

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT


Kaden Construction Limited

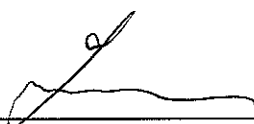
CONTRACT NO. DC/2007/18

**YUNG SHUE WAN AND
SOK KWU WAN VILLAGE SEWERAGE,
STAGE 1 WORKS**

**MONTHLY IMPACT MONITORING
REPORT NO.11**

(APRIL 2009)

Prepared by: 
LAW, Sau Yee
Senior Environmental Officer

Checked by: 
LAU, Chi Leung
Environmental Team Leader

Scott Wilson CDM Joint Venture

Chief Engineer/Harbour Area Treatment Scheme
Drainage Services Department
5/F Western Magistracy
2A Pok Fu Lam Road
Hong Kong

Your reference:

Our reference: 05117/6/10/324498

Date: 14 May 2009

Attention: Mr. C K Au

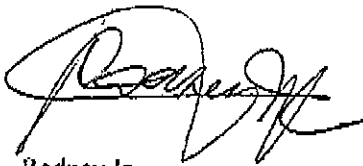
BY FAX ONLY

Dear Sir

Contract No. DC/2007/18
Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage I Works
Monthly Impact Monitoring Report No. 11

I refer to the Environmental Permit (EP-281/2007) and the email from the environmental team, ETS-Testconsult Limited with the revised report, dated 14 May 2009. I do not have further comment and have verified the captioned report.

Yours faithfully
SCOTT WILSON CDM JOINT VENTURE



Rodney Ip

ANCP/ancp

cc	Kaden Construction Ltd	(Attn: Mr Stephen Leung)
	ETS-Testconsult	(Attn: Ms Linda Law)
	ER/LAMMA	(Attn: Mr Ian Jones)
	CDM	(Attn: Mr Mark Sin)



TABLE OF CONTENTS		Page
EXECUTIVE SUMMARY		
1.0	INTRODUCTION	1
2.0	PROJECT INFORMATION	1
	2.1 Background	1
	2.2 Site Description	1
	2.3 Construction Programme	1
	2.4 Project Organization and Management Structure	2
	2.5 Contact Details of Key Personnel	2
	2.6 Construction Progress in this reporting month	2
3.0	IMPACT AIR QUALITY MONITORING	
	3.1 Monitoring Requirement	2
	3.2 Monitoring Equipment	2 – 3
	3.3 Laboratory Measurement / Analysis	3
	3.4 Monitoring Parameters, Frequency and Duration	4
	3.5 Monitoring Locations	4
	3.6 Action and Limit levels	4
	3.7 Event-Action Plans	4
	3.8 Results	4 – 5
4.0	IMPACT NOISE MONITORING	
	4.1 Monitoring Requirement	5
	4.2 Monitoring Equipment	5
	4.3 Monitoring Parameters, Frequency and Duration	6
	4.4 Monitoring Locations	6
	4.5 Monitoring Methodology	6 – 7
	4.6 Action and Limit levels	7
	4.7 Event-Action Plans	7
	4.8 Results	7
5.0	SITE INSPECTION	8
	5.1 Summary of the site inspection findings and Action(s) taken by Kaden and ET	8 – 9
	5.2 Recommendations on site inspection findings in Site Inspections of this month	9
6.0	STATUS OF ENVIRONMENTAL PERMITS	9
7.0	WASTE MANAGEMENT	9 – 10
8.0	ECOLOGY	10
9.0	ARCHAEOLOGY AND CULTURAL HERITAGE	10
10.0	ENVIRONMENTAL NON-CONFORMANCE	
	10.1 Summary of Air Quality and Noise Monitoring	10
	10.2 Summary of Environmental Complaints, Notifications of Summons and Successful Prosecutions	11
11.0	IMPLEMENTATION STATUS	
	11.1 Implementation Status of Environmental Mitigation Measures	11
	11.2 Implementation Status of Event and Action Plan	11
	11.3 Implementation Status of Environmental Complaint Handling	11
	11.4 Implementation Status of Notification of Summons and Prosecution	11
12.0	CONCLUSION AND DISCUSSION	11
13.0	FUTURE KEY ISSUES	
	13.1 Upcoming Environmental Monitoring Schedule in coming month	12
	13.2 Upcoming Construction Works Schedule in coming month	12
	13.3 Environmental Issues for the coming month	12



APPENDIX

- A Organization Chart and Lines of Communication
- B1 Calibration Certificates for Impact Air Quality Monitoring Equipments
- B2 Impact Air Quality Monitoring Results
- B3 Graphical Plots of Impact Air Quality Monitoring Data
- C1 Calibration Certificates for Impact Noise Monitoring Equipment
- C2 Impact Noise Monitoring Results
- C3 Graphical Plots of Impact Noise Monitoring Data
- D Event-Action Plans
- E Construction Programme
- F Summary of Implementation Status of Mitigation Measures during Site Inspection

Figures

- 2005/C1/2004 Village Sewerage Layout Plans – Sok Kwu Wan (Sheet 1 of 3)
- 2005/C1/2005 Village Sewerage Layout Plans – Sok Kwu Wan (Sheet 2 of 3)
- 2005/C1/2006 Village Sewerage Layout Plans – Sok Kwu Wan (Sheet 3 of 3)

Tables

- 2.1 Contact Details of Key Personnel
- 3.1 Monitoring Parameters, Duration and Frequency of Impact Air Quality Monitoring
- 3.2 Air Monitoring Stations
- 3.3 Action and Limit Levels for 24-hr TSP and 1-hr TSP
- 3.4 Summary of 1-hr and 24-hr TSP Monitoring Results
- 4.1 Noise Monitoring Equipment
- 4.2 Duration, Frequencies and Parameters of Noise Monitoring
- 4.3 Noise Monitoring Stations
- 4.4 Action and Limit Levels for Noise Monitoring
- 4.5 Summary of Noise Daytime Monitoring Results
- 5.1 Summary of Site Inspection Findings and Action(s) taken by Kaden and ET
- 6.1 Summary of Environmental Licensing and Permit Status
- 7.1 Summary of Quantities of Waste for Disposal in this reporting month
- 10.1 Statistical Summary of Environmental Complaint-log
- 13.1 Proposed Environmental Monitoring Schedule in coming month



EXECUTIVE SUMMARY

The Contractor, Kaden Construction Limited (Kaden), appointed Environmental Team of ETS-Testconsult Limited (ET) to undertake the environmental impact monitoring for "Contract No. DC/2007/18 Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works" (the Project) under the requirements and specifications of "the Environmental Permit (Application No. AEP-281/2007)" (the EP) and "the Final EM&A Manual – Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection, Treatment and Disposal Facilities" (the EM&A Manual).

This Monthly Impact Monitoring Report No.11 has been prepared by the ET of ETS-Testconsult Limited to document the impact monitoring works conducted for the Project in April 2009.

Construction Progress

The major construction works in this monitoring period were as below:

- Sewer drainage pipe & manhole construction (include open cut & trenchless method); and
- Road reinstatement work.

Environmental Monitoring Progress

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

- Noise Monitoring (Day-time): 5 Occasions at 4 designated locations;
- 24-hour TSP Monitoring: 6 Occasions at 4 designated locations;
- 1-hour TSP Monitoring: 18 Occasions at 4 designated locations.

Impact Air Quality Monitoring

No exceedances of Action and Limit levels were recorded for 24-hr and 1-hr TSP monitoring in the reporting period.

Impact Noise Monitoring

No exceedances of Action and Limit Levels 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, 11.2 m³ Public Fill and 0.10 tonne of general refuse were generated and disposed to Sok Kwu Wan Refuse Transfer Station (SKWRTS) properly. Besides, 30 m³ inert C&D materials reused in the Contract and 1.9 m³ hard rock & large broken concrete were recorded in this reporting month.

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	02, 08, 14, 20 and 30 April 2009
RE / IEC / Kaden / ET	20 April 2009

According to the summary of the weekly site inspections carried out in this month, it indicated that site practices of the Kaden 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 as below:



Item	Aspect	Finding	Action(s) to be taken by the Contractor	ET Verification
1	Water	Follow up action to the outstanding finding in the previous month, the flow rate of the outlet of the sedimentation tank at S165 was found reduced during the weekly site inspection on 02/04/09.	Since the finding was improved, no further action is required to be taken by the Contractor.	Since the finding was improved, no further verification is required to be taken by ET.
2	Water	Follow up action to the outstanding finding in the previous month, rocks and debris accumulated inside the drainage at S171 were found cleaned up during the weekly site inspection on 02/04/09.	Since the finding was improved, no further action is required to be taken by the Contractor.	Since the finding was improved, no further verification is required to be taken by ET.
3	Water	Wastewater from manhole S147-S148 was found partly treated by passing through the sedimentation tank and partly discharged to the drainage without treatment during the weekly site inspection on 09/04/09.	The Contractor replied to treat all wastewater properly by passing through sedimentation facilities before discharge.	During the next weekly site inspection on 14/04/09, no wastewater was noted discharged from S147-S148 to the drainage and hence no further ET verification was required.
4	Water	Stagnant water was observed accumulated at S63 and the sedimentation tank nearby during the weekly site inspections on 20/04/09 and 30/04/09.	The Contractor replied to drain the stagnant water or apply pesticide to avoid mosquito breeding.	Since the finding was still observed during the last weekly site inspection in this reporting month, it will be verified in the coming month.
5	Water	Re-design of sedimentation tank at manhole S165 was considered to be necessary in order to handle large amount of pumped-out seawater-site runoff mixture from the manhole in the short-time during the weekly site inspections on 20/04/09 and 30/04/09.	The Contractor replied to modify the sedimentation system to ensure all wastewater treated properly before discharge.	Since the finding was still observed during the last weekly site inspection in this reporting month, it will be verified in the coming month.
6	Chemical	Follow up action to the outstanding finding in the previous month, labels and drip tray were found provided for the oil drums at storage area during the weekly site inspection on 02/04/09.	Since the finding was improved, no further action is required to be taken by the Contractor.	Since the finding was improved, no further verification is required to be taken by ET.
7	Chemical	Chemical tanks at S90 were found without labels and drip trays during the weekly site inspection on 20/04/09.	The Contractor replied to provide appropriate labels and proper drip trays for all chemicals.	During the subsequent weekly site inspection on 30/04/09, no chemicals were found at S90 and hence no further ET verification was required.
8	Site Practice	C&D wastes were found at S141, S147, S137 and S171 during the weekly site inspection on 20/04/09.	The Contractor replied to collect and dispose all C&D wastes properly.	During the subsequent weekly site inspection on 30/04/09, the C&D wastes were collected and hence no further ET verification was required.
9	Site Practice	Damage to vegetation was observed at S52 during the weekly site inspection on 20/04/09.	The Contractor replied to maintain and protect the vegetation inside and near the site properly.	During the subsequent weekly site inspection on 30/04/09, the damaged vegetation was collected and no further damage was noted. Hence, no further ET verification was required.



Environmental Complaints, Notifications of Summons and Successful Prosecutions

No complaints, notifications of summons and successful prosecutions were received in this reporting period.

Conclusion and Recommendations

The monitored environmental data indicated that no unacceptable environmental impacts arising from the Project had been caused to the surrounding sensitive receivers. The environmental mitigation measures had been effective in controlling potential impacts to within acceptable sensitive receivers. Besides, the Contractor was recommended to maintain good site practice in order to minimize the environmental impacts at the site.

Construction Programme for Coming Month

The Construction programme for the Project is shown in Appendix E.

As informed by the Contractor, the activities to be conducted by them in coming month included:

- Sewer drainage pipe & manhole construction (include open cut & trenchless method); and
- Road reinstatement work.

Future Key Issues

Based on the 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; and
- Maintain good site practice to minimize environmental impacts at the site.

Internet Website

The monthly EM&A report can be accessed on the web at <http://www.skwsewer.com>.



1.0 INTRODUCTION

The Customer, Kaden Construction Limited (Kaden), appointed Environmental Team of ETS-Testconsult Limited to undertake the environmental impact monitoring for "Contract No. DC/2007/18 Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works" (the Project) under the requirements and specifications of "the Environmental Permit (Application No. AEP-281/2007)" (the EP) and "the Final EM&A Manual – Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection, Treatment and Disposal Facilities" (the EM&A Manual).

In accordance with the Section 5 of 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, environmental monitoring of air quality and noise is required for the Project. The EM&A requirement for each parameter are described in details in subsequent sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event-Action Plans;
- Environmental mitigation measures, as recommended in the project EIA study report;
- Environmental requirements in contract documents.

This monthly EM&A report summarizes the impact monitoring in April 2009. This monthly EM&A report can be accessed on the web at <http://www.skwsewer.com>.

2.0 PROJECT INFORMATION

2.1 Background

Under this Project, Kaden is required to construct village sewerage in Yung Shue Wan and Sok Kwu Wan, Lamma Island.

Village sewage works will undertake in this Project. These will comprise laying approximately 1.4km of sewerage pipes from 220mm to 350mm diameter in Sok Kwu Wan Village. These works will carry out under a conventional Design, Bid, Build (DBB) contract, entirely separate from the single Design, Build and Operate (DBO) contract for Sewage Treatment Works (STW) construction.

As the main Contractor of the captioned project contracted by, Kaden will follow the environmental monitoring recommendation stated in the EM&A Manual that was prepared with reference to the EIA Report (Register No.: AEIAR-075/2003).

According to the EP and the EM&A Manual, the environmental programme is mainly focused on the construction activities of this Project in Sok Kwu Wan. At the same time, all air quality and noise monitoring stations proposed in the EM&A Manual are located in Sok Kwu Wan. The baseline report is prepared in accordance with EP (No. EP-281/2007) for the Designated Project "Outlying Islands Sewerage Stage 1 Phase 2 – Sok Kwu Wan Sewage Collection, Treatment and Disposal Facilities" and the EM&A Manual.

2.2 Site Description

The general layout plan of the project in Sok Kwu Wan is shown in Drawing No. 2005/C1/2004, 2005/C1/2005 and 2005/C1/2006.

Surrounding the construction site, there are air and noise sensitive receivers at Chung Mei Village, Sok Kwu Wan and Ta Shui Wan.

2.3 Construction Programme

The construction programme is shown in Appendix E.



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	Key Staff	Tel. No.	Fax No.
Scott Wilson CDM JV	Engineer Representative	Ir Ian J Jones	2982 0240	2982 4129
Scott Wilson CDM JV	Independent Environmental Checker	Mr. Rodney Ip	2410 3750	2428 9922
Kaden Construction Ltd	Contractor	Ir Stephen Leung	2454 9102	2465 1207
ETS-Testconsult Ltd	Environmental Team	Mr. C L Lau	2946 7791	2695 3944

2.6 Construction Progress in this reporting month

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

- Sewer drainage pipe & manhole construction (include open cut & trenchless method); and
- Road reinstatement work.

3.0 IMPACT AIR QUALITY MONITORING

3.1 Monitoring Requirement

Both 1-hr and 24-hr TSP monitoring is required to be conducted in order to monitor the air quality of the environment during the construction period. For regular monitoring, a sampling frequency of at least one in every six days should be carried out at all designated monitoring stations.

3.2 Monitoring Equipment

24-hour TSP Monitoring

High volume sampler, as HVS, (Greasby GMWS2310) complete with appropriate sampling inlets are employed for 24-hour TSP. 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).

Installation

The installation of HVS refers to the requirement stated in EM&A Manual.

Operation/Analytical Procedures

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

Prior to the commencement of the air 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 minutes 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 programmable timer will be set for a sampling period of 24 hours. Information was recorded on the record sheet, which included the starting time, the weather condition and 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 the filter holder of the HVS to a sealed 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 $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and the relative humidity (RH) $<50\% \pm 5\%$.

Maintenance & Calibration

- The HVS and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- The HVSs used were calibrated before the commencement of air quality monitoring, after maintenance and every two months. Five-point calibration by using calibration kit (e.g. Tisch TE-5025A) was performed to establish a relationship between the flow recorder meter reading in cfm (cubic feet per minute) and the standard flow rate, QStd, in m^3/min .

1-hour TSP Monitoring

1-hour TSP levels were measured by using 1-hour dust meter which are capable of producing comparable results as the by high volume sampling method, to indicate short event impacts.

Measuring Procedures

The measuring procedures of the 1-hr dust meter are in accordance with the Manufacturer's instruction Manual as follows:

- Set POWER to ON, check the battery indicator to ensure whether the power supply is enough to conduct the TSP monitoring;
- Calibrate the dust meter by zero check;
- Set the TIME CONSTANT of the dust meter;
- Press SAMPLE to start the TSP monitoring;
- Record the maximum, minimum and average reading directly from the dust meter by press STATISTICS when monitoring complete.

Maintenance & Calibration

- 1-hour dust meter should be checked at 6-month intervals throughout all stages of impact air quality monitoring. Through a five-point calibration by placing the dust meter and calibrated HVS under the same environmental condition, a relationship in TSP level ($\mu\text{g}/\text{m}^3$) between dust meter and HVS was established.

3.3 Laboratory Measurement / Analysis

Environmental Laboratory of ETS-Testconsult which is HOKLAS accredited, carried out the laboratory analysis.

A clean filter paper with no pinholes was used for each time of monitoring. Before sampling, the filter paper of size 8" x 10" was labelled and conditioned in a humidity controlled chamber for over 24 hours and pre-weighed before use for the sampling.

After sampling, the filter paper loaded with dust was kept in a clean and tightly sealed plastic bag. The filter paper then returned to the laboratory for reconditioning in the humidity controlled chamber following by accurate weighing by an electronic balance with readout down to 0.1mg. The balance was calibrated against a traceable standard.

All the analysis results and collected samples were kept in a good condition for 6 months after completion of the monitoring exercise before disposal.



3.4 Monitoring Parameters, Frequency and Duration

Table 3.1 summarizes the monitoring parameters, monitoring duration and frequencies of impact air quality monitoring.

Table 3.1 Monitoring parameters, duration and frequencies of impact air quality monitoring

<i>Parameter</i>	<i>Duration</i>	<i>Frequency</i>
24-hr TSP	24 hr (0000-2400)	One in every six days
1-hr TSP	1 hr (0700-1900)	3 times per day in every six days

3.5 Monitoring Locations

As the requirement in the EM&A Manual, three designated air monitoring stations were selected. Table 3.2 tabulates the air quality monitoring locations of this Project.

Table 3.2 Air monitoring stations

<i>Air monitoring station</i>	<i>Description of location</i>
AM1	Squatter house in Chung Mei Village
AM2	Squatter house in Chung Mei Village
AM3	Football Court

3.6 Action and Limit Levels

Action and Limit levels for 24-hr TSP and 1-hr TSP derived as illustrated in Table 3.3.

Table 3.3 Action and Limit levels for 24-hr TSP and 1-hr TSP

<i>Monitoring Station</i>	<i>24-hr TSP ($\mu\text{g}/\text{m}^3$)</i>		<i>1-hr TSP ($\mu\text{g}/\text{m}^3$)</i>	
	<i>Action Level</i>	<i>Limit Level</i>	<i>Action Level</i>	<i>Limit Level</i>
AM1	173	260	343	500
AM2	175	260	331	500
AM3	191	260	353	500

3.7 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 D should be carried out.

3.8 Results

Totally 6 occasions of 24-hr TSP monitoring and 18 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.

No exceedances of Action and Limit Level of 1-hr and 24-hr TSP monitoring results were recorded during the reporting month. Table 3.4 summaries the 1-hr and 24-hr TSP monitoring results.



Table 3.4 Summary of 1-hr and 24-hr TSP Monitoring Results

Parameter	1-hr TSP Monitoring								
	AM1			AM2			AM3		
Station	Time	Result	Exceed*	Time	Result	Exceed*	Time	Result	Exceed*
02/04/09	13:15	97	X	13:28	86	X	09:08	126	X
02/04/09	14:15	102	X	14:28	78	X	10:08	131	X
02/04/09	15:15	102	X	15:28	87	X	11:08	124	X
08/04/09	09:25	132	X	09:28	136	X	13:00	155	X
08/04/09	10:25	142	X	10:28	141	X	14:00	141	X
08/04/09	11:25	148	X	11:28	123	X	15:00	144	X
14/04/09	09:20	161	X	09:25	154	X	13:00	175	X
14/04/09	10:20	184	X	10:25	151	X	14:00	186	X
14/04/09	11:20	173	X	11:25	163	X	15:00	187	X
20/04/09	13:00	167	X	13:04	141	X	09:15	187	X
20/04/09	14:00	158	X	14:04	135	X	10:15	176	X
20/04/09	15:00	176	X	15:04	159	X	11:15	163	X
24/04/09	09:30	142	X	09:40	118	X	14:40	226	X
24/04/09	10:30	166	X	10:40	155	X	15:40	207	X
24/04/09	13:15	156	X	13:20	151	X	16:40	194	X
30/04/09	09:18	160	X	09:20	146	X	13:00	180	X
30/04/09	10:18	175	X	10:20	171	X	14:00	206	X
30/04/09	11:18	135	X	11:20	128	X	15:00	161	X
Parameter	24-hr TSP Monitoring								
Station	AM1		AM2		AM3				
Date	Result	Exceed*	Result	Exceed*	Result	Exceed*			
02/04/09	74	X	76	X	89	X			
08/04/09	74	X	90	X	174	X			
14/04/09	59	X	61	X	99	X			
20/04/09	52	X	57	X	84	X			
24/04/09	38	X	56	X	113	X			
30/04/09	50	X	54	X	126	X			

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

4.0 IMPACT NOISE MONITORING

4.1 Monitoring Requirements

As the requirement in the EM&A Manual, impact noise monitoring was conducted for a weekly basis at designated monitoring locations.

4.2 Monitoring Equipment

Integrating Sound Level Meters used for impact noise monitoring were Type 1 sound level meters 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). They complied 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 used during the impact monitoring. Copies of calibration certificates and Calibration Summary for noise meters and calibrators used are attached in Appendix C1.

Table 4.1 Noise Monitoring Equipment

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



4.3 Monitoring Parameters, duration and Frequency

Impact noise monitoring for the A-weighted levels L_{eq} , L_{10} and L_{90} were recorded once per week. Data obtained from impact noise monitoring was processed and presented as below:

- Daytime: three sets of 30-minute noise level monitored between 0700-1900 hrs on normal weekdays;
- Evening-time*: three sets of 5-minute noise level monitored between 1900-2300 hrs ;
- Night-time*: three sets of 5-minute noise level monitored between 2300-0700 hrs of next day; and
- Holiday*: three sets of 5-minute noise level monitored between 0700-1900 hrs on holiday.

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

Duration, frequencies and parameters of noise measurement are presented in Table 4.2.

Table 4.2 Duration, Frequencies and Parameters of Noise Monitoring

Time period	Duration/min	Parameters
Day-time: 0700-1900 hrs on normal weekday	30	L_{eq} , L_{10} , L_{90}
Evening-time: 1900-2300 hrs	5	L_{eq} , L_{10} , L_{90}
Night-time: 2300-0700 hrs of next day	5	L_{eq} , L_{10} , L_{90}
Holiday: 0700-1900 hrs	5	L_{eq} , L_{10} , L_{90}

4.4 Monitoring Locations

Since the owner of 1B Sok Kwu Wan objected to set up the noise monitoring station NM3 at 1B Sok Kwu Wan (Eastern Façade), an alternative position, Sok Kwu Wan Sitting-out Area RNM3, which is just a 3m width footpath away from house 1B for the free field noise measurement, was proposed by ET. Under the approval from ER and agreement from the IEC and EPD, both baseline and impact noise monitoring was carried out at RNM3.

Hence, there were four noise monitoring locations NM1, NM2, RNM3 and NM4 required to carry out impact noise monitoring.

The details of noise monitoring stations are summarized in Table 4.3.

Table 4.3 Noise Monitoring Stations

Noise monitoring station	Description of location	Type of Measurement
NM1	1, Chung Mei Village	Façade
NM2	20, Sok Kwu Wan	Façade
RNM3	Sok Kwu Wan Sitting-out Area	Free Field
NM4	2-storey village house at Ta Shui Wan	Façade

4.5 Monitoring Methodology

Instrumentation

Integrating Sound Level Meters were employed for noise monitoring.

Operation/Analysis Procedures

- 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 : 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 1.0 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 L_{eq} , L_{10} and L_{90} 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; and
- Noise monitoring would be cancelled in the presence of fog, rain, storm, 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 are cleaned with soft cloth at quarterly intervals; and
- The meters are sent to supplier or HOKLAS laboratory to check and calibrated at yearly intervals.

4.6 Actions and Limit Levels

The Action and Limit Levels (AL Levels) were established in accordance to the Clause 3.6.4 of the EM&A Manual. Table 4.4 presents the AL levels for noise monitoring.

Table 4.4 Action and Limit Levels for Noise Monitoring

Time Period	Action	Limit
0700 – 1900 hrs normal weekdays	When one documented complaint is received	75 dB(A)

4.7 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 D should be carried out.

4.8 Results

Totally 5 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.

No exceedances of Action Level of noise monitoring were recorded in this reporting month since no complaint on noise issue was received. Besides, no exceedances in Limit Level were recorded according to the results from Day-time noise monitoring. Table 4.5 summaries the noise daytime monitoring results in the reporting period.

Table 4.5 Summary of Noise Daytime Monitoring Results

Monitoring Parameter	Date	NM1		NM2		RNM3 [#]		NM4	
		Result	Exceedance*	Result	Exceedance*	Result	Exceedance*	Result	Exceedance*
Noise Daytime Monitoring	02/04/09	54.2	X	61.8	X	62.5	X	52.8	X
	08/04/09	57.9	X	68.3	X	65.2	X	48.6	X
	14/04/09	55.2	X	65.5	X	63.4	X	52.3	X
	20/04/09	54.7	X	63.2	X	60.8	X	54.0	X
	30/04/09	59.2	X	65.1	X	61.1	X	55.0	X

Remark (*): L = Limit Level exceedance, A = Action Level exceedance and X = not an Exceedance
(^): 3dB(A) correction had been added to the results since noise measurements at RNM3 were free-field.



5.0 SITE INSPECTION

During this reporting month, weekly site inspections were undertaken on 02, 08, 14, 20 and 30 April 2009 by ET. Monthly joint site inspection at 20 April 2009 was carried out by Engineer's Representative, IEC, Kaden and ET. A summary of implementation status of mitigation measures on site inspections is presented in Appendix F.

5.1 Summary of the site inspection findings and Action(s) taken by Kaden and ET

According to the summary of the weekly site inspections carried out in this month, it indicated that site practices of the Kaden 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 5.1.

Table 5.1 Summary of Site Inspection Findings and Action(s) taken by Kaden and ET

Item	Aspect	Finding	Action(s) to be taken by the Contractor	ET Verification
1	Water	Follow up action to the outstanding finding in the previous month, the flow rate of the outlet of the sedimentation tank at S165 was found reduced during the weekly site inspection on 02/04/09.	Since the finding was improved, no further action is required to be taken by the Contractor.	Since the finding was improved, no further verification is required to be taken by ET.
2	Water	Follow up action to the outstanding finding in the previous month, rocks and debris accumulated inside the drainage at S171 were found cleaned up during the weekly site inspection on 02/04/09.	Since the finding was improved, no further action is required to be taken by the Contractor.	Since the finding was improved, no further verification is required to be taken by ET.
3	Water	Wastewater from manhole S147-S148 was found partly treated by passing through the sedimentation tank and partly discharged to the drainage without treatment during the weekly site inspection on 09/04/09.	The Contractor replied to treat all wastewater properly by passing through sedimentation facilities before discharge.	During the next weekly site inspection on 14/04/09, no wastewater was noted discharged from S147-S148 to the drainage and hence no further ET verification was required.
4	Water	Stagnant water was observed accumulated at S63 and the sedimentation tank nearby during the weekly site inspections on 20/04/09 and 30/04/09.	The Contractor replied to drain the stagnant water or apply pesticide to avoid mosquito breeding.	Since the finding was still observed during the last weekly site inspection in this reporting month, it will be verified in the coming month.
5	Water	Re-design of sedimentation tank at manhole S165 was considered to be necessary in order to handle large amount of pumped-out seawater-site runoff mixture from the manhole in the short-time during the weekly site inspections on 20/04/09 and 30/04/09.	The Contractor replied to modify the sedimentation system to ensure all wastewater treated properly before discharge.	Since the finding was still observed during the last weekly site inspection in this reporting month, it will be verified in the coming month.
6	Chemical	Follow up action to the outstanding finding in the previous month, labels and drip tray were found provided for the oil drums at storage area during the weekly site inspection on 02/04/09.	Since the finding was improved, no further action is required to be taken by the Contractor.	Since the finding was improved, no further verification is required to be taken by ET.



Item	Aspect	Finding	Action(s) to be taken by the Contractor	ET Verification
7	Chemical	Chemical tanks at S90 were found without labels and drip trays during the weekly site inspection on 20/04/09.	The Contractor replied to provide appropriate labels and proper drip trays for all chemicals.	During the subsequent weekly site inspection on 30/04/09, no chemicals were found at S90 and hence no further ET verification was required.
8	Site Practice	C&D wastes were found at S141, S147, S137 and S171 during the weekly site inspection on 20/04/09.	The Contractor replied to collect and dispose all C&D wastes properly.	During the subsequent weekly site inspection on 30/04/09, the C&D wastes were collected and hence no further ET verification was required.
9	Site Practice	Damage to vegetation was observed at S52 during the weekly site inspection on 20/04/09.	The Contractor replied to maintain and protect the vegetation inside and near the site properly.	During the subsequent weekly site inspection on 30/04/09, the damaged vegetation was collected and no further damage was noted. Hence, no further ET verification was required.

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

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

- 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;
- Maintain good waste management at the site; and
- Remove all stagnant water and applied proper treatment facilities to wastewater before discharge.

6.0 Status of Environmental Permits

All permits/licenses obtained in this reporting month are summarized in Table 6.1.

Table 6.1 Summary of Environmental Licensing and Permit Status

Description	Permit No.	Valid Period		Section
		From	To	
Environmental Permit	EP-281/2007	29/06/07	End of Project	Valid
Water Discharge Licence	EP890/W2/XD 026	23/05/08	31/03/12	Valid
Notification under APCO	Application had been submitted to EPD on 15 April 2008			

7.0 WASTE MANAGEMENT

The quantities of waste for disposal from Sok Kwu Wan in this month are summarized in Table 7.1.



Table 7.1 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 (in '000m ³)	0.0412		0.3518
	Broken Concrete (in '000m ³)	0.0019	N/A	0.0125
	Reused in the Contract (in '000m ³)	0.03	For Stockpile / Reuse	0.125
	Reused in other Projects (in '000m ³)	0	N/A	0.09
	Disposal as Public Fill (in '000m ³)	0.0112	SKWRTS	0.1368
C&D Waste	Metals (in '000kg)	0	N/A	0
	Paper/Cardboard Packaging (in '000kg)	0	N/A	0
	Plastics (in '000kg)	0	N/A	0
	Chemical Waste (in '000kg)	0	N/A	0
	Other, e.g. General Refuse (tonne)	0.10	SKWRTS	1.93

8.0 ECOLOGY

A comprehensive tree survey was carried out by Kaden in mid 2008. The two uncommon tree species (*Celtis timorensis* and *Celtis biondii*) could not be identified on site as per the Figure 4 of the EP.

Besides, a joint visit amongst EPD, AFCD, Kaden, DSD and RE was held on 24 March 2009 and some immature *Celtis timorensis* plants were identified at certain locations at Chung Mei. It was agreed that a full vegetation survey (in addition to the previous tree survey) should be conducted to identify the immature uncommon species.

Kaden had employed a tree expert and carried out a vegetation survey on 17 April 2009. Some immature uncommon species had been identified at Chung Mei near the Works Area.

No sewerage works have been taken place in the concerned areas as yet. Protection would be provided for those uncommon species during the construction works which would however be carried out only in the existing footpaths anyway.

9.0 ARCHAEOLOGY AND CULTURAL HERITAGE

Refer to the Section 9 of EM&A Manual, a watching brief was conducted in Chung Mei, Sok Kwu Wan by Archaeological Assessments Limited on 01 September 2008.

The watching brief took place along the length of sewer trench alignment between manholes MH52 and MH54. In overview, the sewer trench between manholes MH52 and MH54 has seen little or no human activity in the past and can be considered to have no archaeological potential.

10.0 ENVIRONMENTAL NON-CONFORMANCE

10.1 Summary of Air Quality and Noise monitoring

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

No exceedances of Action Level of noise monitoring were recorded in this reporting month since no complaint on noise issue was received. Besides, no exceedances in Limit Level were recorded according to the results from Day-time noise monitoring.

No evening-time, night-time and holiday noise monitoring were required since no construction works were processed during these periods.



10.2 Summary of Environmental Complaints, Notifications of Summons and Successful Prosecutions

No complaints, notifications of summons and successful prosecutions were received in this reporting month. A summary of environmental complaints, notifications of summons and successful prosecutions was given Table 9.1.

Table 10.1 Statistical Summary of Environmental Complaint-log

Reporting Period	Complaint logged		Summons served		Successful Prosecution	
	Frequency	Cumulative	Frequency	Cumulative	Frequency	Cumulative
June 2008	0	0	0	0	0	0
July 2008	0	0	0	0	0	0
August 2008	0	0	0	0	0	0
September 2008	0	0	0	0	0	0
October 2008	1	1	0	0	0	0
November 2008	0	1	0	0	0	0
December 2008	0	1	0	0	0	0
January 2009	0	1	0	0	0	0
February 2009	0	1	0	0	0	0
March 2009	0	1	0	0	0	0
April 2009	0	1	0	0	0	0

11.0 IMPLEMENTATION STATUS

11.1 Implementation Status of Environmental Mitigation Measures

Kaden 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 F.

11.2 Implementation Status of Event and Action Plan

No exceedances of Action and limit Levels of noise air quality monitoring were recorded in this reporting month and hence no further actions were required to be taken.

11.3 Implementation Status of Environmental Complaint Handling

No complaints was received in this reporting month and hence no further actions were required to be handled.

11.4 Implementation Status of Notification of Summons and Prosecution

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

12.0 CONCLUSION AND DISCUSSION

According to the summary of noise and air quality monitoring results, no exceedances of Action and Limit Level were recorded during the reporting period.

According to the ET weekly site inspections carried out in this reporting month, it indicated that site practices of the Kaden were generally undertaken in an environmentally acceptable manner and the overall site environmental performance was satisfactory. Summary of the site inspection findings is shown in Table 5.1.

The monitored environmental results indicated that no unacceptable environmental impacts arising from the Project had been caused to the surrounding sensitive receivers. The environmental measures had been effective in controlling potential impacts to within acceptable sensitive receivers.

No complaints, notifications of summons and successful prosecutions were received in this reporting period.



13.0 FUTURE KEY ISSUES

13.1 Upcoming Environmental Monitoring Schedule in coming monitoring month

Proposed Environmental Monitoring program in coming month is presented as following table:

Table 13.1 Proposed Environmental Monitoring Schedule in coming month

May 2009						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 Holiday	2 Holiday
3	4	5	6 1-hr TSP x 3 24-hr TSP NM Weekly SI	7	8	9
10	11	12 1-hr TSP x 3 24-hr TSP NM Weekly SI	13	14	15	16
17	18 1-hr TSP x 3 24-hr TSP NM Weekly SI	19	20	21	22 1-hr TSP x 3 24-hr TSP	23
24 / 31	25	26	27 1-hr TSP x 3 24-hr TSP NM Weekly SI	28 Holiday	29	30

13.2 Upcoming Construction Works Schedule in coming month

Major construction works planned to be carried out in coming month are shown as below:

- Sewer drainage pipe & manhole construction (include open cut & trenchless method); and
- Road reinstatement work.

13.3 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 provide adequate water spraying on roads and working platform;
- To ensure implementation of the dust mitigation measures for the construction activities; and
- To provide proper maintenance for vehicles and machines on site.

Noise

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



Appendix A

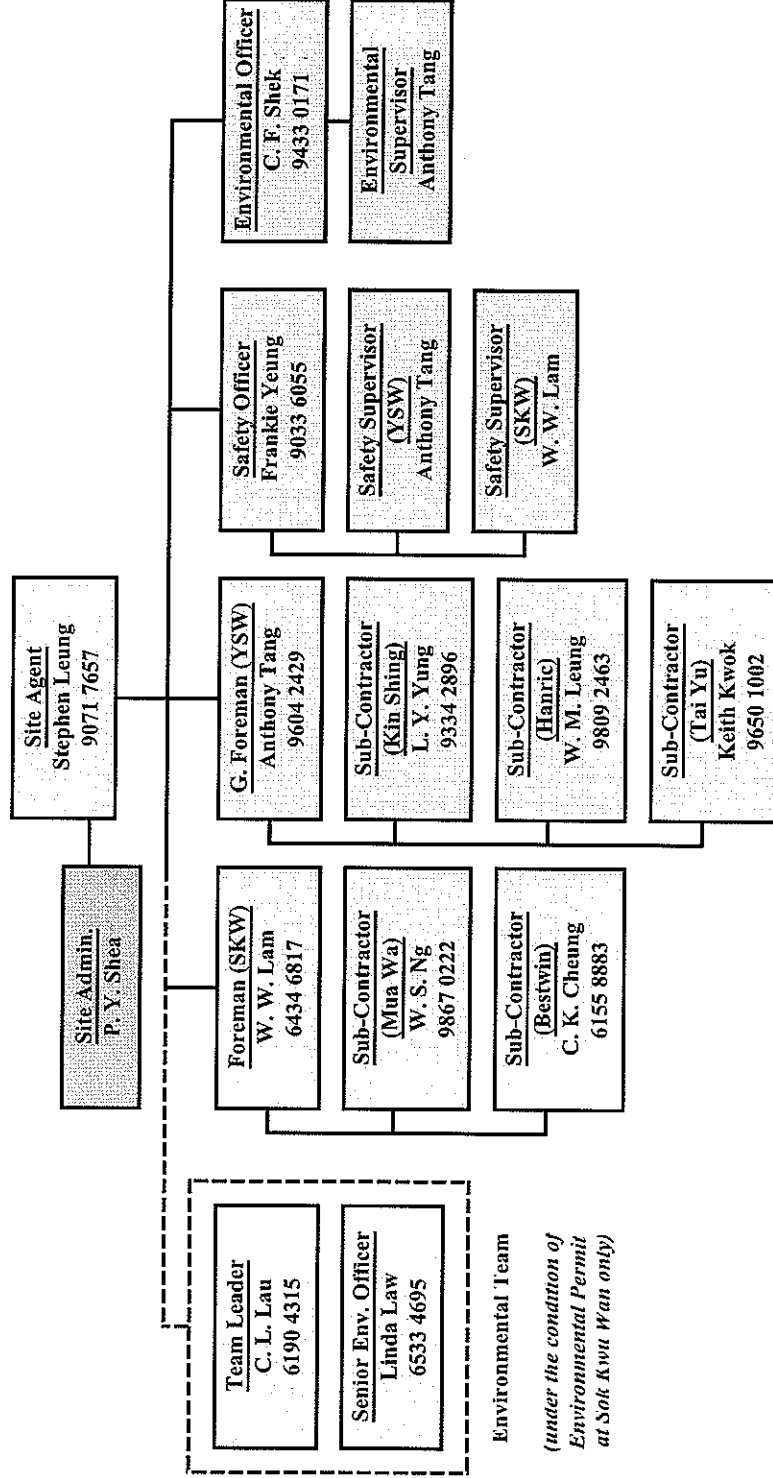
Organization Chart and Lines of Communication

Kaden Construction Limited



DSD Contract No. DC/2007/18
 Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works

Organization Structure for Environmental Management (EMP Rev. 14.00)

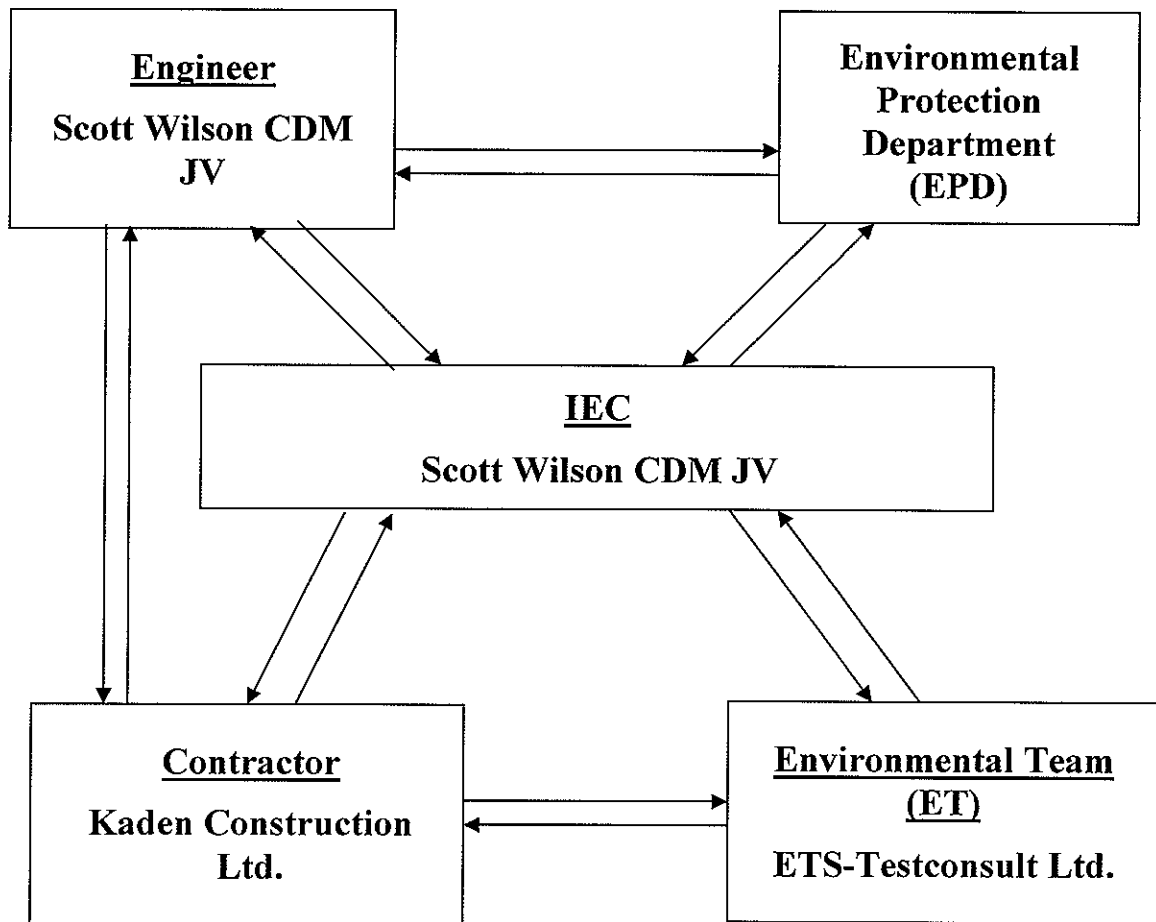


Team Leader
 C. L. Lau
 6190 4315

Senior Env. Officer
 Linda Law
 6533 4695

Environmental Team
 (under the condition of
 Environmental Permit
 at Sok Kwu Wan only)

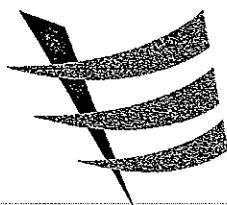
Lines of Communication





Appendix B1

Calibration Certificates for Impact Air Quality Monitoring Equipments



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : ett@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

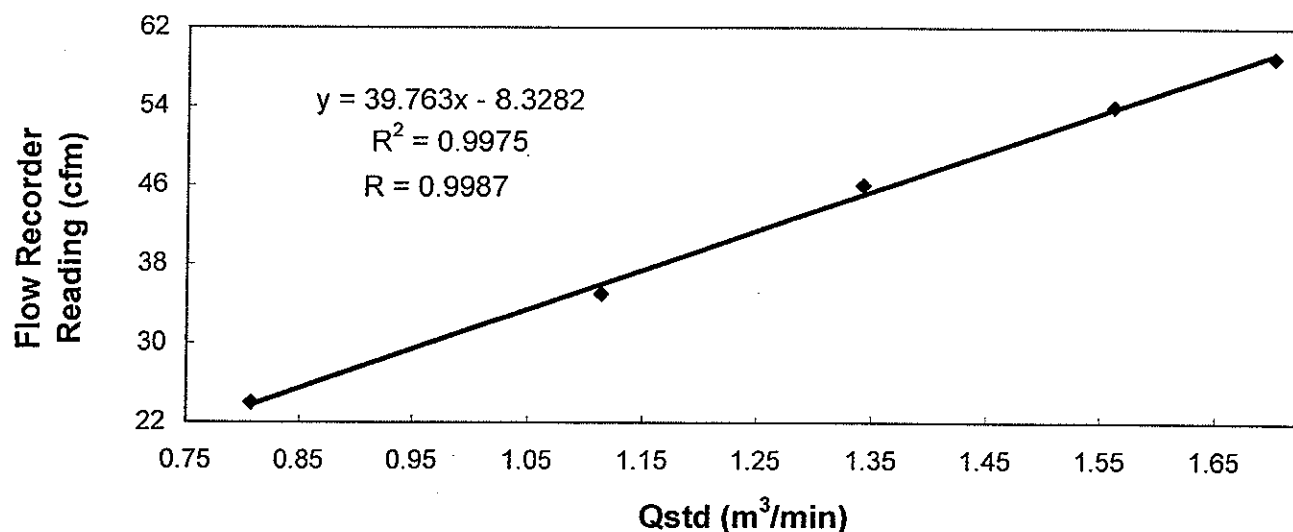
Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 17 February 2009
Serial No. : 1173 (ET/EA/003/17) Calibration Due Date : 16 April 2009
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results :

Flow recorder reading (cfm)	59	54	46	35	24
Qstd (Actual flow rate, m ³ /min)	1.70	1.56	1.34	1.11	0.81
Pressure : 766.56 mmHg	Temp. : 294 K				

Sampler 1173 Calibration Curve
Site: Sok Kwu Wan (AM-1)



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

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

Calibrated by :
LI, Wan Lung
(Technician)

Approved by :
CHOW, Hoi Tat
(Assistant Environmental Officer)



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

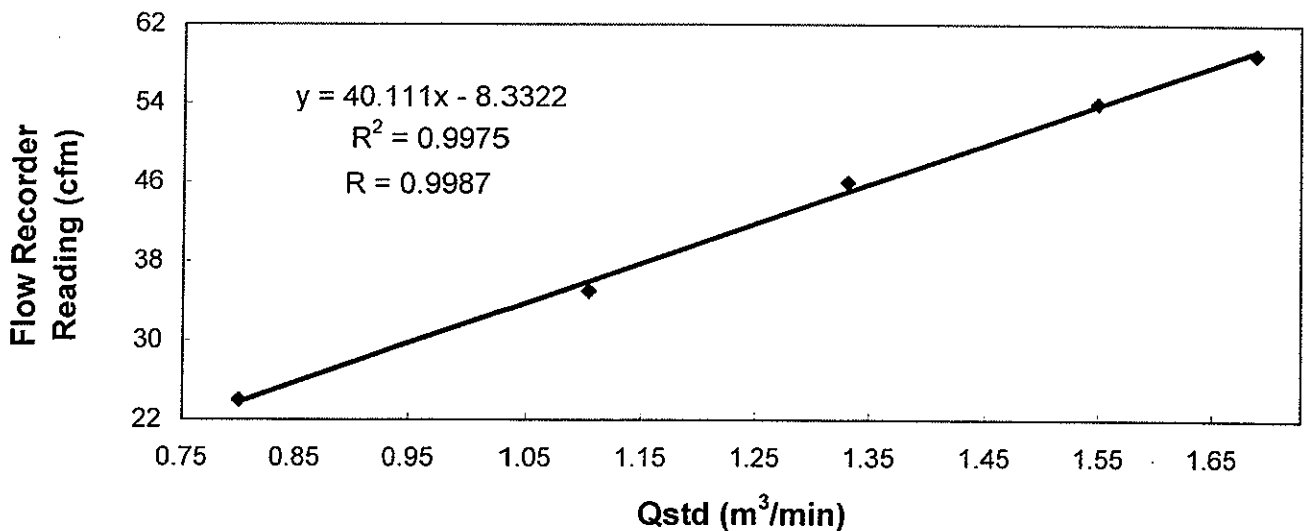
Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW **Date of Calibration** : 20 April 2009
Serial No. : 1173 (ET / EA / 003 / 17) **Calibration Due Date** : 19 June 2009
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results :


Flow recorder reading (cfm)	59	54	46	35	24
Qstd (Actual flow rate, m ³ /min)	1.69	1.55	1.33	1.10	0.80
Pressure : 763.56 mmHg	Temp. : 298 K				


Sampler 1173 Calibration Curve
Site: Sok Kwu Wan (AM-1)

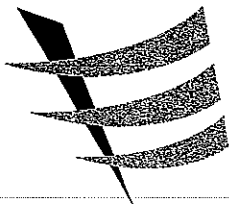


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after 5-point calibration

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

Calibrated by : 
LEUNG, Ka Chun
(Assistant Environmental Officer)

Approved by : 
LAW, Sau Yee
(Senior Environmental Officer)



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

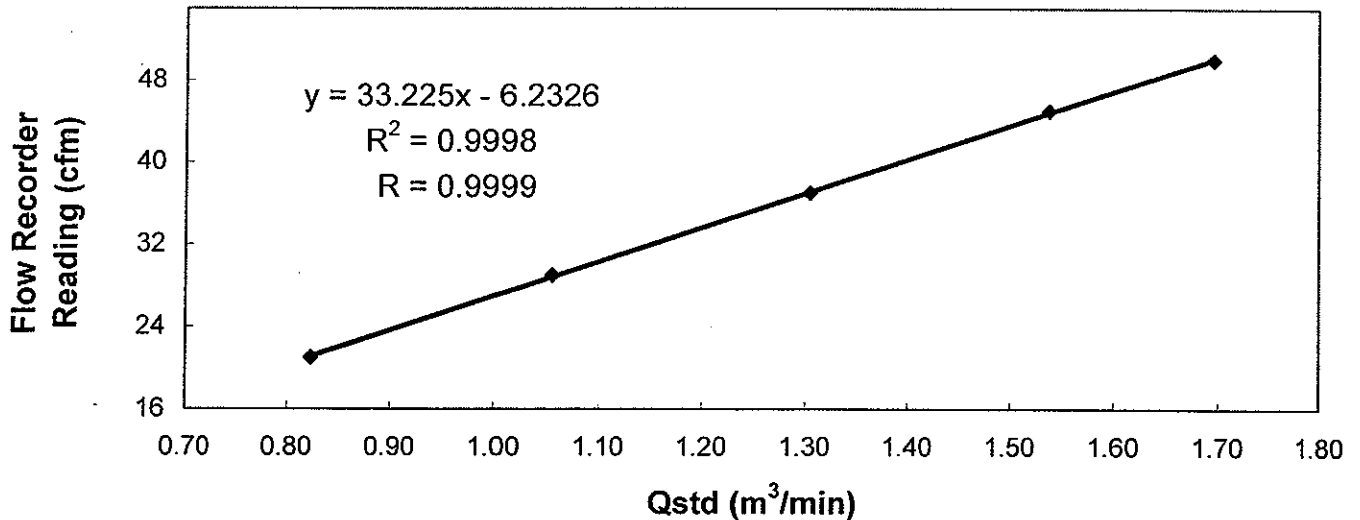
TEST REPORT

Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW **Date of Calibration** : 17 February 2009
Serial No. : 9865 (ET / EA / 003 / 14) **Calibration Due Date** : 16 April 2009
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results :	Flow recorder reading (cfm)	50	45	37	29	21
	Qstd (Actual flow rate, m ³ /min)	1.70	1.54	1.30	1.06	0.82
	Pressure :	766.56 mm Hg			Temp. :	294 K

Sampler 9865 Calibration Curve
Site: Sok Kwu Wan (AM-2)

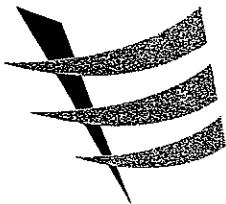


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

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

Calibrated by :
LI, Wan Lung
(Technician)

Approved by :
CHOW, Hoi Tat
(Assistant Environmental Officer)



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

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

Tel : 2695 8318

E-mail : etl@ets-testconsult.com

Fax : 2695 3944

Web site : www.ets-testconsult.com

TEST REPORT

Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 20 April 2009

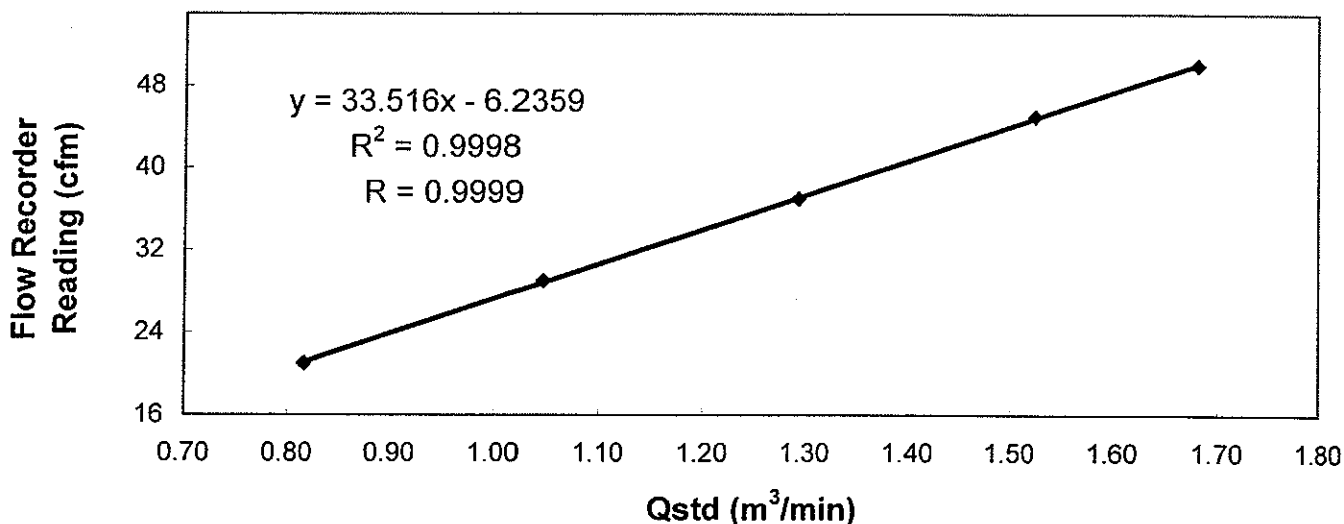
Serial No. : 9865 (ET / EA / 003 / 14) Calibration Due Date : 19 June 2009

Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results

Flow recorder reading (cfm)	50	45	37	29	21
Qstd (Actual flow rate, m ³ /min)	1.68	1.52	1.29	1.05	0.82
Pressure :	763.56 mm Hg		Temp. :	298 K	

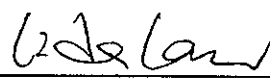
Sampler 9865 Calibration Curve
Site: Sok Kwu Wan (AM-2)

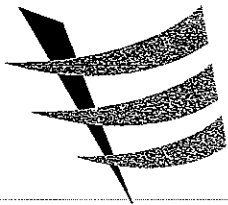


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

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

Calibrated by : 
LEUNG, Ka Chun
(Assistant Environmental Officer)

Approved by : 
LAW, Sau Yee
(Senior Environmental Officer)



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

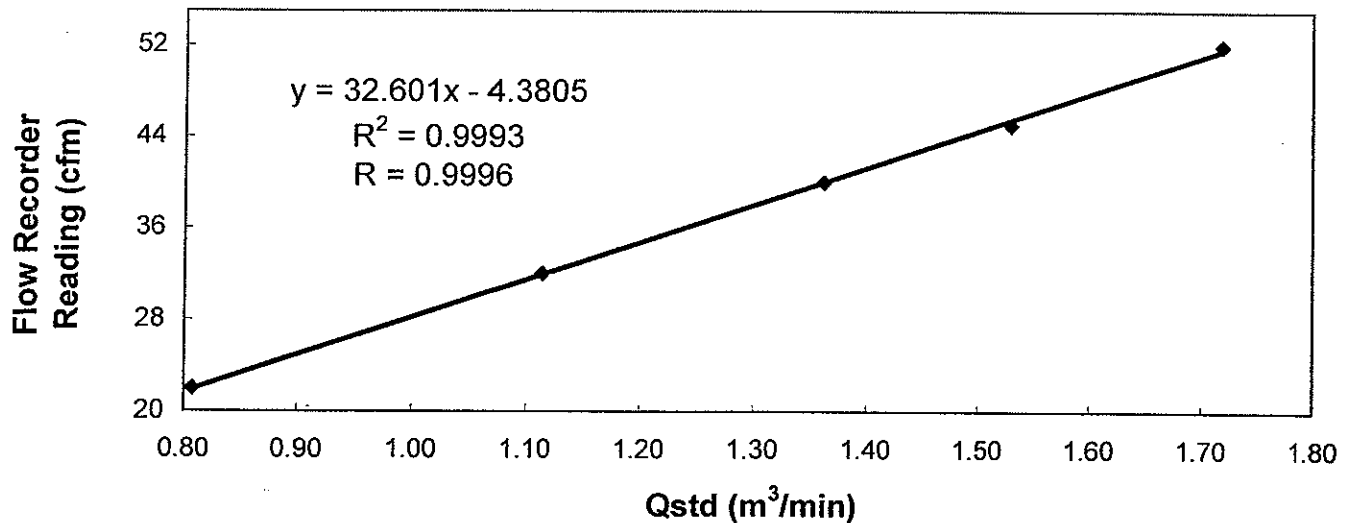
TEST REPORT

Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW **Date of Calibration** : 17 February 2009
Serial No. : 9912 (ET / EA / 003 / 15) **Calibration Due Date** : 16 April 2009
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the
Operations Manual


Results	Flow recorder reading (cfm)	52	45	40	32	22
	Qstd (Actual flow rate, m ³ /min)	1.72	1.53	1.36	1.11	0.81
	Pressure : 766.56 mm Hg	Temp. : 294 K				


Sampler 9912 Calibration Curve
Site: Sok Kwu Wan (AM-3)



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 : 
LI, Wan Lung
(Technician)

Approved by : 
CHOW, Hoi Tat
(Assistant Environmental Officer)



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

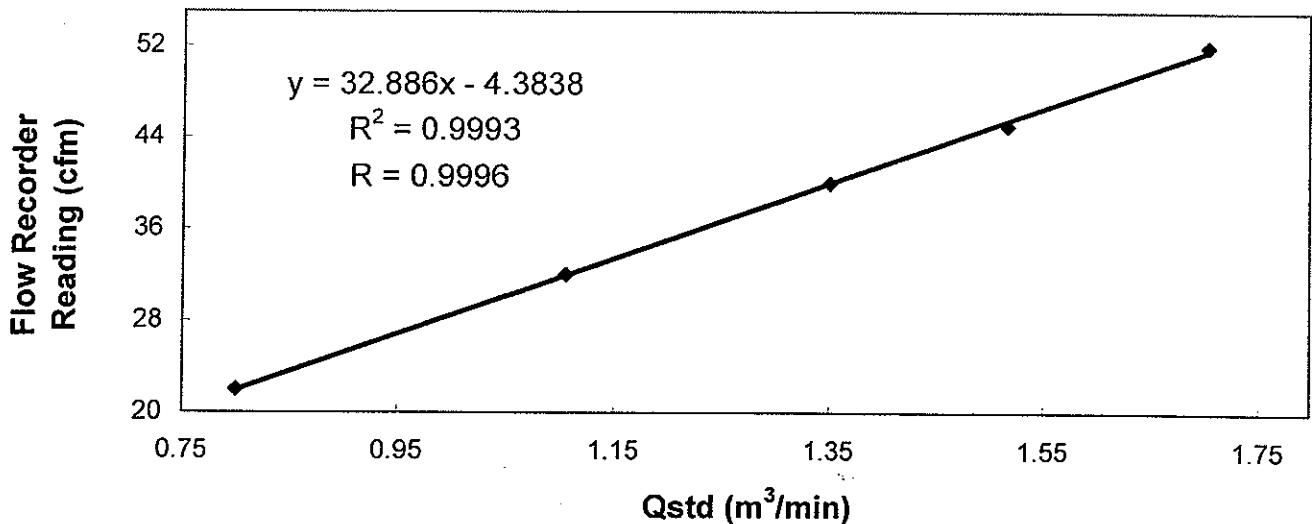
TEST REPORT

Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 20 April 2009
Serial No. : 9912 (ET / EA / 003 / 15) Calibration Due Date : 19 June 2009
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results	Flow recorder reading (cfm)	52	45	40	32	22
	Qstd (Actual flow rate, m ³ /min)	1.70	1.52	1.35	1.10	0.80
	Pressure : 763.56 mm Hg	Temp. : 298 K				

Sampler 9912 Calibration Curve
Site: Sok Kwu Wan (AM-3)

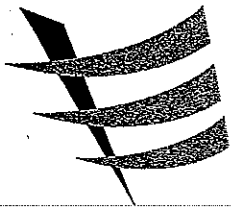


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

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

Calibrated by :
LEUNG, Ka Chun
(Assistant Environmental Officer)

Approved by :
LAW, Sau Yee
(Senior Environmental Officer)



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Folan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

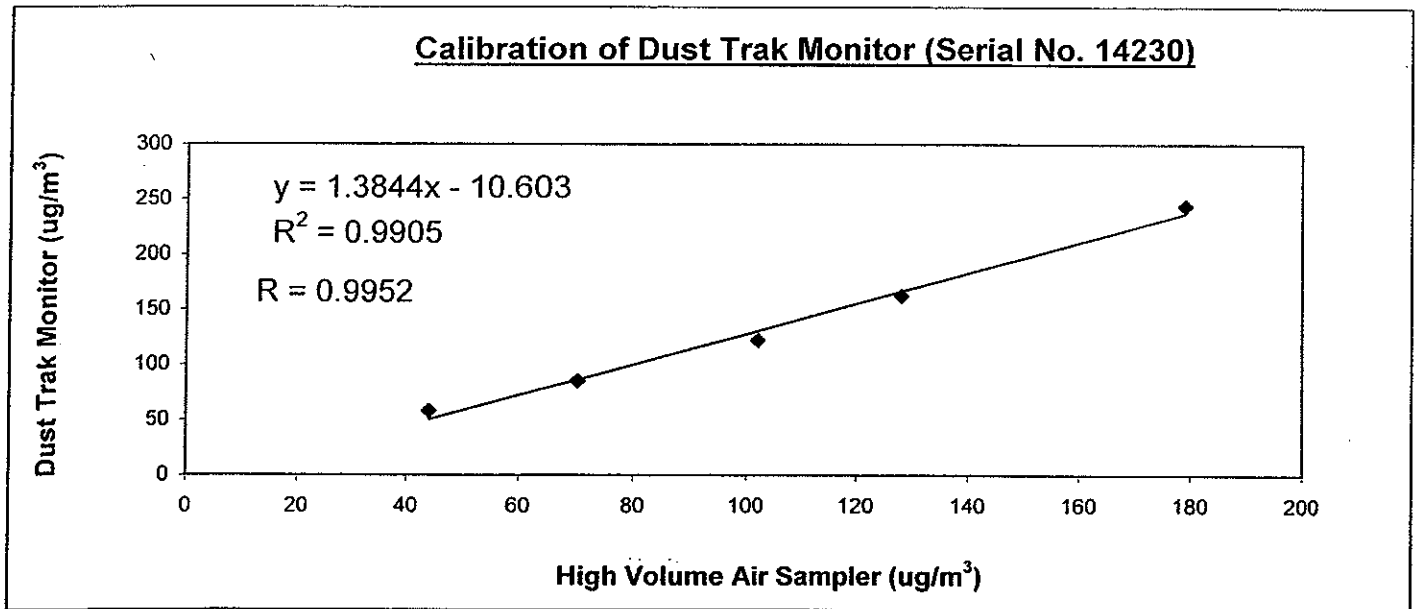
TEST REPORT

**Internal Calibration Report
of
Dust Trak Monitor**

Manufacturer : TSI - 8520 Dust Trak **Date of Calibration** : 13 January 2009
Serial No. : 14230 (ET/EA/001/04) **Due Date** : 12 July 2009
Method : Parallel measurement (five-point calibration) by placing the Dust Trak Monitor and High Volume Air Sampler together under the same environmental condition

Results :

Dust Trak Monitor ($\mu\text{g}/\text{m}^3$)	58	85	155	162	244
High Volume Air Sampler ($\mu\text{g}/\text{m}^3$)	44	70	102	128	179
High Volume Air Sampler Serial No.: 1178			Calibration Due Date: 01 March 2009		

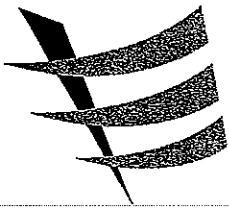


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a five point calibration

The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable * / unacceptable * for use.

Calibrated by : MAK, Kei Wai
MAK, Kei Wai
(Senior Site Technician)

Approved by : LAW, Sau Yee
LAW, Sau Yee
(Senior Environmental Officer)



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : ett@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

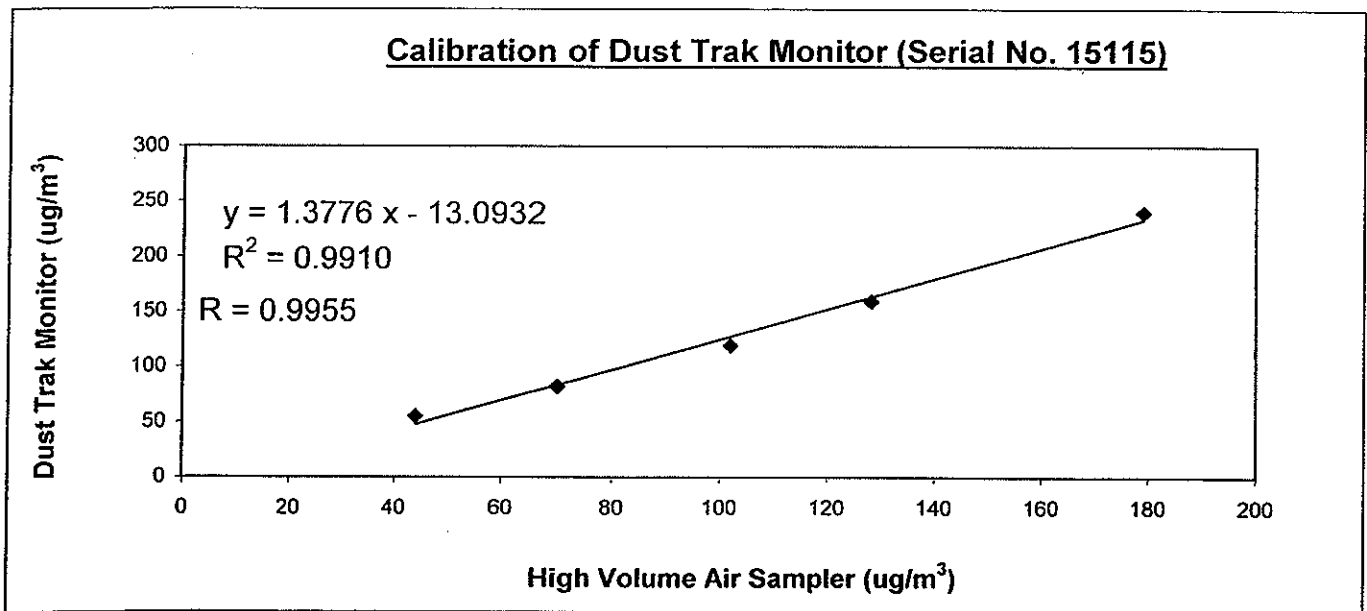
TEST REPORT

Internal Calibration Report
of
Dust Trak Monitor

Manufacturer : TSI - 8520 Dust Trak Date of Calibration : 13 January 2009
Serial No. : 15115 (ET/EA/001/02) Calibration Due Date : 12 July 2009
Method : Parallel measurement (five-point calibration) by placing the Dust Trak Monitor and High Volume Air Samper together under the same environmental condition

Results :

Dust Trak Monitor (ug/m ³)	55	82	119	159	240
High Volume Air Sampler (ug/m ³)	44	70	102	128	179
Serail No of High Volume Air Sampler : 1178			Calibration Date: 01 March 2009		



Acceptance Criteria :

Correlation coefficient (r) of the calibration curve greater than 0.990 after a five point calibration

The Dust Trak Monitor complies * / does not comply * with the internal calibration procedures and is deemed acceptable * / unacceptable * for use.

Calibrated by : MAK Kei Wai
MAK, Kei Wai
(Senior Site Technician)

Approved by : LAW Sau Yee
LAW, Sau Yee
(Senior Environmental Officer)



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX
 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 14, 2008 Roots-meter S/N 9833620 Ta (K) - 295
 Operator Tisch Orifice I.D. - 1172 Pa (mm) - 750.57

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	1.3800	3.1	2.00
2	NA	NA	1.00	0.9650	6.3	4.00
3	NA	NA	1.00	0.8630	7.9	5.00
4	NA	NA	1.00	0.8230	8.6	5.50
5	NA	NA	1.00	0.6770	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9935	0.7199	1.4125	0.9958	0.7216	0.8866
0.9893	1.0252	1.9976	0.9916	1.0276	1.2538
0.9870	1.1437	2.2334	0.9894	1.1464	1.4018
0.9862	1.1983	2.3424	0.9885	1.2011	1.4703
0.9807	1.4486	2.8251	0.9830	1.4521	1.7732

Qstd slope (m) = 1.94106
 intercept (b) = 0.01311
 coefficient (r) = 0.99996

Qa slope (m) = 1.21546
 intercept (b) = 0.00823
 coefficient (r) = 0.99996

y axis = $\text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$

y axis = $\text{SQRT}[\text{H}_2\text{O}(\text{Ta}/\text{Pa})]$

CALCULATIONS

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

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

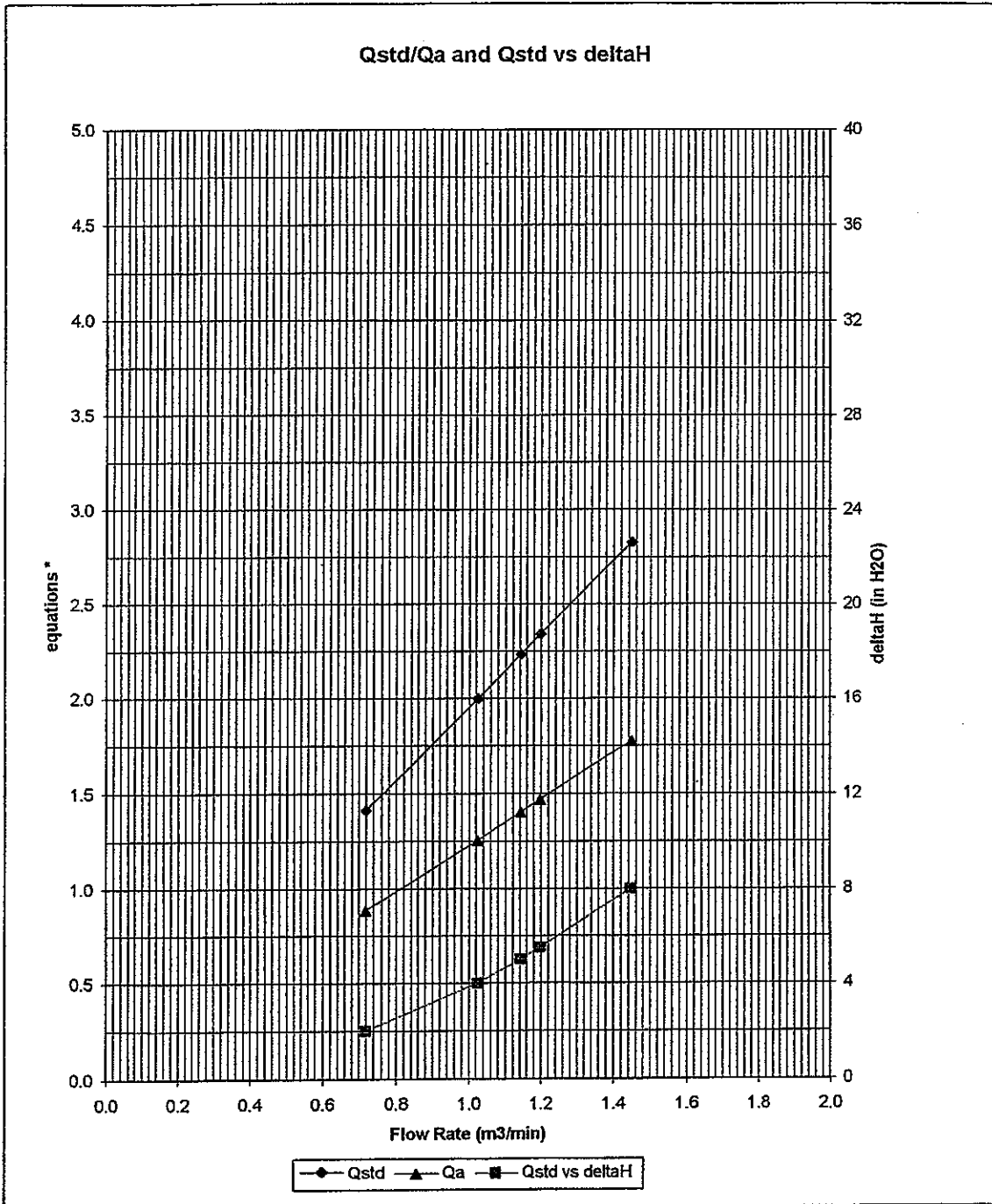
For subsequent flow rate calculations:

$Q_{std} = 1/m\{[\text{SQRT}(\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta}))] - b\}$
 $Q_a = 1/m\{[\text{SQRT}(\text{H}_2\text{O}(\text{Ta}/\text{Pa}))] - b\}$



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX
 WWW.TISCH-ENV.COM

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

1172



Appendix B2

Impact Air Quality Monitoring Results

Summary of 24-hr TSP Monitoring Results

Monitoring Station : AM1

Start Date	Start Time	Finish Date	Finish Time	Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
				Initial	Final		Initial	Final		Initial	Final		
02/04/09	12:12	03/04/09	12:12	13967.24	13991.24	24.00	1.1651	1.1651	1.1651	2.7933	2.9178	74	Cloudy
08/04/09	12:30	09/04/09	12:30	13991.24	14015.24	23.99	1.2657	1.2657	1.2657	2.7745	2.9089	74	Sunny
14/04/09	12:40	15/04/09	12:40	14015.24	14039.24	24.00	1.1651	1.1651	1.1651	2.8035	2.9029	59	Sunny
20/04/09	12:45	21/04/09	12:45	14039.24	14063.24	24.00	1.1551	1.1551	1.1551	2.7632	2.8495	52	Sunny
24/04/09	12:32	25/04/09	12:32	14063.24	14087.24	24.00	1.1551	1.1551	1.1551	2.7896	2.8527	38	Cloudy
30/04/09	12:26	01/05/09	12:26	14087.24	14111.24	24.00	1.0803	1.0803	1.0803	2.7812	2.8593	50	Fine

Monitoring Station : AM2

Start Date	Start Time	Finish Date	Finish Time	Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
				Initial	Final		Initial	Final					
02/04/09	12:05	03/04/09	12:05	18003.24	18027.24	24.00	1.2109	1.2109	1.2109	2.7772	2.9092	76	Cloudy
08/04/09	12:35	09/04/09	12:35	18027.24	18051.24	23.99	1.2109	1.2109	1.2109	2.7590	2.9152	90	Sunny
14/04/09	12:40	15/04/09	12:40	18051.24	18075.24	24.00	1.2711	1.2711	1.2711	2.7856	2.8969	61	Sunny
20/04/09	12:50	21/04/09	12:50	18075.24	18099.24	24.00	1.2005	1.2005	1.2005	2.8029	2.9018	57	Sunny
24/04/09	12:37	25/04/09	12:37	18099.24	18123.24	24.00	1.2602	1.2602	1.2602	2.7693	2.8707	56	Cloudy
30/04/09	12:30	01/05/09	12:30	18123.24	18147.24	24.00	1.3198	1.3198	1.3198	2.8026	2.9054	54	Fine

Monitoring Station : AM3

Start Date	Start Time	Finish Date	Finish Time	Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
				Initial	Final		Initial	Final					
02/04/09	12:38	03/04/09	12:38	2063.51	2087.51	24.00	1.3306	1.3306	1.3306	2.7589	2.9301	89	Cloudy
08/04/09	14:30	09/04/09	14:30	2087.51	2111.51	23.99	1.2386	1.2386	1.2386	2.7538	3.0635	174	Sunny
14/04/09	13:10	15/04/09	13:10	2111.51	2135.51	24.00	1.2080	1.2080	1.2080	2.8052	2.9782	99	Sunny
20/04/09	15:09	21/04/09	15:09	2135.51	2159.51	24.00	1.2280	1.2280	1.2280	2.7735	2.9227	84	Sunny
24/04/09	11:03	25/04/09	11:03	2159.51	2183.51	24.00	1.1672	1.1672	1.1672	2.7734	2.9634	113	Cloudy
30/04/09	13:05	01/05/09	13:05	2183.51	2207.51	24.00	1.1064	1.1064	1.1064	2.7984	2.9990	126	Fine



Summary of 1-hr TSP Monitoring Results

Monitoring Station : AM1

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
02/04/09	13:15	14:15	48	409	97	Cloudy
02/04/09	14:15	15:15	50	419	102	Cloudy
02/04/09	15:15	16:15	45	425	102	Cloudy
08/04/09	09:25	10:25	85	427	132	Sunny
08/04/09	10:25	11:25	106	416	142	Sunny
08/04/09	11:25	12:25	112	407	148	Sunny
14/04/09	09:20	10:20	87	502	161	Sunny
14/04/09	10:20	11:20	95	476	184	Sunny
14/04/09	11:20	12:20	100	482	173	Sunny
20/04/09	13:00	14:00	107	590	167	Sunny
20/04/09	14:00	15:00	89	582	158	Sunny
20/04/09	15:00	16:00	95	534	176	Sunny
24/04/09	09:30	10:30	82	422	142	Cloudy
24/04/09	10:30	11:30	94	502	166	Cloudy
24/04/09	13:15	14:15	86	465	156	Cloudy
30/04/09	09:18	10:18	95	406	160	Fine
30/04/09	10:18	11:18	115	412	175	Fine
30/04/09	11:18	12:18	105	398	135	Fine

Monitoring Station : AM2

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
02/04/09	13:28	14:28	43	398	86	Cloudy
02/04/09	14:28	15:28	39	388	78	Cloudy
02/04/09	15:28	16:28	44	410	87	Cloudy
08/04/09	09:28	10:28	99	435	136	Sunny
08/04/09	10:28	11:28	95	429	141	Sunny
08/04/09	11:28	12:28	109	440	123	Sunny
14/04/09	09:25	10:25	87	512	154	Sunny
14/04/09	10:25	11:25	102	506	151	Sunny
14/04/09	11:25	12:25	96	492	163	Sunny
20/04/09	13:04	14:04	106	622	141	Sunny
20/04/09	14:04	15:04	96	573	135	Sunny
20/04/09	15:04	16:04	87	568	159	Sunny
24/04/09	09:40	10:40	73	395	118	Cloudy
24/04/09	10:40	11:40	102	513	155	Cloudy
24/04/09	13:20	14:20	95	471	151	Cloudy
30/04/09	09:20	10:20	107	419	146	Fine
30/04/09	10:20	11:20	99	440	171	Fine
30/04/09	11:20	12:20	106	407	128	Fine



Summary of 1-hr TSP Monitoring Results

Monitoring Station : AM3

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
02/04/09	09:08	10:08	63	563	126	Cloudy
02/04/09	10:08	11:08	69	580	131	Cloudy
02/04/09	11:08	12:08	60	577	124	Cloudy
08/04/09	13:00	14:00	96	426	155	Sunny
08/04/09	14:00	15:00	107	418	141	Sunny
08/04/09	15:00	16:00	102	471	144	Sunny
14/04/09	13:00	14:00	106	533	175	Sunny
14/04/09	14:00	15:00	95	526	186	Sunny
14/04/09	15:00	16:00	100	506	187	Sunny
20/04/09	09:15	10:15	88	596	187	Sunny
20/04/09	10:15	11:15	107	546	176	Sunny
20/04/09	11:15	12:15	103	498	163	Sunny
24/04/09	14:40	15:40	127	595	226	Cloudy
24/04/09	15:40	16:40	115	536	207	Cloudy
24/04/09	16:40	17:40	104	529	194	Cloudy
30/04/09	13:00	14:00	112	593	180	Fine
30/04/09	14:00	15:00	106	612	206	Fine
30/04/09	15:00	16:00	102	552	161	Fine

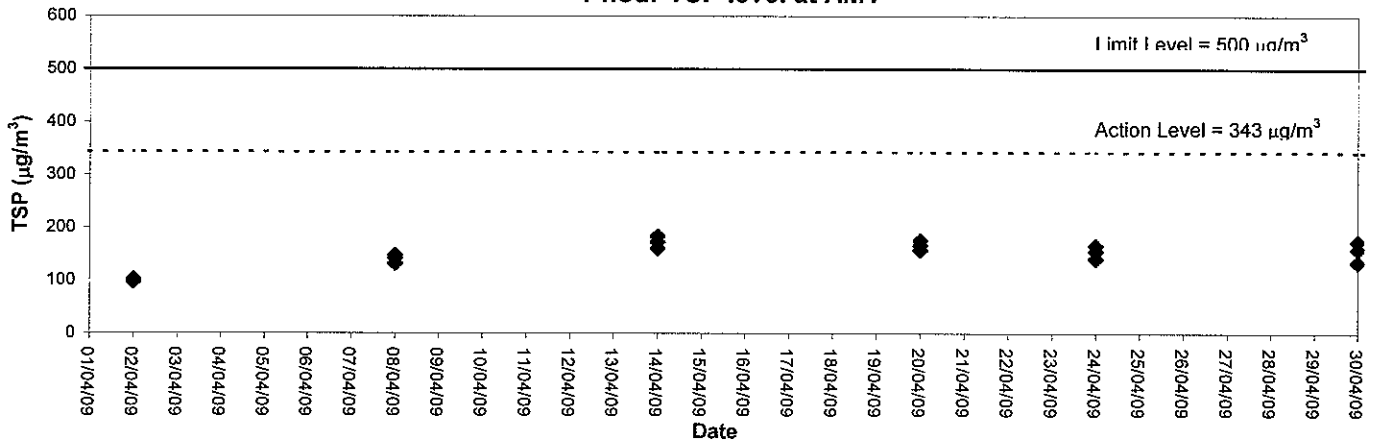


Appendix C3

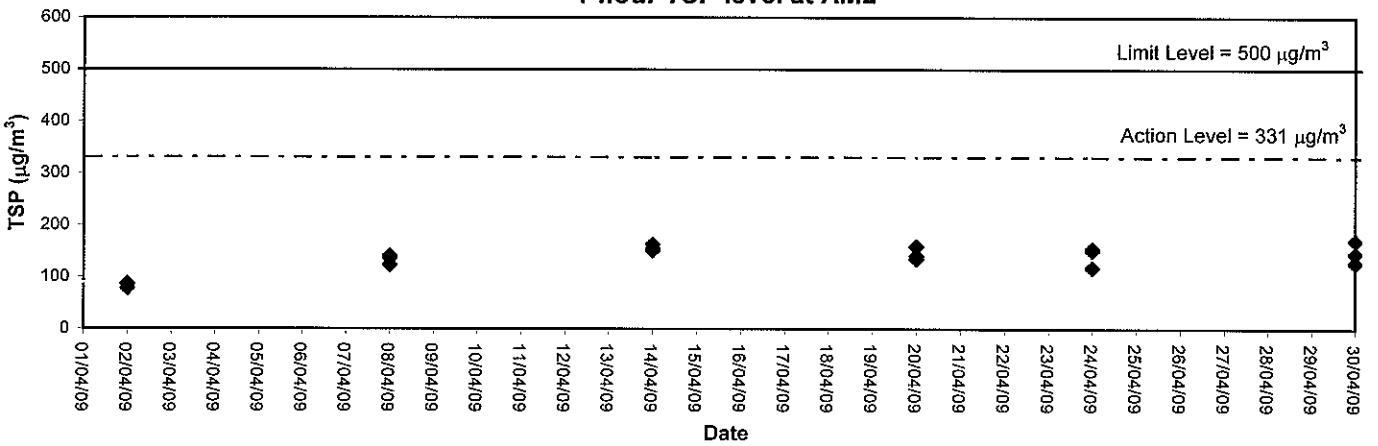
Graphical Plots of Impact Air Quality Monitoring Data



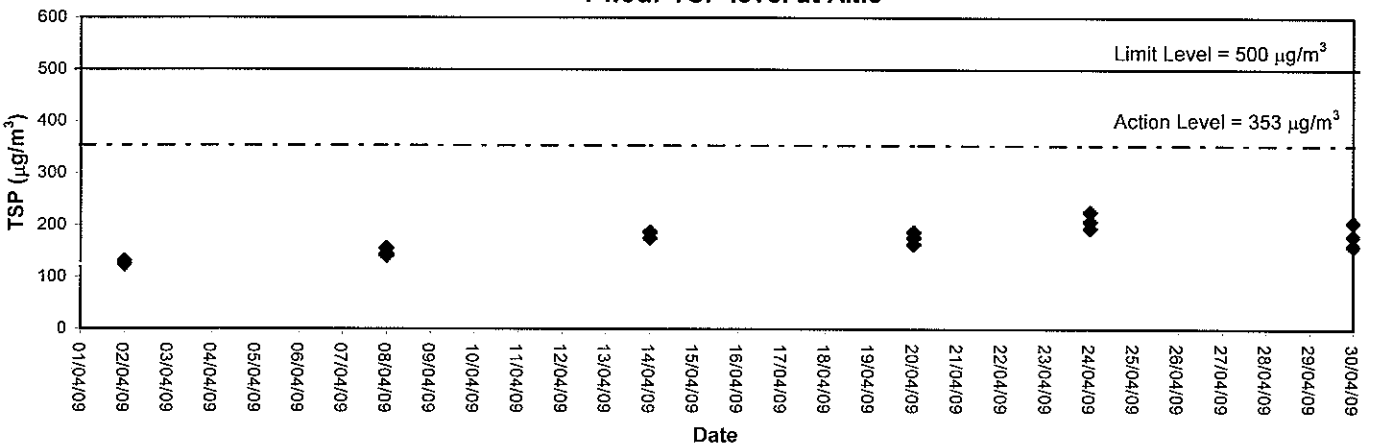
1-hour TSP level at AM1



1-hour TSP level at AM2

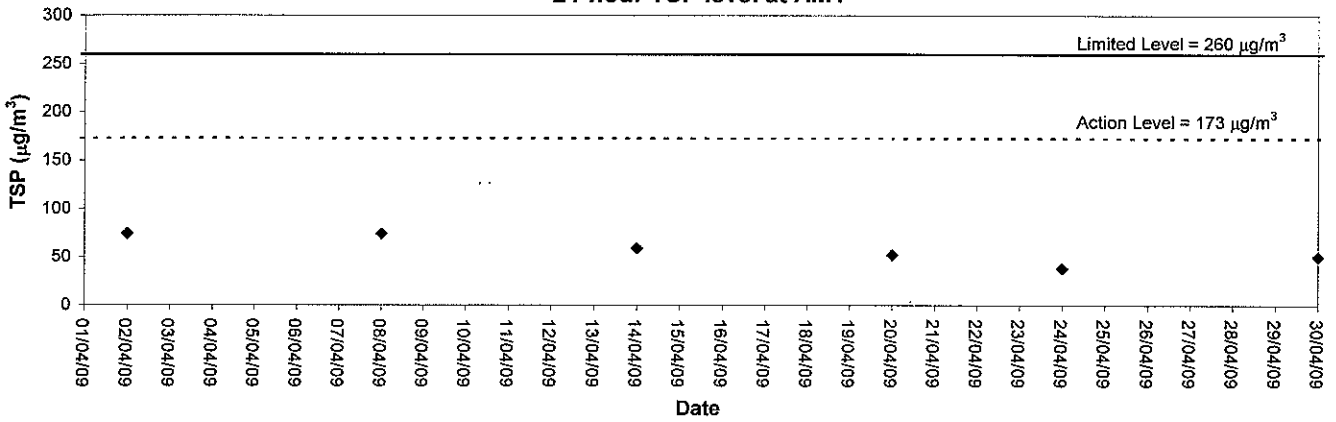


1-hour TSP level at AM3

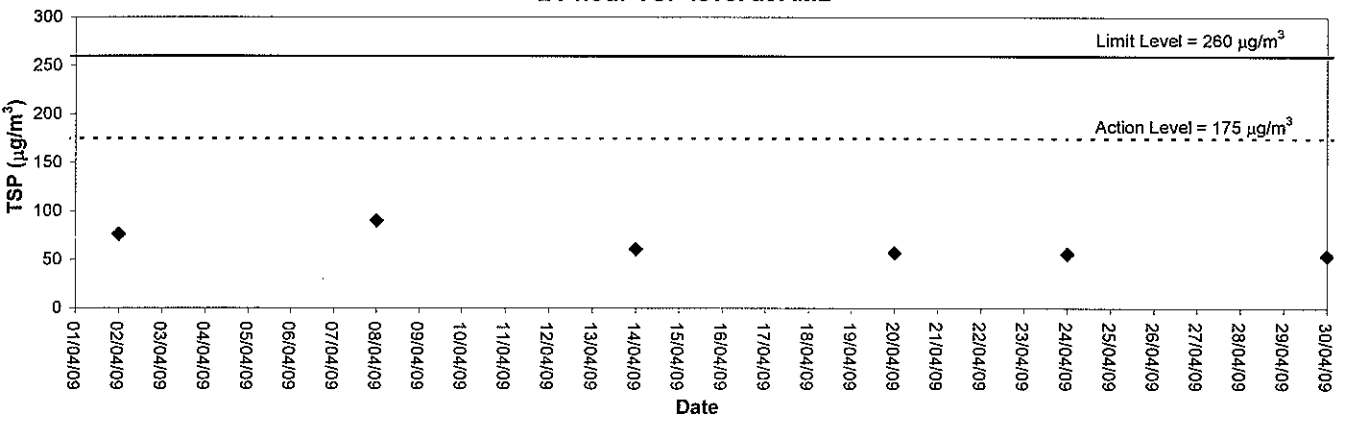




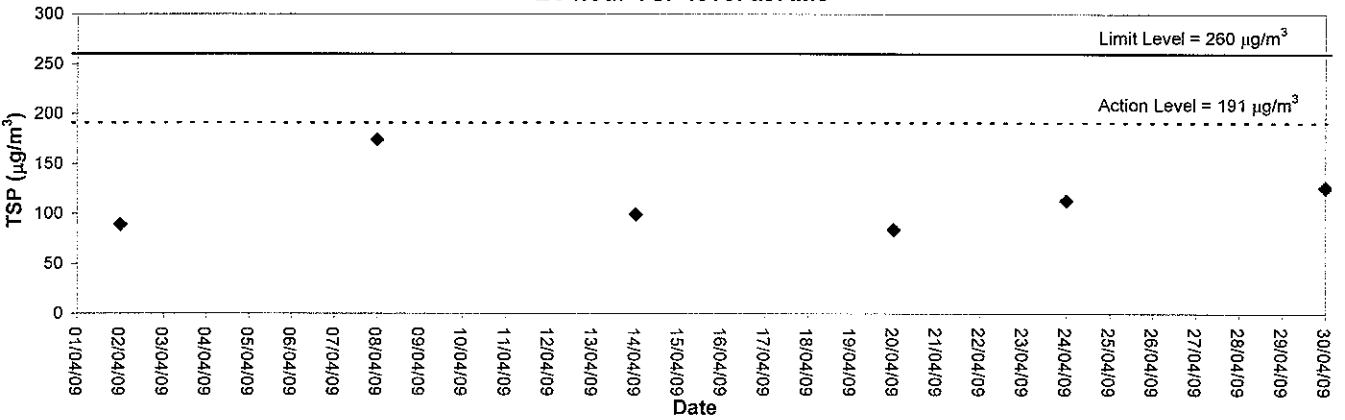
24-hour TSP level at AM1



24-hour TSP level at AM2



24-hour TSP level at AM3





Appendix C1

Calibration Certificates for Impact Noise Monitoring Equipments



Calibration Certificate

Certificate No. **81354**

Page 1 of 4 Pages

Customer : ETS-Testconsult Limited

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

Order No. : Q80566

Date of receipt : 1-Apr-08

Item Tested

Description : Precision Integrating Sound Level Meter

Manufacturer : Rion

Model : NL-31

Serial No. : 00110024

Test Conditions

Date of Test : 3-Apr-08

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 & IEC 804 Type 1 specification.

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

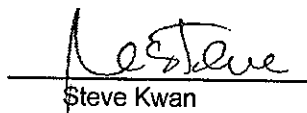
Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S017	Multi-Function Generator	C081456	18-Mar-09	SCL-HKSAR
S024	Sound Level Calibrator	71791	16-Jul-08	NIM-PRC & SCL-HKSAR

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 : 
Dorothy Cheuk

Approved by : 
Steve Kwan

Date: 3-Apr-08

This Certificate is issued by:
Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646



Calibration Certificate

Certificate No. 81354

Page 2 of 4 Pages

Results :

1. SPL Accuracy

UUT Setting			Applied Value (dB)	UUT Reading (dB)
Level Range (dB)	Weight	Response		
20 - 100	L _A	Fast	94.03	94.0
		Slow		94.0
	L _C	Fast		94.0
		L _p		Fast
30 - 120	L _A	Fast	94.03	94.0
		Slow		93.9
	L _C	Fast		94.0
	L _p	Fast		94.0
30 - 120	L _A	Fast	113.97	114.0
		Slow		113.9
	L _C	Fast		113.9
	L _p	Fast		113.9

IEC 651 Type 1 Spec. : ± 0.7 dB

Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB

Uncertainty : ± 0.01 dB



Calibration Certificate

Certificate No. 81354

Page 3 of 4 Pages

3. Linearity

3.1 Level Linearity

UUT Range	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec. (Primary Indicator Range)
130	114.0	114.1	+ 0.1	± 0.7 dB
130	104.0	104.0	0.0	
120	94.0	94.0 (Ref.)	--	
110	84.0	84.1	+ 0.1	
100	74.0	74.0	0.0	
90	64.0	64.1	+ 0.1	
80	54.0	54.2	+ 0.2	

Uncertainty : ± 0.1 dB

3.2 Differential level linearity

UUT Range	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	84.0	0.0	± 0.4 dB
	94.0	94.0 (Ref.)	--	
	95.0	95.1	+ 0.1	± 0.2 dB
	104.0	104.0	0.0	± 0.3 dB
	105.0	105.0	0.0	± 1.0 dB

Uncertainty : ± 0.1 dB

4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 39.7	- 39.4 dB, ± 1.5 dB
63 Hz	- 26.3	- 26.2 dB, ± 1.5 dB
125 Hz	- 16.2	- 16.1 dB, ± 1 dB
250 Hz	- 8.7	- 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	+ 1.4	+ 1.2 dB, ± 1 dB
4 kHz	+ 1.2	+ 1.0 dB, ± 1 dB
8 kHz	- 1.0	- 1.1 dB, + 1.5 dB ~ - 3 dB
16 kHz	- 6.6	- 6.6 dB, + 3 dB ~ ∞

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 81354

Page 4 of 4 Pages

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	40.0	± 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 : 1 008 hPa.

----- END -----



Calibration Certificate

Certificate No. **81355**

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. : Q80566

Date of receipt : 1-Apr-08

Item Tested

Description : Sound Level Calibrator

Manufacturer : Rion

Model : NC-73

Serial No. : 10196943

Test Conditions

Date of Test : 3-Apr-08

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.

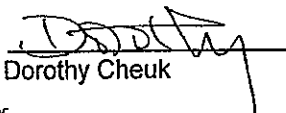
The results are shown in the attached page(s).

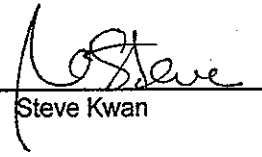
Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	73602	7-Jul-08	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	71791	16-Jul-08	NIM-PRC & SCL-HKSAR
S041	Universal Counter	73453	22-Aug-08	SCL-HKSAR

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 : 
Dorothy Cheuk

Approved by : 
Steve Kwan

Date: 3-Apr-08

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

The copyright of this certificate is owned by Hong Kong Calibration Ltd.. It may not be reproduced except in full.



Calibration Certificate

Certificate No. 81355

Page 2 of 2 Pages

Results :

1. Level Accuracy (at 1 kHz)

UUT Nominal Value	Measured Value	Mfr's Spec.
94 dB	94.0 dB	± 1 dB

Uncertainty : ± 0.1 dB

2. Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.990 8 kHz	± 2 %

Uncertainty : ± 0.1 %

3. Level Stability : 0.0 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.1 %

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 : 1 005 hPa

----- END -----



Appendix C2

Impact Noise Monitoring Results



Day-time Noise Monitoring

Monitoring Station: NM1

Date	Weather Condition	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at the monitoring point, dB (A)			Wind Speed (m/s)
				Leq (30min)	L10	L90	
02/04/09	Cloudy	13:40	14:10	54.2	58.1	46.3	2.0
08/04/09	Sunny	09:40	10:10	57.9	63.0	42.9	0.2
14/04/09	Sunny	14:30	15:00	55.2	56.7	49.2	0.2
20/04/09	Sunny	15:20	15:50	54.7	56.1	49.2	0.2
30/04/09	Fine	09:45	10:15	59.2	61.1	52.6	1.0

Monitoring Station: NM2

Date	Weather Condition	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at the monitoring point, dB (A)			Wind Speed (m/s)
				Leq (30min)	L10	L90	
02/04/09	Cloudy	14:35	15:05	61.8	66.9	59.5	1.7
08/04/09	Sunny	10:20	10:50	68.3	70.4	57.7	0.0
14/04/09	Sunny	10:23	10:53	65.5	66.9	58.0	0.4
20/04/09	Sunny	14:35	15:05	63.2	65.1	56.1	0.3
30/04/09	Fine	10:20	10:50	65.1	66.8	57.3	1.5

Monitoring Station: RNM3

Date	Weather Condition	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at the monitoring point, dB (A)			Wind Speed (m/s)
				Leq (30min)	L10	L90	
02/04/09	Cloudy	10:18	10:48	62.5	57.4	60.0	2.0
08/04/09	Sunny	10:55	11:25	65.2	66.7	55.1	0.5
14/04/09	Sunny	11:00	11:30	63.4	64.4	56.6	0.2
20/04/09	Sunny	13:55	14:25	60.8	62.5	55.5	0.3
30/04/09	Fine	10:55	11:25	61.1	62.6	56.1	1.2

Remark: 3dB(A) correction had been added to the results since noise measurements at RNM3 were free-field.

Monitoring Station: NM4

Date	Weather Condition	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at the monitoring point, dB (A)			Wind Speed (m/s)
				Leq (30min)	L10	L90	
02/04/09	Cloudy	09:25	09:55	52.8	55.7	45.9	2.3
08/04/09	Sunny	11:30	12:00	48.6	50.0	40.8	0.5
14/04/09	Sunny	09:45	10:15	52.3	54.1	47.9	0.2
20/04/09	Sunny	13:20	13:50	54.0	56.2	42.3	0.3
30/04/09	Fine	11:30	12:00	55.0	56.7	43.5	1.0

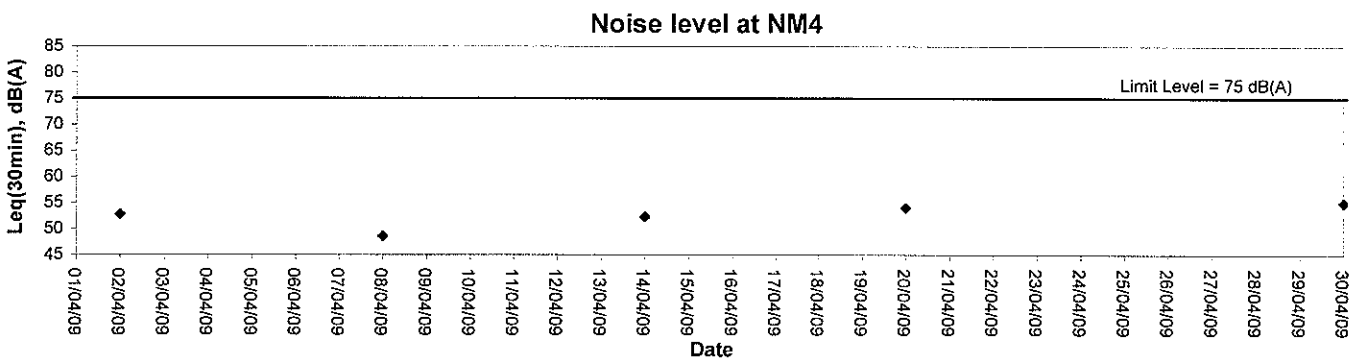
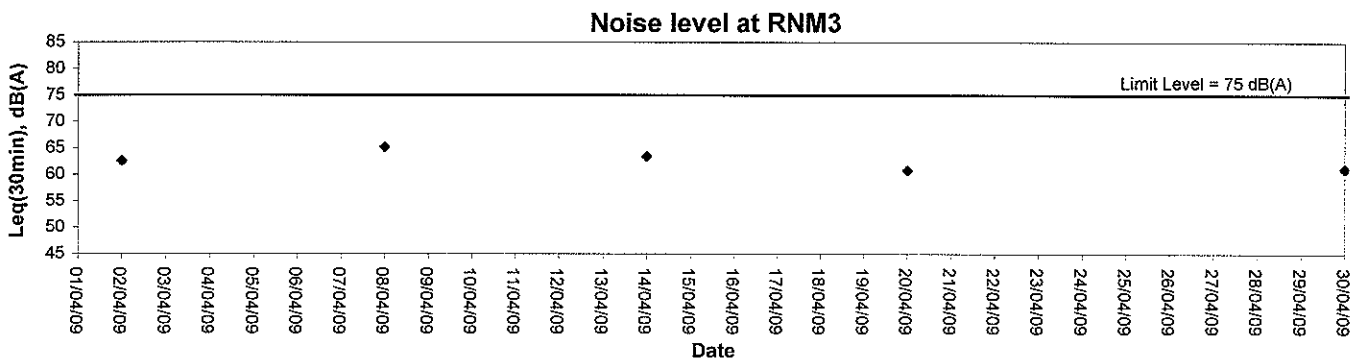
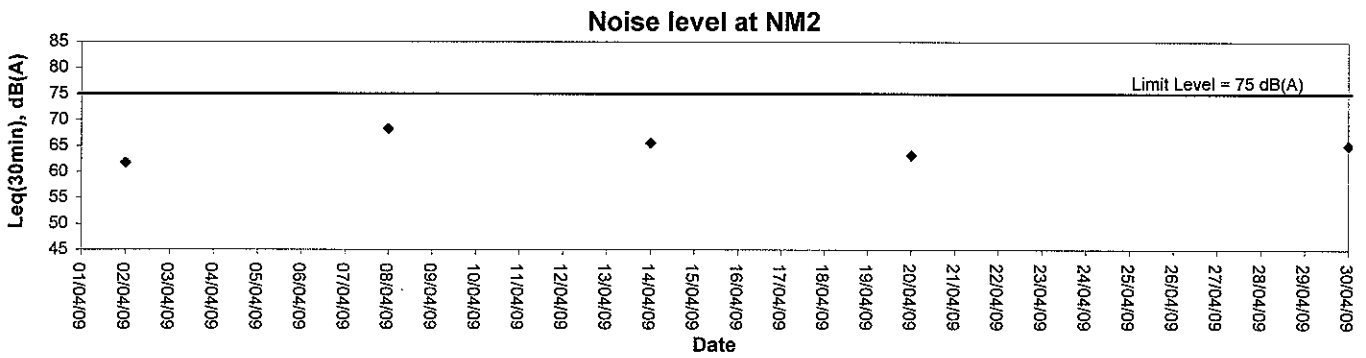
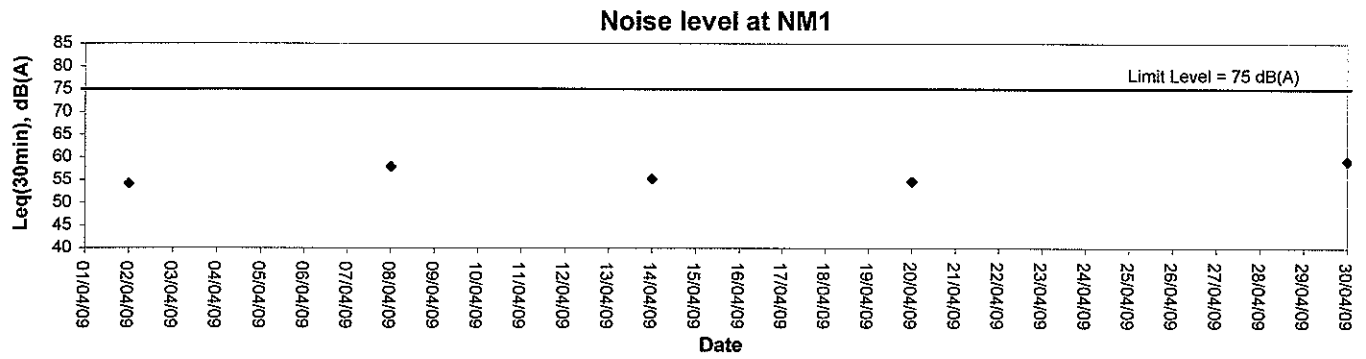


Appendix C3

Graphical Plots of Impact Noise Monitoring Data



Noise Monitoring (Day-time)





Appendix D

Event-Action Plans

Event / Action Plan for Air Quality

EVENT	ACTION				CONTRACTOR
	ET	IC(E)	ER		
Action Level					
Action Level being exceeded for one sample	<ol style="list-style-type: none"> Identify source, investigate the causes of Exceedance and propose remedial measures; Inform IC(E) and ER; Repeat measurement to confirm finding; Increase monitoring frequency to daily 	<ol style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method. 	<ol style="list-style-type: none"> Notify Contractor. 	<ol style="list-style-type: none"> Rectify any unacceptable practice; Amend working methods if appropriate. 	
Action Level being exceeded for two or more consecutive samples	<ol style="list-style-type: none"> Same as the above; Advise the ER on the effectiveness of proposed remedial measures; Discuss with IC(E) and Contractor on remedial actions required; If exceedance continues, arrange meeting with IC(E) and ER; If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> Same as the above; Discuss with ET and Contractor on possible remedial measures; Advise the ET on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> Same as the above; Confirm receipt of notification of failure in writing; Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> Submit proposals for remedial actions to ER within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate. 	
Limit Level					
Limit Level being exceeded for one sample	<ol style="list-style-type: none"> Identify source; Inform ER, Contractor and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results. 	<ol style="list-style-type: none"> Checking monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on the possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial actions properly implemented. 	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IC(E) within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate. 	
Limit Level being exceeded for two or more consecutive samples	<ol style="list-style-type: none"> Same as the above; Carry our analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken; If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> Discuss with ER, ET and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assume their effectiveness and advise the ER accordingly; Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> Same as the above; In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented; 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"> Same as the above; Resubmit proposals if problem still not under control; 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	IC(E)	ER	ER	
Action level	<ol style="list-style-type: none"> 1. Notify IC(E) and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IC(E), ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures ; 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review and investigation 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 of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure proper implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposal to IC(E); 2. Implement noise mitigation proposals. 	
Limit level	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IC(E), ER, EPD and Contractor; 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 IC(E), ER and EPD the causes and actions taken for the exceedances; 7. Assess the effectiveness of Contractor's remedial actions and keep IC(E), 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 to ensure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Same as above; 2. 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. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E); 3. Implement the agreed proposals; 4. Resubmit proposals if problem still out of control; 5. Stop the relevant portion of works as determined by ER, until the exceedance is abated. 	

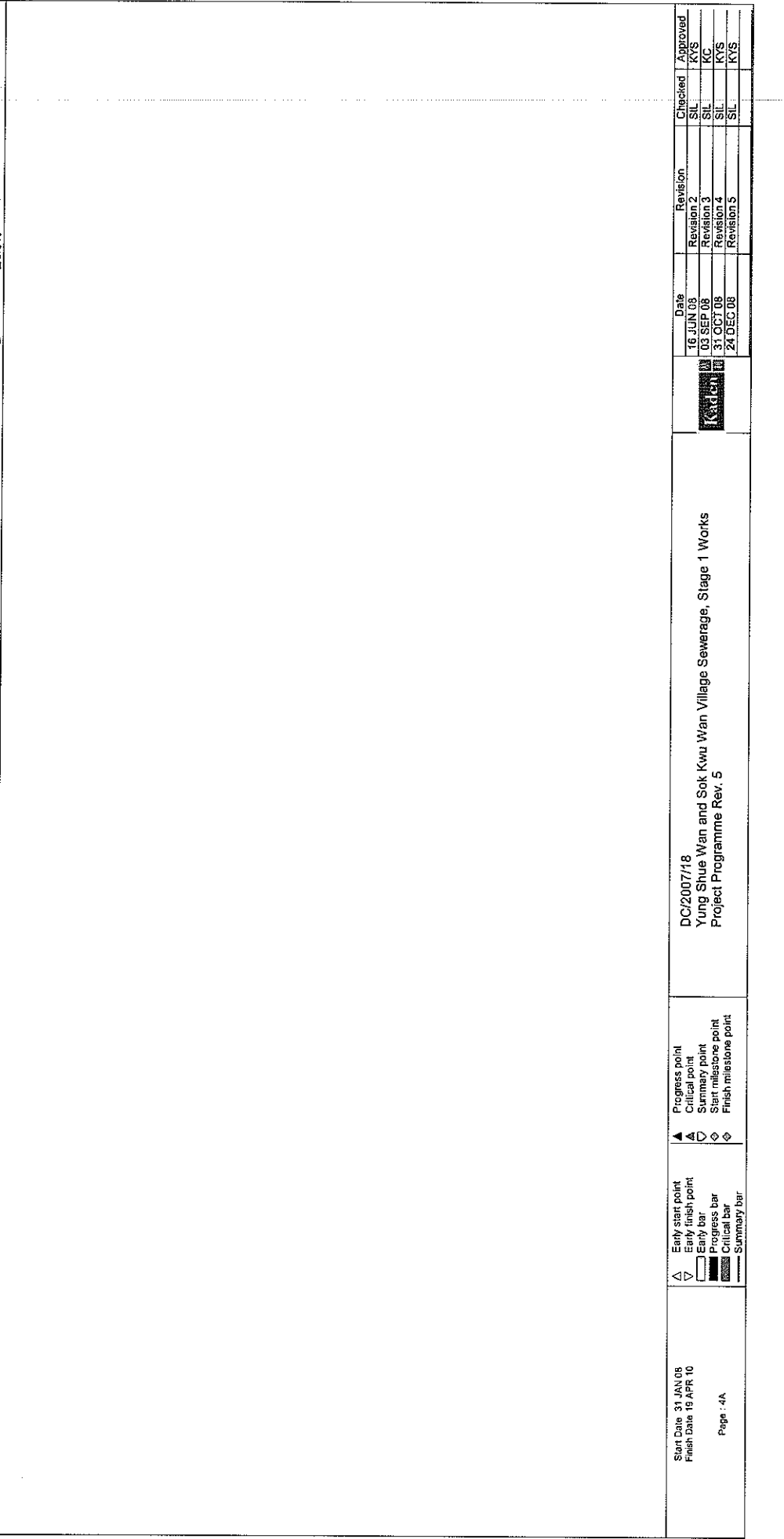


Appendix E

Construction Programme

Act ID	Activity Description	Rem Dur	Early Start	Early Finish	Late Start	Late Finish	Fico Start	Fico Finish
CM5670	S18-19	30	17 JAN 09	17 JAN 09	14 FEB 09	14 FEB 09	0	0
CM5680	S19-20	11	14 FEB 09	14 FEB 09	11 MAR 09	11 MAR 09	0	0
CM5690	S20-21	21	11 MAR 09	11 MAR 09	06 APR 09	06 APR 09	0	0
CM5700	S21-22	11	06 APR 09	06 APR 09	06 MAY 09	06 MAY 09	0	0
CM5710	S22-23	21	06 MAY 09	06 MAY 09	02 JUN 09	02 JUN 09	0	0
CM5720	S23-24	14	02 JUN 09	02 JUN 09	18 JUN 09	18 JUN 09	0	0
CM5730	S24-25	14	18 JUN 09	18 JUN 09	04 JUL 09	04 JUL 09	0	0
CM5740	S25-26	14	04 JUL 09	04 JUL 09	21 JUL 09	21 JUL 09	0	0
CM5750	S26-27	14	21 JUL 09	21 JUL 09	06 AUG 09	06 AUG 09	0	0
CM5760	S27-28	14	06 AUG 09	06 AUG 09	22 AUG 09	22 AUG 09	0	0
CM5770	S28-29	14	22 AUG 09	22 AUG 09	06 SEP 09	06 SEP 09	0	0
CM5780	S29-30	14	06 SEP 09	06 SEP 09	24 SEP 09	24 SEP 09	0	0
CM5790	S30-31	14	24 SEP 09	24 SEP 09	13 OCT 09	13 OCT 09	0	0
CM5800	S31-32	14	13 OCT 09	13 OCT 09	30 OCT 09	30 OCT 09	0	0
CM5810	S32-33	14	30 OCT 09	30 OCT 09	16 NOV 09	16 NOV 09	0	0
CM5820	S33-34	14	16 NOV 09	16 NOV 09	02 DEC 09	02 DEC 09	0	0
CM5830	S34-35	14	02 DEC 09	02 DEC 09	18 DEC 09	18 DEC 09	0	0
CM5840	S35-36	14	18 DEC 09	18 DEC 09	06 JAN 10	06 JAN 10	0	0
CM5850	S36-37	14	06 JAN 10	06 JAN 10	22 JAN 10	22 JAN 10	0	0
CM6119	Inspection Pit / Liaison with UU/ UU Diversion	23	18 AUG 09	18 AUG 09	14 SEP 09	14 SEP 09	0	0
CM6120	S60-61	12	15 SEP 09	15 SEP 09	28 SEP 09	28 SEP 09	0	0
CM6130	S61-62	12	28 SEP 09	28 SEP 09	14 OCT 09	14 OCT 09	0	0
CM6140	S62-63	12	14 OCT 09	14 OCT 09	29 OCT 09	29 OCT 09	0	0
CM6150	S63-64	12	29 OCT 09	29 OCT 09	12 NOV 09	12 NOV 09	0	0
CM6160	S64-65	12	12 NOV 09	12 NOV 09	26 NOV 09	26 NOV 09	0	0
CM6170	S65-66	12	26 NOV 09	26 NOV 09	10 DEC 09	10 DEC 09	0	0
CM6180	S66-67	12	10 DEC 09	10 DEC 09	24 DEC 09	24 DEC 09	0	0
CM6190	S67-68	12	24 DEC 09	24 DEC 09	09 JAN 10	09 JAN 10	0	0
CM6200	S68-69	12	09 JAN 10	09 JAN 10	22 JAN 10	22 JAN 10	0	0
CM6210	S69-70	12	22 JAN 10	22 JAN 10	05 FEB 10	05 FEB 10	0	0
CM6220	S70-71	12	05 FEB 10	05 FEB 10	19 FEB 10	19 FEB 10	0	0
CM6230	S71-72	12	19 FEB 10	19 FEB 10	05 MAR 10	05 MAR 10	0	0
CM6240	S72-73	12	05 MAR 10	05 MAR 10	19 MAR 10	19 MAR 10	0	0
CM6250	S73-74	12	19 MAR 10	19 MAR 10	02 APR 10	02 APR 10	0	0
CM6260	S74-75	12	02 APR 10	02 APR 10	16 APR 10	16 APR 10	0	0
CM6270	S75-76	12	16 APR 10	16 APR 10	30 APR 10	30 APR 10	0	0
CM6280	S76-77	12	30 APR 10	30 APR 10	14 MAY 10	14 MAY 10	0	0
CM6290	S77-78	12	14 MAY 10	14 MAY 10	28 MAY 10	28 MAY 10	0	0
CM6300	S78-79	12	28 MAY 10	28 MAY 10	11 JUN 10	11 JUN 10	0	0
CM6310	S79-80	12	11 JUN 10	11 JUN 10	25 JUN 10	25 JUN 10	0	0
CM6320	S80-81	12	25 JUN 10	25 JUN 10	09 JUL 10	09 JUL 10	0	0
CM6330	S81-82	12	09 JUL 10	09 JUL 10	23 JUL 10	23 JUL 10	0	0
CM6340	S82-83	12	23 JUL 10	23 JUL 10	06 AUG 10	06 AUG 10	0	0
CM6350	S83-84	12	06 AUG 10	06 AUG 10	20 AUG 10	20 AUG 10	0	0
CM6360	S84-85	12	20 AUG 10	20 AUG 10	03 SEP 10	03 SEP 10	0	0
CM6370	S85-86	12	03 SEP 10	03 SEP 10	17 SEP 10	17 SEP 10	0	0
CM6380	S86-87	12	17 SEP 10	17 SEP 10	01 OCT 10	01 OCT 10	0	0
CM6390	S87-88	12	01 OCT 10	01 OCT 10	15 OCT 10	15 OCT 10	0	0
CM6400	S88-89	12	15 OCT 10	15 OCT 10	29 OCT 10	29 OCT 10	0	0
CM6410	S89-90	12	29 OCT 10	29 OCT 10	12 NOV 10	12 NOV 10	0	0
CM6420	S90-91	12	12 NOV 10	12 NOV 10	26 NOV 10	26 NOV 10	0	0
CM6430	S91-92	12	26 NOV 10	26 NOV 10	10 DEC 10	10 DEC 10	0	0
CM6440	S92-93	12	10 DEC 10	10 DEC 10	24 DEC 10	24 DEC 10	0	0
CM6450	S93-94	12	24 DEC 10	24 DEC 10	07 JAN 11	07 JAN 11	0	0
CM6460	S94-95	12	07 JAN 11	07 JAN 11	21 JAN 11	21 JAN 11	0	0
CM6470	S95-96	12	21 JAN 11	21 JAN 11	04 FEB 11	04 FEB 11	0	0
CM6480	S96-97	12	04 FEB 11	04 FEB 11	18 FEB 11	18 FEB 11	0	0
CM6490	S97-98	12	18 FEB 11	18 FEB 11	04 MAR 11	04 MAR 11	0	0
CM6500	S98-99	12	04 MAR 11	04 MAR 11	18 MAR 11	18 MAR 11	0	0
CM6510	S99-100	12	18 MAR 11	18 MAR 11	01 APR 11	01 APR 11	0	0
CM6520	S100-101	12	01 APR 11	01 APR 11	15 APR 11	15 APR 11	0	0
CM6530	S101-102	12	15 APR 11	15 APR 11	29 APR 11	29 APR 11	0	0
CM6540	S102-103	12	29 APR 11	29 APR 11	13 MAY 11	13 MAY 11	0	0
CM6550	S103-104	12	13 MAY 11	13 MAY 11	27 MAY 11	27 MAY 11	0	0
CM6560	S104-105	12	27 MAY 11	27 MAY 11	10 JUN 11	10 JUN 11	0	0
CM6570	S105-106	12	10 JUN 11	10 JUN 11	24 JUN 11	24 JUN 11	0	0
CM6580	S106-107	12	24 JUN 11	24 JUN 11	08 JUL 11	08 JUL 11	0	0
CM6590	S107-108	12	08 JUL 11	08 JUL 11	22 JUL 11	22 JUL 11	0	0
CM6600	S108-109	12	22 JUL 11	22 JUL 11	05 AUG 11	05 AUG 11	0	0
CM6610	S109-110	12	05 AUG 11	05 AUG 11	19 AUG 11	19 AUG 11	0	0
CM6620	S110-111	12	19 AUG 11	19 AUG 11	02 SEP 11	02 SEP 11	0	0
CM6630	S111-112	12	02 SEP 11	02 SEP 11	16 SEP 11	16 SEP 11	0	0
CM6640	S112-113	12	16 SEP 11	16 SEP 11	30 SEP 11	30 SEP 11	0	0
CM6650	S113-114	12	30 SEP 11	30 SEP 11	14 OCT 11	14 OCT 11	0	0
CM6660	S114-115	12	14 OCT 11	14 OCT 11	28 OCT 11	28 OCT 11	0	0
CM6670	S115-116	12	28 OCT 11	28 OCT 11	11 NOV 11	11 NOV 11	0	0
CM6680	S116-117	12	11 NOV 11	11 NOV 11	25 NOV 11	25 NOV 11	0	0
CM6690	S117-118	12	25 NOV 11	25 NOV 11	09 DEC 11	09 DEC 11	0	0
CM6700	S118-119	12	09 DEC 11	09 DEC 11	23 DEC 11	23 DEC 11	0	0
CM6710	S119-120	12	23 DEC 11	23 DEC 11	06 JAN 12	06 JAN 12	0	0
CM6720	S120-121	12	06 JAN 12	06 JAN 12	20 JAN 12	20 JAN 12	0	0
CM6730	S121-122	12	20 JAN 12	20 JAN 12	03 FEB 12	03 FEB 12	0	0
CM6740	S122-123	12	03 FEB 12	03 FEB 12	17 FEB 12	17 FEB 12	0	0
CM6750	S123-124	12	17 FEB 12	17 FEB 12	03 MAR 12	03 MAR 12	0	0
CM6760	S124-125	12	03 MAR 12	03 MAR 12	17 MAR 12	17 MAR 12	0	0
CM6770	S125-126	12	17 MAR 12	17 MAR 12	31 MAR 12	31 MAR 12	0	0
CM6780	S126-127	12	31 MAR 12	31 MAR 12	14 APR 12	14 APR 12	0	0
CM6790	S127-128	12	14 APR 12	14 APR 12	28 APR 12	28 APR 12	0	0
CM6800	S128-129	12	28 APR 12	28 APR 12	12 MAY 12	12 MAY 12	0	0
CM6810	S129-130	12	12 MAY 12	12 MAY 12	26 MAY 12	26 MAY 12	0	0
CM6820	S130-131	12	26 MAY 12	26 MAY 12	09 JUN 12	09 JUN 12	0	0
CM6830	S131-132	12	09 JUN 12	09 JUN 12	23 JUN 12	23 JUN 12	0	0
CM6840	S132-133	12	23 JUN 12	23 JUN 12	07 JUL 12	07 JUL 12	0	0
CM6850	S133-134	12	07 JUL 12	07 JUL 12	21 JUL 12	21 JUL 12	0	0
CM6860	S134-135	12	21 JUL 12	21 JUL 12	04 AUG 12	04 AUG 12	0	0
CM6870	S135-136	12	04 AUG 12	04 AUG 12	18 AUG 12	18 AUG 12	0	0
CM6880	S136-137	12	18 AUG 12	18 AUG 12	01 SEP 12	01 SEP 12	0	0
CM6890	S137-138	12	01 SEP 12	01 SEP 12	15 SEP 12	15 SEP 12	0	0
CM6900	S138-139	12	15 SEP 12	15 SEP 12	29 SEP 12	29 SEP 12	0	0
CM6910	S139-140	12	29 SEP 12	29 SEP 12	13 OCT 12	13 OCT 12	0	0
CM6920	S140-141	12	13 OCT 12	13 OCT 12	27 OCT 12	27 OCT 12	0	0
CM6930	S141-142	12	27 OCT 12	27 OCT 12	10 NOV 12	10 NOV 12	0	0
CM6940	S142-143	12	10 NOV 12	10 NOV 12	24 NOV 12	24 NOV 12	0	0
CM6950	S143-144	12	24 NOV 12	24 NOV 12	08 DEC 12	08 DEC 12	0	0
CM6960	S144-145	12	08 DEC 12	08 DEC 12	22 DEC 12	22 DEC 12	0	0
CM6970	S145-146	12	22 DEC 12	22 DEC 12	05 JAN 13	05 JAN 13	0	0
CM6980	S146-147	12	05 JAN 13	05 JAN 13	19 JAN 13	19 JAN 13	0	0
CM6990	S147-148	12	19 JAN 13	19 JAN 13	02 FEB 13	02 FEB 13	0	0
CM7000	S148-149	12	02 FEB 13	02 FEB 13	16 FEB 13	16 FEB 13	0	0
CM7010	S149-150	12	16 FEB 13	16 FEB 13	03 MAR 13	03 MAR 13	0	0
CM7020	S150-151	12	03 MAR 13	03 MAR 13	17 MAR 13	17 MAR 13	0	0
CM7030	S151-152	12	17 MAR 13	17 MAR 13	31 MAR 13	31 MAR 13	0	0
CM7040	S152-153	12	31 MAR 13	31 MAR 13	14 APR 13	14 APR 13	0	0
CM7050	S153-154	12	14 APR 13	14 APR 13	28 APR 13	28 APR 13	0	0
CM7060	S154-155	12	28 APR 13	28 APR 13	12 MAY 13	12 MAY 13	0	0
CM7070	S155-156	12	12 MAY 13	12 MAY 13	26 MAY 13	26 MAY 13	0	0
CM7080	S156-157	12	26 MAY 13	26 MAY 13	09 JUN 13	09 JUN 13	0	0
CM7090	S157-158	12	09 JUN 13	09 JUN 13	23 JUN 13	23 JUN 13	0	0
CM7100	S158-159	12	23 JUN 13	23 JUN 13	07 JUL 13	07 JUL 13	0	0
CM7110	S159-160	12	07 JUL 13	07 JUL 13	21 JUL 13	21 JUL 13	0	0
CM7120	S160-161	12	21 JUL 13	21 JUL 13	04 AUG 13	04 AUG 13	0	0
CM7130	S161-162	12	0					

Act ID	Activity Description	2008		2009		2010												
		Begin	End	Start	Finish	Begin	End	Start	Finish	Begin	End	Start	Finish	Begin	End	Start	Finish	
CM5488	Inspection Pit / Liaison with UJ / UJ Diversion	48	02	MAR 09	02	MAR 09	02	MAR 09	02	MAR 09	02	MAR 09	02	MAR 09	02	MAR 09	02	MAR 09
CM5490	S1-2	21	04	MAY 09	04	MAY 09	27	MAY 09	27	MAY 09	30	APR 09	30	APR 09	30	APR 09	30	APR 09
CM5500	S2-3	21	29	MAY 09	29	MAY 09	23	JUN 09	23	JUN 09	23	JUN 09	23	JUN 09	23	JUN 09	23	JUN 09
CM5510	S3-4	21	24	JUN 09	24	JUN 09	17	JUL 09	17	JUL 09	17	JUL 09	17	JUL 09	17	JUL 09	17	JUL 09
CM5520	S4-5	21	19	JUL 09	19	JUL 09	11	AUG 09	11	AUG 09	11	AUG 09	11	AUG 09	11	AUG 09	11	AUG 09
CM5530	S5-6	21	12	AUG 09	12	AUG 09	04	SEP 09	04	SEP 09	04	SEP 09	04	SEP 09	04	SEP 09	04	SEP 09
CM5540	S6-7	21	05	SEP 09	05	SEP 09	29	SEP 09	29	SEP 09	29	SEP 09	29	SEP 09	29	SEP 09	29	SEP 09
CM5550	S7-8	21	30	SEP 09	30	SEP 09	22	OCT 09	22	OCT 09	22	OCT 09	22	OCT 09	22	OCT 09	22	OCT 09
CM5560	S8-9	14	20	OCT 09	20	OCT 09	12	NOV 09	12	NOV 09	12	NOV 09	12	NOV 09	12	NOV 09	12	NOV 09
CM5570	S9-10	14	13	NOV 09	13	NOV 09	28	NOV 09	28	NOV 09	28	NOV 09	28	NOV 09	28	NOV 09	28	NOV 09
CM5580	S10-11	14	30	NOV 09	30	NOV 09	15	DEC 09	15	DEC 09	15	DEC 09	15	DEC 09	15	DEC 09	15	DEC 09
CM5590	S11-12	14	18	DEC 09	18	DEC 09	02	JAN 10	02	JAN 10	02	JAN 10	02	JAN 10	02	JAN 10	02	JAN 10
CM5600	S12-13	14	09	JAN 10	09	JAN 10	19	JAN 10	19	JAN 10	19	JAN 10	19	JAN 10	19	JAN 10	19	JAN 10
CM5610	S13-14	14	20	JAN 10	20	JAN 10	04	FEB 10	04	FEB 10	04	FEB 10	04	FEB 10	04	FEB 10	04	FEB 10
CM5620	S14-15	14	05	FEB 10	05	FEB 10	20	FEB 10	20	FEB 10	20	FEB 10	20	FEB 10	20	FEB 10	20	FEB 10
CM5630	S15-16	14	22	FEB 10	22	FEB 10	09	MAR 10	09	MAR 10	09	MAR 10	09	MAR 10	09	MAR 10	09	MAR 10
CM5640	S16-17	14	12	MAR 10	12	MAR 10	27	JAN 10	27	JAN 10	27	JAN 10	27	JAN 10	27	JAN 10	27	JAN 10
CM5650	S17-18	70	28	JAN 10	28	JAN 10	19	APR 10	19	APR 10	19	APR 10	19	APR 10	19	APR 10	19	APR 10
CM5660	S19-20	70	28	JAN 10	28	JAN 10	19	APR 10	19	APR 10	19	APR 10	19	APR 10	19	APR 10	19	APR 10



Start Date	Finish Date	Checked	Approved
16 JUN 08	16 JUN 08	SIL	KYS
03 SEP 08	03 SEP 08	SIL	KYS
31 OCT 08	31 OCT 08	SIL	KYS
24 DEC 08	24 DEC 08	SIL	KYS



Appendix F

Summary of Implementation Status

of

Mitigation Measures during Site Inspection



Environmental Mitigation Implementation Schedule

Environmental Protection Measures		Location	Implementation Status			
			Implemented	Partially implemented	Not implemented	Not Applicable
Air Quality						
<ul style="list-style-type: none"> ▪ Stockpiles of imported material kept on site should be contained within hoarding, dampened and / or covered during dry and windy weather. ▪ Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses. ▪ Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like. ▪ Any vehicle used for moving sands, aggregates and construction waste should have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin. ▪ Unpaved areas should be watered regularly to avoid dust generation. ▪ The enclosures should be around the main dust-generating activities. ▪ All plant and equipment should be well maintained e.g. without black smoke emission. ▪ Open burning should be prohibited. 	All areas	√				
Noise Impact						
<ul style="list-style-type: none"> ▪ Quite powered mechanical equipment (PME) or method should be used. ▪ The number plant should be restricted (1 item for each type of plant). ▪ Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works. ▪ Mobile plant, if any, should be sited as far away from NSRs as possible. ▪ Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. ▪ Plant known to emit noise strongly should be orientated so that the noise is directed away from nearby NSRs. ▪ The constructions works should be scheduled to minimize noise nuisance. ▪ Air compressors and hand held breakers should have noise labels. ▪ Compressors and generators should operate with door closed. 	All areas All areas All areas All areas All areas All areas All areas	√ √ √ √ √ √ √				
Water Quality						
General Construction Works						
<ul style="list-style-type: none"> ▪ Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby coastal water and stormwater drains. ▪ All fuel tanks and storage areas should be provided with locks and be sited on sealed area, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. ▪ Open drainage channels and culverts near the works areas should be covered to block the entrance of large debris and refuse. 	All areas All areas All areas	√ √ √			√	



Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Waste Management					
<i>General Site Wastes</i>					
• Appropriate measures, such as transporting wastes in enclosed containers, should be taken to minimize windblown litter and dust to nearby environment.	All areas	√			
• Sufficient waste disposal points and regular waste collection for disposal should be provided.	All areas	√			
• A collection area for construction site waste should be provided where waste can be stored prior to removal from site.	All areas	√			
• 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.	All areas	√			
• Records of the quantities of waste generated, recycled and disposed should be kept and maintained.	All areas	√			
• Different types of waste should be segregated and stored in different container, skips or stockpiles to enhance reuse or recycling of material and their proper disposal.	All areas	√			
Chemical Wastes					
• After use, chemical waste should be handled according to the Code of Practice on the Package, Labelling and Storage of Chemical Wastes.	All areas	√			
• Any unused chemicals or those with remaining functional capacity should be recycled.	All areas	√			
• Waste should be properly stored on site within suitably designed containers and should be collected by an approved licensed waste collectors for disposal at the Chemical Waste Treatment Facility or other licensed facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordinance.	All areas	√			
• Any service shop and minor maintenance facilities should be located on hard standing within a bunded area, and sumps and oil interceptors should be provided.	All areas	√			
• Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the designated areas equipped control these discharges.	All areas	√			
Construction and Demolition (C&D) Wastes					
• C&D waste should be separated on site before disposal.	All areas	√			
• Inert material, such as concrete and rubble, should be re-used on site.	All areas	√			
• Steel and other metals should be separated for re-use and / or recycling prior to disposal of C&D material.	All areas	√			
Ecological Impact					
• Labelling and fencing of the uncommon tree species.	All areas				√
• Avoidance of use of woodland habitats as Works Area, in particular where trees located.	All areas	√			

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Landscape and Visual Impact					
• Existing trees should be retained.	All areas	√			
• Damage to vegetation should be minimized by close coordination and on site alignment adjusted of rising main and gravity sewer pipelines.	All areas		√		
• Short excavation and immediate backfilling section upon completion of works should be performed to reduce active site area.	All areas	√			
Site Practice					
• The Contractor assigned worker is responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.	All areas	√			
• Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	All areas	√			
• All generators, fuel and oil storage are within bundle areas.	All areas		√		
• Oil leakage from machinery, vehicle and plant should be prevented.	All areas	√			
• The Environmental Permit should be displaced conspicuously on site.	All areas	√			



Figures

