

**DRAINAGE SERVICES DEPARTMENT (DSD)
CONTRACT NO. DC/2005/02**






**CONSTRUCTION OF SEWERS, RISING MAINS
& SEWAGE PUMPING STATION AT KAM TIN, NAM SANG
WAI AND AU TAU IN YUEN LONG**

**18th Monthly Construction Phase EM&A Report for
September 2007
(Designated Elements)**

PREPARED FOR

Leader Civil Engineering Corporation Ltd

Quality Index

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Executive Summary

- ES.01 Leader Civil Engineering Corporation Limited (the Contractor) has been awarded the DSD Contract DC/2005/02 Construction of Sewers, Rising Mains and Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long (the Project). The Project requires an Environmental Monitoring and Audit (EM&A) program to be implemented by an Environmental Team (ET) throughout the contract period in compliance with the requirements as stated in the project Environmental Permit (EP-220/2005) and the Project's Updated EM&A (Designated Elements) Manual.
- ES.02 This is the 18th Monthly Construction Phase EM&A Report for September 2007 (Report No. 18) reporting the environmental impact monitoring and audit (EM&A) conducted from 01 to 30 September 2007. The EM&A program in September 2007 were covered air quality, noise and waste management.

Breach of Action and Limit (AL) Levels

- ES.03 No Action/Limit Level exceedance was recorded in this reporting month. All the monitoring results were complied with standard.

Complaint Log

- ES.04 No environmental complaint was received in this reporting month.

Notification of Any Summons and Successful Prosecution

- ES.05 There was no environmental summon or prosecution in this reporting month.

Reporting Changes

- ES.06 There are no changes to be reported in this reporting month.

Future Key Issues

- ES.07 Construction activities to be undertaken in October 2007 include concreting at Kam Tin Pumping Station (P1), excavation at Sha Po pumping station (P2), excavation, backfilling & concreting at Nam Sang Wai pumping station (P3), sheeting piling, excavation, pipe laying, backfilling, concreting, pipe jacking, grouting and extract sheet pile at Nam Sang Wai Road (S4); sheeting piling, excavation, pipe laying, backfilling, concreting, grouting and extract sheet pile at Pok Wai South Road (S5 & S6). Potential environmental impacts arising from the works include air quality, noise and water quality (particularly site runoff). Environmental mitigation measures will be properly implemented and maintained as per the Mitigation Implementation Schedule to ensure site environmental performance is acceptable.

1.0 BASIC PROJECT INFORMATION

1.01 Leader Civil Engineering Corporation Ltd (the Contractor) has been awarded the DSD Contract DC/2005/02 Construction of Sewers, Rising Mains and Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long (the Project). The Project is part of the Yuen Long and Kam Tin Sewerage and Sewage Disposal (YLKTSSD) Scheme. A site layout map showing the site boundary and the work areas is shown in **Annex A**.

1.02 This 18th Monthly Construction Phase EM&A Report for September 2007 (Report No. 18) summarizes the impact monitoring results and audit findings in the reporting month from 01 to 30 September 2007.

Project Organization

1.03 The organization chart and lines of communication with respect to the on-site environmental management and monitoring program are shown in **Annex B**.

Construction Program of the Reporting Month

1.04 A construction program showing the construction work undertaken in this reporting month was shown in **Annex C**. Environmental mitigation measures implemented are shown in **Table 2-1**.

Management Structure

1.05 The management structure of the Project is shown in **Annex B**.

Works Undertaken in the Reporting Month

1.06 The construction works undertaken during the reporting month under the Environmental Permit (EP-220/2005) were shown as follows:

Kam Tin Pumping Station (P1)

- Excavation

Sha Po Pumping Station (P2)

- Excavation

Nam Sang Wai Pumping Station (P3)

- Excavation
- Backfilling
- Concreting

Nam Sang Wai Road (S4)

- Sheet piling
- Excavation
- Pipe laying
- Backfilling
- Concreting
- Pipe jacking
- Grouting
- Extract sheet pile

Pok Wai South Road (S5 and S6)

- Sheet piling
- Excavation
- Pipe laying
- Backfilling
- Concreting
- Grouting
- Extract sheet pile

2.0 ENVIRONMENTAL STATUS

Work Undertaken in the Reporting Month with Illustrations

2.01 A summary of the work undertaken in this reporting month with illustrations and environmental mitigation measures implemented is shown in **Table 2-1**.

Table 2-1 Work Undertaken in the Reporting Month with Illustrations of Mitigation Measures

Location	Description of Construction Activities	Environmental Mitigation Measures	EM&A Ref.
P1 (Kam Tin Pumping Station)	<ul style="list-style-type: none"> • Sheet piling • Footing construction 	<ul style="list-style-type: none"> • Erect 2.4m high noise barrier hoarding around the works area at P1, P2 and P3 • Remove dust and spray water at the construction access • Cover the stockpiles of dusty material properly • Spray water to all dusty materials immediately before loading and unloading 	A1 & F6
			A2
P2 (Sha Po Pumping Station)	<ul style="list-style-type: none"> • Hoarding erection 	<ul style="list-style-type: none"> • Wash the wheels of vehicles before leaving the site 	A3
			A4
P3 (Nam Sang Wai Pumping Station)	<ul style="list-style-type: none"> • Pipe jacking 	<ul style="list-style-type: none"> • Install and use power-operated cover at the dump trucks • Spray water at the pavement breaking locations • Spray the working area of excavation frequently • Maximize the use of quiet PME on site 	A5
			A6
S4 (Nam Sang Wai Road)	<ul style="list-style-type: none"> • Drilling and grouting 	<ul style="list-style-type: none"> • Apply and obtain appropriate waste disposal licenses • Handle, store and dispose of chemical wastes as per relevant regulations • Implement trip-ticket system for waste disposal • Restrict open fires and provide fire fighting equipment in the works area 	A7
			A8
S5 & S6 (Pok Wai South Road)	<ul style="list-style-type: none"> • Pipe jacking 	<ul style="list-style-type: none"> • Perform weekly inspection with ET and monthly audit with IEC • Conduct noise and dust monitoring as per EM&A manual during construction • Provide sedimentation tanks for treating site discharge. • Recycle wheel washing water and provide sedimentation tanks for treating site discharge. 	B1, B2 & F5
			D1
			D2, D3 & D4
			D5
			F9
			H1
			I1 & I2
			-
			-

2.02 Photographic records showing the implemented 2.4m high noise barrier at the pumping station (S3) are shown in **Annex D**.

Project Drawings

2.03 Drawings showing the work areas under EP-220/2005 and the locations of the designated monitoring stations are presented in **Annex E**.

- 2.04 There are four designated air quality (AM1, AM5, AM6 & AM7) and four noise monitoring stations (AM1, AM5, AM6 & AM7) under the project EP.

Station ID	Nature of Premise	Site Work Description	Station Coordinates
AM1	Site Boundary in NSW	Sheet piling and trench excavation.	835829 N 822910 E
AM5	Site Boundary in FKH		835121 N 823515 E
AM6	Site Boundary in KT		833308 N 823987 E
AM7	Site Boundary in NSW		836171 N 822586 E
NM3	Village House in NSW		835808 N 822817 E
NM4	Village House in NSW		835282 N 822811 E
NM6	Village House in KT		833288 N 823999 E
NM7	Village House in FKH		835121 N 823495 E

- 2.05 In this reporting month, the impact monitoring was carried out at four designated air stations and four noise monitoring locations in according to the monitoring schedule.

3.0 SUMMARY OF EM&A REQUIREMENTS

Monitoring Parameters

- 3.01 Environmental monitoring and audit requirements are set out in the Updated EM&A manual. Air quality and construction noise have been identified to be the key monitoring parameters during the impact phase for the construction of the project.
- 3.02 A summary of the impact EM&A requirements for air quality and construction noise as per the project Updated EM&A Manual are shown in **Table 3-1**.

Table 3-1 Summary of EM&A Requirements

Environmental Aspect	Monitoring Parameters
Air Quality	24-Hour TSP
Construction Noise	Leq 30min during day time 07:00 to 19:00
	Supplementary L10 and L90 for reference.

Environmental Quality Performance Limits

- 3.03 A summary of the Action/Limit (A/L) Levels for air quality and construction noise is shown in **Tables 3-2** and **3-3**.

Table 3-2 Action and Limit Levels for Air Quality Monitoring

Monitoring Locations	Action Level ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-Hour TSP	24-Hour TSP	1-Hour TSP	24-Hour TSP
AM1	> 391	> 184	> 500	> 260
AM5	> 353	> 237	> 500	> 260
AM6	> 329	> 183	> 500	> 260
AM7	> 383	> 204	> 500	> 260

Table 3-3 Action and Limit Levels for Construction Noise

Monitoring Period	Action Level in dB(A)	Limit Level in dB(A)
0700-1900 hours on normal weekdays	When one or more documented complaints are received	> 75 dB(A)

Event and Action Plans

- 3.04 An Event Action Plan for air quality and construction noise has been implemented for this project. Details of the Event Action Plan are presented in **Annex F**.

Environmental Mitigation Measures

- 3.05 The project EIA report has recommended environmental mitigation measures to minimize potential environmental impacts arising from the construction of the project. A full list of the mitigation measures is detailed in **Annex G**.

Environmental Requirements in Contract Documents

- 3.06 The environmental requirements in the contract documents generally refer to the compliance of the requirements as stipulated in the project EP and the updated EM&A Manual.

4.0 IMPLEMENTATION STATUS

- 4.01 The implementation status of environmental protection and pollution control/mitigation measures as recommended in the project EIA report is summarized in **Table 2-1** and the implementation schedule as shown in **Annex G**.
- 4.02 A summary status of the permits, licences, and/or notifications on environmental protection for this Project in this reporting period is presented in **Table 4-1**.

Table 4-1 Status of Environmental Licenses and Permits

Item	Item Description	License/Permit Status
1	Environmental Permit No.: EP-220/2005	Issued in June 2005
2	Air Pollution Control (Construction Dust)	Notified EPD on 24 Dec 2005
3	Chemical Waste Producer Registration (No. 5213-528-L2544-08)	Registration on 27 Jan 2006
4	Water Pollution Control (Discharge License No. 1U434/1)	Issued on 08 May 2006
5	Account for Disposal of Construction Waste No. 5004959	Registration on 27 Dec 2005
6	Piling Permit (CNP No. PP-RN0036-06)	Valid (8 Dec 2006 to 03 Sep 2007)
7	Piling Permit (CNP No. PP-RN0001-07)	Valid (7 Mar 2007 to 06 Dec 2007)
8	Piling Permit (CNP No. PP-RN0004-07)	Valid (7 May 2007 to 06 Feb 2008)
9	Construction Noise Permit (CNP No. GW-RN0083-07)	Valid (8 Mar 2007 to 07 Sep 2007)
10	Construction Noise Permit (CNP No. GW-RN0118-07)	Valid (28 Mar 2007 to 27 Sep 2007)
11	Construction Noise Permit (CNP No. GW-RN0183-07)	Valid (03 May 2007 to 02 Nov 2007)
12	Construction Noise Permit (CNP No. GW-RN0355-07)	Valid (24 Aug 2007 to 23 Feb 2008)
13	Construction Noise Permit (CNP No. GW-RN0379-07)	Valid (09 Sep 2007 to 02 Mar 2008)

5.0 MONITORING RESULTS

MONITORING METHODOLOGY OF AIR QUALITY MONITORING

- 5.01 The 24-Hour TSP monitoring was carried out by a High volume sampler (HVS) in compliance with the updated EM&A Manual. The HVS employed complied with the PS specifications including.
- Power supply of 220v/50 hz for 24-Hour continuous operation;
 - 0.6-1.7 m³/min (20-60 SCFM) adjustable flow rate;
 - A 7-day mechanical timer for 24-Hour operation;
 - An elapsed time indicator with ± 2 minutes accuracy for 24-Hour operation;
 - Minimum exposed area of 63 in²;
 - Flow control accuracy of $\pm 2.5\%$ deviation over 24-Hour operation;
 - An anodized aluminum shelter to protect the filter and sampler;
 - A motor speed-voltage control to control mass flow rate with accuracy of $\pm 2.5\%$ deviation over 24-Hour sampling period;
 - Provision of a flow recorder for continuous monitoring;
 - Provision of a peaked roof inlet;
 - Incorporation with a manometer; and
 - An 8"x10" stainless steel filter holder to hold, seal and easy to change the filter paper.
- 5.02 The filter papers used in 24-Hour TSP monitoring were of size 8"x10" and provided by a local HOKLAS-accredited laboratory, ALS Techichem Pty (HK) Limited (HOKLAS No. 66). The filters papers after measurements were returned to the laboratory for the required treatment and analysis. In house QA/QC procedures for all monitoring practices to ensure the validity of monitoring data. Blank filters samples were collected and delivered to the HOKLAS-accredited laboratory for QA/QC check.
- 5.03 The meteorological information during the reporting period was obtained from Lau Fau Shan Station of the Hong Kong Observatory (HKO).

MONITORING METHODOLOGY OF CONSTRUCTION NOISE MONITORING

- 5.04 Noise measurements were taken in terms of the A-weighted equivalent sound pressure level (Leq) measured in decibels (dB). Supplementary statistical results (L₁₀ and L₉₀) were also obtained for reference.
- 5.05 Hand-held sound level meters (B&K Model 2238) and associated acoustical calibrators in compliance with the International Electrotechnical Commission (IEC) Publication 651:1979 (Type 1) and 804:1985 (Type 1) specification were used for taking the baseline noise measurements.
- 5.06 Windshield was fitted in all measurements. All noise measurements were made with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq).
- 5.07 No noise measurement was made in the presence of fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s.

LABORATORY AND MONITORING EQUIPMENT USED

- 5.08 A local HOKLAS-accredited laboratory, ALS Technichem (HK) Pty Ltd (HOKLAS No. 66), is responsible for the analytical testing of the 24-Hour TSP filter papers.
- 5.09 The monitoring equipment used in the impact EM&A program is presented in **Table 5-1**:

Table 5-1 Monitoring Equipment Used in Impact EM&A Program

Env. Aspect	Parameters	Monitoring Equipment
Air Quality	24-Hour TSP	Greasby Anderson GMWS2310 High Volume Sampler
Noise	Leq30min	B&K Sound Level Meter Type 2238
	On-site Calibration	B&K Noise Calibrator Type 4231

EQUIPMENT CALIBRATION

- 5.10 Initial calibration of the HVS was performed upon installation and thereafter at a six month intervals in accordance with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A). The calibration data are properly documented and the records are maintained by ET for future reference.
- 5.11 The sound level meters were calibrated using an acoustic calibrator prior to and after measurements. The meters are regularly calibrated in accordance with the manufacturer's instructions. Prior to and following each noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements were considered valid only if the calibration levels before and after the noise measurement agree to within 1.0 dB.
- 5.12 The renew calibration certificates of the monitoring equipment used during the impact monitoring program in this month are attached in **Annex H**.

PARAMETERS MONITORED

- 5.13 The environmental parameters monitoring in this reporting month were compliance with the monitoring requirements as in **Table 3-1**.

MONITORING LOCATIONS

- 5.14 There are four designated air quality and four noise monitoring stations under the project EP. For this reporting month, monitoring was carried out at four designated air (AM1, AM5, AM6 & AM7) and four noise (NM3, NM4, NM6 & NM7) monitoring stations. The locations of the designated monitoring stations are shown in **Table 5-2** and geographically in **Annex E**.

Table 5-2 Location of Air Quality and Construction Noise Monitoring Stations/Locations

Air Quality (4 Stations)	
AM1	Worksite boundary facing scattered house in Nam Sang Wai
AM5	Worksite boundary facing Fung Kat Heung
AM6	Worksite boundary facing scattered near Route 3
AM7	Worksite boundary facing scattered house in Nam Sang Wai
Construction Noise (4 Locations)	
NM3	Village House in Nam Sang Wai
NM4	Village House in Nam Sang Wai
NM6	Scattered House near Route 3
NM7	Fung Kat Heung

MONITORING FREQUENCY AND PERIOD

5.15 The impact 24-Hour TSP monitoring was conducted at the designated stations once every 6 days in compliance with the updated EM&A manual. A total of 20 monitoring events were carried out in this reporting month.

5.16 The impact noise monitoring was conducted at the designated stations once every 6 days in compliance with the updated EM&A manual. A total of 24 monitoring events were carried out in this reporting month.

MONITORING RESULTS WITH DATE AND TIME

5.17 The air quality monitoring data for this reporting month were summarized in **Table 5-3**.

Table 5-3 Summary of Air Quality Monitoring Results

Date	24-Hour TSP ($\mu\text{g}/\text{m}^3$)			
	AM1	AM5	AM6	AM7
06-Sep-07	16	90	70	39
12-Sep-07	40	24	59	39
18-Sep-07	85	181	108	91
22-Sep-07	103	185	85	111
28-Sep-07	78	54	39	32
Average (Range)	65 (16-103)	107 (24-185)	72 (39-108)	62 (32-111)

All 24-Hr TSP monitoring were preset to start at 00:00 on each monitoring date.

* Action/Limit Level exceedances were recorded.

5.18 No Action/Limit Level exceedance was recorded in this reporting month.

5.19 The impact noise monitoring results are summarized in **Tables 5-4 to 5-7**.

Table 5-4 Summary of Noise Monitoring Results at NM3

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
01-Sep-07	10:46	47.6	46.3	61.7	49.3	45.7	47.5	54.7	57.7
07-Sep-07	14:41	47.0	47.2	47.1	47.1	46.5	47.1	47.0	50.0
13-Sep-07	10:54	53.2	51.5	52.3	53.3	53.3	52.1	52.7	55.7
19-Sep-07	10:56	53.2	49.3	50.5	54.4	51.6	50.5	51.9	54.9
24-Sep-07	11:00	48.1	48.6	49.4	52.0	50.7	50.0	50.0	53.0
29-Sep-07	10:49	48.6	49.4	52.0	50.7	50.0	48.3	50.0	53.0
Limit Level									75

* A façade correction of +3 dB(A) has been added according to acoustical principles and EPD guidelines.

Table 5-5 Summary of Noise Monitoring Results at NM4

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
1-Sep-07	9:53	55.3	54.1	57.2	56.6	53.9	53.6	55.3	58.3
7-Sep-07	13:44	51.9	53.6	50.0	49.4	48.5	49.5	50.9	53.9
13-Sep-07	9:57	57.0	58.6	60.5	60.5	62.3	61.5	60.4	63.4
19-Sep-07	9:42	54.5	53.0	52.6	52.8	56.2	54.2	54.1	57.1
24-Sep-07	9:43	59.8	61.5	59.9	59.4	59.7	59.9	60.1	63.1
29-Sep-07	9:46	55.4	54.6	55.2	53.6	56.4	55.1	55.1	58.1
Limit Level									75

* A façade correction of +3 dB(A) has been added according to acoustical principles and EPD guidelines.

Table 5-6 Summary of Noise Monitoring Results at NM6

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
1-Sep-07	13:35	57.4	56.6	67.1	57.4	56.8	57.6	61.1	No Correction Required
7-Sep-07	10:56	57.0	55.2	55.2	56.7	54.5	58.1	56.3	
13-Sep-07	15:13	57.3	56.4	56.6	56.5	64.1	60.1	59.6	
19-Sep-07	13:58	56.3	61.8	57.7	58.5	65.5	58.4	61.0	
24-Sep-07	14:12	56.5	56.3	59.4	58.2	57.2	58.6	57.8	
29-Sep-07	13:48	55.1	54.3	65.7	55.4	53.1	63.2	60.6	
Limit Level									75

* Noise monitoring was undertaken at the façade, correction was not necessary.

Table 5-7 Summary of Noise Monitoring Results at NM7

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
1-Sep-07	10:29	56.2	56.3	56.2	56.0	56.0	55.9	56.1	No Correction Required
7-Sep-07	14:30	48.4	49.0	49.6	49.6	50.6	51.9	50.0	
13-Sep-07	10:35	51.1	51.4	49.7	50.3	50.0	49.0	50.3	
19-Sep-07	10:22	54.3	52.4	52.9	53.5	53.0	51.6	53.0	
24-Sep-07	10:21	54.2	56.5	57.2	56.7	55.7	55.6	56.1	
29-Sep-07	10:27	52.3	51.4	52.9	51.5	49.2	52.5	51.8	
Limit Level									75

* Noise monitoring was undertaken at the façade, correction was not necessary.

5.20 The monitoring schedule for the next reporting month is shown in **Table 5-8**.

Table 5-8 Monitoring Schedule for the Next Reporting Month

Date		Air Quality	Noise Leq 30min
1-Oct-07	Mon		
2-Oct-07	Tue		
3-Oct-07	Wed		
4-Oct-07	Thu		
5-Oct-07	Fri		
6-Oct-07	Sat		
7-Oct-07	Sun		
8-Oct-07	Mon		
9-Oct-07	Tue		
10-Oct-07	Wed		
11-Oct-07	Thu		
12-Oct-07	Fri		
13-Oct-07	Sat		
14-Oct-07	Sun		
15-Oct-07	Mon		
16-Oct-07	Tue		
17-Oct-07	Wed		
18-Oct-07	Thu		
19-Oct-07	Fri		
20-Oct-07	Sat		
21-Oct-07	Sun		
22-Oct-07	Mon		
23-Oct-07	Tue		
24-Oct-07	Wed		
25-Oct-07	Thu		
26-Oct-07	Fri		
27-Oct-07	Sat		
28-Oct-07	Sun		
29-Oct-07	Mon		
30-Oct-07	Tue		
31-Oct-07	Wed		

	Monitoring Day
	Sunday or Public Holiday

WEATHER CONDITIONS DURING THE MONITORING MONTH

5.21 The meteorological data on the monitoring dates are summarized in **Annex I**.

GRAPHICAL PLOTS OF TRENDS OF MONITORED PARAMETERS

5.22 The graphical plots of air quality and construction noise monitoring data are presented in **Annex J**.

MAJOR ACTIVITY CARRIED OUT DURING THE MONITORING MONTH

5.23 There were construction activities of sheet piling and trench excavation undertaken during the monitoring month.

WEATHER CONDITIONS THAT AUGUST AFFECT THE MONITORING RESULTS

5.24 The weather conditions at the time of monitoring were considered acceptable for monitoring activities and did not have significant impact on the monitoring results obtained.

OTHER FACTORS INFLUENCING THE MONITORING RESULTS

- 5.25 There were no other noticeable external factors generally affecting the monitoring results in this reporting month.

QA/QC RESULTS AND DETECTION LIMITS

- 5.26 Not applicable.

6.0 REPORT ON NON-COMPLIANCE (NC), COMPLAINTS, NOTIFICATIONS OF SUMMONS (NoS) AND SUCCESSFUL PROSECUTIONS

RECORD OF NON-COMPLIANCE OF ACTION AND LIMIT LEVELS

- 6.01 There was no Action or Limit Level exceedance in this reporting month.

RECORD OF ENVIRONMENTAL COMPLAINTS RECEIVED

- 6.02 There was no environmental complaint received in this reporting month.

RECORD OF NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTION

- 6.03 There was no notification of summons or prosecution received in this reporting month.

REVIEW OF REASONS FOR AND IMPLICATIONS OF NC, COMPLAINTS AND NOS

- 6.04 No NC, complaints or NoS received in this reporting month.

DESCRIPTION OF FOLLOW-UP ACTIONS TAKEN

- 6.05 No NC, complaints or NoS received in this reporting month.

7.0 OTHERS

FUTURE KEY ISSUES

- 7.01 Construction activities to be undertaken in October 2007 include concreting at Kam Tin Pumping Station (P1), excavation at Sha Po pumping station (P2), excavation, backfilling & concreting at Nam Sang Wai pumping station (P3), sheeting piling, excavation, pipe laying, backfilling, concreting, pipe jacking, grouting and extract sheet pile at Nam Sang Wai Road (S4); sheeting piling, excavation, pipe laying, backfilling, concreting, grouting and extract sheet pile at Pok Wai South Road (S5 & S6). Potential environmental impacts arising from the works include air quality, noise and water quality (particularly site runoff). Environmental mitigation measures will be properly implemented and maintained as per the Mitigation Implementation Schedule to ensure site environmental performance is acceptable.

SOLID AND LIQUID WASTE MANAGEMENT STATUS

- 7.02 The quantities of waste for disposal or reuse in this reporting month are summarized in **Tables 7-1** and **7-2**.

Table 7-1 Summary of Quantities of Waste for Disposal

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (tons) – Disposed	8,929	Tuen Mun 38 Fill Bank
C&D Materials (Inert) (tons) – Reused	740	DSD Contract DC/2005/02
C&D Materials (Non-Inert) (tons)	0	NA
Chemical Waste (Litres)	0	NA
General Refuse (tons)	39	Refuse Collector

Table 7-2 Summary of Quantities of Waste for Reuse/Recycling

Type of Waste	Quantity	Disposal Location
Metals for Recycling (kg)	0	NA
Paper for Recycling (kg)	0	NA
Plastics for Recycling (kg)	0	NA

- 7.03 There was no site effluent discharged but an estimated volume of less than 50m³ of surface runoff was discharged in the reporting month.

SUBMISSION OF PROFORMA

- 7.04 Representatives of the Engineer, the Contractor and ET carried out regular weekly joint site inspection on 04, 10, 19 and 25 September 2007 to evaluate the site environmental performance. The monthly IEC site inspection for September 2007 was held on 19 September 2007. No non-compliance was noted and eight observations were recorded in weekly and monthly site inspection.
- 7.05 Proforma of the weekly ET site inspection activities are presented in **Annex K**.

Annex A
Project Site Layout

DATE: 11/15/50
 PROJECT: [unclear]
 DRAWING NO: [unclear]

FOR TENDER PURPOSES ONLY

NO.	DATE	REVISION
1	11/15/50	ISSUED FOR TENDER
2	11/15/50	REVISED
3	11/15/50	REVISED
4	11/15/50	REVISED
5	11/15/50	REVISED
6	11/15/50	REVISED
7	11/15/50	REVISED
8	11/15/50	REVISED
9	11/15/50	REVISED
10	11/15/50	REVISED

DATE OF WORK: [unclear]

COMPLETION: [unclear]

SCALE: PROJECT'S DIVISION

ENGINEER: [unclear]

ARCHITECT: [unclear]

CONTRACT NO: [unclear]

PROJECT NO: [unclear]

DATE: 11/15/50

PROJECT: [unclear]

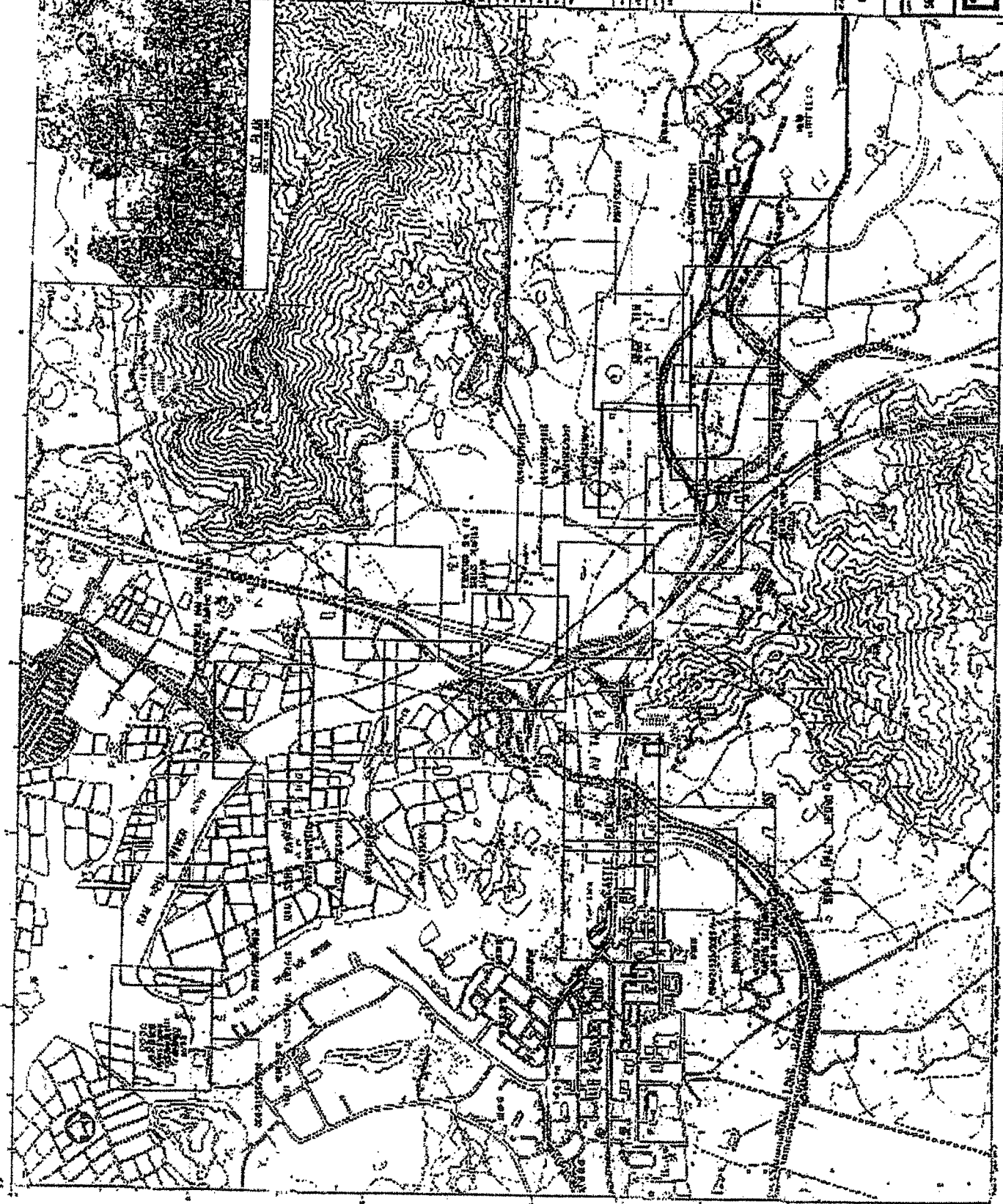
SCALE: PROJECT'S DIVISION

ENGINEER: [unclear]

ARCHITECT: [unclear]

CONTRACT NO: [unclear]

PROJECT NO: [unclear]

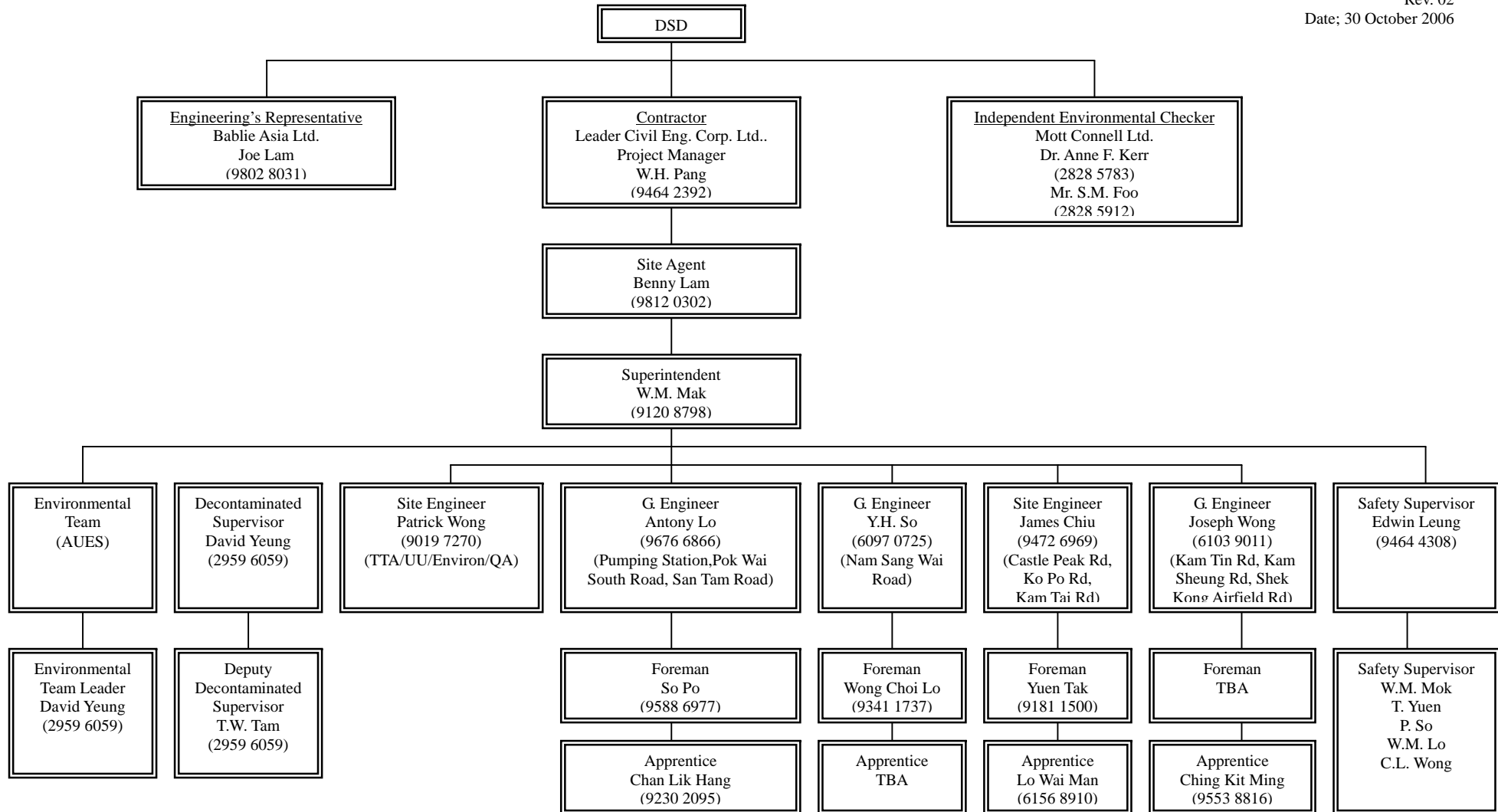


Annex B

Project Organization and Management Structure

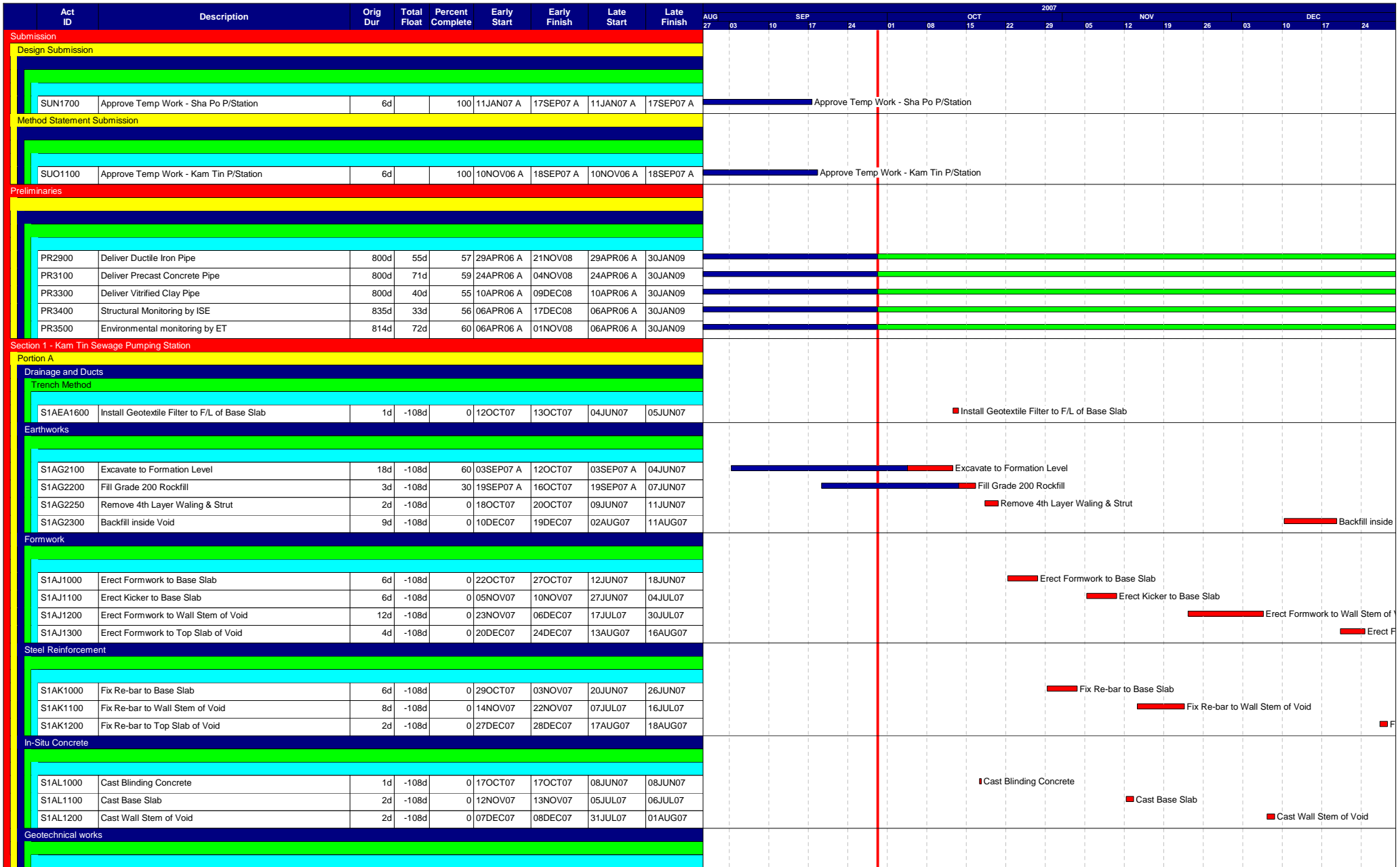
DSD Contract No. DC/2005/02
Construction of Sewers, Rising Mains and Sewage Pumping Station at Kam Tin,
Nam Sang Wai and Au Tau in Yuen Long
Project Environmental Organization Chart

Rev. 02
 Date: 30 October 2006



Annex C

Construction Program



Start date 19DEC05
 Finish date 26MAY10
 Data date 29SEP07
 Page number 1A
 Primavera Systems, Inc.

Leader Civil Engineering Corp. Ltd.
 DSD Contract No. DC/2005/02
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- [Green bar] Early bar
- [Blue bar] Progress bar
- [Red bar] Critical bar
- [Purple bar] Summary bar
- [Diamond] Start milestone point
- [Diamond] Finish milestone point




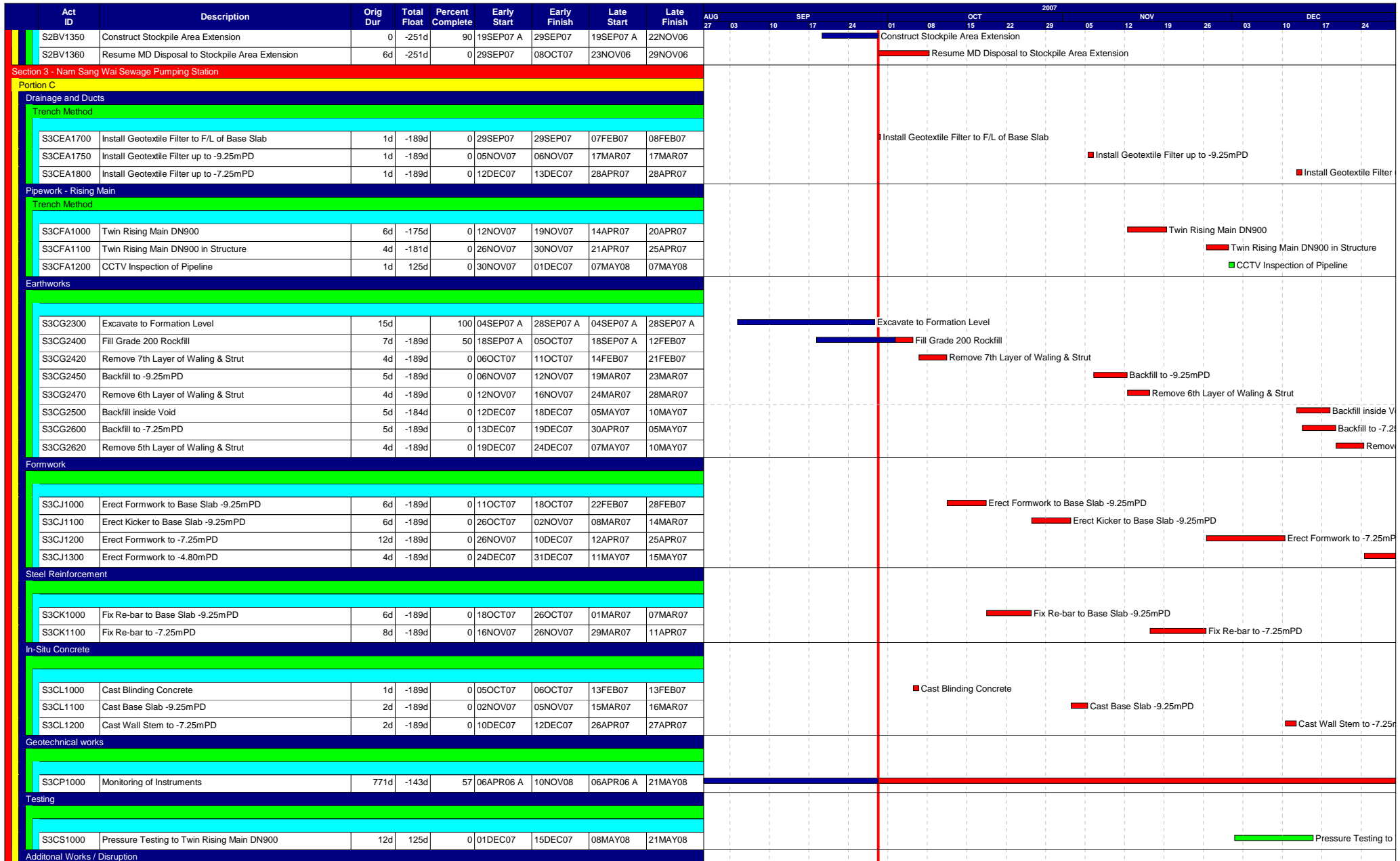
Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2007																	
									AUG	SEP			OCT			NOV			DEC							
									27	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17	24
S1AP1000	Monitoring of Instruments	525d	-68d	44	16NOV06 A	24SEP08	16NOV06 A	05JUL08	[Gantt bar: 16NOV06 to 05JUL08]																	
Additional Works / Disruption																										
Additional Dewatering at KT P/S (Claim No. 036)																										
S1AV1210	Install Pump & Equipment	0		100	11AUG07 A	01SEP07 A	11AUG07 A	01SEP07 A	[Gantt bar: 11AUG07 to 01SEP07] Install Pump & Equipment																	
S1AV1220	Testing & Commissioning	0		100	01SEP07 A	03SEP07 A	01SEP07 A	03SEP07 A	[Gantt bar: 01SEP07 to 03SEP07] Testing & Commissioning																	
S1AV1230	Dewatering to 500mm Below Formation	12d	-108d	70	03SEP07 A	04OCT07	03SEP07 A	26MAY07	[Gantt bar: 03SEP07 to 04OCT07] Dewatering to 500mm Below Formation																	
Section 2 - Sha Po Sewage Pumping Station																										
Portion B																										
Drainage and Ducts																										
Trench Method																										
S2BEA1400	Install Geotextile Filter to F/L of Base Slab	1d	-251d	0	06NOV07	07NOV07	30DEC06	30DEC06	[Gantt bar: 06NOV07 to 07NOV07] Install Geotextile Filter to F/L of Base Slab																	
S2BEA1450	Install Geotextile Filter up to -2.87mPD	1d	-251d	0	13DEC07	14DEC07	07FEB07	07FEB07	[Gantt bar: 13DEC07 to 14DEC07] Install Geotextile Filter																	
Earthworks																										
S2BG1300	Excavate to Level of 2nd Layer of Waling	6d	-247d	60	27AUG07 A	03OCT07	27AUG07 A	29NOV06	[Gantt bar: 27AUG07 to 03OCT07] Excavate to Level of 2nd Layer of Waling																	
S2BG1400	Install 2nd Layer of Waling & Strut	4d	-251d	0	08OCT07	12OCT07	30NOV06	04DEC06	[Gantt bar: 08OCT07 to 12OCT07] Install 2nd Layer of Waling & Strut																	
S2BG1500	Excavate to Level of 3rd layer of Waling	7d	-251d	0	12OCT07	22OCT07	05DEC06	12DEC06	[Gantt bar: 12OCT07 to 22OCT07] Excavate to Level of 3rd layer of Waling																	
S2BG1600	Install 3rd Layer of Waling & Strut	4d	-251d	0	22OCT07	26OCT07	13DEC06	16DEC06	[Gantt bar: 22OCT07 to 26OCT07] Install 3rd Layer of Waling & Strut																	
S2BG1700	Excavate to Formation Level	9d	-251d	0	26OCT07	06NOV07	18DEC06	29DEC06	[Gantt bar: 26OCT07 to 06NOV07] Excavate to Formation Level																	
S2BG1800	Fill Grade 200 Rockfill	8d	-251d	0	07NOV07	16NOV07	02JAN07	10JAN07	[Gantt bar: 07NOV07 to 16NOV07] Fill Grade 200 Rockfill																	
S2BG1850	Remove 3rd Layer of Waling & Strut	2d	-251d	0	17NOV07	20NOV07	12JAN07	13JAN07	[Gantt bar: 17NOV07 to 20NOV07] Remove 3rd Layer of Waling & Strut																	
S2BG1860	Backfill to -2.87mPD	4d	-251d	0	14DEC07	19DEC07	08FEB07	12FEB07	[Gantt bar: 14DEC07 to 19DEC07] Backfill to -2.87mPD																	
S2BG1870	Remove 2nd Layer of Waling & Strut	2d	-251d	0	19DEC07	21DEC07	13FEB07	14FEB07	[Gantt bar: 19DEC07 to 21DEC07] Remove 2nd Layer of Waling & Strut																	
Formwork																										
S2BJ1000	Erect Formwork to Base Slab	6d	-251d	0	20NOV07	27NOV07	15JAN07	20JAN07	[Gantt bar: 20NOV07 to 27NOV07] Erect Formwork to Base Slab																	
S2BJ1100	Erect Kicker to Base Slab	6d	-251d	0	04DEC07	11DEC07	29JAN07	03FEB07	[Gantt bar: 04DEC07 to 11DEC07] Erect Kicker to Base Slab																	
Steel Reinforcement																										
S2BK1000	Fix Re-bar to Base Slab	6d	-251d	0	27NOV07	04DEC07	22JAN07	27JAN07	[Gantt bar: 27NOV07 to 04DEC07] Fix Re-bar to Base Slab																	
S2BK1100	Fix Re-bar to Wall Stem of Void	8d	-251d	0	21DEC07	03JAN08	15FEB07	27FEB07	[Gantt bar: 21DEC07 to 03JAN08] Fix Re-bar to Wall Stem of Void																	
In-Situ Concrete																										
S2BL1000	Cast Blinding Concrete	1d	-251d	0	16NOV07	17NOV07	11JAN07	11JAN07	[Gantt bar: 16NOV07 to 17NOV07] Cast Blinding Concrete																	
S2BL1100	Cast Base Slab	2d	-251d	0	11DEC07	13DEC07	05FEB07	06FEB07	[Gantt bar: 11DEC07 to 13DEC07] Cast Base Slab																	
Geotechnical works																										
S2BP1000	Monitoring of Instruments	414d	-17d	43	26FEB07 A	19JUL08	26FEB07 A	28JUN08	[Gantt bar: 26FEB07 to 19JUL08] Monitoring of Instruments																	
Additional Works / Disruption																										
Disposal of Marine Deposit (MD) (Claim No. 048)																										
S2BV1290	Dispose MD to Stockpile Area at Works Area B	0		100	27AUG07 A	01SEP07 A	27AUG07 A	01SEP07 A	[Gantt bar: 27AUG07 to 01SEP07] Dispose MD to Stockpile Area at Works Area B																	
S2BV1300	Stockpile Area Full & Disposal of MD Suspended	0		100	01SEP07 A	01SEP07 A	01SEP07 A	01SEP07 A	[Gantt bar: 01SEP07 to 01SEP07] Stockpile Area Full & Disposal of MD Suspended																	
S2BV1310	Receive Instruction for Stockpile Area Extension	0		100	04SEP07 A	04SEP07 A	04SEP07 A	04SEP07 A	[Gantt bar: 04SEP07 to 04SEP07] Receive Instruction for Stockpile Area Extension																	
S2BV1320	Price Enquiry from Subcon & Materials Ordering	0		100	05SEP07 A	15SEP07 A	05SEP07 A	15SEP07 A	[Gantt bar: 05SEP07 to 15SEP07] Price Enquiry from Subcon & Materials Ordering																	
S2BV1330	Vacate Material for Stockpile Area Extension	0		100	17SEP07 A	18SEP07 A	17SEP07 A	18SEP07 A	[Gantt bar: 17SEP07 to 18SEP07] Vacate Material for Stockpile Area Extension																	
S2BV1340	Baseline Sampling at Stockpile Area Extension	0		100	21SEP07 A	22SEP07 A	21SEP07 A	22SEP07 A	[Gantt bar: 21SEP07 to 22SEP07] Baseline Sampling at Stockpile Area Extension																	

Start date 19DEC05
 Finish date 26MAY10
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 Page number 2A
 Primavera Systems, Inc.

Leader Civil Engineering Corp. Ltd.
 DSD Contract No. DC/2005/02
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■ Early bar
■ Progress bar
■ Critical bar
■ Summary bar
◆ Start milestone point
◆ Finish milestone point




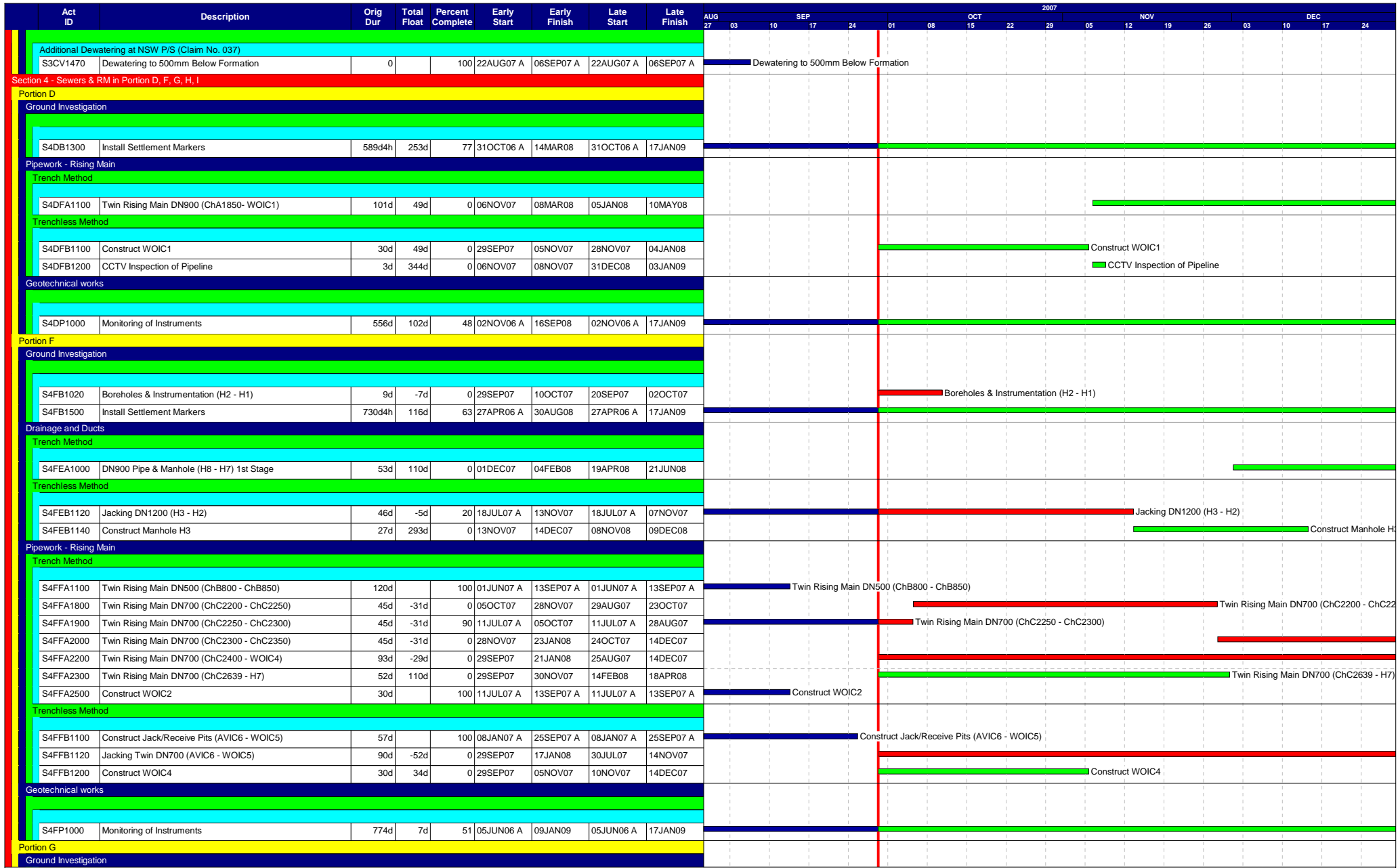


Start date 19DEC05
 Finish date 26MAY10
 Data date 29SEP07
 Page number 3A
 Primavera Systems, Inc.

Leader Civil Engineering Corp. Ltd.
 DSD Contract No. DC/2005/02
 3-Month Rolling Programme - 3M01 at 29 September 2007

- Early bar
- Progress bar
- Critical bar
- Summary bar
- ◆ Start milestone point
- ◆ Finish milestone point






Start date 19DEC05
 Finish date 26MAY10
 Data date 29SEP07
 Page number 4A
 Primavera Systems, Inc.

Leader Civil Engineering Corp. Ltd.
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3-Month Rolling Programme - 3M01 at 29 September 2007







- Early bar
- Progress bar
- Critical bar
- Summary bar
- ◆ Start milestone point
- ◆ Finish milestone point




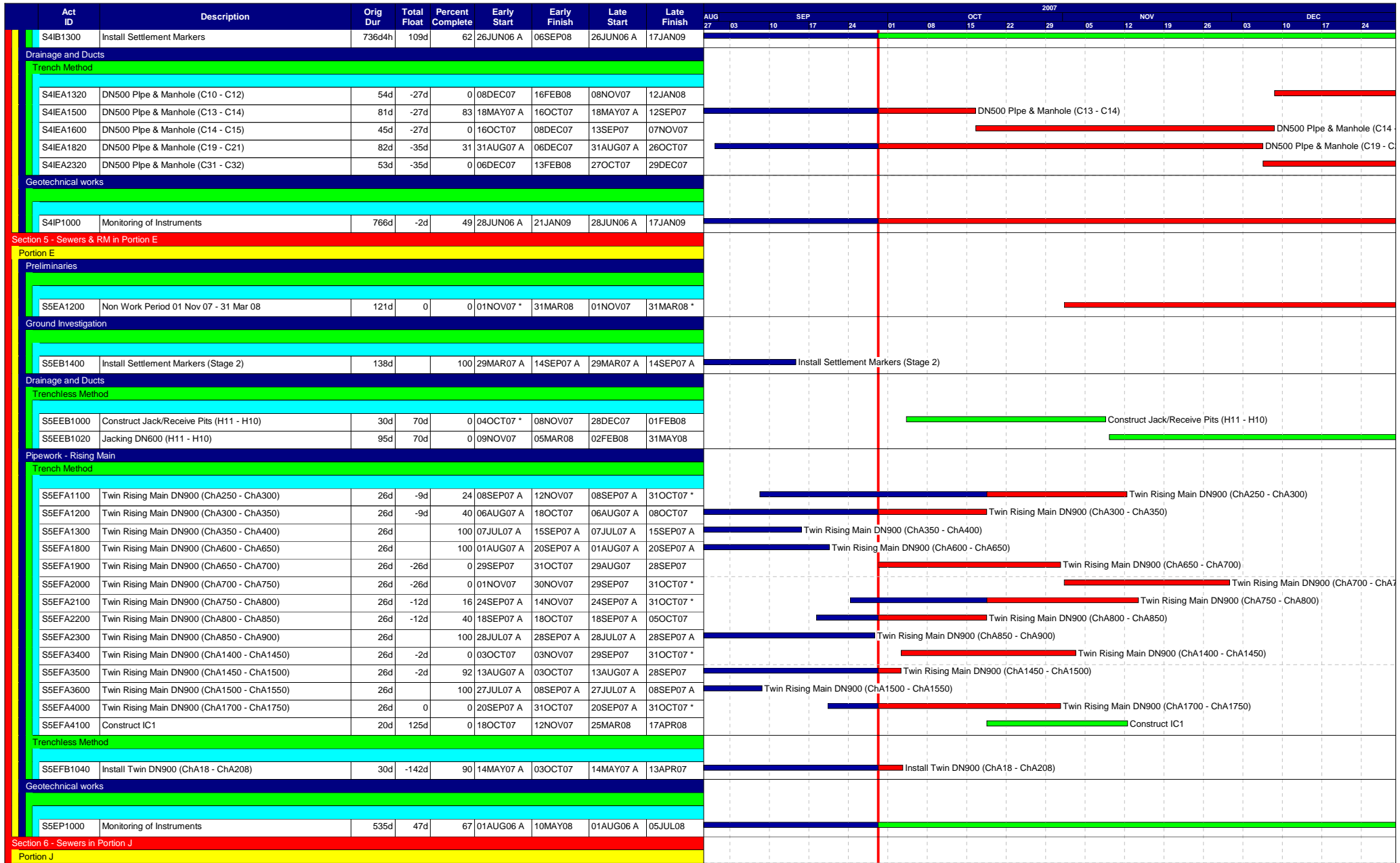
Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2007											
									AUG	03	10	17	24	01	08	15	22	29	05	12
Pipework - Rising Main																				
Trench Method																				
S4GB1500	Install Settlement Markers	748d4h	97d	61	21APR06 A	22SEP08	21APR06 A	17JAN09												
Trenchless Method																				
S4GFA1300	Twin Rising Main DN500 (ChB450 - ChB550)	84d	254d	0	29SEP07	10JAN08	08AUG08	17NOV08												
Geotechnical works																				
Geotechnical works																				
S4GFB1000	Construct Jack/Receive Pits (AVIC4 - P/S)	57d	18d	40	16AUG07 A	10NOV07	16AUG07 A	30NOV07	Construct Jack/Receive Pits (AVIC4 - P/S)											
S4GFB1020	Jacking Twin DN500 (AVIC4 - P/S)	73d	18d	0	10NOV07	11FEB08	01DEC07	01MAR08												
Portion H																				
Ground Investigation																				
Ground Investigation																				
S4HB1040	Boreholes & Instrumentation (ChC1302 - ChC1376)	10d	50d	0	16OCT07	27OCT07	14DEC07	27DEC07	Boreholes & Instrumentation (ChC1302 - ChC1376)											
S4HB1300	Install Settlement Markers	727d4h	118d	63	26MAY06 A	27AUG08	26MAY06 A	17JAN09												
Drainage and Ducts																				
Trench Method																				
S4HEA1100	DN500 Pipe & Manhole (A6 - A9)	100d	-54d	0	29SEP07	29JAN08	27JUL07	23NOV07												
S4HEA1200	DN500 Pipe & Manhole (A9 - A12)	90d		100	03JUL06 A	22SEP07 A	03JUL06 A	22SEP07 A	DN500 Pipe & Manhole (A9 - A12)											
S4HEA1400	DN500 Pipe & Manhole (A14 - A16)	109d	18d	0	30NOV07	17APR08	21DEC07	09MAY08												
S4HEA1500	DN400 Pipe & Manhole (A16 - A18)	73d	18d	55	04JUN07 A	08NOV07	04JUN07 A	29NOV07	DN400 Pipe & Manhole (A16 - A18)											
S4HEA1900	DN300 Pipe & Manhole (B4 - B6)	67d	111d	0	23NOV07	15FEB08	12APR08	02JUL08												
S4HEA2000	DN300 Pipe & Manhole (B6 - B8)	44d	111d	0	02OCT07 *	22NOV07	16FEB08	11APR08	DN300 Pipe & Manhole (B6 - B8)											
Pipework - Rising Main																				
Trench Method																				
S4HFA1200	Twin Rising Main DN700 (ChC290 - ChC410)	45d		100	03JUL06 A	22SEP07 A	03JUL06 A	22SEP07 A	Twin Rising Main DN700 (ChC290 - ChC410)											
S4HFA1500	Twin Rising Main DN700 (ChC570 - ChC660)	42d	18d	55	04JUN07 A	30NOV07	04JUN07 A	21DEC07	Twin Rising Main DN700 (ChC570 - ChC660)											
S4HFA1800	Twin Rising Main DN700 (ChC850 - ChC950)	125d	-21d	0	04DEC07	10MAY08	09NOV07	15APR08												
S4HFA1900	Twin Rising Main DN700 (ChC950 - ChC1050)	87d	-21d	37	03MAY07 A	04DEC07	03MAY07 A	09NOV07	Twin Rising Main DN700 (ChC950 - ChC1050)											
S4HFA3000	Construct AVIC9	20d	84d	0	04DEC07	29DEC07	18MAR08	15APR08												
S4HFA3100	Construct WOIC8	20d	84d	0	04DEC07	29DEC07	18MAR08	15APR08												
Geotechnical works																				
Geotechnical works																				
S4HP1000	Monitoring of Instruments	846d	-55d	48	26MAY06 A	27MAR09	26MAY06 A	17JAN09												
Additional Works / Disruption																				
Twin R/M DN700 ChC1620 - ChC1661 (Claim No. 026)																				
S4HV1080	Modify ELS & Construct Jack Pit & Receive Pit	60d	-106d	70	10AUG07 A	22OCT07	10AUG07 A	14JUN07	Modify ELS & Construct Jack Pit & Receive Pit											
S4HV1090	Set up for Pipe Jacking	12d	-106d	0	23OCT07	05NOV07	15JUN07	29JUN07	Set up for Pipe Jacking											
S4HV1100	Jack Twin DN1200 Sleeve Pipes	36d	-106d	0	06NOV07	17DEC07	30JUN07	11AUG07	Jack Twin DN1200											
S4HV1110	Install Twin DN700 DI Pipes & Grouting	36d	-106d	0	18DEC07	31JAN08	13AUG07	22SEP07												
Portion I																				
Ground Investigation																				
Ground Investigation																				
S4IB1040	Boreholes & Instrumentation (ChD0 to ChD55)	8d	182d	0	29SEP07	09OCT07	14MAY08	22MAY08	Boreholes & Instrumentation (ChD0 to ChD55)											

Start date 19DEC05
 Finish date 26MAY10
 Data date 29SEP07
 Page number 5A
 Primavera Systems, Inc.

Leader Civil Engineering Corp. Ltd.
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	Early bar
	Progress bar
	Critical bar
	Summary bar
	Start milestone point
	Finish milestone point






Start date 19DEC05
 Finish date 26MAY10
 Data date 29SEP07
 Page number 6A
 Primavera Systems, Inc.

Leader Civil Engineering Corp. Ltd.
DSD Contract No. DC/2005/02
3-Month Rolling Programme - 3M01 at 29 September 2007

- Early bar
- Progress bar
- Critical bar
- Summary bar
- ◆ Start milestone point
- ◆ Finish milestone point



Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2007											
									AUG	03	10	17	24	01	08	15	22	29	05	12
Ground Investigation																				
S6JB1060	Boreholes & Instrumentation D8	13d	26d	0	29SEP07	15OCT07	01NOV07	15NOV07	Boreholes & Instrumentation D8											
S6JB1500	Install Settlement Marker 1st Stage	765d	-2d	57	20APR06 A	11NOV08	20APR06 A	08NOV08												
S6JB2100	Install Settlement Markers 2nd Stage	600d4h	149d	59	07JUL06 A	30JUL08	07JUL06 A	29JAN09												
Drainage and Ducts																				
Trench Method																				
S6JEA1800	TTA JA8-2 DN400 Pipe & Manhole (D16 - D18)	75d	-288d	8	30AUG07 A	20DEC07	30AUG07 A	02JAN07	TTA JA8-2 D											
S6JEA1810	TTA JA8-2 Road Reinstatement	6d	-288d	0	21DEC07	29DEC07	03JAN07	09JAN07												
S6JEA2520	TTA JB7-1 DN400 Pipe & Manhole (D31 - D32)	88d	-398d	20	11SEP07 A	31DEC07	11SEP07 A	26AUG06												
S6JEA3100	DN400 Pipe & Manhole (D37 - D40)	87d	-2d	68	28MAR07 A	02NOV07	28MAR07 A	31OCT07	DN400 Pipe & Manhole (D37 - D40)											
S6JEA3200	DN300 Pipe & Manhole (D40 - D42)	65d	-2d	0	02NOV07	21JAN08	31OCT07	18JAN08												
S6JEA3920	TTA JD1-2 DN750 Pipe & Manhole (E2 - E3)	55d	-332d	70	03JUL07 A	20OCT07	03JUL07 A	05SEP06	TTA JD1-2 DN750 Pipe & Manhole (E2 - E3)											
S6JEA4000	TTA JD2 DN750 Pipe & Manhole (E3 - E5)	74d	-332d	0	20OCT07	18JAN08	06SEP06	04DEC06												
S6JEA4700	TTA JD-9 DN750 Pipe & Manhole (E14 - E15)	63d	252d	0	29SEP07	13DEC07	06AUG08	21OCT08	TTA JD-9 DN750 Pipe											
S6JEA4710	TTA JD-9 Road Reinstatement	6d	252d	0	14DEC07	20DEC07	22OCT08	28OCT08	TTA JD-9 Rd											
Trenchless Method																				
S6JEB1100	Construct Jack/Receive Pits (D6 - D7)	28d	-52d	0	13DEC07	17JAN08	12OCT07	14NOV07												
Geotechnical works																				
S6JP1000	Monitoring of Instruments	1178d	-352d	37	21APR06 A	30MAR10	21APR06 A	29JAN09												
Additional Works / Disruption																				
Kam Tin Road A/C Watermain (Claim No. 019)																				
S6JV1350	TTA JA6 W/M Temporary Diversion	0		100	27AUG07 A	03SEP07 A	27AUG07 A	03SEP07 A	TTA JA6 W/M Temporary Diversion											
S6JV1530	TTA JB3-1 W/M Temporary Diversion	18d	-86d	0	29SEP07	22OCT07	18JUN07	10JUL07	TTA JB3-1 W/M Temporary Diversion											
S6JV1550	TTA JB3-2 W/M Temporary Diversion	18d	24d	0	23OCT07	12NOV07	20NOV07	10DEC07	TTA JB3-2 W/M Temporary Diversion											
S6JV1570	TTA JB2-2 W/M Temporary Diversion	18d	59d	0	13NOV07	03DEC07	24JAN08	16FEB08	TTA JB2-2 W/M Temporary Diversion											
S6JV1590	TTA JB2-1 W/M Temporary Diversion	18d	109d	0	04DEC07	24DEC07	21APR08	12MAY08	TTA JB											
S6JV1610	TTA JB1-1 W/M Temporary Diversion	18d	159d	0	27DEC07	17JAN08	12JUL08	01AUG08												
Kam Tin Rd Util Obs D30-D32 (Claim No. 075)																				
S6JV2750	Dig Trial Pit for Relocation of Public Light	0		100	28AUG07 A	29AUG07 A	28AUG07 A	29AUG07 A	Dig Trial Pit for Relocation of Public Light											
S6JV2760	ER Instruct to Remove Ext. Gully & Pipe	0		100	27SEP07 A	27SEP07 A	27SEP07 A	27SEP07 A	ER Instruct to Remove Ext. Gully & Pipe											
S6JV2770	Commence Driving Sheetpile 1st Stage	0		100	11SEP07 A	11SEP07 A	11SEP07 A	11SEP07 A	Commence Driving Sheetpile 1st Stage											
S6JV2780	Dig Trial Pit to Locate Ext Utilities 2nd Stage	12d	-398d	70	24SEP07 A	04OCT07	24SEP07 A	03JUN06	Dig Trial Pit to Locate Ext Utilities 2nd Stage											
S6JV2790	Shift Ext CLP Cable	0		100	08SEP07 A	08SEP07 A	08SEP07 A	08SEP07 A	Shift Ext CLP Cable											
S6JV2800	Relocate Ext Public Light	4d	-398d	0	29SEP07	04OCT07	29MAY06	03JUN06	Relocate Ext Public Light											
S6JV2810	Remove Ext. Gully & Pipe	0		100	27SEP07 A	27SEP07 A	27SEP07 A	27SEP07 A	Remove Ext. Gully & Pipe											
S6JV2820	Commence Driving Sheetpile 2nd Stage	1d	-398d	0	05OCT07	05OCT07	03JUN06	05JUN06	Commence Driving Sheetpile 2nd Stage											
Section 7 - Sewers in Portion K																				
Portion K																				
Ground Investigation																				
S7KB1500	Install Settlement Markers	423d4h	36d	98	08MAY06 A	09OCT07	08MAY06 A	21NOV07	Install Settlement Markers											
Drainage and Ducts																				
Trench Method																				
S7KEA1000	DN600 Pipe & Manhole (M1 - M2)	51d		100	13JUN07 A	30AUG07 A	13JUN07 A	30AUG07 A	DN600 Pipe & Manhole (M1 - M2)											

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 Finish date 26MAY10
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 Page number 7A
 Primavera Systems, Inc.

Leader Civil Engineering Corp. Ltd.
 DSD Contract No. DC/2005/02
 3-Month Rolling Programme - 3M01 at 29 September 2007

■ Early bar
 ■ Progress bar
 ■ Critical bar
 ■ Summary bar
 ◆ Start milestone point
 ◆ Finish milestone point




Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2007																	
									AUG	SEP			OCT			NOV			DEC							
									27	03	10	17	24	01	08	15	22	29	05	12	19	26	03	10	17	24
S7KEA1200	DN750 Pipe & Manhole (M4 - M6)	126d	-100d	60	03APR07 A	29NOV07	03APR07 A	31JUL07	DN750 Pipe & Manhole (M4 - M6)																	
S7KEA1390	DN750 Pipe & Manhole (M7 - M8)	50d	-62d	0	29SEP07	28NOV07	18JUL07	13SEP07	DN750 Pipe & Manhole (M7 - M8)																	
S7KEA1400	DN900 Pipe & Manhole (M8 - M10)	51d	-78d	0	17DEC07	21FEB08	14SEP07	15NOV07	DN900 Pipe & Manhole (M8 - M10)																	
S7KEA1500	DN900 Pipe & Manhole (M10 - M11)	57d4h	-78d	80	23JAN07 A	13OCT07	23JAN07 A	12JUL07	DN900 Pipe & Manhole (M10 - M11)																	
S7KEA1610	DN900 Pipe & Manhole (M11 - M12) Stage 2	54d	-78d	0	13OCT07	17DEC07	13JUL07	13SEP07	DN900 Pipe & Manhole (M11 - M12)																	
S7KEA1800	DN900 Pipe & Manhole (M14 - M15)	51d	-128d	45	27DEC06 A	02NOV07	27DEC06 A	31MAY07	DN900 Pipe & Manhole (M14 - M15)																	
S7KEA1900	DN900 Pipe & Manhole (M15 - M16)	93d	-128d	0	03NOV07	26FEB08	01JUN07	19SEP07	DN900 Pipe & Manhole (M15 - M16)																	
S7KEA2000	DN400 Pipe & Manhole (M21 - M16a)	32d	-62d	30	29AUG07 A	29NOV07	29AUG07 A	14SEP07	DN400 Pipe & Manhole (M21 - M16a)																	
S7KEA2020	DN375 Pipe & Manhole (S1 - S2)	24d	-62d	90	12SEP07 A	01DEC07	12SEP07 A	17SEP07	DN375 Pipe & Manhole (S1 - S2)																	
S7KEA2040	DN1650 Pipe & Manhole (S2 - Outfall)	24d	-62d	0	01DEC07	02JAN08	18SEP07	17OCT07	DN1650 Pipe & Manhole (S2 - Outfall)																	
Trenchless Method																										
S7KEB1000	Construct Jack/Receive Pits (M4 - M19)	30d	-170d	30	24AUG07 A	26OCT07	24AUG07 A	28MAR07	Construct Jack/Receive Pits (M4 - M19)																	
S7KEB1020	Jacking DN600 (M4 - M19)	72d	-170d	0	26OCT07	22JAN08	29MAR07	28JUN07	Jacking DN600 (M4 - M19)																	
S7KEB1120	Jacking DN450 (M8 - M20)	97d4h	-51d	60	18NOV06 A	15NOV07	18NOV06 A	13SEP07	Jacking DN450 (M8 - M20)																	
S7KEB1140	Construct Manholes M8 & M20	27d	-24d	0	16NOV07	17DEC07	18OCT07	19NOV07	Construct Manholes M8 & M20																	
S7KEB1220	Jacking DN900 (M13 - M14)	48d4h	-1d	68	02DEC06 A	18OCT07	02DEC06 A	17OCT07	Jacking DN900 (M13 - M14)																	
S7KEB1240	Construct Manholes M13 & M14	27d	-1d	0	18OCT07	20NOV07	18OCT07	19NOV07	Construct Manholes M13 & M14																	
Geotechnical works																										
S7KP1000	Monitoring of Instruments	569d	-122d	71	24MAY06 A	23APR08	24MAY06 A	21NOV07	Monitoring of Instruments																	
Additional Works / Disruption																										
Conflict of Ext. Util. at M/H M4 (Claim No. 052)																										
S7KV2210	Comment & Approve Method Statement	30d	-170d	90	28JUL07 A	29SEP07	28JUL07 A	03MAR07	Comment & Approve Method Statement																	
Section 8 - Preservation and Protection of Trees																										
All Portions																										
Landscape Softworks and Establishment Works																										
S8QR1100	Preservation & Protection of Preserved Trees	744d	0	47	28JUL06 A	29JAN09	29JUL06 A	29JAN09	Preservation & Protection of Preserved Trees																	
Decontamination Works																										
Portion B																										
Decontamination																										
S9BU1000	Decontamination Works	48d	143d	0	06NOV07	04JAN08	03MAY08	28JUN08	Decontamination Works																	

Start date 19DEC05
 Finish date 26MAY10
 Data date 29SEP07
 Page number 8A
 Primavera Systems, Inc.

Leader Civil Engineering Corp. Ltd.
 DSD Contract No. DC/2005/02
 3-Month Rolling Programme - 3M01 at 29 September 2007

- Early bar
- Progress bar
- Critical bar
- Summary bar
- ◆ Start milestone point
- ◆ Finish milestone point



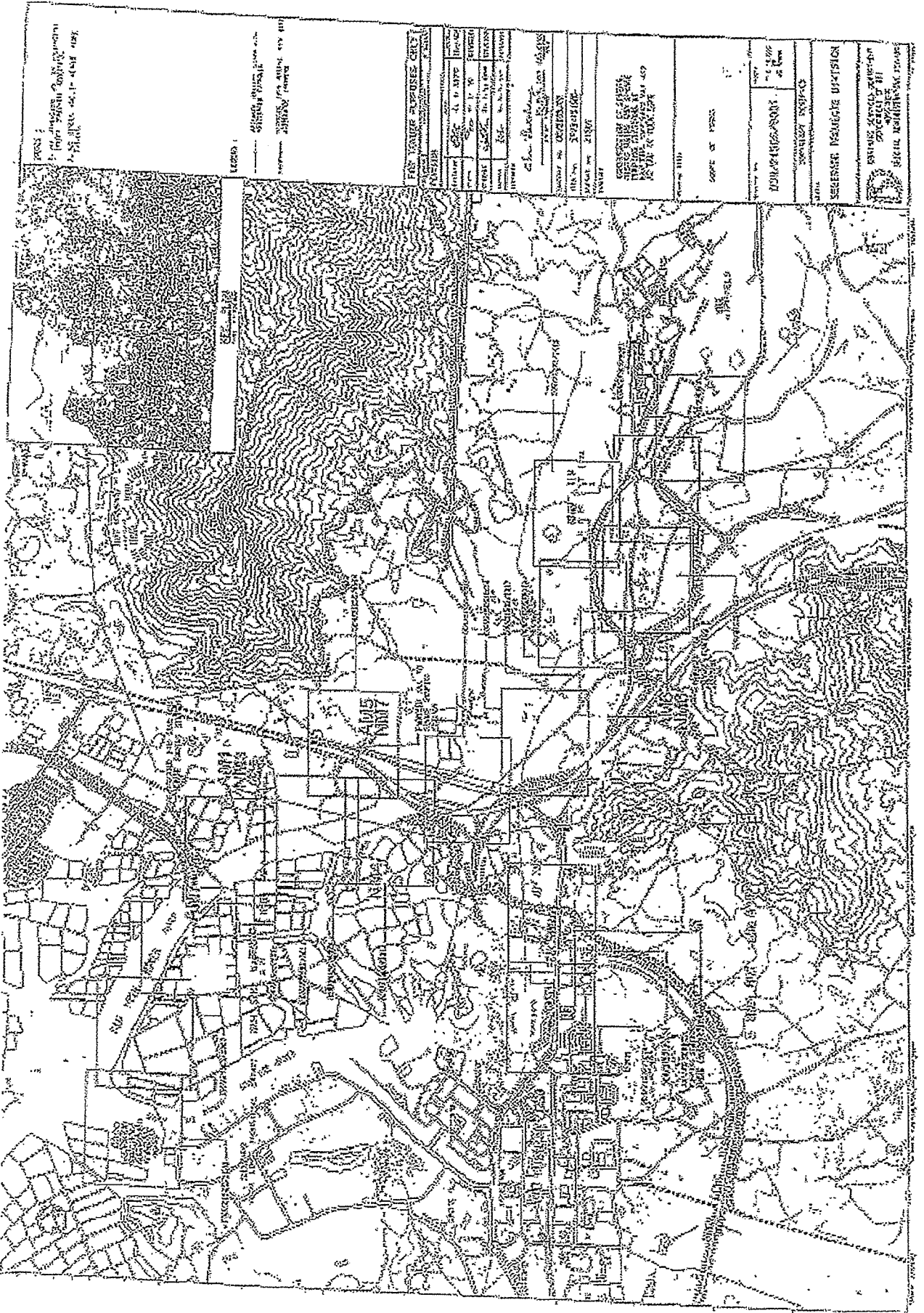
Annex D

Photographical Records – Noise Barrier On-Site



Annex E

Locations of Monitoring Stations



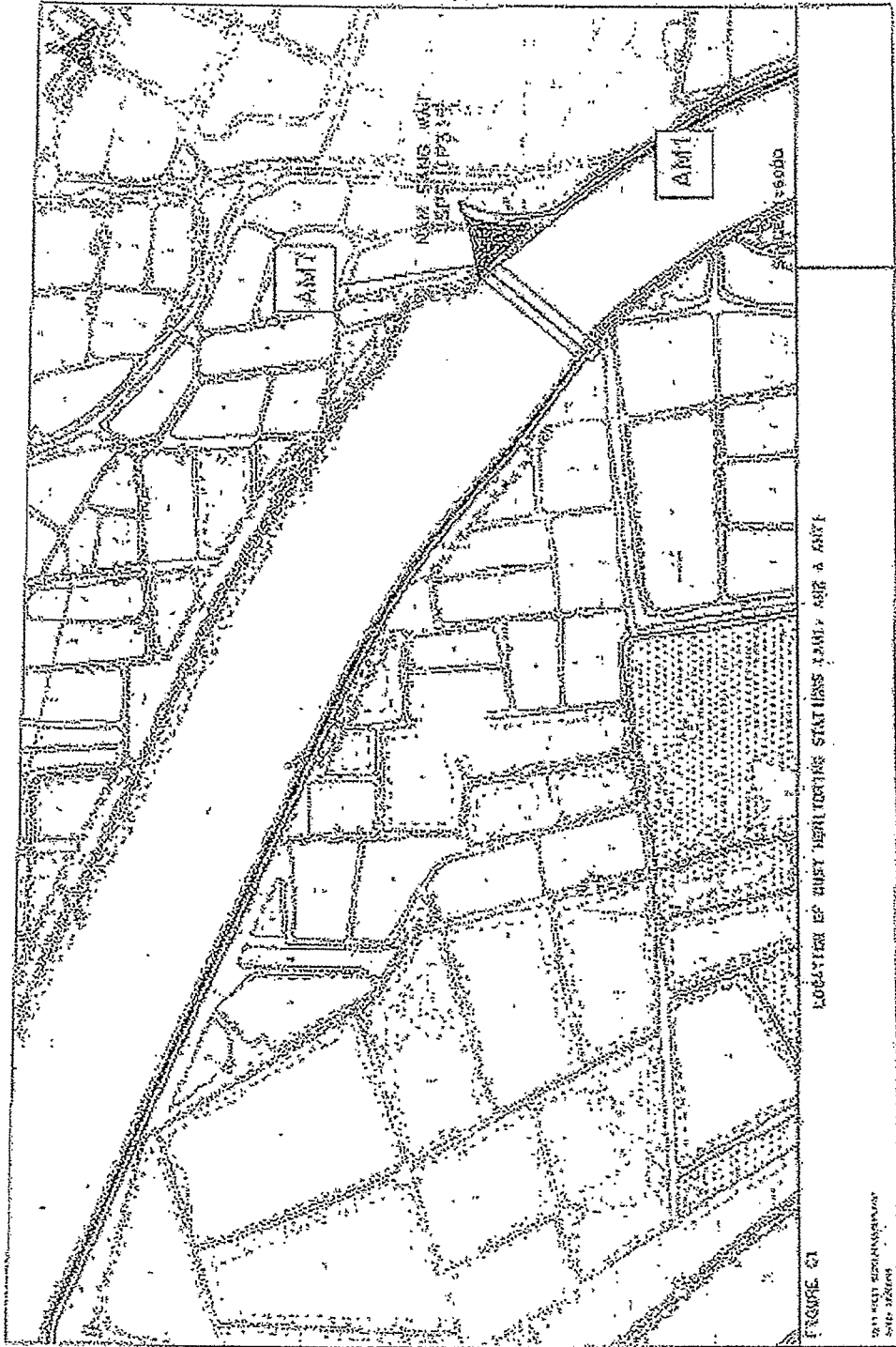
PROSE 1
1. In the presence of a competent person
2. The plan shall be drawn to the scale of
1:50,000.

1. In the presence of a competent person
2. The plan shall be drawn to the scale of
1:50,000.

PLANTING PURPOSES CRT	
DATE	
BY	
CLASS	
NO.	
PLANTING PURPOSES	
PLANTING PURPOSES	
PLANTING PURPOSES	
PLANTING PURPOSES	
PLANTING PURPOSES	

PLANTING PURPOSES CRT
PLANTING PURPOSES CRT
PLANTING PURPOSES CRT

DATE: 1/1/58
BY: [Signature]
CLASS: [Signature]
NO.: [Signature]
PLANTING PURPOSES CRT
PLANTING PURPOSES CRT
PLANTING PURPOSES CRT



LOCATION OF CHIEF HEADQUARTERS STATIONS (AMT) AND A AMT

FIGURE 61

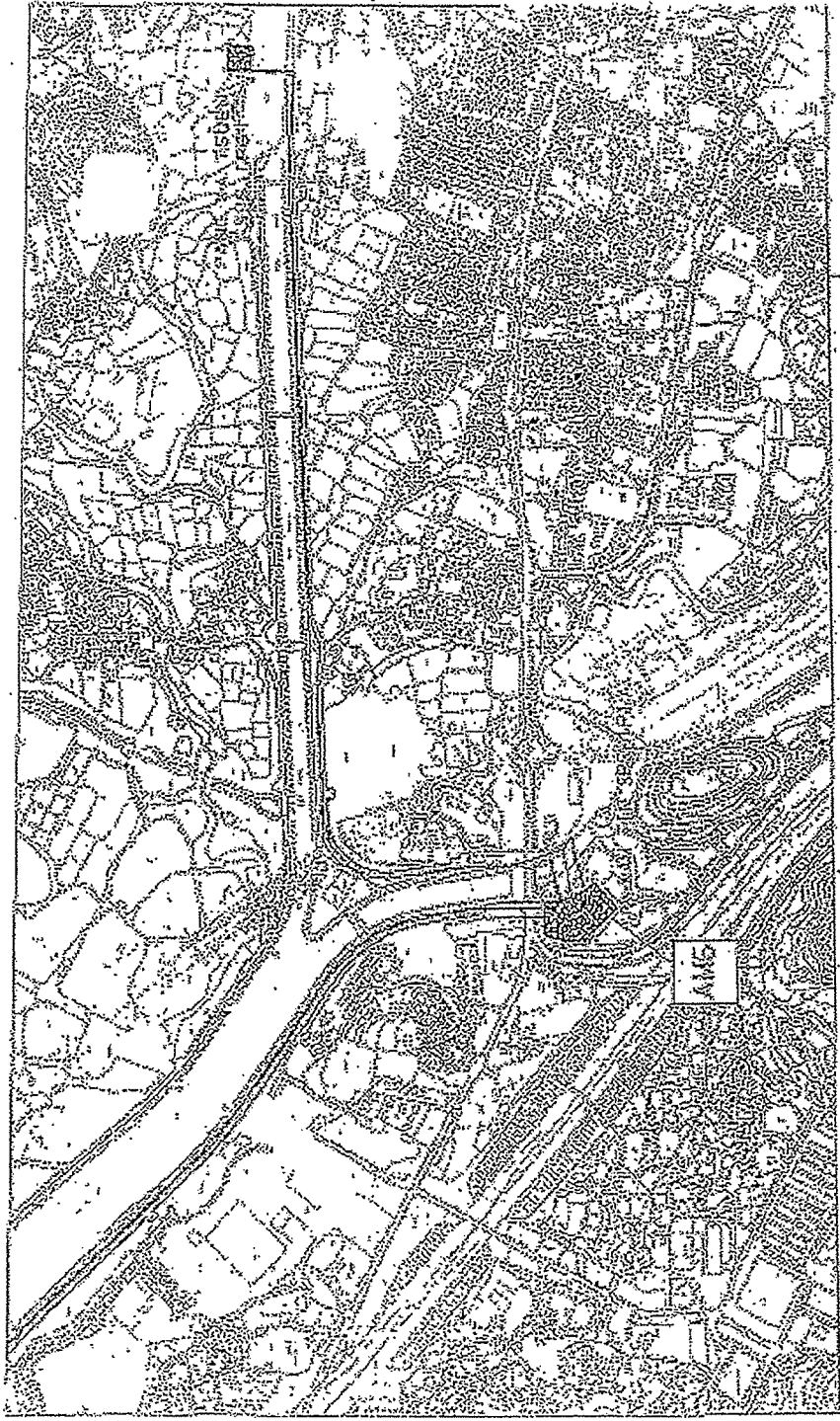
DATE: 1971
 BY: [illegible]
 FOR: [illegible]



FIGURE OF BEST MONITORING STATION (1881)

FIGURE 62

Scale: 1 inch = 100 feet
6000 feet



LOCATION OF BEST MONITORING STATIONS (AMS, AMS 2, AMS3)

FIGURE 20

AMERICAN OVERSEAS AIRWAYS
1960-1961

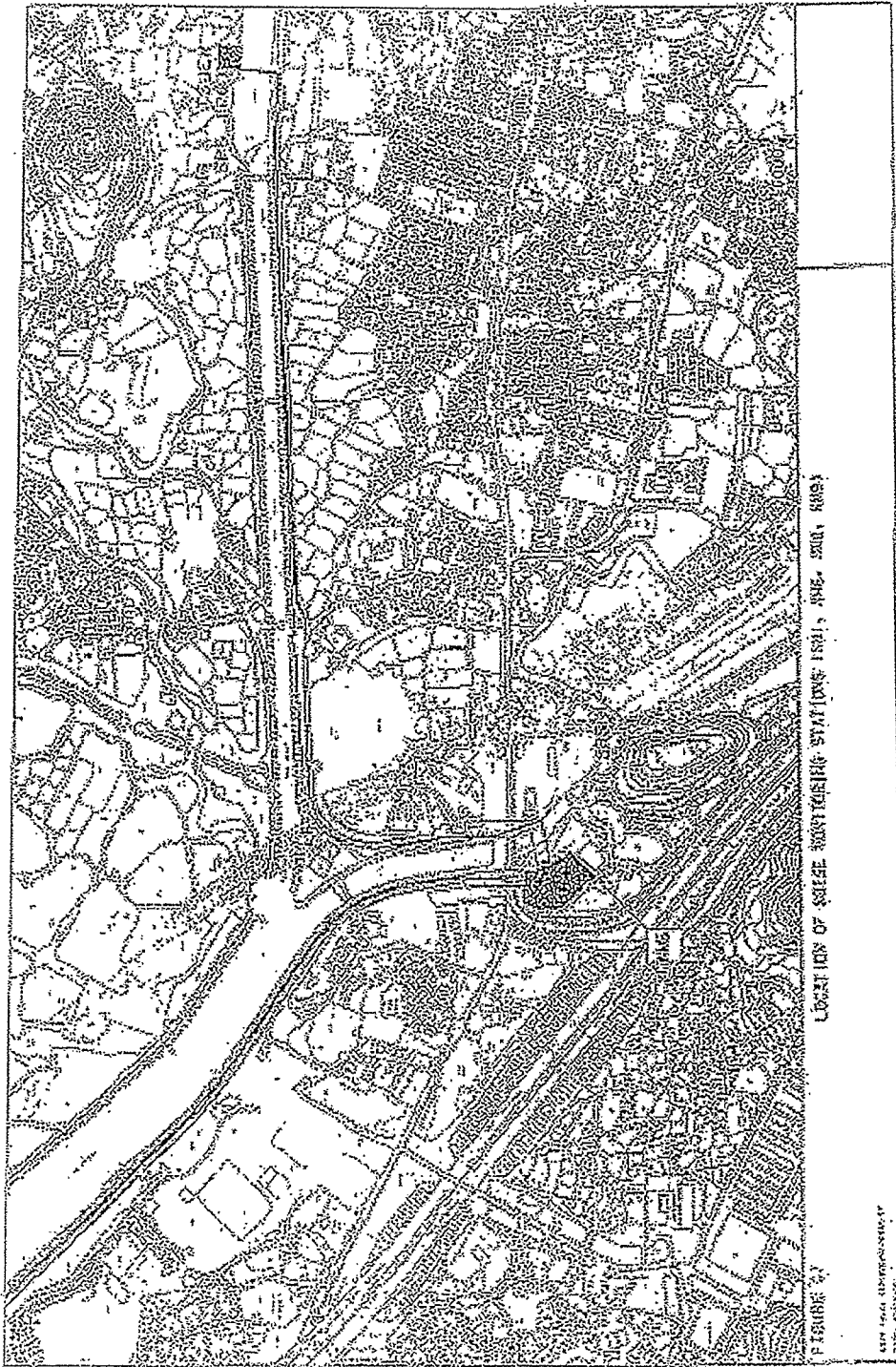


FIGURE 4
 LOCATIONS OF THREE PROPOSED STATIONS (STA. 1581, STA. 210, STA. 888)

BY THE U.S. GEOLOGICAL SURVEY
 WASHINGTON, D.C.

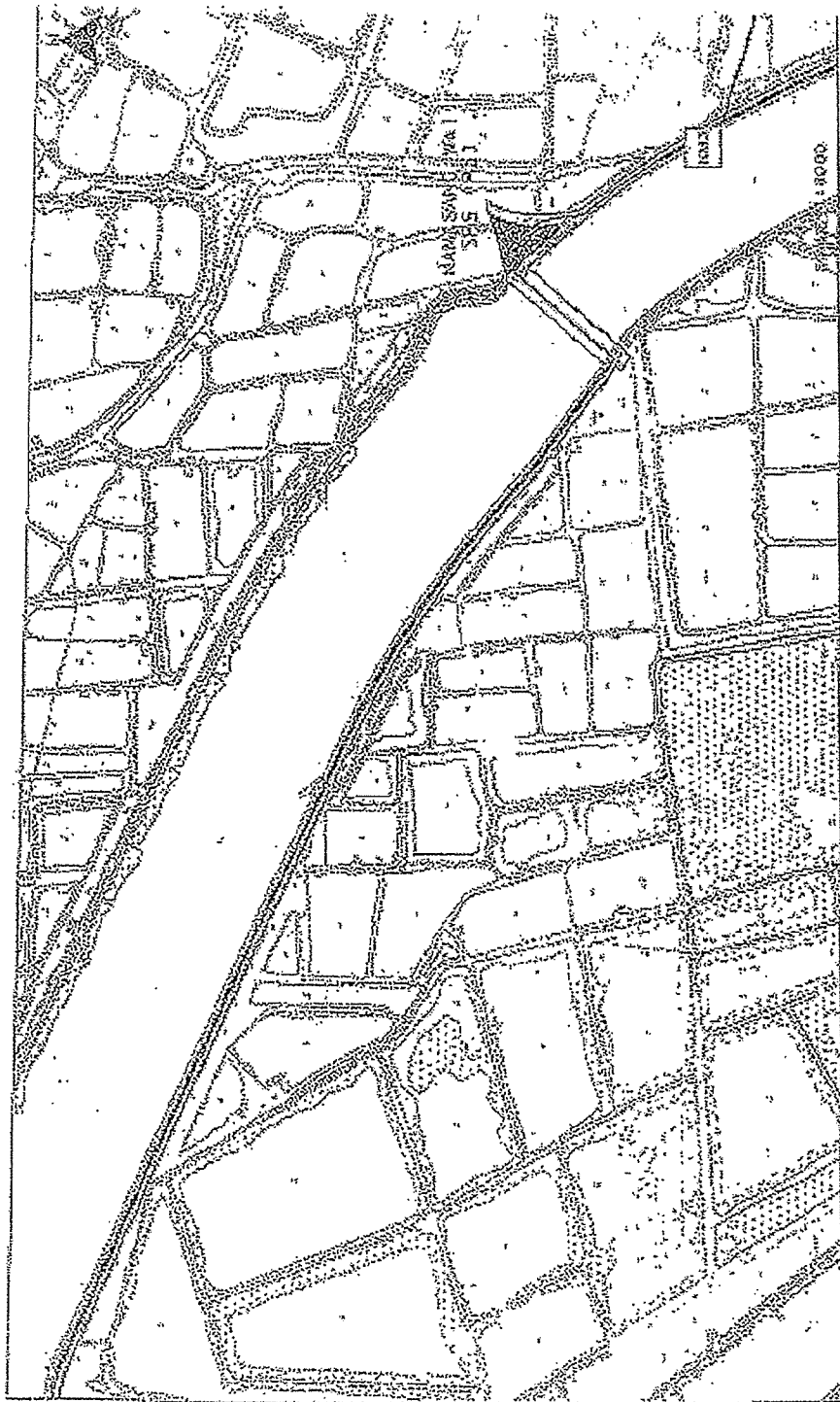


FIGURE 10

LOCATION OF HOUSE BUILDINGS STATIONS (IND.) AREA

GENERAL INFORMATION
BY PLANNING



LOCATION OF NOISE MEASURING STATIONS FROM NO. 3

FIGURE NO. 2

BY THE ENGINEER
DUP. 200/100

Annex F

Event and Action Plan

Event and Action Plan for Construction Phase Air Quality

EVENT	ACTION			
	ET Leader	IEC	Engineer	Contractor
Action Level				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source (s) of exceedance and inform IEC, Contractor and Engineer 2. Repeat dust measurements to confirm findings 3. Increase monitoring frequency to daily 4. Assess efficacy of remedial measures and keep the Contractor, IEC, and Engineer informed 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET 2. Check monitoring data trends and Contractors working methods 3. Check and confirm Contractors proposed remedial actions and working methods are appropriate 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Remind the Contractor of his contractual obligations and review the Contractor's working methods 3. Discuss remedial actions with the Contractor and IEC 4. Inform complainant of actions taken, if necessary 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice 2. Liaise with Engineer and IEC to develop appropriate remedial measures to reduce dust impact 3. Amend working methods and remedial proposals if required by the Engineer or IEC 4. Implement the agreed remedial actions upon instruction from the Engineer and IEC
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source (s) of exceedance and inform IEC, Contractor and Engineer 2. Repeat measurements to confirm findings 3. Increase the monitoring frequency to daily to assess the efficacy of remedial measures and keep the Contractor informed 4. Discuss remedial actions with IEC and Contractor 5. If exceedance continues, arrange meeting with Engineer, IEC and Contractor to review working practices and identify further remedial actions 6. If exceedance stops, inform the Contractor and cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET 2. Check monitoring data trends and Contractors working methods 3. Discuss with Contractor and Engineer on possible remedial measures 4. Check and confirm Contractors proposed remedial measures are appropriate 5. Determine the efficacy of remedial actions and keep the Engineer informed 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Remind the Contractor of his contractual obligations and review the Contractor's working methods 3. Discuss remedial actions with the Contractor and IEC 4. Ensure remedial measures are properly implemented 5. Inform complainant of actions taken, if necessary. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice, if possible 2. Submit proposals for remedial actions to Engineer and IEC within three working days of notification 3. Discuss and amend remedial actions, if required, by the Engineer and IEC 4. Implement the remedial action (s) immediately upon instruction from the Engineer Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions
Limit Level				

Event and Action Plan for Construction Phase Air Quality

EVENT	ACTION			
	ET Leader	IEC	Engineer	Contractor
Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source (s) of exceedance and inform IEC, Contractor and Engineer 2. Repeat dust measurements to confirm findings 3. Increase monitoring frequency to daily 4. Assess efficacy of remedial measures and keep the Contractor, IEC, Engineer and EPD informed 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET 2. Check monitoring data trends and Contractors working methods 3. Check and confirm Contractors proposed remedial actions and working methods are appropriate 4. Check and confirm Contractors proposed remedial measures are appropriate 5. Determine the efficacy of remedial actions and keep the Engineer informed 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Remind the Contractor of his contractual obligations and review the Contractor's working methods 3. Discuss remedial actions with the Contractor and IEC, 4. Ensure remedial measures are properly implemented 5. Inform complainant of actions taken, if necessary. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to Engineer and IEC within three working days of notification 3. Discuss and amend remedial actions, if required, by the Engineer and IEC 4. Implement the remedial action (s) immediately upon instruction from the Engineer 5. Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source (s) of exceedance and inform IEC, Contractor and Engineer 2. Repeat measurements to confirm findings 3. Increase the monitoring frequency to daily to assess the efficacy of remedial measures and keep the Contractor informed 4. Discuss remedial actions with IEC and Contractor 5. If exceedance continues, arrange meeting with Engineer, IEC and Contractor to review working practices and identify further remedial actions 6. If exceedance stops, inform the Contractor and cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss with Contractor and Engineer on possible remedial measures 2. Check and confirm Contractors proposed remedial measures are appropriate 3. Determine the efficacy of remedial actions and keep the Engineer informed 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Remind the Contractor of his contractual obligations and review the Contractor's working methods 3. Discuss remedial actions with the Contractor and IEC 4. Ensure remedial measures are properly implemented 5. If exceedance continues, instruct the Contractor to stop the relevant portion of work until the exceedance is abated 6. Inform complainant of actions taken, if necessary. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice, if possible 2. Submit proposals for remedial actions to Engineer and IEC within three working days of notification 3. Discuss and amend remedial actions, if required, by the Engineer and IEC 4. Implement the remedial action (s) immediately upon instruction from the Engineer 5. Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions

Event and Action Plan for Construction Noise				
EVENT	ACTION			
	ET Leader	IEC	Engineer	Contractor
Limit Level				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source (s) of exceedance and inform IEC, Contractor and Engineer 2. Repeat dust measurements to confirm findings 3. If repeat measurements confirm exceedance ,increase monitoring frequency to daily 4. Assess efficacy of remedial measures and keep the Contractor, IEC, and Engineer informed 5. If exceedance stops, inform Contractor and cease additional noise monitoring 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET 2. Check monitoring data trends and Contractors working methods 3. Check and confirm Contractors proposed remedial actions and working methods are appropriate 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Remind the Contractor of his contractual obligations and review the Contractor's working methods 3. Discuss remedial actions with the Contractor and IEC 4. Inform complainant of actions taken, if necessary 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice 2. Liaise with Engineer and IEC to develop appropriate remedial measures to reduce noise impact 3. Amend working methods and remedial proposals if required by the Engineer or IEC 4. Implement the agreed remedial actions upon instruction from the Engineer and IEC
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source (s) of exceedance and inform IEC, Contractor and Engineer 2. Repeat measurements to confirm findings 3. Increase the monitoring frequency to daily 4. Discuss remedial actions with IEC, Engineer and the EPD 5. Assess the efficacy of remedial measures and keep the Contractor informed 6. If exceedance continues, arrange meeting with Engineer, IEC and Contractor to review working practices and identify further remedial actions 7. If exceedance stops, inform the Contractor and cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET 2. Check monitoring data trends and Contractors working methods 3. Discuss with Contractor and Engineer on possible remedial measures 4. Check and confirm Contractors proposed remedial measures are appropriate 5. Determine the efficacy of remedial actions and keep the Engineer informed 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Remind the Contractor of his contractual obligations and review the Contractor's working methods 3. Discuss remedial actions with the Contractor and IEC 4. Ensure remedial measures are properly implemented 5. If exceedance continues, instruct the Contractor to stop the relevant portion of work until the exceedance is abated 6. Inform complainant of actions taken, if necessary. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice, if possible 2. Submit proposals for remedial actions to Engineer and IEC within three working days of notification 3. Discuss and amend remedial actions, if required, by the Engineer and IEC 4. Implement the remedial action (s) immediately upon instruction from the Engineer 5. Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions 6. Stop the relevant portion of work as determined by the Engineer until the exceedance is abated

Annex G

Mitigation Implementation Schedule

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
CONSTRUCTION PHASE										
AIR QUALITY - Construction Phase										
		The following measures are enforceable under the <i>Air Pollution Control (Construction Dust) Regulations</i>								
3.5	A1	<p>Site boundary and entrance</p> <ul style="list-style-type: none"> where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the boundaries of the seven pumping stations sites and the works area where the Engineer's site office and the Contractor's site office erected; 	To prevent access to the site and control potential dust impacts from construction works.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Part III, Clause 13 (c), Air Pollution Control (Construction Dust) Regulations</i>
3.5	A2	<p>Access Road</p> <ul style="list-style-type: none"> the portion of any road leading only to a construction site that is within 30 m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials; 	To control potential dust impacts from vehicle movements.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Part III, Clause 14, (b), Air Pollution Control (Construction Dust) Regulations</i>
3.5	A3	<p>Stockpiling of Dusty Materials</p> <ul style="list-style-type: none"> any stockpile of dusty materials should be either covered entirely by impervious sheeting and placed in an area sheltered on the top and the 3 sides or sprayed with water so as to maintain the entire surface wet; 	To control potential dust impacts during excavation and stockpiling activities.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Part IV, Clause 18, (a, b & c), Air Pollution Control (Construction Dust) Regulations</i>
3.5	A4	<p>Loading, unloading or transfer of dusty materials</p> <ul style="list-style-type: none"> all dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading and unloading so as to maintain the dusty materials wet; 	To control potential dust impacts during material handling and truck movements.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Part IV, Clause 19, Air Pollution Control (Construction Dust) Regulations</i>
3.5	A5	<p>Use of vehicles</p> <ul style="list-style-type: none"> every vehicle should be washed to remove any dusty materials from its body and wheels immediately before leaving a construction site; 	To control potential dust impacts from vehicle movements.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Part IV, Clause 21, (1), Air Pollution Control (Construction</i>

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
3.5	A6	<ul style="list-style-type: none"> where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle; 	To control potential dust impacts during material transportation.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Dust) Regulations Part IV, Clause 21, (2), Air Pollution Control (Construction Dust) Regulations</i>
3.5	A7	<p>Power-driven drilling, and cutting</p> <ul style="list-style-type: none"> water should be continuously sprayed on the surface where any mechanical breaking operation that causes dust emission is carried out, unless the process is accompanied by the operation of an effective dusty extraction and filtering device; 	To control potential dust impacts during mechanical breaking.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Part IV, Clause 22, Air Pollution Control (Construction Dust) Regulations</i>
3.5	A8	<p>Excavation and earth moving</p> <ul style="list-style-type: none"> the working area of excavation should be sprayed with water immediately before, during and immediately after the operation so as to maintain the entire surface wet; 	To control potential dust impacts arising from excavation works.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Part IV, Clause 24, Air Pollution Control (Construction Dust) Regulations</i>
3.5	A9	<p>Construction of the superstructure of a building</p> <ul style="list-style-type: none"> where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the round floor level of the SPS, or if a canopy is provided at the first floor level, from the first floor level, up to the highest level of the scaffolding; and 	To control potential dust impacts from SPS building construction works.	Full duration of SPS construction contract.	The Contractor		✓			<i>Part I, Clause 6, (a), Air Pollution Control (Construction Dust) Regulations</i>
3.5	A10	<ul style="list-style-type: none"> any skip hoist for material transport should be totally enclosed by the impervious sheeting. 	To control potential dust impacts during material transportation.	Full duration of SPS construction contract.	The Contractor		✓			<i>Part I, Clause 6, (b), Air Pollution Control (Construction Dust) Regulations</i>

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
		NOISE - Construction Phase								
4.7.1	B1	<p>General Site Clearance – Demolition Works</p> <ul style="list-style-type: none"> Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997</i> (Examples of these PME are shown in Table F2), 	To control potential noise impacts during site clearance and demolition works	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Annex 5 of EIAO-TM</i>
4.7.1	B2	<p>Construction of Sewage Pumping Stations P1, P2 & P3</p> <ul style="list-style-type: none"> Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997</i>, Adoption of temporary noise barrier, in the form of a site hoarding (with a superficial density of at least 20kg/m², with no substantial gaps), along the site boundary of the pumping station sites. 	To minimise potential noise impacts arising during the construction of P1, P2 & P3	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Annex 5 of EIAO-TM</i>
4.7.1	B3	<p>Sewers and Rising Mains using Open Trench Method</p> <ul style="list-style-type: none"> Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997</i>, 	To minimise potential noise impacts arising during the construction of P1, P2 & P3	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Annex 5 of EIAO-TM</i>
4.7.1	B4	<ul style="list-style-type: none"> Use of handheld breakers for all initial road opening activities, when breaking tarmac/concrete road surface to a depth of 300mm or when granular material is reached. 	To control potential noise impacts during excavation works.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Annex 5 of EIAO-TM</i>
4.7.1	B5	<ul style="list-style-type: none"> Use of handheld breakers for all initial road opening activities, when breaking tarmac/concrete road surface to a depth of 300mm or when granular material is reached. 	To control potential noise impacts during road opening activities.	Where there are NSRs located within 50m of the line of sight. Throughout the full duration of the road opening activities.	The Contractor		✓			<i>Annex 5 of EIAO-TM</i>
4.7.1	B5	<ul style="list-style-type: none"> Use of movable noise barriers or 3 sided enclosures for all initial road opening activities 	To control potential noise impacts during road opening	Where there are NSRs located within 50m of the	The Contractor		✓			<i>Annex 5 of EIAO-TM</i>

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
4.7.1	B6	enclosures for all initial road opening activities (breaking tarmac/concrete road surface to a depth of 300mm or when granular material is reached), where there are NSRs located within 50m of the line of sight from the works area. Sewers and Rising Mains using Pipe Jacking Method • Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997,</i>	activities. To control potential noise impacts from PME during construction works	line of sight. Throughout the full duration of the road opening activities. Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Annex 5 of EIAO-TM</i>
4.7.1	B7	Road Pavement and Finishes • Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997,</i>	To control potential noise impacts from PME during pavement and finish works	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Annex 5 of EIAO-TM</i>
		WATER QUALITY - Construction Phase No water quality monitoring is required under this study.								
6.6.2	D1	WASTE - Construction Phase The Contractor shall obtain the necessary waste disposal permits from the appropriate authorities for the disposal of chemical and C&D waste, • Chemical Waste Producer and Chemical Waste Disposal Licence (<i>Waste Disposal (Chemical Waste) (General) Regulations</i>); and • Dumping Licence (<i>Land (Miscellaneous Provisions) Ordinance (Cap 28)</i>)	To monitor the collection, handling and disposal of chemical waste and C&D waste, and in compliance with relevant Hong Kong Standards and Regulations.	Site wide and throughout the full duration of the construction contract.	The Contractor	✓	✓			<i>Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste)(General) Regulation (Cap 354), the Land (Miscellaneous Provisions) Ordinance (Cap 28)</i>

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
6.6.2	D2	<p>Chemical Waste Chemical waste that is produced, as defined by Schedule 1 of the <i>Waste Disposal (Chemical Waste) (General) Regulation</i>, should be handled in accordance with the regulations and Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows. All chemical waste producers should be registered with the EPD.</p>	To control the handling, storage and disposal of chemical waste, in order to minimise potential spillages/leakages and human health and environmental impacts.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			<i>Part II, (6) Waste Disposal (Chemical Waste) (General) Regulation</i>
6.6.2	D3	<p>Storage, Packaging and Labelling of Chemical Waste Containers used for storage of chemical wastes should:</p> <ul style="list-style-type: none"> be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 L unless the specifications have been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations. 	To ensure the proper storage, packaging and labelling of chemical waste in accordance with the Regulations.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			<i>Part IV, (9, 10, 11 & 12) Waste Disposal (Chemical Waste) (General) Regulation</i>
6.6.2	D4	<p>Storage of chemical waste The storage area for chemical wastes should:</p> <ul style="list-style-type: none"> be clearly labelled and used solely for the storage of chemical waste; be enclosed on at least 3 sides; 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 that area, whichever is the greatest; have adequate ventilation; be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste, if necessary); and be arranged so that incompatible materials are 	To ensure the proper storage of chemical waste in accordance with the Regulations.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			<i>Part IV, (13,14, 15, 16, 17, & 18) Waste Disposal (Chemical Waste) (General) Regulation</i>

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
		adequately separate								
6.6.2	D5	<p>Disposal of chemical waste</p> <ul style="list-style-type: none"> The Contractor should ensure that the disposal of chemical waste is via a licensed Waste Collector and in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulations</i>. <p><i>Management of Waste Disposal</i> A trip-ticket system should be established which monitors the disposal of C&DM and solid wastes at public filling facilities and landfills and to control fly-tipping, in accordance with <i>Land (Miscellaneous Provisions) Ordinance (Cap28)</i> and the <i>Works Bureau Technical Circular No. 5/99</i>.</p>	<p>To control the disposal of chemical waste in accordance with the Regulations.</p>	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			<i>Part IV, (20 -25) Waste Disposal (Chemical Waste) (General) Regulation</i>
		<p>LAND CONTAMINATION- Construction Phase</p> <p>A revised CAP should be submitted to the EPD for approval before the commencement of the construction works. Following receipt of the EPD's approval, the CAP shall be implemented and the findings of the investigations will be reported in the Contaminated Assessment Report (CAR), before ground disturbance is allowed at the concerned sites. If land contamination is confirmed, a Remediation Action Plan (RAP) shall be prepared, and both the CAR and the RAP shall be submitted as a combined report to the EPD for approval before disturbing the ground of the concerned sites. If applicable and required in consultation with the</p>	<p>To monitor the disposal of C&DM and solid wastes at public filling facilities and landfills and to control fly-tipping.</p>	To be implemented at all worksites throughout the full duration of the construction phase.	The Engineer/ Contractor		✓			<i>Land (Miscellaneous Provisions) Ordinance (Cap 295) and Works Bureau Technical Circular No. 5/99.</i>
7.5.6	E1	<p>A revised CAP should be submitted to the EPD for approval before the commencement of the construction works. Following receipt of the EPD's approval, the CAP shall be implemented and the findings of the investigations will be reported in the Contaminated Assessment Report (CAR), before ground disturbance is allowed at the concerned sites. If land contamination is confirmed, a Remediation Action Plan (RAP) shall be prepared, and both the CAR and the RAP shall be submitted as a combined report to the EPD for approval before disturbing the ground of the concerned sites. If applicable and required in consultation with the</p>	<p>To determine the presence of soil and groundwater contamination and remedy any potential concerns to acceptable levels.</p>	To be implemented before the commencement of the construction works.	To be Implemented by DSD or their sub-consultants at the Detailed Design Stage, depending upon when site access can be gained.	✓				<i>EIAO TM Annex 19/3.1.1 & 3.1.2</i>

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
		EPD, the contaminated site(s) shall be remediated in accordance with the approved CAR/RAP.								
8.7.1	F1	<p>ECOLOGY - Construction Phase Mitigation Measures Adopted - Avoidance Construction activities shall be prohibited during the winter season (November to March) along the section of the proposed sewerage alignment, which fall within the Deep Bay Wetland Conservation Area and the Deep Bay Wetland Buffer Area (WCA and WBA) and close to the locations of ecologically sensitive species (including Intermediate Egret, Black-faced Spoonbill, Buzzard, Imperial Eagle and Avocet). (See Figure 8.7a attached). Regular site inspections (at least twice a month) should be conducted by the Environmental Team during the winter season (November to March) to ensure proper implementation of this restriction</p>	To schedule construction works in order to minimise potential impacts to winter visiting birds. To be confirmed by regular site inspections.	At identified location (<i>Figure 8.7a</i>) for the full duration of the construction contract.	The Contractor		✓			
8.7.2	F2	<p>Mitigation Measures Adopted - Minimisation Pipe jacking method should be used instead of dredging where sewers and rising mains cross over existing MDC within the WCA and WBA.</p>	To minimise potential construction noise impacts to ecological sensitive receivers within the WCA/WBA.	For the full duration of the construction contract.	The Contractor		✓			
8.7.2	F4	<p>Regular inspections (at least twice a month) should be conducted by the ET during the winter season (November to March) for the remaining sections of the proposed sewerage alignment (including parts of S4, S5 and S6) within the WCA and WBA, where construction activities cannot be rescheduled.</p> <p>The site inspections shall check and report the number of workfronts and implementation of</p>	To schedule noisy construction activities to minimise potential impacts to winter visiting birds.	Work fronts other than identified sections within WBA & WCA (see <i>Figure 8.7a</i> attached) throughout the full duration of the construction contract.	The Contractor		✓			

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
8.7.3	F5	mitigation measures (i.e. erection of movable noise barriers with a suitable footing along the sites) in the monthly EM&A reports. Mitigation Measures Adopted Quietened construction plant and equipment (as shown in <i>Table F2</i>) should be used for the construction of pumping stations (P3 and P2) and sewerage alignment (S4, S5 and S6) located within the WCA and WBA.	Quiet construction plant shall minimise potential noise impacts to the wildlife, particularly rare birds including Black-faced Spoonbill, Buzzard, Hobby, Imperial Eagle, Intermediate Egret, Avocet and Black-eared Kite	At described locations and throughout the full duration of the construction contract.	The Contractor		✓			
8.7.4	F6	Erection of fences along the boundary of pumping station construction sites (P1 to P3) before the commencement of construction works to prevent tipping, vehicle movements, and encroachment of personnel into adjacent areas, and P2 to avoid disturbance to the remaining pond areas (0.7 ha);	To erect fences to prevent encroachment of construction activities onto adjacent areas.	At P1 to P3 for full duration of the construction contract.	The Contractor		✓			
8.7.4	F7	No filling and dumping to the remaining abandoned fishpond at P2.	To avoid disturbance to abandoned fishponds from construction activities and illegal dumping.	At P2 for full duration of the construction contract	The Contractor		✓			
8.7.4	F8	Installation and operation of silt removal facilities at construction sites of P1 to P3. The silt removal facilities should be designed in accordance with Appendix A1 of ProPECC Note PN1/94 Construction Site Drainage. The minimal total combined volume of the silt removal facilities at Nam Sang Wai SPS (P3) should be 15m ³ .	To install silt removal facilities in potentially impact streams and ponds to prevent sedimentation.	At P1 to P3 for full duration of the construction contract.	The Contractor		✓			
8.7.4	F9	No open fires within the site boundary during	To prohibit open fires, thereby	Site wide and throughout	The Contractor		✓			<i>Air Pollution Control</i>

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
8.7.4	F7	construction and provide temporary fire fighting equipment in the work areas. No filling and dumping to the remaining abandoned fishpond at P2.	minimising potential damage to trees and shrubs. To avoid disturbance to abandoned fishponds from construction activities and illegal dumping.	the full duration of the construction contract. At P2 for full duration of the construction contract	The Contractor		✓			(Open Burning) Regulation
8.7.4	F8	Installation and operation of silt removal facilities at construction sites of P1 to P3. The silt removal facilities should be designed in accordance with Appendix A1 of ProPECC Note PN1/94 Construction Site Drainage.	To install silt removal facilities in potentially impact streams and ponds to prevent sedimentation.	At P1 to P3 for full duration of the construction contract.	The Contractor		✓			
8.7.4	F9	No open fires within the site boundary during construction and provide temporary fire fighting equipment in the work areas.	To prohibit open fires, thereby minimising potential damage to trees and shrubs.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Air Pollution Control (Open Burning) Regulation
		FISHERIES - Construction Phase No specific mitigation measures are required for inclusion in the EP.								
		CULTURAL HERITAGE – Not Applicable for Package 1A-1T (DC/2005/02)								
		LANDSCAPE AND VISUAL - Construction Phase								
	H1	The site inspections shall check and report the implementation of mitigation measures (i.e. top-soil are reused and new compensatory planting works are carried out immediately after the construction of the civil structure) in the monthly EM&A reports. The first monthly EM&A Report should also report the appearance of the temporary hoarding barriers.	To minimise potential landscape and visual impacts.	To be implemented during the construction phases of the project.	The Contractor		✓			
	H2	Prior to application for an Environmental Permit, a set of landscape plans and building elevations of the proposed pumping stations should be	To minimise potential landscape and visual impacts.	To be implemented during the design and construction phases of the	DSD and The Contractor	✓	✓			

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
		submitted for approval by the EPD. The landscape plans and pumping station elevations should demonstrate that the following elements are considered: <ul style="list-style-type: none"> existing landscape elements (such as mature trees), transplantation of valuable trees, new compensatory planting 		project.						
		<ul style="list-style-type: none"> incorporate information on materials, details and textures so as to be as visually recessive as possible and in a style that fits with the surrounding village buildings. colour should be of low chromatic intensity to reduce the potential contrast between the structures and their background. The external finishing of the Pumping Stations shall be designed in conjunction with the landscape scheme. a minimum screen planting of 3m width and use of trees with a dense canopy of up to 5 m in height subject to constraints such as engineering and land availability. felling of mature trees are kept to a minimum. 								
3.7	I1	<p>EM&A REQUIEMENTS - Construction Phase</p> <p><i>Air Quality</i> Subject to the Environmental Protection Departments (EPDs) agreement, construction phase dust monitoring shall be undertaken at the following locations in accordance with the recommendations of the EIA.</p> <ul style="list-style-type: none"> Worksite boundary facing Scattered house in Nam Sang Wai (AM1); Worksite boundary facing Fung Kat Heung (AM5); Worksite boundary facing Scattered House near Route 3 (AM6); 	Installations of the dust monitoring stations to ensure the action and limit levels are not exceeded.	At specified dust monitoring locations for the duration of the construction works.	To be undertaken by the Environmental Team (ET) and reviewed and audited by the Engineer /DSD		✓			<i>Air Pollution Control (Construction Dust) Regulations</i>

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
4.9.1	I2	<ul style="list-style-type: none"> at any additional locations, where considered necessary, in agreement with EPD. <p><i>Construction Noise</i> Subject to the Environmental Protection Departments (EPDs) agreement, construction phase noise monitoring shall be undertaken at the following locations in accordance with the recommendations of the EIA.</p> <ul style="list-style-type: none"> (NM3) Scattered House in Nam San Wai (D12); (NM4) Scattered House in Nam San Wai (D11); (NM6) Scattered House near Route 3 (D17); (NM7) Fung Kat Heung (D19); and at any additional locations, where considered necessary, in agreement with EPD 	Installations of the noise monitoring stations to ensure the action and limit levels are not exceeded.	At specified noise monitoring locations throughout the duration of the construction works.	To be undertaken by the Environmental Team (ET) and reviewed and audited by the Engineer		✓			<i>Noise Control Ordinance</i>

Des = Design, C = Construction, O = Operation, Dec = Decommissioning

Annex H

Equipment Calibration Certificates

Equipment Calibration List for Construction of Sewers, Rising Mains & Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long Project

Item	Aspect	Description of Equipment	Serial No.	Date of Calibration	Date of Next Calibration
1	Air	Greasby Anderson GMWS2310 High Volume Sampler	0329 (AM1)	19 Aug 07	19 Nov 07
2		Greasby Anderson GMWS2310 High Volume Sampler	0355 (AM5)	13 Jul 07	13 Oct 07
3		Greasby Anderson GMWS2310 High Volume Sampler	10394 (AM6)	01 Jul 07	01 Oct 07
4		Greasby Anderson GMWS2310 High Volume Sampler	1283 (AM7)	19 Aug 07	19 Nov 07
5	Noise	Bruel & Kjaer 4231 Acoustical Calibrator	2292168	17 Apr 07	17 Apr 08
6		Bruel & Kjaer 2238 Integrating Sound Level Meter	2285721	17 Apr 07	17 Apr 08

Note: Calibration certificates will only be provided if monitoring equipment is re-calibrated or new.

* Calibration done in this reporting month, see calibration certificate attached.

Annex I

Meteorological Data in the Reporting Month

Meteorological Data Extracted From the HK Observatory at Lau Fau Shan Weather Station

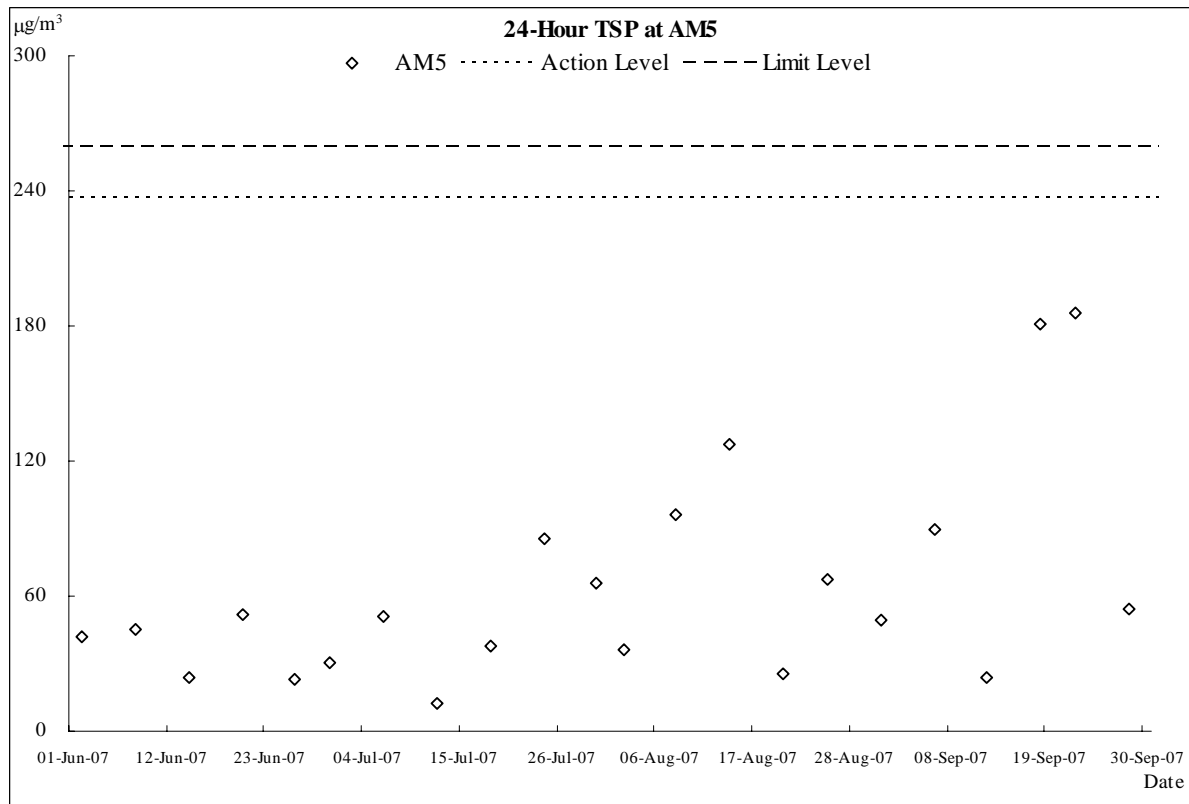
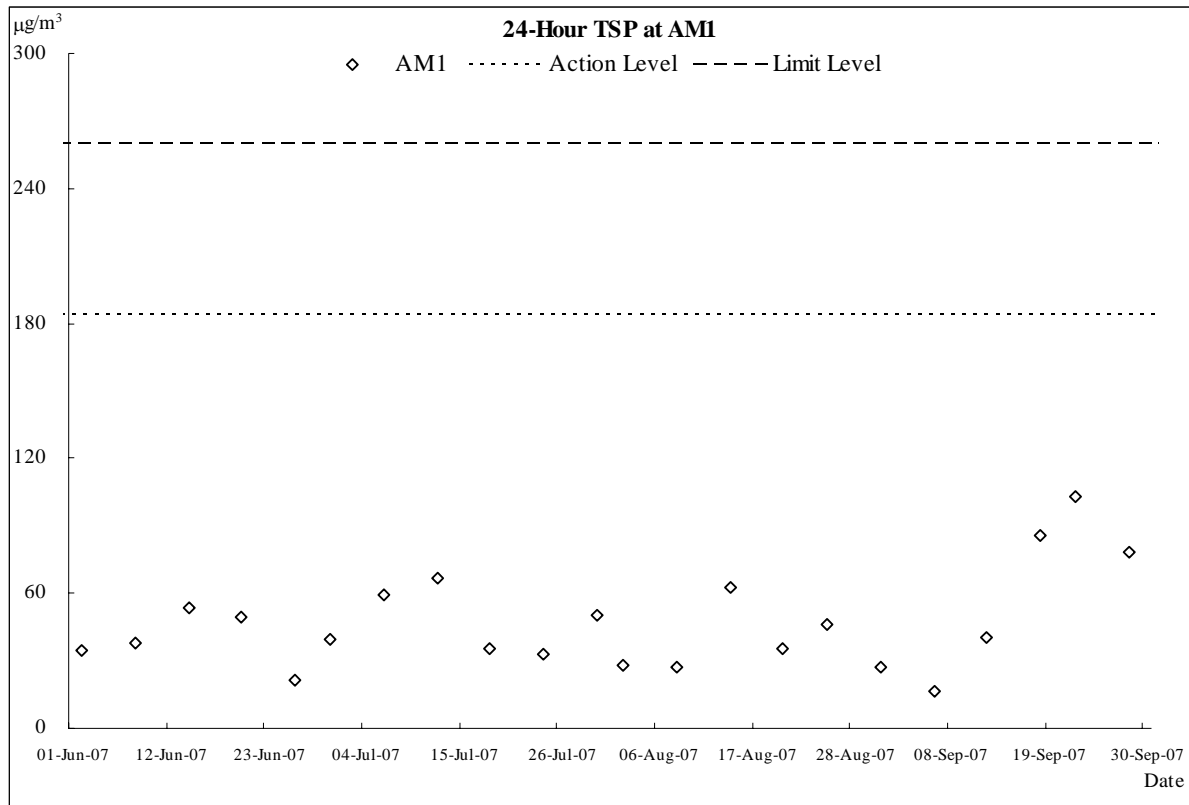
Date		Weather	Lau Fau Shan Station				
			Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Sep-07	Sat	fine/hot/isolated showers/thunderstorms/light winds	0	28.3	12	75	S/SE
2-Sep-07	Sun	sunny intervals/a few showers/squally thunderstorms/light winds	3.7	27.7	9.5	84	E/SE
3-Aug-07	Mon	cloudy/a few showers/squally thunderstorms/light winds	Trace	28.9	14.5	77	SE
4-Sep-07	Tue	cloudy/a few showers/light winds	2.3	27	15	81.5	S/SE
5-Sep-07	Wed	cloudy/a few showers/sunny intervals/moderate	1.5	26.6	15	78.5	E/NE
6-Sep-07	Thu	cloudy/sunny intervals/hazy/moderate	0	26.1	14.5	69.5	E/NE
7-Sep-07	Fri	sunny periods/hazy/moderate	0.1	26.7	8.2	72	E/SE
8-Sep-07	Sat	sunny periods/cloudy/moderate	Trace	28.3	9.5	74	E
9-Sep-07	Sun	sunny periods/cloudy/moderate	Trace	28.3	16	74	E/SE
10-Sep-07	Mon	cloudy/sunny intervals/rain moderate fresh	Trace	28.6	16.5	74.5	E
11-Sep-07	Tue	Sunny periods/rain/moderate/fresh	10.7	28.7	16.5	68.7	E
12-Sep-07	Wed	fine/isolated showers/moderate	Trace	28.3	13	72.5	E
13-Sep-07	Thu	fine/dry/moderate/fresh			14	63.5	E
14-Sep-07	Fri	fine/hazy/dry/light winds	0	27.9	8	64.5	E/SE
15-Sep-07	Sat	fine/hazy/isolated showers/light winds	0	28.6	9	69.5	S/SE
16-Sep-07	Sun	hazy/isolated showers/light winds	6	28.9	7.5	77	E/SE
17-Sep-07	Mon	hazy/isolated showers/light winds	0.5	28.5	6	81	E
18-Sep-07	Tue	fine/very dry/haze/moderate/fresh	0	28.5	20	56	N
19-Sep-07	Wed	fine/dry/hazy/fresh/strong	0	27.6	24.2	51	N/NW
20-Sep-07	Thu	sunny periods/dry/moderate/fresh	0.1	28.4	21	53.5	NE
21-Sep-07	Fri	sunny periods/haze/rain/moderate/fresh	1.7	27.8	13.5	66.5	E/NE
22-Sep-07	Sat	fine/dry/haze/moderate/fresh	0	28.2	15.5	6.12	NE
23-Sep-07	Sun	cloudy/overcast/rain/fresh/strong	12.5	25.4	24.5	83.5	N/NE
24-Sep-07	Mon	cloudy/overcast/rain/fresh/strong	60.1	24.8	17	94	E/NE
25-Sep-07	Tue	cloudy/rain/thunderstorms/fresh/strong	2.1	26.8	15.5	88	E
26-Sep-07	Wed			Holiday			
27-Sep-07	Thu	fine/moderate	0	28.4	13.5	70	E
28-Sep-07	Fri	fine/isolated showers/cloudy/moderate	0	28.5	11	Maintenance	E
29-Sep-07	Sat	fine/dry/moderate	Trace	28.8	11.5	73	E/NE
30-Sep-07	Sun	fine/dry/moderate	0	29.7	10	74.5	E/NE

Annex J

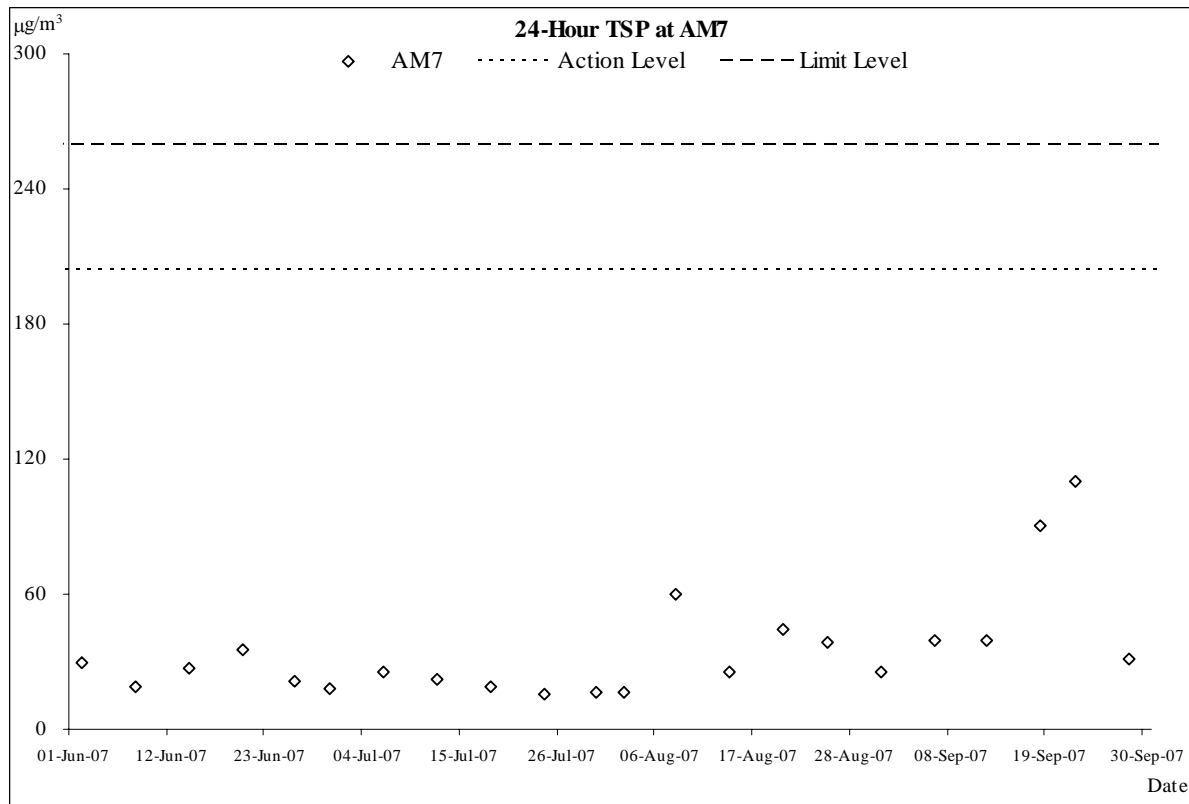
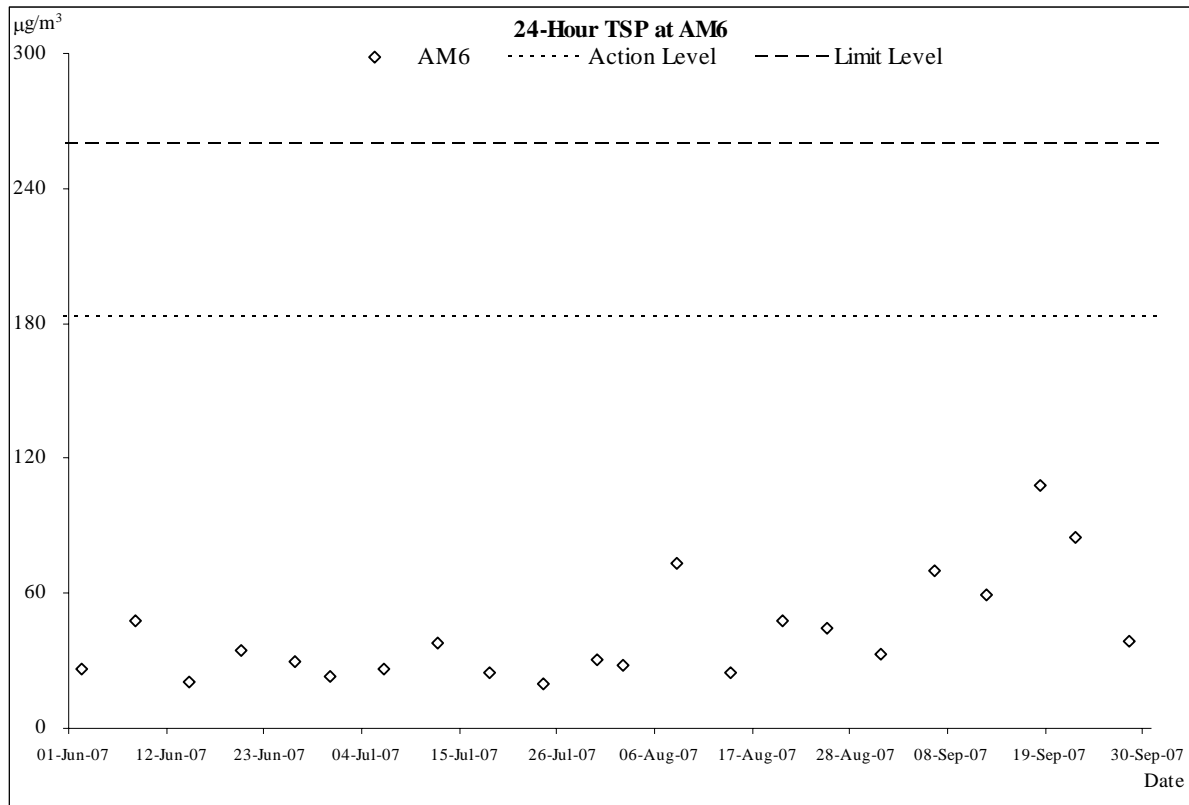
**Graphical Plots of Air Quality and Construction Noise
Monitoring Results**

Air Quality

Air Quality Monitoring Results

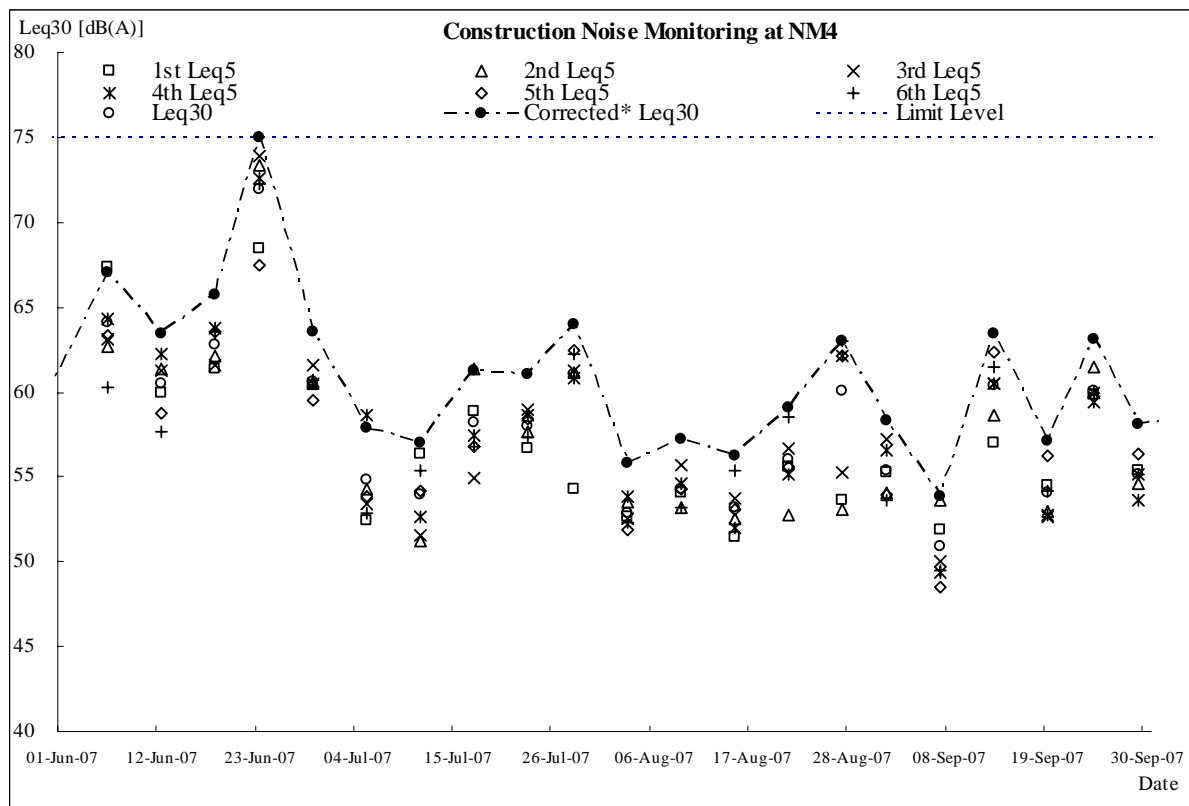
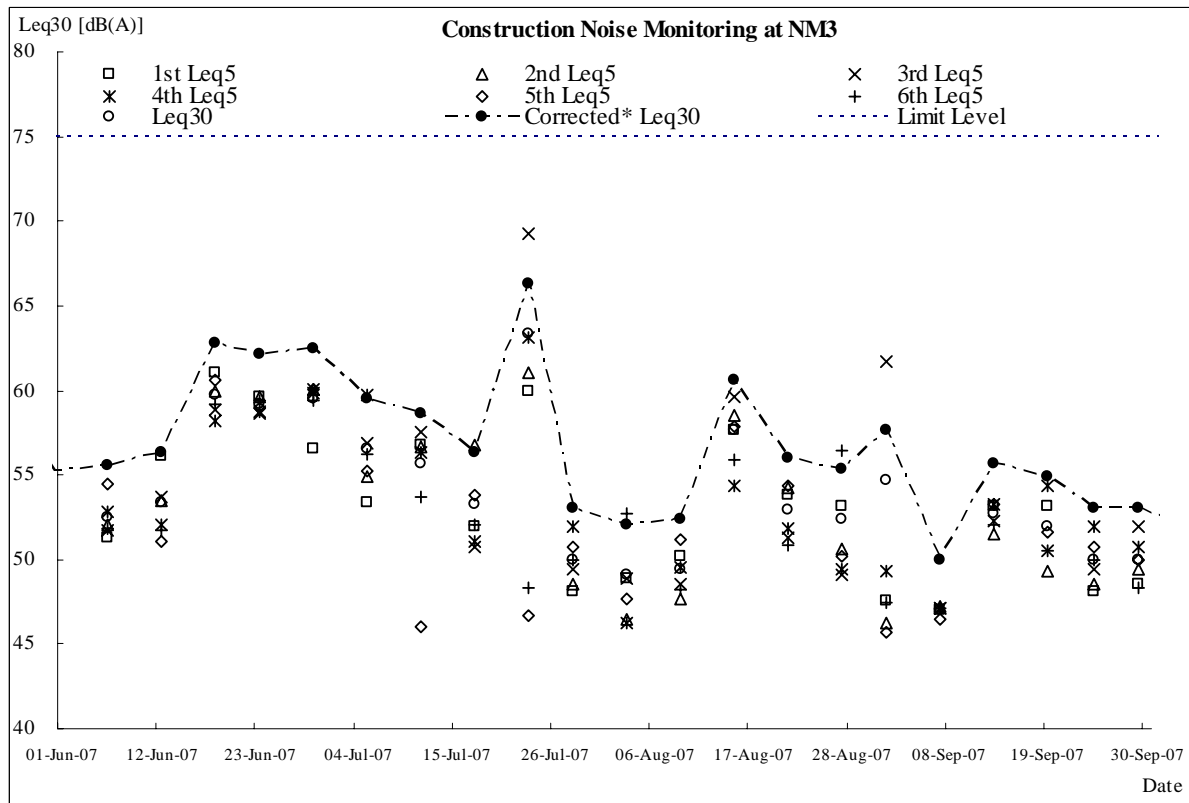


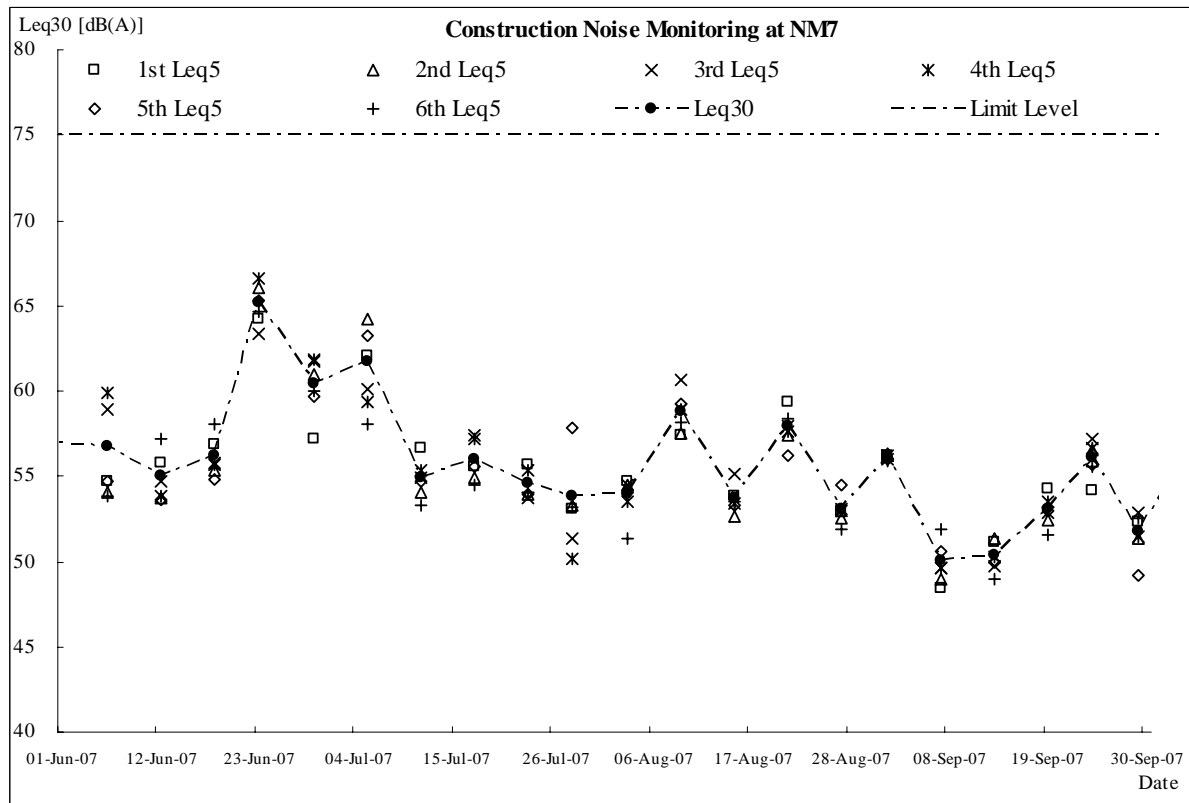
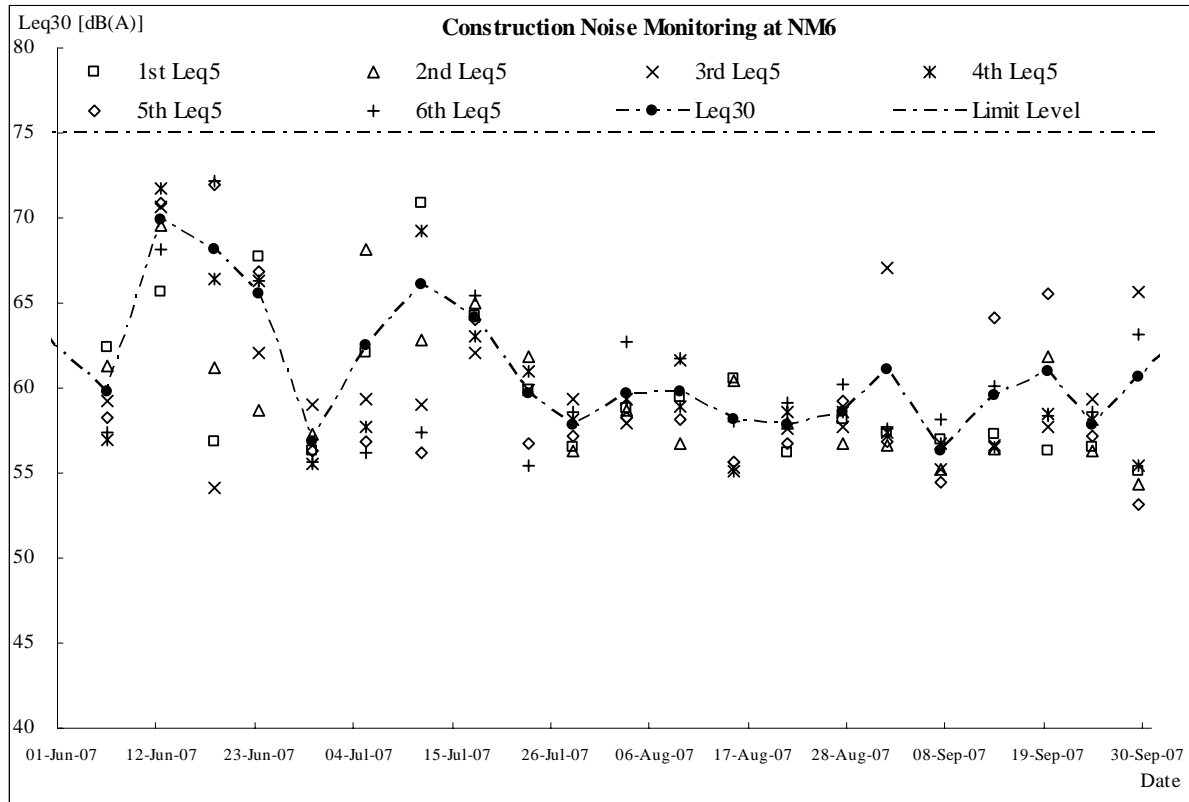
Air Quality Monitoring Results



Construction Noise

Construction Noise Monitoring Results





Annex K

**Proforma of Site Inspection and IEC Audit in the Reporting
Month**