JOB NO.: TCS/00462/08

VERSION NO. 2

DRAINAGE SERVICES DEPARTMENT (DSD) CONTRACT NO. DE/2005/05

SUPPLY AND INSTALLATION OF E&M EQUIPMENTS FOR NAM SANG WAI, SHA PO AND KAM TIN SEWAGE PUMPING STATIONS

MONTHLY ENVIRONMENTAL MONITORING & AUDIT (EM&A) REPORT FOR APRIL 2009 (NO. 3)

PREPARED FOR

RYODEN ENGINEERING COMPANY LIMITED

Quality Index

Date	Reference No.	Certified By	Verified By
14 May 2009	TCS00462/08/600/R0015v2	Andrew Lau	Dr. Anne F Kerr

Environmental Team Leader | Independent Environmental Checker

Rev. No.	Date	Remarks
1	11 May 09	First Submission
2	14 May 09	Amended against IEC's comment on 12 May 2009

EXECUTIVE SUMMARY

ES01. Ryoden Engineering Company Limited has been awarded the DSD Contract No.: DE/2005/05 Supply and Installation of E&M Equipments for Nam Sang Wai, Sha Po and Kam Tin Sewage Pumping Stations. 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 Environmental Permit (EP-220/2005), EIA Report, EM&A Manual (under the DC/2005/02 Contract – Designated Element) and the Particular Specifications (PS).

ES02. Action-United Environmental Services and Consulting (AUES) has been commissioned by the Contractor to be an Environmental Team (ET) to implement the EM&A program throughout the construction period.

ES03. From the approved Baseline Monitoring Report (R0003 Revision 3), three nearest monitoring locations (AM5, AM6 and AM7) under the Contract DC/2005/02 would be adopted as the representative monitoring stations for this Project (Contract No.: DE/2005/05) which were agreed by the Engineer's Representative (ER) and the Independent Environmental Checker (IEC).

ES04. This is the **third** Monthly Environmental Monitoring and Audit (EM&A) Report for **April 2009 (No. 3)** presenting the EM&A program conducted from **1 to 30 April 2009** for the Contract No.: DE/2005/05. The EM&A program in **April 2009** covered air quality, construction noise and waste management.

BREACH OF ACTION AND LIMIT (AL) LEVELS

ES05. One Limit Level exceedance for 24-hour TSP monitoring was found at AM5 on 23 April 2009. ET had liaison with the Contractor provide information to conduct the investigation. Upon the report submission, the exceedance is still yet to conclude. However after the exceedance monitoring day, no further exceedance or dust complaint is recorded accordingly.

COMPLAINT LOG

ES06. No environmental complaint was received in this month.

NOTIFICATION OF ANY SUMMONS AND SUCCESSFUL PROSECUTION

ES07. There was no environmental summons or prosecution in this month.

REPORTING CHANGES

ES08. There are no changes to be reported in this month.

FUTURE KEY ISSUES

ES09. Construction activities to be undertaken in **May 2009** include lifting appliances, electrical works, penstock & screen and pipework installation at Sha Po and Kam Tin SPSs. Potential environmental impacts arising from the works include air quality, noise, construction waste and water quality. Environmental mitigation measures will be implemented and maintained as per the Mitigation Implementation Schedule.

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1.0 INTRODUCTION

1.01 Ryoden Engineering Company Limited has been awarded the DSD Contract No.: DE/2005/05 Supply and Installation of E&M Equipments for Nam Sang Wai, Sha Po and Kam Tin Sewage Pumping Stations, which forms part of the *Yuen Long and Kam Tin Sewerage and Sewage Disposal – PWP Item No. 215DS*. The Project is for the provision of the supply and installation of electrical and mechanical installation in **three** Sewage Pumping Stations (SPS), namely Nam Sang Wai Sewage Pumping Station, Sha Po Sewage Pumping Station and Kam Tin Sewage Pumping Station. Layout plan showing the site boundary and work areas are shown in **Annex A**.

1.02 This is the t**hird** Monthly Environmental Monitoring and Audit (EM&A) Report for **April 2009 (No. 3)** presenting the EM&A program conducted from **1 to 30 April 2009** for the Contract No.: DE/2005/05. The EM&A program in **April 2009** covered air quality, construction noise and waste management.

PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

1.03 The organization chart and lines of communication with respect to the on-site management structure of the Project is shown in **Annex B**. The construction program for this project is shown in **Annex C**

CONSTRUCTION ACTIVITIES UNDERTAKEN IN THIS MONTH

1.04 The major construction activities undertaken during this month under the *Environmental Permit (EP-220/2005)* were shown in the **Table 1-1**.

Table 1-1 Construction Activities in this Month

Sewage Pumping Station	Construction Activities in this Month
Nam Sang Wai	• No activity
Sha Po	• Building services and penstocks installation
Kam Tin	• Building services and penstocks installation

REPORT STRUCTURE

1.05 The EM&A report is structured into the following sections:

SECTION 1 **INTRODUCTION**
SECTION 2 **ENVIRONMENTAL STATUS**
SECTION 3 **SUMMARY OF EM&A REQUIREMENT**
SECTION 4 **STATUS OF ENVIRONMENTAL LICENSE AND PERMITS**
SECTION 5 **MONITORING METHODOLOGY AND RESULTS**
SECTION 6 **REPORT ON NON-COMPLIANCE (NC), COMPLAINT, NOTIFICATIONS OF SUMMONS (NOS) AND SUCCESSFUL PROSECUTIONS**
SECTION 7 **OTHERS**

2.0 ENVIRONMENTAL STATUS

WORK UNDERTAKEN IN THIS MONTH WITH ILLUSTRATIONS

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

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

Sewage Pumping Stations	Description of Construction Activities	Environmental Mitigation Measures	EM&A Ref.
Nam Sang Wai	• No activity as the site had not been handed over to the Contractor	• N/A	-
Sha Po	• Building services installation works at the	• Perform weekly inspection with ET and monthly audit • Conduct noise and dust monitoring as per EM&A • Implement trip-ticket system for waste disposal • Restrict open fires and provide fire fighting equipment in • Apply and obtain appropriate waste disposal licenses	H1 I1 & I2 D5 F9 D1
Kam Tin	• Building services installation works at the	• Maximize the use of quiet PME on site • Implement trip-ticket system for waste disposal • Restrict open fires and provide fire fighting equipment in • Conduct noise and dust monitoring as per EM&A • Perform weekly inspection with ET and monthly audit	B1, B2 D5 F9 I1 & I2 H1

PROJECT DRAWINGS

2.02 Drawings showing the work areas under EP-220/2005 and location of representative monitoring stations are presented in **Annex D**.

2.03 AM5, AM6 & AM7, are the nearest stations for 24-hour TSP monitoring and NM3, NM6 & NM7 are the nearest locations for construction noise monitoring locations for this Project (Contract No.: DE/2005/05) as agreed by the Engineer's Representative (ER) and the Independent Environmental Checker (IEC). Locations of the monitoring stations and description are summary in the **Table 2-2**.

Table 2-2 Description of the Monitoring Stations

Station ID	Nature of Premise	Nearest Sewage Pumping Station	Station Coordinates
AM5	Site Boundary in FKH	Sha Po	835121 N 823515 E
AM6	Site Boundary in KT	Kam Tin	833308 N 823987 E
AM7	Site Boundary in NSW	Nam Sang Wai	836171 N 822586 E
NM3	Village House in NSW	Nam Sang Wai	835808 N 822817 E
NM6	Village House in KT	Kam Tin	833288 N 823999 E
NM7	Village House in FKH	Sha Po	835121 N 823495 E

2.04 In this month, the impact monitoring was carried out at three designated air stations and noise monitoring locations according to the monitoring schedule.

3.0 SUMMARY OF EM&A REQUIREMENTS

MONITORING PARAMETERS

3.01 Environmental monitoring and audit requirements are set out in the EM&A Manual under the DC/2005/02 Contract – Designated Element. 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 EM&A Manual (under the DC/2005/02 Contract – Designated Element) are shown in **Table 3-1**.

Table 3-1 Summary of EM&A Requirements

Environmental Aspect	Monitoring Parameters
Air Quality	24-hour TSP
Construction Noise	Leq 30min 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 Locations	Action Level ($\mu g/m^3$)		Limit Level ($\mu g/m^3$)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
AM5	> 353	> 176	> 500	> 260
AM6	> 329	> 176	> 500	> 260
AM7	> 383	> 157	> 500	> 260

Table 3-3 Action and Limit Levels for Construction Noise

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

EVENT AND ACTION PLANS

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

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. The environmental implementation mitigation schedule as shown in **Annex F**.

ENVIRONMENTAL REQUIREMENTS IN CONTRACT DOCUMENTS

3.06 The environmental requirements in the contract documents conform to the requirements as stipulated in the project EP (EP-220/2005) and the EM&A Manual under the DC/2005/02 Contract – Designated Element.

4.0 STATUS OF ENVIRONMENTAL LICENSE AND PERMITS

4.01 The status of permits, licenses, and/or notifications related to environmental protection under this Project during this month is presented in **Table 4-1**.

Table 4-1 Status of Environmental Licenses and Permits

Items	Item Description	License/Permit Status
1	Environmental Permit No.: EP-220/2005	Issued in June 2005
2	Account for Disposal of Construction Waste No. 7003733	Registration on 16 May 2008

5.0 MONITORING METHODOLOGY AND RESULTS

MONITORING METHODOLOGY OF AIR QUALITY MONITORING

5.01 The 24-hour TSP monitoring was carried out by a High Volume Air Sampler (HVAS) in compliance with the EM&A Manual under the DC/2005/02 Contract – Designated Element. The HVAS employed complied with the PS including.

- Power supply of 220v/50 Hz for 24-hour continuous operation;
- 0.6-1.7m^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-hour operation;
- Minimum exposed area of 63in^2;
- Flow control accuracy of ±2.5% deviation over 24-hour operation;
- An anodized aluminum shelter to protect the filter and sampler;
- A motor speed-voltage control to control mass flow rate with accuracy of ±2.5% deviation over 24-hour sampling period;
- Provision of a flow recorder for continuous monitoring;
- Provision of a peaked roof inlet;
- Incorporation with a manometer; and
- An 8”x10” stainless steel filter holder to hold, seal and easy to change the filter paper.

5.02 The filter papers used in 24-hour TSP monitoring were of size 8”x10” and provided by a local HOKLAS-accredited laboratory, ALS Techichem Pty (HK) Limited (HOKLAS No. 66). The filters papers after measurements were returned to the laboratory for the required treatment and analysis. The validation of all monitoring practices and data were following the in-house QA/QC procedures. Blank filters samples were collected and delivered to the HOKLAS-accredited laboratory for QA/QC check.

5.03 The meteorological information in this month was obtained from Lau Fau Shan Station of the Hong Kong Observatory (HKO).

METHODOLOGY FOR 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 and associated acoustical calibrators in compliance with the International Electrotechnical Commission (IEC) Publication 651:1979 (Type 1) and 804:1985 (Type 1) specifications 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 5m/s or wind with gusts exceeding 10m/s.

LABORATORY AND MONITORING EQUIPMENT USED

5.08 A local HOKLAS-accredited laboratory, ALS Technichem (HK) Pty Ltd (HOKLAS No. 66), is responsible for the analytical testing of the 24-hour TSP filter papers.

5.09 Monitoring equipment used in the impact EM&A program is presented in **Table 5-1**.

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

Env. Aspect	Parameters	Monitoring Equipment
Air Quality	24-hour TSP	Greasby Anderson GMWS2310 High Volume Air Sampler
Noise	Leq(30mins)	B&K Sound Level Meter (Type 2238) & Acoustics Calibrator (Type

EQUIPMENT CALIBRATION

5.10 Initial calibration of the HVAS 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. No HVAS was required calibration in this month, monitoring equipment of HVS and sound level meter were required to calibrate in next month. Updated calibration schedule is shown in **Annex G**.

5.11 The sound level meters were calibrated using an acoustical 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 acoustical 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 Calibration certificates of the sound level meters will provide depend on the annual calibration had undertaken.

PARAMETERS MONITORED

5.13 Monitoring parameters in this month were compliance with the EM&A requirements as stipulated in **Table 3-1**.

MONITORING LOCATIONS

5.14 Review the scope of works for this Project, the construction activities only localize at three Sewage Pumping Station (SPS). AM5, AM6 & AM7, are the nearest stations for 24-hour TSP monitoring and NM3, NM6 & NM7 are the nearest locations for construction noise monitoring locations for this Project (Contract No.: DE/2005/05) which were agreed by the Engineer's Representative and the Independent Environmental Checker.

5.15 Descriptions of the monitoring stations are summarized in **Table 5-2** and location plan are presented in **Annex D**.

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

Sewage Pumping Station	Monitoring Station/Location	Description
Air Quality (3 Stations)		
Sha Po	AM5	Worksite boundary facing Fung Kat Heung
Kam Tin	AM6	Worksite boundary facing scattered near Route 3
Nam Sang Wai	AM7	Worksite boundary facing scattered house in Nam
Construction Noise (3 Locations)		
Sha Po	NM7	Fung Kat Heung
Kam Tin	NM6	Scattered House near Route 3
Nam Sang Wai	NM3	Village House in Nam Sang Wai

MONITORING FREQUENCY AND PERIOD

5.16 The impact 24-hour TSP monitoring was conducted at the designated stations once every 6 days in compliance with the EM&A Manual (under the DC/2005/02 Contract – Designated Element). In this month, **15** monitoring events of 24-hour TSP monitoring were conducted.

5.17 The impact noise monitoring was conducted at the designated stations once every 6 normal working days in compliance with the EM&A Manual under the DC/2005/02 Contract – Designated Element. Total of **15** monitoring events were carried out in this month.

MONITORING RESULTS AND SCHEDULE

5.18 Monitoring results in this month for air quality and construction noise were summarized at **Tables 5-3 to 5-6**.

5.19 One Limit Level exceedances for 24-hour TSP monitoring was recorded at AM5 on 23 April 2009. Contractor advised that their entirely work was conducted indoor, it is believed the exceedance of the 24-hour TSP monitoring is not related to the work under the project. Moreover, dust suppression measures like water spraying were applied on-site and no dust complaint was received in the area. No further air quality exceedance was recorded.

Table 5-3 Summary of Air Quality Monitoring Results

Date	24-hour TSP (μg/m³)		
	AM5	AM6	AM7
1-Apr-09	82	40	49
8-Apr-09	202	89	83
17-Apr-09	55	45	66
23-Apr-09	385	50	57
29-Apr-09	60	45	85
Average (Range)	157 (55-385)	54 (40-89)	68 (49-85)
Action / Limit	**> 237 / >260**	**> 183 / >260**	**> 204 / >260**

Note: All 24-hour TSP monitoring were preset to start at 00:00 on each monitoring date.
Bold and italic is exceed the Action Level.
Bold and underline is exceed the Limit Level.

5.20 No construction noise complaint (Action Level) was received and no construction noise monitoring above the Limit Level was recorded in this month. It is noted that the calibration record does not cover the period of 23-27 April 2009 (the affected date as mark# in below table) as annual calibration in laboratory was in progress. However, it is reported that no large shift was found from the last calibration record, the monitoring result on 24 Apr 2009 is still accounted as reliable.

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-Apr-09	10:34	51.4	50.9	48.2	48.7	49.5	48.6	49.7	52.7
9-Apr-09	10:00	60.4	51.4	52.9	56.3	54.7	53.6	56.0	59.0
18-Apr-09	11:00	52.8	51.1	51.9	52.4	54.6	54.3	53.0	56.0
24-Apr-09#	11:25	52.3	51.9	53.4	53.1	52.9	50.4	52.4	55.4
30-Apr-09	16:09	48.9	47.2	46.3	46.7	46.1	47.3	47.2	50.2
Limit Level									**75**

Note: * A façade correction of +3 dB(A) has been added according to acoustical principles and EPD guidelines.
Calibration records did not cover.

Table 5-5 Summary of Noise Monitoring Results at NM6

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected* Leq30
2-Apr-09	11:30	55.1	54.7	55.5	55.0	54.2	55.2	55.0	No Correction Required
9-Apr-09	11:25	54.9	54.1	55.7	56.0	55.0	55.4	55.2	
18-Apr-09	11:27	54.4	56.2	55.3	55.0	54.8	55.5	55.2	
24-Apr-09#	15:30	55.5	56.3	55.8	54.8	54.5	55.4	55.4	
30-Apr-09	10:15	55.6	56.3	57.2	56.9	54.1	54.5	55.9	
Limit Level									**75**

Note: * Noise monitoring was undertaken at the façade, correction was not necessary.
Calibration records did not cover.

Table 5-6 Summary of Noise Monitoring Results at NM7

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected* Leq30
2-Apr-09	11:19	52.3	54.8	53.9	53.7	52.1	53.4	53.5	No Correction Required
9-Apr-09	09:00	57.4	56.0	58.2	57.5	58.0	59.3	57.8	
18-Apr-09	10:34	54.1	54.9	53.4	55.1	55.7	53.9	54.6	
24-Apr-09#	09:35	58.4	58.9	59.7	60.1	60.4	58.9	59.5	
30-Apr-09	14:45	60.7	58.1	60.9	61.4	59.3	58.2	60.0	
Limit Level									**75**

Note: * Noise monitoring was undertaken at the façade, correction was not necessary.
Calibration records did not cover.

5.21 The tentative monitoring schedule for the coming month (**May 2009**) is shown in **Table 5-7**.

Table 5-7 Tentative Schedule of Monitoring for the Next Month

Date		Air Quality	NOISE LEQ 30MIN
1-May-09	Fri		
2-May-09	Sat		
3-May-09	Sun		
4-May-09	Mon		
5-May-09	Tue		
6-May-09	Wed		
7-May-09	Thu		
8-May-09	Fri		
9-May-09	Sat		
10-May-09	Sun		
11-May-09	Mon		
12-May-09	Tue		
13-May-09	Wed		
14-May-09	Thu		
15-May-09	Fri		
16-May-09	Sat		
17-May-09	Sun		
18-May-09	Mon		
19-May-09	Tue		
20-May-09	Wed		
21-May-09	Thu		
22-May-09	Fri		
23-May-09	Sat		
24-May-09	Sun		
25-May-09	Mon		
26-May-09	Tue		
27-May-09	Wed		
28-May-09	Thu		
29-May-09	Fri		
30-May-09	Sat		

✓	Monitoring Day
	Sunday or Public

WEATHER CONDITIONS DURING THE MONITORING MONTH

5.22 The meteorological data during the monitoring date are summarized in **Annex H**.

GRAPHICAL PLOTS OF TRENDS OF MONITORED PARAMETERS

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

WEATHER CONDITIONS THAT AFFECT THE MONITORING RESULTS

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

OTHER FACTORS INFLUENCING THE MONITORING RESULTS

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

QA/QC RESULTS AND DETECTION LIMITS

5.26 Not applicable.

6.0 REPORT ON NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

RECORD OF NON-COMPLIANCE OF ACTION AND LIMIT LEVELS

6.01 One Limit Level exceedance for 24-hour TSP monitoring was recorded at AM5 on 23 April 2009. Contractor advised that their entirely work was conducted indoor, it is believed the exceedance of the 24-hour TSP monitoring is not related to the work under the project. Moreover, dust suppression measures with water spraying were applied on-site and no dust complaint was received in the area. No further air quality exceedance was recorded in this month.

6.02 No construction noise complaint (Action Level) or monitoring noise level exceed the Limit Level [75dB(A)] was recorded in this month.

RECORD OF ENVIRONMENTAL COMPLAINTS RECEIVED

6.03 There was no environmental complaint received in this month.

RECORD OF NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTION

6.04 There was no notification of summons or prosecution received in this month.

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

6.05 No complaints or NoS was received in this month.

DESCRIPTION OF FOLLOW-UP ACTIONS TAKEN

6.06 As mentioned in Section 6.05, no NC, complaints or NoS was received in this month. Therefore, no follow-up action was needed to undertake. The Contractor was reminded to implement the environmental mitigation measures as present in **Table 2-1** as necessary.

7.0 OTHERS

FUTURE KEY ISSUES

7.01 Construction activities to be undertaken in **May 2009** include installation of lifting appliances, electrical works, penstock & screen and pipework installation at Sha Po and Kam Tin SPSs. 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 month are summarized in **Tables 7-1** and **7-2**.

Table 7-1 Summary of Waste Quantities for Disposal

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (tons) – Disposed	1.806	Tuen Mun 38 Fill Bank
C&D Materials (Inert) (tons) – Reused	0	DSD Contract DC/2005/02
C&D Materials (Non-Inert) (tons)	0	NA
General Refuse (tons)	0.048	Refuse Collector

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

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

7.03 There was no site effluent or surface runoff discharged from the Project was recorded in this month.

ENVIRONMENTAL INSPECTION AND AUDIT

7.04 Representatives of the ER, the Contractor and ET carried out regular weekly site inspection on **7, 14, 21 and 28 April 2009** to evaluate the site environmental performance. The monthly IEC site audit for **April 2009** was undertaken on **28 April 2009**. No non-compliance or observation was found in this month.

7.05 Summary of observation during the site inspection in this month are presented in **Table 7-3**.

Table 7-3 Summaries of the observation during the Site Inspection in this Month

Inspection Date	Inspection/Audit Findings	Recommendation	Rectified on
7 April 2009	NIL	NA	NA
14 April 2009	NIL	NA	NA
21 April 2009	1. Fugitive dust emission during handling the dusty material for backfilling was observed at the Nam Sang Wai Road work front; 2. Oil Stain on ground was found at the Sha Po Pumping Station,	1. Contractor was reminded to dust suppression such as water spraying as necessary; 2. Contractor was reminded to clear up in according to the WMP procedure.	28 April 09
28 April 2009*	1. Stagnant water was accumulated inside the pumping station at Nam Sang Wai Station; 2. Stockpile of soil observed.	1. The Contractor was remained to drain away the stagnant water; 2. Stockpile should be removed or covered with tarpaulin in order to minimize the dust nuisance.	5 May 09

Note: * Join IEC Monthly Site Audit. Details of site audit can refer to the DC/2005/02 Monthly EM&A Report (Designated Element)

ANNEX A

PROJECT SITE LAYOUT

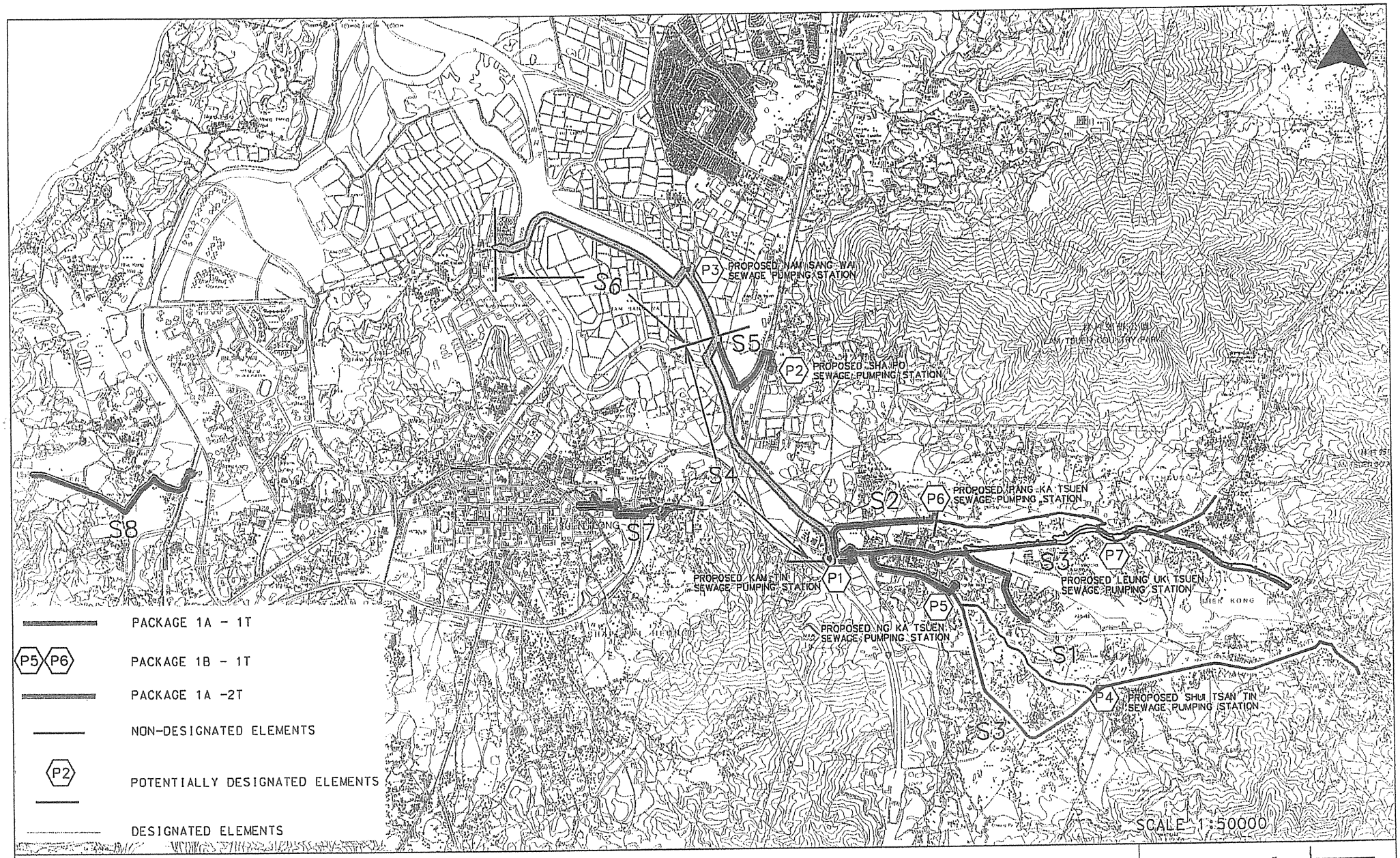


FIGURE 2.1a

ELEMENTS FOR THE YUEN LONG AND KAM TIN SEWERAGE AND SEWAGE DISPOSAL STAGE I

Environmental Resources Management

ERM

USTN FILE: a2008/27aug2001/arch1.dgn

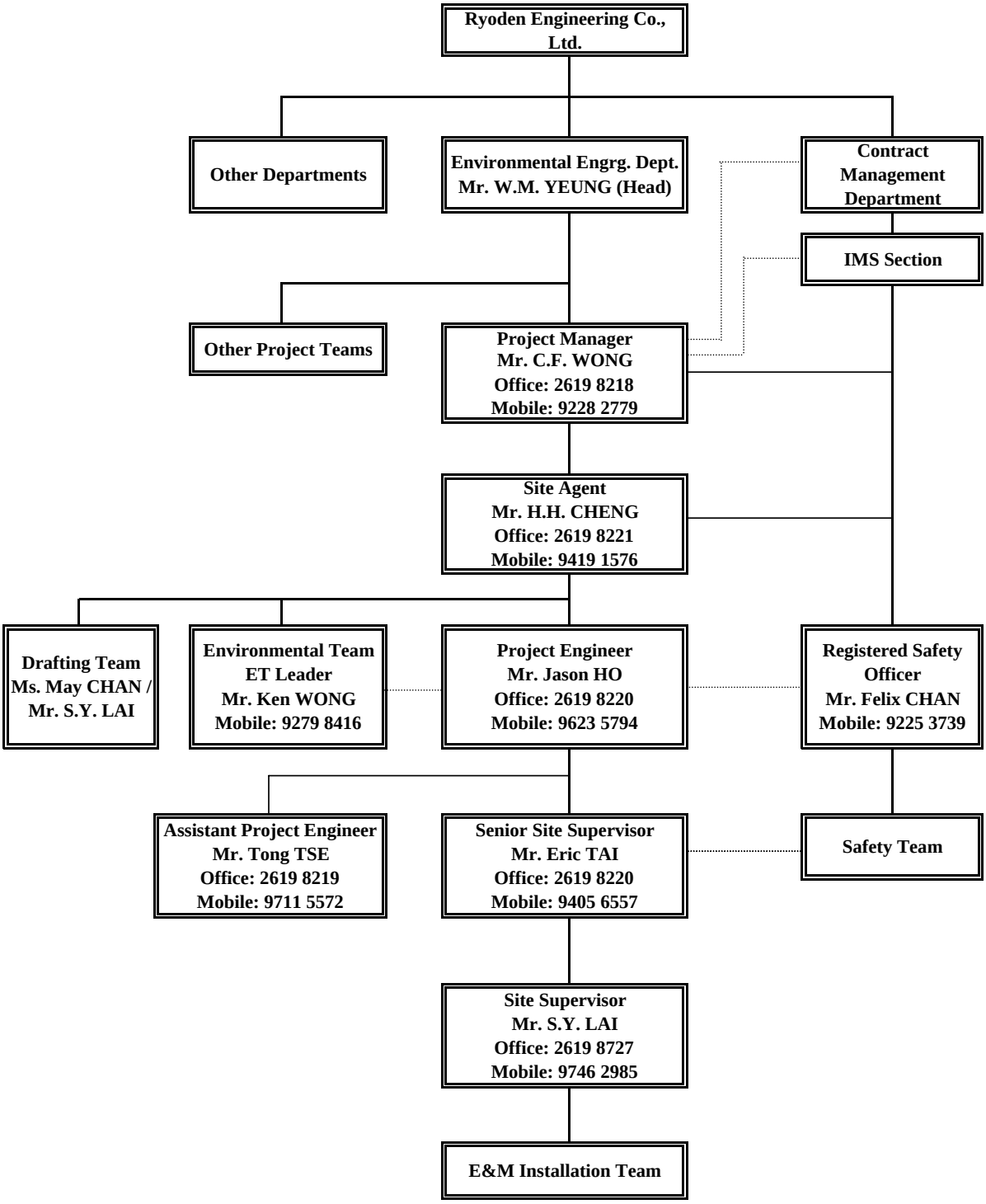
DATE: 19/12/2001

ANNEX B

PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

Contract No. DE/2005/05
S&I of E&M Equipment for Nam Sang Wai, Sha Po and Kam Tin Sewage Pumping Stations

Project Organization Chart



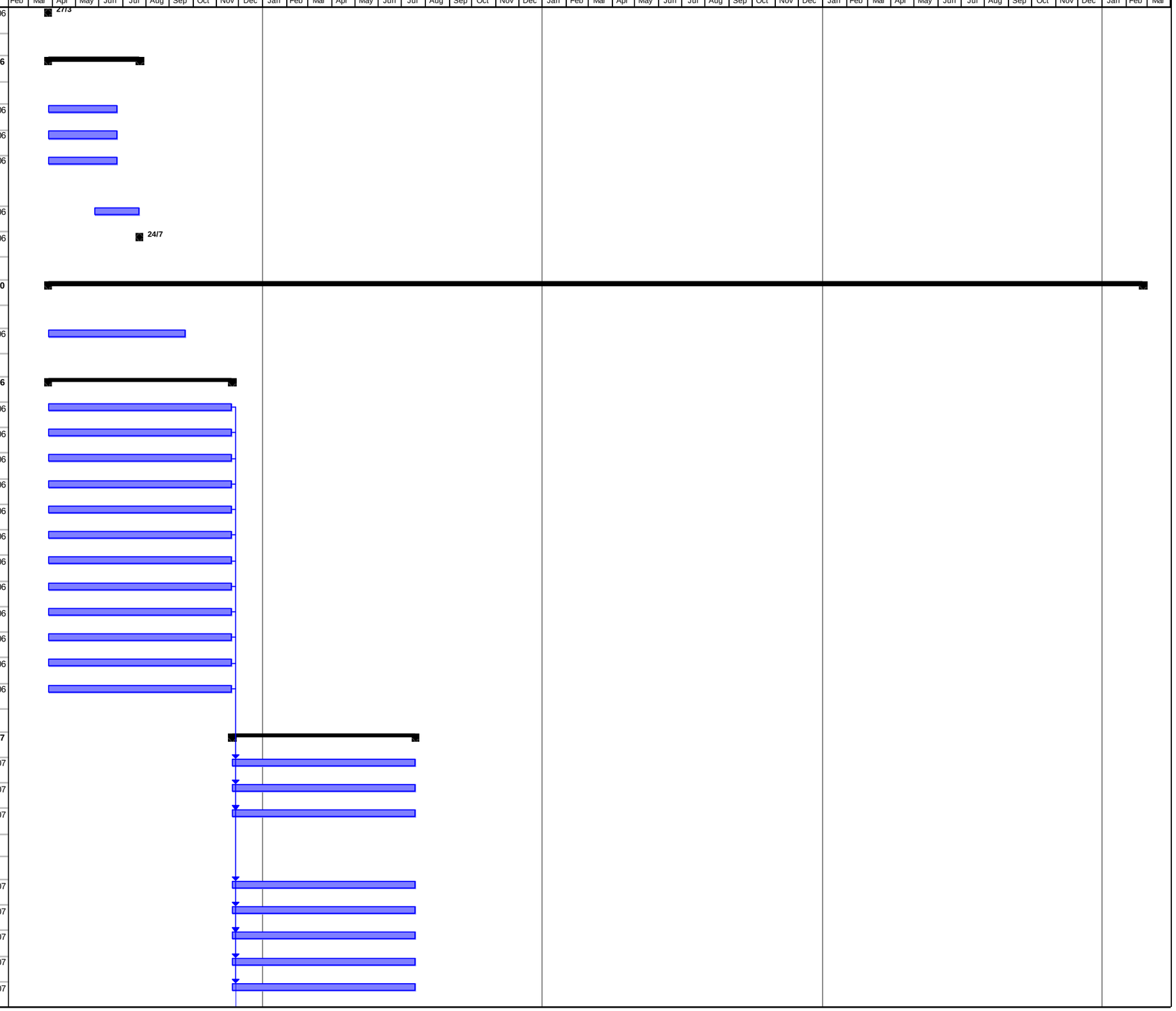
Effective Date : 09 February 2009

ANNEX C

CONSTRUCTION PROGRAM

Contract No. DE/2005/05
Supply and Installation of Electrical and Mechanical Equipment for Nam Sang Wai, Sha Po and Kam Tin Sewage Pumping Stations
-Works Programme Rev 4

ID	Task Name	Duration	Start	Finish
1	**Contract Commencement Date**	0 days	Mon 27/3/06	Mon 27/3/06
2				
3	**Section 1 Surge Analysis and Drawings Submission**	**120 days**	**Mon 27/3/06**	**Mon 24/7/06**
4				
5	Surge Analysis for 3 SPSs	90 days	Mon 27/3/06	Sat 24/6/06
6	Civil Requirement Drawings Submission for 3 nos. Sewage Pumping Stations	90 days	Mon 27/3/06	Sat 24/6/06
7	Submission of GA Drawings, Equipment Layout Drawings, Electrical Schematic Drawings, Cable Route Drawings, Electrical Services Drawings and PID	90 days	Mon 27/3/06	Sat 24/6/06
8	Resubmission of above items	60 days	Fri 26/5/06	Mon 24/7/06
9	Approval of design works	0 days	Mon 24/7/06	Mon 24/7/06
10				
11	**Section 2 Works for Nam Sang Wai SPS**	**1431 days**	**Mon 27/3/06**	**Wed 24/2/10**
12				
13	Other Drawings Submission and Approval	180 days	Mon 27/3/06	Fri 22/9/06
14				
15	**Equipment Submission and Approval**	**240 days**	**Mon 27/3/06**	**Tue 21/11/06**
16	Penstock and Actuator	240 days	Mon 27/3/06	Tue 21/11/06
17	Main sewage pump and VFD	240 days	Mon 27/3/06	Tue 21/11/06
18	Inlet Coarse Screen	240 days	Mon 27/3/06	Tue 21/11/06
19	Deodourising System	240 days	Mon 27/3/06	Tue 21/11/06
20	Lifting Appliance	240 days	Mon 27/3/06	Tue 21/11/06
21	Pipework and Valve	240 days	Mon 27/3/06	Tue 21/11/06
22	Measuring Instrument	240 days	Mon 27/3/06	Tue 21/11/06
23	LV Switchboard	240 days	Mon 27/3/06	Tue 21/11/06
24	MACS, Telemetry and CCTV	240 days	Mon 27/3/06	Tue 21/11/06
25	Ventilation Fans	240 days	Mon 27/3/06	Tue 21/11/06
26	Building Services and Electrical Services Equipment	240 days	Mon 27/3/06	Tue 21/11/06
27	Fire Services Equipment	240 days	Mon 27/3/06	Tue 21/11/06
28				
29	**Equipment Procurement and Manufacture**	**240 days**	**Wed 22/11/06**	**Thu 19/7/07**
30	Penstock and Actuator	240 days	Wed 22/11/06	Thu 19/7/07
31	Main sewage pump and VFD	240 days	Wed 22/11/06	Thu 19/7/07
32	Inlet Coarse Screen	240 days	Wed 22/11/06	Thu 19/7/07
33				
34				
35	Deodourising System	240 days	Wed 22/11/06	Thu 19/7/07
36	Lifting Appliance	240 days	Wed 22/11/06	Thu 19/7/07
37	Pipework and Valve	240 days	Wed 22/11/06	Thu 19/7/07
38	Measuring Instrument	240 days	Wed 22/11/06	Thu 19/7/07
39	LV Switchboard	240 days	Wed 22/11/06	Thu 19/7/07

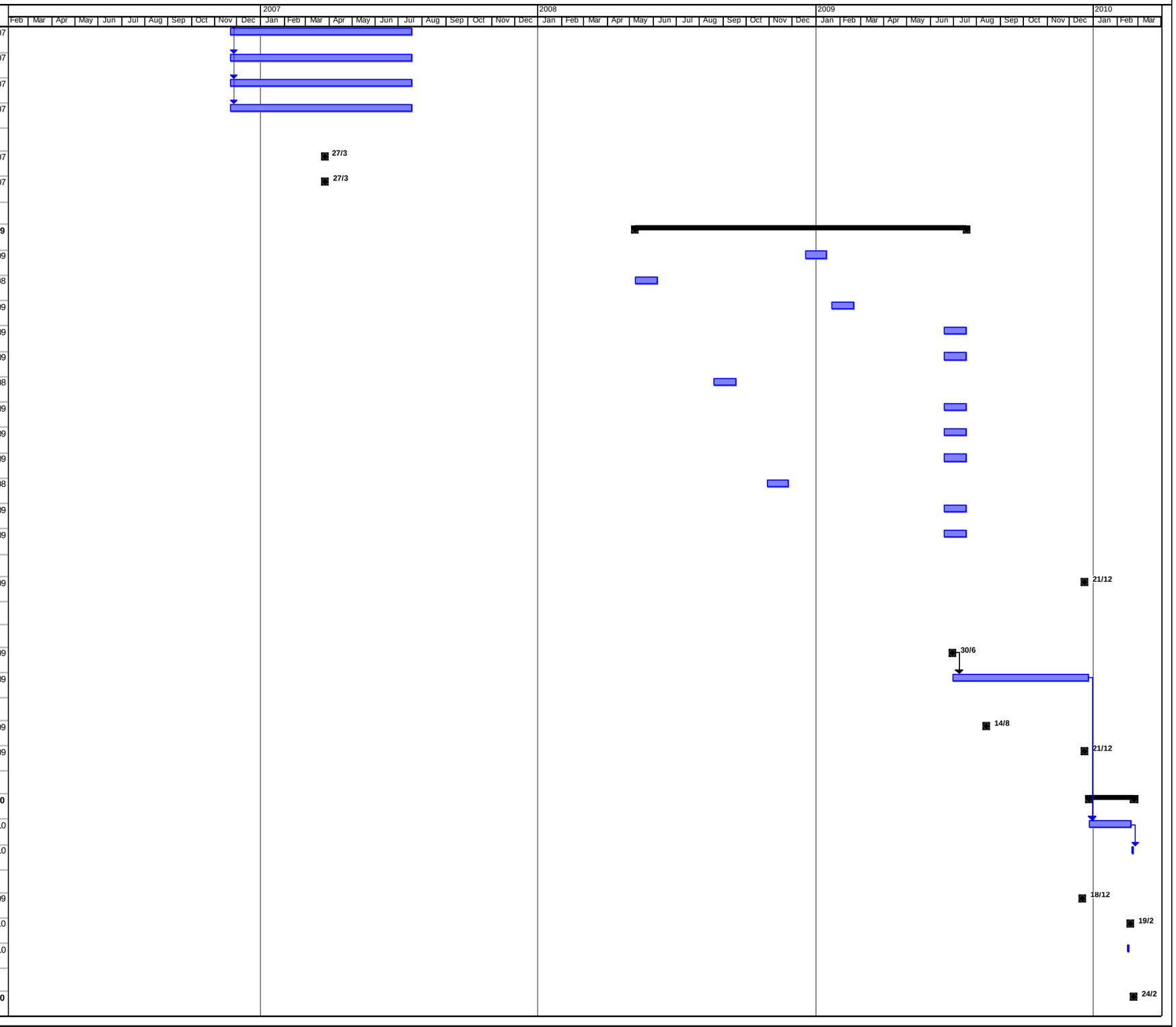


Date: 24/4/2009

Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary | Deadline
Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks | External Milestone

Client: DSD HKSAR
Contractor: Ryoden Engineering Co. Ltd.

ID	Task Name	Duration	Start	Finish
40	MACS, Telemetry and CCTV	240 days	Wed 22/11/06	Thu 19/7/07
41	Ventilation Fans	240 days	Wed 22/11/06	Thu 19/7/07
42	Building Services and Electrical Services Equipment	240 days	Wed 22/11/06	Thu 19/7/07
43	Fire Services Equipment	240 days	Wed 22/11/06	Thu 19/7/07
44				
45	**Application of CLP Power Supply**	0 days	Tue 27/3/07	Tue 27/3/07
46	**Application of Telephone Line**	0 days	Tue 27/3/07	Tue 27/3/07
47				
48	**Equipment Delivery**	**437 days**	**Thu 8/5/08**	**Sat 18/7/09**
49	Penstock and Actuator	30 days	Thu 18/12/08	Fri 16/1/09
50	Main sewage pump and VFD	30 days	Thu 8/5/08	Fri 6/6/08
51	Inlet Coarse Screen	30 days	Thu 22/1/09	Fri 20/2/09
52	Deodourising System	30 days	Fri 19/6/09	Sat 18/7/09
53	Lifting Appliance	30 days	Fri 19/6/09	Sat 18/7/09
54	Pipework and Valve	30 days	Wed 20/8/08	Thu 18/9/08
55	Measuring Instrument	30 days	Fri 19/6/09	Sat 18/7/09
56	LV Switchboard	30 days	Fri 19/6/09	Sat 18/7/09
57	MACS, Telemetry and CCTV	30 days	Fri 19/6/09	Sat 18/7/09
58	Ventilation Fans	30 days	Wed 29/10/08	Thu 27/11/08
59	Building Services and Electrical Services Equipment	30 days	Fri 19/6/09	Sat 18/7/09
60	Fire Services Equipment	30 days	Fri 19/6/09	Sat 18/7/09
61				
62	**Submission of Form 314 for Fire Services**	0 days	Mon 21/12/09	Mon 21/12/09
63				
64				
65	**Site Take Over Date for Section 2**	0 days	Tue 30/6/09	Tue 30/6/09
66	**Site Installation**	180 days	Tue 30/6/09	Sat 26/12/09
67				
68	**Tentative CLP Electricity Energisation**	0 days	Fri 14/8/09	Fri 14/8/09
69	**Submission of Form 501 for Fire Services**	0 days	Mon 21/12/09	Mon 21/12/09
70				
71	**Testing and Commissioning**	**60 days**	**Sun 27/12/09**	**Wed 24/2/10**
72	Equipment testing	57 days	Sun 27/12/09	Sun 21/2/10
73	Tentative 3-days wet commissioning	3 days	Mon 22/2/10	Wed 24/2/10
74				
75	**Submission of Draft O & M manual**	0 days	Fri 18/12/09	Fri 18/12/09
76	**Submission of Final O & M manual**	0 days	Fri 19/2/10	Fri 19/2/10
77	**Training of Employer's Staff**	3 days	Mon 15/2/10	Wed 17/2/10
78				
79	**Completion of Section 2**	**0 days**	**Wed 24/2/10**	**Wed 24/2/10**

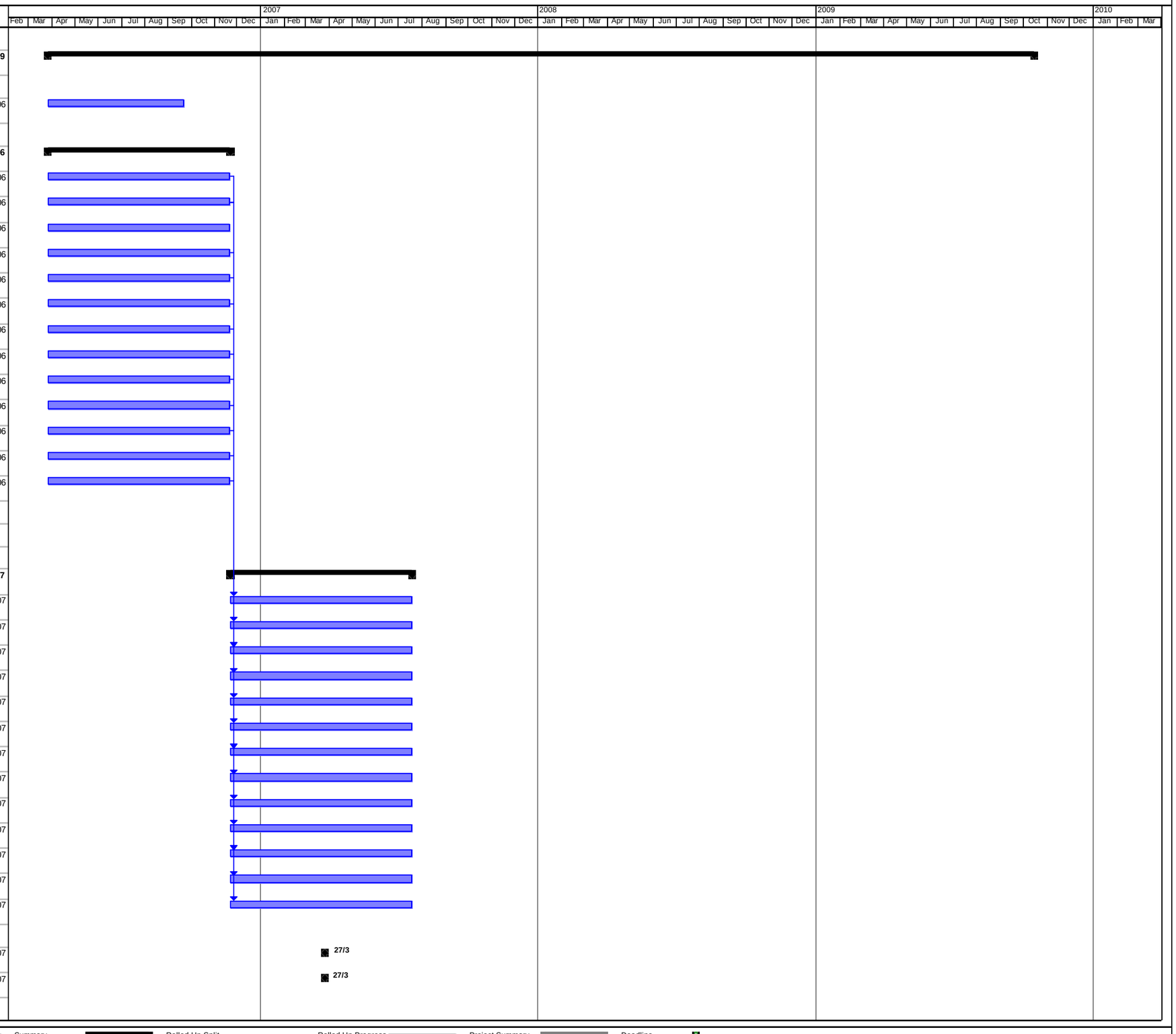


Date: 24/4/2009

Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary | Deadline
Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks | External Milestone

Client: DSD HKSAR
Contractor: Ryoden Engineering Co. Ltd.

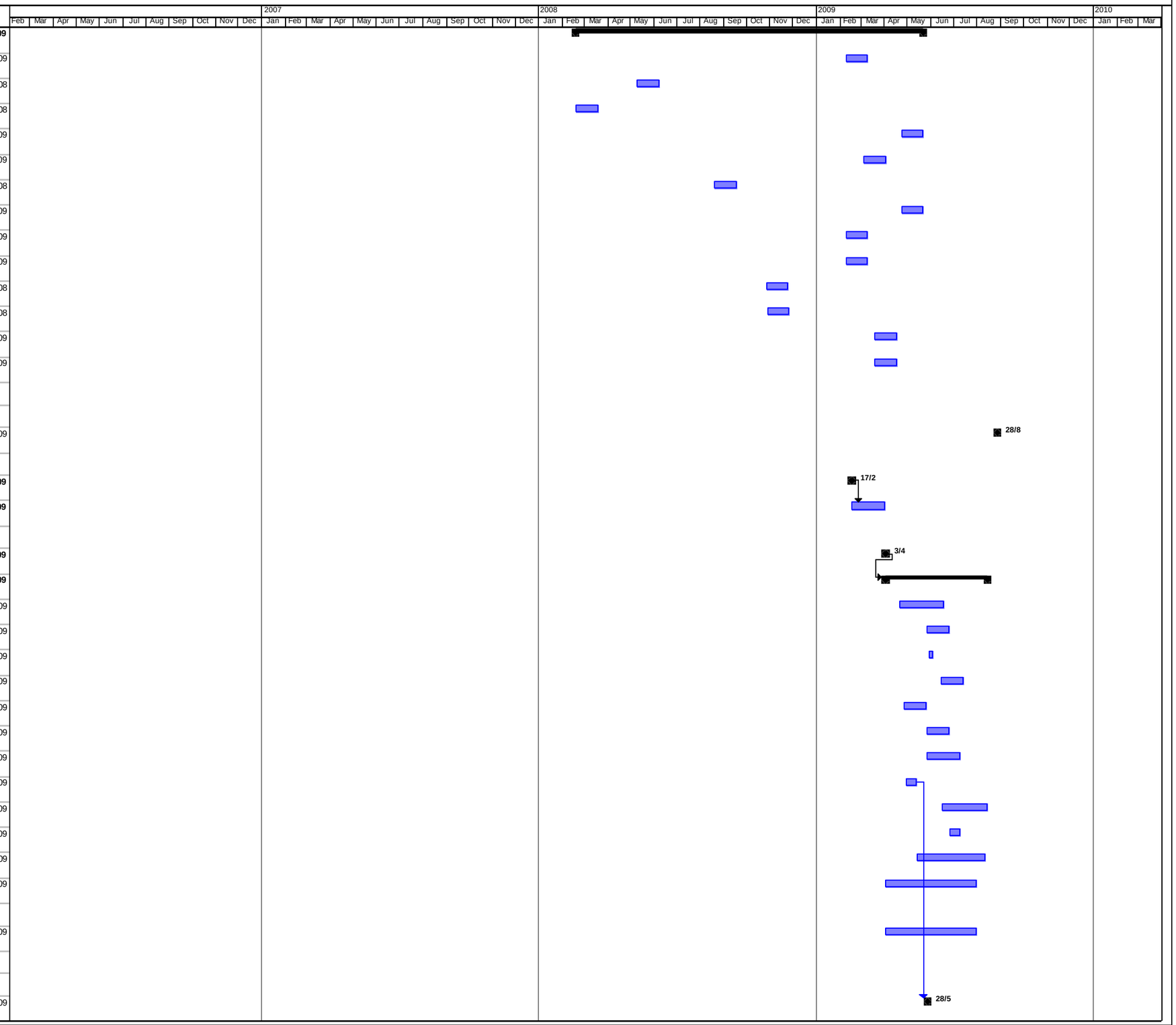
ID	Task Name	Duration	Start	Finish
80				
81	**Section 3 Works for Sha Po SPS**	**1300 days**	**Mon 27/3/06**	**Fri 16/10/09**
82				
83	Other Drawings Submission and Approval	180 days	Mon 27/3/06	Fri 22/9/06
84				
85	**Equipment Submission and Approval**	**240 days**	**Mon 27/3/06**	**Tue 21/11/06**
86	Penstock and Actuator	240 days	Mon 27/3/06	Tue 21/11/06
87	Main sewage pump and VFD	240 days	Mon 27/3/06	Tue 21/11/06
88	Inlet Coarse Screen	240 days	Mon 27/3/06	Tue 21/11/06
89	Deodourising System	240 days	Mon 27/3/06	Tue 21/11/06
90	Lifting Appliance	240 days	Mon 27/3/06	Tue 21/11/06
91	Pipework and Valve	240 days	Mon 27/3/06	Tue 21/11/06
92	Measuring Instrument	240 days	Mon 27/3/06	Tue 21/11/06
93	LV Switchboard	240 days	Mon 27/3/06	Tue 21/11/06
94	MACS, Telemetry and CCTV	240 days	Mon 27/3/06	Tue 21/11/06
95	Calcium Nitrate Dosing System	240 days	Mon 27/3/06	Tue 21/11/06
96	Ventilation Fans	240 days	Mon 27/3/06	Tue 21/11/06
97	Building Services and Electrical Services Equipment	240 days	Mon 27/3/06	Tue 21/11/06
98	Fire Services Equipment	240 days	Mon 27/3/06	Tue 21/11/06
99				
100				
101				
102	**Equipment Procurement and Manufacture**	**240 days**	**Wed 22/11/06**	**Thu 19/7/07**
103	Penstock and Actuator	240 days	Wed 22/11/06	Thu 19/7/07
104	Main sewage pump and VFD	240 days	Wed 22/11/06	Thu 19/7/07
105	Inlet Coarse Screen	240 days	Wed 22/11/06	Thu 19/7/07
106	Deodourising System	240 days	Wed 22/11/06	Thu 19/7/07
107	Lifting Appliance	240 days	Wed 22/11/06	Thu 19/7/07
108	Pipework and Valve	240 days	Wed 22/11/06	Thu 19/7/07
109	Measuring Instrument	240 days	Wed 22/11/06	Thu 19/7/07
110	LV Switchboard	240 days	Wed 22/11/06	Thu 19/7/07
111	MACS, Telemetry and CCTV	240 days	Wed 22/11/06	Thu 19/7/07
112	Calcium Nitrate Dosing System	240 days	Wed 22/11/06	Thu 19/7/07
113	Ventilation Fans	240 days	Wed 22/11/06	Thu 19/7/07
114	Building Services and Electrical Services Equipment	240 days	Wed 22/11/06	Thu 19/7/07
115	Fire Services Equipment	240 days	Wed 22/11/06	Thu 19/7/07
116				
117	**Application of CLP Power Supply**	0 days	Tue 27/3/07	Tue 27/3/07
118	**Application of Telephone Line**	0 days	Tue 27/3/07	Tue 27/3/07
119				



Date: 24/4/2009

Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary | Deadline
Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks | External Milestone

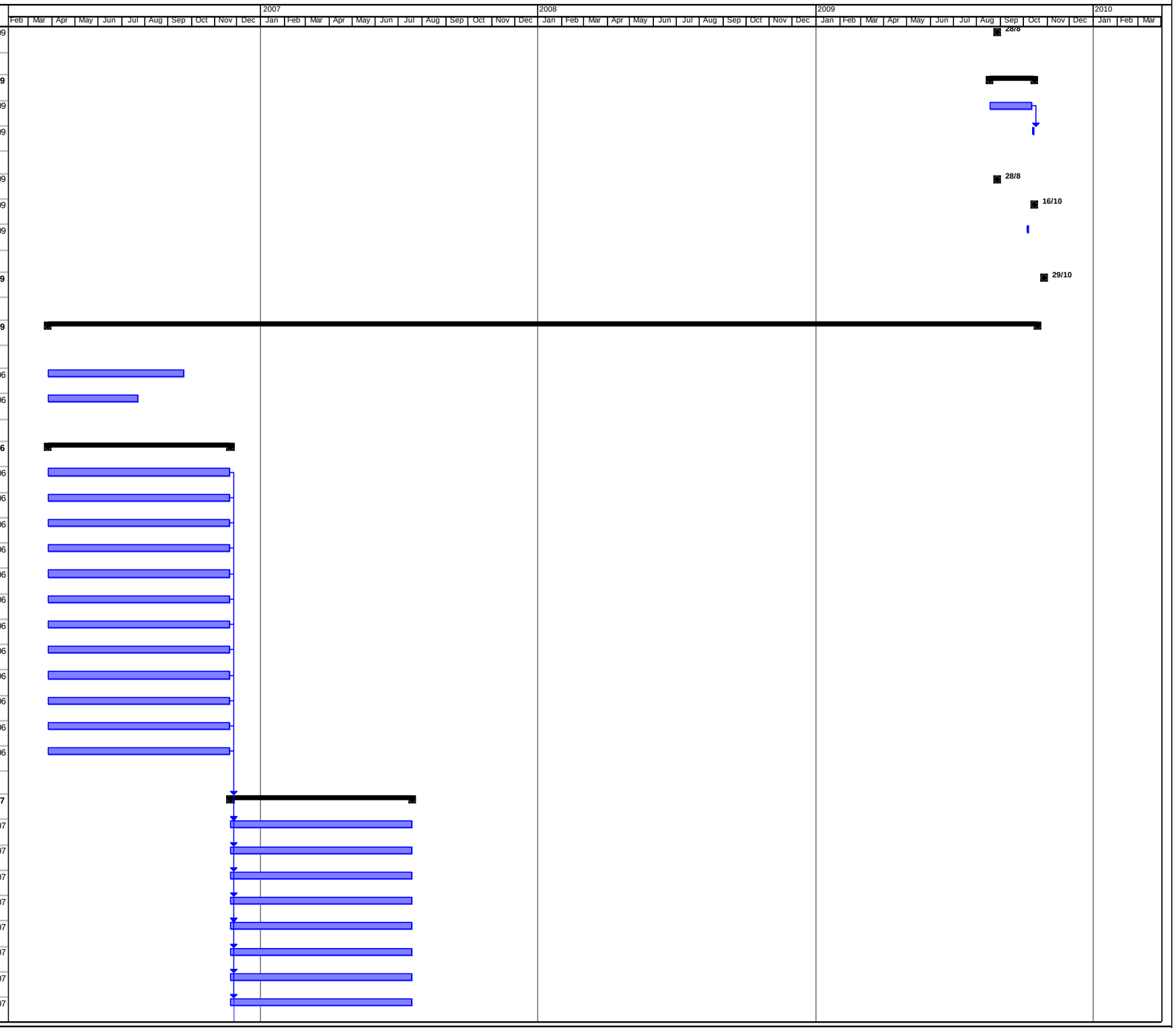
ID	Task Name	Duration	Start	Finish
120	**Equipment Delivery**	**459 days**	**Tue 19/2/08**	**Fri 22/5/09**
121	Penstock and Actuator	30 days	Mon 9/2/09	Tue 10/3/09
122	Main sewage pump and VFD	30 days	Sat 10/5/08	Sun 8/6/08
123	Inlet Coarse Screen	30 days	Tue 19/2/08	Wed 19/3/08
124	Deodourising System	30 days	Thu 23/4/09	Fri 22/5/09
125	Lifting Appliance	30 days	Thu 5/3/09	Fri 3/4/09
126	Pipework and Valve	30 days	Wed 20/8/08	Thu 18/9/08
127	Measuring Instrument	30 days	Thu 23/4/09	Fri 22/5/09
128	LV Switchboard	30 days	Mon 9/2/09	Tue 10/3/09
129	MACS, Telemetry and CCTV	30 days	Mon 9/2/09	Tue 10/3/09
130	Calcium Nitrate Dosing System	30 days	Mon 27/10/08	Tue 25/11/08
131	Ventilation Fans	30 days	Wed 29/10/08	Thu 27/11/08
132	Building Services and Electrical Services Equipment	30 days	Thu 19/3/09	Fri 17/4/09
133	Fire Services Equipment	30 days	Thu 19/3/09	Fri 17/4/09
134				
135				
136	**Submission of Form 314 for Fire Services**	0 days	Fri 28/8/09	Fri 28/8/09
137				
138	**1st stage Site Take Over Date for Section 3**	**0 days**	**Tue 17/2/09**	**Tue 17/2/09**
139	**Site Installation at CLP Tx Rm**	**45 days**	**Tue 17/2/09**	**Thu 2/4/09**
140				
141	**2nd stage Site Take Over Date for Section 3**	**0 days**	**Fri 3/4/09**	**Fri 3/4/09**
142	**Site Installation at Other Locations**	**134 days**	**Fri 3/4/09**	**Fri 14/8/09**
143	Penstock and Actuator	60 days	Mon 20/4/09	Thu 18/6/09
144	Main sewage pump and VFD	30 days	Wed 27/5/09	Thu 25/6/09
145	Inlet Coarse Screen	7 days	Fri 29/5/09	Thu 4/6/09
146	Deodourising System	30 days	Mon 15/6/09	Tue 14/7/09
147	Lifting Appliance	30 days	Mon 27/4/09	Tue 26/5/09
148	Pipework and Valve	30 days	Wed 27/5/09	Thu 25/6/09
149	Measuring Instrument	45 days	Wed 27/5/09	Fri 10/7/09
150	LV Switchboard	15 days	Thu 30/4/09	Thu 14/5/09
151	MACS, Telemetry and CCTV	60 days	Tue 16/6/09	Fri 14/8/09
152	Calcium Nitrate Dosing System	15 days	Fri 26/6/09	Fri 10/7/09
153	Ventilation Fans and air ducts	90 days	Fri 15/5/09	Wed 12/8/09
154	Building Services and Electrical Services Equipment	120 days	Fri 3/4/09	Fri 31/7/09
155				
156	Fire Services Equipment	120 days	Fri 3/4/09	Fri 31/7/09
157				
158				
159	**Tentative CLP Electricity Energisation**	0 days	Thu 28/5/09	Thu 28/5/09



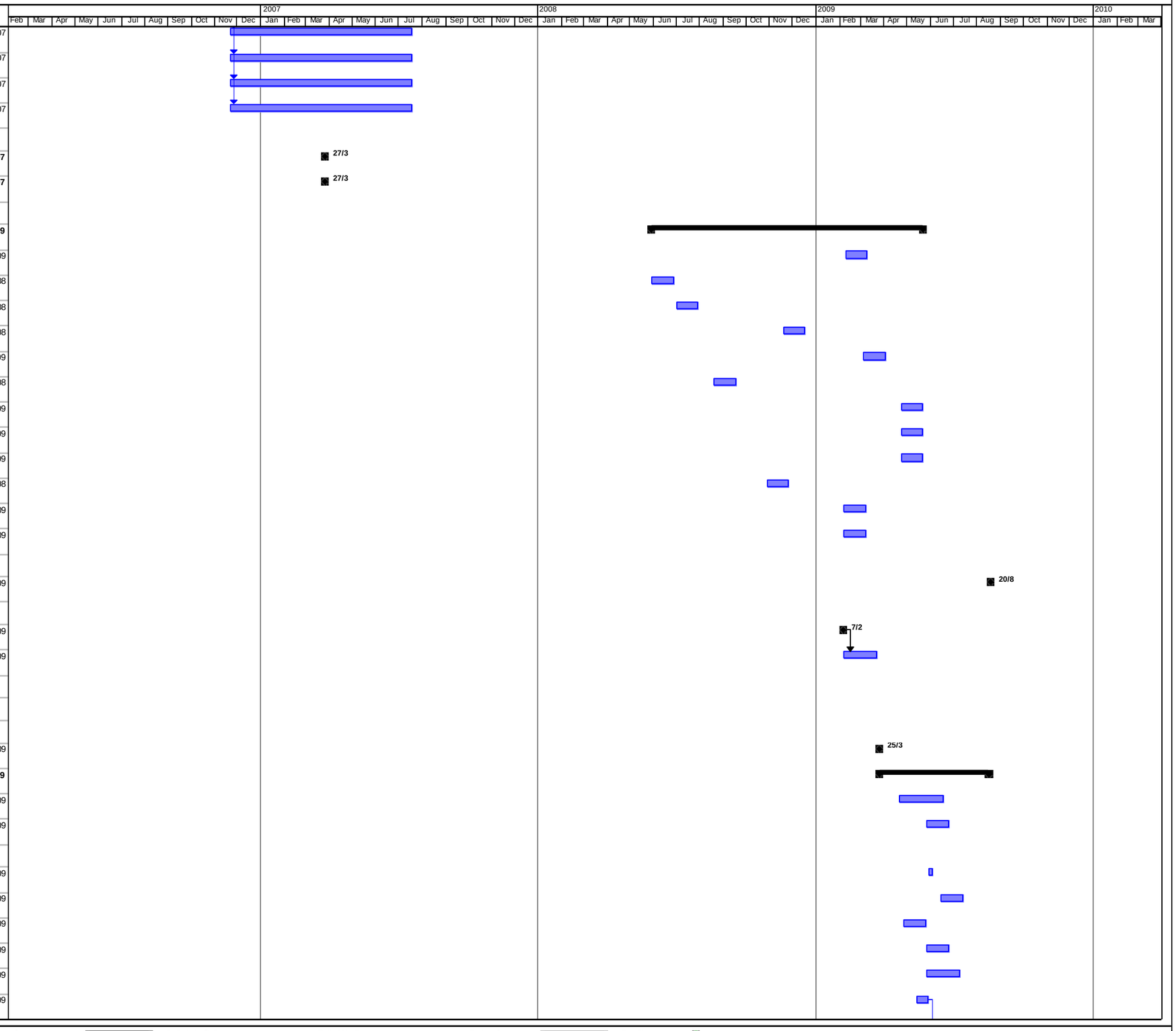
Date: 24/4/2009

Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary | Deadline
Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks | External Milestone

ID	Task Name	Duration	Start	Finish
160	**Submission of Form 501 for Fire Services**	0 days	Fri 28/8/09	Fri 28/8/09
161				
162	**Testing and Commissioning**	**60 days**	**Tue 18/8/09**	**Fri 16/10/09**
163	Equipment testing	57 days	Tue 18/8/09	Tue 13/10/09
164	Tentative 3-days wet commissioning	3 days	Wed 14/10/09	Fri 16/10/09
165				
166	**Submission of Draft O & M manual**	0 days	Fri 28/8/09	Fri 28/8/09
167	**Submission of Final O & M manual**	0 days	Fri 16/10/09	Fri 16/10/09
168	**Training of Employer's Staff**	3 days	Tue 6/10/09	Thu 8/10/09
169				
170	**Completion of Section 3**	**0 days**	**Thu 29/10/09**	**Thu 29/10/09**
171				
172	**Section 4 Works for Kam Tin SPS**	**1303 days**	**Mon 27/3/06**	**Tue 20/10/09**
173				
174	Other Drawings Submission and Approval	180 days	Mon 27/3/06	Fri 22/9/06
175	Surge analysis report submission and approval	120 days	Mon 27/3/06	Mon 24/7/06
176				
177	**Equipment Submission and Approval**	**240 days**	**Mon 27/3/06**	**Tue 21/11/06**
178	Penstock and Actuator	240 days	Mon 27/3/06	Tue 21/11/06
179	Main sewage pump and VFD	240 days	Mon 27/3/06	Tue 21/11/06
180	Inlet Coarse Screen	240 days	Mon 27/3/06	Tue 21/11/06
181	Deodourising System	240 days	Mon 27/3/06	Tue 21/11/06
182	Lifting Appliance	240 days	Mon 27/3/06	Tue 21/11/06
183	Pipework and Valve	240 days	Mon 27/3/06	Tue 21/11/06
184	Measuring Instrument	240 days	Mon 27/3/06	Tue 21/11/06
185	LV Switchboard	240 days	Mon 27/3/06	Tue 21/11/06
186	MACS, Telemetry and CCTV	240 days	Mon 27/3/06	Tue 21/11/06
187	Ventilation Fans	240 days	Mon 27/3/06	Tue 21/11/06
188	Building Services and Electrical Services Equipment	240 days	Mon 27/3/06	Tue 21/11/06
189	Fire Services Equipment	240 days	Mon 27/3/06	Tue 21/11/06
190				
191	**Equipment Procurement and Manufacture**	**240 days**	**Wed 22/11/06**	**Thu 19/7/07**
192	Penstock and Actuator	240 days	Wed 22/11/06	Thu 19/7/07
193	Main sewage pump and VFD	240 days	Wed 22/11/06	Thu 19/7/07
194	Inlet Coarse Screen	240 days	Wed 22/11/06	Thu 19/7/07
195	Deodourising System	240 days	Wed 22/11/06	Thu 19/7/07
196	Lifting Appliance	240 days	Wed 22/11/06	Thu 19/7/07
197	Pipework and Valve	240 days	Wed 22/11/06	Thu 19/7/07
198	Measuring Instrument	240 days	Wed 22/11/06	Thu 19/7/07
199	LV Switchboard	240 days	Wed 22/11/06	Thu 19/7/07



ID	Task Name	Duration	Start	Finish
200	MACS, Telemetry and CCTV	240 days	Wed 22/11/06	Thu 19/7/07
201	Ventilation Fans	240 days	Wed 22/11/06	Thu 19/7/07
202	Building Services and Electrical Services Equipment	240 days	Wed 22/11/06	Thu 19/7/07
203	Fire Services Equipment	240 days	Wed 22/11/06	Thu 19/7/07
204				
205	**Application of CLP Power Supply**	**0 days**	**Tue 27/3/07**	**Tue 27/3/07**
206	**Application of Telephone Line**	**0 days**	**Tue 27/3/07**	**Tue 27/3/07**
207				
208	**Equipment Delivery**	**358 days**	**Fri 30/5/08**	**Fri 22/5/09**
209	Penstock and Actuator	30 days	Mon 9/2/09	Tue 10/3/09
210	Main sewage pump and VFD	30 days	Fri 30/5/08	Sat 28/6/08
211	Inlet Coarse Screen	30 days	Tue 1/7/08	Wed 30/7/08
212	Deodourising System	30 days	Wed 19/11/08	Thu 18/12/08
213	Lifting Appliance	30 days	Thu 5/3/09	Fri 3/4/09
214	Pipework and Valve	30 days	Wed 20/8/08	Thu 18/9/08
215	Measuring Instrument	30 days	Thu 23/4/09	Fri 22/5/09
216	LV Switchboard	30 days	Thu 23/4/09	Fri 22/5/09
217	MACS, Telemetry and CCTV	30 days	Thu 23/4/09	Fri 22/5/09
218	Ventilation Fans	30 days	Wed 29/10/08	Thu 27/11/08
219	Building Services and Electrical Services Equipment	30 days	Sat 7/2/09	Sun 8/3/09
220	Fire Services Equipment	30 days	Sat 7/2/09	Sun 8/3/09
221				
222	**Submission of Form 314 for Fire Services**	0 days	Thu 20/8/09	Thu 20/8/09
223				
224	**1st stage Site Take Over Date for Section 4**	0 days	Sat 7/2/09	Sat 7/2/09
225	**Site Installation at CLP Tx Room**	45 days	Sat 7/2/09	Mon 23/3/09
226				
227				
228				
229	**2nd stage Site Take Over Date for Section 4**	0 days	Wed 25/3/09	Wed 25/3/09
230	**Site Installation at Other Locations**	**144 days**	**Thu 26/3/09**	**Sun 16/8/09**
231	Penstock and Actuator	60 days	Mon 20/4/09	Thu 18/6/09
232	Main sewage pump and VFD	30 days	Wed 27/5/09	Thu 25/6/09
233				
234	Inlet Coarse Screen	7 days	Fri 29/5/09	Thu 4/6/09
235	Deodourising System	30 days	Mon 15/6/09	Tue 14/7/09
236	Lifting Appliance	30 days	Mon 27/4/09	Tue 26/5/09
237	Pipework and Valve	30 days	Wed 27/5/09	Thu 25/6/09
238	Measuring Instrument	45 days	Wed 27/5/09	Fri 10/7/09
239	LV Switchboard	15 days	Fri 15/5/09	Fri 29/5/09

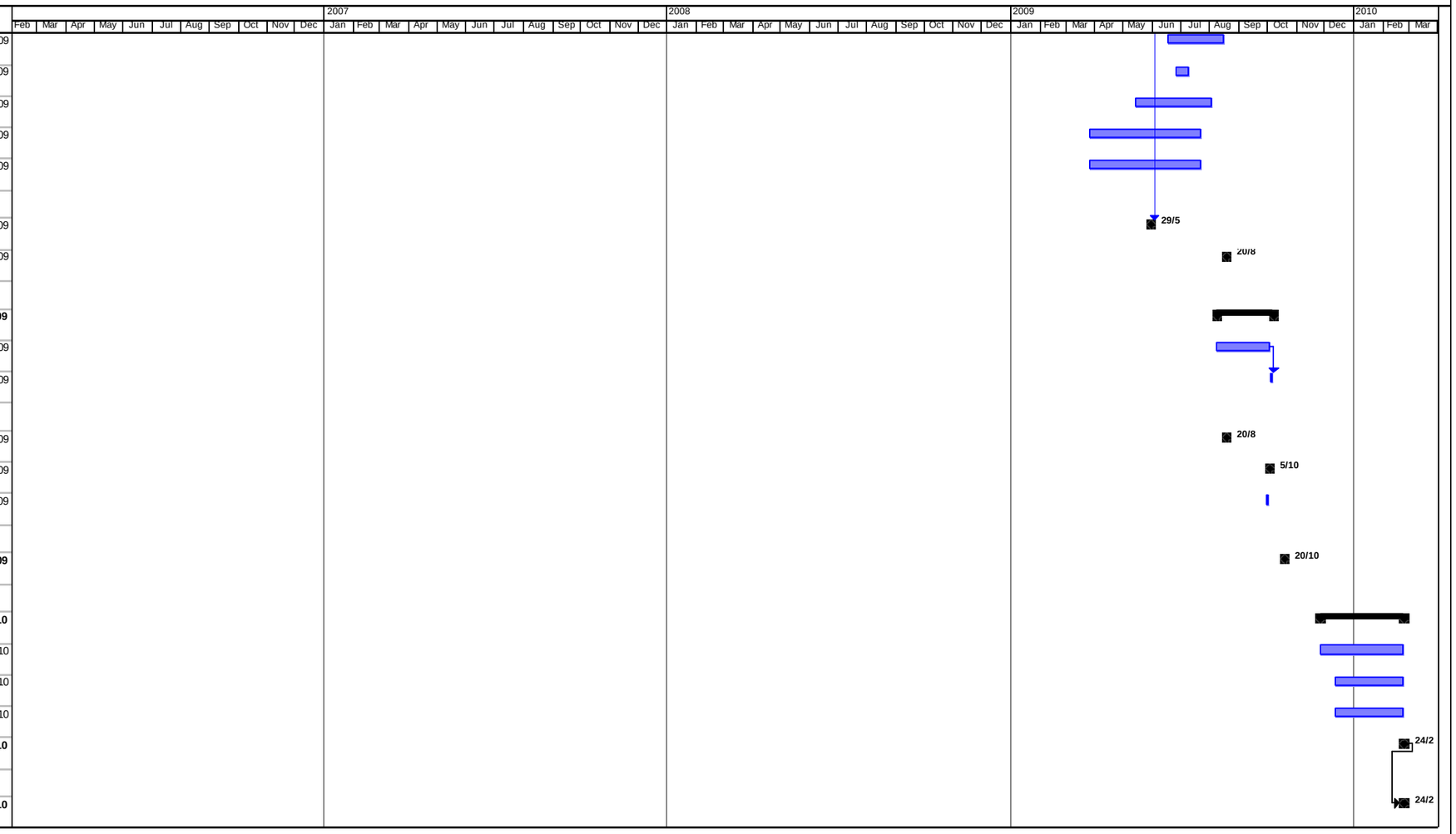


Date: 24/4/2009

Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary | Deadline
Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks | External Milestone

Client: DSD HKSAR
Contractor: Ryoden Engineering Co. Ltd.

ID	Task Name	Duration	Start	Finish
240	MACS, Telemetry and CCTV	60 days	Thu 18/6/09	Sun 16/8/09
241	Calcium Nitrate Dosing System	15 days	Fri 26/6/09	Fri 10/7/09
242	Ventilation Fans and air ducts	80 days	Fri 15/5/09	Sun 2/8/09
243	Building Services and Electrical Services Equipment	120 days	Thu 26/3/09	Thu 23/7/09
244	Fire Services Equipment	120 days	Thu 26/3/09	Thu 23/7/09
245				
246	**Tentative CLP Electricity Energisation**	0 days	Fri 29/5/09	Fri 29/5/09
247	**Submission of Form 501 for Fire Services**	0 days	Thu 20/8/09	Thu 20/8/09
248				
249	**Testing and Commissioning**	**60 days**	**Sun 9/8/09**	**Wed 7/10/09**
250	Equipment testing	57 days	Sun 9/8/09	Sun 4/10/09
251	Tentative 3-days wet commissioning	3 days	Mon 5/10/09	Wed 7/10/09
252				
253	**Submission of Draft O & M manual**	0 days	Thu 20/8/09	Thu 20/8/09
254	**Submission of Final O & M manual**	0 days	Mon 5/10/09	Mon 5/10/09
255	**Training of Employer's Staff**	3 days	Wed 30/9/09	Fri 2/10/09
256				
257	**Completion of Section 4**	**0 days**	**Tue 20/10/09**	**Tue 20/10/09**
258				
259	**Section 5 Remaining Works**	**90 days**	**Fri 27/11/09**	**Wed 24/2/10**
260	Provision of Workshop Equipment for Nam Sang Wai SPS	90 days	Fri 27/11/09	Wed 24/2/10
261	Provision of Portable and Miscellaneous Equipment for 3 SPSs	75 days	Sat 12/12/09	Wed 24/2/10
262	Provision of minimum spare parts for 3 SPSs	75 days	Sat 12/12/09	Wed 24/2/10
263	**Completion of Section 5**	**0 days**	**Wed 24/2/10**	**Wed 24/2/10**
264				
265	**Project Completion Date**	**0 days**	**Wed 24/2/10**	**Wed 24/2/10**



Date: 24/4/2009

Task | Progress | Summary | Rolled Up Split | Rolled Up Progress | Project Summary | Deadline
Split | Milestone | Rolled Up Task | Rolled Up Milestone | External Tasks | External Milestone

Client: DSD HKSAR
Contractor: Ryoden Engineering Co. Ltd.

ANNEX D

LOCATION OF MONITORING STATIONS

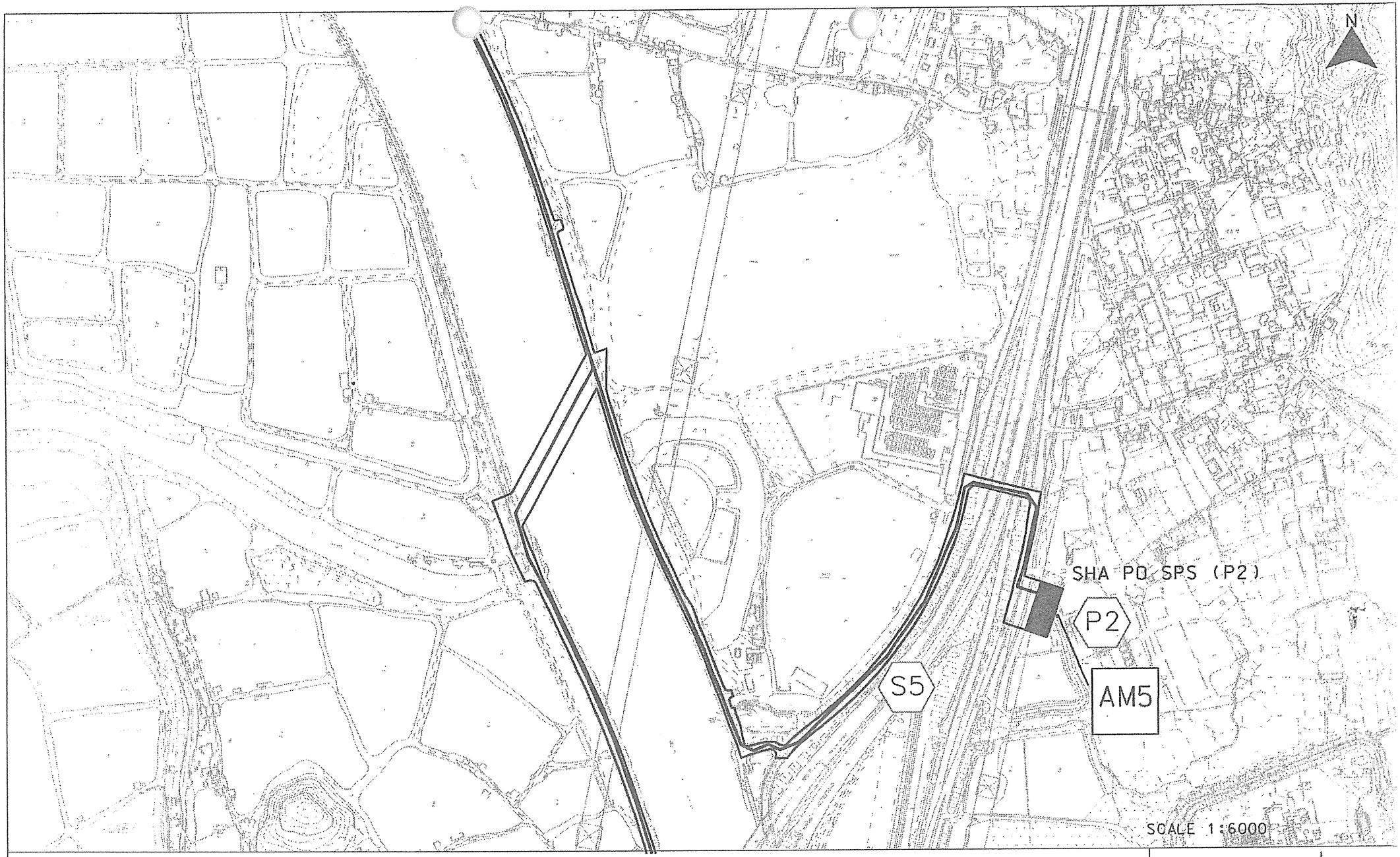


FIGURE 3.7b

LOCATION OF DUST MONITORING STATION (AM5)

Environmental Resources Management

ERM

USTN FILE: C2008/e1aa6r2a
DATE: 23/03/01

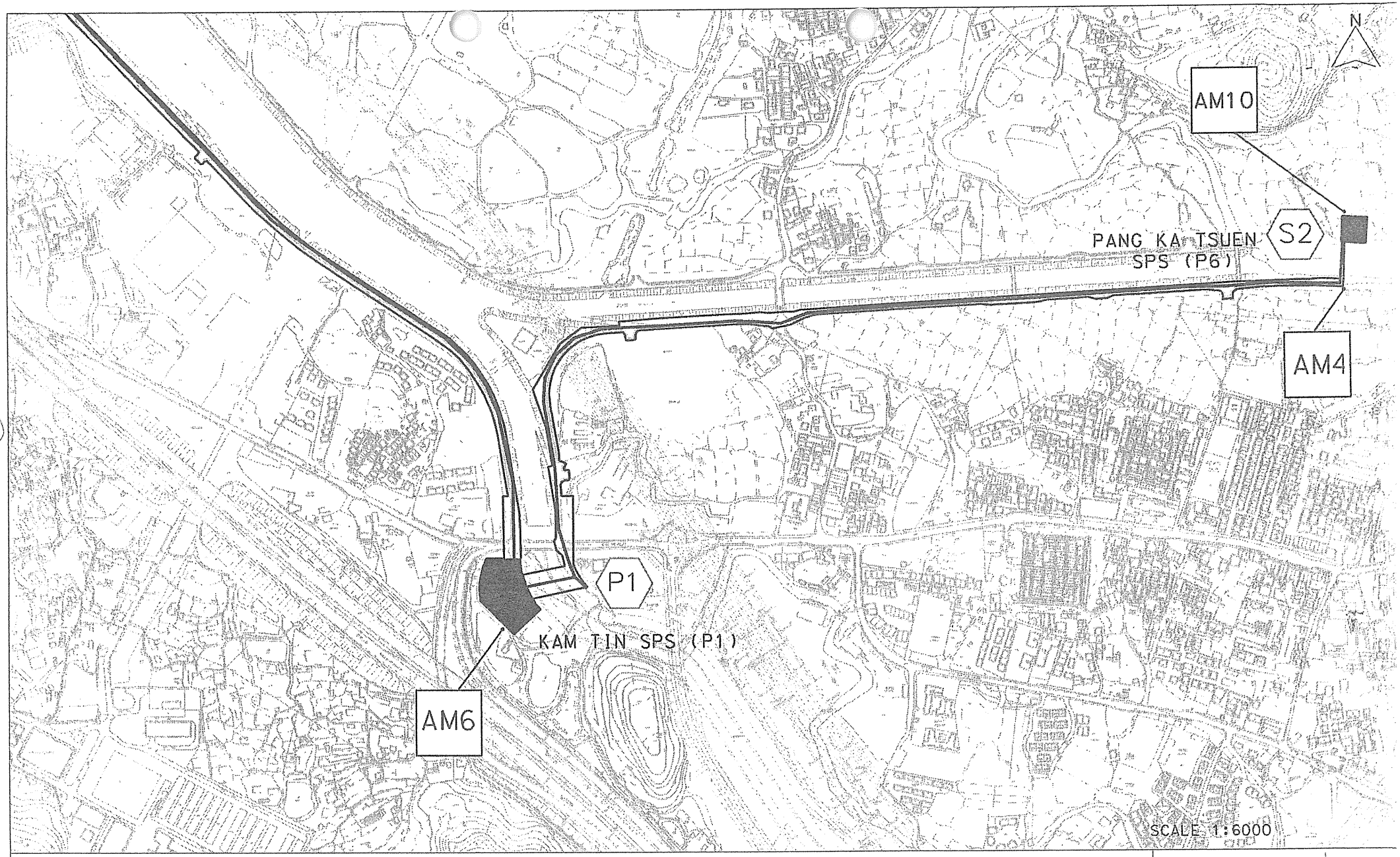


FIGURE 3.7a

LOCATION OF DUST MONITORING STATIONS (AM4, AM6 & AM10)

Environmental Resources Management

ERM

USTN FILE: C2008/e1oosr4o

DATE: 26/03/01

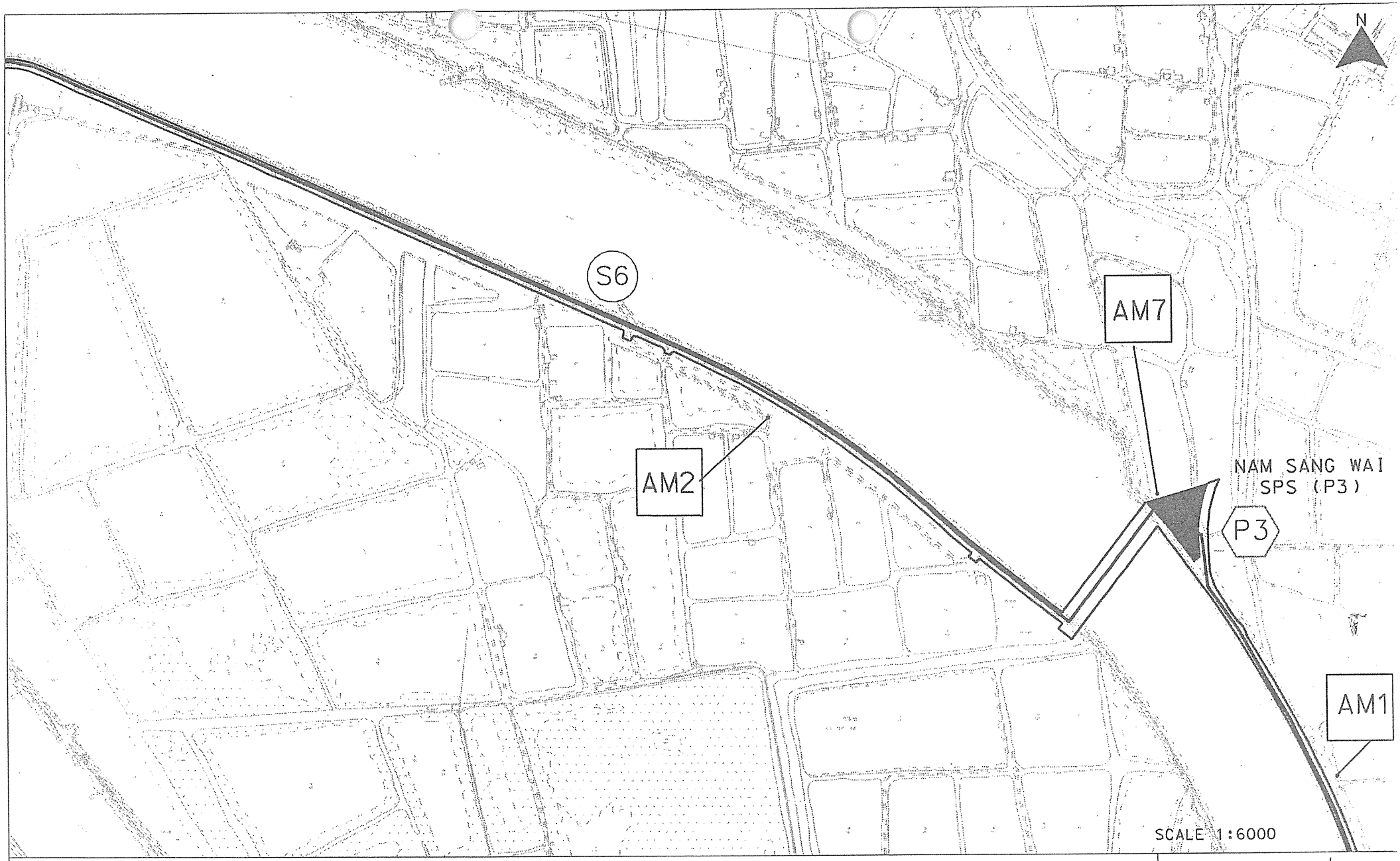


FIGURE 3.7c

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

Environmental Resources Management

ERM

USTN FILE: C2008/eiaasr1a

DATE: 23/03/01

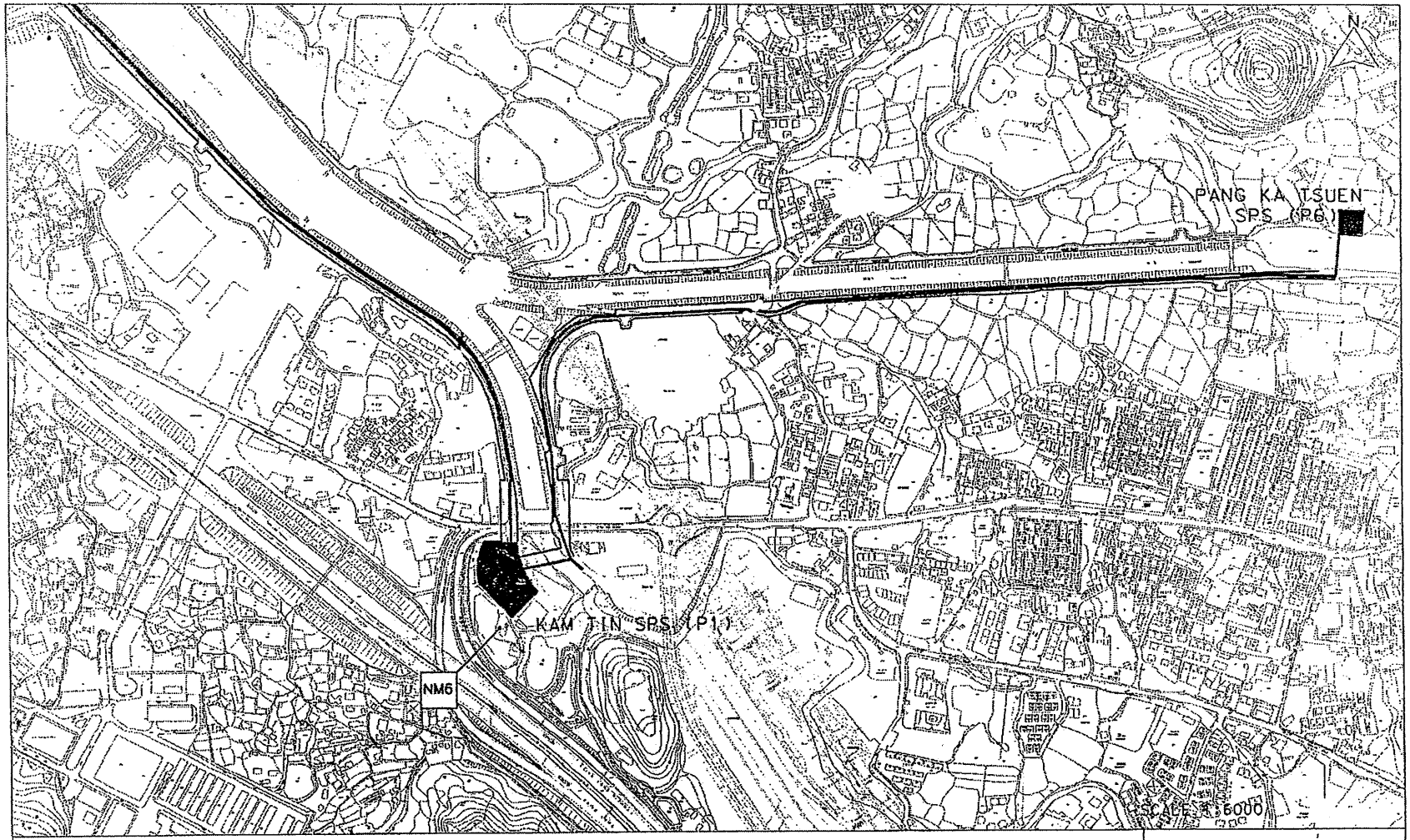


FIGURE C7

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

USTN FILE: C2000/EMBA/EMBA-C7
DATE: 23/08/01

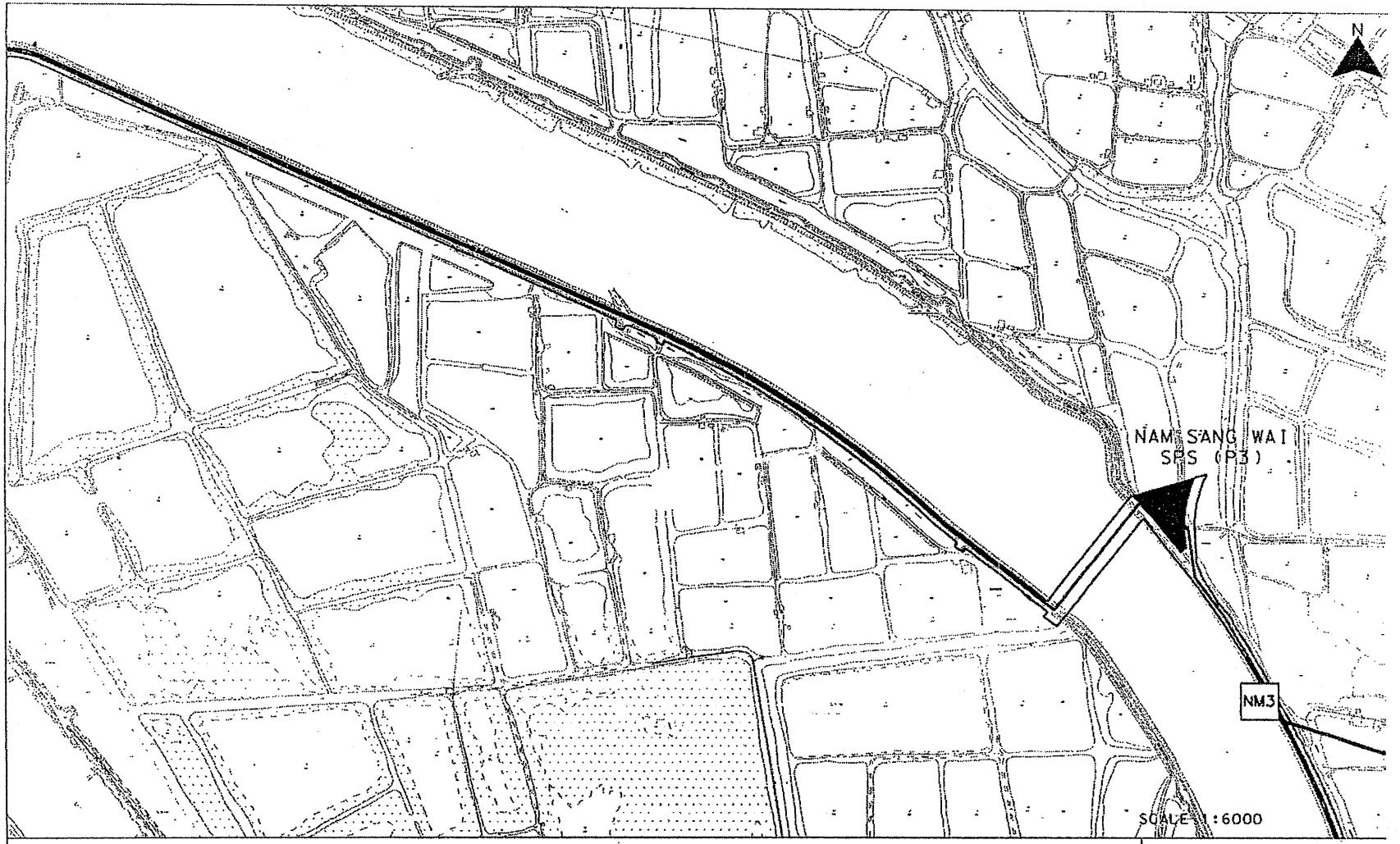


FIGURE C8

LOCATION OF NOISE MONITORING STATIONS (NM3, NM5)

USTN FILE: C2008/EM&A/EM3A-C8

DATE: 23/08/2001

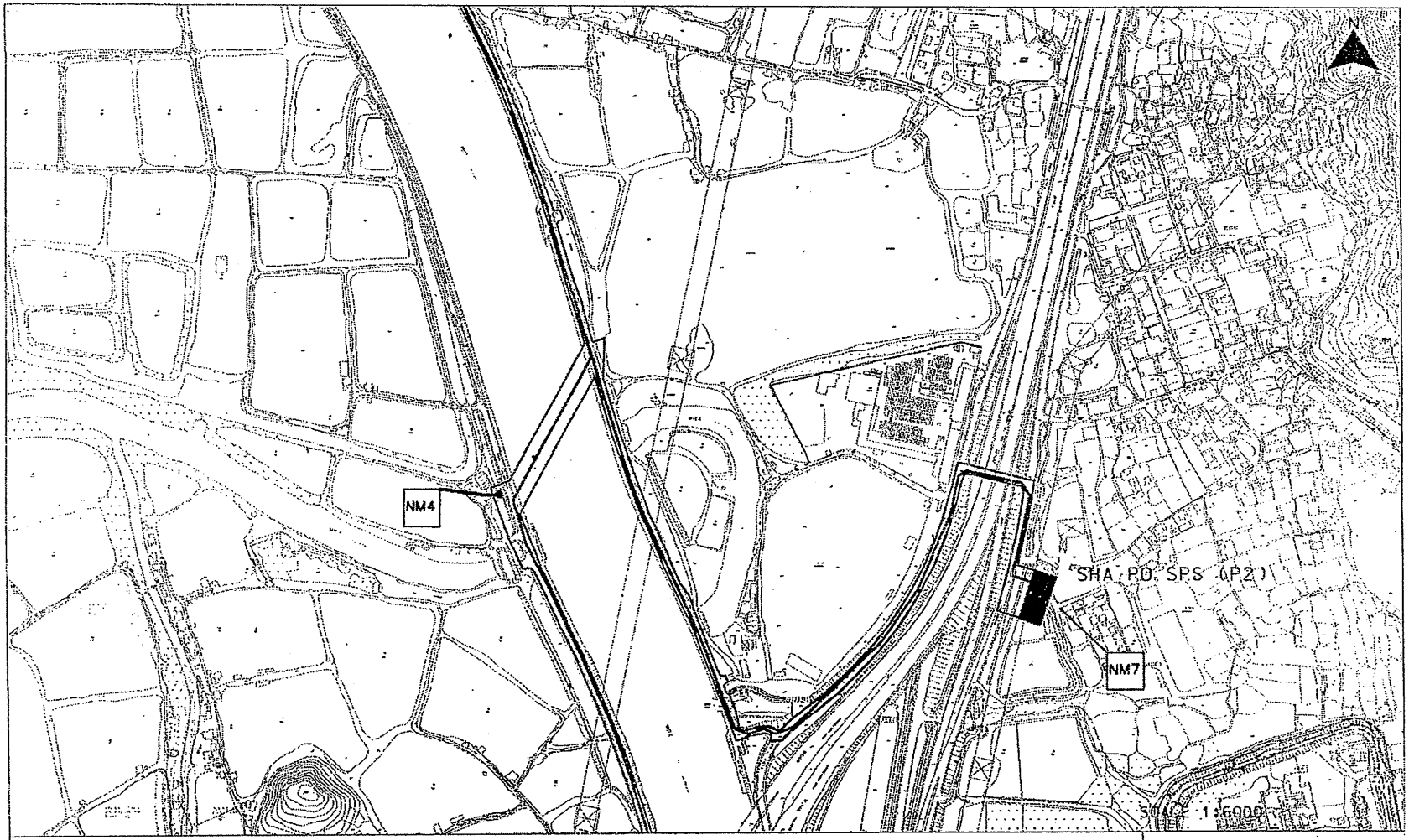


FIGURE C9

LOCATION OF NOISE MONITORING STATIONS (NM4, NM7)

USTN FILE: C2008/EMIA/EMIA-09
DATE: 23/08/2001

ANNEX E

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

Event and Action Plan for Construction Phase Air Quality

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. 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 F

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* **Use of vehicles**								
3.5	A3	• 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 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 Dust) Regulations*
		Power-driven drilling, and cutting								
3.5	A4	• 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*
		NOISE - *Construction Phase* ***General Site Clearance – Demolition Works***								
4.7.1	B1	• 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*
		Sewers and Rising Mains using Open Trench Method								
4.7.1	B3	• 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 (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.	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		✓			
		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*	To control potential noise impacts from PME during pavement and finish works	Site wide and throughout the full duration of the	The Contractor		✓			*Annex 5 of EIAO-TM*

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 Open Sites, BS 5228: Part 1: 1997,		construction contract.						
6.6.2	D1	**WASTE - *Construction Phase*** The Contractor shall obtain the necessary waste disposal permits from the appropriate authorities for the disposal of chemical and C&D waste, • Chemical Waste Producer and Chemical Waste Disposal Licence *(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))*
6.6.2	D5	*Management of Waste Disposal* 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.*
6.6.1 and 6.6.2	D6	*Waste Management Plan* A Waste Management Plan (WMP) should be prepared and this WMP should be submitted to the Engineer for approval. • Different types of waste should be segregated and stored in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. An on-site temporary storage area should be provided. • A recording system for the amount of wastes generated, recycled and disposal (including the disposal sites) should be proposed. • Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.	To control the disposal of and management of waste.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			*Works Bureau Technical Circular No 29/2000-Waste Management Plan*
3.7	H1	**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 (NDE). *Sewer in Au Tau Area (S7)* • Worksite boundary near San Yuen Long Centre (AM7)	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*
4.9.1	I2	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 (NDE).	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

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	
		• (NM3) Sun Yuen Long Centre;								
		• (NM6) Kam Tin San Tsuen;								
		• (NM7) Scattered House at Kam Sheung Road near Kam Tin Shi								
		• and at any additional locations, where considered necessary, in agreement with EPD								

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

ANNEX G

EQUIPMENT CALIBRATION CERTIFICATES

Equipment Calibration List for DSD Contract No. DE/2005/05 Supply and Installation of E&M Equipments for Nam Sang Wai, Sha Po and Kam Tin Sewage Pumping Stations

Items	Aspect	Description of Equipment	Serial No.	Date of Calibration	Date of Next Calibration
1*		Greasby Anderson GMWS2310 High Volume Sampler	(AM5)	1 Apr 09	1 Jul 09
2*		Greasby Anderson GMWS2310 High Volume Sampler	(AM6)	1 Apr 09	1 Jul 09
3*		Greasby Anderson GMWS2310 High Volume Sampler	1283 (AM7)	1 Apr 09	1 Jul 09
4	Noise	Bruel & Kjaer 4231 Acoustical Calibrator	2326408	22 Apr 08	22 Apr 09
5		Bruel & Kjaer 2238 Integrating Sound Level Meter	2285721	22 Apr 08	22 Apr 09
6*		Bruel & Kjaer 4231 Acoustical Calibrator	2326408	28 Apr 09	28 Apr 10
7*		Bruel & Kjaer 2238 Integrating Sound Level Meter	T212509	28 Apr 09	28 Apr 10

Note: Calibration certificates will only be provided if monitoring equipment is re-calibrated or new.
*Calibration done in this month, see calibration certificate attached.
**Calibration will be done in next month.

輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C092057

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter (EQ002)

Manufacturer : Cesva

Model No. : SC-20c

Serial No. : T212509

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C092057.

The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

Address : Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

Date of Issue : 28 April 2009

Certified by : K C Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report.

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C092063

Certificate of Calibration

This is to certify that the equipment

Description : Acoustical Calibrator (EQ081)

Manufacturer : Bruel & Kjaer

Model No. : 4231

Serial No. : 2326408

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C092063.

The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

Address : Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

Date of Issue : 28 April 2009

Certified by : K C Lee

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Nam Sang Wai	Date of Calibration:	1-Apr-09
Location ID :	AM 7 (Designated)	Next Calibration Date:	1-Jun-09
Serial No:	1283	Technician:	Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1017.8	Corrected Pressure (mm Hg)	763.35
Temperature (^{o}C)	18.8	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	1.54431
Model->	515N	Qstd Intercept ->	-0.01988
Serial # ->	0285		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected
18	4.7	4.7	9.4	2.024	42	42.99
13	3.9	3.9	7.8	1.844	36	36.85
10	3	3	6	1.619	29	29.68
7	2.1	2.1	4.2	1.357	23	23.54
5	1.2	1.2	2.4	1.029	15	15.35

LINEAR REGRESSION

Slope =	27.4503
Intercept =	-13.5427
Corr. coeff. =	0.9968

Calculations :

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

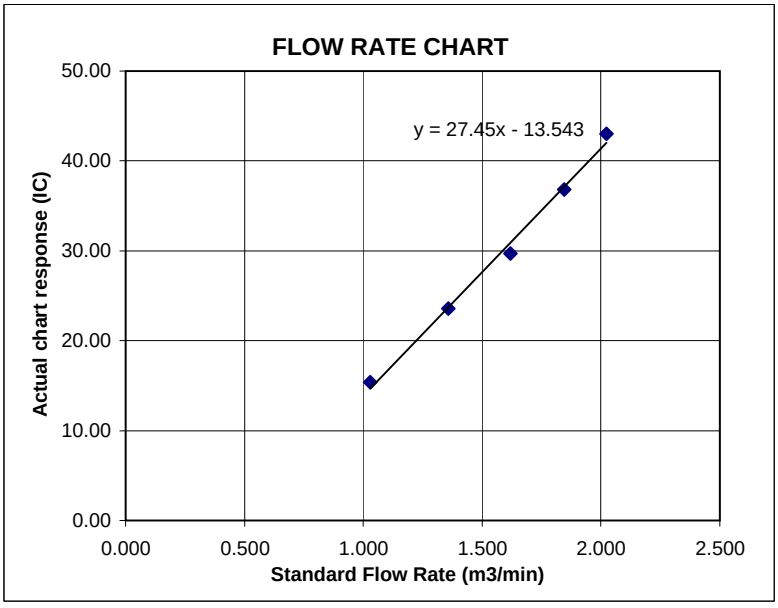
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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 : Tai Hing Car Shop (Scattered House near Route 3) Date of Calibration: 1-Apr-09
Location ID : AM 6 Next Calibration Date: 1-Jun-09
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1017.8	Corrected Pressure (mm Hg)	763.35
Temperature (^{o}C)	18.8	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	1.54431
Model->	515N	Qstd Intercept ->	-0.01988
Serial # ->	10394		

CALIBRATION

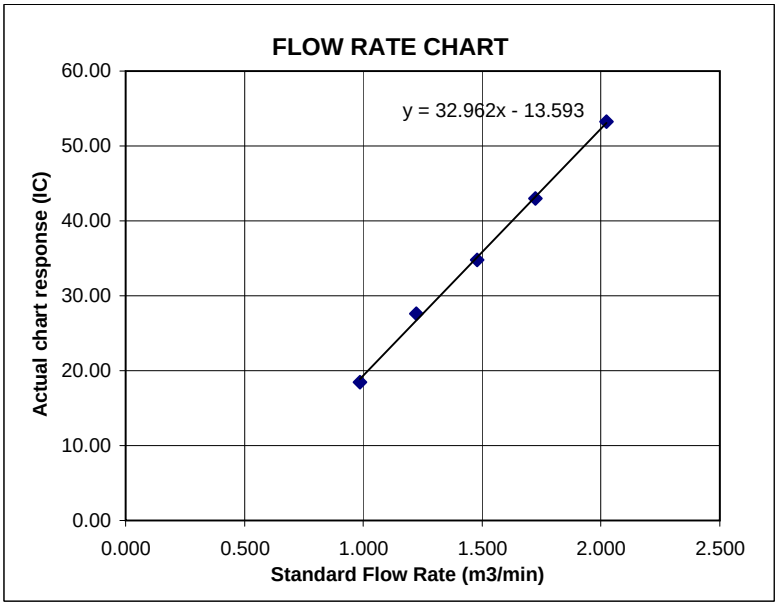
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	4.7	4.7	9.4	2.024	52	53.22	Slope = 32.9616
13	3.4	3.4	6.8	1.723	42	42.99	Intercept = -13.5926
10	2.5	2.5	5.0	1.479	34	34.80	Corr. coeff. = 0.9991
7	1.7	1.7	3.4	1.222	27	27.63	
5	1.1	1.1	2.2	0.986	18	18.42	

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 : Sha Po Pumping Station
Location ID : AM5

Date of Calibration: 1-Apr-09
Next Calibration Date: 1-Jun-09
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1017.8	Corrected Pressure (mm Hg)	763.35
Temperature (^{o}C)	18.8	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	1.54431
Model->	515N	Qstd Intercept ->	-0.01988
Serial # ->	355		

CALIBRATION

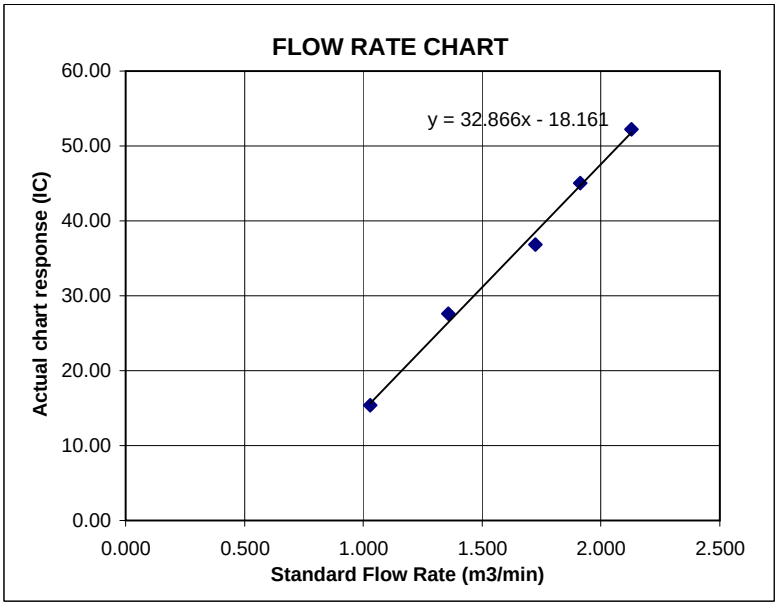
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.2	5.2	10.4	2.128	51	52.20	Slope = 32.8662
13	4.2	4.2	8.4	1.914	44	45.03	Intercept = -18.1609
10	3.4	3.4	6.8	1.723	36	36.85	Corr. coeff. = 0.9974
7	2.1	2.1	4.2	1.357	27	27.63	
5	1.2	1.2	2.4	1.029	15	15.35	

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 H

METEOROLOGICAL DATA IN THIS MONTH

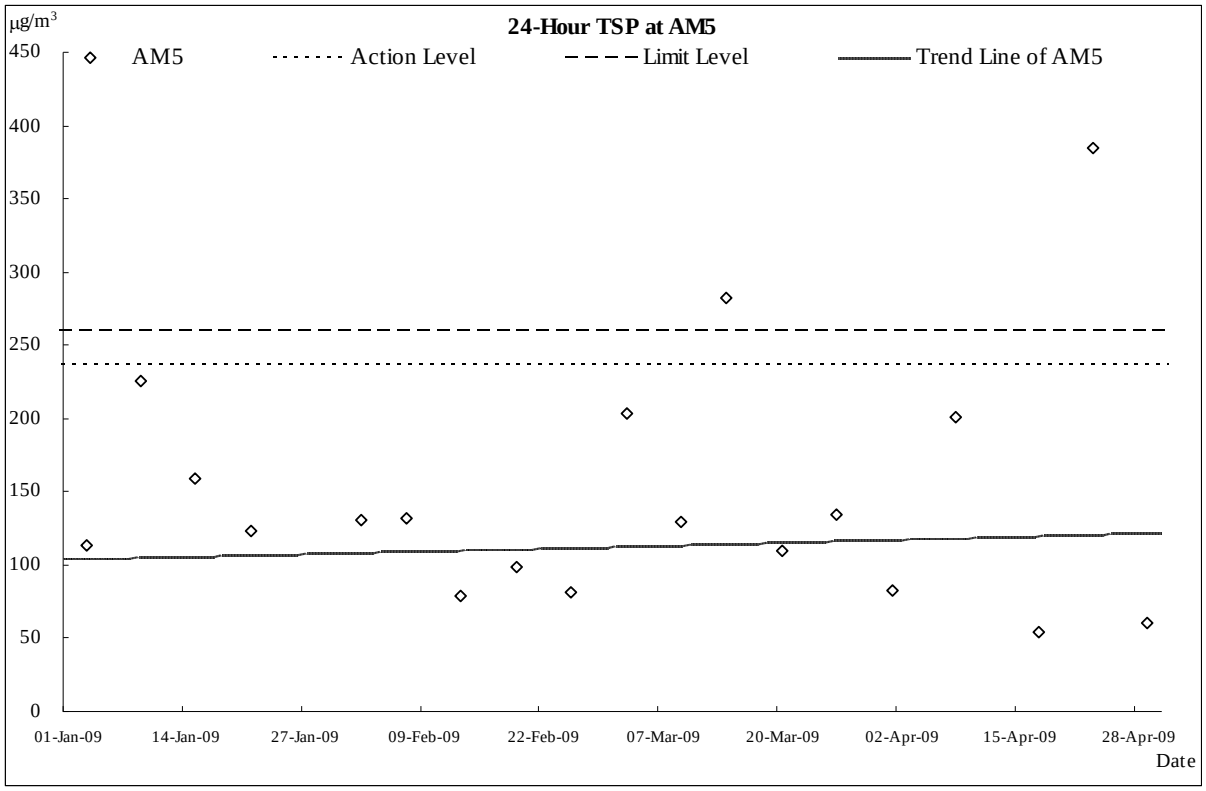
Meteorological Data Extracted From the HK Observatory at Lau Fau Shan Weather Station

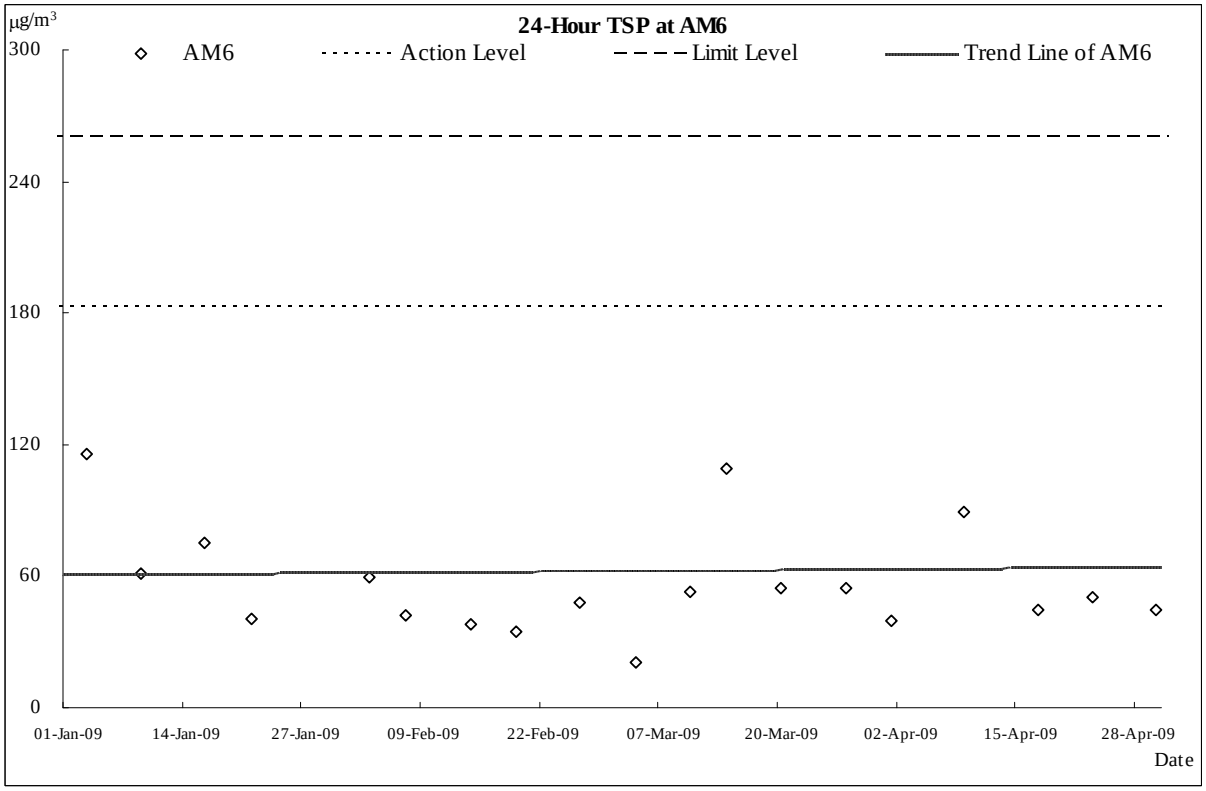
Date		Weather		Lau Fau Shan Weather Station			
			Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Apr-09	Wed	sunny	0	21.8	11.2	68.5	E/NE
2-Apr-09	Thu	cloudy/dry/rain/fresh/strong	Trace	19.7	17.2	58.5	E
3-Apr-09	Fri	cloudy/sunny intervals/fresh/strong	Trace	20.4	16.5	62.5	E
4-Apr-09	Sat	Holiday	-	-	-	-	-
5-Apr-09	Sun	cloudy/moderate/fresh	0	23.7	14	68.5	W/NW
6-Apr-09	Mon	cloudy/rain/moderate	8.1	18.2	13	76	E/NE
7-Apr-09	Tue	cloudy/dry/moderate	0.6	17.7	9.2	78.5	E/NE
8-Apr-09	Wed	cloudy/sunny periods/moderate/fresh	0	21.6	8.5	72.2	E/NE
9-Apr-09	Thu	dry/sunny periods/fresh/strong	0	22.7	14	57	E
10-Apr-09	Fri	Holiday	-	-	-	-	-
11-Apr-09	Sat	Holiday	-	-	-	-	-
12-Apr-09	Sun	Holiday	-	-	-	-	-
13-Apr-09	Mon	Holiday	-	-	-	-	-
14-Apr-09	Tue	fine/hazy/isolated showers/light winds	0	25.4	10.5	82	W/SW
15-Apr-09	Wed	sunny periods/cloudy/a few shoers/moderate/fresh	4.3	25	10	74.5	E/NE
16-Apr-09	Thu	sunny periods/showers/moderate	2.9	23	23.5	76.2	E/NE
17-Apr-09	Fri	haze/sunny intervals/cloudy/moderate/fresh	0	24.5	7.5	78	E/NE
18-Apr-09	Sat	cloudy/a few showers/fresh/strong	34.1	22.2	17.5	71	E/SE
19-Apr-09	Sun	cloudy/rain/strong	4.5	25.3	21	86	S/SW
20-Apr-09	Mon	sunny periods/cloudy/moderate	0	27.3	13.7	76	W/SW
21-Apr-09	Tue	cloudy/moderate	1.5	26.7	11.5	55.5	E/NE
22-Apr-09	Wed	cloudy/rain/fresh/strong	Trace	24.1	16.5	63	E
23-Apr-09	Thu	cloudy/rain/fresh/strong	0.2	25.1	20.5	70	E
24-Apr-09	Fri	cloudy/mist/moderate	Trace	25.3	11.7	78	E/SE
25-Apr-09	Sat	overcast/rain/squally thunderstorm/moderate./fresh	43	21.4	15	81.5	E/NE
26-Apr-09	Sun	cloudy/sunny intervals/moderate/fresh	4.5	19	11	87	E/SE
27-Apr-09	Mon	sunny periods/cloudy/moderate/fresh	0	22.7	15.2	67	E/NE
28-Apr-09	Tue	fine/dry/fresh/strong	0	23.3	19.5	48.5	E
29-Apr-09	Wed	sunny periods/cloudy/moderate/fresh	0	23.2	16.2	44	E/SE
30-Apr-09	Thu	cloudy/sunny periods/moderate/fresh	Trace	24.3	17	61	E

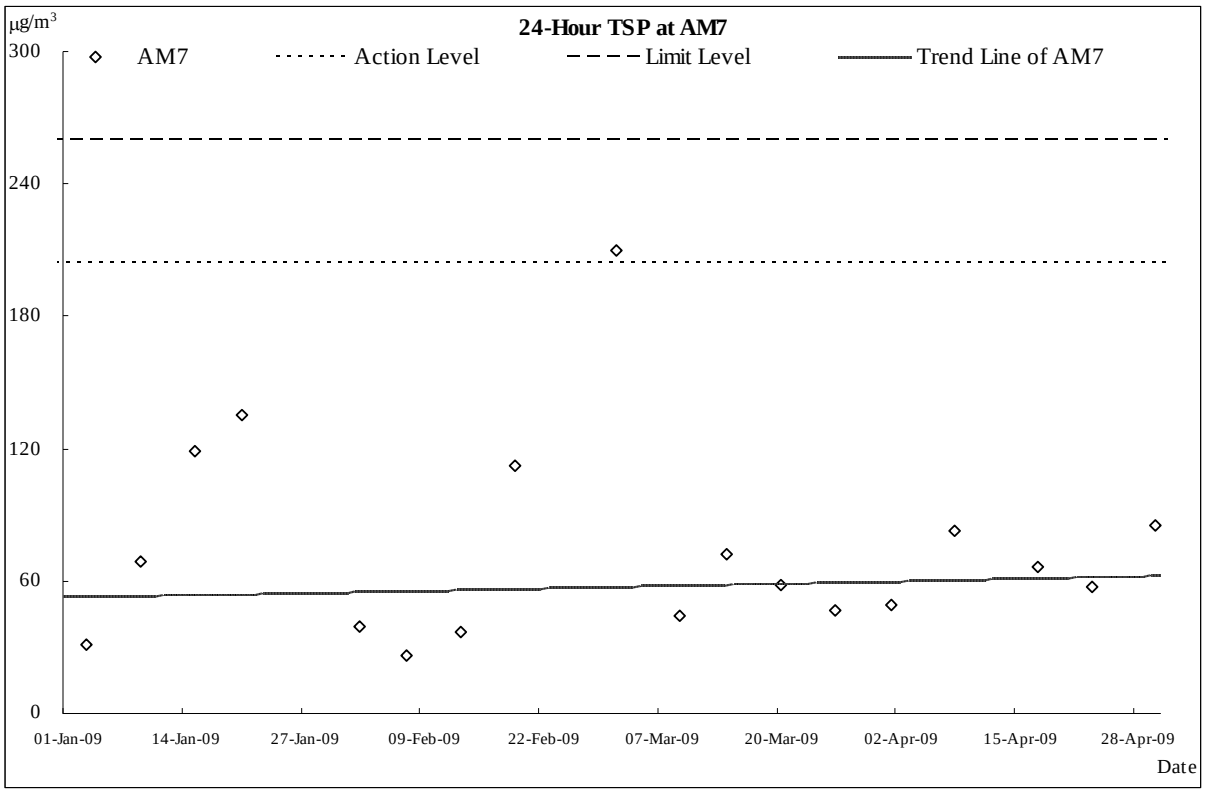
ANNEX I

GRAPHICAL PLOTS OF AIR QUALITY AND CONSTRUCTION NOISE MONITORING RESULTS

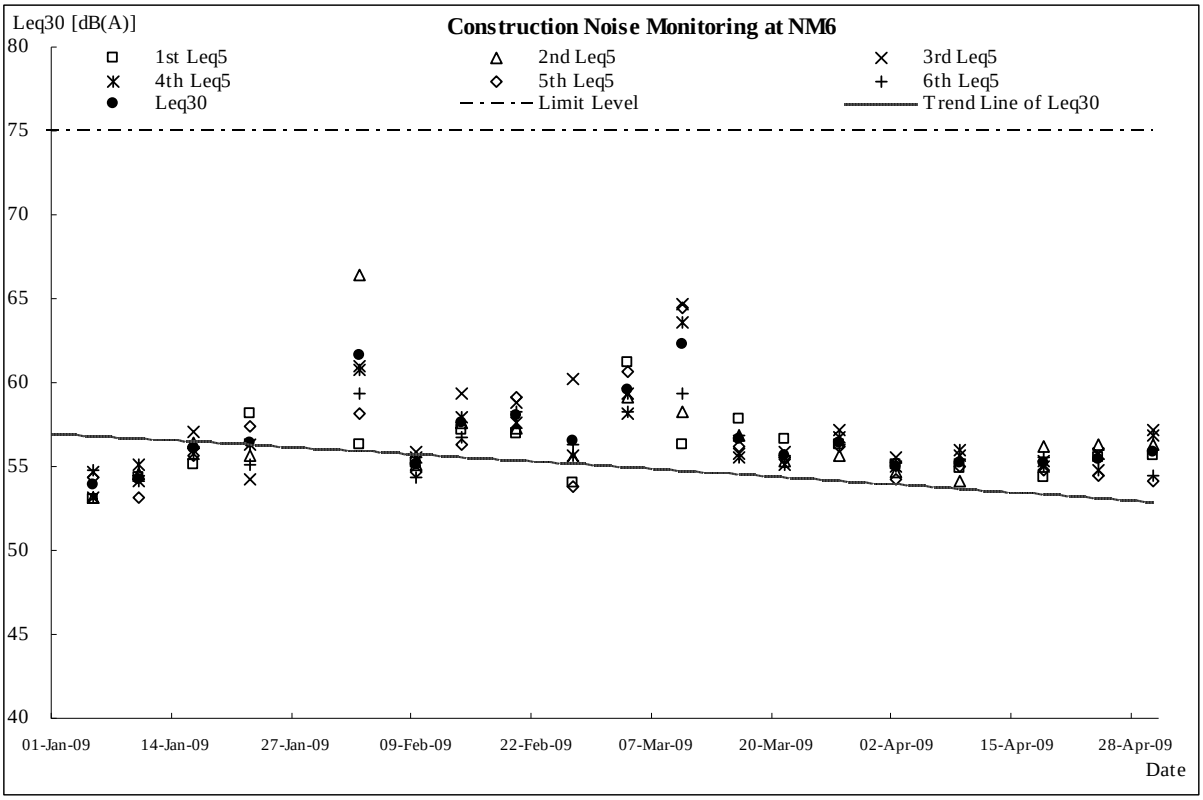
Air Quality Monitoring Results

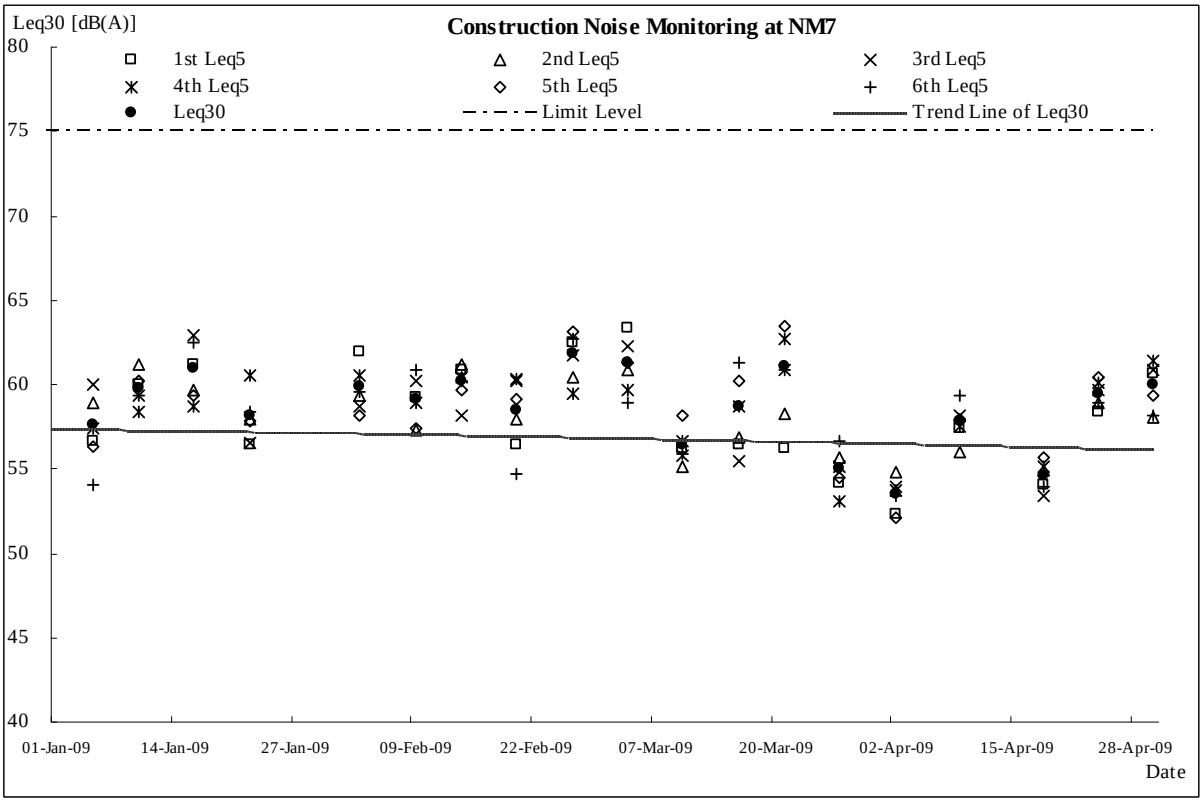


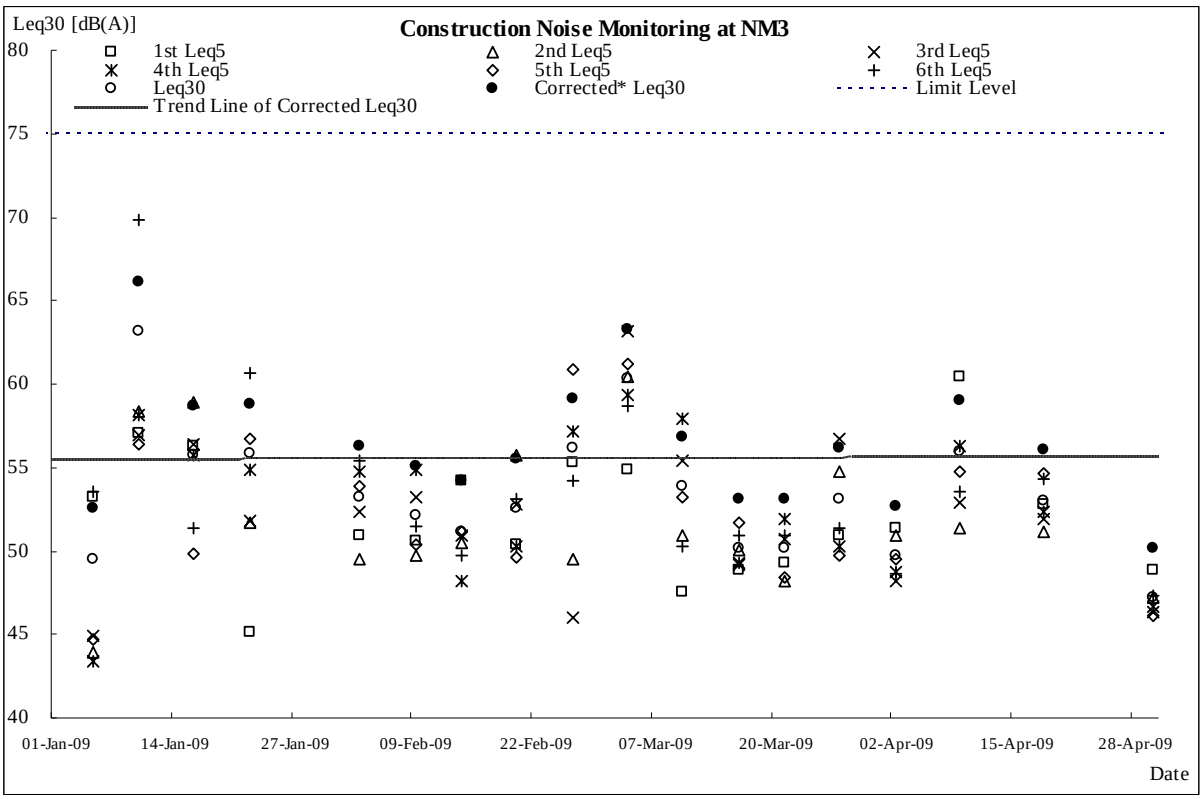



24-Hour TSP at AM7
µg/m3
AM7
Action Level
Limit Level
Trend Line of AM7
300
240
180
120
60
0
01-Jan-09
14-Jan-09
27-Jan-09
09-Feb-09
22-Feb-09
07-Mar-09
20-Mar-09
02-Apr-09
15-Apr-09
28-Apr-09
Date

Construction Noise Monitoring Results






Construction Noise Monitoring at NM3
Leq30 [dB(A)]
1st Leq5
2nd Leq5
3rd Leq5
4th Leq5
5th Leq5
6th Leq5
Leq30
Corrected* Leq30
Limit Level
Trend Line of Corrected Leq30
80
75
70
65
60
55
50
45
40
01-Jan-09
14-Jan-09
27-Jan-09
09-Feb-09
22-Feb-09
07-Mar-09
20-Mar-09
02-Apr-09
15-Apr-09
28-Apr-09
Date

ANNEX J

RESPONSE TO COMMENTS

Project: **DSD Contract No. DE/2005/05 Supply and Installation of E&M Equipments for Nam Sang Wai, Sha Po and Kam Tin Sewage Pumping Stations**

Comment From: **IEC [Received from E-mail on 12 April 2009]**

Report/Document **Monthly Environmental Monitoring and Audit (EM&A) Report for April 2009 (R0015 Version 1)**

Items	Section / Paragraph	Comments	ET's Response
1	ES05 and S6.01	Please check the date of TSP exceedances. Re-wording is suggested.	The 24-hr TSP exceedance at AM5 on 23 April. Re-wording has made in EX05 and S6.01. See ***Amendment Sheet (AS 1 - 2)*** for details
2	S5.19 and Table 5-3	Please double check the date of TSP exceedances and TSP levels.	Same as Item 1. See ***Amendment Sheet (AS 3)*** for details
3	Annex B	The O'chart attached is for DC/2005/02, not DE/2005/05.	It has been provided. See ***Amendment Sheet (AS 4)*** for details
4	Annex G	Serial no for AM7 calibration record is not the same as the summary table.	It is checked that the serial number for AM7 is 1283 which is same as the summary table.
5	Annex G.	Calibration records for noise meter and calibrator are missing. The calibration expired on 22 Apr but there were monitoring carried out on 24 and 30 Apr.	The expired calibration record was enclosed in the first monthly report as it is stated that "calibration certificates will only be provided if monitoring equipment is re-calibrated or new." The renewed calibration record is enclosed. See ***Amendment Sheet (AS 5)*** for details. The explanation for the monitoring date 24 and 30 Apr 2009 has been included in the text. See ***Amendment Sheet (AS 3)*** for details.
6	Annex I.	Plotting for NM3 is highlighted, we assumed it needs to be updated.	No update is needed. See ***Amendment Sheet (AS 6)*** for the revised.
7	Annex I	. Please adjust the y-axis for AM5 plotting.	Done. See ***Amendment Sheet (AS 7)*** for the revised.