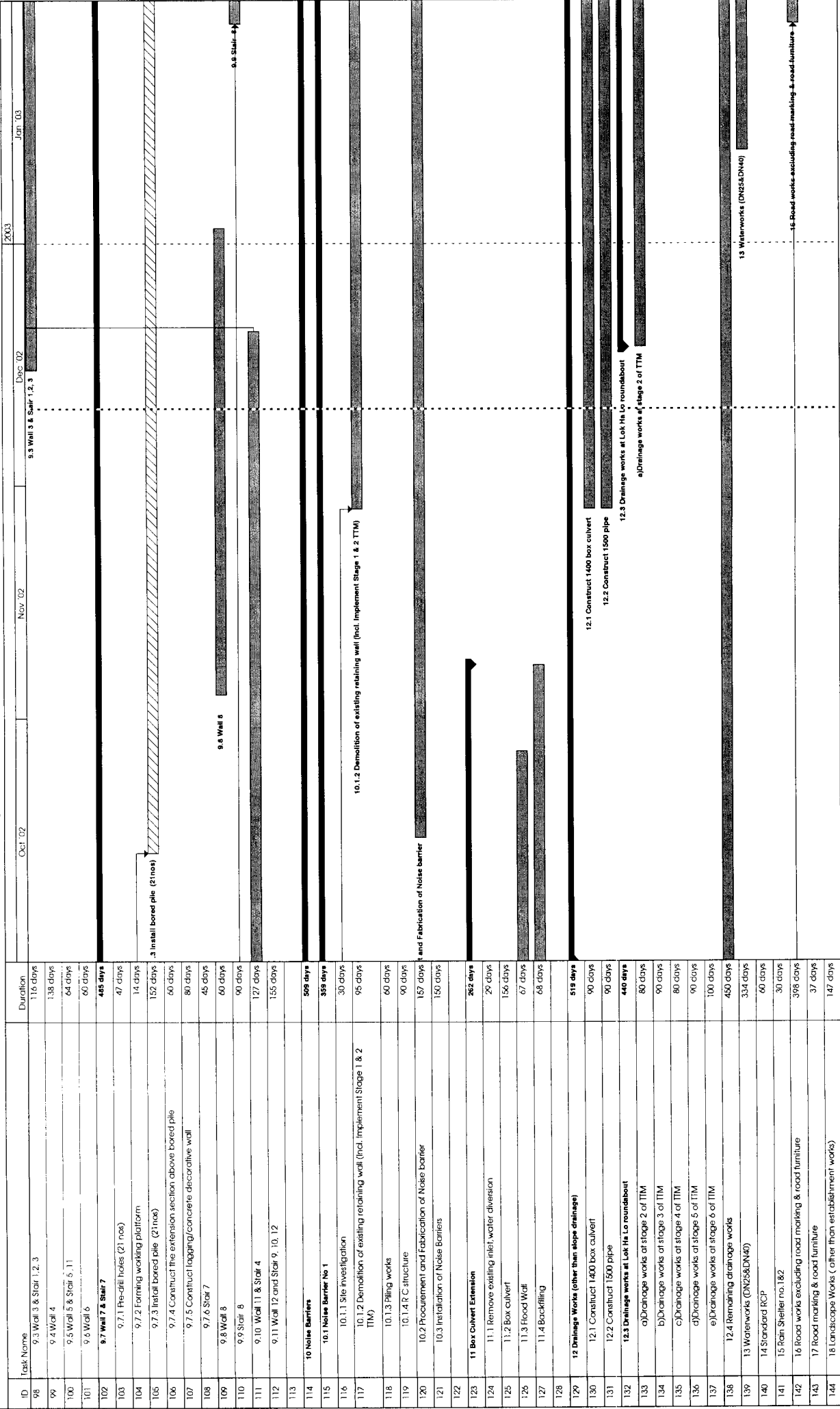
Rollled Up Milestone: [Legend]

Spill External Tasks: [Legend]

Project Summary: [Legend]

Page 2





Project: Key Dates of Completion Date: Wed 11/1/2002

Task: Task Progress

Critical Task: Critical Task Progress

Milestone Summary

Rolled Up Task: Rolled Up Critical Task

Rolled Up Milestone: Rolled Up Progress

Split: External Tasks

Project Summary

Page 3