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

5th Monthly Construction Phase EM&A Report
August 2006

PREPARED FOR

Leader Civil Engineering Corporation Ltd

Quality Index

Date	Reference No.	Prepared by	Certified by	Verified by
2 Sep 2006	TCS/00310/06/600/R0077	Ben Tam (Project Supervisor)	Cliff Lam (Project ET Leader)	Dr Anne F Kerr (Project IEC)

TABLE OF CONTENTS

List of Tables

List of Annexes

Executive Summary

ES.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 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 5th Monthly Construction Phase EM&A Report (August 2006, Report No. 5) reporting the environmental impact monitoring and audit (EM&A) conducted from 1 to 31 August 2006. The EM&A in August 2006 covered air quality, noise and waste management.

Breach of Action and Limit (AL) Levels

ES.03 There was no breach of Action or Limit level for air and noise monitoring in this reporting month.

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 September 2006 include site hoarding erection at Kam Tin pumping station and formation work for the Nam Sang Wai pumping station, pipe jacking for drainage work at S4, sheet piling, trench excavation and sorting erection for drainage work at S5, S6 and S7. 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 5th Monthly Construction Phase EM&A Report (August 2006, Report No. 5) summarizes the impact monitoring results and audit findings in the reporting period from 1 to 31 August 2006.

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 for the Reporting Month

1.04 A construction program showing the construction work undertaken in this reporting month is 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 during the Month

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

Kam Tin Sewage Pumping Station
- Site hoarding erection
- Site clearance

Nam Sang Wai Pumping Station (P3)
- Sheet piling
- Excavation and shoring erection

Nam Sang Wai Road (S4)
- Sheet piling
- Excavation and shoring installation
- Construction Receive Pit chamber of Pipe Jacking

Pok Wai South Road (S5)
- Sheet piling
- Excavation and shoring installation

Nam Sang Wai Road (S6)
- Sheet piling
- Excavation and shoring installation
- Manhole construction
- Pipe laying

Au Tau Area (S7)
- Sheet piling
- Excavation and shoring installation
- Manhole construction
- Pipe laying

2.0 ENVIRONMENTAL STATUS

Work Undertaken during the 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 August 2006 with Illustrations of Mitigation Measures

Location	Description of Construction Activities	Environmental Mitigation Measures	EM&A Ref.
Kam Tin Sewage Pumping Station	• Erect site Hoarding • Site clearance	• Erect 2.4m high noise barrier hoarding around the works area • 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 • Implement trip-ticket system for waste disposal	A1 & F6 A2 A3 A4 D5
Nam Sang Wai Pumping Station (P3)	• Sheet piling • Excavation & Shoring Installation	• Erect 2.4m high noise barrier hoarding around the works area • 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 • Wash the wheels of vehicles before leaving the site • 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 • 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 • Perform weekly inspection with ET and monthly audit with IEC • Conduct noise and dust monitoring as per EM&A manual during construction • Recycle wheel washing water and provide sedimentation tanks for treating site discharge.	A1 & F6 A2 A3 A4 A5 A6 A7 A8 B1, B2 & F5 D1 D2, D3 & D4 D5 F9 H1 I1 & I2 -
Nam Sang Wai Road (S4)	• Sheet piling • Excavation and shoring erection • Construction Receive Pit chamber of Pipe Jacking	• Remove dust and spray water at the construction access • Wash the wheels of vehicles before leaving the site • Maximize the use of quiet PME on site • 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 • Perform weekly inspection with ET and monthly audit with IEC • Conduct noise and dust monitoring as per EM&A manual during construction	A2 A5 B1, B2 & F5 D1 D2, D3 & D4 D5 F9 H1 I1 & I2
Pok Wai South Road (S5) Nam Sang Wai Road (S6) Au Tau Area (S7)	• Sheet Piling • Excavation & shoring installation • Pipe laying • Manhole construction	• 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 • Wash the wheels of vehicles before leaving the site • Install and use power-operated cover at the dump trucks • Spray the working area of excavation frequently • Maximize the use of quiet PME on site • 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 • 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.	A2 A3 A4 A5 A6 A8 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-220/2003 and the locations of the designated monitoring stations are presented in ***Annex E***.

2.04 There are four designated air quality and four noise monitoring stations under the project EP. In this reporting month, the monitoring was carried out at two designated air (AM1 & AM7) and two noise (NM3 & NM4) monitoring stations.

Station ID	Nature of Premise	Site Work Description	Station Coordinates
AM1	Site Boundary in NSW	Sheet piling and trench excavation.	835829 N 822910 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

2.05 Baseline Monitoring at the two remaining air (AM5 & AM6) and noise (NM6 & NM7) stations will commence in September 2006 upon agreed to IEC and RE of locations. The work areas were handed over to the Contractor in mid August 2006.

2.06 Impact Monitoring at the two remaining air (AM5 & AM6) and noise (NM6 & NM7) station will carry out after baseline monitoring progress completion.

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-Hr 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 Location	Action Level (μg /m^3)		Limit Level (μg/m^3)	
	1-Hr TSP	24-Hr TSP	1-Hr TSP	24-Hr TSP
AM1	391	184	500	260
AM7	383	204	500	260

Table 3-3 Action and Limit Levels for Construction Noise

Parameter	Action Level in dB(A)	Limit Level in dB(A)
0700-1900 hrs 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 month is presented in ***Table 4-1***.

Table 4-1 Status of Environmental Licenses and Permits

Item	Item Description	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	Registration on 27 Jan 2006
4	Water Pollution Control (Discharge license)	Applied to EPD on 7 Feb 2006
5	Account for Disposal of Construction Waste No. 5004959	Registration on 27 Dec 2005
6	Construction Noise Permit (Sheet Piling at NSW Station)	Valid (2 Jun to 12 Dec 2006)
7	Construction Noise Permit (General Works at NSW Station)	Valid (7 Apr to 7 Oct 2006)

5.0 MONITORING RESULTS

MONITORING METHODOLOGY OF AIR QUALITY MONITORING

5.01 The 24-Hr 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 m^3/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-Hr operation;
- Minimum exposed area of 63 in^2;
- Flow control accuracy of ±2.5% deviation over 24-Hr operation;
- An anodized aluminum shelter to protect the filter and sampler;
- A motor speed-voltage control to control mass flow rate with accuracy of ±2.5% deviation over 24-hr 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-Hr 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.

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 (L_{10} and L_{90}) 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-Hr 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

Parameters	Monitoring Equipment	
Air Quality	24-Hr TSP	Tisch High Volume Sampler 515N
Noise	Leq30min	B&K Type 2238
	On-site Calibration	B&K 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 is 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 two designated air (AM1 & AM7) and two noise (NM3 & NM4) monitoring stations. Baseline Monitoring at the two remaining air (AM5 & AM6) and noise (NM6 & NM7) stations will commence in September 2006 upon agreed to IEC and RE of locations and impact monitoring will carry out after baseline monitoring progress completion. 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

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 Stations)	
NM3	Village House in Nam Sang Wai
NM4	Village House in Nam Sang Wai
NM6*	Scattered House near Route 3
NM7*	Fung Kat Heung

Remarks: Monitoring at AM5 & AM6 and NM6 & NM7 will commence in September 2006 upon monitoring location agreed and approval by IEC & RE.

MONITORING FREQUENCY AND PERIOD

5.15 The impact 24-Hr TSP monitoring was conducted at the designated stations once every 6 days in compliance with the updated EM&A manual. A total of 10 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 10 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 are summarized in ***Table 5-3***.

Table 5-3 Summary of Air Quality Monitoring Results

Date	24-Hr TSP (ug/m^3)	
	AM1	AM7
1-Aug-06	96	95
7-Aug-06	69	45
10-Aug-06	87	73
16-Aug-06	53	60
22-Aug-06	82	85
28-Aug-06	61	57
Average (Range)	81.4 (49 - 122)	83.3 (41 - 126)

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

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

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
2-Aug-06	10:43	55	58	62	54	59	69	63	66
8-Aug-06	10:02	44	49	43	55	53	46	50	53
11-Aug-06	14:33	50	51	51	48	49	49	50	53
17-Aug-06	10:14	56	48	44	46	47	49	51	54
23-Aug-06	10:17	46	47	50	48	46	47	48	51
29-Aug-06	09:55	47	48	47	47	47	48	47	50
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
2-Aug-06	10:07	61	62	63	62	63	63	62	65
8-Aug-06	09:25	57	60	61	58	63	68	63	66
11-Aug-06	13:55	53	53	52	54	54	52	53	56
17-Aug-06	09:38	62	57	58	58	59	57	59	62
23-Aug-06	09:34	63	63	63	63	63	63	63	66
29-Aug-06	09:16	57	58	60	57	59	59	58	61
Limit Level									**75**

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

WEATHER CONDITIONS DURING THE MONITORING PERIOD

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

GRAPHICAL PLOTS OF TRENDS OF MONITORED PARAMETERS

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

MAJOR ACTIVITY CARRIED OUT DURING THE MONITORING PERIOD

5.22 There were construction activities of sheet piling and trench excavation undertaken during the monitoring period.

WEATHER CONDITIONS THAT AUGUST AFFECT THE MONITORING RESULTS

5.23 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

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

QA/QC RESULTS AND DETECTION LIMITS

5.25 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 summon 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 September 2006 include site hoarding erection at Kam Tin pumping station and formation work for the Nam Sang Wai pumping station, pipe jacking for drainage work at S4, sheet piling, trench excavation and sorting erection for drainage work at S5, S6 and S7. 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	4,118	Tuen Mun 38 Fill Bank
C&D Materials (Inert) (tons) – Reused	1,830	DSD Contract DC/2005/0
C&D Materials (Non-Inert) (tons)	-	NA
Chemical Waste (Litres)	300	NA
General Refuse (tons)	135	Refuse Collector

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

Type of Waste	Quantity	Disposal Location
Metals for Recycling (kg)	3670	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 50m^3 of surface runoff was discharged in this reporting month.

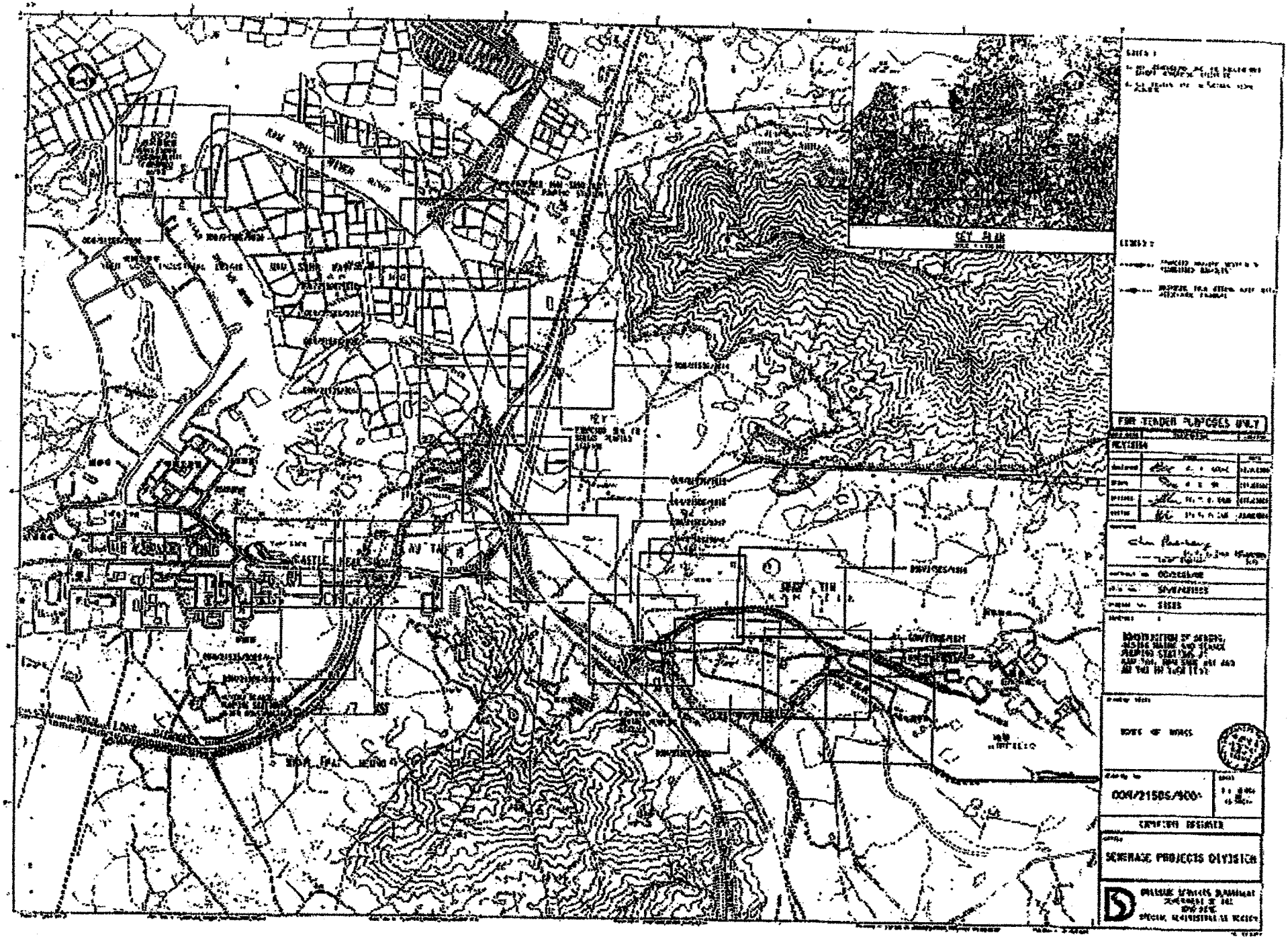
SUBMISSION OF PROFORMA

7.01 Representatives of the Engineer, the Contractor and ET carried out joint site inspection every week to evaluate the site environmental performance. No non-compliance was noted and one observation was recorded in weekly inspection. No monthly audit with RE, Contractor, IEC and ET was carried out in this month. .

7.02 Proforma of the weekly ET site inspection activities are presented in ***Annex K***.

Annex A

Project Site Layout


KEY PLAN
FOR TENDER PURPOSES ONLY
REVISIONS
SEWERAGE PROJECTS DIVISION

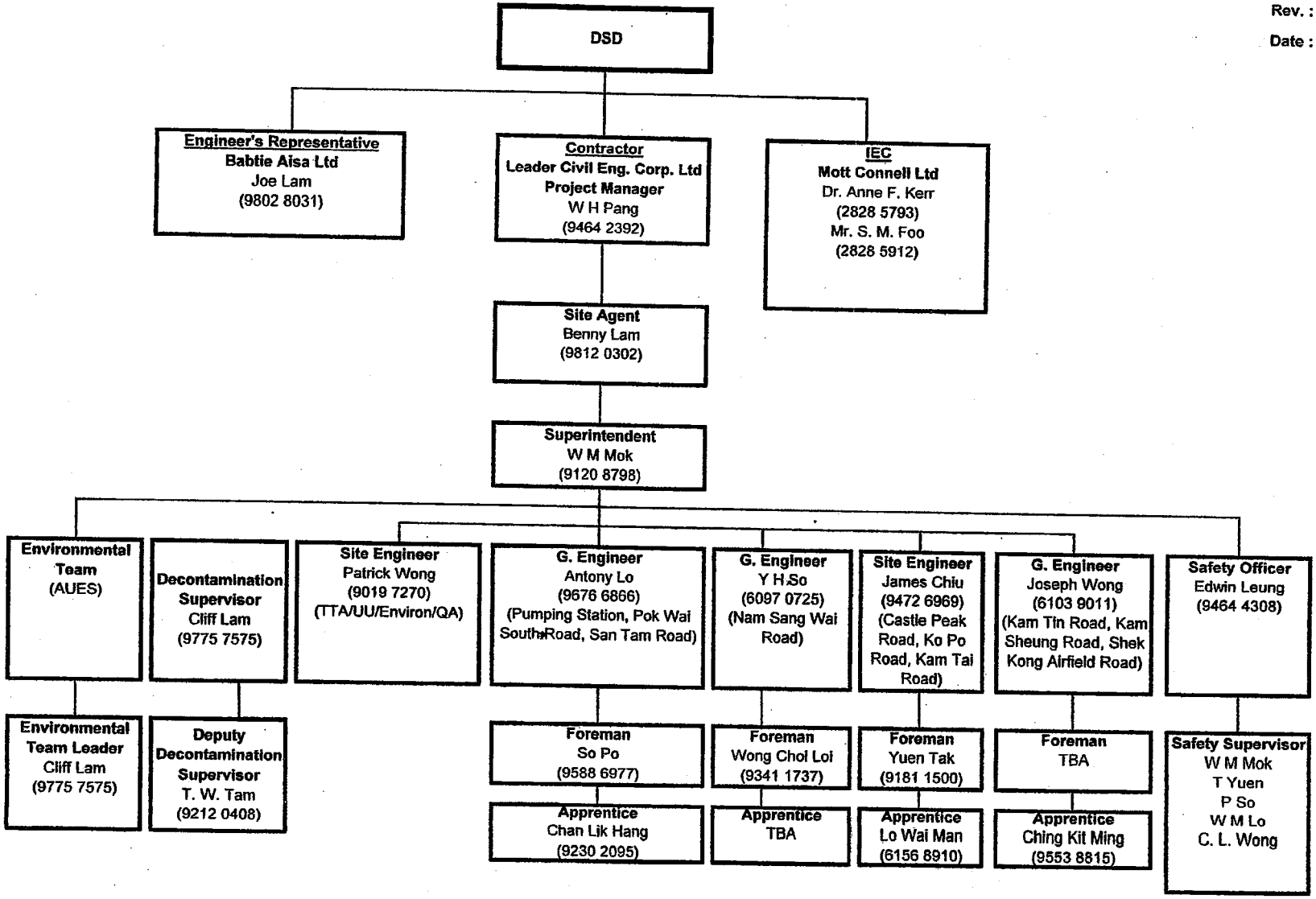
Annex B

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. : 01

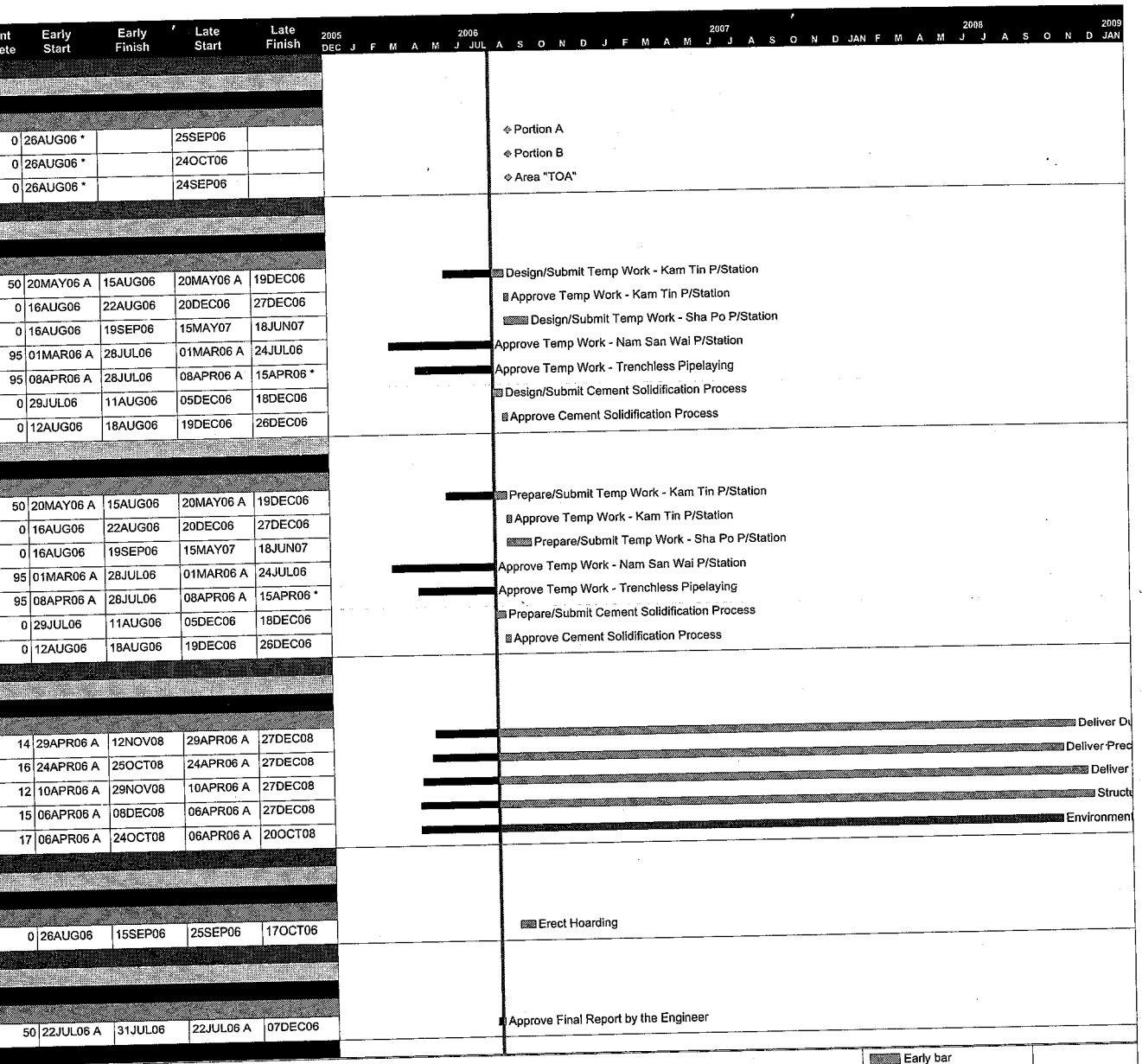
Date : 12-May-06



Annex C

Construction Program

Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish
Possession / Milestone Date								
PD1000	Portion A	0	30d	0	26AUG06 *		25SEP06	
PD1100	Portion B	0	59d	0	26AUG06 *		24OCT06	
PD3700	Area "TOA"	0	29d	0	26AUG06 *		24SEP06	
Submission								
Design Submission								
SUN1400	Design/Submit Temp Work - Kam Tin P/Station	30	105d	50	20MAY06 A	15AUG06	20MAY06 A	19DEC06
SUN1500	Approve Temp Work - Kam Tin P/Station	6	105d	0	16AUG06	22AUG06	20DEC06	27DEC06
SUN1600	Design/Submit Temp Work - Sha Po P/Station	30	223d	0	16AUG06	19SEP06	15MAY07	18JUN07
SUN1900	Approve Temp Work - Nam San Wai P/Station	6	-4d	95	01MAR06 A	28JUL06	01MAR06 A	24JUL06
SUN2300	Approve Temp Work - Trenchless Pipelaying	6	-86d	95	08APR06 A	28JUL06	08APR06 A	15APR06 *
SUN2400	Design/Submit Cement Solidification Process	12	107d	0	29JUL06	11AUG06	05DEC06	18DEC06
SUN2500	Approve Cement Solidification Process	6	107d	0	12AUG06	18AUG06	19DEC06	26DEC06
Method Statement Submission								
SUO1000	Prepare/Submit Temp Work - Kam Tin P/Station	30	105d	50	20MAY06 A	15AUG06	20MAY06 A	19DEC06
SUO1100	Approve Temp Work - Kam Tin P/Station	6	105d	0	16AUG06	22AUG06	20DEC06	27DEC06
SUO1200	Prepare/Submit Temp Work - Sha Po P/Station	30	223d	0	16AUG06	19SEP06	15MAY07	18JUN07
SUO1500	Approve Temp Work - Nam San Wai P/Station	6	-4d	95	01MAR06 A	28JUL06	01MAR06 A	24JUL06
SUO1900	Approve Temp Work - Trenchless Pipelaying	6	-86d	95	08APR06 A	28JUL06	08APR06 A	15APR06 *
SUO2000	Prepare/Submit Cement Solidification Process	12	107d	0	29JUL06	11AUG06	05DEC06	18DEC06
SUO2100	Approve Cement Solidification Process	6	107d	0	12AUG06	18AUG06	19DEC06	26DEC06
Preliminaries								
PR2900	Deliver Ductile Iron Pipe	800	38d	14	29APR06 A	12NOV08	29APR06 A	27DEC08
PR3100	Deliver Precast Concrete Pipe	800	53d	16	24APR06 A	25OCT08	24APR06 A	27DEC08
PR3300	Deliver Vitrified Clay Pipe	800	23d	12	10APR06 A	29NOV08	10APR06 A	27DEC08
PR3400	Structural Monitoring by ISE	835	16d	15	06APR06 A	08DEC08	06APR06 A	27DEC08
PR3500	Environmental monitoring by ET	814	-4d	17	06APR06 A	24OCT08	06APR06 A	20OCT08
Section 1 - Kam Tin Sewage Pumping Station								
Portion A								
Preliminaries								
S1AA1000	Erect Hoarding	18	25d	0	26AUG06	15SEP06	25SEP06	17OCT06
Section 3 - Nam Sang Wai Sewage Pumping Station								
Portion C								
Ground Investigation								
S3CB1500	Approve Final Report by the Engineer	4	108d	50	22JUL06 A	31JUL06	22JUL06 A	07DEC06
Earthworks								



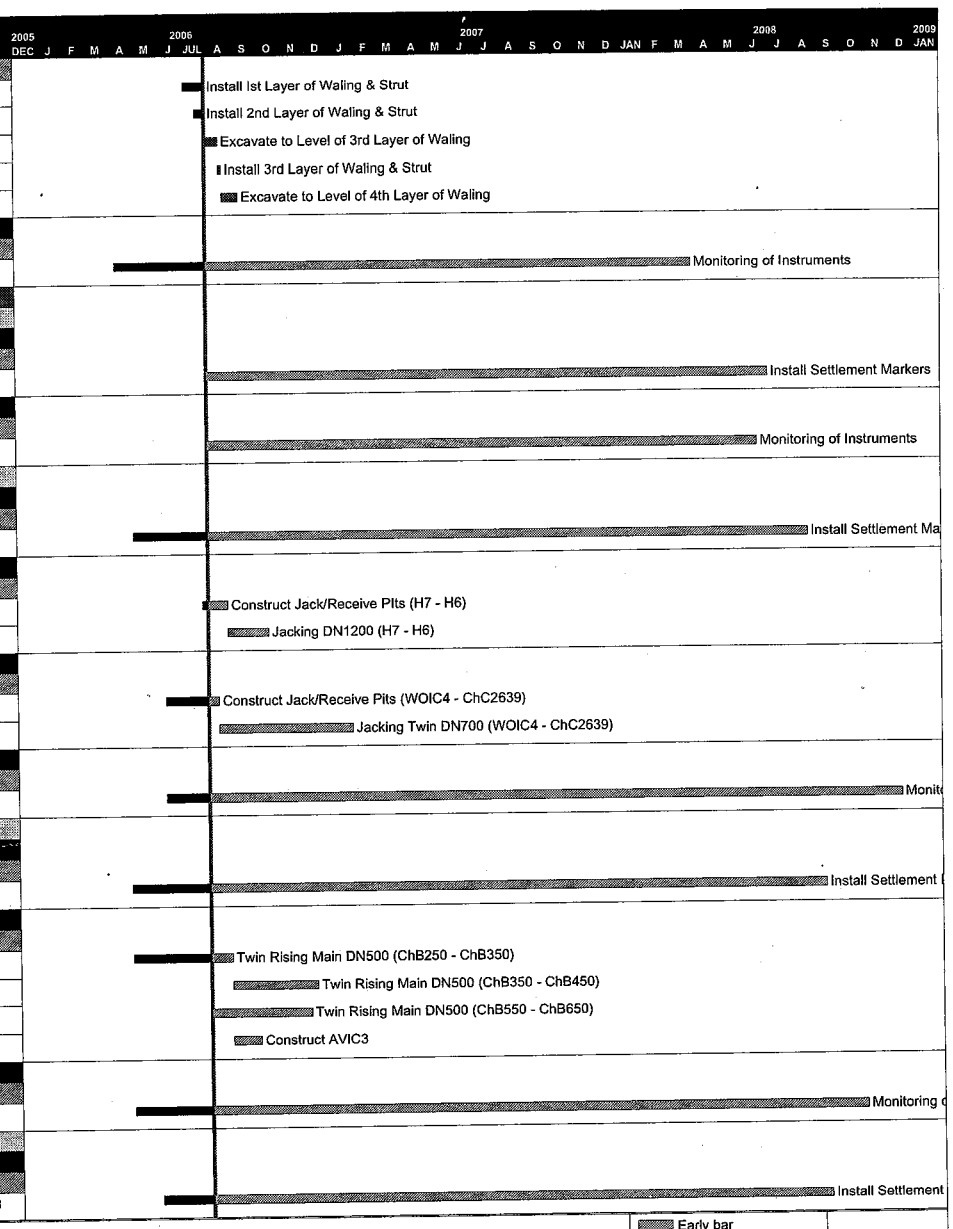
Start date	19DEC05
Finish date	31MAR09
Data date	29JUL06
Run date	15AUG06
Page number	1A
Project name	WP01

Leader Civil Engineering Corp. Ltd.
DSD Contract No. DC/2005/02
Master Programme WP01 Rev. 2 - (29 July 2006 - 28 August 2006)

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

LEADER

Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish
S3CG1200	Install Ist Layer of Waling & Strut	4	-4d	80	03JUL06 A	28JUL06	03JUL06 A	24JUL06
S3CG1400	Install 2nd Layer of Waling & Strut	4	-4d	80	17JUL06 A	28JUL06	17JUL06 A	24JUL06
S3CG1500	Excavate to Level of 3rd Layer of Waling	14	-4d	0	29JUL06	14AUG06	25JUL06	09AUG06
S3CG1600	Install 3rd Layer of Waling & Strut	4	-4d	0	15AUG06	18AUG06	10AUG06	14AUG06
S3CG1700	Excavate to Level of 4th Layer of Waling	18	-4d	0	19AUG06	08SEP06	15AUG06	04SEP06
Geotechnical works								
S3CP1000	Monitoring of Instruments	632	16d	21	06APR06 A	27MAR08	06APR06 A	16APR08
Section 4 - Sewers & RM in Portion D, F, G, H, I								
Portion D								
Ground Investigation								
S4DB1300	Install Settlement Markers	579	136d	0	29JUL06	30JUN08	10JAN07	10DEC08
Geotechnical works								
S4DP1000	Monitoring of Instruments	567	162d	0	29JUL06 *	16JUN08	09FEB07	27DEC08
Portion F								
Ground Investigation								
S4FB1500	Install Settlement Markers	720	109d	14	27APR06 A	18AUG08	27APR06 A	27DEC08
Drainage and Ducts								
Trenchless Method								
S4FEB1500	Construct Jack/Receive Pits (H7 - H6)	30	33d	30	22JUL06 A	22AUG06	22JUL06 A	29SEP06
S4FEB1520	Jacking DN1200 (H7 - H6)	42	33d	0	23AUG06	12OCT06	30SEP06	21NOV06
Pipework - Rising Main								
Trenchless Method								
S4FFB1000	Construct Jack/Receive Pits (WOIC4 - ChC2639)	57	3d	80	05JUN06 A	10AUG06	05JUN06 A	14AUG06
S4FFB1020	Jacking Twin DN700 (WOIC4 - ChC2639)	139	3d	0	11AUG06	25JAN07	15AUG06	29JAN07
Geotechnical works								
S4FP1000	Monitoring of Instruments	803	11d	11	05JUN06 A	13DEC08	05JUN06 A	27DEC08
Portion G								
Ground Investigation								
S4GB1500	Install Settlement Markers	738	91d	14	21APR06 A	08SEP08	21APR06 A	27DEC08
Pipework - Rising Main								
Trench Method								
S4GFA1100	Twin Rising Main DN500 (ChB250 - ChB350)	90	352d	74	22APR06 A	24AUG06	22APR06 A	26OCT07
S4GFA1200	Twin Rising Main DN500 (ChB350 - ChB450)	89	352d	0	25AUG06	09DEC06	27OCT07	13FEB08
S4GFA1400	Twin Rising Main DN500 (ChB550 - ChB650)	107	473d	2	27JUL06 A	01DEC06	27JUL06 A	28JUN08
S4GFA1800	Construct AVIC3	30	411d	0	25AUG06	28SEP06	07JAN08	13FEB08
Geotechnical works								
S4GP1000	Monitoring of Instruments	729	51d	7	22APR06 A	28OCT08	22APR06 A	27DEC08
Portion H								
Ground Investigation								
S4HB1300	Install Settlement Markers	717	87d	11	26MAY06 A	12SEP08	26MAY06 A	27DEC08

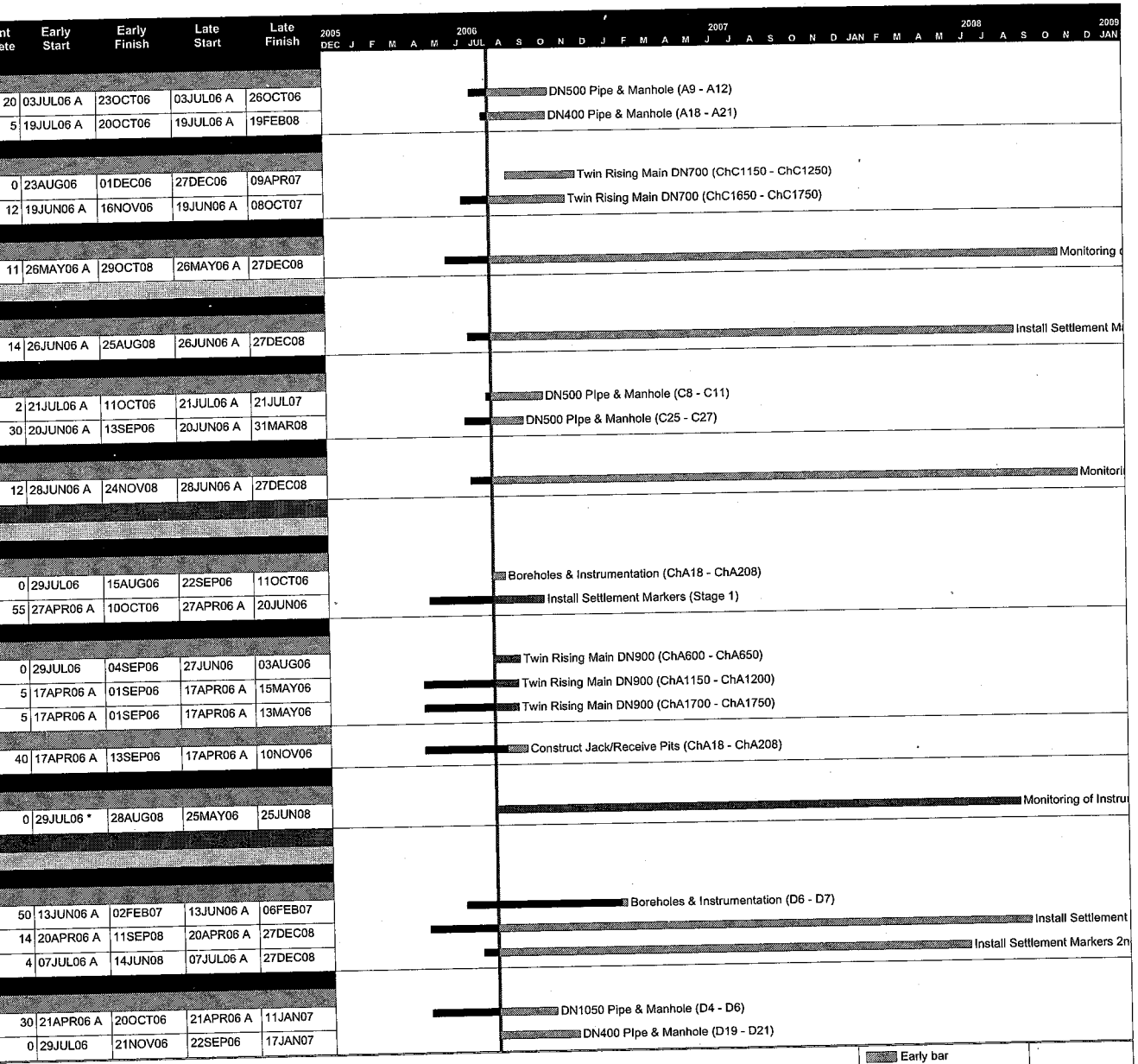


Start date	19DEC05
Finish date	31MAR09
Data date	29JUL06
Run date	15AUG06
Page number	2A
Project name	WP01
c Primavera Systems, Inc.	

Leader Civil Engineering Corp. Ltd.
DSD Contract No. DC/2005/02
Master Programme WP01 Rev. 2 - (29 July 2006 - 28 August 2006)

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
Drainage and Ducts								
Trench Method								
S4HEA1200	DN500 Pipe & Manhole (A9 - A12)	90	3d	20	03JUL06 A	23OCT06	03JUL06 A	26OCT06
S4HEA1600	DN400 Pipe & Manhole (A18 - A21)	74	399d	5	19JUL06 A	20OCT06	19JUL06 A	19FEB08
Pipework - Rising Main								
Trench Method								
S4HFA2100	Twin Rising Main DN700 (ChC1150 - ChC1250)	84	104d	0	23AUG06	01DEC06	27DEC06	09APR07
S4HFA2600	Twin Rising Main DN700 (ChC1650 - ChC1750)	104	268d	12	19JUN06 A	16NOV06	19JUN06 A	08OCT07
Geotechnical works								
S4HP1000	Monitoring of Instruments	764	50d	11	26MAY06 A	29OCT08	26MAY06 A	27DEC08
Portion I								
Ground Investigation								
S4IB1300	Install Settlement Markers	726	103d	14	26JUN06 A	25AUG08	26JUN06 A	27DEC08
Drainage and Ducts								
Trench Method								
S4IEA1300	DN500 PIpe & Manhole (C8 - C11)	63	233d	2	21JUL06 A	11OCT06	21JUL06 A	21JUL07
S4IEA2100	DN500 PIpe & Manhole (C25 - C27)	57	464d	30	20JUN06 A	13SEP06	20JUN06 A	31MAR08
Geotechnical works								
S4IP1000	Monitoring of Instruments	795	28d	12	28JUN06 A	24NOV08	28JUN06 A	27DEC08
Section 5 - Sewers & RM in Portion E								
Portion E								
Ground Investigation								
S5EB1020	Boreholes & Instrumentation (ChA18 - ChA208)	15	47d	0	29JUL06	15AUG06	22SEP06	11OCT06
S5EB1300	Install Settlement Markers (Stage 1)	134	-93d	55	27APR06 A	10OCT06	27APR06 A	20JUN06
Pipework - Rising Main								
Trench Method								
S5EFA1800	Twin Rising Main DN900 (ChA600 - ChA650)	32	-27d	0	29JUL06	04SEP06	27JUN06	03AUG06
S5EFA2900	Twin Rising Main DN900 (ChA1150 - ChA1200)	32	-92d	5	17APR06 A	01SEP06	17APR06 A	15MAY06
S5EFA4000	Twin Rising Main DN900 (ChA1700 - ChA1750)	32	-93d	5	17APR06 A	01SEP06	17APR06 A	13MAY06
Trenchless Method								
S5EFB1000	Construct Jack/Receive Pits (ChA18 - ChA208)	42	47d	40	17APR06 A	13SEP06	17APR06 A	10NOV06
Geotechnical works								
S5EP1000	Monitoring of Instruments	629	-54d	0	29JUL06 *	28AUG08	25MAY06	25JUN08
Section 6 - Sewers in Portion J								
Portion J								
Ground Investigation								
S6JB1040	Boreholes & Instrumentation (D6 - D7)	13	3d	50	13JUN06 A	02FEB07	13JUN06 A	06FEB07
S6JB1500	Install Settlement Marker 1st Stage	741	88d	14	20APR06 A	11SEP08	20APR06 A	27DEC08
S6JB2100	Install Settlement Markers 2nd Stage	589	163d	4	07JUL06 A	14JUN08	07JUL06 A	27DEC08
Drainage and Ducts								
Trench Method								
S6JEA1200	DN1050 Pipe & Manhole (D4 - D6)	100	68d	30	21APR06 A	20OCT06	21APR06 A	11JAN07
S6JEA1900	DN400 PIpe & Manhole (D19 - D21)	96	47d	0	29JUL06	21NOV06	22SEP06	17JAN07



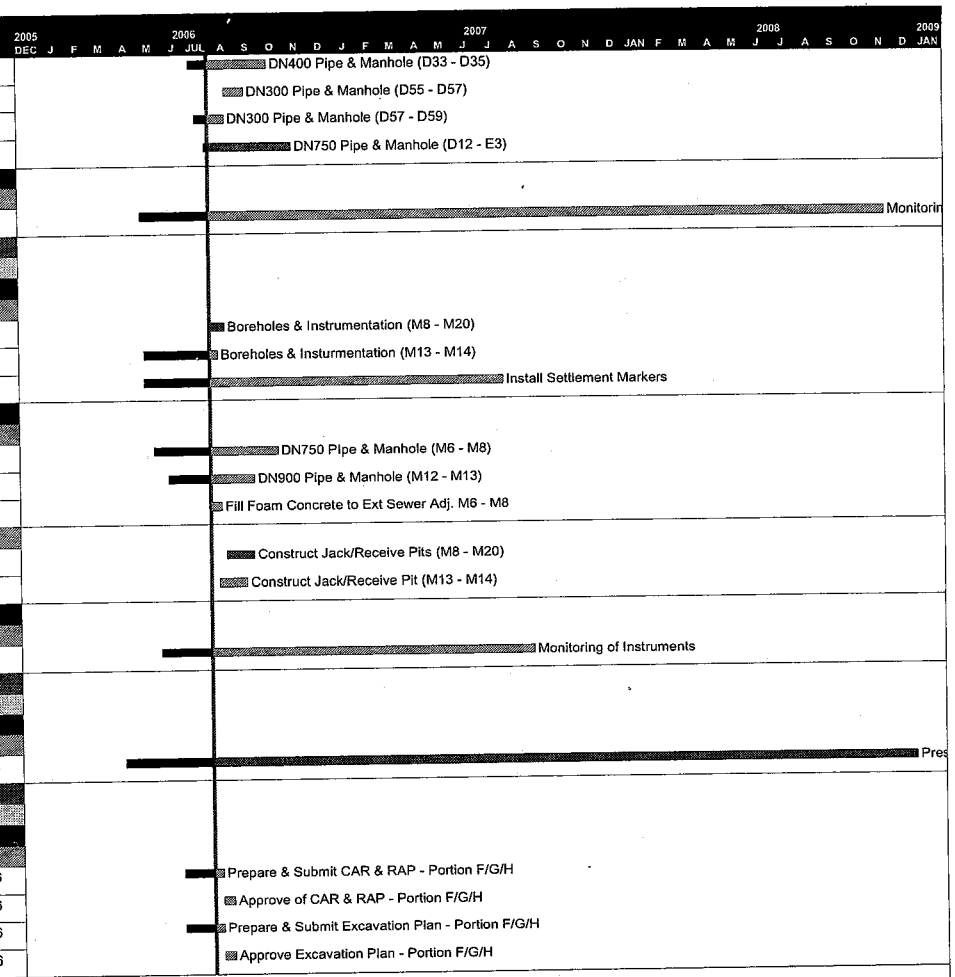
Start date	19DEC05
Finish date	31MAR09
Data date	29JUL06
Run date	15AUG06
Page number	3A
Project name	WP01
© Primavera Systems, Inc.	

Leader Civil Engineering Corp. Ltd.
DSD Contract No. DC/2005/02
Master Programme WP01 Rev. 2 - (29 July 2006 - 28 August 2006)

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

LEADER

Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish
S6JEA2900	DN400 Pipe & Manhole (D33 - D35)	65	433d	5	06JUL06 A	11OCT06	06JUL06 A	20MAR08
S6JEA3700	DN300 Pipe & Manhole (D55 - D57)	21	404d	0	19AUG06	12SEP06	21DEC07	16JAN08
S6JEA3800	DN300 Pipe & Manhole (D57 - D59)	26	404d	30	13JUL06 A	18AUG06	13JUL06 A	20DEC07
S6JEA3900	DN750 Pipe & Manhole (D12 - E3)	88	-76d	1	24JUL06 A	10NOV06	24JUL06 A	10AUG06
Geotechnical works								
S6JP1000	Monitoring of Instruments	791	32d	12	04MAY06 A	19NOV08	04MAY06 A	27DEC08
Section 7 - Sewers in Portion K								
Portion K								
Ground Investigation								
S7KB1040	Boreholes & Instrumentation (M8 - M20)	16	-43d	0	29JUL06	16AUG06	08JUN06	26JUN06
S7KB1060	Boreholes & Insturmentation (M13 - M14)	16	65d	50	08MAY06 A	07AUG06	08MAY06 A	24OCT06
S7KB1500	Install Settlement Markers	402	67d	25	08MAY06 A	30JUL07	08MAY06 A	18OCT07
Drainage and Ducts								
Trench Method								
S7KEA1300	DN750 Pipe & Manhole (M6 - M8)	79	27d	10	19MAY06 A	21OCT06	19MAY06 A	23NOV06
S7KEA1700	DN900 Pipe & Manhole (M12 - M13)	79	122d	40	06JUN06 A	21SEP06	06JUN06 A	16FEB07
S7KEA2600	Fill Foam Concrete to Ext Sewer Adj. M6 - M8	12	86d	0	29JUL06	11AUG06	10NOV06	23NOV06
Trenchless Method								
S7KEB1100	Construct Jack/Receive Pits (M8 - M20)	30	-43d	0	17AUG06	20SEP06	27JUN06	01AUG06
S7KEB1200	Construct Jack/Receive Pit (M13 - M14)	30	65d	0	08AUG06	11SEP06	25OCT06	29NOV06
Geotechnical works								
S7KP1000	Monitoring of Instruments	427	35d	22	27MAY06 A	05SEP07	27MAY06 A	18OCT07
Section 8 - Preservation and Protection of Trees								
All Portions								
Landscape Softworks and Establishment Works								
S8QR1100	Preservation & Protection of Preserved Trees	861	0	15	10APR06 A	27DEC08	10APR06 A	27DEC08
Decontamination Works								
General Submission								
S9L1400	Prepare & Submit CAR & RAP - Portion F/G/H	18	104d	50	21JUN06 A	08AUG06	21JUN06 A	11DEC06
S9L1500	Approve of CAR & RAP - Portion F/G/H	12	104d	0	09AUG06	22AUG06	12DEC06	26DEC06
S9L1600	Prepare & Submit Excavation Plan - Portion F/G/H	18	104d	50	21JUN06 A	08AUG06	21JUN06 A	11DEC06
S9L1700	Approve Excavation Plan - Portion F/G/H	12	104d	0	09AUG06	22AUG06	12DEC06	26DEC06



Start date	19DEC05
Finish date	31MAR09
Data date	29JUL06
Run date	15AUG06
Page number	4A
Project name	WP01
c Primavera Systems, Inc.	

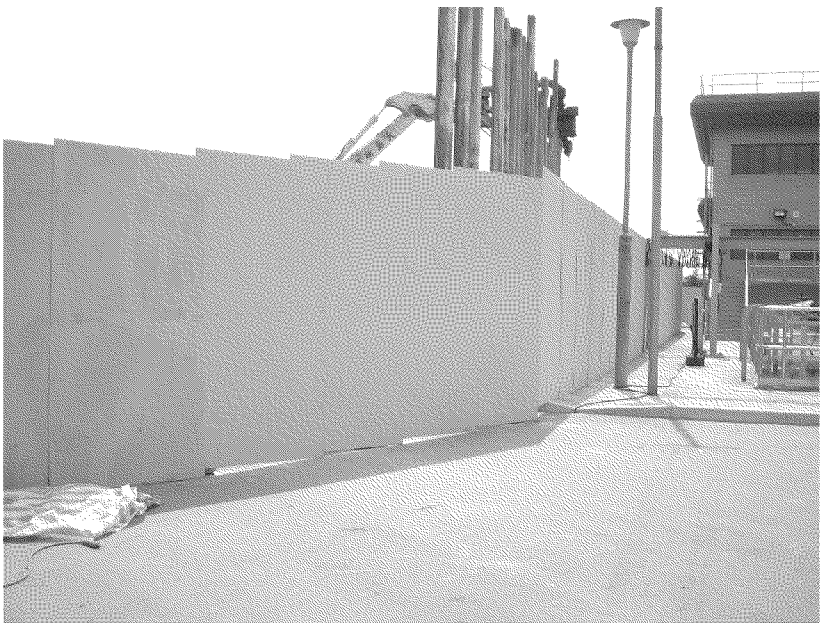
Leader Civil Engineering Corp. Ltd.
DSD Contract No. DC/2005/02
Master Programme WP01 Rev. 2 - (29 July 2006 - 28 August 2006)

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

LEADER

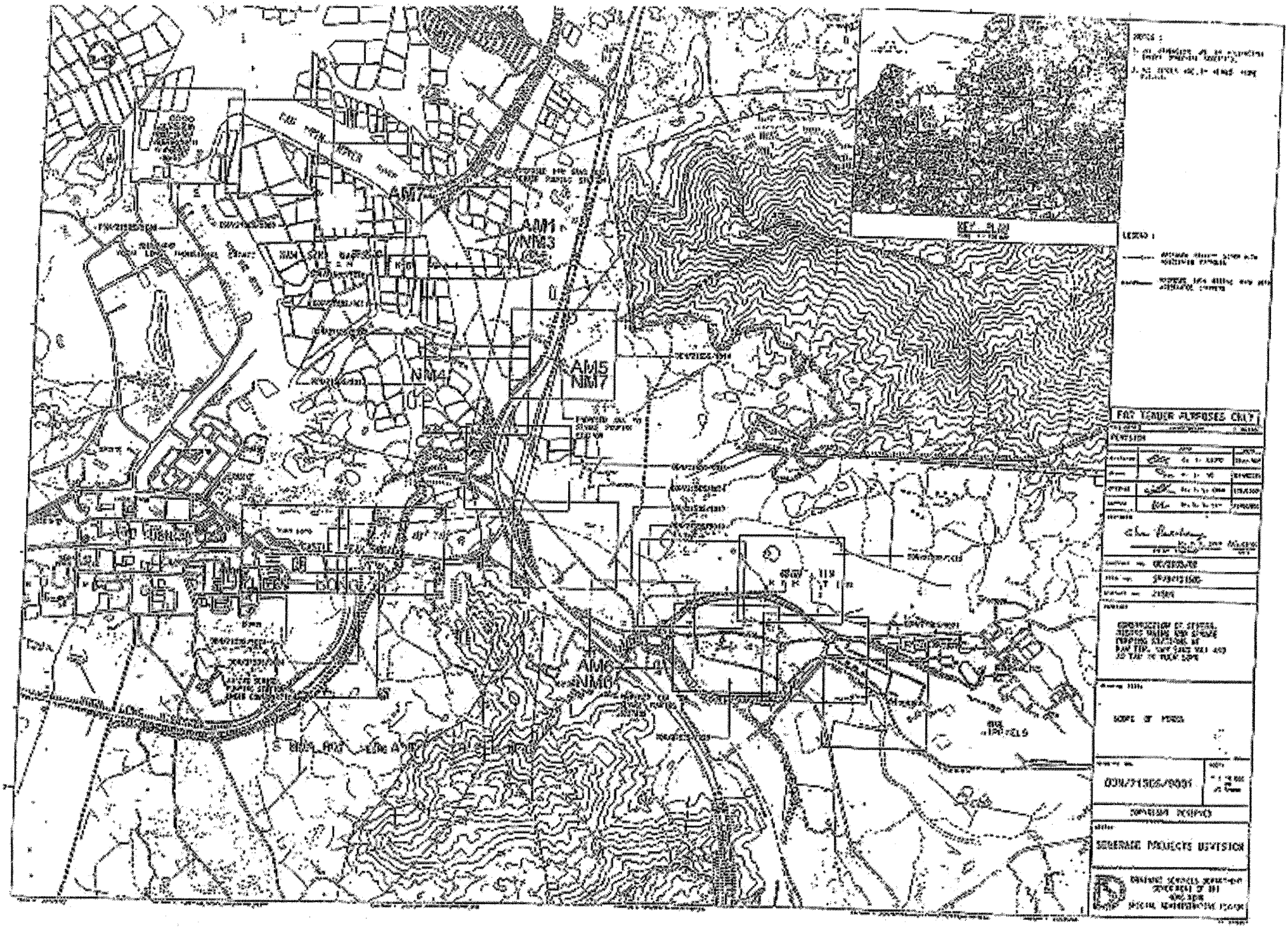
Annex D

Photographical Records – Noise Barrier On-Site



Annex E

Locations of Monitoring Stations


AM7
AM1
NM3
NM4
AM5
NM7
AM6
NM6
FOR TENDER PURPOSES ONLY
SEWERAGE PROJECTS DIVISION

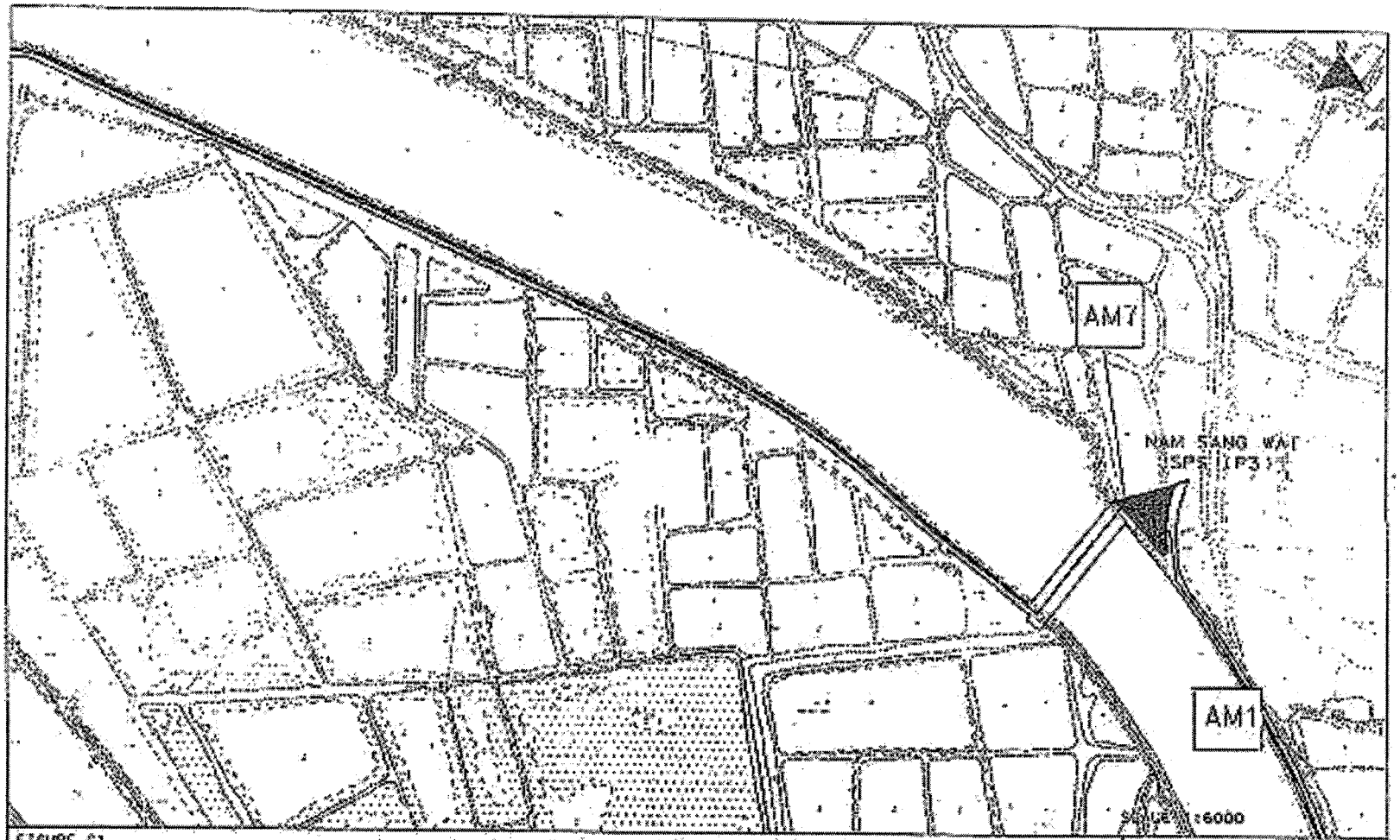


FIGURE C1

LOCATION OF DUST MONITORING STATIONS (AM1, AM2 & AM7)

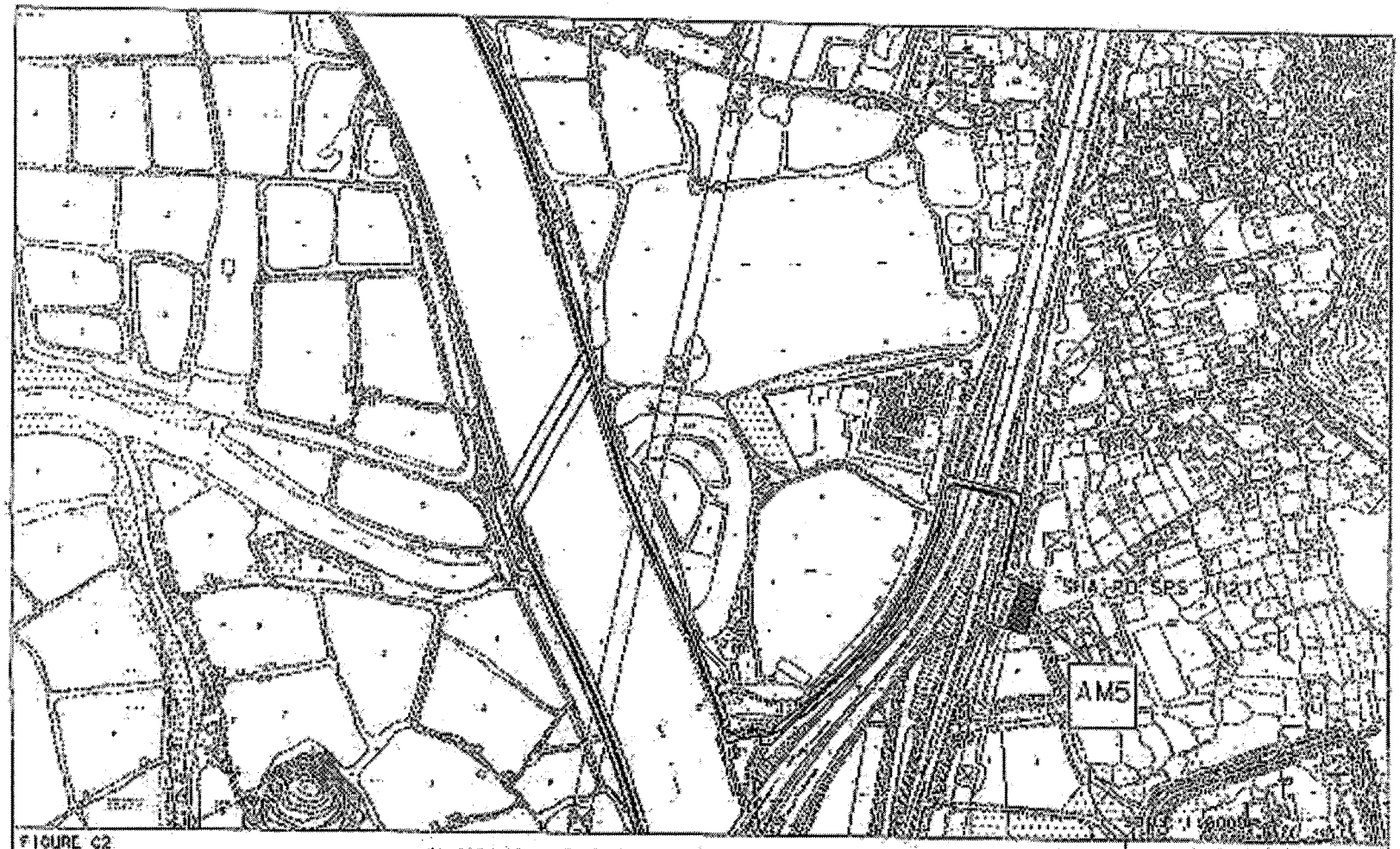


FIGURE C2

LOCATION OF DUST MONITORING STATION (AM5)

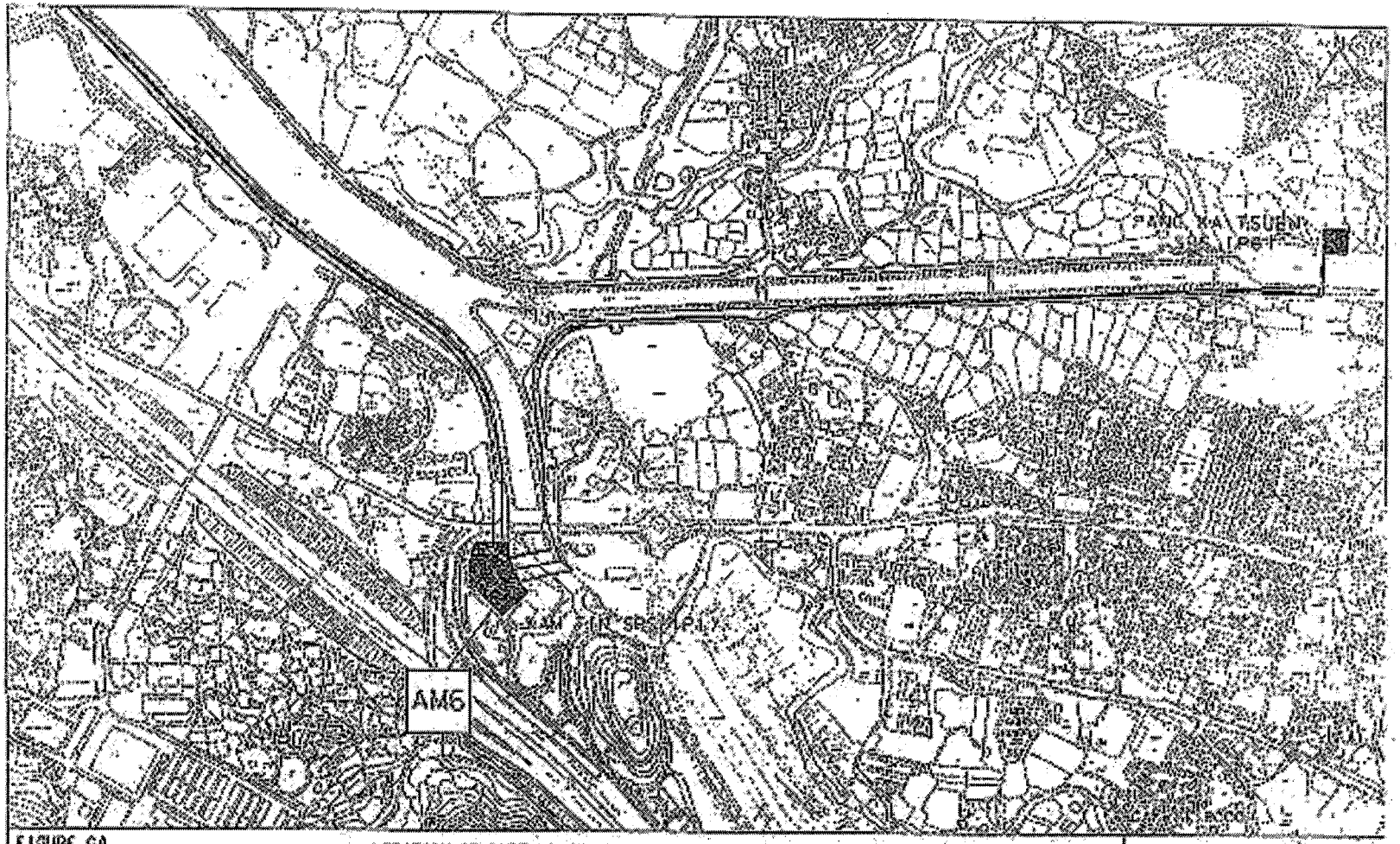


FIGURE C4

LOCATION OF DUST MONITORING STATIONS (AM4, AM5 & AM10)

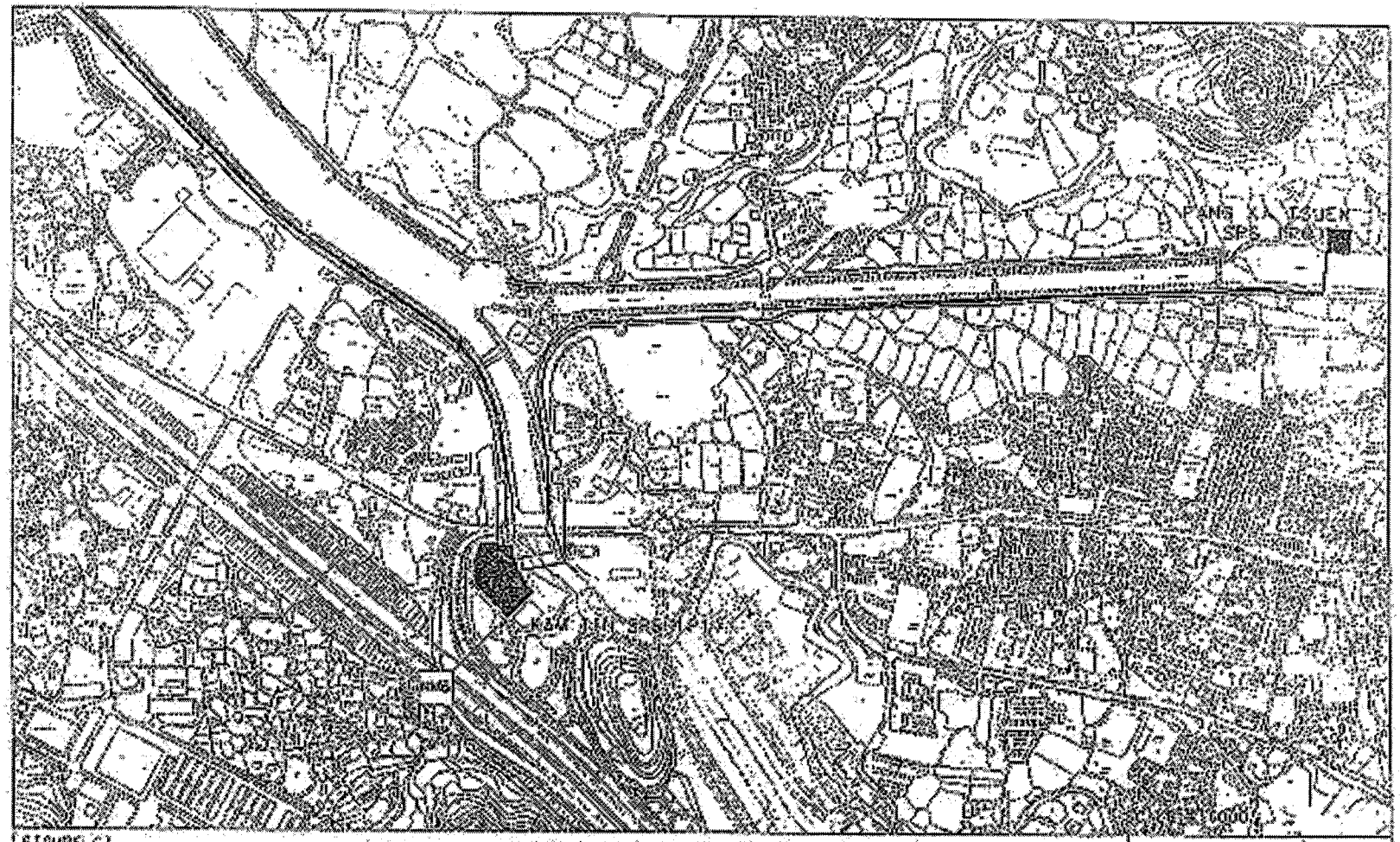


FIGURE C7

LOCATION OF NOISE MONITORING STATIONS (NM1, NM6, NM8, NM9)

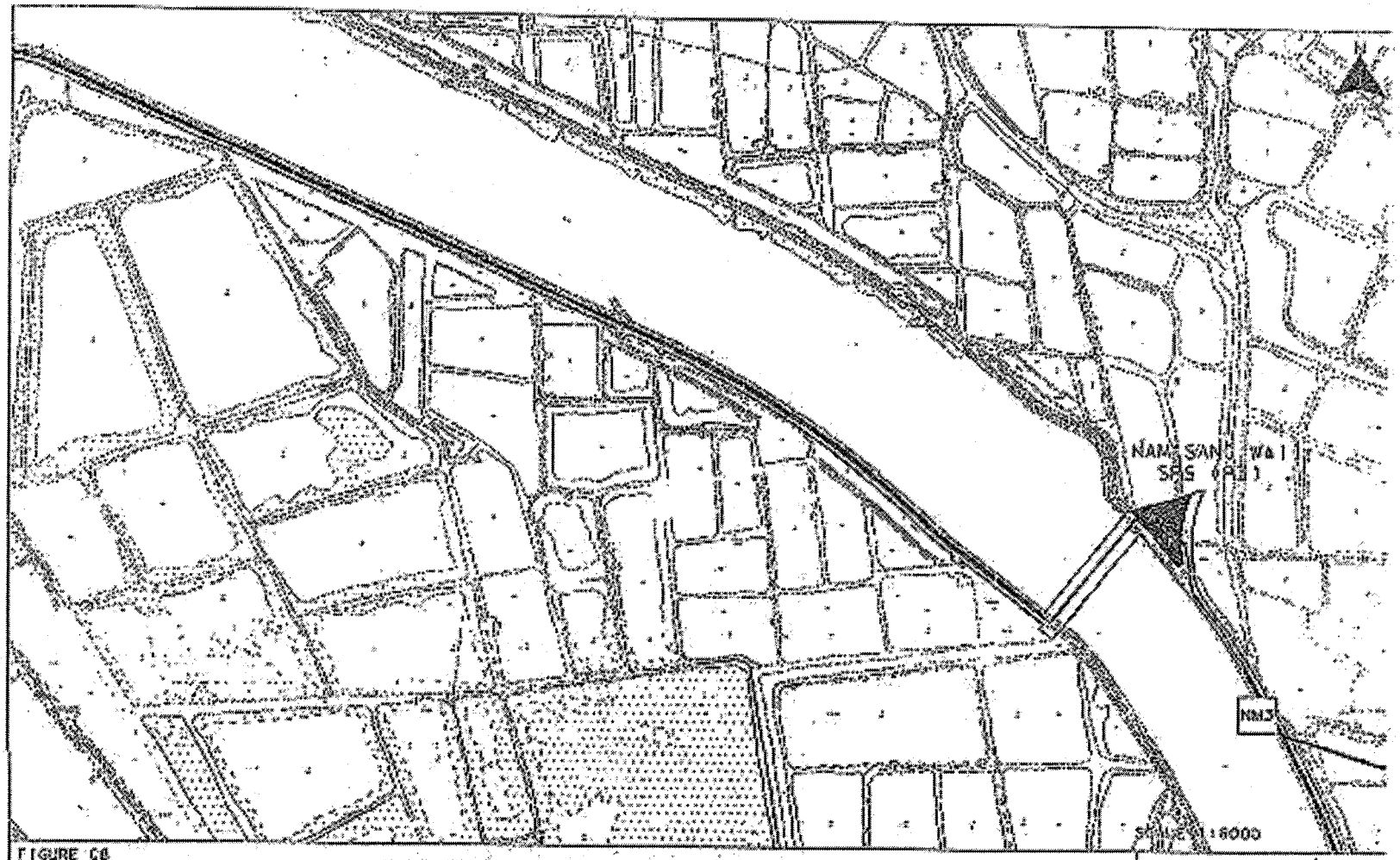


FIGURE C8

LOCATION OF NOISE MONITORING STATIONS (NM3, NMS1

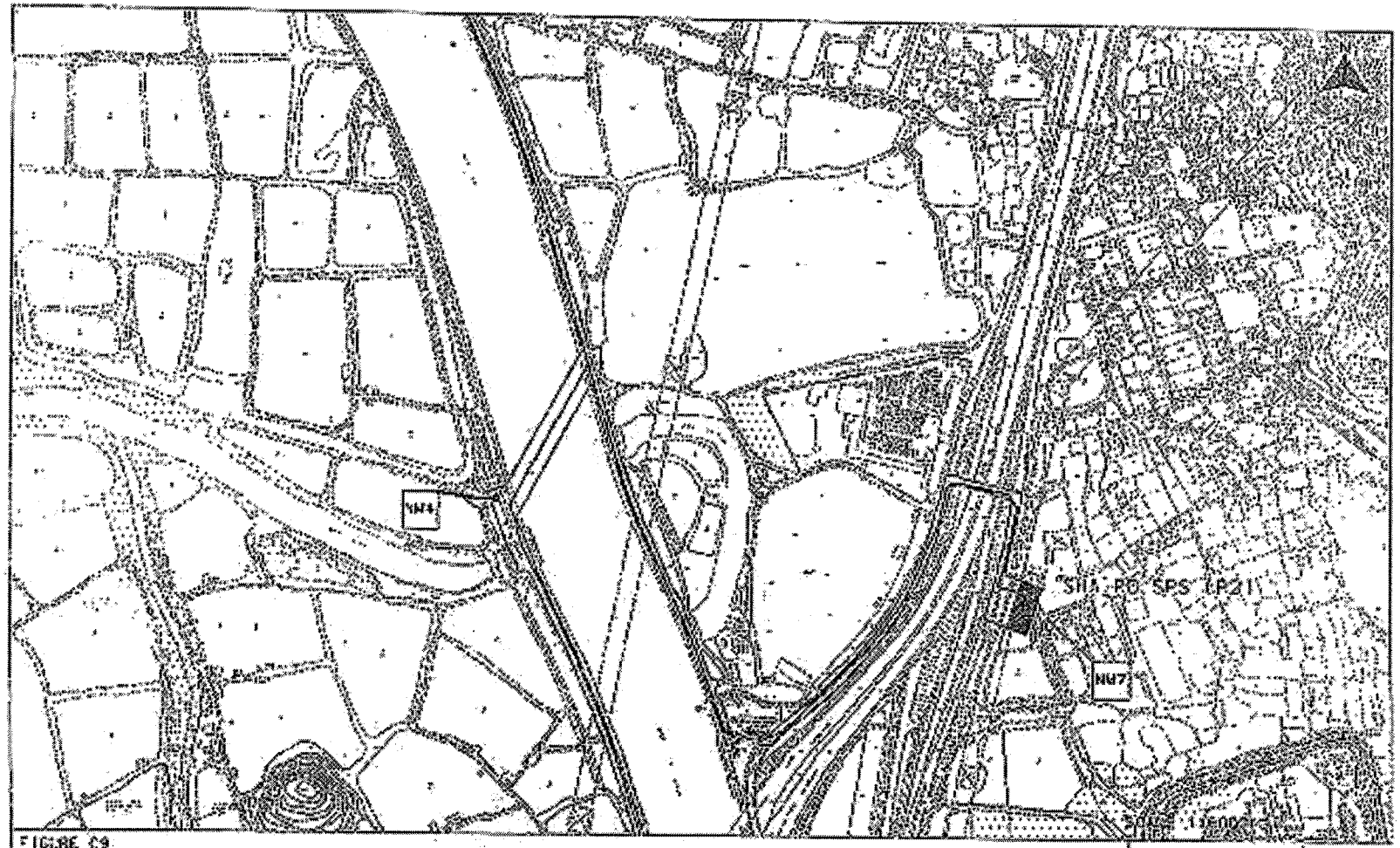


FIGURE 2.9

LOCATION OF NOISE MONITORING STATIONS (NM6 - NM7)

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	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	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	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	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	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	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	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.	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	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	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	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.	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	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.	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	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.	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	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	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	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	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	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.	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	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.	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 *Air Pollution Control (Construction Dust) Regulations*								
3.5	A1	**Site boundary and entrance** • 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		✓			*Part III, Clause 13 (c), Air Pollution Control (Construction Dust) Regulations*
3.5	A2	**Access Road** • 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		✓			*Part III, Clause 14, (b), Air Pollution Control (Construction Dust) Regulations*
3.5	A3	**Stockpiling of Dusty Materials** • 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		✓			*Part IV, Clause 18, (a, b & c), Air Pollution Control (Construction Dust) Regulations*
3.5	A4	**Loading, unloading or transfer of dusty materials** • 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		✓			*Part IV, Clause 19, Air Pollution Control (Construction Dust) Regulations*
3.5	A5	**Use of vehicles** • 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		✓			*Part IV, Clause 21, (1), Air Pollution Control (Construction*

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	• 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		✓			*Dust) Regulations Part IV, Clause 21, (2), Air Pollution Control (Construction Dust) Regulations*
3.5	A7	**Power-driven drilling, and cutting** • 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		✓			*Part IV, Clause 22, Air Pollution Control (Construction Dust) Regulations*
3.5	A8	**Excavation and earth moving** • 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		✓			*Part IV, Clause 24, Air Pollution Control (Construction Dust) Regulations*
3.5	A9	**Construction of the superstructure of a building** • 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 a 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		✓			*Part I, Clause 6, (a), Air Pollution Control (Construction Dust) Regulations*
3.5	A10	• 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		✓			*Part I, Clause 6, (b), Air Pollution Control (Construction Dust) Regulations*

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	***General Site Clearance – Demolition Works*** • Use of quiet PME which meet the SWLs taken from British Standard, *Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997 (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		✓			*Annex 5 of EIAO-TM*
4.7.1	B2	***Construction of Sewage Pumping Stations P1, P2 & P3*** • Use of quiet PME which meet the SWLs taken from British Standard, *Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997*,	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		✓			*Annex 5 of EIAO-TM*
		• 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		✓			*Annex 5 of EIAO-TM*
4.7.1	B3	***Sewers and Rising Mains using Open Trench Method*** • Use of quiet PME which meet the SWLs taken from British Standard, *Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997*,	To control potential noise impacts during excavation works.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			*Annex 5 of EIAO-TM*
4.7.1	B4	• 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		✓			
4.7.1	B5	• 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		✓			

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.	
		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.	activities.	line of sight. Throughout the full duration of the road opening activities.						
		Sewers and Rising Mains using Pipe Jacking Method								
4.7.1	B6	• Use of quiet PME which meet the SWLs taken from British Standard, *Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997*,	To control potential noise impacts from PME during construction works	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			*Annex 5 of EIAO-TM*
		Road Pavement and Finishes								
4.7.1	B7	• Use of quiet PME which meet the SWLs taken from British Standard, *Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997*,	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		✓			*Annex 5 of EIAO-TM*
		WATER QUALITY - *Construction Phase*								
		No water quality monitoring is required under this study.								
		WASTE - *Construction Phase*								
6.6.2	D1	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 *(Waste Disposal (Chemical Waste) (General) Regulations); and* • Dumping Licence (*Land (Miscellaneous Provisions) Ordinance (Cap 28))*	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	✓	✓			*Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste)(General) Regulation (Cap 354), the Land (Miscellaneous Provisions) Ordinance (Cap 28))*

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	***Chemical Waste*** Chemical waste that is produced, as defined by Schedule 1 of the *Waste Disposal (Chemical Waste) (General) Regulation*, 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. **Storage, Packaging and Labelling of Chemical Waste**	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		✓			*Part II, (6) Waste Disposal (Chemical Waste) (General) Regulation*
6.6.2	D3	Containers used for storage of chemical wastes should: • 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		✓			*Part IV, (9, 10, 11 & 12) Waste Disposal (Chemical Waste) (General) Regulation*
6.6.2	D4	**Storage of chemical waste** The storage area for chemical wastes should: • 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		✓			*Part IV, (13,14, 15, 16, 17, & 18) Waste Disposal (Chemical Waste) (General) Regulation*

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								
		Disposal of chemical waste • The Contractor should ensure that the disposal of chemical waste is via a licensed Waste Collector and in accordance with the *Waste Disposal (Chemical Waste) (General) Regulations.*	To control the disposal of chemical waste in accordance with the Regulations.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			*Part IV, (20 -25) Waste Disposal (Chemical Waste) (General) Regulation*
		Management of Waste Disposal								
6.6.2	D5	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 *Land (Miscellaneous Provisions) Ordinance (Cap28)* and the *Works Bureau Technical Circular No. 5/99.*	To monitor the disposal of C&DM and solid wastes at public filling facilities and landfills and to control fly-tipping.	To be implemented at all worksites throughout the full duration of the construction phase.	The Engineer/ Contractor		✓			*Land (Miscellaneous Provisions) Ordinance (Cap 295) and Works Bureau Technical Circular No. 5/99.*
		LAND CONTAMINATION- *Construction Phase*								
7.5.6	E1	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	To determine the presence of soil and groundwater contamination and remedy any potential concerns to acceptable levels.	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.	✓				*EIAO TM Annex 19/3.1.1 & 3.1.2*

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	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	To schedule construction works in order to minimise potential impacts to winter visiting birds. To be confirmed by regular site inspections.	At identified location (*Figure 8.7a*) for the full duration of the construction contract.	The Contractor		✓			
8.7.2	F2	***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.	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	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. The site inspections shall check and report the number of workfronts and implementation of	To schedule noisy construction activities to minimise potential impacts to winter visiting birds.	Work fronts other than identified sections within WBA & WCA (see *Figure 8.7a* 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	
		mitigation measures (i.e. erection of movable noise barriers with a suitable footing along the sites) in the monthly EM&A reports.								
8.7.3	F5	***Mitigation Measures Adopted*** Quietened construction plant and equipment (as shown in *Table F2*) 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		✓			*Air Pollution Control*

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: • existing landscape elements (such as mature trees), transplantation of valuable trees, new compensatory planting		project.						
		• 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	**EM&A REQUIEMENTS - *Construction Phase*** *Air Quality* 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. • 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		✓			*Air Pollution Control (Construction Dust) Regulations*

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	• at any additional locations, where considered necessary, in agreement with EPD. *Construction Noise* 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. • (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		✓			*Noise Control Ordinance*

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

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

Item	Aspect	Description of Equipment	Serial No.	Date of Calibration	Date of Next Calibration
1*	Air	Greasby Anderson GMWS2310 High Volume Sampler	AM1	21 Aug 06	21 Nov 06
2*		Greasby Anderson GMWS2310 High Volume Sampler	AM7	21 Aug 06	21 Nov 06
3	Noise	Bruel & Kjaer 4231 Acoustical Calibrator	2292167	13 Apr 06	13 Apr 07
4		Bruel & Kjaer 2238 Integrating Sound Level Meter	2285721	24 Apr 06	24 Apr 07

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

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Nam Sang Wai
Location ID : AM 1

Date of Calibration: 21-Aug-06
Next Calibration Date: 21-Nov-06
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1004	Corrected Pressure (mm Hg)	753
Temperature (°C)	28.9	Temperature (K)	302

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	1.54431
Model->	515N	Qstd Intercept ->	-0.01988
Serial # ->	801-1571		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	4.9	4.9	9.8	2.018	59	57.97	Slope = 44.9225
13	4.2	4.2	8.4	1.869	51	50.11	Intercept = -33.5569
10	3.3	3.4	6.7	1.670	43	42.25	Corr. coeff. = 0.9966
7	2.5	2.6	5.1	1.459	30	29.48	
5	1.1	1.2	2.3	0.984	12	11.79	

Calculations :

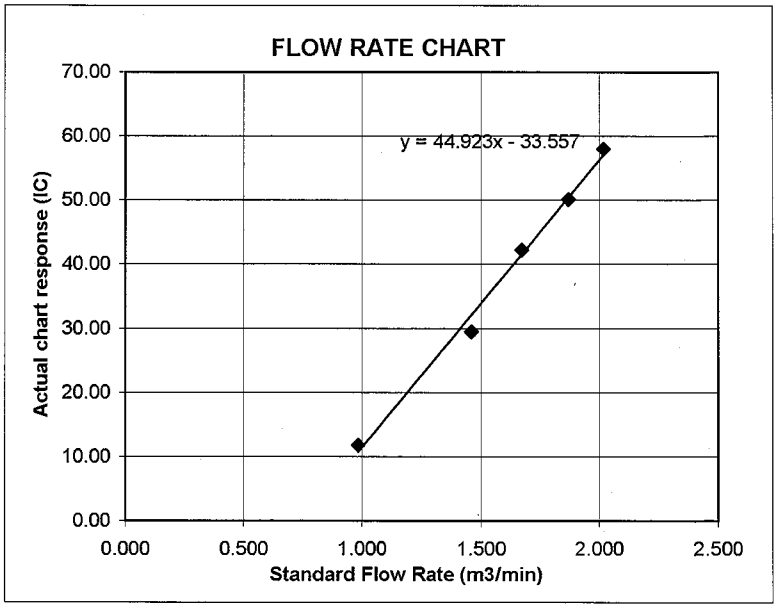
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Nam Sang Wai
Location ID : AM 7

Date of Calibration: 21-Aug-06
Next Calibration Date: 21-Nov-06
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1004	Corrected Pressure (mm Hg)	753
Temperature (°C)	28.9	Temperature (K)	302

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	1.54431
Model->	515N	Qstd Intercept ->	-0.01988
Serial # ->	0159		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected
18	4.4	4.4	8.8	1.913	43	42.25
13	3.5	3.5	7	1.707	33	32.42
10	2.5	2.5	5	1.445	24	23.58
7	1.9	1.9	3.8	1.261	19	18.67
5	1.2	1.2	2.4	1.005	11	10.81

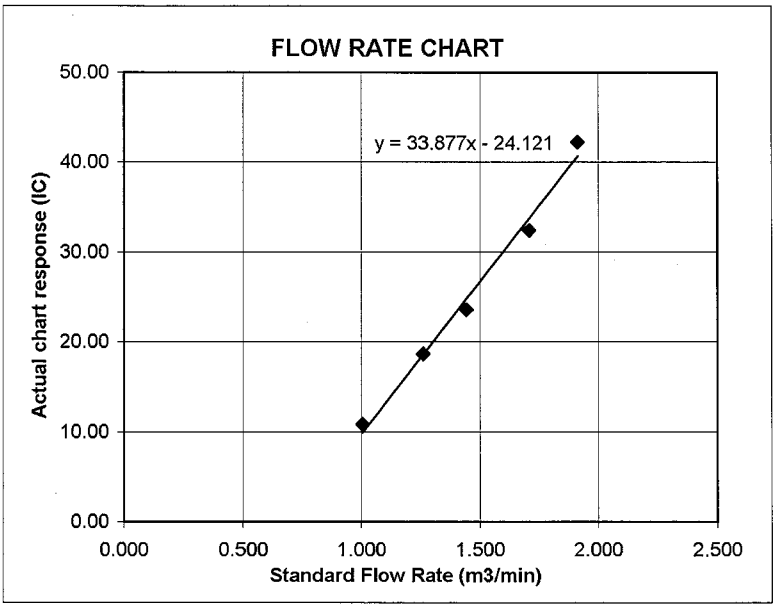
LINEAR REGRESSION
Slope = 33.8767
Intercept = -24.1214
Corr. coeff. = 0.9945

Calculations :
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



Annex I

Meteorological Data

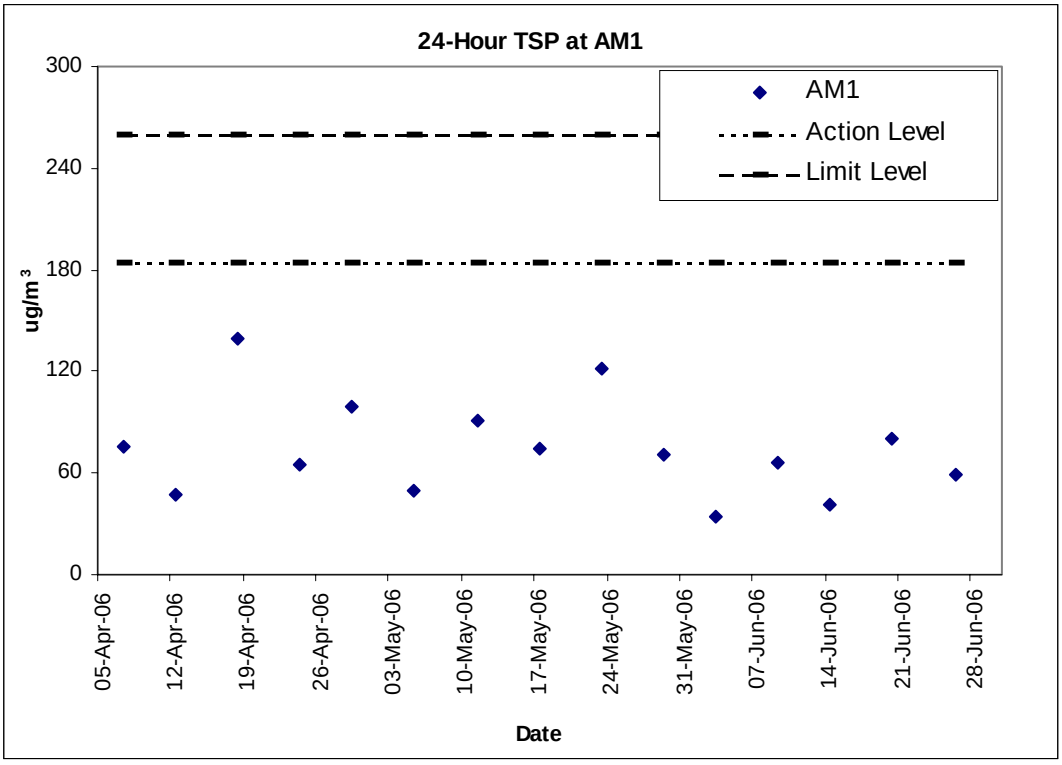
Meteorological Data Extracted From The HK Observatory at Lau Fau Shan Weather Station

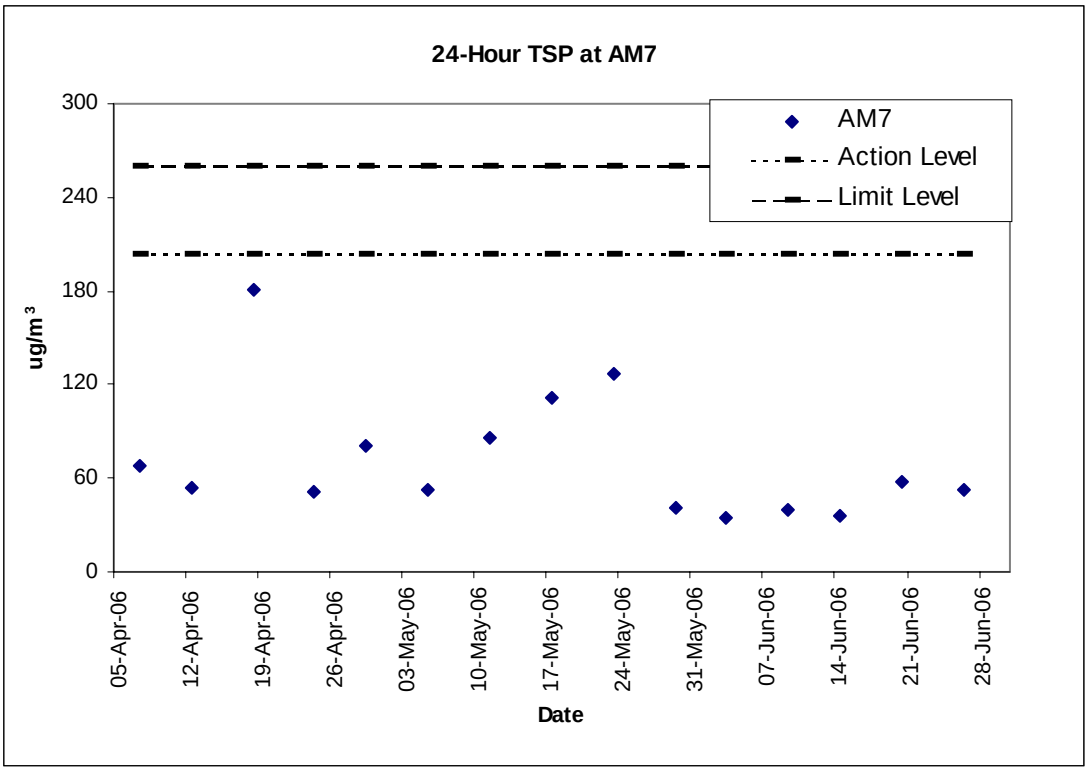
Date		Weather	Total Rainfall (mm)	Mean Air Temp. (^{o}C)	Wind Speed (km/h)	Mean Relative (%)	Wind Direction
1-Aug-06	Tue	fine/ hot/ showers/ moderate	-	29	5	85	E/SE
2-Aug-06	Wed	cloudy/ showers	26	26.7	30	95	E
3-Aug-06	Thu	cloudy/ rain/ gale	54.2	25.6	40	90	E/SE
4-Aug-06	Fri	cloudy/ showers/ strong	18	27.7	25	85	SE
5-Aug-06	Sat	cloudy/ showers/ sunny/ moderate	5.9	27.4	11	30	E/SE
6-Aug-06	Sun	sunny/ showers	4.6	26.7	12	90	E/SE
7-Aug-06	Mon	fine/ hot	0.1	27.5	6	80	W
8-Aug-06	Tue	fine/ hot/ showers	-	27.6	6	85	SE/S
9-Aug-06	Wed	fine/ hot/ haze/ showers	Trace	28.6	6	85	SW/W
10-Aug-06	Thu	cloudy/ rain/ moderate	45.6	26.5	10	97	SW/W
11-Aug-06	Fri	cloudy/ showers/ moderate	3.7	28.3	15	80	E/SE
12-Aug-06	Sat	fine/ showers/ moderate	Trace	29.1	9	90	E/SE
13-Aug-06	Sun	fine/ hot	-	29.7	18	75	SE
14-Aug-06	Mon	fine/ showers/ hot/ moderate	-	29.6	9	90	E
15-Aug-06	Tue	fine/ hot/ showers/ moderate	-	28.7	12	75	E
16-Aug-06	Wed	fine/ hot/ showers/ moderate	-	29	9	80	SE/S
17-Aug-06	Thu	fine/ hot/ showers	-	29.3	9	85	SW/W
18-Aug-06	Fri	fine/ haze/ hot/ showers/ moderate	Trace	28.4	12	80	SW/W
19-Aug-06	Sat	fine/ hazy/ hot/ showers/ moderate	51.1	26.7	5	95	NW/N
20-Aug-06	Sun	fine/ hot/ hazy	0.1	28.1	12	90	SE/S
21-Aug-06	Mon	hazy/ hot/ showers/ sunny	-	29.5	9	90	E
22-Aug-06	Tue	fine/ hot/ hazy/ showers/moderate	Trace	29.2	9	90	E/SE
23-Aug-06	Wed	fine/ hazy/ showers/ moderate	-	29.2	9	85	SE/S
24-Aug-06	Thu	cloudy/thunderstorms/showers/moderate	38.8	27.6	12	90	E/SE
25-Aug-06	Fri	cloudy/ showers/ moderate	20.6	27.8	18	95	SE/S
26-Aug-06	Sat	cloudy/ showers/ sunny/ moderate	2.2	27.9	15	95	SE/S
27-Aug-06	Sun	sunny/ showers	2.3	28.1	9	85	E/SE
28-Aug-06	Mon	sunny/thunderstorms/moderate/showers	2.2	28.8	15	85	E/SE
29-Aug-06	Tue	fine/ showers/ moderate	Trace	29.4	21	65	SE/S
30-Aug-06	Wed	fine/ hot/ showers/ moderate	Trace	29.2	21	85	W
31-Aug-06	Thu	fine/ hot/ moderate	-	29.7	14	85	SW/W

Annex J

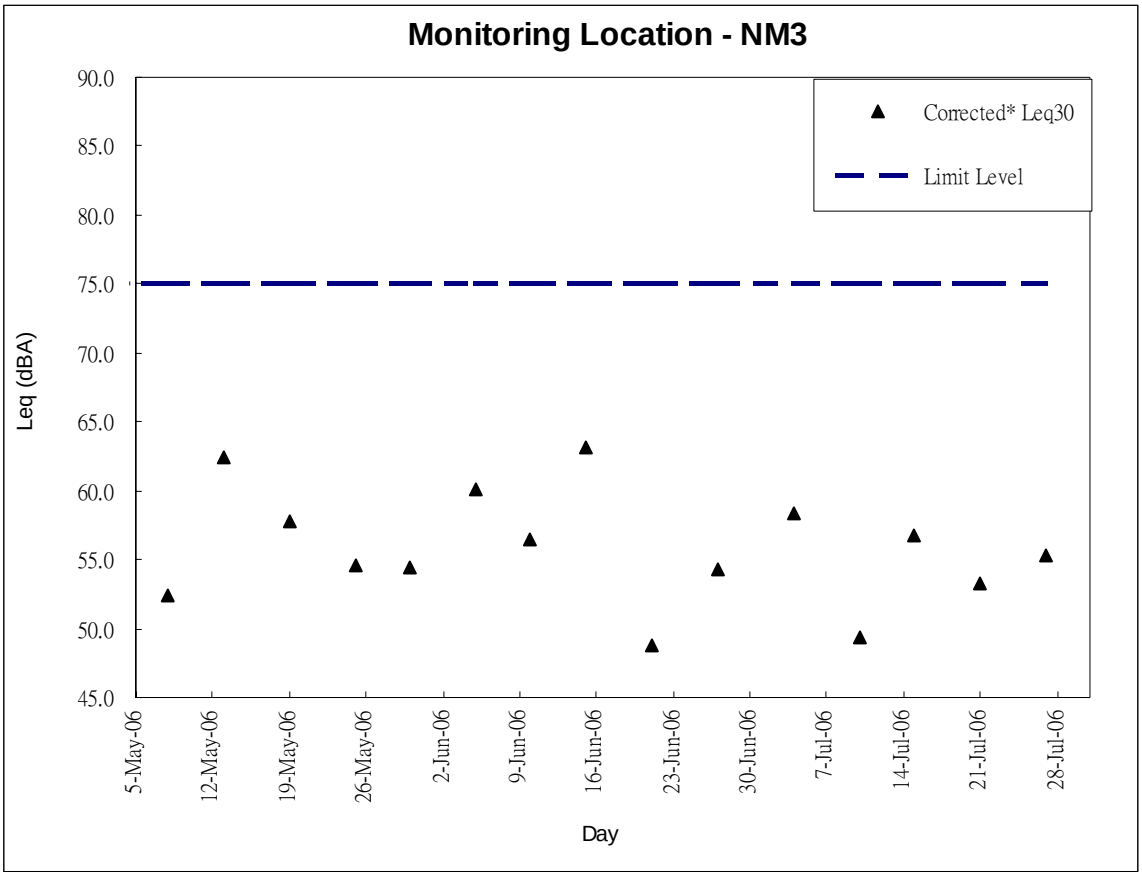
Graphical Plots of Air Quality and Noise Monitoring Results

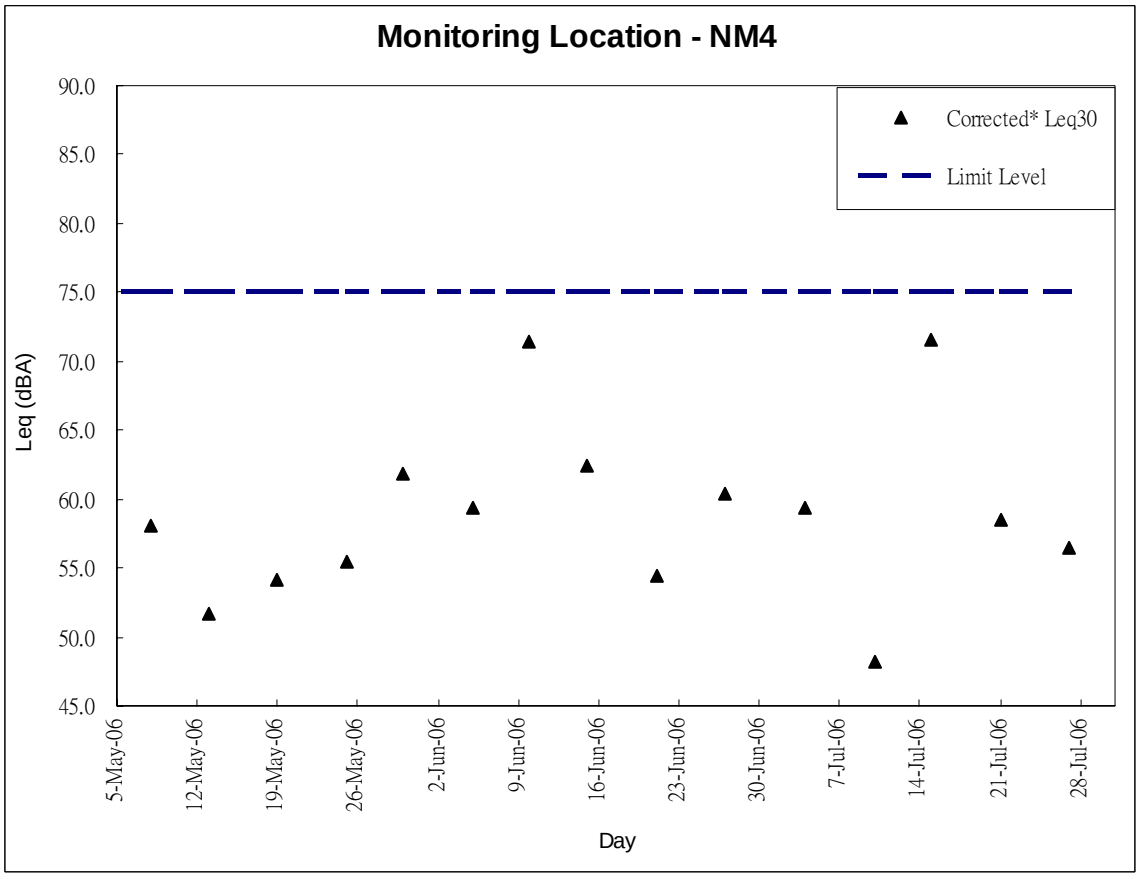
Air Quality Monitoring Results





Construction Noise Monitoring Results





Annex K

Proforma of Site Inspection and IEC Audit in August 2006

AUES

Site Inspection Checklist (SF-17)

Project	DC/2005/02 Construction of Sewers, Rising Mains & Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long	**Contractor:**	Leader Civil Engineering Corp. Ltd
		Engineer:	Babtie Asia Ltd
Inspected by:	**ET Auditor:** Ben Tam	**IEC:**	Mott Connell Ltd
	Contractor Rep: Patrick Wong	**Env. Team:**	Action-United Env. Services & Consulting
	IEC's Rep: Nil	**Inspection Date & Time:**	1 August 2006 at 09:30am
	RE's Rep: Mr. S L Hui	**Inspection Ref:**	EM&A (01August06)

General Meteorological Information

Weather [✓] Sunny [ ] Fine [ ] Cloudy [ ] Overcast [ ] Drizzle [ ] Rain [ ] Hazy

Temp: [28] °C

Humidity: [ ] High (RH > 90%) [✓] Moderate (90% > RH > 50%) [ ] Low (RH < 50%)

Wind: [ ] Calm [✓] Light [ ] Breeze [ ] Strong

Air Quality	**Yes**	**No**	**NA**	**NC**	**Follow-up**	**Remarks**
Is hoarding of not less than 2.4m provided?	✓					
Are site vehicles traveling within controlled speed limit?	✓					
Are site vehicles movement confined to designated haul roads?	✓					
Are public roads outside site exits kept clean and free from dust?	✓					
Are haul roads and unpaved surfaces watered regularly to avoid dust generation?	✓					
Are there wheel washing facilities provided at site exits?	✓					
Is water spraying used during the main dust-generating activities?	✓					
Are the excavated or stockpile of dusty materials kept wet?	✓					
Is exposed area of ground covered or watered frequently?	✓					
Are load on vehicles covered by clean impervious sheeting?			✓			
Are vehicles and equipment switched off while not in use?	✓					
Is smoky emissions from plants/equipment avoided?	✓					
Is open burning avoided?	✓					

Observable dust sources [ ] Wind erosion [ ] Vehicle/equipment movements [ ] Loading/unloading of materials [✓] Others Nil

Construction Noise

Are the construction works scheduled to minimize noise nuisance?	✓					
Are the works or equipment sited to minimize noise nuisance?	✓					
Are all plant and equipment well maintained and in good operating condition?	✓					
Is idle equipment turned off or throttled down?	✓					
Is powered mechanical equipment covered or shielded by appropriate acoustic materials?	✓					
Is silenced equipment used where appropriate?	✓					
Are noise enclosures or noise barriers used where necessary?	✓					
Does specified equipment has valid noise label?	✓					
Are Construction Noise Permits (CNPs) available for inspection?			✓			

Major Noise Source [ ] Traffic [✓] Construction activities inside of site [ ] Construction activities outside of site [ ] Others

Water Quality & Drainage		Yes	No	NA	NC	Follow-up	Remarks
Is a wastewater discharge license obtained for the Project?		✓					
Is site effluent discharged in accordance with the discharge license?		✓					
Is the discharge of silty water avoided?		✓					
Is drainage adequate?		✓					
Is drainage system well maintained?		✓					
Are there temporary ditches for runoff discharge into appropriate watercourse?				✓			
Are there sedimentation tanks for settling runoff prior to discharge?				✓			
Are the sedimentation tanks:	Constructed of pre-formed individual cells?			✓			
	With adequate capacity?			✓			
	Free from silt and sediment?			✓			
Are there neutralization tanks for concrete batching/mixing discharge?				✓			
Are there oil interceptors in drainage system?				✓			
Is wheel wash facility provided at every site exit?		✓					
Are vehicles and plant cleaned of earth, mud & debris before leaving the site?		✓					
Are wheel washing facilities regularly inspected and maintained?				✓			
Are toilets provided on site? If so, are they properly maintained?		✓					
Are manholes covered and sealed?		✓					
Is oil leakage or spillage avoided?		✓					
Waste Management and Potential Land Contamination							
General Refuse:	Are receptacles (rubbish bins) available?	✓					
	Is there regular and proper disposal?	✓					
	Is proper sorting and recycling implemented?	✓					
Construction Waste:	Is generation of construction waste minimized?	✓					
	Is waste sorting implemented on site?	✓					
	Is construction waste reused where practicable?	✓					
	Is construction waste properly disposed of?	✓					
	Are disposal records available for inspection?	✓					
Chemical waste/waste oil	Is there designated storage area?			✓			
	Is chemical waste stored properly?			✓			
	Is there proper disposal?			✓			
	Is chemical waste license available for inspection?			✓			
Excavated Materials	Do excavated materials appear uncontaminated?	✓					
	Are appropriate procedures followed if contaminated materials exist?	✓					
	Are disposal records available for inspection?	✓					
Chemical/Fuel	Is chemical/fuel stored in bunded area?	✓					
	Is bund capacity adequate (>110% of the largest tank)?	✓					
	Are storage areas lockable?	✓					
Is foam, oil, grease or other objectionable matters in water or nearby drains of sewer avoided?						✓	Remark 1

Remarks:

Previous Audit Follow-up:

Nil

Observations:

1. Stagnant water was cumulated in the drip tray at portion F2A and FA1, contractor should be clean regularly after the rainfall.

Signatures:

Env. Auditor	Contractor's Representative	IC(E) Auditor	Resident Site Staff
			
Name: K F Tam	Name:	Name:	Name:

AUES

Site Inspection Checklist (SF-17)

Project	DC/2005/02 Construction of Sewers, Rising Mains & Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long		**Contractor:**	Leader Civil Engineering Corp. Ltd	
			Engineer:	Babtie Asia Ltd	
Inspected by:	**ET Auditor:**	Ben Tam	**IEC:**	Mott Connell Ltd	
	Contractor Rep:	Patrick Wong	**Env. Team:**	Action-United Env. Services & Consulting	
	IEC's Rep:	Nil	**Inspection Date & Time:**	8 August 2006 at 09:30am	
	RE's Rep:	Mr. S L Hui	**Inspection Ref:**	EM&A (08August06)	

General Meteorological Information

Weather [✓] Sunny [ ] Fine [ ] Cloudy [ ] Overcast [ ] Drizzle [ ] Rain [ ] Hazy

Temp: [28] °C

Humidity: [ ] High (RH > 90%) [✓] Moderate (90% > RH > 50%) [ ] Low (RH < 50%)

Wind: [ ] Calm [✓] Light [ ] Breeze [ ] Strong

Air Quality	**Yes**	**No**	**NA**	**NC**	**Follow-up**	**Remarks**
Is hoarding of not less than 2.4m provided?	✓					
Are site vehicles traveling within controlled speed limit?	✓					
Are site vehicles movement confined to designated haul roads?	✓					
Are public roads outside site exits kept clean and free from dust?	✓					
Are haul roads and unpaved surfaces watered regularly to avoid dust generation?	✓					
Are there wheel washing facilities provided at site exits?	✓					
Is water spraying used during the main dust-generating activities?	✓					
Are the excavated or stockpile of dusty materials kept wet?	✓					
Is exposed area of ground covered or watered frequently?	✓					
Are load on vehicles covered by clean impervious sheeting?			✓			
Are vehicles and equipment switched off while not in use?	✓					
Is smoky emissions from plants/equipment avoided?	✓					
Is open burning avoided?	✓					

Observable dust sources [ ] Wind erosion [ ] Vehicle/equipment movements [ ] Loading/unloading of materials [✓] Others Nil

Construction Noise

Are the construction works scheduled to minimize noise nuisance?	✓					
Are the works or equipment sited to minimize noise nuisance?	✓					
Are all plant and equipment well maintained and in good operating condition?	✓					
Is idle equipment turned off or throttled down?	✓					
Is powered mechanical equipment covered or shielded by appropriate acoustic materials?	✓					
Is silenced equipment used where appropriate?	✓					
Are noise enclosures or noise barriers used where necessary?	✓					
Does specified equipment has valid noise label?	✓					
Are Construction Noise Permits (CNPs) available for inspection?			✓			

Major Noise Source [ ] Traffic [✓] Construction activities inside of site [ ] Construction activities outside of site [ ] Others

Water Quality & Drainage		Yes	No	NA	NC	Follow-up	Remarks
Is a wastewater discharge license obtained for the Project?		✓					
Is site effluent discharged in accordance with the discharge license?		✓					
Is the discharge of silty water avoided?		✓					
Is drainage adequate?		✓					
Is drainage system well maintained?		✓					
Are there temporary ditches for runoff discharge into appropriate watercourse?				✓			
Are there sedimentation tanks for settling runoff prior to discharge?				✓			
Are the sedimentation tanks:	Constructed of pre-formed individual cells?			✓			
	With adequate capacity?			✓			
	Free from silt and sediment?			✓			
Are there neutralization tanks for concrete batching/mixing discharge?				✓			
Are there oil interceptors in drainage system?				✓			
Is wheel wash facility provided at every site exit?		✓					
Are vehicles and plant cleaned of earth, mud & debris before leaving the site?		✓					
Are wheel washing facilities regularly inspected and maintained?				✓			
Are toilets provided on site? If so, are they properly maintained?		✓					
Are manholes covered and sealed?		✓					
Is oil leakage or spillage avoided?		✓					
Waste Management and Potential Land Contamination							
General Refuse:	Are receptacles (rubbish bins) available?	✓					
	Is there regular and proper disposal?	✓					
	Is proper sorting and recycling implemented?	✓					
Construction Waste:	Is generation of construction waste minimized?	✓					
	Is waste sorting implemented on site?	✓					
	Is construction waste reused where practicable?	✓					
	Is construction waste properly disposed of?	✓					
	Are disposal records available for inspection?	✓					
Chemical waste/waste oil	Is there designated storage area?			✓			
	Is chemical waste stored properly?			✓			
	Is there proper disposal?			✓			
	Is chemical waste license available for inspection?			✓			
Excavated Materials	Do excavated materials appear uncontaminated?	✓					
	Are appropriate procedures followed if contaminated materials exist?	✓					
	Are disposal records available for inspection?	✓					
Chemical/Fuel	Is chemical/fuel stored in bunded area?	✓					
	Is bund capacity adequate (>110% of the largest tank)?	✓					
	Are storage areas lockable?	✓					
Is foam, oil, grease or other objectionable matters in water or nearby drains of sewer avoided?		✓					Remark 1

Remarks:

Previous Audit Follow-up:

1. Stagnant water was cleaned in the drip tray at portion F2A and FA1.

Observations:

Nil

Signatures:

Env. Auditor	Contractor's Representative	IC(E) Auditor	Resident Site Staff
			
Name: K F Tam	Name:	Name:	Name:

AUES

Site Inspection Checklist (SF-17)

Project	DC/2005/02 Construction of Sewers, Rising Mains & Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long	**Contractor:**	Leader Civil Engineering Corp. Ltd
		Engineer:	Babtie Asia Ltd
Inspected by:	**ET Auditor:** Ben Tam	**IEC:**	Mott Connell Ltd
	Contractor Rep: Patrick Wong	**Env. Team:**	Action-United Env. Services & Consulting
	IEC's Rep: Nil	**Inspection Date & Time:**	18 August 2006 at 09:30am
	RE's Rep: Mr. S L Hui	**Inspection Ref:**	EM&A (18August06)

General Meteorological Information

Weather [✓] Sunny [ ] Fine [ ] Cloudy [ ] Overcast [ ] Drizzle [ ] Rain [ ] Hazy

Temp: [32] °C

Humidity: [ ] High (RH > 90%) [✓] Moderate (90% > RH > 50%) [ ] Low (RH < 50%)

Wind: [ ] Calm [✓] Light [ ] Breeze [ ] Strong

Air Quality	Yes	No	NA	NC	Follow-up	Remarks
Is hoarding of not less than 2.4m provided?	✓					
Are site vehicles traveling within controlled speed limit?	✓					
Are site vehicles movement confined to designated haul roads?	✓					
Are public roads outside site exits kept clean and free from dust?	✓					
Are haul roads and unpaved surfaces watered regularly to avoid dust generation?	✓					
Are there wheel washing facilities provided at site exits?	✓					
Is water spraying used during the main dust-generating activities?	✓					
Are the excavated or stockpile of dusty materials kept wet?	✓					
Is exposed area of ground covered or watered frequently?	✓					
Are load on vehicles covered by clean impervious sheeting?			✓			
Are vehicles and equipment switched off while not in use?	✓					
Is smoky emissions from plants/equipment avoided?	✓					
Is open burning avoided?	✓					

Observable dust sources: [ ] Wind erosion [ ] Vehicle/equipment movements [ ] Loading/unloading of materials [✓] Others Nil

Construction Noise

Are the construction works scheduled to minimize noise nuisance?	✓					
Are the works or equipment sited to minimize noise nuisance?	✓					
Are all plant and equipment well maintained and in good operating condition?	✓					
Is idle equipment turned off or throttled down?	✓					
Is powered mechanical equipment covered or shielded by appropriate acoustic materials?	✓					
Is silenced equipment used where appropriate?	✓					
Are noise enclosures or noise barriers used where necessary?	✓					
Does specified equipment has valid noise label?	✓					
Are Construction Noise Permits (CNPs) available for inspection?			✓			

Major Noise Source: [ ] Traffic [✓] Construction activities inside of site [ ] Construction activities outside of site [ ] Others

Water Quality & Drainage		Yes	No	NA	NC	Follow-up	Remarks
Is a wastewater discharge license obtained for the Project?		✓					
Is site effluent discharged in accordance with the discharge license?		✓					
Is the discharge of silty water avoided?		✓					
Is drainage adequate?		✓					
Is drainage system well maintained?		✓					
Are there temporary ditches for runoff discharge into appropriate watercourse?		✓					
Are there sedimentation tanks for settling runoff prior to discharge?		✓					
Are the sedimentation tanks:	Constructed of pre-formed individual cells?					✓	Remarks 1
	With adequate capacity?					✓	Remarks 1
	Free from silt and sediment?					✓	Remarks 1
Are there neutralization tanks for concrete batching/mixing discharge?				✓			
Are there oil interceptors in drainage system?				✓			
Is wheel wash facility provided at every site exit?		✓					
Are vehicles and plant cleaned of earth, mud & debris before leaving the site?		✓					
Are wheel washing facilities regularly inspected and maintained?				✓			
Are toilets provided on site? If so, are they properly maintained?		✓					
Are manholes covered and sealed?		✓					
Is oil leakage or spillage avoided?		✓					
Waste Management and Potential Land Contamination							
General Refuse:	Are receptacles (rubbish bins) available?	✓					
	Is there regular and proper disposal?	✓					
	Is proper sorting and recycling implemented?	✓					
Construction Waste:	Is generation of construction waste minimized?	✓					
	Is waste sorting implemented on site?	✓					
	Is construction waste reused where practicable?	✓					
	Is construction waste properly disposed of?	✓					
	Are disposal records available for inspection?	✓					
Chemical waste/waste oil	Is there designated storage area?			✓			
	Is chemical waste stored properly?			✓			
	Is there proper disposal?			✓			
	Is chemical waste license available for inspection?			✓			
Excavated Materials	Do excavated materials appear uncontaminated?	✓					
	Are appropriate procedures followed if contaminated materials exist?	✓					
	Are disposal records available for inspection?	✓					
Chemical/Fuel	Is chemical/fuel stored in bunded area?	✓					
	Is bund capacity adequate (>110% of the largest tank)?	✓					
	Are storage areas lockable?	✓					
Is foam, oil, grease or other objectionable matters in water or nearby drains of sewer avoided?		✓					

Remarks:

Previous Audit Follow-up:

Nil

Observations:

1. Discharge water was visually look a little bit turbid in color, Contractor should be check the discharged point everyday to make sure that the sedimentation tanks operated regularly.

Signatures:

Env. Auditor	Contractor's Representative	IC(E) Auditor	Resident Site Staff
			
Name: K F Tam	Name:	Name:	Name:

AUES

Site Inspection Checklist (SF-17)

Project	DC/2005/02 Construction of Sewers, Rising Mains & Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long	**Contractor:**	Leader Civil Engineering Corp. Ltd
		Engineer:	Babtie Asia Ltd
Inspected by:	**ET Auditor:** Ben Tam	**IEC:**	Mott Connell Ltd
	Contractor Rep: Patrick Wong	**Env. Team:**	Action-United Env. Services & Consulting
	IEC's Rep: Nil	**Inspection Date & Time:**	22 August 2006 at 09:30am
	RE's Rep: Mr. S L Hui	**Inspection Ref:**	EM&A (22August06)

General Meteorological Information

Weather [✓] Sunny [ ] Fine [ ] Cloudy [ ] Overcast [ ] Drizzle [ ] Rain [ ] Hazy

Temp: [30] °C

Humidity: [ ] High (RH > 90%) [✓] Moderate (90% > RH > 50%) [ ] Low (RH < 50%)

Wind: [ ] Calm [✓] Light [ ] Breeze [ ] Strong

Air Quality	Yes	No	NA	NC	Follow-up	Remarks
Is hoarding of not less than 2.4m provided?	✓					
Are site vehicles traveling within controlled speed limit?	✓					
Are site vehicles movement confined to designated haul roads?	✓					
Are public roads outside site exits kept clean and free from dust?	✓					
Are haul roads and unpaved surfaces watered regularly to avoid dust generation?	✓					
Are there wheel washing facilities provided at site exits?	✓					
Is water spraying used during the main dust-generating activities?	✓					
Are the excavated or stockpile of dusty materials kept wet?	✓					
Is exposed area of ground covered or watered frequently?	✓					
Are load on vehicles covered by clean impervious sheeting?			✓			
Are vehicles and equipment switched off while not in use?	✓					
Is smoky emissions from plants/equipment avoided?	✓					
Is open burning avoided?	✓					

Observable dust sources [ ] Wind erosion [ ] Vehicle/equipment movements [ ] Loading/unloading of materials [✓] Others Nil

Construction Noise

Are the construction works scheduled to minimize noise nuisance?	✓					
Are the works or equipment sited to minimize noise nuisance?	✓					
Are all plant and equipment well maintained and in good operating condition?	✓					
Is idle equipment turned off or throttled down?	✓					
Is powered mechanical equipment covered or shielded by appropriate acoustic materials?	✓					
Is silenced equipment used where appropriate?	✓					
Are noise enclosures or noise barriers used where necessary?	✓					
Does specified equipment has valid noise label?	✓					
Are Construction Noise Permits (CNPs) available for inspection?			✓			

Major Noise Source [ ] Traffic [✓] Construction activities inside of site [ ] Construction activities outside of site [ ] Others

Water Quality & Drainage		Yes	No	NA	NC	Follow-up	Remarks
Is a wastewater discharge license obtained for the Project?		✓					
Is site effluent discharged in accordance with the discharge license?		✓					
Is the discharge of silty water avoided?		✓					
Is drainage adequate?		✓					
Is drainage system well maintained?		✓					
Are there temporary ditches for runoff discharge into appropriate watercourse?		✓					
Are there sedimentation tanks for settling runoff prior to discharge?		✓					
Are the sedimentation tanks:	Constructed of pre-formed individual cells?	✓					Remarks 1
	With adequate capacity?	✓					Remarks 1
	Free from silt and sediment?	✓					Remarks 1
Are there neutralization tanks for concrete batching/mixing discharge?				✓			
Are there oil interceptors in drainage system?				✓			
Is wheel wash facility provided at every site exit?		✓					
Are vehicles and plant cleaned of earth, mud & debris before leaving the site?		✓					
Are wheel washing facilities regularly inspected and maintained?				✓			
Are toilets provided on site? If so, are they properly maintained?		✓					
Are manholes covered and sealed?		✓					
Is oil leakage or spillage avoided?		✓					
Waste Management and Potential Land Contamination							
General Refuse:	Are receptacles (rubbish bins) available?	✓					
	Is there regular and proper disposal?	✓					
	Is proper sorting and recycling implemented?	✓					
Construction Waste:	Is generation of construction waste minimized?	✓					
	Is waste sorting implemented on site?	✓					
	Is construction waste reused where practicable?	✓					
	Is construction waste properly disposed of?	✓					
	Are disposal records available for inspection?	✓					
Chemical waste/waste oil	Is there designated storage area?			✓			
	Is chemical waste stored properly?			✓			
	Is there proper disposal?			✓			
	Is chemical waste license available for inspection?			✓			
Excavated Materials	Do excavated materials appear uncontaminated?	✓					
	Are appropriate procedures followed if contaminated materials exist?	✓					
	Are disposal records available for inspection?	✓					
Chemical/Fuel	Is chemical/fuel stored in bunded area?	✓					
	Is bund capacity adequate (>110% of the largest tank)?	✓					
	Are storage areas lockable?	✓					
Is foam, oil, grease or other objectionable matters in water or nearby drains of sewer avoided?		✓					

Remarks:

Previous Audit Follow-up:

1. The sedimentation tank was in an operating condition during the time of inspection.

Observations:

Nil

Signatures:

Env. Auditor	Contractor's Representative	IC(E) Auditor	Resident Site Staff
			
Name: K F Tam	Name:	Name:	Name: