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TEST REPORT

KUM SHING (K.F.) CONSTRUCTION CO., LTD.

**NGONG PING VILLAGE SEWERAGE
(CONTRACT NO.: DC/2005/05)**

MONTHLY EM&A REPORT

(FEBRUARY 2007)

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Date: 14 March 2007

Ove Arup & Partners
House 41, Ngong Ping Village,
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By Fax (2985 4726) and By Post

Attention : Mr. Yiu Moon Tong

Dear Mr. Yiu,

**Re: Contract No: DC/2005/05 Ngong Ping Village Sewerage
Monthly EM&A Report for Feb 2007**

Reference is made to the monthly EM&A Report (report no. ENA70139) for Feb 2007 prepared by ETS for the captioned project. We are pleased to verify that the captioned report complied with the conditions 5.4 and 6.1 of the Environmental Permit.

Thank you very much for your attention and please feel free to contact the undersigned or our Eva Ho if you have any queries.

Yours sincerely,

David Yeung
Independent Environmental Checker

c.c.	Mr. Ringo Mok	DSD	By Fax: 2827 8526
	Mr. K.P. Wong	Kum Shing	By Fax: 3525 0100
	Mr. C.L. Lau	ETL	By Fax: 2695 3944



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EXECUTIVE SUMMARY

This monthly EM&A report (No.14) has been prepared by the Environmental Team (ET) of ETS-Testconsult Ltd for impact monitoring under the Environmental Permit No. EP-157/2003/A (the EP) for "the Contract No. DC/2005/05 Ngong Ping Village Sewerage" (The Project) during the reporting period from 01 to 28 February 2007.

Under the requirements of Section 5 of "the Environmental Permit (No. EP-157/2003/A)" (the EP), EM&A programme as set out in the updated EM&A Manual and the EIA Report (Register No.: AEIAR-065/2002) is required to be implemented. In accordance with the EM&A manual and the EIA Report, impact environmental monitoring of air quality, noise and waste management is required for the Project.

Construction Progress

The major construction works in this reporting month are as below:

- Construction works for manhole ;
- Soil/granular backfilling works at trench and PC no.1;
- Construction works such as formwork, steelwork and concreting for pumping chamber no.2; and
- Reinstatement works with C.I. frame & cover.

Environmental Monitoring Progress

The summary of the monitoring activities in this monitoring month is listed below:

- Noise Monitoring (Day-time): 4 Occasions at 2 designated locations;
- 24-hour TSP Monitoring: 5 Occasions at 2 designated locations;
- 1-hour TSP Monitoring: 15 Occasions at 2 designated locations;
- Weekly-site inspection: 4 Occasions.

Noise Monitoring

No exceedances of Action and Limit levels for day-time monitoring were recorded in the reporting month. No evening-time, night-time and holiday noise monitoring were conducted in this reporting month since no construction works were carried out during these periods.

Air Quality Monitoring

No exceedances of Action and Limit Level for both 24-hr and 1-hr TSP monitoring were recorded in this reporting month.

Waste Management

According to weekly site inspection, ET found that the Contractor followed the recommended procedures stipulated in the Waste Management Plan (WMP) on handling and disposal of wastes. In this reporting month, 176m³ Public Fill, 100kg Metals, 50kg Paper/Cardboard Packaging, 1kg Plastics and 4m³ General Refuse were generated and handled under the instruction and procedure stated in the WMP.

Site Inspection

Environmental site inspections conducted in this reporting month are presented as follows:

<u>Concerned Parties</u>	<u>Dates of Audit / Inspection</u>
ET	05, 15, 21 and 26 February 2007
RE/IEC/KS/ET	26 February 2007

According to the summary of the weekly site inspections carried out in this month, it indicated that site practices of the KS were generally undertaken in an environmentally acceptable manner and the overall site environmental performance was satisfactory.

Environmental Complaints

No complaint has received in this reporting month.

Notification of summons and successful prosecutions

There were no notification of summons and prosecutions with respect to environmental issues in this month.



Future Key Issues

Base on the site inspections and forecast of engineering works in the coming month, key issues to be considered are as follows:

- *Noise and air quality impact due to construction works;*
- *Watering the haul roads regularly;*
- *Watering or covering all stockpiles with tarpaulin to avoid wind and water erosion;*
- *Providing dust suppression measures (such as water spraying) during the construction works especially excavation and earth moving operation;*
- *Diverting the site runoff to sedimentation tank before discharge;*
- *Maintain good site practice and waste management to minimize environmental impacts at the site; and*
- *Follow-up improvements on waste management issues.*

Internet Website

The monthly EM&A report can be accessed on the web at <http://www.kumshing.com.hk/civil/index.htm>.



1.0 INTRODUCTION

"Kum Shing (K.F.) Construction Co., Ltd." (KS) has been awarded the Contract No.: DC/2005/05, "Ngong Ping Village Sewerage" (the Project) by the DSD. "ETS-Testconsult Limited" (ETL) has been commissioned as Environmental Team (ET) to carry out impact environmental monitoring for the Project according to the requirements and specifications of the EP and the EM&A Manual.

Under the requirements of Section 5 of "the Environmental Permit (No. EP-157/2003/A)" (the EP), EM&A programme as set out in the EM&A Manual is required to be implemented. In accordance with the EM&A manual, impact environmental monitoring of air quality, noise and waste management is required for the Project.

This monthly EM&A report summarizes the impact monitoring results and audit findings of the EM&A program during the reporting period from 01 to 28 February 2007. This monthly EM&A report can be accessed on the web at <http://www.kumshing.com.hk/civil/index.htm>.

2.0 PROJECT INFORMATION

2.1 Background

Master Plan (OI SMP) Study in December 1994 and drew up a SMP for Lantau Island, Cheung Chau, Lamma Island, Peng Chau and other smaller and less populated islands. The SMP comprises provisions for upgrading and expanding the sewerage systems to cover unsewered areas.

This sewerage project is the Stage 1 works under the OI SMP and can be divided into 3 packages as follows:

Package 1 – Ngong Ping STW with tertiary treatment

Package 2 – Ngong Ping main trunk sewer and effluent export pipeline

Package 3 – Ngong Ping village sewerage system

This Project only covers Package 3. The general layout plan of the project is shown in Drawing No. 23400/R/VS/101.

The existing treatment facilities at Ngong Ping include grease traps and septic tanks, with discharge locally to soakaways. Following the opening of the Statue of Buddha in December 1993, the number of visitors to Ngong Ping increased significantly. The existing treatment and disposal facilities were found to be inadequate, with significant quantities of sewage being directly discharged into the local stream. It was under this setting that the recommendation to provide a local sewerage system and a centralised treatment system for Ngong Ping was put forward in the OI SMP in 1994.

The Project was planned and designed by the Drainage Sewage Department. As the main Contractor of the captioned project contracted by, KS will follow the environmental monitoring recommendation stated in the EM&A Manual that was prepared with reference to the EIA Report (Register No.: AEIAR-065/2002).

The construction works of the Project was commenced on 16 January 2006. The anticipated completion date of the construction works will be the end of 2007.

2.2 Site Description

The construction site is located at Ngong Ping. The general layout plan of the project is shown in Appendix H.

Surrounding the construction site, there are air and noise sensitive receivers: Lin Chi Monastery, Tung Shing Store, Village House near bus terminal and Ngong Ping Road, Po Lin Monastery, Tin Tan Buddha Statue and SG Davis Youth Hostel. Drawing No. 2340D/R/004 shows the air and noise sensitive receivers around Ngong Ping Area.

The air and noise impact monitoring locations of this project are shown in Drawing No. 23400D/EN/094/a.



2.3 Construction Programme

The updated construction programme is shown in Appendix F.

2.4 Project Organization and Management Structure

The organization chart with respect to the on-site environmental management and monitoring program are shown in Appendix A.

2.5 Contact Details of Key Personnel

The key personnel contact names and telephone numbers, and construction programme are shown in table 2.1.

Table 2.1 Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel. No.	Fax No.
DSD	Employer/Client	Mr Ringo Mok	2594 7271	2827 8526
Ove Arup	Engineer's Representative	Mr. Yiu Moon Tong	2985 4926	2985 4726
CH2M HILL	Independent Environmental Checker	Mr. David B K Yeung	2507 2203	2507 2293
KS	Contractor	Mr. Daniel Wong	9651 2417	3525 0100
ETL	Contractor's Environmental Team	Mr. C L Lau (ET Leader)	2946 7791	2695 3944

3.0 CONSTRUCTION PROGRESS IN THIS REPORTING MONTH

The site area of this project is shown in Drawing No. 23400/R/VS/101.

A summary of the major construction activities undertaken in this monitoring month were:

- Construction works for manhole;
- Soil/granular backfilling works for trench and PC no.1;
- Construction works such as formwork, steelwork and concreting for pumping chamber no.2; and
- Reinstatement works with C.I. frame & cover.

4.0 IMPACT AIR QUALITY MONITORING

4.1 Monitoring Requirement

As the requirement in Updated EM&A Manual, impact air quality monitoring was conducted at designated monitoring locations:

- Village House near Ngong Ping Road (A1);
- Village House near Tung Shing Store (RA2).

4.2 Monitoring Equipment

Continuous 24-hour TSP and 1-hr air quality monitoring was performed using a GMWS2310 High Volume Air Sampler (HVS) located at each of the designated monitoring station. Table 4.1 summarizes the equipment used in the impact air quality monitoring programme. A copy of the calibration certificate for the HVS and portable dust meter are attached in Appendix B1.

Table 4.1 Air Quality Monitoring Equipment

Equipment	Model and Make
HVS Sampler	Greasby GMWS2310
Calibrator	G25 A



4.3 Monitoring Parameters, Frequency and Duration

Table 4.2 summarizes monitoring parameters, duration and frequencies of air quality monitoring.

Table 4.2 Monitoring parameters, duration, and frequencies of impact air quality monitoring

Parameter	Duration	Frequency
24-hr TSP	24 hr (0000-2400)	Once every six days
1-hr TSP	1 hr (0700-1900)	Three times every six days

4.4 Monitoring Locations and Schedule

Further to the request of MTRC's representative regarding the removal of Air Monitoring Station A2 which located within MTRC's site boundary, ET proposed to relocate Air Monitoring Station A2. After verified by the IEC and approved by the RE, air monitoring were carried out at the relocated air monitoring station RA2 from 13 April 2006. Table 4.3 tabulates the air quality monitoring locations of this Project.

Table 4.3 Air quality monitoring locations

Air quality Monitoring stations	Locations
A1	Village house near Ngong Ping Road
RA2	Village House near Tung Shing Store

Air quality monitoring schedule at designated monitoring locations is summarized in table 4.4.

Table 4.4 Monitoring Schedule for the air quality monitoring stations

Air quality monitoring stations	Location	Monitoring Period						
		24-hr TSP				1-hr TSP		
		Start		Finish		Date	Start	Finish
		Date	Time	Date	Time			
A1	Village house near Ngong Ping Road	05/02/07	14:15	06/02/07	14:15	05/02/07	09:50	10:50
							10:55	11:55
							13:00	14:00
		09/02/07	14:01	10/02/07	14:01	09/02/07	09:47	10:47
							10:49	11:49
							13:00	14:00
		15/02/07	14:07	16/02/07	14:07	15/02/07	09:30	10:30
							10:32	11:32
							13:00	14:00
		21/02/07	14:10	22/02/07	14:10	21/02/07	09:46	10:46
							10:46	11:46
							13:00	14:00
26/02/07	16:03	27/02/07	16:03	26/02/07	13:00	14:00		
					14:01	15:01		
					15:02	16:02		
RA2	Village House near Tung Shing Store	05/02/07	14:20	06/02/07	14:20	05/02/07	09:56	10:56
							11:00	12:00
							13:00	14:00
		09/02/07	14:07	10/02/07	14:07	09/02/07	09:52	10:52
							10:55	11:55
							13:00	14:00
		15/02/07	14:02	16/02/07	14:02	15/02/07	09:37	10:37
							10:40	11:40
							13:00	14:00
		21/02/07	14:15	22/02/07	14:15	21/02/07	09:38	10:38
							10:38	11:38
							13:00	14:00
26/02/07	16:11	27/02/07	16:11	26/02/07	13:00	14:00		
					14:06	15:06		
					15:10	16:10		



4.5 Monitoring Methodology

24-hour TSP Monitoring

Instrumentation

High volume sampler, as HVS, (Greasby GMWS2310) complete with appropriate sampling inlets are employed for 24-hour TSP monitoring. The sampler is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B).

Installation

The installation of HVS refers to the requirement stated in Section 2.2 of the Updated EM&A Manual. HVS in compliance with the following specifications should be used for carrying out the 1-hour and 24-hour TSP monitoring:

- a. 0.6-1.7m³/min (20-60 SCFM) adjustable flow range;
- b. equipped with a timing/control device with +/- 5 minutes accuracy for 24 hours operation;
- c. installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation;
- d. capable of providing a minimum exposed area of 406cm² (63in²);
- e. flow control accuracy: +/- 2.5% deviation over 24-hour sampling period;
- f. equipped with a shelter to protect the filter and sampler;
- g. incorporated with an electronic mass flow rate controller or other equivalent devices;
- h. equipped with a flow recorder for continuous monitoring;
- i. provided with a peaked roof inlet;
- j. incorporated with a manometer;
- k. able to hold and seal the filter paper to the sampler housing at horizontal position;
- l. easy to change the filter; and
- m. capable of operating continuously for 24-hour period.

Operation/Analytical Procedures

Operating/analytical procedures for the operation of HVS are as below:

Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 0.6m³/min and 1.7m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

- For TSP sampling, fiberglass filters (GA-55) were used.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated 5 min to establish thermal equilibrium before placing any filter media at designated air monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter. Then the filter holder frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition, the filter number (the initial weight of the filter paper can be found out by using the filter number.)
- After sampling, the filter was transferred from filter holder of the HVS to a plastic bag and sent to the laboratory for weighting. The elapsed time was also recorded.
- Before weighting, all filters were equilibrated in a desiccator for 24 hour with the temperature of 25°C ± 3°C and the relative humidity (RH) <50% ±5%.



Maintenance & Calibration

- The HVS and their accessories should be maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVS should be calibrated at bi-monthly intervals.

4.5.2 Wind Data Monitoring

Due to the problem of permanent power supply and insufficient space for the setup of wind data monitoring equipment, no adequate locations for installation of wind data monitoring equipment were found near the monitoring stations and construction site. Therefore, wind data (wind speed and wind direction) were directly extracted from Ngong Ping Station of Hong Kong Observatory during this reporting month upon the agreement from the ER in consultation with the IEC. The wind data are presented in Appendix D.

4.6 Action and Limit Levels

The Action and Limit levels for 24-hr TSP and 1-hr TSP derived as illustrated in Table 4.5.

Table 4.5 Action and Limit Levels for 24-hr TSP and 1-hr TSP

Monitoring Station	24-hr TSP ($\mu\text{g}/\text{m}^3$)		1-hr TSP ($\mu\text{g}/\text{m}^3$)	
	Action Level	Limit Level	Action Level	Limit Level
A1	158	260	286	500
A2 / RA2 *	161	260	303	500

Remark (*): Monitoring Station A2 was relocated to RA2 from 13 April 2006. The Action and Limit Level of RA2 is the same as A2 since RA2 is located at about 10m far from A2 without any change in environmental condition.

4.7 Event-Action Plans

Should the results of the monitoring parameters at any designated monitoring stations indicate that the air quality criteria are exceeded, the actions in accordance with the Event and Action Plan that summarized in Appendix E should be carried out.

4.8 Results

Totally 5 occasions of 24-hr TSP monitoring and 15 occasions of 1-hr TSP monitoring were carried out in this reporting period. All monitoring data of 1-hr and 24-hr TSP monitoring is provided in Appendix B2. Graphical presentation of both 1-hr and 24-hr TSP monitoring results for the reporting month is shown in Appendix B3. Table 4.6 summaries the 1-hr and 24-hr TSP monitoring results.

Table 4.6 Summary of 1-hr and 24-hr TSP Monitoring Results

Monitoring Parameter	Date	A1		RA2	
		Result	Exceedance	Result	Exceedance
1-hr TSP Monitoring	05/02/07	40	X	75	X
		43	X	84	X
		45	X	55	X
	09/02/07	54	X	43	X
		57	X	51	X
		42	X	49	X
	15/02/07	68	X	61	X
		73	X	69	X
		53	X	47	X
	21/02/07	96	X	70	X
		85	X	66	X
		92	X	55	X
	26/02/07	49	X	44	X
		43	X	42	X
		40	X	38	X



Monitoring Parameter	Date	A1		RA2	
		Result	Exceedance	Result	Exceedance
24-hr TSP Monitoring	05/02/07	129	X	61	X
	09/02/07	107	X	78	X
	12/02/07	99	X	37	X
	21/02/07	64	X	23	X
	26/02/07	64	X	42	X

Remark : (a) L=Limit Level exceedance, A=Action Level exceedance and X= not an exceedance;

No exceedances of Action and Limit Level of 1-hr and 24-hr TSP monitoring results were recorded during the reporting month.

5.0 Impact Noise Monitoring

5.1 Monitoring Requirements

As the requirement in Updated EM&A Manual, impact noise monitoring was conducted at designated monitoring locations:

- Lin Chi Monastery(N1);
- Village House along Ngong Ping Road near bus terminal (N2).

5.2 Monitoring Equipment

Integrating Sound Level Meter was used for impact noise monitoring. It was Type 1 sound level meter capable of giving a continuous readout of the noise level reading including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x). It comply with International Electro technical Commission Publications 651:1979 (Type1) and speed in m/s was used to monitor the wind speed. Table 4.1 summarized the noise monitoring equipment model being used. A copy of the calibration certificates for noise meter and calibrator are attached in Appendix C1.

Table 5.1 Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Rion NL-31 Sound Level Meter
Calibrator	Rion NC-73 Sound Level Calibrator
Portable Wind Speed Indicator	TSI Model 8340-M Air Velocity Meter

5.3 Monitoring Parameters, duration and Frequency

Noise monitoring for the A-weighted levels L_{eq} , L_{10} and L_{90} were recorded. The following guide on the regular monitoring frequency for each monitoring station on a per week basis when noise generating activities are underway:

- One set of measurements between 0700-1900 hours on normal weekdays (6 consecutive $L_{eq(5-min)}$);
- One set of measurements between 1900-2300 hours (3 consecutive $L_{eq(5-min)}$)*;
- One set of measurements between 2300-0700 hours of next day (3 consecutive $L_{eq(5-min)}$)*;
- One set of measurements between 0700-1900 hours on holidays (3 consecutive $L_{eq(5-min)}$)*.

(*): Noise monitoring to be conducted only when there is construction work.

Duration, frequencies and parameters of noise measurement are presented in Table 5.2.

Table 5.2 Duration, Frequencies and Parameters of Noise Monitoring

Time Period	Duration/min	Parameters	Frequency
Day-time: 0700-1900 hrs on normal weekday	30	L_{eq} , L_{10} , L_{90}	Once per week
Evening-time: 1900-2300 hrs	15	L_{eq} , L_{10} , L_{90}	Once per week
Night-time: 2300-0700 hrs of next day	15	L_{eq} , L_{10} , L_{90}	Once per week
Holiday: 0700-1900 hrs	15	L_{eq} , L_{10} , L_{90}	Once per week

5.4 Monitoring Locations and Period

In accordance with the Updated EM&A Manual, there are two noise monitoring stations. The locations of the monitoring stations are described in Table 5.3 and depicted in Figure 1.



Table 5.3 Noise Monitoring Locations

Noise Monitoring Station	Location
N1	Lin Chi Monastery
N2	Village House along Ngong Ping Road near bus terminal

Only Day-time noise monitoring was carried out at monitoring stations in this reporting month. No Evening-time, Night-time and Holiday noise monitoring were required since no construction works were processed during the night-time period. Impact noise monitoring programme at designated monitoring station is summarized in Table 5.4.

Table 5.4 Monitoring Periods for noise monitoring stations

Noise Monitoring Station	Date and Start Time of Monitoring							
	Day-time		Evening-time		Holiday		Night-time	
N1	05/02/07	11:00	---	---	---	---	---	---
	15/02/07	13:20	---	---	---	---	---	---
	21/02/07	10:00	---	---	---	---	---	---
	26/02/07	13:10	---	---	---	---	---	---
N2	05/02/07	14:18	---	---	---	---	---	---
	15/02/07	10:15	---	---	---	---	---	---
	21/02/07	11:00	---	---	---	---	---	---
	26/02/07	14:10	---	---	---	---	---	---

5.5 Monitoring Methodology

Instrumentation

Integrating Sound Level Meter (Rion NL-31 Sound Level Meter) was employed for noise monitoring.

Operation/Analysis Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting: A
 - Time weighting: Fast
 - Time measurement: 30 mins / 5 mins
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000HZ. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat measurement would be required after re-calibration or repair of the equipment.
- During the monitoring period, the Leq, L10 and L90 were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement may be paused during periods of high intrusive noise (e.g. dog barking directly towards the receiver of noise level meter). If noise measurement was paused during high intrusive noise, the noise level meter would be resumed and continued the noise measurement and the observations would also be recorded. Any pause intervals were not included in the measurement time.
- Noise monitoring would be cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator should clean with soft cloth at quarterly intervals.
- The meter should be sent to be supplier or HOKLAS laboratory to check and calibrated at yearly intervals.



5.6 Actions and Limit Levels

The Action and Limit Levels (AL Levels) were established in accordance to the Updated EM&A Manual. Table 5.5 presents the AL levels for noise monitoring.

Table 5.5 Action and Limit Levels for noise monitoring

Time Period	Action	Limit
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) *
1900-2300 hrs on normal weekdays; and 0700-2300 hrs on holidays		65 dB(A) *
2300-0700 hrs of next day		50 dB(A) *

* = Area Sensitivity Rating (ASR) B (Rural) is selected from the "Technical Memorandum on Noise from Construction Work Other Than Percussive Piling".

5.7 Event-Action Plans

Should the results of the monitoring parameters at any designated monitoring stations indicate that the noise level criteria are exceeded, the actions in accordance with the Event and Action Plan that summarized in Appendix E should be carried out.

5.8 Results

Totally 4 occasions of Day-time noise monitoring were carried out at monitoring stations in this reporting month. No Evening-time, Night-time and Holiday noise monitoring were required since no construction works were processed during the night-time period. All noise levels are provided in Appendix C2. Graphical presentations of the monitoring results for the reporting month are shown in Appendix C3.

No exceedances of Action Level on day-time noise monitoring were recorded at all monitoring stations since no complaint regarding noise nuisance was received in this reporting month. Besides, no exceedances in Limit Level were recorded according to the results from day-time noise monitoring. Table 5.6 summaries the noise daytime monitoring results in the reporting period.

Table 4.5 Summary of Noise Daytime Monitoring Results

Monitoring Parameter	Date	N1		N2	
		L _{eq} dB(A)	Exceedance	L _{eq} dB(A)	Exceedance
Noise Daytime Monitoring	05/02/07	50.2	X	63.6	X
	15/02/07	53.9	X	65.8	X
	21/02/07	48.1	X	63.4	X
	26/02/07	47.5	X	67.1	X

Remark (*): L=Limit Level exceedance, A=Action Level exceedance and X= not an exceedance

6.0 ENVIRONMENTAL NON-CONFORMANCE

6.1 Summary of Air quality, Noise and Water Quality Monitoring

There were no exceedances of Action and Limit level for both 24-hr and 1-hr TSP monitoring recorded in this reporting month and hence no further actions were required to be taken. No day-time noise level measured at all monitoring stations exceeded the Action and Limit Level in the reporting month. No evening-time, night-time and holiday noise monitoring were required since no construction works were processed during these periods.

6.2 Summary of Environmental Complaints

No complaint was received in this reporting month.

6.3 Summary of Notification of Summons and Prosecution

There was no notification of summons respect to environmental issues registered in this month.



7.0 SITE INSPECTION

During this reporting month, weekly site inspections were undertaken on 05, 15, 21 and 26 February 2007 by ET. Monthly joint site inspection at 26 February 2007 was carried out by Engineer's Representative, IEC, KLKJV and ET. A summary of implementation status of mitigation measures on site inspections is presented in Appendix G.

7.1 Summary of the site inspection findings and Action(s) taken by KS and ET

According to the summary of the weekly site inspections carried out in this month, it indicated that site practices of the KS were generally undertaken in an environmentally acceptable manner and the overall site environmental performance was satisfactory. Summary of the site inspection findings in this reporting month is shown in Table 7.1.

Table 7.1 The summary of the site inspection findings and Action(s) taken by KS and ET

Item	Aspects	Findings	Action(s) taken by KS	ET Verification
1	Air	Follow up action to the previous finding, stockpile at Storage Area B was found covered during site inspection on 05/02/07.	Since the finding was improved, no further action was taken by KS.	Since the condition has improved, no further ET verification was required.
2	Air	Stockpile at CB4 was found without cover during site inspections on 05/02/07 and 15/02/07.	KS replied to provide tarpaulin sheets to cover the stockpiles.	During the site inspection on 21/02/07, the stockpile was covered.
3	Air	Stockpile at Storage Area B was found without cover during site inspection on 26/02/07.	KS replied to provide tarpaulin sheets to cover the stockpile.	Since the finding was observed at the last site inspection in this reporting month, it will be verified in coming month.
4	Air	The public road outside site office was found to be dry and dusty during site inspection on 05/02/07 and 15/02/07.	KS replied to clean the road to avoid dust generation.	During the site inspection on 21/02/07, no dust was noted on the public road.
5	Air	During the site inspection on 15/02/07, load of a site vehicle was observed partly covered by tarpaulin sheet while leaving the site.	KS replied to remind all site workers to cover the load properly with tarpaulin sheet before leaving the site.	The finding was not observed during the subsequent site inspections on 21/02/07 and 26/02/07.
6	Chemical	Oil spillage was observed on the road outside site office during the site inspection on 05/02/07.	KS agreed to clean up the oil and treated the contaminated soil as chemical waste.	During the subsequent site inspection on 15/02/07, the spilled oil had been cleaned up and no oil spillage was observed.

7.2 Status of Environmental Permits

All permits/licenses obtained in this reporting month are summarized in Table 7.2.

Table 7.2 Summary of Environmental Licensing and Permit Status

Description	Permit No.	Valid Period		Section
		From	To	
Environmental Permit	EP-157/2003	04/02/03	24/10/06	Invalid
Environmental Permit	EP-157/2003/A	24/10/06	End of Project	Valid (A sewage collection system serving the existing and planned unsewered premises in Ngong Ping Village)
Registration as a Chemical Waste Producer	5213-941-K2621-07	02/06/06	---	Valid (Oils and Lubricants for Plants)
Water Discharge Licence	Application had been submitted to EPD on 21 October 2006 (KS Ref. no. C128/S098/MT)			
Notification under APCO	Application had been submitted to EPD on 29 April 2006 (EPD Ref. No. 001009573)			



7.3 Recommendations on site inspection findings in Site Inspections of this month

Based on the site inspection findings, the recommendations are as below:

- All stockpiles should be covered with clean tarpaulin sheets, watering or hydro-seeding to avoid wind and water erosion;
- Placing enough sand bags or other protection should be applied to prevent the silty surface runoff onto the storm water drains;
- Checking and maintenance of all wheel wash facilities and other sedimentation systems by the contractor's site staff should be conducted regularly to ensure proper and efficient operation;
- Watering the haul roads regularly;
- Providing dust suppression measures (such as water spraying) during the construction works especially excavation and earth moving operation;
- Checking and maintaining all the site machines to prevent black smoke emission;
- Providing briefing to the concerned site staff on remedial actions, such as handling method of chemicals and chemical waste; and
- Maintain good waste management at the site.
- Remove all stagnant water and applied proper treatment facilities to wastewater before discharge.

8.0 WASTE MANAGEMENT

8.1 Waste Management Audit

Waste management audit was carried out by the ET on a weekly basis. During this reporting month, KS followed the recommended procedures stipulated in the Waste Management Plan (WMP) on handling and disposal of wastes. A summary of the implementation status of the mitigation measures on waste management is presented in Appendix G.

8.2 Records of Waste Quantities

The quantities of waste for disposal in this month are summarized in Table 8.1.

Table 8.1 Summary of Quantities of Waste for Disposal in this reporting month

Type of Waste		Quantity	Disposal Location	Cumulative Quantity
Inert C&D Materials	Total Quantity Generated (m ³)	176		2456
	Broken Concrete (m ³)	0	N/A	121
	Reused in the Contract (m ³)	80	N/A	1861
	Reused in other Projects (m ³)	0	N/A	0
	Disposal as Public Fill (m ³)	96	Mui Wo Public Fill	474
C&D Waste	Metals (1000kg)	100	Store at site for recycling	800
	Paper/Cardboard Packaging (1000kg)	50	Store at site for recycling	400
	Plastics (1000kg)	1	Store at site for recycling	8
	Chemical Waste (1000kg)	0	N/A	0
	Other, e.g. General Refuse (m ³)	4	General Refuse Collection Point	58

9.0 IMPLEMENTATION STATUS

9.1 Implementation Status of Environmental Mitigation Measures

KS has been implementing the required environmental mitigation measures indicating in Appendix A of the EM&A manual. A summary of the implementation status of the mitigation measures is presented in Appendix G.

Air Quality

KS has been implementing most mitigation measures on air quality shown in Appendix A of the EM&A manual. Since mud and debris were observed on Public road at the entrance of storage area, DC4, DC7 and DA8 during several weekly site inspections, the Contractor was reminded to maintain the public road properly to keep clean and free of dust. Besides, water spraying should provide during excavation and other construction activities which will generate dust.



Noise

All mitigation measures stated in Appendix G were implemented properly in this reporting month.

Water Quality

The Contractor was reminded to provide more effort to implement mitigation measures, such as removing the sand/rubbish accumulated in the drain/channel regularly.

Waste Management

KS has been implementing most mitigation measures on waste management.

9.2 Implementation Status of Event and Action Plan

There were no exceedances of Action and Limit level recorded in this reporting month and hence no further actions were required to be taken.

9.3 Implementation Status of Environmental Complaint Handling

No complaints were received in this reporting month. The details of the complaint-log are presented in Table 9.1.

Table 9.1 Statistical Summary of Environmental Complaint-log

Reporting Month	Complaint Statistics			
	Frequency	Cumulative	Aspect	Action(s) Taken by Contractor and ET Verification
Jan. 06	1	1	One complaint received from the Green Lantau Association about widening the existing footpath and filling the earth/stone drainage channels to provide access to machinery used during the sewerage works construction on 13 January 2006	<p><u>Action(s) Taken by Contractor</u></p> <ul style="list-style-type: none"> Since the complaint was due to the construction works, the Contractor reported that corrective action such as using sand bags to prevent the fill materials at the existing drainage channels to downstream area have been implemented. <p><u>ET Verification</u></p> <ul style="list-style-type: none"> During the ET weekly site inspection on 26 January 2006, sand bags were found placed at the existing drainage channel and no fill materials were found at the downstream area. The complaint was satisfied with the rectification action taken and the complaint was settled.
Feb 06	0	1	---	---
Mar 06	0	1	---	---
April 06	0	1	---	---
May 06	0	1	---	---
June 06	0	1	---	---
July 06	0	1	---	---
Aug 06	0	1	---	---



Reporting Month	Complaint Statistics			
	Frequency	Cumulative	Aspect	Action(s) Taken by Contractor and ET Verification
Sept 06	1	2	One complaint received from the DSD about the water pumped out from manhole F8 had not been treated before discharged into the nearby stream course and caused potential water quality impacts to the downstream reservoirs on 14 September 2006.	<p><u>Action(s) Taken by Contractor</u></p> <ul style="list-style-type: none"> After site investigation by the Contractor, it was found that the discharged water from manhole F8 was ground water being retained after recently rainfall and not generated from the construction works. The Contractor arranged workers to pump out the accumulated ground water from manhole F8 to the sedimentation tanks. <p><u>ET Verification</u></p> <ul style="list-style-type: none"> ET recommended the Contractor to pump the accumulated ground water out and treat by using sedimentation facilities especially during rainy season. During the ET weekly site inspection on 20 September 2006, no water was found discharged from manhole F8. The complaint was satisfied with the rectification action taken and the complaint was settled.
	1	3	One complaint received from the DSD about the water pump out from manhole CB4 had not been treated before discharged into the nearby stream course on 15 September 2006..	<p><u>Action(s) Taken by Contractor</u></p> <ul style="list-style-type: none"> After site investigation by the Contractor, it was found that dewatering activity at manhole CB4 was due to emergency operation form existing WSD water pipe burst at pit for manhole CB4 and there were PCCW cables and CLP cables inside the pit. In order to avoid the potential collapse of embedded soil to protect the adjacent access road and utility services concerned, the Contractor arranged the site workers to pump out and discharge the accumulated water to the stream course immediately. The Contractor arranged workers to pump out the accumulated water from manhole CB4 to the sedimentation tanks for further treatment. <p><u>ET Verification</u></p> <ul style="list-style-type: none"> ET recommended the Contractor to pump the accumulated water out and treat by using sedimentation facilities especially during rainy season. During the ET weekly site inspection on 20 September 2006, no water was found discharged from manhole CB4. The complaint was satisfied with the rectification action taken and the complaint was settled.
Oct 06	0	3	---	---
Nov 06	0	3	---	---
Dec 06	0	3	---	---
Jan 07	0	3	---	---
Feb 07	0	3	---	---

9.4 Implementation Status of Notification of Summons and Prosecution

There were no notifications of summons respect to environmental issues registered in this reporting month.

10.0 CONCLUSION

Impact monitoring of air quality and noise were carried out at designated locations in accordance with the EM&A Manual in this reporting month.



No exceedances of Action and Limit Level of 1-hr and 24-hr TSP monitoring results were recorded during the reporting month.

No day-time noise monitoring at all monitoring stations exceeded the Action and Limit Level in this reporting month. No evening-time, night-time and holiday noise monitoring were required since no construction works were processed during the night-time period.

No complaints, notification of summons and prosecution were received in this reporting month.

According to the ET weekly site inspections carried out in this reporting month, it indicated that site practices of the KS were generally undertaken in an environmentally acceptable manner and the overall site environmental performance was satisfactory.

11.0 FUTURE KEY ISSUES

11.1 Upcoming Environmental Monitoring Schedule in coming three months

Proposed Environmental Monitoring Schedule for the coming three months is presented as below:

Table 11.1 Upcoming Environmental Monitoring Schedule in coming three months

Type of Monitoring	March 2007	April 2007	May 2007
Noise Monitoring (Day-time)	05, 15, 21, 27	02, 12, 18, 24, 30	04, 10, 16, 22, 28
1-hour TSP	05, 09, 15, 21, 27	02, 06, 12, 18, 24, 30	04, 10, 16, 22, 28
24-hour TSP	05, 09, 15, 21, 27	02, 06, 12, 18, 24, 30	04, 10, 16, 22, 28
Site Inspection	05, 15, 21, 27	02, 12, 18, 24, 30	04, 10, 16, 22, 28

11.2 Upcoming Construction Works Schedule in coming month

The major construction works planned to be carried out in coming month and their possible impact is tabulated in Table 11.2. Construction programme for coming month presents in Appendix E.

Table 11.2 Construction Plan in the coming month

Item	Works Planned to be Carried Out
1	Trench excavation works
2	Sewer pipe-laying works
3	Concrete surround for the laid sewer pipe
4	Construction works for manhole
5	Soil/granular backfilling works for trench
6	Construction works for flowmeter chamber, control kiosk, earthing / lighting pit and boundary wall...etc
7	Reinstatement works with C.I. frame & cover

11.3 Environmental Issues for the Coming Month

Key issues to be considered in the coming month include:

- Dust generated from the construction activities; and
- Noise generated from the noisy activities.

Mitigation measures to be required in the coming month:

Air Quality Impact

- To ensure implementation of the dust mitigation measures for the construction activities;
- To provide proper maintenance for vehicles and machines on site; and
- To investigate any other dust sources around the air sensitive receivers.

Noise

- To switch off equipment if not in use;
- To operate silent equipment;
- To identify the noise sources inside and outside of the site;
- To re-schedule the work activities in the event of valid noise exceedance.



Appendix A

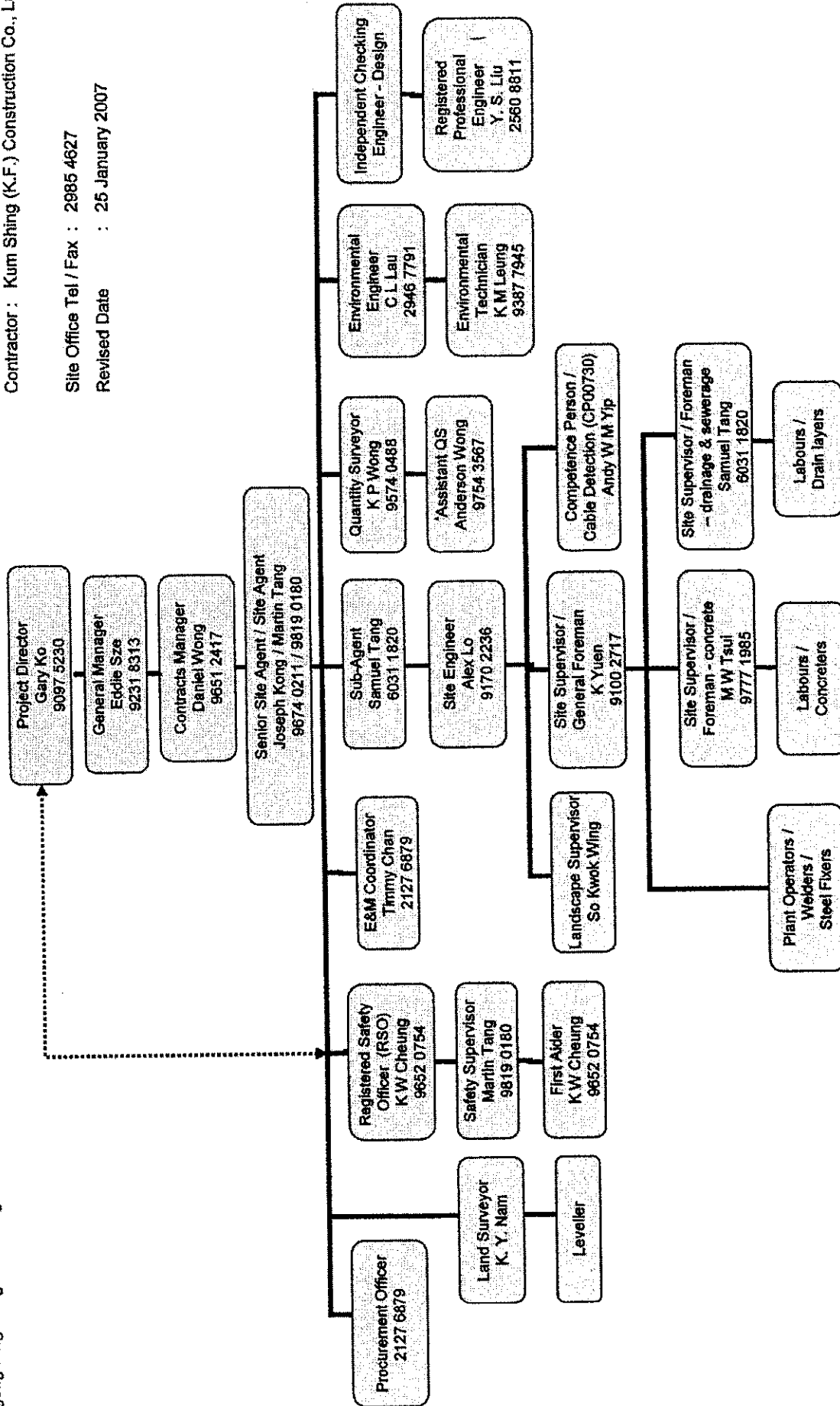
Organization Chart and Lines of Communication

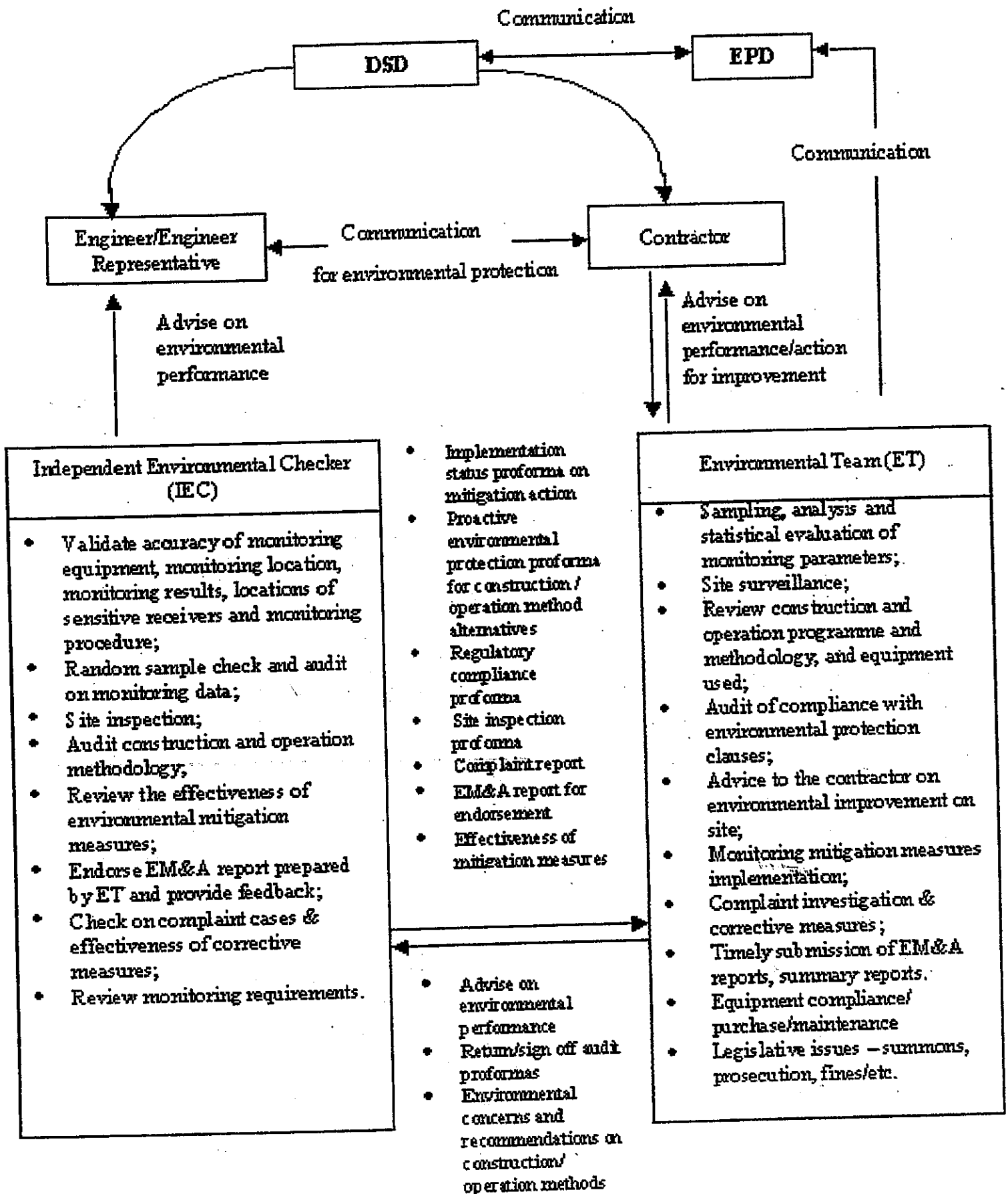
DSD Contract No. DC/2005/05
 Ngong Ping Village Sewerage

Staff Organization Chart

Client : Drainage Services Department
 Engineer : Ove Arup & Partners Hong Kong Ltd.
 Contractor : Kum Shing (K.F.) Construction Co., Ltd

Site Office Tel / Fax : 2885 4627
 Revised Date : 25 January 2007







東業德勤測試顧問有限公司
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Appendix B1

Calibration Certificates for Impact Air Quality Monitoring Equipments



Summary of Air monitoring equipment used

(a) **24-hour High Volume Sampler**

<i>Equipment No.</i>	<i>Model No.</i>	<i>Serial No.</i>	<i>Date of Calibration</i>	<i>Calibration Due Date</i>
<i>ET/EA/003/14</i>	<i>GS 2310 Accu-vol system</i>	<i>9865</i>	<i>22/11/06</i> <i>24/01/07</i>	<i>21/01/07</i> <i>23/03/07</i>
<i>ET/EA/003/09</i>	<i>GS 2310 Accu-vol system</i>	<i>9035</i>	<i>22/11/06</i> <i>24/01/07</i>	<i>21/01/07</i> <i>23/03/07</i>

(b) **HVS Calibration Kit (Calibrator Orifice)**

<i>Equipment No.</i>	<i>Model No.</i>	<i>Serial No.</i>	<i>Date of Calibration</i>	<i>Calibration Due Date</i>
<i>ET/EA/004/04</i>	<i>TISCH TE-5025A</i>	<i>1061</i>	<i>16/06/06</i>	<i>15/06/07</i>



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TEST REPORT

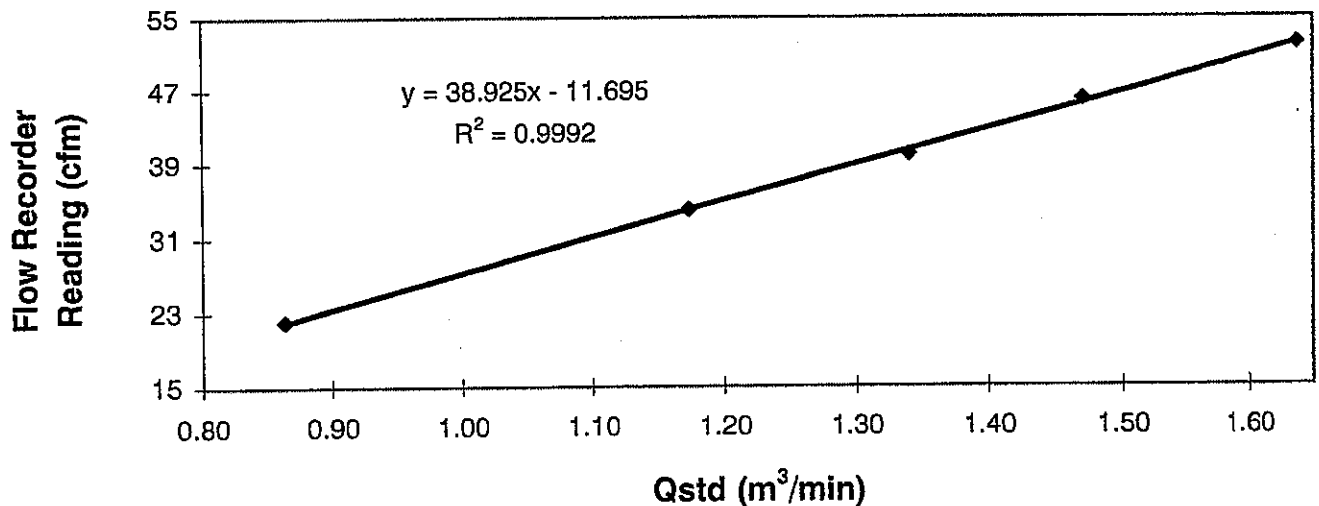
**Calibration Report
of
High Volume Air Sampler**

Manufacturer : Graseby GMW Date of Calibration : 24 January 2007
Serial No. : 9865 (ET / EA / 003 / 14) Calibration Due Date : 23 March 2007
Method : Based on Operations Manual for in series calibration method by TISCH
ENVIROMENTAL Model Te-5025A calibration kit

Results :

Flow recorder reading (cfm)	52	46	40	34	22
Qstd (Actual flow rate, m ³ /min)	1.62	1.45	1.32	1.16	0.85
Pressure :	764.31 mm Hg		Temp. :	286 K	

**Sampler9865 Calibration Curve
Site: Ngong Ping Monitoring Station A1
Date of Calibration: 24 January 2007**



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5 point calibration

The high volume sampler complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / unacceptable * for use.

Calibrated by :
Ken K. C. Leung
Technician

Approved by :
Linda Law
(Senior Environmental Officer)



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TEST REPORT

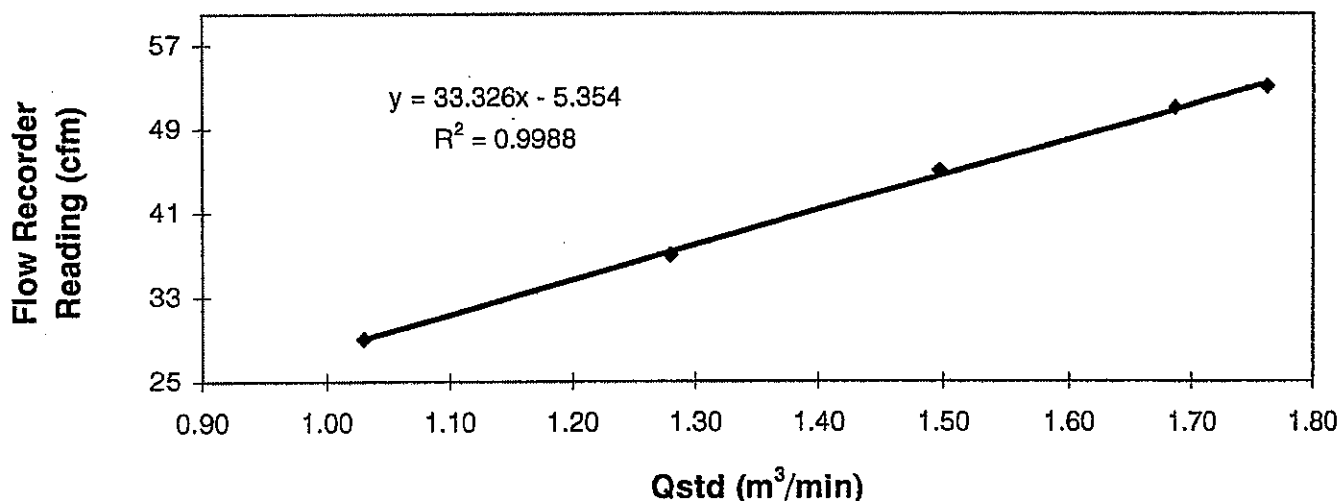
Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW **Date of Calibration** : 24 January 2007
Serial No. : 9035 (ET / EA / 003 / 09) **Calibration Due Date** : 23 March 2007
Method : Based on Operations Manual for in series calibration method by TISCH
ENVIROMENTAL Model Te-5025A calibration kit

Results

Flow recorder reading (cfm)	53	51	45	37	29
Qstd (Actual flow rate, m ³ /min)	1.74	1.66	1.48	1.26	1.02
Pressure :	764.31 mm Hg		Temp. :	286 K	

Sampler9035 Calibration Curve
Site: Ngong Ping Monitoring Station A2
Date of Calibration: 24 January 2007



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5 point calibration

The high volume sampler complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use.

Calibrated by : Ken K. C. Leung
(Technician)

Approved by : Linda Law
(Senior Environmental Officer)



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TEST REPORT

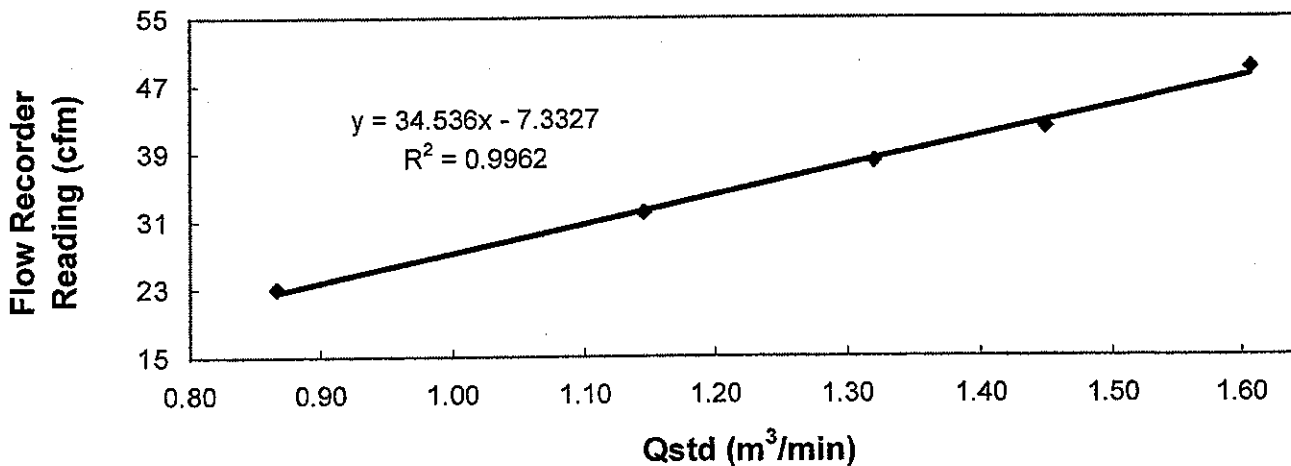
Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 22 November 2006
Serial No. : 9865 (ET / EA / 003 / 14) Calibration Due Date : 21 January 2007
Method : Based on Operations Manual for in series calibration method by TISCH
ENVIROMENTAL Model Te-5025A calibration kit

Results :

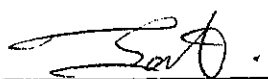
Flow recorder reading (cfm)	49	42	38	32	23
Qstd (Actual flow rate, m ³ /min)	1.61	1.45	1.32	1.15	0.87
Pressure :	760.56 mm Hg			Temp. :	293 K

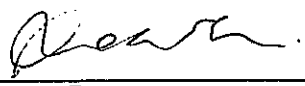
Sampler9865 Calibration Curve
Site: Ngong Ping Monitoring Station A1
Date of Calibration: 22 November 2006



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5 point calibration

The high volume sampler complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / unacceptable * for use.

Calibrated by : 
H. T. Chow
(Asst. Environmental Officer)

Approved by : 
Louisa Fung
(Environmental Officer)



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Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

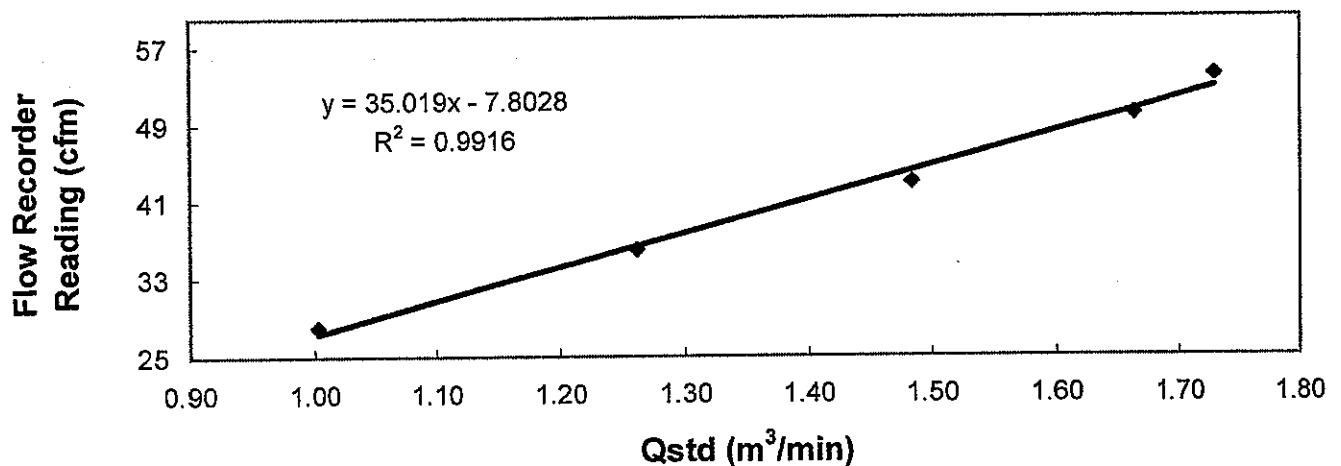
**Calibration Report
of
High Volume Air Sampler**

Manufacturer : Graseby GMW Date of Calibration : 22 November 2006
Serial No. : 9035 (ET / EA / 003 / 09) Calibration Due Date : 21 January 2007
Method : Based on Operations Manual for in series calibration method by TISCH
ENVIROMENTAL Model Te-5025A calibration kit

Results :

Flow recorder reading (cfm)	54	50	43	36	28
Qstd (Actual flow rate, m ³ /min)	1.73	1.66	1.48	1.26	1.00
Pressure :	760.56 mm Hg			Temp. :	293 K

**Sampler9035 Calibration Curve
Site: Ngong Ping Monitoring Station A2
Date of Calibration: 22 November 2006**



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5 point calibration

The high volume sampler complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / unacceptable * for use.

Calibrated by : H. T. Chow
H. T. Chow
(Asst. Environmental Officer)

Approved by : Louisa Fung
Louisa Fung
(Environmental Officer)



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 513.467.9009 FAX
 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jun 16, 2006 Rootsometer S/N 9833620 Ta (K) - 296
 Operator Tisch Orifice I.D. - 1061 Pa (mm) - 753.11

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3950	3.1	2.00
2	NA	NA	1.00	0.9820	6.3	4.00
3	NA	NA	1.00	0.8770	7.8	5.00
4	NA	NA	1.00	0.8360	8.6	5.50
5	NA	NA	1.00	0.6910	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9935	0.7122	1.4125	0.9959	0.7139	0.8866
0.9893	1.0074	1.9976	0.9916	1.0098	1.2539
0.9872	1.1256	2.2334	0.9895	1.1283	1.4019
0.9862	1.1797	2.3424	0.9885	1.1825	1.4703
0.9809	1.4195	2.8251	0.9832	1.4229	1.7732
Qstd slope (m) = 1.99638			Qa slope (m) = 1.25010		
intercept (b) = -0.01172			intercept (b) = -0.00736		
coefficient (r) = 0.99998			coefficient (r) = 0.99998		
y axis = $\text{SQRT}[\text{H2O}(\text{Pa}/760)(298/\text{Ta})]$			y axis = $\text{SQRT}[\text{H2O}(\text{Ta}/\text{Pa})]$		

CALCULATIONS

$V_{std} = \text{Diff. Vol} [(\text{Pa} - \text{Diff. Hg}) / 760] (298 / \text{Ta})$
 $Q_{std} = V_{std} / \text{Time}$

$V_a = \text{Diff Vol} [(\text{Pa} - \text{Diff Hg}) / \text{Pa}]$
 $Q_a = V_a / \text{Time}$

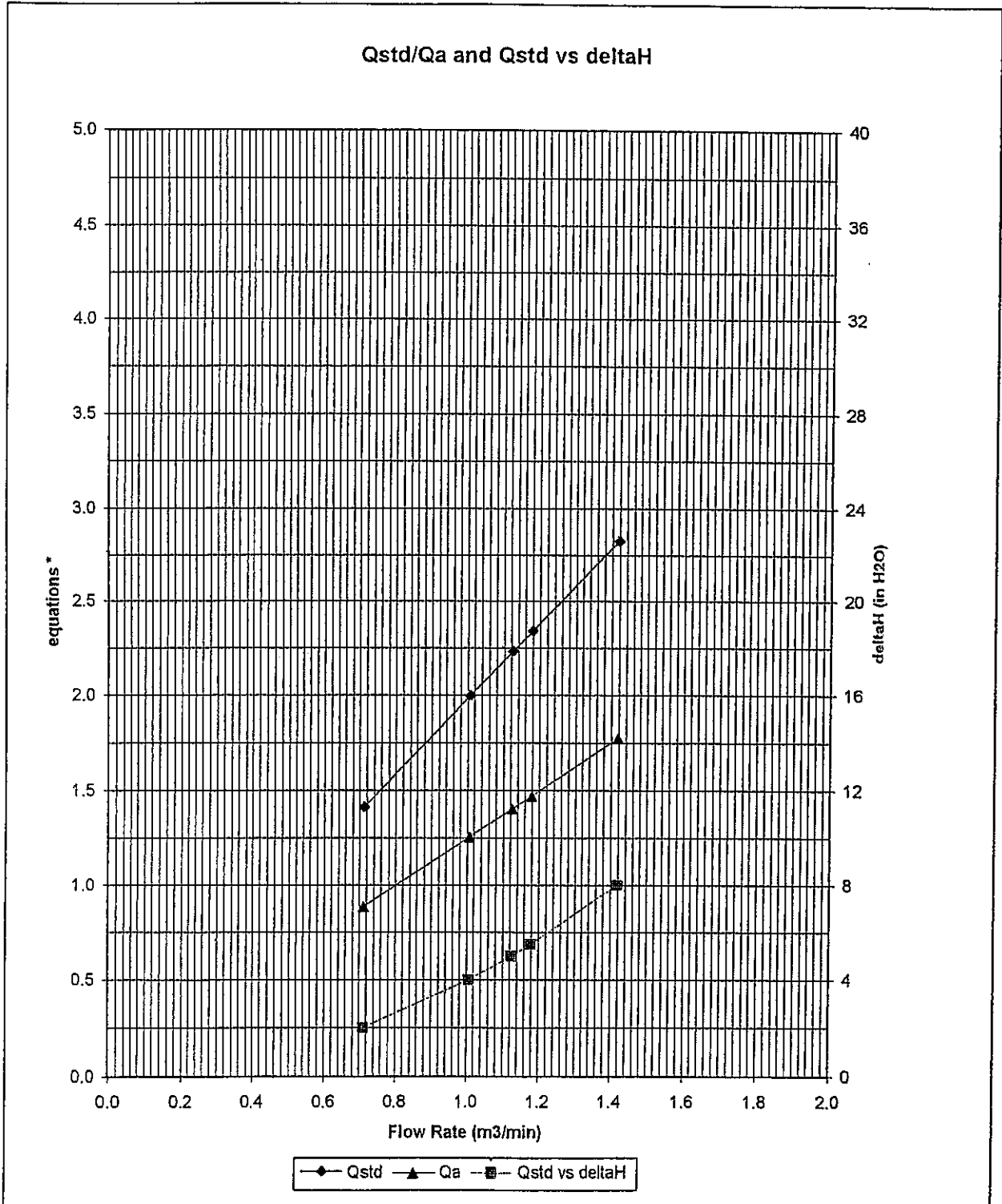
For subsequent flow rate calculations:

$Q_{std} = 1/m \{ [\text{SQRT}(\text{H2O}(\text{Pa}/760)(298/\text{Ta}))] - b \}$
 $Q_a = 1/m \{ [\text{SQRT}(\text{H2O}(\text{Ta}/\text{Pa}))] - b \}$



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AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series: $\sqrt{\Delta H \left(\frac{P_a}{P_{std}} \right) \left(\frac{T_{std}}{T_a} \right)}$

Qa series: $\sqrt{\Delta H (T_a / P_a)}$

#1061



Appendix B2

Impact Air Quality Monitoring Results



Summary of 24-hr TSP Monitoring Results

Monitoring Station : A1
Location : Village house near Ngong Ping Road

Start Date	Start Time	Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition	Site Construction Activities
		Date	Time	Initial	Final		Initial	Final		Initial	Final			
05/02/07	14:15	05/02/07	14:15	14403.52	14427.52	24.00	1.52	1.52	1.52	2.7262	3.0078	129	Sunny	General Earth Works
09/02/07	14:01	09/02/07	14:01	14430.52	14454.52	24.00	1.51	1.51	1.51	2.8132	3.0459	107	Sunny	General Earth Works
12/02/07	14:07	12/02/07	14:07	14457.52	14481.51	23.99	1.40	1.40	1.40	2.8658	3.0655	99	Cloudy	General Earth Works
21/02/07	14:10	21/02/07	14:10	14484.51	14508.52	24.01	1.56	1.56	1.56	2.8468	2.9916	64	Cloudy	General Earth Works
26/02/07	16:03	26/02/07	16:03	14511.52	14535.52	24.00	1.60	1.60	1.60	2.8327	2.9807	64	Cloudy	General Earth Works

Monitoring Station : RA2
Location : Village House near Tung Shing Store

Start Date	Start Time	Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition	Site Construction Activities
		Date	Time	Initial	Final		Initial	Final		Initial	Final			
05/02/07	14:20	06/02/07	14:20	13185.38	13209.38	24.00	0.82	0.82	0.82	2.7694	2.8415	61	Sunny	General Earth Works
09/02/07	14:07	10/02/07	14:07	13212.38	13236.38	24.00	0.82	0.82	0.82	2.8247	2.9168	78	Sunny	General Earth Works
12/02/07	14:02	13/02/07	14:02	13269.38	13263.38	24.00	0.76	0.76	0.76	2.8850	2.9260	37	Cloudy	General Earth Works
21/02/07	14:15	22/02/07	14:15	13266.38	13290.38	24.00	0.80	0.80	0.80	2.8543	2.8805	23	Cloudy	General Earth Works
26/02/07	16:11	27/02/07	16:11	13293.38	13317.38	24.00	0.81	0.81	0.81	2.8049	2.8543	42	Cloudy	General Earth Works



Summary of 1-hr TSP Monitoring Results

Monitoring Station : A1
Location : Village House near Ngong Ping Road

Date	Time		Elapsed Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition	Site Construction Activities
	Start	End	Initial	Final		Initial	Final		Initial	Final			
05/02/07	09:50	10:50	14400.52	14401.52	1.00	1.55	1.55	1.55	2.7832	2.7869	40	Sunny / 20°C	General Earth Works
	10:55	11:55	14401.52	14402.52	1.00	1.55	1.55	1.55	2.7916	2.7956	43		
	13:00	14:00	14402.52	14403.52	1.00	1.55	1.55	1.55	2.8147	2.8189	45		
09/02/07	09:47	10:47	14427.52	14428.52	1.00	1.52	1.52	1.52	2.8127	2.8176	54	Sunny / 20°C	General Earth Works
	10:49	11:49	14428.52	14429.52	1.00	1.52	1.52	1.52	2.8230	2.8282	57		
	13:00	14:00	14429.52	14430.52	1.00	1.52	1.52	1.52	2.8416	2.8454	42		
15/02/07	09:30	10:30	14454.52	14455.52	1.00	1.52	1.52	1.52	2.8241	2.8303	68	Cloudy / 16°C	General Earth Works
	10:32	11:32	14455.52	14456.52	1.00	1.52	1.52	1.52	2.8530	2.8597	73		
	13:00	14:00	14456.52	14457.52	1.00	1.52	1.52	1.52	2.8464	2.8512	53		
21/02/07	09:46	10:46	14481.51	14482.51	1.00	1.22	1.22	1.22	2.8127	2.8197	96	Cloudy / 20°C	General Earth Works
	10:46	11:46	14482.51	14483.51	1.00	1.22	1.22	1.22	2.8241	2.8303	85		
	13:00	14:00	14483.51	14484.51	1.00	1.22	1.22	1.22	2.8570	2.8637	92		
26/02/07	13:00	14:00	14508.52	14509.52	1.00	1.56	1.56	1.56	2.8516	2.8562	49	Cloudy / 20°C	General Earth Works
	14:01	15:01	14509.52	14510.52	1.00	1.56	1.56	1.56	2.8538	2.8578	43		
	15:02	16:02	14510.52	14511.52	1.00	1.56	1.56	1.56	2.8616	2.8653	40		

Monitoring Station : RA2
Location : Village house near Tung Shing Store

Date	Time		Elapsed Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition	Site Construction Activities
	Start	End	Initial	Final		Initial	Final		Initial	Final			
05/02/07	09:56	10:56	13182.38	13183.38	1.00	0.85	0.85	0.85	2.8352	2.8390	75	Sunny / 20°C	General Earth Works
	11:00	12:00	13183.38	13184.38	1.00	0.85	0.85	0.85	2.8437	2.8480	84		
	13:00	14:00	13184.38	13185.38	1.00	0.85	0.85	0.85	2.8642	2.8670	55		
09/02/07	09:52	10:52	13209.38	13210.38	1.00	0.82	0.82	0.82	2.8507	2.8528	43	Sunny / 20°C	General Earth Works
	10:55	11:55	13210.38	13211.38	1.00	0.82	0.82	0.82	2.8328	2.8353	51		
	13:00	14:00	13211.38	13212.38	1.00	0.82	0.82	0.82	2.8247	2.8271	49		
15/02/07	09:37	10:37	13236.38	13237.38	1.00	0.85	0.85	0.85	2.8271	2.8302	61	Cloudy / 16°C	General Earth Works
	10:40	11:40	13237.38	13238.38	1.00	0.85	0.85	0.85	2.8356	2.8391	69		
	13:00	14:00	13238.38	13239.38	1.00	0.85	0.85	0.85	2.8478	2.8502	47		
21/02/07	09:38	10:38	13263.38	13264.38	1.00	0.76	0.76	0.76	2.8481	2.8513	70	Cloudy / 20°C	General Earth Works
	10:38	11:38	13264.38	13265.38	1.00	0.76	0.76	0.76	2.8636	2.8666	66		
	13:00	14:00	13265.38	13266.38	1.00	0.76	0.76	0.76	2.8717	2.8742	55		
26/02/07	13:00	14:00	13290.38	13291.38	1.00	0.80	0.80	0.80	2.8543	2.8564	44	Cloudy / 20°C	General Earth Works
	14:06	15:06	13291.38	13292.38	1.00	0.80	0.80	0.80	2.8781	2.8801	42		
	15:10	16:10	13292.38	13293.38	1.00	0.80	0.80	0.80	2.8632	2.8650	38		

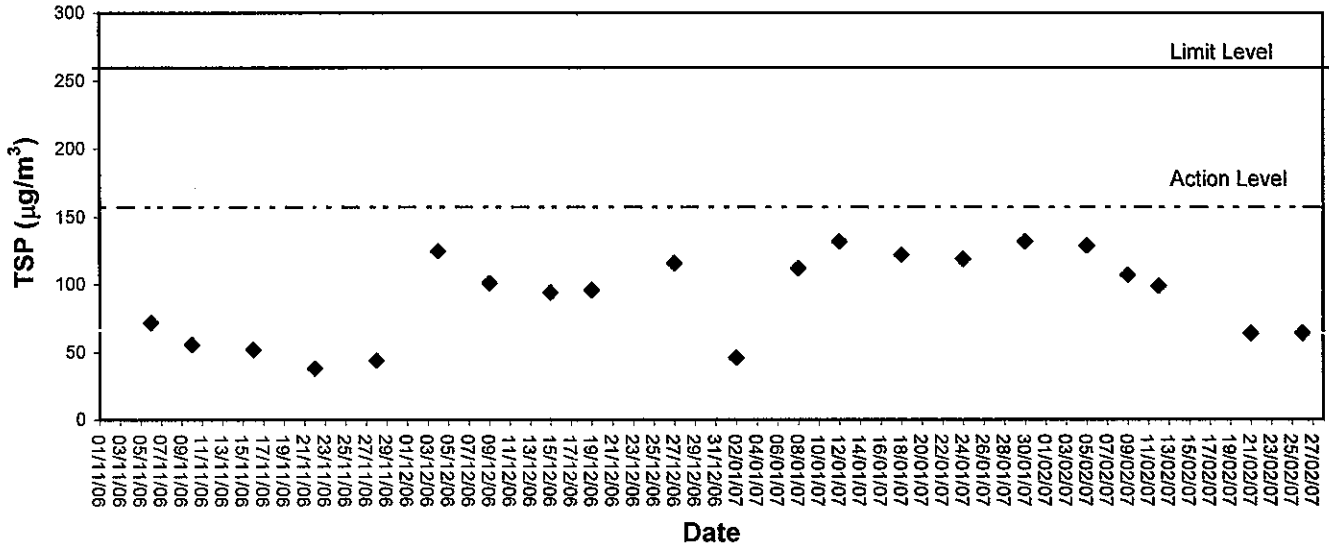


Appendix B3

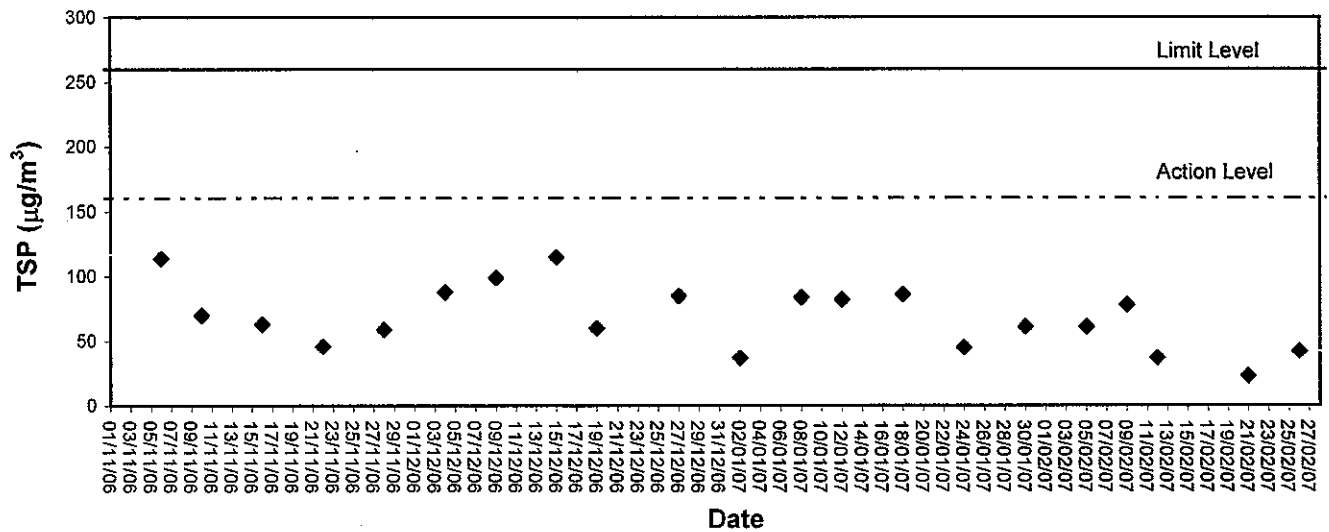
Graphical Plots of Impact Air Quality Monitoring Data



24-hour TSP level at A1 (Village house near Ngong Ping Road)

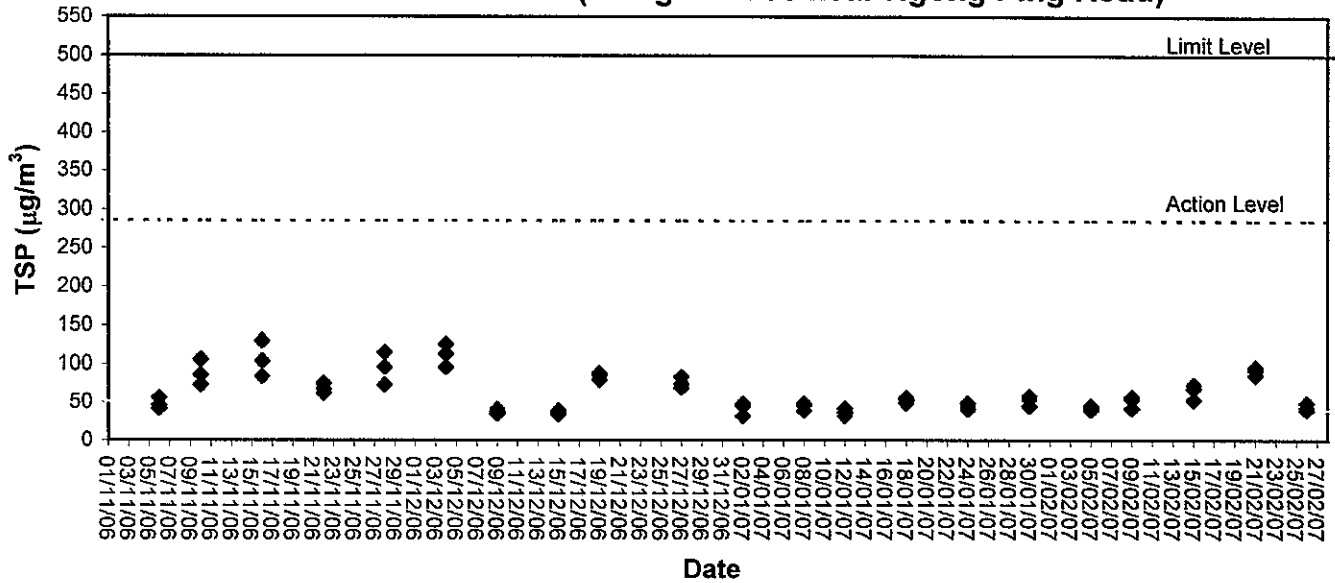


24-hour TSP level at RA2 (Village House near Tung Shing Store)

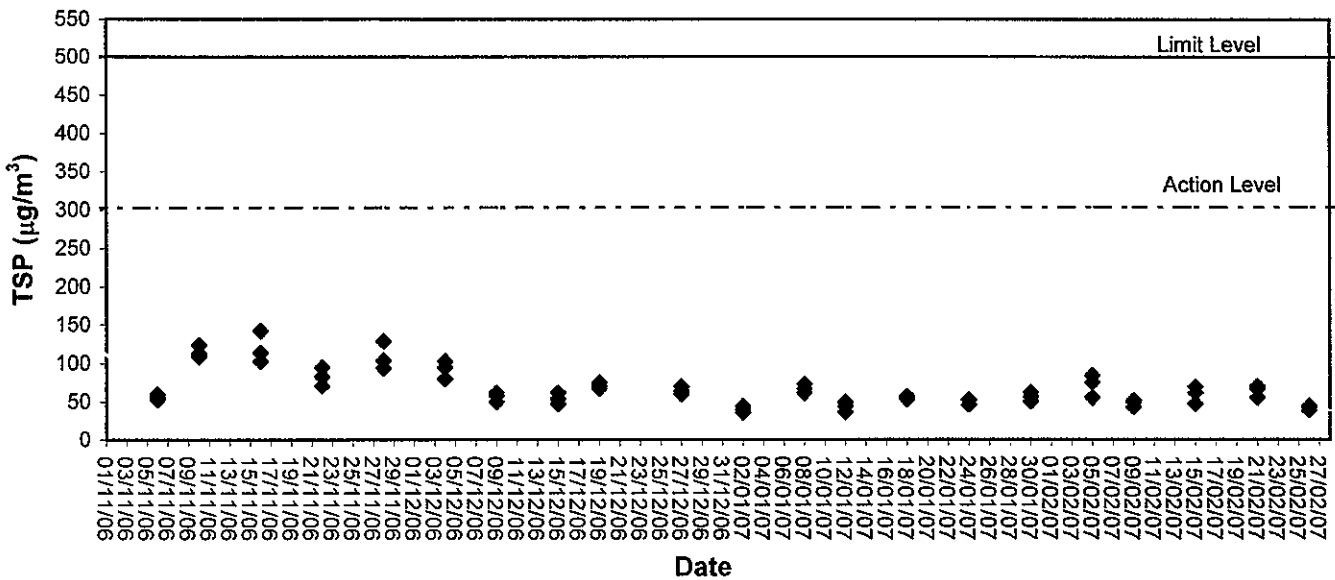




1-hour TSP level at A1 (Village House near Ngong Ping Road)



1-hour TSP level at RA2 (Village House near Tung Shing Store)





東業德勤测试顾问有限公司
ETS-TESTCONSULT LIMITED

Appendix C1

Calibration Certificates for Impact Noise Monitoring Equipments



Summary of Noise Monitoring Equipment used

(a) **Sound Level Meter**

<i>Equipment No.</i>	<i>Model No.</i>	<i>Serial No.</i>	<i>Date of Calibration</i>	<i>Calibration Due Date</i>
<i>ET/EN/003/10</i>	<i>Rion Brand NL-31</i>	<i>00110024</i>	<i>04/04/06</i>	<i>03/04/07</i>

(b) **Calibrator**

<i>Equipment No.</i>	<i>Model No.</i>	<i>Serial No.</i>	<i>Date of Calibration</i>	<i>Calibration Due Date</i>
<i>ET/EN/002/05</i>	<i>Rion Brand NC-73</i>	<i>10644871</i>	<i>04/04/06</i>	<i>03/04/07</i>



Calibration Certificate

Certificate No. **61398**

Page 1 of 3 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q60555

Date of receipt : 29-Mar-06

Item Tested

Description : Precision Integrating Sound Level Meter

Manufacturer : Rion

Model : NL-31

Serial No. : 00110024

Test Conditions

Date of Test : 4-Apr-06

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Calibration procedure : Z01.

Test Results

All results were within the IEC 651 Type 1 and IEC 804 Type 1 specification.

The results are shown in the attached page(s).

Test equipment used:

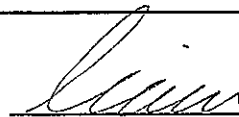
<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S017	Function Generator	C051022	21-Mar-07	HKGSCL
S024	Calibrator	S41431	22-May-06	PRC-NIM

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by :


P.F. Wong

Approved by :


Dorothy Cheuk

Date: 4-Apr-06



Calibration Certificate

Certificate No. 61398

Page 2 of 3 Pages

Results :

1. SPL Accuracy

UUT Setting			Applied Value (dB)	UUT Reading (dB)
Level Range (dB)	Weight	Response		
20 – 100	L _A	Fast	94.0	93.8
		Slow		93.8
	L _C L _p	Fast		93.8
		Fast		93.8
30 – 120	L _A	Fast	94.0	93.8
		Slow		93.7
	L _C L _p	Fast		93.8
		Fast		93.8
30 – 120	L _A	Fast	113.9	113.8
		Slow		113.7
	L _C L _p	Fast		113.8
		Fast		113.8

IEC 651 Type 1 Spec. : ± 0.7 dB

Uncertainty : ± 0.2 dB

2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB

Uncertainty : ± 0.01 dB



Calibration Certificate

Certificate No. 61398

Page 3 of 3 Pages

3. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 39.5	- 39.4 dB, ± 1.5 dB
63 Hz	- 26.2	- 26.2 dB, ± 1.5 dB
125 Hz	- 16.2	- 16.1 dB, ± 1 dB
250 Hz	- 8.8	- 8.6 dB, ± 1 dB
500 Hz	- 3.3	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref.)	0 dB, ± 1 dB
2 kHz	+ 1.2	+ 1.2 dB, ± 1 dB
4 kHz	+ 1.1	+ 1.0 dB, ± 1 dB
8 kHz	- 1.2	- 1.1 dB, + 1.5 dB ~ - 3 dB
16 kHz	- 6.7	- 6.6 dB, + 3 dB ~ ∞

Uncertainty : ± 0.1 dB

4. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	39.8	± 0.5 dB
1/10 ²	40.0	40.0	
1/10 ³	40.0	40.0	± 1.0 dB
1/10 ⁴	40.0	40.0	

Uncertainty : ± 0.1 dB

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 000 hPa.

----- END -----



Calibration Certificate

Certificate No. **61399**

Page 1 of 2 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q60555

Date of receipt : 29-Mar-06

Item Tested

Description : Sound Level Calibrator

Manufacturer : Rion

Model : NC-73

Serial No. : 10644871

Test Conditions

Date of Test : 4-Apr-06

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Calibration procedure : F21, Z02.

Test Results

All results were within the manufacturer's specification.

The results are shown in the attached page(s).

Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	53024	7-Jul-06	PRC-NIM
S024	Calibrator	S41431	22-May-06	PRC-NIM
S041	Universal Counter	53972	26-Aug-06	HKGSCCL

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : 

P.F. Wong

Approved by : 

Dorothy Cheuk

Date: 4-Apr-06



Calibration Certificate

Certificate No. 61399

Page 2 of 2 Pages

Results :

1. Level Accuracy (at 1 kHz)

UUT Nominal Value	Measured Value		Mfr's Spec.
	Before Adjust.	After Adjust.	
94 dB	94.7	94.2	± 1 dB

Uncertainty : ± 0.2 dB

2. Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.984 kHz	± 2 %

Uncertainty : ± 0.1 %

3. Level Stability : 0.0 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.3 %

Mfr's Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. The above measured values are the mean of 3 measurement.

4. Atmospheric Pressure : 1 000 hPa

----- END -----



Appendix C2

Impact Noise Monitoring Results



Day-time Noise Monitoring

Monitoring Location: N1 (Lin Chi Monastery)

Date	Start Time	End Time	Noise Level dB (A)			Wind Speed (m/s)	Weather Condition	Major Construction Activities	Other Noise Sources during measurement
			L _{eq} (30min)	L ₁₀	L ₉₀				
05/02/07	11:00	11:30	50.2	51.1	44.8	0.8	Sunny	No construction activities observed	—
15/02/07	13:20	13:50	53.9	55.0	48.5	2.5	Cloudy	No construction activities observed	—
21/02/07	10:00	10:30	48.1	50.7	42.6	1.2	Cloudy	No construction activities observed	—
26/02/07	13:10	13:40	47.5	48.8	43.9	1.7	Cloudy	No construction activities observed	—

Monitoring Location: N2 (Village house along Ngong Ping Road near Bus Terminal)

Date	Start Time	End Time	Noise Level dB (A)			Wind Speed (m/s)	Weather Condition	Major Construction Activities	Other Noise Sources during measurement
			L _{eq} (30min)	L ₁₀	L ₉₀				
05/02/07	14:18	14:48	63.6	65.2	56.7	1.0	Sunny	No construction activities observed	Vehicles pass-by (e.g. Public bus)
15/02/07	10:15	10:45	65.8	67.4	55.0	2.0	Cloudy	No construction activities observed	Vehicles pass-by (e.g. Public bus)
21/02/07	11:00	11:30	63.4	66.1	52.3	1.0	Cloudy	No construction activities observed	Vehicles pass-by (e.g. Public bus)
26/02/07	14:10	14:40	67.1	68.8	56.2	1.6	Cloudy	No construction activities observed	Vehicles pass-by (e.g. Public bus)



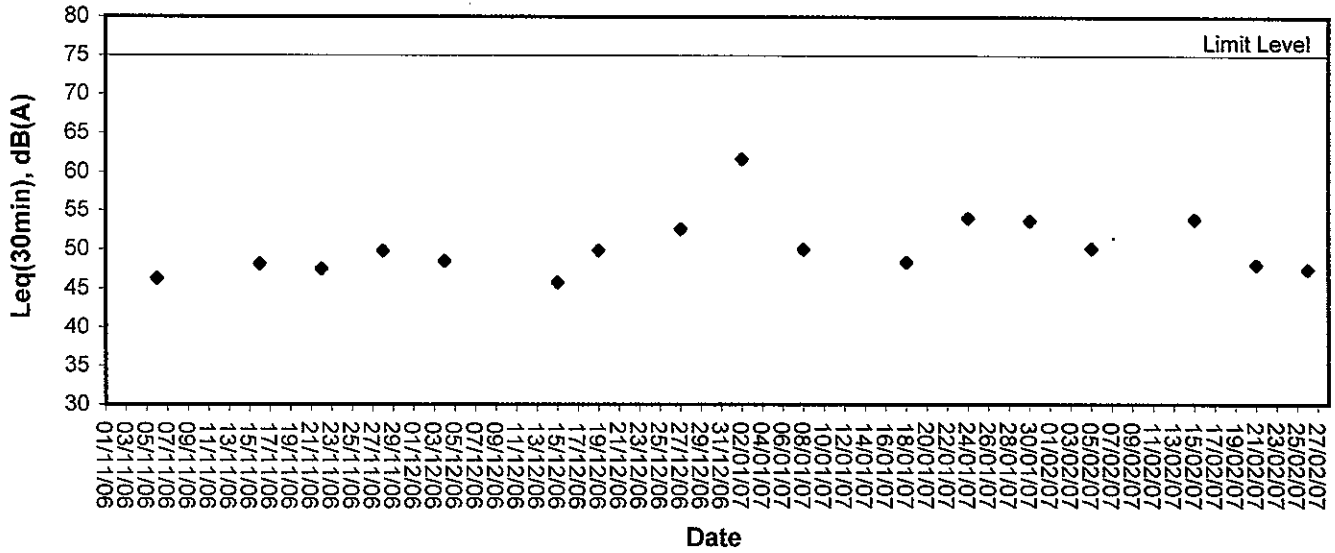
Appendix C3

Graphical Plots of Noise Monitoring Data

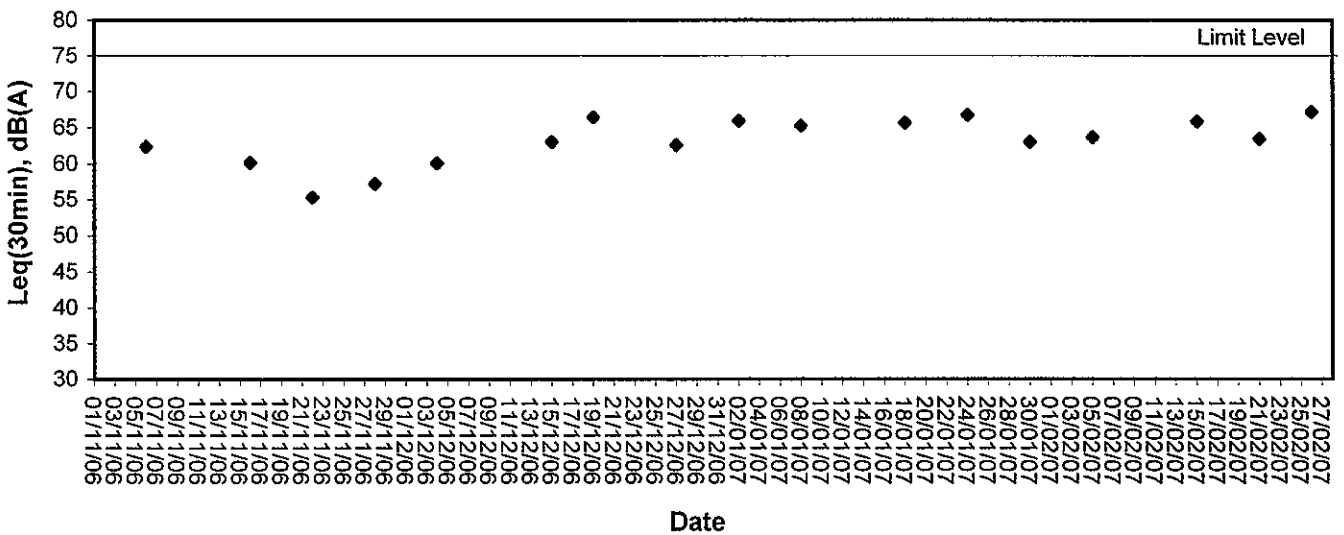


Noise Monitoring (Day-time)

Noise level at N1, Lin Chi Monastery



Noise level at N2,
Village Houses along Ngong Ping Road near Bus Terminal





Appendix D

Weather Condition



Weather Condition

Date	Rainfall (mm)	Max. Temp (°C)	Min. Temp. (°C)	Relative Humidity (%)	Wind Direction	Wind Speed (m/s)
01/02/07	-	20.7	15.3	41	N	<5
02/02/07	-	19.7	12.9	48	N	<5
03/02/07	-	18.6	13.2	71	E	<5
04/02/07	-	20.0	14.0	64	NE	<5
05/02/07	-	21.7	15.4	73	NE	<5
06/02/07	-	23.7	16.7	74	NE	<5
07/02/07	Trace	24.3	18.2	70	NE	<5
08/02/07	Trace	25.1	19.7	66	N	<5
09/02/07	-	25.6	20.3	81	E	<5
10/02/07	-	22.6	19.8	86	E	<5
11/02/07	Trace	20.4	18.5	82	E	<5
12/02/07	-	21.3	17.9	80	E	<5
13/02/07	Trace	23.1	19.2	90	SE	<5
14/02/07	-	24.2	20.0	83	NE	<5
15/02/07	0.6	21.7	17.5	88	E	<5
16/02/07	Trace	20.8	17.6	88	E	<5
17/02/07	Trace	23.7	20.5	83	E	<5
18/02/07	Trace	25.3	21.3	74	SW	<5
19/02/07	Trace	21.7	18.4	82	E	<5
20/02/07	1.0	20.2	17.9	89	E	<5
21/02/07	0.2	21.2	18.5	90	E	<5
22/02/07	4.0	19.1	17.8	94	E	<5
23/02/07	-	21.7	18.1	65	E	<5
24/02/07	0.1	19.8	18.0	86	E	<5
25/02/07	1.0	24.5	18.0	78	N	<5
26/02/07	Trace	21.1	18.2	88	E	<5
27/02/07	Trace	21.4	16.7	66	E	<5
28/02/07	Trace	20.6	18.3	87	E	<5

Remark: Data of wind speed and wind direction were extracted from Hong Kong Observatory.
(Ngong Ping Station)



Appendix E

Event-Action Plans

Event / Action Plan for Air Quality

EVENT	ACTION			CONTRACTOR
	ET	IEC	ER	
Action Level				
Action Level being exceeded for one sample	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Repeat measurements to confirm findings' 4. Increase monitoring frequency to daily; 5. Discuss with IEC and Contractor on remedial actions required; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial actions to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
Limit Level				
Limit Level being exceeded for one sample	<ol style="list-style-type: none"> 1. Identify source; 2. Inform ET, ER and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions; 6. Keep IEC, EPD and ER informed of the results. 	<ol style="list-style-type: none"> 1. Checking monitoring data submitted by ET and Contractor's method; 2. Discuss with Contractor on the possible mitigation measures; 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial actions properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit Level being exceeded for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC, ER and EPD the causes & actions taken for the exceedances; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Investigate the causes of exceedance 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Checking monitoring data submitted by ET and Contractor's method; 2. Discuss with Contractor on the possible mitigation measures; 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; 4. Supervise the implementation of mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not resolved; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

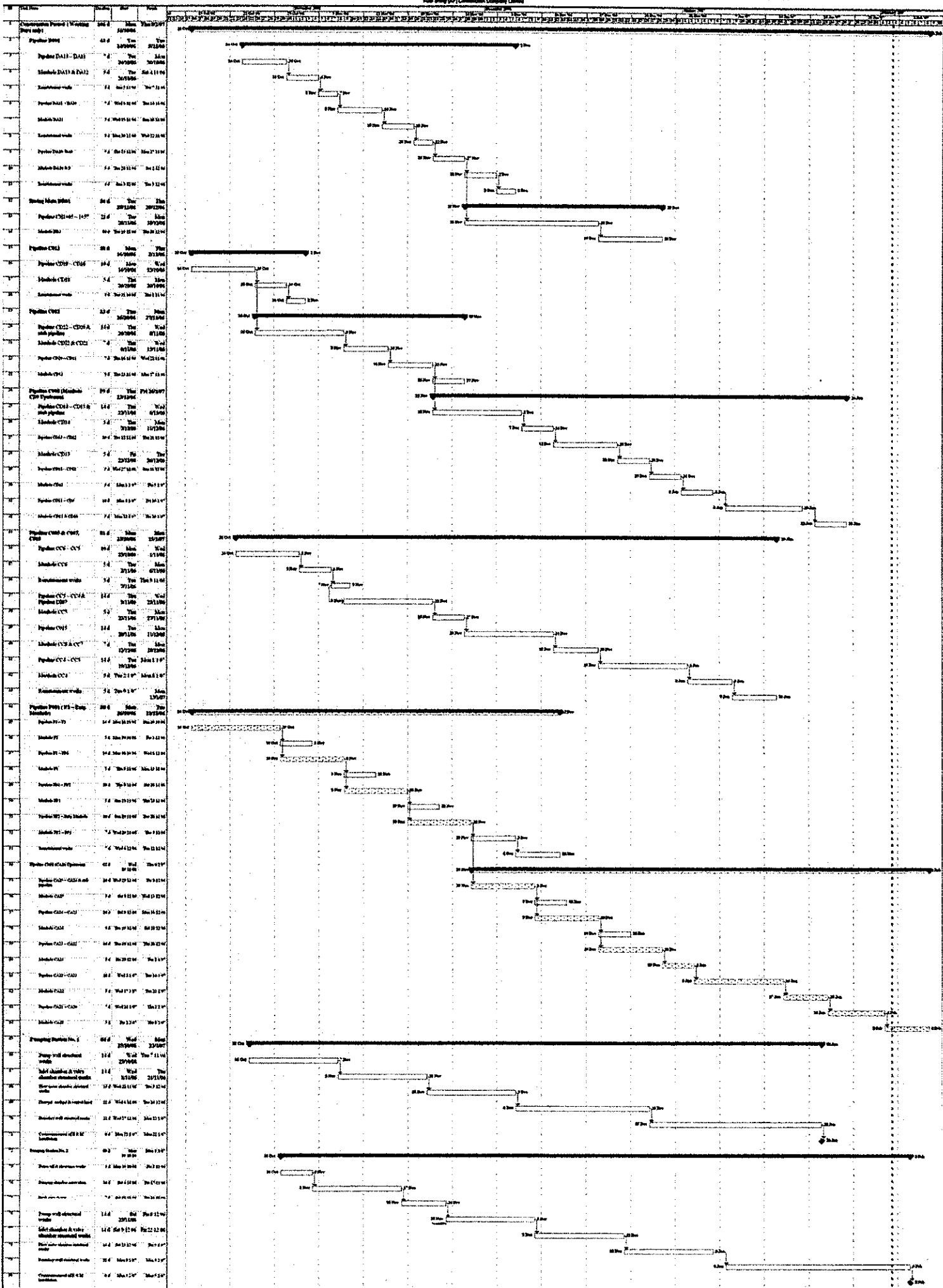
Event / Action Plan for Construction Noise

EVENT	ACTION			CONTRACTOR
	ET	IEC	ER	
Action level	<ol style="list-style-type: none"> 1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check the effectiveness of mitigation measures. 	<ol style="list-style-type: none"> 1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure mitigation measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposal to IEC; 2. Implement noise mitigation proposals.
Limit level	<ol style="list-style-type: none"> 1. Notify IEC, ER, EPD & Contractor; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess the effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure mitigation measures are properly implemented; 5. If exceedances continue, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Undertake immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by ER, until the exceedance is abated.



Appendix F

Construction Programme





Appendix G

**Summary of Implementation Status
of
Mitigation Measures during Site Inspection**

Environmental Protection Measures / Mitigation Measures	Implementation Stages*		Remark
	Yes	No / N/A	
Air Quality Mitigation Measures:			
Site clearance and demolition of existing structures			
• The working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures should be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet.	√		
• Open burning should be prohibited.	√		
• Site boundary and entrance			
• Vehicle washing facilities should be provided at every discernible or designated vehicle exit point.	√		
• The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcore.	√		
• The public road around the site entrance should be kept clean and free from dust.	√		Dusty access road was noticed on 27/12/06. Since no improvement was observed till the end of this reporting month, further inspection will continue in the coming reporting month.
Access road and site areas			
• Areas of site with regular traffic movement should have hard surface.	√		
• The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials.	√		
• Every main haul road (i.e. any course inside a construction site having a vehicle passing rate of higher than 4 in any 30 minutes) should be paved with concrete, bituminous materials, hardcore or metal plates, and kept clear of dusty materials, or sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet.	√		
• The unpaved areas should be regularly watered for avoiding dust generation.	√		
• Water or dust suppression chemical should be continuously sprayed on the surface where any pneumatic or power driven drilling, cutting, polishing or other dust emissive mechanical breaking operation.	√		
• The site areas in which dust is likely to be generated should be sprayed with water.	√		
Use of vehicle			
• Vehicle speed should be within 15 km/hr.	√		
• Site vehicle movements should be confined to designated road.	√		
• Immediately before leaving a construction site, every vehicle should be washed to remove any dusty materials from its body and wheels.	√		
• 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.	√		
• Any vehicles should be switched off while not in use.	√		
Excavation and earth moving			
• The working area of any excavation or earth moving operation should be sprayed with water or a dusty suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet.	√		
• Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within 6 months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.		√	
Stockpiling of dusty materials			
• Any stockpile of dusty material should be either covered entirely by impervious sheeting, placed in an area sheltered on the top and the 3 sides, or sprayed with water or a dust suppression chemical so as to maintain the entire surface wet.	√		Stockpile at Storage Area B was found without cover during site inspection on 26/02/07. KS replied to provide tarpaulin sheets to cover the stockpile. Since the finding was observed at the last site inspection in this reporting month, it will be verified in coming month.

Environmental Protection Measures / Mitigation Measures	Implementation Stages*			Remark
	Yes	No	N/A	
Site Machinery and Equipments				
• All machinery and equipments should be well maintained e.g. without black smoke emission.	✓			
• All equipments should be switched off while not in use.	✓			
Noise Mitigation Measures				
• The Contractor shall use quiet or 'silenced' plant equipment. All site plant equipment shall be well maintained.	✓			
• The contractor should site noisy equipment and activities as far from noise sensitive receivers (NSRs) as practical.	✓			
• Intermittent noisy activities should be scheduled to minimise exposure of nearby NSRs to high levels of construction noise. Prolonged operation of noisy equipment close to the NSRs should be avoided.	✓			
• It would be appropriate to restrict the number of operating PME within certain parts of the site that are very close to the NSRs in order to reduce the level of noise impacts.	✓			
• Idle equipment should be turned off or throttled down.	✓			
• Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided.	✓			
• Construction plant should be properly maintained and operated. Construction equipment often has silencing measures built in or added on, e.g. compressor panels, and mufflers. Silencing measures should be properly maintained and utilised.	✓			
• Noise enclosures, noise barriers or portable noise barriers should be used where necessary.	✓			
• Air compressors and hand held breakers should have valid noise label.	✓			
• Compressors and generators should operate with doors closed.	✓			
• Powered mechanical equipments should be covered or shielded by appropriate acoustic materials.	✓			
Water Quality Mitigation Measures				
• A discharge licence should be applied from EPD for discharging effluent from the construction site. The discharge quality is required to meet the requirements specified in the discharge licence. As project location is an environmentally sensitive area, all the runoff and wastewater generated from the works areas within the water gathering ground should be treated so that it satisfies with all the standards listed in the Technical Memorandum for Group A inland waters.			✓	
• No earth, building materials, soil and other materials should be allowed to be stockpiled on site within the water gathering ground. The stockpiles of materials should be placed in the locations away from any stream courses so as to avoid releasing materials into the water bodies. Exposed stockpiles should be covered with tarpaulin or impervious sheets at all time, especially wet season.		✓		Stockpile at Storage Area B was found without cover during site inspection on 26/02/07. KS replied to provide tarpaulin sheets to cover the stockpile. Since the finding was observed at the last site inspection in this reporting month, it will be verified in coming month.
• Any exposed soil surfaces should also be properly protected to minimise dust emission. Covering by tarpaulin or hydros seeding could be applied to protect exposed slope surfaces, if any.	✓			
• All surplus spoil should be removed from the water gathering ground as soon as practicable. All mud and debris should be removed from any waterworks access roads and associated drainage systems within the water gathering ground.	✓			
• In areas outside the water gathering ground where a large amount of exposed soils exist, earth bunds or sand bags should be provided.	✓			
• Final surfaces of earthworks should be compacted and protected by permanent work.	✓			
• Haul roads should be paved with concrete and the temporary access roads are protected using crushed stone or gravel, wherever practicable.	✓			
• Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks. Bunds should be provided to surround areas of earthworks for flood protection.	✓			
• Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.	✓			
• Channels, earth bunds or temporary ditches should be used to divert the surface runoff to the sedimentation tanks prior to discharge.	✓			
• The permanent drainage channels should have sediment basin, traps and baffles.	✓			
• The sedimentation tank should be constructed from pre-formed individual cells. The sedimentation tanks for settling surface runoff prior to discharge should have adequate capacity and free from silt and sediment.	✓			

Environmental Protection Measures / Mitigation Measures	Implementation Stages*		Remark
	Yes	No	
<ul style="list-style-type: none"> The silt removal facilities, channels and manholes should be suitable maintained with the deposited silt and grit being removed at least once a week, and at the onset of and after each rainstorm. 	√		
<ul style="list-style-type: none"> Manholes should be covered and sealed. 	√		
<ul style="list-style-type: none"> Wheel washing facilities which has adequately designed should be provided at all site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles. 	√		
<ul style="list-style-type: none"> The water accumulated in the wheel washing facilities should be cleared regularly. Sand and silt settled in the wheel washing bay, ditches and silt removal facilities should be cleaned and removed regularly (e.g. at least weekly) or as necessary. The record of cleaning wheel washing facilities should be properly kept and maintained. 	√		
<ul style="list-style-type: none"> The access roads leading to and exiting from the wheel washing facilities should be paved. 	√		
<ul style="list-style-type: none"> Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding. 	√		
<ul style="list-style-type: none"> Collected sewage and wastewater could then be transported to the sewage treatment plants for disposal. 	√		
<ul style="list-style-type: none"> Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the project. 	√		
<ul style="list-style-type: none"> Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken with the areas appropriately equipped to control these discharges. 	√		
<ul style="list-style-type: none"> Washing the chemicals away is not acceptable as they will contaminate the water gathering ground. 	√		
<ul style="list-style-type: none"> Concrete lorry tank washing on-site should be prevented or with appropriate treatment system for wastewater generated from lorries concrete tank washing. 		√	
<ul style="list-style-type: none"> Storage of oils/chemicals/waste within the water gathering ground should be limited to absolute minimum volume and are to be removed from sites at the earliest opportunity. No storage and discharge of flammable or toxic solvents, petroleum oil or tar and other toxic substances should be allowed within the water gathering ground. 	√		
<ul style="list-style-type: none"> Construction plant which causes pollution to the environment due to leakage of oil or fuel should be removed off site immediately. 	√		
<ul style="list-style-type: none"> Soil contaminated with fuel leaked from the plant should be removed off site and the voids arising from removal of contaminated soil should be replaced by suitable material to the approval of the Director of Water Supplies. 	√		
<ul style="list-style-type: none"> Any chemicals to be used including disinfectants and deodorants within the water gathering ground should be subject to the approval of the Director of Water Supplies. 		√	
Waste Management			
Construction Waste Management			
<ul style="list-style-type: none"> Relevant licence / permits for disposal of construction waste or excavated materials available for inspection. 	√		
<ul style="list-style-type: none"> Excavated material to be generated from construction works to be re-used on-site as far as practicable to reduce off-site disposal. 	√		
<ul style="list-style-type: none"> Mud and debris should be removed from waterworks access roads and associated drainage systems within the water gathering ground. 	√		
<ul style="list-style-type: none"> Provision of sufficient waste disposal points and regular collection for disposal. Appropriate measures should be employed to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. 	√		
<ul style="list-style-type: none"> Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. 	√		
<ul style="list-style-type: none"> Prior to disposal of C&D waste, recyclable materials should be salvaged for reuse (such as wood and metal) and inert waste utilised as public fill to minimise the quantity of waste to be disposed of to landfill. 	√		
<ul style="list-style-type: none"> In order to monitor the disposal of C&D material and solid wastes at public filling areas and landfills, and to control fly-tipping, a trip-licket system should be included as one of the contractual requirements. 	√		
<ul style="list-style-type: none"> Any soil contaminated with chemicals/oils shall be removed from site and the void created shall be filled with suitable materials. 	√		

Environmental Protection Measures / Mitigation Measures	Implementation Stages*			Remark
	Yes	No	N/A	
Chemical Waste Management				
<ul style="list-style-type: none"> It is required to register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap. 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes. 			√	
<ul style="list-style-type: none"> After use, chemical wastes (e.g. cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be stored and collected by an approved operator for disposal at the Chemical Waste Treatment Facility or other licensed facility in accordance with the Chemical Waste (General) Regulation. 	√			
<ul style="list-style-type: none"> Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility. 	√			
<ul style="list-style-type: none"> Chemical wastes including waste oil should be stored properly in designated areas, e.g. chemical waste storage area. 	√			
<ul style="list-style-type: none"> The designated chemical waste storage area should only be used for storing chemical wastes. 	√			
<ul style="list-style-type: none"> The set-up of chemical waste storage area should <ul style="list-style-type: none"> Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition. Be enclosed on at least 3 sides and securely closed. Have an impermeable floor and bunding, of capacity to accommodate 111% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest. Have adequate ventilation. Be covered to prevent rainfall entering (water collected within the bund must be tested and disposal as chemical waste if necessary). Be arranged so that incompatible materials are adequately separated. 			√	
<ul style="list-style-type: none"> Warning panels should be displayed at the storage area. 			√	
<ul style="list-style-type: none"> Chemical storage area should be cleaned and maintained regularly. 			√	
<ul style="list-style-type: none"> Chemical waste should be transported by a registered chemical waste collector to a facility licensed to receive chemical waste. 			√	
<ul style="list-style-type: none"> All generators and site machines, fuel and oil storage should be within bundle areas. 			√	
<ul style="list-style-type: none"> Oil leakage from machinery, vehicle and plant should be prevented. 			√	
<ul style="list-style-type: none"> In the event of chemical waste / dangerous goods / chemicals spillage or leakage, the procedures as outlined in the Spillage Response Plan should be followed. 			√	
<ul style="list-style-type: none"> The dangerous goods / chemical spillage or leakage procedures (including equipments) should be in place. 			√	
Good Site Practices				
<ul style="list-style-type: none"> Nomination of approved personnel, such as site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site. 	√			
<ul style="list-style-type: none"> Training of site personnel in proper waste management and chemical handling procedures should be provided. 	√			
<ul style="list-style-type: none"> Good site practices should be adopted to clean the rubbish and litter on a regular basis so as to prevent the rubbish and litter from dropping into the nearby environment. 	√			
<ul style="list-style-type: none"> Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	√			
<ul style="list-style-type: none"> The Environmental Permit should be displaced conspicuously on site. 				
<ul style="list-style-type: none"> Construction noise permits should be posted at site entrance or available for site inspection. 			√	
<ul style="list-style-type: none"> The Storage of oils/chemicals/waste within the boundary of the water gathering ground should be limited to the absolute minimum volume and are to be removed from sites at the earliest opportunity. 	√			
<ul style="list-style-type: none"> Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. 	√			
<ul style="list-style-type: none"> Chemical storage area provided with lock and located on sealed areas. 	√			

Environmental Protection Measures / Mitigation Measures	Implementation Stages*			Remark
	Yes	No	N/A	
<ul style="list-style-type: none"> All chemicals should be placed at the banded area with adequate band capacity (>110% of largest tank). 	√			
<ul style="list-style-type: none"> Any unused chemicals or those with remaining functional capacity should be recycled. 	√			
<ul style="list-style-type: none"> No canteen should be provided within the water gathering ground. 	√			
<ul style="list-style-type: none"> Regular cleaning and maintenance programme for waste storage area, drainage systems, silt traps, sumps and oil interceptors. 	√			
<ul style="list-style-type: none"> To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated by the workforce. 	√			
<ul style="list-style-type: none"> A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be used, e.g. trip ticket system for chemical waste disposal. Quantities could be determined by weighing each load or other suitable methods. 	√			
<ul style="list-style-type: none"> A collection area should be provided where waste can be stored and loaded prior to removal from site. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material. If an open area is unavoidable for the storage or loading/unloading of wastes, then the area should be banded and all the polluted surface run-off collected within this area should be diverted into wastewater treatment system. The collection area for waste should be sited away from the Country Park and ecological sensitive areas. 	√			
<ul style="list-style-type: none"> Minimize windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed container. 	√			
<ul style="list-style-type: none"> Remove wastes in a timely manner. 	√			



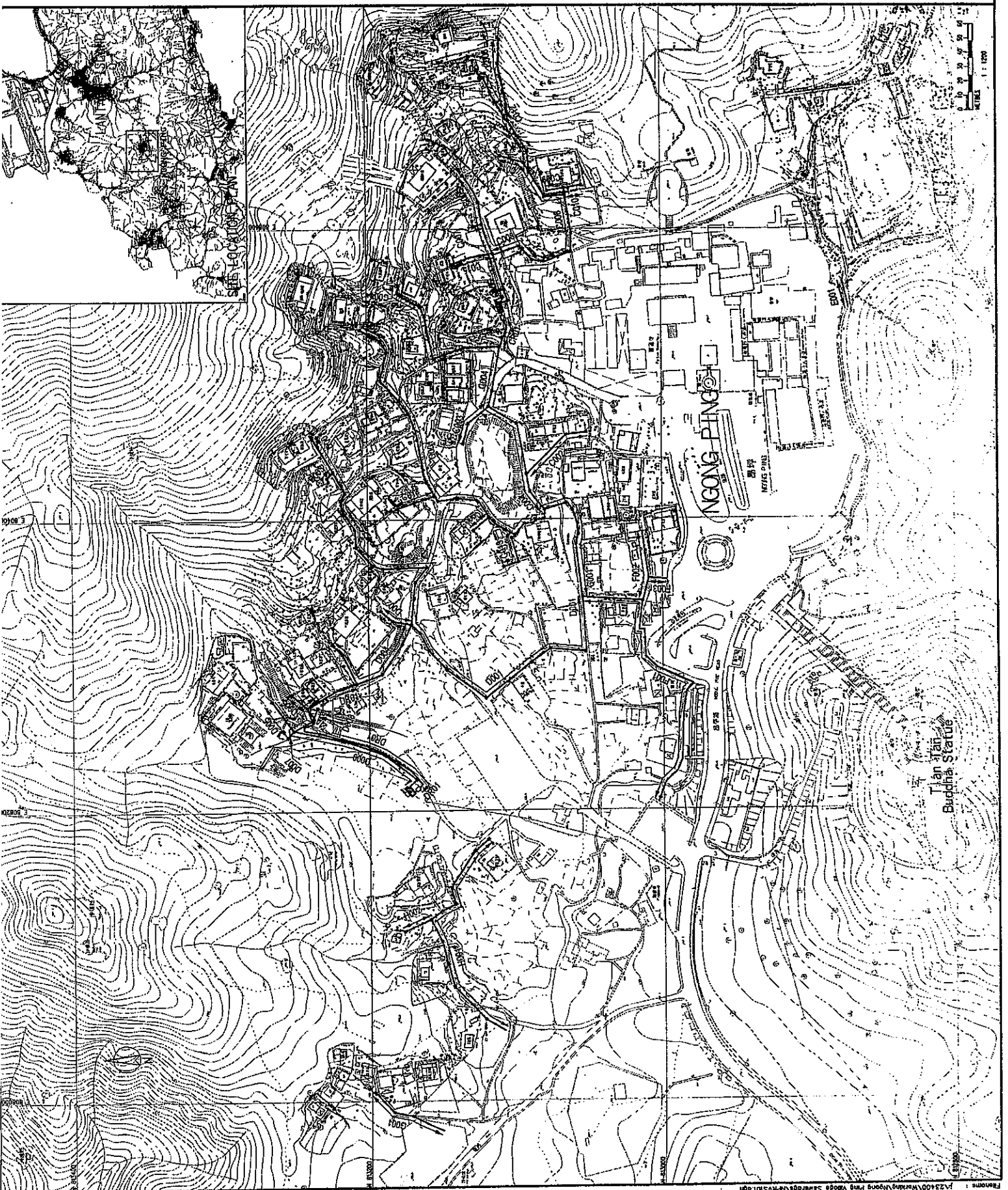
Appendix H

Site General Layout

LEGEND:

- PROPOSED SEWER
- SEWER NAME
- PUMPING CHAMBER

C1001



NO.	DATE	BY	DATE
1	17/05/05		
Description			
C1001			
Checked			
Date			

ARUP One Loop & Partners Hong Kong Limited

Project No.

**CONTRACT NO. DC/PS/05
NGONG PING VILLAGE SEWERAGE**

Drawing No.

**VILLAGE SEWERAGE
GENERAL LAYOUT**

Drawing No.

Drawing No.	23400R/S/01	Rev.	A
Scale	1:1000	Project No.	DC/PS/05
Client	DRAGONAR	Sheet No.	1/1
Project Name	NGONG PING VILLAGE SEWERAGE	Scale	1:1000
Client Name	HONG KONG SAR	Scale	1:1000

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 GOVERNMENT OF THE HONG KONG SAR
 SPECIAL ADMINISTRATIVE REGION



Figures

Legend:

● Dust
Monitoring Station

▲ Noise
Monitoring Station

Project Title

Contract No. DC/2005/05
Ngong Ping Village
Sewerage

Drawing Title

Locations of Noise and
Dust Monitoring Stations

Drawing No.

23400/EN/094/a



英商怡和测试咨询有限公司
ETS-TESTCONSULT LIMITED



Legend:

▲ Sensitive
Receivers

Project Title

Contract No. DC/2005/05
Ngong Ping Village
Sewerage

Drawing Title

Air & Noise Sensitive
Receivers around Ngong
Ping Area

Drawing No.

23400/R/004



英商 德士 测试 顾问 有限公司
ETS-TEST CONSULT LIMITED

