**JOB NO.: TCS00310/06** 

REVISION NO.: 3 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

**BI-ANNUAL ENVIRONMENTAL MONITORING &** AUDIT (EM&A) SUMMARY REPORT FOR APRIL 2008 TO SEPTEMBER 2008 (No. 5) (DESIGNATED ELEMENTS)

#### **PREPARED FOR**

**Quality Index** 

LEADER CIVIL ENGINEERING CORPORATION LIMITED

Date		Reference No.		
02 February 2009		TCS00310/06/600/R0717r3		
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1	15 Jan 09	First Submission	
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#### **EXECUTIVE SUMMARY**

- ES01. 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.
- ES02. This is the Fifth Bi-Annual EM&A Summary Report for April 2008 to September 2008 (No. 5) reporting the environmental impact monitoring and audit (EM&A) conducted from 01 April 2008 to 30 September 2008. EM&A program implemented in this reporting period (April 2008 to September 2008) covered air quality, noise and waste management.

#### **BREACH OF ACTION AND LIMIT (AL) LEVELS**

- ES03. One Action Level exceedance of air quality was found at AM6 on 13 May 2008. The notification of exceedance was issued on 21 May 2008 upon received the laboratory on 20 May 2008. Based on the Contractor provide information, only removal of first layer waling & strut, extract sheet pile by silent piler and pour concrete to staircase during the period. No major construction works with intense dust emission were being carried out. Moreover, the API Index was recorded "High" (59) on 13 May 2008 at Yuen Long district. Therefore the exceedance of 24-Hour TSP Monitoring on 13 May 2008 at Location AM6 was considered not work related.
- ES04. No further 24-Hour TSP exceeedance of Action or Limit Level was recorded in this reporting period.
- ES05. There was no breach of Action or Limit level for noise monitoring in this reporting period.

#### **ENVIRONMENTAL SITE INSPECTION**

ES06. Representatives of the Engineer, the Contractor and ET carried out regular weekly joint site inspection throughout the reporting period to evaluate the site environmental performance. Joint IEC site inspection had been taken in monthly basis. Joint IEC site inspection had been taken in monthly basis, one non-compliance, twenty-nine observations and two reminders were recorded in the reporting period. For the ET weekly site inspection, total fourth-two observations and two reminders were recorded in the reporting period.

#### **COMPLAINT LOG**

ES07. No environmental complaint was received in this reporting period.

#### NOTIFICATION OF ANY SUMMONS AND SUCCESSFUL PROSECUTION

ES08. There was no environmental summons or prosecution in this reporting period.



#### **REPORTING CHANGES**

There are no changes to be reported in this reporting period. ES09.

#### ADEQUACY OF EM&A

ES10. Based on the data collected and reviewed for the period between April 2008 to September 2008 (as reported herein), it can be confirmed that the monitoring work is effective and that it is generating data to categorically confirm the observation of impact attributable to the works.



#### **BASIC PROJECT INFORMATION** 1.0

- 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**.
- This 5<sup>th</sup> Bi-Annual EM&A Summary Report for April 2008 to September 2008 1.02 (No. 5) summarizes the impact monitoring results and audit findings in the reporting period from April 2008 to September 2008.

#### **PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE**

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

#### **CONSTRUCTION PROGRAM FOR THE REPORTING PERIOD**

1.04 A construction program showing the construction work undertaken in this reporting period is shown in Annex C.

#### WORKS UNDERTAKEN DURING THE REPORTING PERIOD

1.05 The major construction work undertaken during the reporting period under the Environmental Permit (EP-220/2005) is shown in Table 1-1.

<b>Reporting Month</b>	Construction Activities
April 2008	<ul> <li>Backfilling, construct piping &amp; manhole and extract sheet pile at Kam Tin Pumping Station (P1);</li> <li>Backfilling, concreting and steel reinforcement work at Sha Po Pumping Station (P2);</li> <li>Formwork and steel reinforcement work at Nam Sang Wai Pumping Station (P3);</li> <li>Sheet piling, excavation, pipe laying, backfilling, concreting, pipe jacking and extract sheet pile at Nam Sang Wai Road (S4) and Pok Wai South Road (S5 and S6).</li> </ul>
May and June 2008	<ul> <li>Backfilling, concreting and extract sheet pile at Kam Tin Pumping Station (P1);</li> <li>Backfilling and concreting at Sha Po Pumping Station (P2) and Nam Sang Wai Pumping Station (P3); and</li> <li>Sheet piling, excavation, pipe laying, backfilling, concreting, pipe jacking and extract sheet pile at Nam Sang Wai Road (S4) and Pok Wai South Road (S5 and S6).</li> </ul>
July, August and September 2008	<ul> <li>Backfilling, concreting and extract sheet pile at Kam Tin Pumping Station (P1) and Sha Po Pumping Station (P2);</li> <li>Backfilling and concreting at Nam Sang Wai Pumping Station (P3); and</li> <li>Sheet piling, excavation, pipe laying, backfilling, concreting, pipe jacking and extract sheet pile at Nam Sang Wai Road (S4) and Pok Wai South Road (S5 and S6).</li> </ul>

Table 1-1	<b>Construction Activities in this Reporting Period</b>
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#### 2.0 ENVIRONMENTAL STATUS

#### WORK UNDERTAKEN DURING THE REPORTING PERIOD WITH ILLUSTRATIONS

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

## Table 2-1WorkUndertaken inReportingPeriodwithIllustrationsofMitigation Measures

Locations	Description of Construction Activities	Environmental Mitigation Measures	EM&A Ref.
P1 (Kam Tin Pumping Station)	<ul><li> Back filling</li><li> Extract sheet pile</li><li> Concreting</li></ul>	<ul> <li>Erect 2.4m high noise barrier hoarding around the works area at P1, P2 and P3</li> <li>Remove dust and spray water at the construction access</li> <li>Cover the stockpiles of dusty material properly</li> <li>Spray water to all dusty materials immediately before loading and unloading</li> </ul>	A1 & F6 A2 A3 A4
P2 (Sha Po Pumping Station) and P3 (Nam Sang Wai Pumping Station	<ul> <li>Back filling</li> <li>Concreting</li> <li>Steel reinforcement work</li> </ul>	<ul> <li>Wash the wheels of vehicles before leaving the site</li> <li>Install and use power-operated cover at the dump trucks</li> <li>Spray water at the pavement breaking locations</li> <li>Spray the working area of excavation frequently</li> <li>Maximize the use of quiet PME on site</li> <li>Apply and obtain appropriate waste disposal licenses</li> </ul>	A5 A6 A7 A8 B1, B2 & F5 D1
S4 (Nam Sang Wai Road) and S5 & S6 (Pok Wai South Road)	<ul> <li>Sheet piling</li> <li>Excavation</li> <li>Pipe laying</li> <li>Backfilling</li> <li>Concreting</li> <li>Pipe jacking</li> <li>Extract sheet pile</li> </ul>	<ul> <li>Handle, store and dispose of chemical wastes as per relevant regulations</li> <li>Implement trip-ticket system for waste disposal</li> <li>Restrict open fires and provide fire fighting equipment in the works area</li> </ul>	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 There are designated four monitoring stations for air quality and construction noise under the EM&A Manual. Descriptions of monitoring stations are summary in Table
 2-2. Drawings showing the designated monitoring stations are presented in Annex E.

Table 2-2Description of the Monitoring Stations

Station ID	Nature of Premise	Site Work Description	Station Coordinates
AM1	Site Boundary in NSW		835829 N 822910 E
AM5	Site Boundary in FKH	Excavation;	835121 N 823515 E
AM6	Site Boundary in KT	Sheet piling;	833308 N 823987 E
AM7	Site Boundary in NSW	Backfilling;	836171 N 822586 E
NM3	Village House in NSW	Pipe laying;	835808 N 822817 E
NM4	Village House in NSW	Concreting; and	835282 N 822811 E
NM6	Village House in KT	Extract sheet pile	833288 N 823999 E
NM7	Village House in FKH		835121 N 823495 E

2.04 In this reporting period, the impact monitoring was carried out at four designated air and four noise monitoring stations in according to the monitoring schedule.

#### 3.0 SUMMARY OF EM&A REQUIREMENTS

#### MONITORING PARAMETERS

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

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

Table 3-1	Summary of EM&A Requirements
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#### **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 3-2Action and Limit Levels for Air Quality Monitoring

Monitoring Stations	Action Level (µg/m <sup>3</sup> )		Limit Level (µg/m <sup>3</sup> )	
Wollitor ing Stations	1-Hour TSP	24-Hour TSP	1-Hour TSP	24-Hour TSP
AM1	>391	>184	>500	>260
AM5	>353	>237	>500	>260
AM6	>329	>183	>500	>260
AM7	>383	>204	>500	>260

#### Table 3-3Action and Limit Levels for Construction Noise

Monitoring Period	Action Level	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 AND ENVIRONMENTAL SUBMISSIONS

- 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 the reporting period is presented in Table 4-1.

Table 4-1	Status of Environmental Licenses and Permits in the Repor	rting
	Period	_

Items	Item Description	Licenses/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 (5213-528-L2544-08)	Registration on 27 Jan 2006		
4	Water Pollution Control (Discharge license No. 1U434/1)	Applied to EPD on 7 Feb 2006		
5	Account for Disposal of Construction Waste No. 5004959	Registration on 27 Dec 2005		
6	Piling Permit (PP No.RN0008-08)	Valid (22 May 2008 to 21 Feb 2009)		
7	Construction Noise Permit (CNP No. GW-RN0479-07)	Valid (06 Nov 2007 to 05 May 2008)		
8	Construction Noise Permit (CNP No. GW-RN0480-07)	Valid (06 Nov 2007 to 05 May 2008)		

#### 5.0 MONITORING RESULTS

#### PARAMETERS MONITORED

5.01 The environmental parameters monitoring in the reporting period is compliance with the monitoring requirements as in **Table 3-1**.

#### **MONITORING LOCATIONS**

5.02 There are four designated air quality and four noise monitoring stations under the project EP. For this reporting period, monitoring was carried out at four designated air (AM1, AM5, AM6 & AM7) and four noise (NM3, NM4, NM6 & NM7) monitoring stations/locations. The locations of the designated monitoring stations/locations are shown in Table 5-1 and geographically in Annex E.

#### Table 5-1 Location of Air Quality and Construction Noise Monitoring Stations/Locations

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

#### MONITORING FREQUENCY AND PERIOD

- 5.03 The impact 24-Hour TSP monitoring was conducted at the designated stations once every 6 days in compliance with the updated EM&A manual.
- 5.04 For AM1, power supply damage from 28 February 2008 to 5 April 2008, so the 24-Hour TSP monitoring was performed on 7 April 2008.
- 5.05 Power failure at AM1 on 30 May, 30 June & 21 July 2008, AM5 on 24 September 2008, AM6 on 06 to 30 June & 30 August 2008 and AM7 on 30 May, 06 & 12 June 2008 were recorded in this reporting period.
- 5.06 A total of **110** monitoring events were carried out in the reporting period.
- 5.07 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 **120** monitoring events were carried out in the reporting period.

#### MONITORING RESULTS AND GRAPHICAL PLOT IN THE REPORTING PERIOD

5.08 The graphical plot and monitoring results of air quality and construction noise for the reporting period are summarized in **Annex H**.

- 5.09 One Action Level exceedance of air quality was found at AM6 on 13 May 2008. The notification of exceedance was issued on 21 May 2008 upon received the laboratory on 20 May 2008. Based on the Contractor provide information, only removal of first layer waling & strut, extract sheet pile by silent piler and pour concrete to staircase during the period. No major construction works with intense dust emission were being carried out. Moreover, the API Index was recorded "High" (59) on 13 May 2008 at Yuen Long district. Therefore the exceedance of 24-Hour TSP Monitoring on 13 May 2008 at Location AM6 was considered not work related.
- 5.10 No further 24-Hour TSP exceeedance of Action or Limit Level was recorded in this reporting period.
- 5.11 All construction noise monitoring were complied with the Limit Level and no noise complaint (Action Level) was received in this reporting period.

#### WEATHER CONDITIONS DURING THE MONITORING PERIOD

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

#### **OTHER FACTORS INFLUENCING THE MONITORING RESULTS**

5.13 There were no other noticeable external factors generally affecting the monitoring results in the reporting period.

#### **QA/QC RESULTS AND DETECTION LIMITS**

5.14 Not applicable.

#### 6.0 SOLID AND LIQUID WASTE MANAGEMENT STATUS

#### SOLID AND LIQUID WASTE MANAGEMENT STATUS

6.01 The cumulative quantities of waste for disposal or reuse in the reporting period are summarized in **Tables 6-1** and **6-2**.

# Table 6-1Cumulative Quantities of Waste for Disposal in the Reporting<br/>Period

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (tons) – Disposed	19.985	Tuen Mun 38 Fill Bank
C&D Materials (Inert) (tons) – Reused	1.76	DSD Contract DC/2005/02
C&D Materials (Non-Inert) (kg)	0	NENT
Chemical Waste (Litres)	2.1	License Collector
General Refuse (tons)	0.39	Refuse Collector

## Table 6-2CumulativeQuantitiesofWasteforReuse/RecyclingintheReporting Period

Type of Waste	Quantity	<b>Disposal Location</b>
Metals for Recycling (kg)	25.40	NA
Paper for Recycling (kg)	0	NA
Plastics for Recycling (kg)	0	NA

6.02 There was no site effluent discharged but an estimated volume of less than 50m<sup>3</sup> of surface runoff was discharged for each reporting month. The sampling of effluent had been carried out by the Contractor in the reporting period.

#### **ENVIRONMENTAL SITE INSPECTIONS**

6.03 Representatives of the Engineer, the Contractor and ET carried out regular weekly joint site inspection throughout the reporting period to evaluate the site environmental performance. Joint IEC site inspection had been taken in monthly basis, one non-compliance, twenty-nine observations and two reminders were recorded in the reporting period. For the ET weekly site inspection, total fourth-two observations and two reminders were recorded in the reporting period. Date of inspection and audit are summarized in Table 6-3.



<b>Reporting Months</b>	Site Inspection Date	Checklist Reference Number
April 2008	01 April 2008	DSD-AT010408
	08 April 2008*	DSD-AT080408*
	15 April 2008	DSD-AT150408
	22 April 2008	DSD-AT220408
	29 April 2008	DSD-AT290408
May 2008	06 May 2008	DSD-AT060508
	16 May 2008	DSD-AT160508
	20 May 2008	DSD-AT200508
	27 May 2008*	DSD-AT270508*
June 2008	03 June 2008	DSD-AT030608
	10 June 2008	DSD-AT100608
	18 June 2008	DSD-AT180608
	24 June 2008	DSD-AT240608
	30 June 2008*	DSD-AT300608*
July 2008	08 July 2008	DSD-AT080708
	15 July 2008	DSD-AT150708
	22 July 2008*	DSD-AT220708*
	29 July 2008	DSD-AT290708
August 2008	05 August 2008	DSD-AT050808
	12 August 2008	DSD-AT120808
	19 August 2008*	DSD-AT190808*
	26 August 2008	DSD-AT260808
September 2008	02 September 2008	DSD-AT020908
	09 September 2008	DSD-AT090908
	16 September 2008	DSD-AT160908
	23 September 2008*	DSD-AT230908*
	30 September 2008	DSD-AT300908

Note: \*Joint IEC monthly site audit

6.04 The weekly/monthly site inspection and audit checklists in this reporting period were presented in the previous Monthly EM&A Reports.

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

#### $\label{eq:record} \textbf{Record of Non-Compliance of Action and Limit Levels}$

7.01 No project related Action or Limit Level exceedance was recorded in the reporting period. The summary of exceedance was presented in **Table 7-1**.

Table /-1	Summaries of Exceedance	in the Reporting Period
Penarting	Work-Related Exceedance (%)	Work-Related Exceedance

Commence of France January in the Damastic Provide

Reporting	Work-Related Exceedance (%)	Work-Related Exceedance (%)
Month	for 24-Hour TSP	for Leq (30mins) Daytime
April 2008	0	0
May 2008	0	0
June 2008	0	0
July 2008	0	0
August 2008	0	0
September 2008	0	0

#### **RECORD OF ENVIRONMENTAL COMPLAINTS RECEIVED**

T-LL 7 1

7.02 No environmental complaint was received in the reporting period and summary of was presented in Table 7-2.

Table 7-2	Summaries of Environmental	<b>Complaint in</b>	the Reporting Period
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Reporting Month	Complaint Statistics			
Reporting Month	Frequency	Cumulative	<b>Complaint Nature</b>	
April 2008	0	0	NA	
May 2008	0	0	NA	
June 2008	0	0	NA	
July 2008	0	0	NA	
August 2008	0	0	NA	
September 2008	0	0	NA	

#### RECORD OF NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTION

7.03 No notification of summons or prosecution was received in the reporting period. The summary of environmental summons and prosecution was presented in Table 7-3.

Table 7-3	Summaries of Environmental Summons and Prosecution in the
	Reporting Period

Reporting Month	Environmental Summons and Prosecution Statistics				
Kepoi ing Month	Summons	Prosecution	Nature		
April 2008	0	0	NA		
May 2008	0	0	NA		
June 2008	0	0	NA		
July 2008	0	0	NA		
August 2008	0	0	NA		
September 2008	0	0	NA		

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

7.04 No NC, complaints or NoS received in the reporting period.

### **DESCRIPTION OF FOLLOW-UP ACTIONS TAKEN**

7.05 No NC, complaints or NoS received in the reporting period.

#### 8.0 CONCULSIONS FOR THE PERIOD APRIL 2008 TO SEPTEMBER 2008

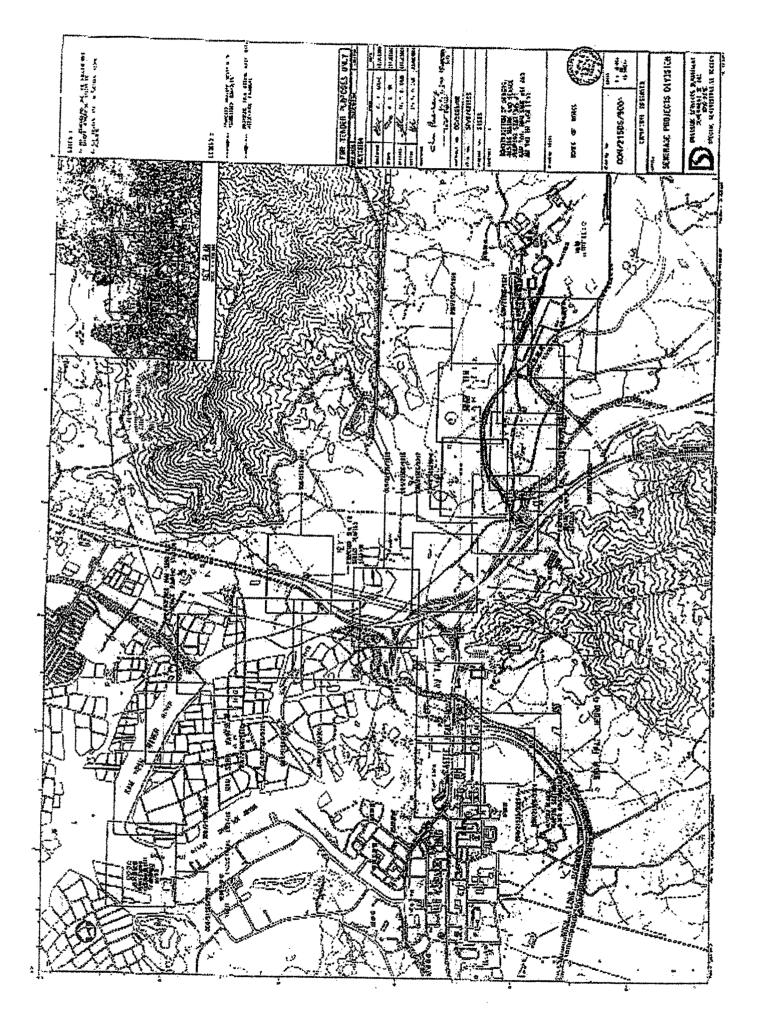
8.01 Based on the data collected and reviewed for the period between April 2008 to September 2008 (as reported herein), it can be confirmed that the monitoring work is effective and that it is generating data to categorically confirm the observation of impact attributable to the works.



Annex A

**Project Site Layout** 

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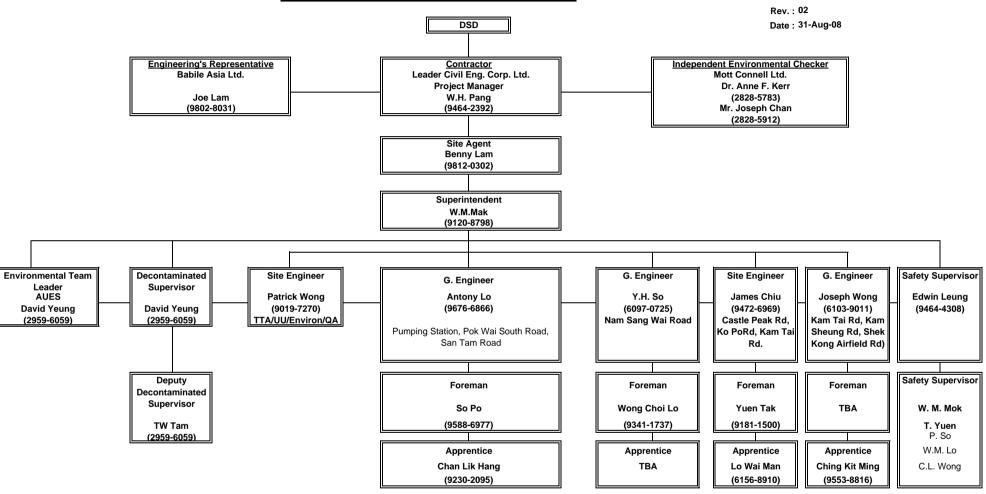
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## **Project Organization and Management Structure**

### 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





Annex C

## **Construction Program**

Act Description	Orig Total Percent Early Early Dur Float Complete Start Finish	Late Late <sub>AUG</sub> Start Finish <sub>25 01</sub>	SEP 08 15 22	2008 OCT NOV 29 06 13 20 27 03 10 17	DEC 24 01 08 15 22
ction Completion / Key Date					
CD5000 Section 5	0 -35d 0 01NOV08	27SEP08 *		♦ Section 5	
CD7000 Section 7	0 -278d 0 24NOV08	20FEB08 *			♦ Section 7
minaries					
PR2900 Deliver Ductile Iron Pipe	800 148d 94 29APR06 A 24NOV08	29APR06 A 25MAY09			Deliver Ductile Iron Pipe
PR3100 Deliver Precast Concrete Pipe	800 164d 96 24APR06 A 05NOV08	24APR06 A 25MAY09		Deliver Precast Con	
PR3300 Deliver Vitrified Clay Pipe	800 134d 92 10APR06 A 10DEC08	10APR06 A 25MAY09			Deliver Vitrified Clay
PR3400 Structural Monitoring by ISE	835 12d 78 06APR06 A 11MAY09	06APR06 A 25MAY09			
PR3500 Environmental monitoring by ET	814 12d 78 06APR06 A 11MAY09	06APR06 A 25MAY09			
ion 1 - Kam Tin Sewage Pumping Station rtion A					
round Investigation					
S1AB1500 Install Settlement Markers for Pumping Station	2 -95d 60 10NOV07 A 03OCT08	10NOV07 A 11JUN08		Install Settlement Markers for Pumping Station	
rainage and Ducts					
Trench Method					
		10141/02 04141/02		DN1050 Pipe & Manhole (D1 - P/S)	
S1AEA1000 DN1050 Pipe & Manhole (D1 - P/S)	12 -117d 0 29SEP08 14OCT08	10MAY08 24MAY08			
S1AEA1100 DN600 Pipe & Manhole (A2 - D1)	12 -117d 80 27FEB08 A 16OCT08	27FEB08 A 27MAY08		DN600 Pipe & Manhole (A2 - D1)	Outfall)
S1AEA1200 DN1050 Pipe & Manhole (P/S - Outfall)	12 -109d 0 15OCT08 28OCT08	04JUN08 18JUN08		DN1050 Pipe & Manhole (P/S -	
S1AEA1300 Construct Flow Meter Chamber	12 -117d 0 24OCT08 06NOV08	04JUN08 18JUN08		Construct Flow Me	ter Chamber
S1AEA1400 Construct U-Channel & Catchpits	30 -117d 0 06DEC08 13JAN09	19JUL08 22AUG08		· · · · · · · · · · · · · · · · · · ·	
S1AEA1900 CCTV Inspection of Pipeline	1 -19d 0 29OCT08 29OCT08	06OCT08 06OCT08		CCTV Inspection of Pipeline	
ipework - Rising Main Trench Method					
S1AFA1000 Twin Rising Main DN700	6 -117d 0 17OCT08 23OCT08	28MAY08 03JUN08		Twin Rising Main DN700	
S1AFA1200 CCTV Inspection of Pipeline	1 -39d 0 07NOV08 07NOV08	20SEP08 20SEP08		CCTV Inspection	of Pipeline
arthworks					
S1AG2600 Extract Sheetpile	10 -109d 70 03APR08 A 02OCT08	03APR08 A 23MAY08		Extract Sheetpile	
ormwork					
S1AJ1700 Erect Formwork to +11.10mPD	12 -95d 80 21JUL08 A 08OCT08	21JUL08 A 14JUN08		Erect Formwork to +11.10mPD	
S1AJ1800 Erect Formwork to +14.00mPD & Roof Slab	12 -95d 80 04AUG08 A 13OCT08	04AUG08 A 19JUN08		Erect Formwork to +14.00mPD & Roof Slab	
teel Reinforcement					
				Fiv Reher to +11 10mPD	
S1AK1600 Fix Re-bar to +11.10mPD	8 -95d 80 19JUL08 A 04OCT08	19JUL08 A 12JUN08		Fix Re-bar to +11.10mPD	
S1AK1700 Fix Re-bar to +14.00mPD	8 -95d 80 19JUL08 A 10OCT08	19JUL08 A 17JUN08	i i i	Fix Re-bar to +14.00mPD	
S1AK1800 Fix Re-bar to Roof Slab	8 -95d 40 19JUL08 A 18OCT08	19JUL08 A 25JUN08		Fix Re-bar to Root Slab	
n-Situ Concrete					
date         19DEC05           h date         20JUL10					Early bar Progress bar
date 28SEP08		ler Civil Engineering Corp. L			Critical bar
enumber 1A		SD Contract No. DC/2005/02 Programme - 3M01 at 29 Se			Summary bar
rimavera Systems, Inc.	5-MORTH KOIIING	1 10gramme - Switt at 29 30	Preminer 2000		<ul> <li>Start milestone point</li> <li>Finish milestone point</li> </ul>
inavera Systems, inc.					

7 24 01 08 15 22 Slab Iticorrosion Concrete Coating System
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istruments
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Istruments
Pressure Testing to Twin Rising Main DN700
;;;;;;;
Install Doors, Louvres & I
Sund
Plumbing Work
Install FRP Water Storage Tanks
Install F
Construct U-channel
Lay Ducts
Earlybar
Early bar
Progress bar Critical bar
Progress bar

Act	Description	Orig		Percent	Early	Early	Late	Late	AUG	SEP				ост	2008			NOV					DEC	
ID S2BJ1600	Erect Formwork to +10.30mPD	Dur 12		Complete	Start 26SEP08 A	Finish 240CT08	Start 26SEP08 A	Finish 02AUG08	25 01	SEP 08 15	22	29 06	13	20		03 ormwork	10 to +10 3	1	7	24	01	08	15	22
S2BJ1000	Erect Formwork to +13.00mPD & Roof Slab	12			06NOV08	19NOV08	15AUG08	28AUG08					-	1	Electry		10 110.0		Erect	Formwo	rk to +13	.00mPD 8	& Roof Sl	ab
Steel Reinforceme				-							1			-							1	1	-	
S2BK1500	Fix Re-bar to +10.30mPD	8	-68d	5	27AUG08 A	11OCT08	27AUG08 A	21JUL08				i i	Fix F	Re-bar to	+10.30mPD									
S2BK1500	Fix Re-bar to +13.00mPD	8			280CT08	05NOV08	06AUG08	14AUG08	-								Fix Re-	bar to +1	3.00mPD	,				
S2BK1700	Fix Re-bar to Roof Slab	8			20NOV08	28NOV08	29AUG08	06SEP08											_		ix Re-ba	to Roof	Slab	
In-Situ Concrete			000	0	20110100	20110100	20/10/000	0002100			1							-	-					
CODI 4500	Cost Crowed State			100	40411008.4		46411000 4	00055008.4		Cast Ground Slab														
S2BL1500 S2BL1600	Cast Ground Slab Cast Wall Stem to +10.30mPD	2			16AUG08 A 25OCT08	06SEP08 A 27OCT08	16AUG08 A 04AUG08	06SEP08 A 05AUG08	-	Cast Ground Slab					Car	t Wall St	em to +	10.30mP	П					
S2BL1000	Cast Wall Stem to +13.00mPD & Roof Slab	2			29NOV08	01DEC08	08SEP08	09SEP08	-						04	it vraii Ot		10.00111			Cast	Nall Sterr	n to +13.0	0mPD & Ro
S2BL1700	Apply Anticorrosion Concrete Coating System	24			090CT08	05NOV08	26MAY08	23JUN08	-								Annly A	nticorros	ion Conc		1	1	110 110.0	, and b direct
S2BL2000	Construct Boundary Wall	47			30SEP08	25NOV08	05MAY08	30JUN08	-								., (ppi) ,	undoonloo				ndary Wa	all	
Geotechnical work		47	-1230	0	303EF 00	23140 100	031017100	30301008			1	1	-		1	-						indary tre		
COPPLACE			4 10		0055502	00141 200	0055507	00055000			1		-								1			1
	Monitoring of Instruments	525	-146d	73	26FEB07 A	20MAR09	26FEB07 A	22SEP08	-		1	1 1	-	1	1	-	1	-			1	1	-	-
Finishings											1													
S2BQ1000	Apply Internal Finishes		-112d		06DEC08	09FEB09	25JUL08	22SEP08																
S2BQ1050	Apply Roof Finishes	10	-68d	0	02DEC08	12DEC08	10SEP08	22SEP08			1						-						Apply Ro	of Finishes
Testing											i I										Ì			
											1													
S2BS1000	Pressure Testing to Twin Rising Main DN500	12	-18d	0	30SEP08	15OCT08	08SEP08	22SEP08						Pressu	re Testing to	win Risi	ng Main	DN500						
S2BS1100	Watertightness of Structure - Compartments	66	-106d	0	16OCT08	03JAN09	10JUN08	26AUG08																
Miscellaneous																								
S2BT1000	Install Doors, Louvres & Folding doors	30	-112d	0	06NOV08	10DEC08	24JUN08	29JUL08	1									-	-			In	stall Door	s, Louvres
S2BT1100	Sundry Metalwork	12	-112d	0	11DEC08	24DEC08	30JUL08	12AUG08	1													-		Su
S2BT1200	Install Glass Block	12	-112d	0	11DEC08	24DEC08	30JUL08	12AUG08															1	Ins
S2BT1300	Plumbing Work	24	-107d	0	06NOV08	03DEC08	30JUN08	28JUL08									_	-	_		Plu	mbing W	ork	
S2BT1400	Electrical and Mechanical Installations	24	-107d	0	20NOV08	17DEC08	15JUL08	11AUG08			1												E	lectrical and
S2BT1500	Install FRP Water Storage Tanks	12	-107d	0	06NOV08	19NOV08	30JUN08	14JUL08			1						_		Instal	I FRP W	ater Stor	age Tank	S	
S2BT1600	Install FRP Cat Ladders & Handrails	24	-107d	0	20NOV08	17DEC08	15JUL08	11AUG08	I I		1			1	1								Ir	Istall FRP C
Additonal Works /	Disruption																							
Revised B/Wa	II Details at SPPS (Claim No. 030)																							
S2BV2000	Drive Sheetpiles	10	-389d	0	30SEP08	13OCT08	11JUN07	22JUN07					D	Drive She	etpiles									
S2BV2010	Excavate to 1st Layer of Waling & Strut	6	-389d	0	14OCT08	20OCT08	23JUN07	29JUN07					-	1	Excavate to 1									
S2BV2020	Install 1st Layer of Waling & Strut	6	-389d	0	21OCT08	27OCT08	30JUN07	07JUL07						1	Inst									
S2BV2030	Excavate to 2nd Layer of Waling & Strut	6	-389d		280CT08	03NOV08	09JUL07	14JUL07							_	E>			iyer of Wa					
S2BV2040	Install 2nd Layer of Waling & Strut	6			04NOV08	10NOV08	16JUL07	21JUL07									L .		d Layer o	-				
S2BV2050	Excavate to 3rd Layer of Waling & Strut	6	-389d	0	11NOV08	17NOV08	23JUL07	28JUL07											Excavat					
S2BV2060	Install 3rd Layer of Waling & Strut	6			18NOV08	24NOV08	30JUL07	04AUG07												Install	1	of Walin		
S2BV2070	Excavate to Formation & Pour Blinding	6			25NOV08	01DEC08	06AUG07	11AUG07																Pour Blind
S2BV2080	Construct Base Slab for Bay 1 & 3	8	-389d	0	02DEC08	10DEC08	13AUG07	21AUG07		I I I I	1		1		1	1	1	1				Co	onstruct B	ase Slab fo
tart date 19DE inish date 20JU bata date 28SE 'age number 3A c Primavera System	L10  P08				3-Mont	D	SD Contra	ngineerir act No. D me - 3M0	C/2005/02		8									■		ar		LEAD

Act	Description	Orig	Total	Percent	Early	Early	Late	Late	AUG SEP	2008
ID		Dur		Complete	Start	Finish	Start	Finish	25 01 08 15 22	OCT         NOV         DEC           29         06         13         20         27         03         10         17         24         01         08         15         22         2
S2BV2090		6	-389d		11DEC08	17DEC08	22AUG07	28AUG07		Construct Base
S2BV2100	, ,	6	-389d		18DEC08	24DEC08	29AUG07	04SEP07		Backi
S2BV2110		8	-389d	0	27DEC08	06JAN09	05SEP07	13SEP07		
Section 3 - Nam S Portion C	ang Wai Sewage Pumping Station									
Ground Investi	gation									
S2CB170	Install Settlement Markers for Pumping Station	2	-131d	0	24NOV08	25NOV08	19JUN08	20JUN08	-	Install Settlement Markers for Pumping Station
Drainage and		2	-1310	0	24110100	23100000	19201408	20301100		
Trench Meth										
_										
	0 DN1200 Pipe & Manhole (H1 - P/S)	12				22NOV08	13JUN08 A	05MAY08		DN1200 Pipe & Manhole (H1 - P/S)
	0 DN1200 Pipe & Manhole (P/S - Outfall)	12	-167d		24NOV08	06DEC08	06MAY08	20MAY08		DN1200 Pipe & Manhole (P/S -
S3CEA20		1	-215d		23OCT08	23OCT08	30JAN08	30JAN08		Install Geotextile Filter up to Ground Slab F/L
	0 CCTV Inspection of Pipeline	1	-80d	0	08DEC08	08DEC08	02SEP08	02SEP08		CCTV Inspection of Pipeline
Pipework - Ris										
Trench Meth										
S3CFA10	0 Twin Rising Main DN900	6	-215d	0	29SEP08	06OCT08	08JAN08	14JAN08		Twin Rising Main DN900
S3CFA12	0 CCTV Inspection of Pipeline	1	-40d	0	08OCT08	08OCT08	19AUG08	19AUG08		CCTV Inspection of Pipeline
Earthworks										
S3CG275	Backfill to +0.00mPD	6		100	13AUG08 A	11SEP08 A	13AUG08 A	11SEP08 A	Backfill to +0.00mPD	
S3CG277		4			20AUG08 A	09OCT08	20AUG08 A			Remove 1st & 2nd Layer of Waling & Strut
S3CG280		8			240CT08	01NOV08	31JAN08	12FEB08	-	Backfill to Formation of Ground Slab
S3CG290		11			30OCT08	11NOV08	10APR08	22APR08		Extract Sheetpile
Formwork			Tora		0000100		10/11/100	2274 1100		
							1			
S3CJ1550		12				20OCT08	28AUG08 A		_	Erect Formwork to +5.0mPD
S3CJ1600	Erect Formwork to Ground Slab	8			03NOV08	11NOV08	13FEB08	21FEB08	_	Erect Formwork to Ground Slab
S3CJ1700		12	-131d	0	05DEC08	18DEC08	02JUL08	15JUL08		
Steel Reinforc	ement									
S3CK1450	Fix Re-bar to +5.00mPD	8	-215d	70	26AUG08 A	11OCT08	26AUG08 A	18JAN08		Fix Re-bar to +5.00mPD
S3CK1500	Fix Re-bar to Ground Slab	8	-215d	0	12NOV08	20NOV08	22FEB08	01MAR08		Fix Re-bar to Ground Slab
S3CK1600	Fix Re-bar to +10.80mPD	8	-131d	0	26NOV08	04DEC08	21JUN08	30JUN08		Fix Re-bar to +10.80mPD
S3CK170	Fix Re-bar to +13.75mPD	8	-131d	0	22DEC08	02JAN09	18JUL08	26JUL08		
In-Situ Concre	e									I I I I I I I I I I I I I I I I I I I
S3CL1500	Cast Wall Stem to +0.00mPD	2		100	08AUG08 A	29AUG08 A	08AUG08 A	29AUG08 A	■Cast Wall Stem to +0.00mPD	
S3CL1550	Cast Wall Stem to +5.00mPD	2	-215d	0	21OCT08	22OCT08	28JAN08	29JAN08		Cast Wall Stem to +5.00mPD
S3CL1600	Cast Ground Slab	2	-215d	0	21NOV08	22NOV08	03MAR08	04MAR08		Cast Ground Slab
S3CL1700	Cast Wall Stem to +10.80mPD	2	-131d		19DEC08	20DEC08	16JUL08	17JUL08		Cast Wall S
S3CL1900	Apply Anticorrosion Concrete Coating System	24	-215d	0	15DEC08	14JAN09	29MAR08	26APR08		
S3CL2100		17			08DEC08	29DEC08	21MAY08	10JUN08		
Geotechnical	*									
E2CD400	Manitoring of Instruments	707	64-1	001		1205008		0285800		Monitoring of Instrumer
S3CP100	-	787	-84d	92	06APR06 A	12DEC08	06APR06 A	02SEP08		
Finish date 20	DEC05 JUL10									Early bar Progress bar
	SEP08								ng Corp. Ltd. C/2005/02	Critical bar
ayo number 4/					3-Month				1 at 29 September 2008	Summary bar
c Primavera Sys	ems, Inc.				5		egiulli			<ul> <li>♦ Start milestone point</li> <li>♦ Finish milestone point</li> </ul>
	·· ·· · ·									v · · · · · · · · · · · · · · · · · · ·

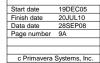
Act ID	Description	Orig	Total Po Float Co	ercent Early mplete Start	Early Finish	Late Start	Late Finish	AUG SEP	2008 OCT NOV	DEC 15 22
Testing		Dui	Float Co	implete Start	Fillisti	Start	Fillisti	25 01 08 15 22	29 06 13 20 27 03 10 17 24 01 08	15 22
S2CS1000	Pressure Testing to Twin Riging Main DN000	1	2 -40d	0 09OCT08	22OCT08	20AUG08	02SEP08		Pressure Testing to Twin Rising Main DN900	
	Pressure Testing to Twin Rising Main DN900 RM in Portion D, F, G, H, I	'	2 -400	0 0300108	2200100	2000000	0231100			
Portion D										
Drainage and Duct	ts									
Trench Method										
S4DEA1000	DN1200 Pipe & Manhole (G1-Treatment Plant)	6	i0 79d	40 31MAR08	A 04FEB09	31MAR08 A	09MAY09			
Pipework - Rising I	Main									
Trench Method										
S4DFA1100	Twin Rising Main DN900 (ChA1850- WOIC1)	10	1 82d	55 15DEC06	A 16FEB09	15DEC06 A	25MAY09			
	Twin Rising Main DN900 (ChA2095 - ChA2215)	14		55 20DEC07		20DEC07 A				Twin Rising M
	Construct AVIC12 (VO 100)		0	100 17JUL08				Construct AVIC12 (VO 100)		
	CCTV Inspection of PIpeline		5 84d	20 16AUG08		16AUG08 A				
Trenchless Meth										
			- 1 - 1	T						
	Construct WOIC1		0 119d	0 29SEP08	04NOV08	24FEB09	30MAR09		Construct WOIC1	
	CCTV Inspection of Pipeline		3 138d	0 05NOV08	07NOV08	23APR09	25APR09		CCTV Inspection of Pipeline	
Geotechnical work	S									
S4DP1000	Monitoring of Instruments	60	2 70d	81 02NOV06	A 16FEB09	02NOV06 A	11MAY09			
ortion F		, i								
Ground Investigation	on									
S4FB1500	Install Settlement Markers	69	18 78d	85 27APR06	A 06FEB09	27APR06 A	11MAY09			
Drainage and Duct										
S4FEA1000	DN900 Pipe & Manhole (H8 - H7) 1st Stage	5	i3 -23d	0 01DEC08	06FEB09	04NOV08	07JAN09			
Trenchless Meth	od									
S4FEB1020	Jacking DN1200 (H2 - H1)	4	5	100 11AUG08	A 03SEP08	11AUG08 A	03SEP08 A	Jacking DN1200 (H2 - H1)		
	Construct Manhole H2 & H1	2	7 152d	5 27SEP08		27SEP08 A	05MAY09		Construct Manhole H2 & H1	
S4FEB1600	CCTV Inspection of Pipeline		5 152d	0 31OCT08	05NOV08	06MAY09	11MAY09		CCTV Inspection of Pipeline	
Pipework - Rising I	Main									
Trench Method										
S4FFA1300	Twin Rising Main DN700 (WOIC5 - ChC2000)	8	0 103d	30 05JUN08	A 09DEC08	05JUN08 A	16APR09			win Rising Main DN700
	Twin Rising Main DN700 (ChC2000 - ChC2050)		5 96d	90 05APR08		05APR08 A			Twin Rising Main DN700 (ChC2000 - ChC2050)	
	Twin Rising Main DN700 (ChC2050 - ChC2100)		5	100 12FEB08				Twin Rising Main DN700 (ChC		
	Twin Rising Main DN700 (ChC2350 - ChC2400)		5 16d	60 13SEP08		13SEP08 A				
	Twin Rising Main DN700 (ChC2400 - WOIC4)		3 16d	10 13SEP08		13SEP08 A	31JAN09			
	Twin Rising Main DN700 (ChC2639 - H7)		2 -23d	0 29SEP08	29NOV08	01SEP08	03NOV08		Twin Rising Mai	n DN700 (ChC2639 - H
Trenchless Meth			200	02002700	23110 700	10101100	20110 100			
S4FFB1200	Construct WOIC4	3	i0 82d	40 10JUN08	A 210CT08	10JUN08 A	31JAN09		Construct WOIC4	
S4FFB1300	Construct WOIC5	3	0 145d	40 28JUN08	A 210CT08	28JUN08 A	16APR09		Construct WOIC5	
	CCTV Inspection of Pipeline		5 166d	10 16AUG08	A 040CT08	16AUG08 A	25APR09		CCTV Inspection of Pipeline	
Geotechnical work	s									
art date 19DE0									Early bar	
ta date 20JUL ta date 28SEF								g Corp. Ltd.	Progress bar	
ge number 5A					0	SD Contra	act No. DC	/2005/02	Critical bar —— Summary bar	TI LEADI
				3-Mor	th Rolling	g Program	me - 3M01	at 29 September 2008	<ul> <li>Start milestone p</li> </ul>	
Primavera System	s, Inc.								Finish milestone	point

Act ID	Description	Orig Total P Dur Float Co		Late Lat Start Fini	e AUG SEP sh 25 01 08 15 22	2008
S4FP1000	Monitoring of Instruments	772 25d	80 05JUN06 A 10APR09	05JUN06 A 11MAY	99	
ion G						
round Investigatio	n					
S4GB1500	Install Settlement Markers	748 140d	94 21APR06 A 19NOV08	21APR06 A 11MAY	09	Install Settlement Markers
ework - Rising N						
rench Method						
\$4CE41000	Twin Bining Main DNE00 (A)/IC4 ChR250)	98 139d	90 26JUN08 A 31OCT08	26JUN08 A 20APR		Twin Rising Main DN500 (AVIC4 - ChB250)
	Twin Rising Main DN500 (AVIC4 - ChB250) Twin Rising Main DN500 (ChB450 - ChB550)	84 94d	50 16JAN08 A 18NOV08	16JAN08 A 14MAR		Twin Rising Main DN500 (ChB450 - ChB550)
		30 94d	0 19NOV08 23DEC08	16MAR09 20APR		
	Construct WOIC3	9 94d	50 06MAR07 A 31DEC08	06MAR07 A 25APR		
Trenchless Metho	CCTV Inspection of Pipeline	9 940	SU USINIARUT A SIDECUS	USINIARUT A 25APR		
Trenchiess Meth	00					
S4GFB1100	Construct AVIC4	30 139d	10 09JUL08 A 31OCT08	09JUL08 A 20APR	9	Construct AVIC4
S4GFB1200	CCTV Inspection of Pipeline	2 142d	0 01NOV08 03NOV08	24APR09 25APR	19	CCTV Inspection of Pipeline
eotechnical work	s					
S4GP1000	Monitoring of Instruments	720 111d	90 22APR06 A 23DEC08	22APR06 A 11MAY	09	
tion H		720 1110	30 22A 100 A 2302000			
round Investigatio	on					
S4HB1300	Install Settlement Markers	727 -8d	74 26MAY06 A 20MAY09	26MAY06 A 11MAY		
rainage and Duct		121 -00	74 200 A 100 A 200 A 105	ZOWATOO A THWAT		
Trench Method	3 					
	DN500 Pipe & Manhole (A3 - A6)	90 -80d	0 05NOV08 24FEB09	31JUL08 15NOV		
	DN500 Pipe & Manhole (A6 - A9)	100 -80d	80 25OCT07 A 23OCT08	25OCT07 A 18JUL0		DN500 Pipe & Manhole (A6 - A9)
S4HEA1900	DN300 Pipe & Manhole (B4 - B6)	67 -94d	0 21NOV08 13FEB09	31JUL08 20OCT	08	
S4HEA2000	DN300 Plpe & Manhole (B6 - B8)	44 -94d	0 29SEP08 * 20NOV08	07JUN08 30JUL0	8	DN300 Plpe & Manhole (B6 - B8)
Trenchless Metho	od					
S4HEB1000	Construct Jack/Receive Pits (A2 - A3)	30 -80d	0 05NOV08 09DEC08	31JUL08 03SEP	18	Construct Jack/Receiv
	Jacking DN600 (A2 - A3)	57 -80d	0 10DEC08 20FEB09	04SEP08 12NOV		
ipework - Rising N						I         I
Trench Method						
	Twin Rising Main DN700 (ChC170 - ChC290)	50 -80d	80 250CT07 A 04NOV08	25OCT07 A 30JULC		Twin Rising Main DN700 (ChC170 - ChC290)
	Twin Rising Main DN700 (ChC850 - ChC950)	125 -30d	0 02DEC08 05MAY09	280CT08 28MAR		
	Twin Rising Main DN700 (ChC950 - ChC1000)	44 -30d	0 110CT08 01DEC08	03SEP08 27OCT		Twin Rising Main DN700 (ChC950
	Twin Rising Main DN700 (ChC1150 - ChC1250)	91 -30d	90 14JAN08 A 10OCT08	14JAN08 A 02SEP		Twin Rising Main DN700 (ChC1150 - ChC1250)
	Twin Rising Main DN700 (ChC1250 - WOIC7)	104 2d	15 20AUG08 A 26MAR09	20AUG08 A 28MAR		
	Twin Rising Main DN700 (ChC1450 - ChC1550)	124 -104d	0 04OCT08 05MAR09	31MAY08 28OCT		
	Twin Rising Main DN700 (ChC1600 - ChC1618)	44 -104d	90 10JUN08 A 03OCT08	10JUN08 A 30MAY		Twin Rising Main DN700 (ChC1600 - ChC1618)
	Twin Rising Main DN700 (WOIC6 - ChC1664)	47 -37d	70 12JUN08 A 16OCT08	12JUN08 A 30AUG		Twin Rising Main DN700 (WOIC6 - ChC1664)
	Twin Rising Main DN700 (ChC1715 - ChC1750)	47 -39d	0 200CT08 12DEC08	01SEP08 28OCT		Twin Rising Main
	Twin Rising Main DN700 (ChC1750 - AVIC6)	124 -39d	0 13DEC08 15MAY09	290CT08 28MAR	09	
	Construct AVIC9	20 75d	0 02DEC08 24DEC08	06MAR09 28MAR	99	
S4HFA3100	Construct WOIC8	20 75d	0 02DEC08 24DEC08	06MAR09 28MAR	09	
	Construct WOIC8		0 02DEC08 24DEC08	06MAR09 28MAR der Civil Enginee SD Contract No	ning Corp. Ltd.	Early bar Progress bar Critical bar Summary bar Start milestone point

Act ID	Description	Orig Dur		Percent Complete	Early Start	Early Finish	Late Start	Late Finish	AUG	SEF			ост	2008		NOV			DEC	
	Construct AVIC7	20			11AUG08 A	26SEP08 A	11AUG08 A	26SEP08 A	25 01	08 15		29 06 Construct AVIC7	13	20 27	03	10 17 24	01	08	15	22 2
	Construct WOIC6	20			15AUG08 A	18OCT08	15AUG08 A		1	1 1	1		1	Construct WOIC6						
S4HFA3500	Construct AVIC6	30	118d	0	29SEP08	04NOV08	23FEB09	28MAR09							Const	ruct AVIC6				
Trenchless Meth	od Internet in the second s												1							
CALIER 4000	Construct Inclu@exertine.Bits (Oh:O40_Oh:O500)	57	44.4		1005008	20555000	230CT08	2005000										_		
	Construct Jack/Receive Pits (ChC42 - ChC63)	57			10DEC08	20FEB09		30DEC08 11SEP08					1					Construc	t lack/Rec	eive Pits (AVI
	Construct Jack/Receive Pits (AVIC8 - WOIC7)	69			01AUG08 A 06DEC08	05DEC08 03MAR09	01AUG08 A 12SEP08	04DEC08					-				1		J	
Geotechnical work	Jacking Twin DN700 (AVIC8 - WOIC7)	09	-700	0	U6DEC08	USIVIARUS	1232F00	04DEC08	1			1	1		1		1			
	•• • • • •												-		1					
	Monitoring of Instruments	947	-87d	72	26MAY06 A	22AUG09	26MAY06 A	11MAY09							1					
Additonal Works /	Disruption																			
Re-alignment b	tn ChC420 & ChC607 (Claim No. 118)																			
S4HV1310	Twin Rising Main DN700 (ChC610 - ChC580)	40	-11d	60	23JUL08 A	26MAR09	23JUL08 A	13MAR09					1		1	i i i	1			1
S4HV1350	Twin Rising Main DN700 (ChC490 - ChC460)	20	-11d	0	10DEC08	05JAN09	27NOV08	19DEC08										_		
S4HV1360	Twin Rising Main DN700 (ChC460 - ChC436)	20	-11d	0	29SEP08	23OCT08	16SEP08	10OCT08					i i	Twin Rising I	Main DN70	00 (ChC460 - ChC436)				
S4HV1380	Construct WOIC9	20			29AUG08 A	26MAR09	29AUG08 A	28MAR09					1		1					
S4HV1400	DN500 Pipe & Manhole (A13 - A14)	40	-11d	0	24OCT08	09DEC08	11OCT08	26NOV08				1	I.					DN	500 Pipe &	Manhole (A1
Portion I Ground Investigation	20																			
Ground investigatio	л																			
													1		-					
	Install Settlement Markers	736	0	75 :	26JUN06 A	11MAY09	26JUN06 A	11MAY09	1		1		1	1 1	1		1		1	1 1
Drainage and Duck Trench Method	s																			
																	-			
S4IEA1000	DN500 Pipe & Manhole (C2 - C4)	58	-32d	0	20DEC08	04MAR09	13NOV08	22JAN09											1	
S4IEA1020	DN500 Pipe & Manhole (C4 - C6)	76	-32d	15	27AUG08 A	19DEC08	27AUG08 A	12NOV08		1			i i		1					DN500 Pipe
S4IEA1100	DN500 Pipe & Manhole (C6 - C8)	48	-32d	90	07MAY08 A	03OCT08	07MAY08 A	25AUG08				DN500 F	Pipe & Manh	ole (C6 - C8)						
S4IEA1200	DN400 Pipe & Manhole (C7a - C7)	36		0	04OCT08	15NOV08	13APR09	25MAY09					1	1	1	DN400 Pipe 8	Manhole	C7a - C7)		
S4IEA1900	DN500 Plpe & Manhole (C21 - C22)	50			01FEB08 A	01SEP08 A	01FEB08 A	01SEP08 A	DN50	0 Plpe & Manh	ole (C21 - C22		+		   +	           +				-+
S4IEA2320	DN500 Plpe & Manhole (C31 - C32)	53			29SEP08	01DEC08	26JUN08	27AUG08					1		1		D	N500 Plpe &	Manhole (0	C31 - C32)
	DN500 Plpe & Manhole (C32 - C34)	70	-79d	0	02DEC08	27FEB09	28AUG08	20NOV08					1							
Trenchless Meth	od																			
S4IEB1000	Construct Jack/Receive Pits (C1 - C2)	30	45d	0	29SEP08	04NOV08	22NOV08	29DEC08							Const	ruct Jack/Receive Pits (	C1 - C2)			
S4IEB1020	Jacking DN500 (C1 - C2)	78	45d	0	05NOV08	10FEB09	30DEC08	03APR09												+
Geotechnical work	s																			
S4IP1000	Monitoring of Instruments	827	-68d	70	28JUN06 A	31JUL09	28JUN06 A	11MAY09										_		
Section 5 - Sewers & F													1		1		1		1	
Portion E																				
Drainage and Duct																				
	Construct Manholes H11	27			29SEP08	31OCT08	26AUG08	26SEP08					1			Ianholes H11				
S5EEB1100	CCTV Inspection of Pipeline	1	-28d	0	01NOV08	01NOV08	27SEP08	27SEP08					1	•	CCTV Ins	pection of Pipeline			1	
Pipework - Rising I	Main																			
S5EFA1000	Twin Rising Main DN900 (ChA208 - ChA250)	33	-25d	70	23MAY08 A	10OCT08	23MAY08 A	08SEP08					Twin Risin	g Main DN900 (ChA2	08 - ChA2	250)	1		1	
Start date 19DE( Finish date 20JUL) Data date 28SEF Page number 7A c Primavera System	10 208				3-Month	DS	er Civil El SD Contra Program	act No. DO	2005/02	2	2008					-		ress bar al bar		LEADER

Act ID	Description	Orig Dur		Percent Early Complete Start	Early Finish	Late Start	Late Finish	AUG 25 01	08	SEP 15	22	29	06 13	OCT 20	2008	NOV	7 24	01	DEC	22
	CCTV Inspection of Pipeline	20		80 16AUG08 A		16AUG08 A		25 01	08	15	22	29	J6 13		pection of Pipeline	10 1	7 24	01	08 15	
Trenchless Met	thod		1 1						1	1		1 1								
												1								
	CCTV Inspection of Pipeline	3	-24d	0 11OCT08	14OCT08	10SEP08	12SEP08		-	-				ICC I V Inspe	ction of Pipeline					
Geotechnical wor	rks									-										
S5EP1000	Monitoring of Instruments	627	′ -27d	96 01AUG06 A	31OCT08	01AUG06 A	27SEP08								Monit	oring of Instrumer	its			
Testing										1		1	1				1			
S5ES1000	Pressure Testing to Twin Rising Main DN900	12	2 -25d	0 16OCT08	29OCT08	13SEP08	27SEP08			I.		i i			Pressure	Testing to Twin	Rising Main D	1900		
Section 6 - Sewers in		12	-230	0 1000108	2900100	133LF 00	2732100										tioning main b			
Portion J										l. I		1 1								
Ground Investigat	tion																			
S6JB1500	Install Settlement Marker 1st Stage	765	-304d	35 20APR06 A	28MAY10	20APR06 A	25MAY09					1								
S6JB2100	Install Settlement Markers 2nd Stage	600		100 07JUL06 A	_		28SEP08 A		i	i.		Install Set	tlement Mar	kers 2nd Sta	je i					
Drainage and Du		000		100 010020011	200210071	010020011	20021 0071			1	-									
Trench Method																				
S6JEA1010		78		0 06DEC08	13MAR09	04FEB09	07MAY09												· · ·	
S6JEA1700	TTA JA7-2 DN400 Pipe & Manhole (D14 - D15)	46		0 11DEC08	09FEB09	09NOV07	04JAN08													1
S6JEA1720	TTA JA7-1 DN400 Pipe & Manhole (D15 - D16)	61	-324d	0 29SEP08	10DEC08	27AUG07	08NOV07												TTA JA7	-1 DN400 Pipe 8
S6JEA1900	TTA JB1-1 DN400 Plpe & Manhole (D20 - D21)	102	2 -50d	0 19DEC08	24APR09	22OCT08	24FEB09					i i								
S6JEA1920	TTA JB2-1 DN400 Plpe & Manhole (D21 - D22)	68	-50d	0 29SEP08	18DEC08	31JUL08	21OCT08													TTA JB2-1 DI
S6JEA2400	TTA JB6-1 DN400 Plpe & Manhole (D28 - D30)	80	-348d	0 29SEP08	05JAN09	30JUL07	02NOV07				1	1 1						1		1
S6JEA3200	DN300 Pipe & Manhole (D40 - D42)	65	5 -142d	50 09JAN08 A	06NOV08	09JAN08 A	19MAY08				-					DN300 Pipe &	Manhole (D40	- D42)		
S6JEA3300	DN300 Pipe & Manhole (D42 - D44)	72	2 -142d	0 07NOV08	05FEB09	20MAY08	13AUG08										1			
S6JEA3410	DN300 Pipe & Manhole (D47 - D49)	23	3 -16d	90 19MAY08 A	30APR09	19MAY08 A	11APR09													
S6JEA4200	TTA JD4-1 DN750 Pipe & Manhole (E7 - E8)	35	-152d	0 13DEC08	29JAN09	14JUN08	25JUL08												_	
S6JEA4220	TTA JD4-2 DN750 Pipe & Manhole (E7 - E9)	63	3 -152d	0 29SEP08	12DEC08	28MAR08	13JUN08	+			- +								TTA .	JD4-2 DN750 Pip
S6JEA4600	TTA JD8-2 DN750 Pipe & Manhole (E12 - E13)	40	-205d	0 02DEC08	20JAN09	28MAR08	16MAY08											_	_	
S6JEA4620	TTA JD8-1 DN750 Pipe & Manhole (E13 - E14)	39	-205d	0 17OCT08	01DEC08	05FEB08	27MAR08			i I		i i			i i			TTA JI	D8-1 DN750 P	pe & Manhole (E
S6JEA4700		69	-205d	80 13NOV07 A	16OCT08	13NOV07 A	04FEB08					1 1		TTA JD-9	DN750 Pipe & M	anhole (E14 - E1	5)			
Trenchless Met										1		1	-				-		+ +	
S6JEB1000	Construct Jack/Receive Pits (D1 - D2)	28	3 -70d	0 29SEP08	01NOV08	08JUL08	08AUG08						i		Con	struct Jack/Recei	ve Pits (D1 - D	2)		
S6JEB1020	Jacking DN1050 (D1 - D2)	29	-70d	0 03NOV08	05DEC08	09AUG08	11SEP08								_				Jacking DN105	) (D1 - D2)
S6JEB1040	Construct Manholes D1 & D2	25	5 18d	0 06DEC08	07JAN09	30DEC08	31JAN09											•		
S6JEB1240	Construct Manholes D7 & D8	25	5 173d	20 25AUG08 A	23OCT08	25AUG08 A	22MAY09			1					Construct Manho	les D7 & D8				
Geotechnical wor	rks	· · · ·		<u>.</u>													1	1		
S6JP1000	Monitoring of Instruments	1152	2 -333d	54 21APR06 A	03JUL10	21APR06 A	25MAY09	-											_	_
Section 7 - Sewers in	-		,		1				1			1 1					1	1		
Portion K																				
Drainage and Du												1								
Trench Method								-												
S7KEA1105	DN600 Pipe & Manhole (M2 - M3) Stage 2	35	5 -224d	0 06OCT08	15NOV08	03JAN08	15FEB08					1 i				D	N600 Pipe & M	fanhole (M2 -	- M3) Stage 2	
S7KEA1610		54		20 20AUG08 A		20AUG08 A	15FEB08				_					_	DN900 Pi	e & Manhole	(M11 - M12) S	tage 2
	CCTV Inspection of Pipeline	6	-227d	30 16AUG08 A		16AUG08 A						i i					co	TV Inspectior	n of Pipeline	
	EC05							1	1			1	1	1				Early bar	<u> </u>	
Finish date 20JL	JL10				1 620	ler Civil E	naineerir	na Corn	ltd									Progress I	bar	-
Data date 28SE Page number 8A	<u>EP08</u>					SD Contra												Critical ba	ır 🕴	LEADE
-				3-Mont		Program				nber 20	08						—	<ul> <li>Summary</li> <li>Start miles</li> </ul>		1
c Primavera Syster	ms, Inc.				3						-								estone point	
,																				

Act		Orig	Total	Percent	Early	Early	Late	Late									2008									
ID	Description	Dur	Float	Complete	Start	Finish	Late Start	Finish	AUG 25 01	08	SEP	22	20	06	001	20	27	02	10	NOV 17	24	01	0.9	DE0	C	22
Trenchless Met	hod								23 01	00	15	~~	2.5	00	13	20	21	0.5	10				00		,	
													1													
S7KEB1040	Construct Manholes M4 & M19	27	-224d	80.0	5JUL08 A	04OCT08	05JUL08 A	02JAN08							uct Manho	les M4 & N	110									
											1						115									
S7KEB1240	Construct Manholes M13 & M14	27		100 2	2JUL08 A	24SEP08 A	22JUL08 A	24SEP08 A	1	1	1	Co	nstruct M	anholes I	V13 & M1	4										
S7KEB1300	CCTV Inspection of Pipeline	2	-186d	30 1	6AUG08 A	06OCT08	16AUG08 A	20FEB08		_	_				V Inspect	on of Pipe	line									
Roads and Paving												-		-												
Rodus and Paving	ys																									
071/11/000		10	100.1	0.0	005000	0400T00	00.141100	0055000								0.0	oroto Eor	otoath from	n M14 to 1	M160						
S7KH1000	Concrete Footpath from M14 to M16a	18	-198d	0 2	9SEP08	21OCT08	28JAN08	20FEB08						1	1			Jupatin IIO	11 10114 10	witea			1			
Geotechnical wor	rks												1.1													
													1													
													1													
S7KP1000	Monitoring of Instruments	668	-220d	94 2	4MAY06 A	15NOV08	24MAY06 A	20FEB08												Monit	oring of In	strument	.s			
ection 8 - Preservat	tion and Protection of Trees																				-		-			
All Portions																										
	orks and Establishment Works																									
Landodape Contin																										
S8QR1100	Preservation & Protection of Preserved Trees	744		74 2	9JUL06 A	25MAY09	29JUL06 A	25MAY09	- 1	I	1	1		1					1				_	_		
300/K1100	rieservation & riotection of rieserved filees	/44	0	74 2	.330L00 A	2.5101-4109	2330L00 A	231014109		1		1	1	1	1		1				1		1	1		



Leader Civil Engineering Corp. Ltd. DSD Contract No. DC/2005/02 3-Month Rolling Programme - 3M01 at 29 September 2008





## **Photographical Records – Noise Barrier On-Site**

DSD Contract DC/2005/02 Construction of Sewers, Rising Mains & Sewage Pumping Station Bi-Annual EM&A Summary Report for April 2008 to September 2008 (No. 5) (Designated AUES Elements) **Elements**)

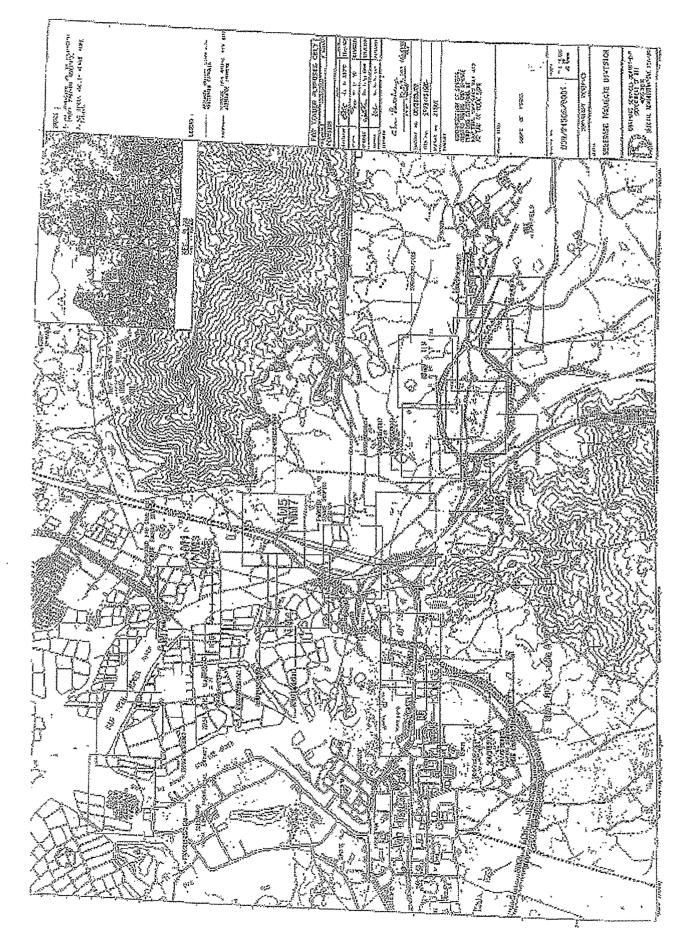


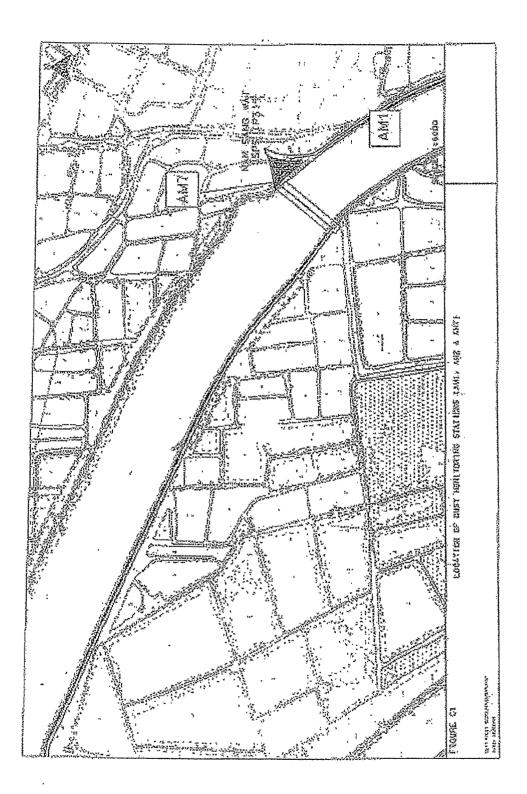


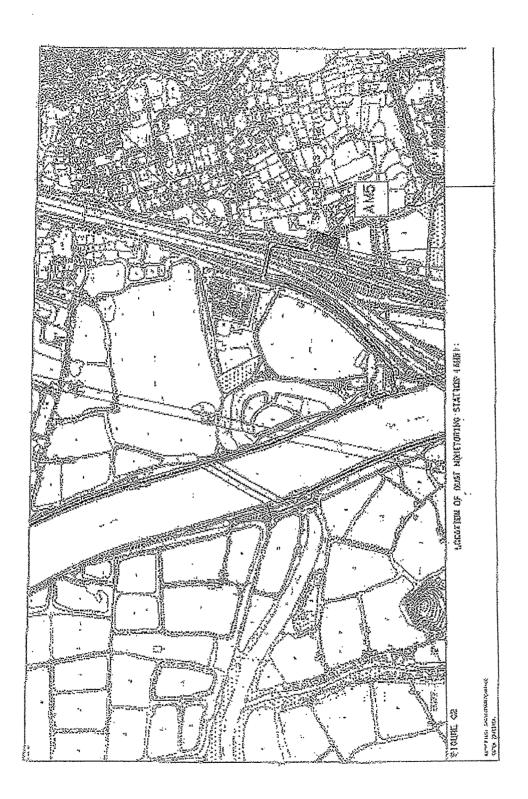


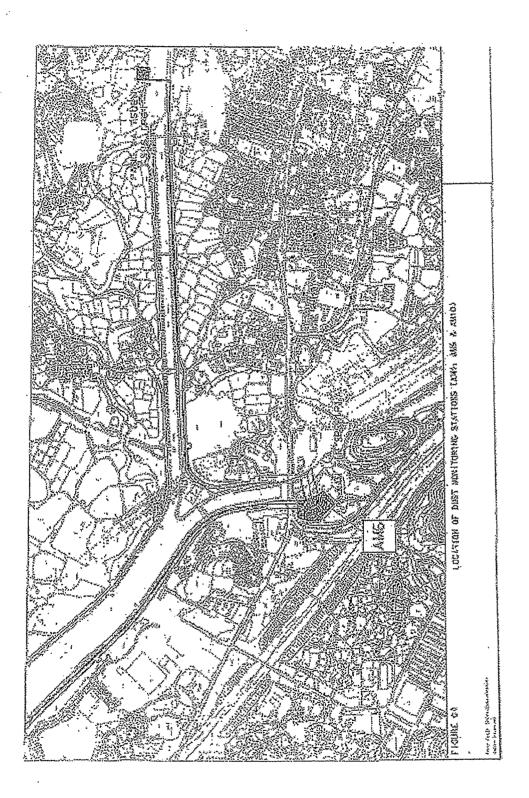
Annex E

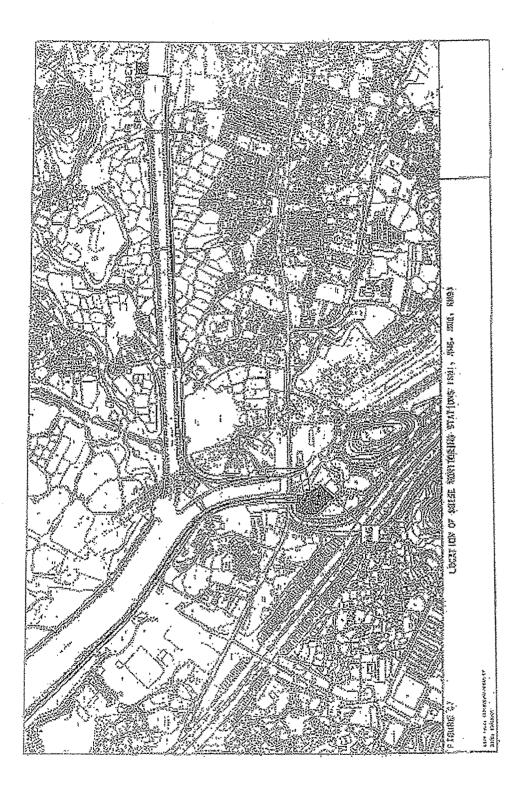
## **Locations of Monitoring Stations**

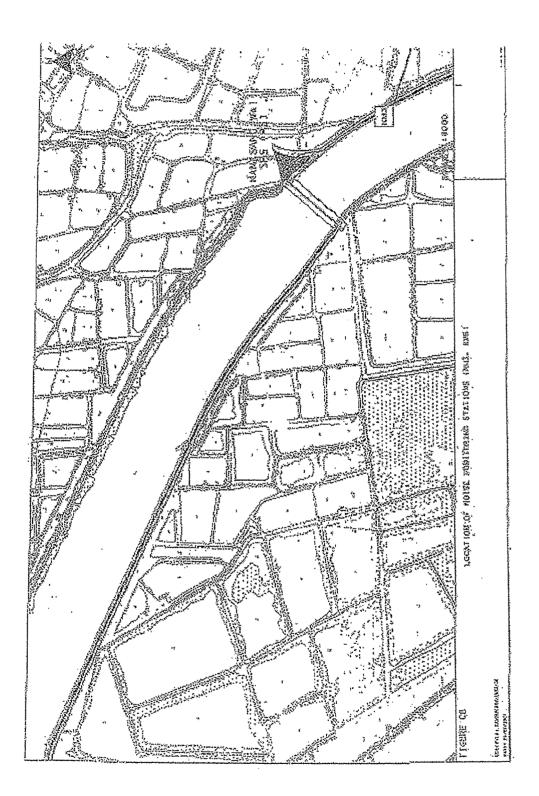


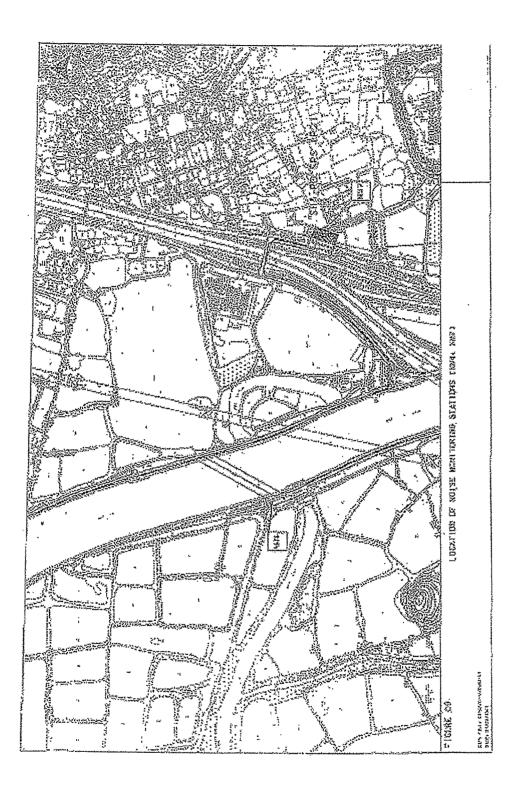














Annex F

# **Event and Action Plan**

#### Event and Action Plan for Construction Phase Air Quality

EVENT		AC <sup>.</sup>	TION	
	ET Leader	IEC	Engineer	Contractor
Action Level				
one sample	<ol> <li>Identify source (s) of exceedance and inform IEC, Contractor and Engineer</li> <li>Repeat dust measurements to confirm findings</li> <li>Increase monitoring frequency to daily</li> <li>Assess efficacy of remedial measures and keep the Contractor, IEC, and Engineer informed</li> </ol>	<ol> <li>Check monitoring data submitted by ET</li> <li>Check monitoring data trends and Contractors working methods</li> <li>Check and confirm Contractors proposed remedial actions and working methods are appropriate</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing</li> <li>Remind the Contractor of his contractual obligations and review the Contractor's working methods</li> <li>Discuss remedial actions with the Contractor and IEC</li> <li>Inform complainant of actions taken, if necessary</li> </ol>	<ol> <li>Rectify any unacceptable practice</li> <li>Liaise with Engineer and IEC to develop appropriate remedial measures to reduce dust impact</li> <li>Amend working methods and remedial proposals if required by the Engineer or IEC</li> <li>Implement the agreed remedial actions upon instruction from the Engineer and IEC</li> </ol>
Exceedance for two or more consecutive samples	<ol> <li>Identify source (s) of exceedance and inform IEC, Contractor and Engineer</li> <li>Repeat measurements to confirm findings</li> <li>Increase the monitoring frequency to daily to assess the efficacy of remedial measures and keep the Contractor informed</li> <li>Discuss remedial actions with IEC and Contractor</li> <li>If exceedance continues, arrange meeting with Engineer, IEC and Contractor to review working practices and identify further remedial actions</li> <li>If exceedance stops, inform the Contractor and cease additional monitoring</li> </ol>	<ol> <li>Check monitoring data submitted by ET</li> <li>Check monitoring data trends and Contractors working methods</li> <li>Discuss with Contractor and Engineer on possible remedial measures</li> <li>Check and confirm Contractors proposed remedial measures are appropriate</li> <li>Determine the efficacy of remedial actions and keep the Engineer informed</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing</li> <li>Remind the Contractor of his contractual obligations and review the Contractor's working methods</li> <li>Discuss remedial actions with the Contractor and IEC</li> <li>Ensure remedial measures are properly implemented</li> <li>Inform complainant of actions taken, if necessary.</li> </ol>	<ol> <li>Rectify any unacceptable practice, if possible</li> <li>Submit proposals for remedial actions to Engineer and IEC within three working days of notification</li> <li>Discuss and amend remedial actions, if required, by the Engineer and IEC</li> <li>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</li> </ol>
Limit Level				

EVENT	ACTION											
	ET Leader	IEC	Engineer	Contractor								
Exceedance for one sample Exceedance for	<ol> <li>Identify source (s) of exceedance and inform IEC, Contractor and Engineer</li> <li>Repeat dust measurements to confirm findings</li> <li>Increase monitoring frequency to daily</li> <li>Assess efficacy of remedial measures and keep the Contractor, IEC, Engineer and EPD informed</li> </ol>	<ol> <li>Check monitoring data submitted by ET</li> <li>Check monitoring data trends and Contractors working methods</li> <li>Check and confirm Contractors proposed remedial actions and working methods are appropriate</li> <li>Check and confirm Contractors proposed remedial measures are appropriate</li> <li>Determine the efficacy of remedial actions and keep the Engineer informed</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing</li> <li>Remind the Contractor of his contractual obligations and review the Contractor's working methods</li> <li>Discuss remedial actions with the Contractor and IEC,</li> <li>Ensure remedial measures are properly implemented</li> <li>Inform complainant of actions taken, if necessary.</li> </ol>	<ol> <li>Take immediate action to avoid further exceedance</li> <li>Submit proposals for remedial actions to Engineer and IEC within three working days of notification</li> <li>Discuss and amend remedial actions, if required, by the Engineer and IEC</li> <li>Implement the remedial action (s) immediately upon instruction from the Engineer</li> <li>Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions</li> </ol>								
Exceedance for two or more consecutive samples	<ol> <li>Identify source (s) of exceedance and inform IEC, Contractor and Engineer</li> <li>Repeat measurements to confirm findings</li> <li>Increase the monitoring frequency to daily to assess the efficacy of remedial measures and keep the Contractor informed</li> <li>Discuss remedial actions with IEC and Contractor</li> <li>If exceedance continues, arrange meeting with Engineer, IEC and Contractor to review working practices and identify further remedial actions</li> <li>If exceedance stops, inform the Contractor and cease additional monitoring.</li> </ol>	<ol> <li>Discuss with Contractor and Engineer on possible remedial measures</li> <li>Check and confirm Contractors proposed remedial measures are appropriate</li> <li>Determine the efficacy of remedial actions and keep the Engineer informed</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing</li> <li>Remind the Contractor of his contractual obligations and review the Contractor's working methods</li> <li>Discuss remedial actions with the Contractor and IEC</li> <li>Ensure remedial measures are properly implemented</li> <li>If exceedance continues, instruct the Contractor to stop the relevant portion of work until the exceedance is abated</li> <li>Inform complainant of actions taken, if necessary.</li> </ol>	<ol> <li>Rectify any unacceptable practice, if possible</li> <li>Submit proposals for remedial actions to Engineer and IEC within three working days of notification</li> <li>Discuss and amend remedial actions, if required, by the Engineer and IEC</li> <li>Implement the remedial action (s) immediately upon instruction from the Engineer</li> <li>Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions</li> </ol>								

Event and Actio	n Plan for Construction Noise			
EVENT		ACTION		
	ET Leader	IEC	Engineer	Contractor
Limit Level				
Exceedance for one sample	<ol> <li>Identify source (s) of exceedance and inform IEC, Contractor and Engineer</li> <li>Repeat dust measurements to confirm findings</li> <li>If repeat measurements confirm exceedance ,increase monitoring frequency to daily</li> <li>Assess efficacy of remedial measures and keep the Contractor, IEC, and Engineer informed</li> <li>If exceedance stops, inform Contractor and cease additional noise monitoring</li> </ol>	<ol> <li>Check monitoring data submitted by ET</li> <li>Check monitoring data trends and Contractors working methods</li> <li>Check and confirm Contractors proposed remedial actions and working methods are appropriate</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing</li> <li>Remind the Contractor of his contractual obligations and review the Contractor's working methods</li> <li>Discuss remedial actions with the Contractor and IEC</li> <li>Inform complainant of actions taken, if necessary</li> </ol>	<ol> <li>Rectify any unacceptable practice</li> <li>Liaise with Engineer and IEC to develop appropriate remedial measures to reduce noise impact</li> <li>Amend working methods and remedial proposals if required by the Engineer or IEC</li> <li>Implement the agreed remedial actions upon instruction from the Engineer and IEC</li> </ol>
Exceedance for two or more consecutive samples	<ol> <li>Identify source (s) of exceedance and inform IEC, Contractor and Engineer</li> <li>Repeat measurements to confirm findings</li> <li>Increase the monitoring frequency to daily</li> <li>Discuss remedial actions with IEC, Engineer and the EPD</li> <li>Assess the efficacy of remedial measures and keep the Contractor informed</li> <li>If exceedance continues, arrange meeting with Engineer, IEC and Contractor to review working practices and identify further remedial actions</li> <li>If exceedance stops, inform the Contractor and cease additional monitoring.</li> </ol>	<ol> <li>Check monitoring data submitted by ET</li> <li>Check monitoring data trends and Contractors working methods</li> <li>Discuss with Contractor and Engineer on possible remedial measures</li> <li>Check and confirm Contractors proposed remedial measures are appropriate</li> <li>Determine the efficacy of remedial actions and keep the Engineer informed</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing</li> <li>Remind the Contractor of his contractual obligations and review the Contractor's working methods</li> <li>Discuss remedial actions with the Contractor and IEC</li> <li>Ensure remedial measures are properly implemented</li> <li>If exceedance continues, instruct the Contractor to stop the relevant portion of work until the exceedance is abated</li> <li>Inform complainant of actions taken, if necessary.</li> </ol>	<ol> <li>Rectify any unacceptable practice, if possible</li> <li>Submit proposals for remedial actions to Engineer and IEC within three working days of notification</li> <li>Discuss and amend remedial actions, if required, by the Engineer and IEC</li> <li>Implement the remedial action (s) immediately upon instruction from the Engineer</li> <li>Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions</li> <li>Stop the relevant portion of work as determined by the Engineer until the exceedance is abated</li> </ol>



# **Mitigation Implementation Schedule**

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	0	Dec	
		CONSTRUCTION PHASE								
3.5	A1	<ul> <li>AIR QUALITY - Construction Phase</li> <li>The following measures are enforceable under the Air Pollution Control (Construction Dust) Regulations</li> <li>Site boundary and entrance <ul> <li>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;</li> </ul> </li> </ul>	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	<ul> <li>Access Road</li> <li>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;</li> </ul>	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	<ul> <li>Stockpiling of Dusty Materials</li> <li>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;</li> </ul>	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	<ul> <li>Loading, unloading or transfer of dusty materials</li> <li>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;</li> </ul>	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	<ul> <li>Use of vehicles</li> <li>every vehicle should be washed to remove any dusty materials from its body and wheels immediately before leaving a construction site;</li> </ul>	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

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						Des	С	0	Dec	
3.5	A6	<ul> <li>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;</li> </ul>	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	<ul> <li>Power-driven drilling, and cutting</li> <li>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;</li> </ul>	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	<ul> <li>Excavation and earth moving</li> <li>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;</li> </ul>	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	<ul> <li>Construction of the superstructure of a building</li> <li>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</li> </ul>	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	<ul> <li>any skip hoist for material transport should be totally enclosed by the impervious sheeting.</li> </ul>	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	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	0	Dec	
4.7.1	B1	<ul> <li>NOISE - Construction Phase</li> <li>General Site Clearance –</li> <li>Demolition Works</li> <li>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),</li> </ul>	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	<ul> <li>Construction of Sewage Pumping Stations P1, P2 &amp; P3</li> <li>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,</li> </ul>	To minimise potential noise impacts arising during the construction of <i>P1, P2</i> & <i>P3</i>	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Annex 5 of EIAO-TM
		<ul> <li>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.</li> </ul>	To minimise potential noise impacts arising during the construction of <i>P1, P2 &amp; P3</i>	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								
4.7.1	В3	<ul> <li>Method</li> <li>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,</li> </ul>	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	<ul> <li>Use of movable noise barriers or 3 sided enclosures for all initial road opening activities</li> </ul>	To control potential noise impacts during road opening	Where there are NSRs located within 50m of the	The Contractor		✓			

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						Des	с	ο	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		<ul> <li>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,</li> <li>Road Pavement and Finishes</li> </ul>	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
4.7.1		<ul> <li>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,</li> </ul>	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		<ul> <li>The Contractor shall obtain the necessary waste disposal permits from the appropriate authorities for the disposal of chemical and C&amp;D waste,</li> <li>Chemical Waste Producer and Chemical Waste Disposal Licence (Waste Disposal (Chemical Waste) (General) Regulations); and</li> <li>Dumping Licence (Land (Miscellaneous Provisions) Ordinance (Cap 28))</li> </ul>	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	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	0	Dec	
6.6.2	D2	<b>Chemical Waste</b> Chemical waste that is produced, as defined by Schedule 1 of the <i>Waste Disposal (Chemical</i> <i>Waste) (General) Regulation,</i> should be handled in accordance with the regulations and Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows. All chemical waste producers should be registered with the EPD.	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	<ul> <li>Storage, Packaging and Labelling of Chemical Waste</li> <li>Containers used for storage of chemical wastes should:</li> <li>be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;</li> <li>have a capacity of less than 450 L unless the specifications have been approved by the EPD; and</li> <li>display a label in English and Chinese in accordance with instructions prescribed in</li> </ul>	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	<ul> <li>Schedule 2 of the Regulations.</li> <li>Storage of chemical waste</li> <li>The storage area for chemical wastes should:</li> <li>be clearly labelled and used solely for the storage of chemical waste;</li> <li>be enclosed on at least 3 sides;</li> <li>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;</li> <li>have adequate ventilation;</li> <li>be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste, if necessary); and</li> <li>be arranged so that incompatible materials are</li> </ul>	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		V			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	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	0	Dec	
		adequately separate								
		<ul> <li>Disposal of chemical waste</li> <li>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.</li> </ul>	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
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.
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 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

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						Des	С	0	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 ( <i>Figure 8.7a</i> ) for the full duration of the construction contract.	The Contractor		~			
8.7.2	F2	<i>Mitigation Measures Adopted - Minimisation</i> 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 <i>Figure</i> <i>8.7a</i> attached) throughout the full duration of the construction contract.	The Contractor		✓			

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Imple Stage		mentation		Relevant Legislation & Guidelines
						Des	С	ο	Dec	
		mitigation measures (i.e. erection of movable noise barriers with a suitable footing along the sites) in the monthly EM&A reports. <i>Mitigation Measures Adopted</i>					,			
8.7.3	F5	Quietened construction plant and equipment (as shown in <i>Table F2</i> ) should be used for the construction of pumping stations (P3 and P2) and sewerage alignment (S4, S5 and S6) located within the WCA and WBA.	Quiet construction plant shall minimise potential noise impacts to the wildlife, particularly rare birds including Black-faced Spoonbill, Buzzard, Hobby, Imperial Eagle, Intermediate Egret, Avocet and Black-eared Kite	At described locations and throughout the full duration of the construction contract.	The Contractor		~			
8.7.4	F6	Erection of fences along the boundary of pumping station construction sites (P1 to P3) before the commencement of construction works to prevent tipping, vehicle movements, and encroachment of personnel into adjacent areas, and P2 to avoid disturbance to the remaining pond areas (0.7 ha);	To erect fences to prevent encroachment of construction activities onto adjacent areas.	At P1 to P3 for full duration of the construction contract.	The Contractor		~			
8.7.4	F7	No filling and dumping to the remaining abandoned fishpond at P2.	To avoid disturbance to abandoned fishponds from construction activities and illegal dumping.	At P2 for full duration of the construction contract	The Contractor		~			
8.7.4	F8	Installation and operation of silt removal facilities at construction sites of P1 to P3. The silt removal facilities should be designed in accordance with Appendix A1 of ProPECC Note PN1/94 Construction Site Drainage. The minimal total combined volume of the silt removal facilities at Nam Sang Wai SPS (P3) should be 15m <sup>3</sup> .	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	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	ο	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.	To minimise potential landscape and visual impacts.	To be implemented during the construction phases of the project.	The Contractor		~			
		The first monthly EM&A Report should also report the appearance of the temporary hoarding barriers.								
	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	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	0	Dec	
		submitted for approval by the EPD.		project.						
		<ul> <li>The landscape plans and pumping station elevations should demonstrate that the following elements are considered:</li> <li>existing landscape elements (such as mature trees), transplantation of valuable trees, new compensatory planting</li> </ul>								
		<ul> <li>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.</li> <li>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.</li> <li>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.</li> <li>felling of mature trees are kept to a minimum.</li> </ul>								
		EM&A REQUIEMENTS - Construction Phase								
3.7	11	<ul> <li>Air Quality</li> <li>Subject to the Environmental Protection</li> <li>Departments (EPDs) agreement, construction</li> <li>phase dust monitoring shall be undertaken at the</li> <li>following locations in accordance with the</li> <li>recommendations of the EIA.</li> <li>Worksite boundary facing Scattered house in</li> <li>Nam Sang Wai (AM1);</li> </ul>	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
		<ul> <li>Worksite boundary facing Fung Kat Heung (AM5);</li> <li>Worksite boundary facing Scattered House near Route 3 (AM6);</li> </ul>								

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						Des	С	ο	Dec	
4.9.1		<ul> <li>at any additional locations, where considered necessary, in agreement with EPD.</li> <li><i>Construction Noise</i> Subject to the Environmental Protection Departments (EPDs) agreement, construction phase noise monitoring shall be undertaken at the following locations in accordance with the recommendations of the EIA.</li> <li>(NM3) Scattered House in Nam San Wai (D12);</li> <li>(NM4) Scattered House in Nam San Wai (D11);</li> <li>(NM6) Scattered House near Route 3 (D17);</li> <li>(NM7) Fung Kat Heung (D19);</li> <li>and at any additional locations, where considered necessary, in agreement with EPD</li> </ul>	Installations of the noise monitoring stations to ensure the action and limit levels are not exceeded.	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 = I	Design, C = C	Construction, O = Operation, Dec = Decommissioning	1							



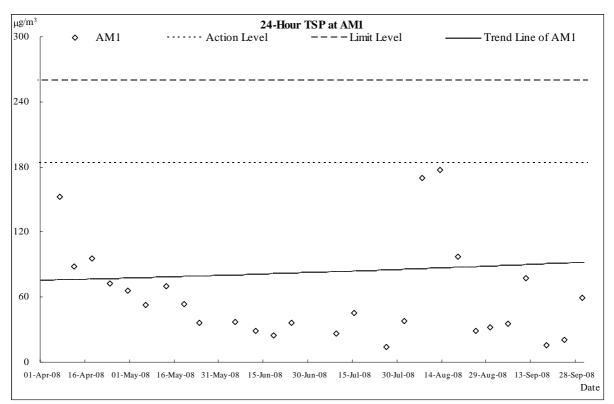
# Monitoring Results & Graphical Plots of Air Quality and Noise Monitoring Results



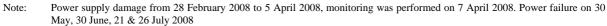
## Air Quality Monitoring Results & Graphical Plot

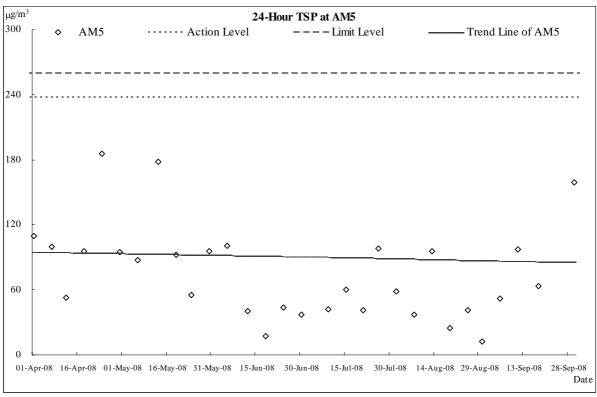
Data		24-Hr TS	$SP(\mu g/m^3)$	
Date	AM1	AM5	AM6	AM7
01-Apr-08	Power failure	109	32	27
07-Apr-08	152	100	29	35
12-Apr-08	88	53	31	32
18-Apr-08	96	96	30	71
24-Apr-08	73	186	43	52
30-Apr-08	66	95	54	52
6-May-08	53	87	29	37
13-May-08	70	178	232	58
19-May-08	53	92	45	58
24-May-08	36	55	23	65
30-May-08	Power Failure	96	30	Power Failure
6-June-08	37	101	Power Failure	Power Failure
12-June-08	29	40	Power Failure	Power Failure
18-June-08	25	17	Power Failure	37
24-June-08	37	44	Power Failure	49
30-June-08	Power Failure	37	Power Failure	32
9-Jul-08	27	42	31	31
15-Jul-08	45	60	12	37
21-Jul-08	Power Failure	41	34	33
26-Jul-08	14	98	46	47
1-Aug-08	38	59	18	19
7-Aug-08	170	37	8	21
13-Aug-08	177	95	15	36
19-Aug-08	97	25	5	13
25-Aug-08	29	41	15	34
30-Aug-08	32	13	Power Shortage	14
05-Sep-08	35	52	24	23
11-Sep-08	77	97	45	78
18-Sep-08	16	64	15	46
24-Sep-08	21	Power Shortage	28	22
30-Sep-08	59	159	23	74
Average (Range)	61 (14 – 177)	76 (13 - 186)	36 (5 - 232)	40 (13 - 78)

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

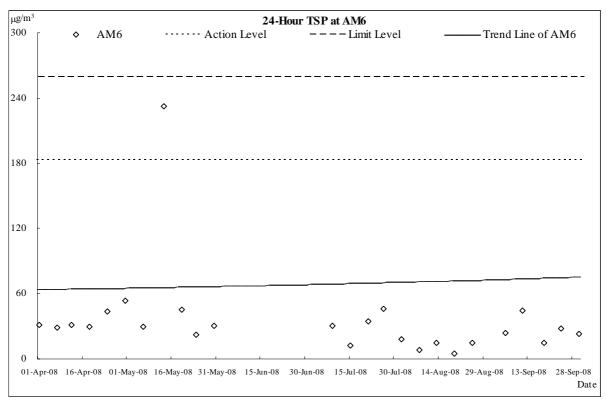


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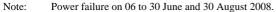


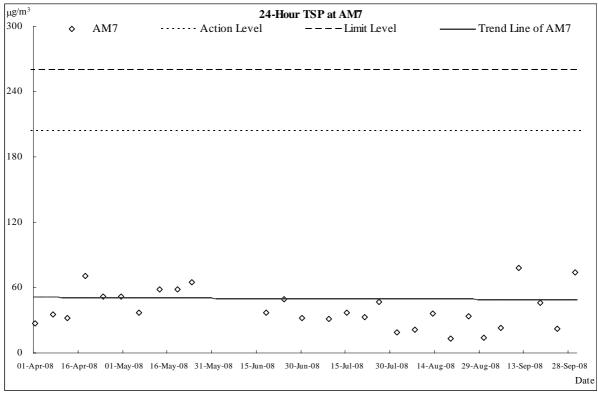


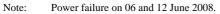
Note: Power failure on 24 September 2008.



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## **Construction Noise Monitoring Results & Graphical Plot**

Noise	Monitoring	Results	at NM3
110130	monuoring	nesuus	

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
02-Apr-08	16:03	50.9	53.2	51.4	52.0	51.5	51.6	51.8	54.8
09-Apr-08	15:51	50.4	51.2	50.9	51.3	50.6	50.8	50.9	53.9
15-Apr-08	10:24	45.7	45.9	46.1	54.6	48.1	47.2	49.4	52.4
21-Apr-08	10:48	44.5	46.1	48.2	46.8	45.7	46.1	46.4	49.4
26-Apr-08	11:15	50.9	47.2	47.8	46.4	47.2	49.0	48.4	51.4
03-May-08	10:54	49.7	48.4	49.0	48.7	52.9	50.7	50.2	53.2
09-May-08	10:08	41.5	46.7	43.0	44.0	47.7	47.0	45.5	48.5
16-May-08	15:00	60.2	69.2	52.3	47.3	48.1	48.0	62.1	65.1
22-May-08	10:54	49.3	49.7	51.6	50.1	51.2	50.0	50.4	53.4
28-May-08	11:20	58.6	59.2	57.8	53.2	50.8	51.1	56.4	59.4
03-Jun-08	13:09	47.9	48.2	47.9	47.7	50.7	49.8	48.9	51.9
10-Jun-08	11:21	52.8	50.5	50.4	49.6	50.9	50.8	51.0	54.0
16-Jun-08	11:21	53.2	53.2	55.0	55.4	53.8	53.4	54.1	57.1
21-Jun-08	10:10	48.7	48.5	50.6	49.5	48.5	49.6	49.3	52.3
27-Jun-08	10:37	52.1	52.3	50.7	49.7	50.8	50.3	51.1	54.1
04-Jul-08	14:13	50.4	51.8	52.5	50.8	53.2	50.5	51.7	54.7
10-Jul-08	11:18	51.0	51.9	50.4	49.9	51.1	52.4	51.2	54.2
16-Jul-08	10:07	45.0	46.0	47.8	46.3	45.5	45.7	46.1	49.1
22-Jul-08	10:54	49.8	50.5	49.1	50.3	49.1	51.0	50.0	53.0
28-Jul-08	09:21	50.1	51.5	48.7	49.1	50.1	49.8	50.0	53.0
02-Aug-08	11:23	49.0	48.8	52.1	53.2	50.9	49.5	50.9	53.9
08-Aug-08	11:13	48.2	47.4	50.2	43.1	46.9	48.6	47.9	50.9
14-Aug-08	09:36	51.5	52.0	52.0	52.4	52.1	51.6	51.9	54.9
20-Aug-08	11:07	52.6	50.3	48.9	49.2	50.7	50.9	50.6	53.6
26-Aug-08	10:22	51.3	55.5	52.5	53.4	50.8	53.9	53.2	56.2
01-Sep-08	11:22	51.0	51.1	51.7	50.9	52.1	52.6	51.6	54.6
06-Sep-08	09:13	48.3	49.8	48.2	49.3	49.3	49.5	49.1	52.1
12-Sep-08	09:28	48.8	49.4	48.4	47.4	49.2	49.0	48.7	51.7
19-Sep-08	11:28	55.5	55.2	54.7	55.3	55.2	55.6	55.3	58.3
25-Sep-08	09:35	51.5	53.4	52.5	52.6	54.6	53.5	53.1	56.1
Limit Level									75

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

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
02-Apr-08	14:49	54.8	51.7	49.1	53.6	49.2	51.1	52.1	55.1
09-Apr-08	14:55	59.1	54.6	53.5	54.4	53.9	52.6	55.3	58.3
15-Apr-08	09:50	62.1	61.3	63.4	64.7	60.8	62.4	62.7	65.7
21-Apr-08	09:58	55.0	64.1	50.6	53.7	62.4	61.7	60.3	63.3
26-Apr-08	09:55	56.8	63.0	59.4	63.9	60.5	63.9	61.9	64.9
3-May-08	9:44	53.4	53.8	52.3	50.5	50.8	54.5	52.8	55.8
9-May-08	14:00	59.1	59.0	57.7	54.8	53.5	50.8	56.8	59.8
16-May-08	16:03	56.8	58.3	58.7	60.2	57.4	54.5	58.0	61.0
22-May-08	9:23	53.4	51.9	50.7	51.1	50.0	50.3	51.4	54.4
28-May-08	11:28	55.3	52.1	58.9	55.2	60.0	62.5	58.6	61.6
3-Jun-08	09:34	58.2	59.0	60.3	60.6	58.1	59.8	59.4	62.4
10-Jun-08	13:47	60.3	57.2	56.8	56.2	56.4	58.6	57.8	60.8
16-Jun-08	13:48	56.2	57.8	55.5	53.5	54.1	51.0	55.2	58.2
21-Jun-08	10:51	52.1	54.7	55.1	53.2	54.5	50.5	53.6	56.6
27-Jun-08	13:52	54.8	56.3	55.0	56.4	55.4	55.2	55.6	58.6
4-Jul-08	11:28	56.7	53.5	60.7	59.9	51.6	55.2	57.4	60.4
10-Jul-08	13:47	58.6	58.4	57.4	56.4	50.4	52.7	56.5	59.5
16-Jul-08	13:00	67.7	67.6	68.0	67.7	67.5	67.9	67.7	70.7
22-Jul-08	17:05	71.1	70.7	70.4	70.7	70.8	70.6	70.7	73.7
28-Jul-08	16:10	53.2	50.5	49.2	51.0	54.6	50.9	52.0	55.0
2-Aug-08	13:40	49.7	50.3	48.2	48.8	52.6	49.8	50.1	53.1
8-Aug-08	13:17	45.6	46.2	51.8	47.5	48.1	48.5	48.5	51.5
14-Aug-08	13:43	55.9	48.1	48.5	48.6	50.2	51.5	51.5	54.5
20-Aug-08	13:08	52.7	51.7	53.1	53.4	52.3	54.7	53.1	56.1
26-Aug-08	13:43	53.1	56.5	51.2	59.0	53.7	52.1	55.2	58.2
01-Sep-08	13:42	58.8	56.5	55.3	55.8	54.1	56.9	56.5	59.5
06-Sep-08	13:42	52.0	54.2	53.9	55.2	53.4	52.1	53.6	56.6
12-Sep-08	14:15	57.0	56.3	56.7	60.1	58.8	57.3	57.9	60.9
19-Sep-08	13:16	53.8	53.5	56.2	52.8	54.1	55.6	54.5	57.5
25-Sep-08	13:54	55.2	55.3	51.9	53.1	52.3	51.6	53.5	56.5
Limit Level									75

#### Noise Monitoring Results at NM4

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

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30
02-Apr-08	15:19	68.0	67.7	68.3	69.6	68.4	69.1	68.6
09-Apr-08	14:25	57.3	58.2	55.4	56.4	59.4	55.4	57.3
15-Apr-08	11:29	62.5	60.4	59.3	59.4	66.9	63.0	62.8
21-Apr-08	13:04	62.5	57.1	62.2	61.4	58.5	56.8	60.4
26-Apr-08	11:20	62.7	58.9	56.2	61.1	53.6	54.7	59.1
3-May-08	14:56	58.2	57.2	58.6	60.4	57.3	56.5	58.2
9-May-08	15:27	59.2	57.3	56.3	56.8	60.5	55.4	58.0
16-May-08	10:30	68.8	72.0	65.8	65.3	73.8	68.8	70.2
22-May-08	13:50	65.7	73.4	72.1	69.5	75.5	66.7	71.8
28-May-08	13:50	73.3	67.1	69.1	65.8	67.6	69.8	69.5
03-Jun-08	11:10	58.1	71.3	64.0	64.9	63.2	60.4	65.8
10-Jun-08	10:50	70.6	68.2	70.7	71.5	71.2	69.9	70.5
16-Jun-08	10:38	73.5	75.9	72.6	71.0	73.8	71.5	73.4
21-Jun-08	10:28	67.8	69.3	70.0	68.5	72.1	69.0	69.7
27-Jun-08	10:40	75.2	75.1	69.8	64.8	72.5	75.3	73.3
03-Jun-08	11:10	58.1	71.3	64.0	64.9	63.2	60.4	65.8
10-Jun-08	10:50	70.6	68.2	70.7	71.5	71.2	69.9	70.5
16-Jun-08	10:38	73.5	75.9	72.6	71.0	73.8	71.5	73.4
21-Jun-08	10:28	67.8	69.3	70.0	68.5	72.1	69.0	69.7
27-Jun-08	10:40	75.2	75.1	69.8	64.8	72.5	75.3	73.3
02-Aug-08	11:22	56.3	58.5	55.8	57.3	56.3	56.8	56.9
08-Aug-08	11:18	58.2	55.6	62.7	57.9	63.7	64.4	61.6
14-Aug-08	11:23	59.3	61.7	54.9	57.3	57.0	53.4	58.1
20-Aug-08	11:29	56.7	54.5	54.5	53.8	55.2	54.5	55.0
26-Aug-08	11:26	61.1	60.5	68.3	64.9	59.8	61.9	63.9
01-Sep-08	11:21	60.5	58.6	61.7	57.8	62.7	61.6	60.8
06-Sep-08	11:22	56.3	54.2	56.4	55.2	53.7	55.1	55.3
12-Sep-08	13:00	55.8	58.7	53.8	54.5	56.7	55.9	56.2
19-Sep-08	11:18	56.1	58.1	53.4	57.9	54.7	56.4	56.4
25-Sep-08	11:29	56.7	57.8	56.0	54.9	54.1	55.7	56.0
Limit Level								75

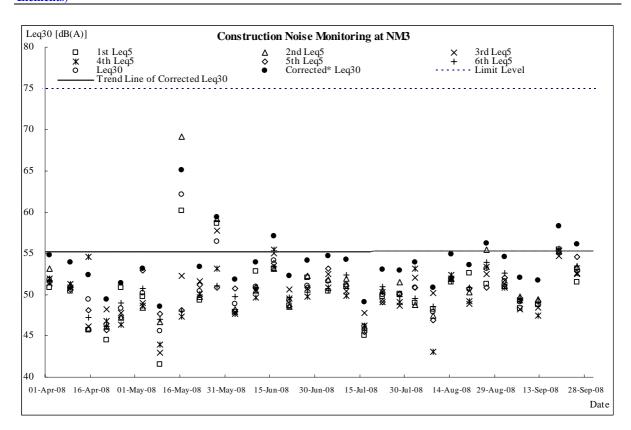
#### Noise Monitoring Results at NM6

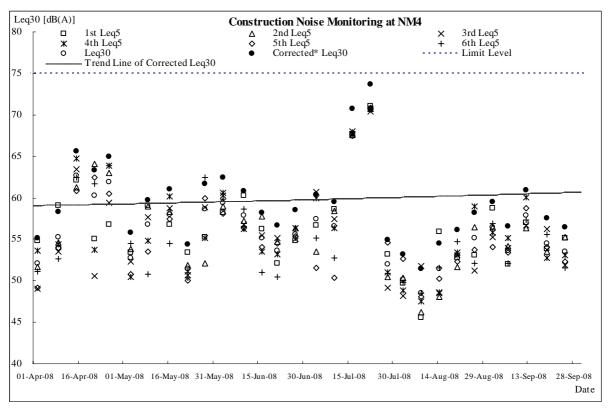
\* No façade correction was required

#### Start Time Date 1st Leq5 2nd Leq5 3rd Leq5 4th Leq5 5th Leq5 6th Leq5 Leq30 16:44 52.5 52.9 54.4 02-Apr-08 53.0 52.7 50.5 52.8 09-Apr-08 15:45 56.5 56.8 57.1 57.2 56.0 56.5 56.7 54.0 54.1 54.6 54.1 15-Apr-08 11:00 53.8 53.2 54.0 11:15 55.5 21-Apr-08 56.3 55.4 58.8 55.1 56.3 56.4 26-Apr-08 13:10 59.3 60.0 58.0 59.7 59.8 60.1 59.5 11:30 57.5 53.8 56.3 59.2 58.9 59.5 57.9 3-May-08 14:45 54.9 55.2 54.6 53.8 55.8 55.3 9-May-08 56.8 16-May-08 15:48 58.2 55.9 55.1 56.7 55.1 57.3 56.5 22-May-08 13:19 54.2 52.9 55.9 53.5 57.8 55.5 56.6 13:05 64.1 62.9 59.1 62.1 28-May-08 64.1 58.4 60.7 3-Jun-08 14:04 55.2 56.3 53.8 55.2 56.8 57.9 56.1 10-Jun-08 10:42 61.4 60.5 56.4 56.9 61.6 60.7 60.0 16-Jun-08 14:52 54.8 54.1 55.4 57.8 58.7 54.6 56.3 09:29 59.0 58.9 21-Jun-08 56.6 58.2 59.4 61.4 57.1 27-Jun-08 09:28 55.8 57.1 54.1 53.7 54.8 54.3 55.1 04-Jul-08 11:20 65.3 65.4 59.0 62.5 58.8 60.7 62.8 10-Jul-08 13:00 67.7 67.6 65.1 65.1 63.2 68.4 66.6 16-Jul-08 13:00 58.1 59.1 58.5 60.0 61.3 58.7 59.4 22-Jul-08 13:35 55.1 55.3 55.5 56.7 55.9 55.2 55.7 28-Jul-08 11:20 53.6 54.7 56.4 53.1 54.7 56.9 55.1 2-Aug-08 09:26 52.4 50.5 51.2 51.2 52.3 51.7 51.6 8-Aug-08 09:58 57.6 55.0 52.9 61.8 52.4 51.4 56.9 14-Aug-08 10:27 53.9 53.3 52.5 52.6 52.1 51.7 52.7 20-Aug-08 09:24 55.0 55.6 54.9 56.4 54.2 56.1 55.4 53.7 26-Aug-08 09:23 54.3 54.8 55.3 54.1 55.5 54.7 01-Sep-08 10:20 51.3 51.9 51.4 53.7 51.7 52.6 52.2 06-Sep-08 10:13 56.5 55.4 55.9 56.4 54.8 54.4 55.6 12-Sep-08 10:27 58.5 57.4 57.2 56.9 58.8 58.7 58.0 19-Sep-08 09:23 56.4 54.0 54.6 55.1 54.3 55.2 55.0 25-Sep-08 10:43 54.0 54.9 53.1 53.5 54.7 54.4 54.1 Limit Level 75

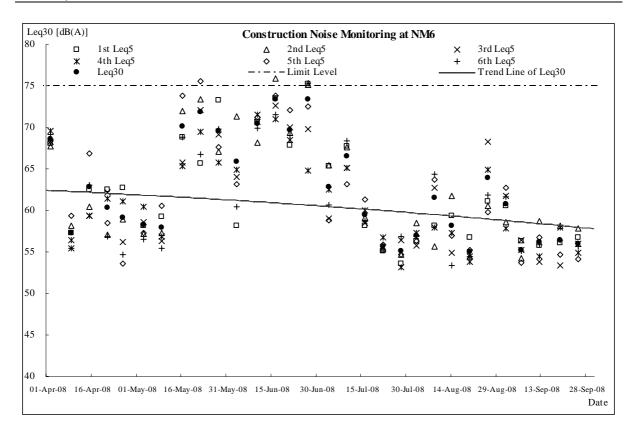
#### Noise Monitoring Results at NM7

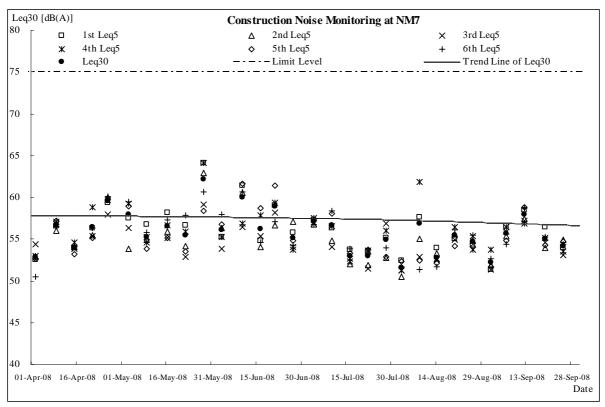
\* No façade correction was required





#### Z:Jobs/2006\TCS00310 (DC-2005-02)\600\Impact\EP\Bi-Annual\No.5\_Apr08-Sep08\R0717 (Annex).doc Action-United Environmental Services and Consulting





Annex I

# Meteorological Data in the Reporting Period



### Meteorological Data Extracted From The HK Observatory at Lau Fau Shan Weather Station <u>April 2008</u>

				La	au Fau S	han Station	
Date	9	Weather	Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Apr-08	Tue	cloudy/rain/mist/fresh/strong	4.3	16.9	18	88	Е
2-Apr-08	Wed	cloudy/rain/mist/moderate	0.7	17.9	13.5	89.5	Е
3-Apr-08	Thu	humid/misty/rain/moderate/fresh	1.4	18	7.5	91.5	E/NE
4-Apr-08	Fri			-	Holiday		
5-Apr-08	Sat	cloudy/sunny periods/moderate	Trace	25.5	14.5	74	E/NE
6-Apr-08	Sun	fine/cloudy/moderate	0	23.3	11.5	76.5	W
7-Apr-08	Mon	fine/cloudy/moderate	0	26.9	11	86	W/SW
8-Apr-08	Tue	Sunny periods/isolated showers/cloudy/moderate	0	27.5	15	68.5	S
9-Apr-08	Wed	sunny intervals/cloudy/moderate	Trace	27	26	73	S/SW
10-Apr-08	Thu	cloudy/fog/light winds/moderate/rain	Trace	27.8	14.5	78	SE
11-Apr-08	Fri	cloudy/mist/rain/moderate/fresh	Trace	26.6	16	75	SE
12-Apr-08	Sat	cloudy/mist/rain/moderate/fresh	Trace	24.9	20	75	SE
13-Apr-08	Sun	cloudy/mist/rain/moderate/fresh	1.3	24.4	9	83	E/NE
14-Apr-08	Mon	sunny periods/cloudy/moderate/fresh	0	25.5	11.2	75	Е
15-Apr-08	Tue	sunny periods/cloudy/moderate	0	24.8	10.5	75.5	Е
16-Apr-08	Wed	fine/hot/light winds	0	25	12.7	75.2	Е
17-Apr-08	Thu	cloudy/rain/light winds/fresh	Trace	27.1	12	78	SE
18-Apr-08	Fri	cloudy/rain/fresh/strong	Trace	25.1	21.5	67.5	Е
19-Apr-08	Sat	fresh/strong/gale/overcast/rain/squall	237.4	23.3	26.5	75.5	Е
20-Apr-08	Sun	sunny periods/isolated showers/moderate	0	27.4	13.5	78	SW
21-Apr-08	Mon	sunny periods/isolated showers/moderate	Trace	26.1	11	84.5	SE
22-Apr-08	Tue	fine/isolated showers/cloudy/light winds/moderate	0	26.8	11	80.7	SE
23-Apr-08	Wed	cloudy/rain/moderate/fresh	0.4	20.9	15	76.5	NE
24-Apr-08	Thu	cloudy/haze/moderate	0.1	20.2	18.2	68.5	N/NE
25-Apr-08	Fri	cloudy/rain/moderate	0.7	20.6	6.5	75.5	Е
26-Apr-08	Sat	bright/haze/light winds	Trace	22.3	10	75	E/SE
27-Apr-08	Sun	bright/haze/light winds	Trace	23.6	16	80.5	E/SE
28-Apr-08	Mon	cloudy/moderate	7.8	19.9	9	90.5	E/NE
29-Apr-08	Tue	cloudy/sunny intervals/moderate	Trace	22.7	6.5	77.5	E/NE
30-Apr-08	Wed	cloudy/sunny intervals/haze/light winds	Trace	23.7	6.5	77.5	Е



#### May 2008

				La	au Fau S	han Station	1	
Date		Weather	Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction	
1-May-08	Thu				liday			
2-May-08	Fri	cloudy/a few showers/moderate	7.1	24.2	7.5	86	S/SE	
3-May-08	Sat	misty/sunny intervals/moderate	2.2	26.5	11	84	Е	
4-May-08	Sun	cloudy/scattered showers/light winds/moderate	Trace	28	13.5	72.5	S/SE	
5-May-08	Mon	sunny intervals/light winds/fresh/scattered showers/squally thunderstorm	4.5	25.4	9	83.5	S/SE	
6-May-08	Tue	cloudy/rain/moderate/fresh	21	23.9	19.5	81.5	Е	
7-May-08	Wed	fine/mist/moderate	Trace	27	12.5	76.2	Е	
8-May-08	Thu	fine/hot/light winds	Trace	27.1	14.2	77	SE	
9-May-08	Fri	cloudy/moderate/fresh/scattered showers	0	28.7	13.5	79.5	W	
10-May-08	Sat	cloudy/showers/sunny intervals/moderate/fresh	3.5	23	16.5	74.5	NE	
11-May-08	Sun	cloudy/showers/moderate/fresh	Trace	21.3	13.4	78.5	W	
12-May-08	Mon				Но	liday		
13-May-08	Tue	fine/very dry/moderate/fresh	Trace	21.3	12.5	60	Е	
14-May-08	Wed	fine/dry/moderate/fresh	0	24.4	12.5	59.5	Е	
15-May-08	Thu	fine/dry/haze/hot/moderate	0	24.3	13	60	E/SE	
16-May-08	Fri	fine/dry/haze/hot/moderate	0	24.3	14	68.5	SE	
17-May-08	Sat	cloudy/sunny intervals/moderate	0	25.5	14	63.5	SE	
18-May-08	Sun	cloudy/sunny intervals/moderate	Trace	25.3	16	76.5	S/SE	
19-May-08	Mon	cloudy/rain/moderate	20.1	23	13	91	N/NW	
20-May-08	Tue	cloudy/overcast/rain/fresh/strong	32.9	20.6	12	95.5	E/NE	
21-May-08	Wed	cloudy/a few showers/moderate	Trace	22.8	14	90.5	E/NE	
22-May-08	Thu	cloudy/rain/mist/moderate	1.4	26	11	88	Е	
23-May-08	Fri	sunny periods/isolated showers/moderate	0.3	27.1	9.5	84.5	E/SE	
24-May-08	Sat	hot/sunny periods/isolated showers/moderate	0.4	28.4	15	79	S/SE	
25-May-08	Sun	sunny periods/a few showers/moderate/fresh	0.3	28	15.5	80.5	SE	
26-May-08	Mon	sunny periods/a few showers/moderate/fresh	9.9	26.2	11	84	S/SE	
27-May-08	Tue	a few showers/sunny periods/moderate/fresh	Trace	29	15.5	79.5	S/SE	
28-May-08	Wed	scattered showers/squally thunderstorms/sunny intervals/moderate/fresh	6.9	27.6	22	80.5	S/SW	
29-May-08	Thu	cloudy/rain/squally thunderstorms/moderate/fresh	60.6	26.6	21	87.5	S/SE	
30-May-08	Fri	cloudy/overcast/rain/squally thunderstorms/moderate/fresh	39	25.7	12	87	S/SW	
31-May-08	Sat	cloudy/rain/thunderstorms/moderate	0.7	26.4	7.5	90	E/SE	



#### June 2008

				Lau Fa	u Shan '	Weather Sta	ation
Date	e	Weather	Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Jun-08	Sun	cloudy/rain/thunderstorm/moderate	23.1	26.4	11.5	81.5	S/SE
2-Jun-08	Mon	cloudy/rain/thunderstorm/moderate	36.6	26.2	8	91	E/SE
3-Jun-08	Tue	cloudy/rain/thunderstorm/light winds	44.9	26.8	10.5	86.5	S/SE
4-Jun-08	Wed	cloudy/rain/moderate	18.3	25.9	11	86.5	E/NE
5-Jun-08	Thu	cloudy/a few showers/showers/thunderstorm/light	0.1	26.1	9	84	E/SE
6-Jun-08	Fri	overcast/rain/squally thunderstorm/fresh/strong	130.8	23.1	13.5	86	S/SE
7-Jun-08	Sat	Black Rainstorm Signal					
8-Jun-08	Sun	cloudy/squally thunderstorm	0	26.9	23	69	S/SW
9-Jun-08	Mon				Hol	iday	
10-Jun-08	Tue	cloudy/scattered showers/moderate/fresh	4.5	29	21.5	73.5	S/SW
11-Jun-08	Wed	cloudy/squally thunderstorm/moderate/fresh	1.7	25.9	24.5	86.5	S/SW
12-Jun-08	Thu	a few snorers/moderate/fresh/thunderstorm	7.2	27.5	17	81.5	S/SW
13-Jun-08	Fri	cloudy/rain/moderate	62.5	25.3	18	88.5	S/SE
14-Jun-08	Sat	cloudy/rain/moderate	80.8	25.7	12	94.5	S/SE
15-Jun-08	Sun	moderate/cloudy/rain	41.7	27.1	13	80	S/SE
16-Jun-08	Mon	cloudy/showers/squally thunderstorm/moderate	32.3	27.5	8.2	85.5	E/SE
17-Jun-08	Tue	cloudy/overcast/rain/squally thunderstorm/fresh	86.9	25	14.2	86.5	S/SE
18-Jun-08	Wed	cloudy/rain/squally thunderstorm/fresh/strong	24.8	25.7	20.5	90	S/SE
19-Jun-08	Thu	sunny periods/hot/showers/fine/moderate	7.6	28.1	17	81.5	S/SE
20-Jun-08	Fri	fine/hot/moderate	0	29.2	11.5	75	S/SE
21-Jun-08	Sat	fine/hot/moderate	0	28.3	9.5	74.5	S/SE
22-Jun-08	Sun	fine/very hot/light winds	0	29	11.5	66.5	W/SW
23-Jun-08	Mon	fine/very hot/light winds	0	29.3	9.5	82	S/SE
24-Jun-08	Tue	cloudy/a few showers/sunny intervals/fresh/strong	0.6	30.1	17	73.5	E/NE
25-Jun-08	Wed	strong/gale/rain/squally thunderstorm/moderate	146.1	26.8	39	77	E/NE
26-Jun-08	Thu	cloudy/rain/squally thunderstorm/moderate	100.4	25.8	28.5	87.5	S/SW
27-Jun-08	Fri	cloudy/rain/squally thunderstorm/moderate/fresh	60	26	15	90.5	S/SW
28-Jun-08	Sat	cloudy/rain/squally thunderstorm/moderate	35.5	24.4	18.7	86.7	S/SE
29-Jun-08	Sun	cloudy/rain/squally thunderstorm/moderate	44.5	26.3	24	87.5	S
30-Jun-08	Mon	cloudy/rain/squally thunderstorm/moderate	48.5	26.3	12	89.5	E/SE

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#### July 2008

<u>July 200</u>				Lau Fa	u Shan V	Weather Sta	ation
Dat	e	Weather	Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Jul-08	Tue				Hol	iday	
2-Jul-08	Wed	fine/hot/moderate	Trace	29.4	12	74	S/SE
3-Jul-08	Thu	fine/hot/moderate	0	29	18	77	S/SE
4-Jul-08	Fri	sunny/hot/fine/moderate	0	28.9	15	74.2	S/SE
5-Jul-08	Sat	fine/hot/showers/moderate	11.6	28.9	14.2	77	E/SE
6-Jul-08	Sun	cloudy/rain/squally thunderstorm/moderate/fresh	54.4	27.6	13.5	92.5	Е
7-Jul-08	Mon	cloudy/rain/squally thunderstorm/moderate/fresh	39.4	25.3	11	95.5	E/NE
8-Jul-08	Tue	cloudy/rain/squally thunderstorm/moderate/fresh	51.3	27.3	12	88.5	SW
9-Jul-08	Wed	cloudy/rain/squally thunderstorm/moderate	43.3	26	18.5	87.5	SE
10-Jul-08	Thu	cloudy/rain/squally thunderstorm/moderate	59.9	26	13	90.5	SE
11-Jul-08	Fri	cloudy/a few showers/moderate	12.8	26.5	11.5	88.5	S/SE
12-Jul-08	Sat	cloudy/rain/squally thunderstorm/light	114.3	25.6	10	86.5	S/SE
13-Jul-08	Sun	sunny intervals/showers/light winds	11.7	26.3	17.5	91	SE
14-Jul-08	Mon	sunny periods/isolated shower/light wind	30.7	27.9	9	86	E/SE
15-Jul-08	Tue	sunny periods, a few showers/thunderstorm/light winds	33.8	28.4	18.5	84	E/NE
16-Jul-08	Wed	sunny periods/a few showers/light winds	Trace	28.5	13	79.5	E/SE
17-Jul-08	Thu	fine/not/isolated showers/moderate	0	28.8	11	83.5	S/SW
18-Jul-08	Fri	hot/sunny periods/cloudy/isolated showers/moderate	Trace	29.4	14.5	79	W/SW
19-Jul-08	Sat	hot/sunny intervals/moderate/fresh	3.9	30	22	77.5	SW
20-Jul-08	Sun	fine/hot/isolated showers/moderate	0	29.9	16	73	S/SE
21-Jul-08	Mon	fine/hot/isolated showers/moderate	Trace	29.3	14.5	82.5	W/SW
22-Jul-08	Tue	fine/very hot/moderate	Trace	29.8	16	70.5	S/SW
23-Jul-08	Wed	fine/hot/moderate	0	29.5	19	72	S/SE
24-Jul-08	Thu	fine/very hot/moderate	0	29.4	13.5	75.5	S
25-Jul-08	Fri	fine/very hot/moderate	0	30.9	13.5	71.5	W/SW
26-Jul-08	Sat	fine/very hot/isolated showers/thunderstorm/moderate	0	29.8	12	74	W/SW
27-Jul-08	Sun	fine/hazy/very hot/a few showers/squally thunderstorm/moderate	Trace	28.4	37	76	W/SW
28-Jul-08	Mon	fine/hazy/very hot/a few showers/squally thunderstorm/moderate	Trace	30.7	10	80	W/SW
29-Jul-08	Tue	cloudy/a dew showers/moderate/fresh	Trace	31.2	15	66.2	W/SW
30-Jul-08	Wed	cloudy/a few showers/fresh/strong	Trace	29.1	23.5	76	SW
31-Jul-08	Thu	cloudy/a few showers/squally thunderstorm/moderate	Trace	29.2	13.5	76.7	S/SE



#### August 2008

Date		Weather	Lau Fau Shan Weather Station					
			Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction	
1-Aug-08	Fri	sunny periods/showers/fine/moderate	Trace	28.3	15.5	78.5	E/NE	
2-Aug-08	Sat	fine/hot/moderate	Trace	29	18	78	Е	
3-Aug-08	Sun	fine/very hot/moderate	0	29.8	10.2	69.5	E/NE	
4-Aug-08	Mon	fine/very hot/isolated showers/moderate	Trace	30.1	6.5	76	E/NE	
5-Aug-08	Tue	cloudy/squally showers/fresh	6.1	27	15	78	Ν	
6-Aug-08	Wed	No.8 Southeast Gale Of Storm Signal						
7-Aug-08	Thu	cloudy/squally showers/fresh	72.3	26.7	23.5	86.5	E/SE	
8-Aug-08	Fri	cloudy/scattered showers/squally thunderstorm/moderate	48.3	26.7	14.5	85	Е	
9-Aug-08	Sat	cloudy/isolated showers/moderate	0	28.5	10.5	83.5	E/NE	
10-Aug-08	Sun	cloudy/isolated showers/moderate	0	27.7	11.2	78.5	S/SE	
11-Aug-08	Mon	cloudy/rain/squally thunderstorm/moderate	17.7	25.3	7.5	89	S/SE	
12-Aug-08	Tue	fine/isolated showers/moderate	Trace	27.8	12	81	E/SE	
13-Aug-08	Wed	fine/hot/moderate	0	28.8	13	79.5	S/SE	
14-Aug-08	Thu	fine/hot/moderate	0	29.4	14	73.5	W/SW	
15-Aug-08	Fri	fine/hot/moderate/fresh	0	29.5	14.2	76.5	S/SW	
16-Aug-08	Sat	fine/hot/moderate/fresh	0	29.4	18	75.5	S/SW	
17-Aug-08	Sun	fine/hot/showers/moderate	Trace	29.8	17.5	70.5	S/SE	
18-Aug-08	Mon	fine/hot/showers/moderate	Trace	29.2	6.5	80	E/NE	
19-Aug-08	Tue	fine/very hot/moderate	Trace	30	12	74	S/SE	
20-Aug-08	Wed	fine/very hot/isolated showers/light winds	0	29.6	15	70.5	S/SE	
21-Aug-08	Thu	cloudy/scattered showers/squally thunderstorm/moderate	Trace	30.1	12	71.5	W/SW	
22-Aug-08	Fri	increasing Gale Or Storm Signal No. 9						
23-Aug-08	Sat	cloudy/squally showers/fresh/strong	36.9	25.4	Maintenance	81.5	Maintenance	
24-Aug-08	Sun	fine/hot/moderate	Trace	28.5	Maintenance	73	Maintenance	
25-Aug-08	Mon	fine/hot/moderate	Trace	29.5	Maintenance	76.5	Maintenance	
26-Aug-08	Tue	fine/very hot/light winds	0	28.8	Maintenance	77	Maintenance	
27-Aug-08	Wed	fine/hot/moderate	0	28.8	Maintenance	75.5	Maintenance	
28-Aug-08	Thu	fine/hot/isolated showers/moderate			Maintenance	71	Maintenance	
29-Aug-08	Fri	fine/hot/isolated showers/moderate	0	29.7	Maintenance	75	Maintenance	
30-Aug-08	Sat	fine/hot/isolated showers/moderate	0	29.7	Maintenance	74.5	Maintenance	
31-Aug-08	Sun	fine/very hot/moderate	0	29.3	Maintenance	71	Maintenance	



#### September 2008

Septembe			Lau Fau Shan Weather Station					
Date		Weather	Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction	
1-Sep-08	Mon	fine/isolated showers/moderate	0	28.8	Maintenance	79	Maintenance	
2-Sep-08	Tue	cloudy/a few showers/thunderstorm/sunny intervals/light winds	6.7	27.8	11.5	80	S/SE	
3-Sep-08	Wed	a few showers/squally thunderstorm/sunny intervals/light winds	9	28	8.5	79.5	Е	
4-Sep-08	Thu	a few showers/squally thunderstorm/sunny intervals/moderate	Trace	28.9	7.9	64.1	Е	
5-Sep-08	Fri	a few showers/squally thunderstorm/sunny intervals/light winds	6.3	27.7	10.5	84.5	E/SE	
6-Sep-08	Sat	a few showers/squally thunderstorm/sunny intervals/moderate	25.8	27.6	11.5	82.5	E/NE	
7-Sep-08	Sun	fine/isolated showers/hot/moderate	5.5	28.9	17.5	73.5	E/NE	
8-Sep-08	Mon	fine/isolated showers/hot/moderate	Trace	28.7	10	71.5	E/NE	
9-Sep-08	Tue	fine/hot/moderate	0.2	29.4	10.7	71	E/SE	
10-Sep-08	Wed	fine/very hot/moderate	0	29.6	11	68	E/SE	
11-Sep-08	Thu	fine/haze/very hot/isolated showers/light winds	0	29.1	10.2	67	S/SE	
12-Sep-08	Fri	very hot/fine/hazy/isolated showers/light winds	0	30.5	14.5	71.2	W/SW	
13-Sep-08	Sat	very hot/fine/dry/hazy/isolated showers/moderate	0	30.5	12	68.5	Ν	
14-Sep-08	Sun	very hot/fine/dry/hazy/isolated showers/moderate	0	30.5	10.5	62.4	Ν	
15-Sep-08	Mon	Holiday						
16-Sep-08	Tue	fine/dry/very hot/haze/light winds	0	30.6	9.2	63.2	N	
17-Sep-08	Wed	fine/hazy/very hot/isolated showers/light winds	0	28.7	10.5	70	S/SE	
18-Sep-08	Thu	cloudy/a few showers/thunderstorm/sunny intervals/light winds	1.6	28.5	12.5	84	S/SE	
19-Sep-08	Fri	thunderstorm/sunny periods/moderate	23.5	29	10	80	Е	
20-Sep-08	Sat	fine/isolated showers/moderate	30.2	9	77	E/NE	30.2	
21-Sep-08	Sun	fine/isolated showers/moderate	29.6	12	66.5	W/SW	29.6	
22-Sep-08	Mon	fine/hazy/very hot/isolated/moderate	31.4	12.5	77	W/NW	31.4	
23-Sep-08	Tue	fresh/strong/cloudy/squally showers	28.6	21	61	Ν	28.6	
24-Sep-08	Wed	strong/gales/cloudy/squally showers/thunderstorm	25.4	37.5	74.5	E/SE	25.4	
25-Sep-08	Thu	sunny intervals/a few showers/moderate/fresh	29.3	19	79.5	E/SE	29.3	
26-Sep-08	Fri	sunny periods/moderate	29.4	12.5	77.5	Е	29.4	
27-Sep-08	Sat	sunny periods/cloudy/a few showers/moderate/fresh	27.5	12	73.5	E/NE	27.5	
28-Sep-08	Sun	sunny periods/cloudy/a few showers/moderate/fresh	27.2	19.5	63	N/NE	27.2	
29-Sep-08	Mon	fine/dry/moderate/fresh	26.9	17	62.5	N/NE	26.9	
30-Sep-08	Tue	fine/dry/moderate	27.3	16	60	E/NE	27.3	