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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.13
(JUNE 2009)

Prepared by: _____
LAW, Sau Yee
Senior Environmental Officer

Checked by: _____
LAU, Chi Leung
Environmental Team Leader

Issue Date: 07 July 2009 *Report No.: ENA90478*

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: 05117/6/10/326150

Date: 14 July 2009

BY FAX ONLY

Attention: Mr. C K Au

Dear Sir

Contract No. DC/2007/18
Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works
Monthly Impact Monitoring Report No. 13

I refer to the Environmental Permit (EP-281/2007) and the email from the environmental team, ETS-Testconsult Limited with the revised report, dated 13 July 2009. I do not have further comment and have verified the captioned report.

Yours faithfully
SCOTT WILSON LTD

Rodney Ip

ANCP/ancp

cc Kaden Construction Ltd – Mr Stephen Leung (By Email)
ETS-Testconsult – Ms Linda Law (By Email)
ER/Lamma Mr. Ian Jones
CDM Mr. Mark Sin

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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.13 has been prepared by the ET of ETS-Testconsult Limited to document the impact monitoring works conducted for the Project in June 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, 52.9 m^3 Public Fill and 1.10 tonne of general refuse were generated and disposed to Sok Kwu Wan Refuse Transfer Station (SKWRTS) properly. Besides, 98 m^3 inert C&D materials reused in the Contract and 39 m^3 inert C&D materials reused in other Projects were recorded in this reporting month.

Site Inspection

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

Concerned Parties	*Dates of Audit / Inspection*
ET	*02, 08, 18, 24 and 30 June 2009*
RE / IEC / Kaden / ET	*24 June 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	Air	A village vehicle transporting construction material was found without cover during the weekly site inspection on 24/06/09.	The Contractor replied to provide tarpaulin sheets to cover the construction material during transportation.	During the subsequent weekly site inspection on 30/06/09, construction material insides the village vehicle was found covered properly.
2	Water	Follow up action to the outstanding finding in the previous month, the inlet pipe was pointed to the primal part of the sedimentation tank at S63 during the weekly site inspection on 08/06/09.	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	During the weekly site inspection on 08/06/09, wastewater was found leaked out from a broken pipline at S147 to the road surface and hence rusty water was noted on the road.	The Contractor replied to clean up the rusty water and repair the broken pipeline.	During the subsequent weekly site inspection on 18/06/09, no wastewater was leaked from the pipeline and the rusty water had been cleaned up.
4	Water	Stagnant water was found inside the sedimentation tank at S70 during the weekly site inspections on 08/06/09 and 18/06/09.	The Contractor replied to drained the stagnant water out or apply pesticide to avoid mosquito breeding.	During the subsequent weekly site inspection on 24/06/09, the sedimentation tank was found covered properly.
5	Water	Wigglers were found in stagnant water of a sedimentation tank at S143 during the weekly site inspection on 18/06/09.	The Contractor replied to drain the stagnant water or apply pesticide to avoid mosquito breeding.	During the next weekly site inspection on 24/06/09, the sedimentation was found operating and no wigglers were noted.
6	Water	The desilting performance of a sedimentation tank at S143 was found unsatisfactory since the discharge water was found muddy during the weekly site inspections on 24/06/06 and 30/06/09.	The Contractor replied to improve the design of the sedimentation tank to improve its performance.	Since the finding was still observed during the last weekly site inspection in this reporting month, it will be verified in the coming month.
7	Water	The pump rate of wastewater to the sedimentation tank at S165 was found too large during the weekly site inspection 24/06/09.	The Contractor replied to control the pump rate to an acceptable level.	During the next weekly site inspection on 30/06/09, the sedimentation tank at S165 was found not-in-use.
8	Chemical	Follow up action to the outstanding finding in the previous month, drip tray and labels were found proved for the chemicals at storage area during the weekly site inspections on 02/06/09 and 08/06/09.	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.
9	Chemical	Some fuel drums at S64 were found without drip tray and cover during the weekly site inspections on 02/06/09 and 08/06/09.	The Contractor replied to provide appropriate drip tray and cover for all chemicals.	During the subsequent weekly site inspection on 18/06/09, some fuel drums were covered properly and other were relocated to an appropriate storage area.
10	Chemical	An air compressor and some oil drums were found without drip tray at S147 during the weekly inspections on 08/06/09 and 18/06/09.	The Contractor replied to provide the drip tray for all chemicals and air compressors.	During the next two weekly site inspections on 18/06/09 and 24/06/09, air compressor was removed and oil drums were covered properly.

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);*
- *Road reinstatement work; and*
- *Protection of uncommon tree species.*

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 June 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 0.6m^3/min and 1.7m^3/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 recoded.
- Before weighting, all filters were equilibrated in a desiccator for 24 hour with the temperature of 25°C ± 3°C and the relative humidity (RH) <50% ±5%.

Maintenance & Calibration

- The HVS and their accessories 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 ($\mu g/m^3$) 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

Parameter	*Duration*	*Frequency*
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

Air monitoring station	*Description of location*
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

Monitoring Station	*24-hr TSP ($\mu g/m^3$)*		*1-hr TSP ($\mu g/m^3$)*	
	Action Level	*Limit Level*	*Action Level*	*Limit Level*
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								
Station	AM1			AM2			AM3		
Date	Time	Result	Exceed*	Time	Result	Exceed*	Time	Result	Exceed*
02/06/09	08:48	83	X	09:05	85	X	13:00	99	X
02/06/09	09:48	81	X	10:05	94	X	14:00	116	X
02/06/09	10:48	96	X	11:05	97	X	15:00	105	X
08/06/09	09:15	129	X	09:18	128	X	13:00	161	X
08/06/09	10:15	142	X	10:18	141	X	14:00	158	X
08/06/09	11:15	122	X	11:18	121	X	15:00	170	X
12/06/09	09:13	157	X	09:16	156	X	13:00	191	X
12/06/09	10:13	171	X	10:16	171	X	14:00	167	X
12/06/09	11:13	163	X	11:16	159	X	15:00	155	X
18/06/09	13:05	96	X	13:12	86	X	09:10	140	X
18/06/09	14:05	101	X	14:12	101	X	10:10	145	X
18/06/09	15:05	105	X	15:12	109	X	11:10	149	X
24/06/09	13:00	172	X	13:00	156	X	09:16	171	X
24/06/09	14:00	159	X	14:00	149	X	10:16	169	X
24/06/09	15:00	166	X	15:00	136	X	11:16	160	X
30/06/09	09:20	171	X	09:24	173	X	13:00	163	X
30/06/09	10:20	211	X	10:24	197	X	14:00	184	X
30/06/09	11:20	175	X	11:24	151	X	15:00	146	X

Parameter	24-hr TSP Monitoring					
Station	AM1		AM2		AM3	
Date	Result	Exceed*	Result	Exceed*	Result	Exceed*
02/06/09	49	X	45	X	97	X
08/06/09	38	X	46	X	46	X
12/06/09	34	X	28	X	39	X
18/06/09	46	X	32	X	54	X
24/06/09	36	X	28	X	37	X
30/06/09	29	X	25	X	25	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 (Lx). 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 baking 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	*02/06/09*	*52.7*	*X*	*63.4*	*X*	*64.3*	*X*	*58.8*	*X*
	08/06/09	*65.8*	*X*	*66.2*	*X*	*62.5*	*X*	*60.8*	*X*
	18/06/09	*53.6*	*X*	*57.8*	*X*	*63.6*	*X*	*53.9*	*X*
	24/06/09	*55.2*	*X*	*64.1*	*X*	*66.8*	*X*	*53.3*	*X*
	30/06/09	*73.8*	*X*	*67.5*	*X*	*62.3*	*X*	*59.2*	*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, 18 and 24 June 2009 by ET. Monthly joint site inspection at 24 June 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	*Air*	*A village vehicle transporting construction material was found without cover during the weekly site inspection on 24/06/09.*	*The Contractor replied to provide tarpaulin sheets to cover the construction material during transportation.*	*During the subsequent weekly site inspection on 30/06/09, construction material insides the village vehicle was found covered properly.*
2	*Water*	*Follow up action to the outstanding finding in the previous month, the inlet pipe was pointed to the primal part of the sedimentation tank at S63during the weekly site inspection on 08/06/09.*	*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*	*During the weekly site inspection on 08/06/09, wastewater was found leaked out from a broken pipline at S147 to the road surface and hence rusty water was noted on the road.*	*The Contractor replied to clean up the rusty water and repair the broken pipeline.*	*During the subsequent weekly site inspection on 18/06/09, no wastewater was leaked from the pipeline and the rusty water had been cleaned up.*
4	*Water*	*Stagnant water was found inside the sedimentation tank at S70 during the weekly site inspections on 08/06/09 and 18/06/09.*	*The Contractor replied to drained the stagnant water out or apply pesticide to avoid mosquito breeding.*	*During the subsequent weekly site inspection on 24/06/09, the sedimentation tank was found covered properly.*
5	*Water*	*Wigglers were found in stagnant water of a sedimentation tank at S143 during the weekly site inspection on 18/06/09.*	*The Contractor replied to drain the stagnant water or apply pesticide to avoid mosquito breeding.*	*During the next weekly site inspection on 24/06/09, the sedimentation was found operating and no wigglers were noted.*
6	*Water*	*The desilting performance of a sedimentation tank at S143 was found unsatisfactory since the discharge water was found muddy during the weekly site inspections on 24/06/06 and 30/06/09.*	*The Contractor replied to improve the design of the sedimentation tank to improve its performance.*	*Since the finding was still observed during the last weekly site inspection in this reporting month, it will be verified in the coming month.*
7	*Water*	*The pump rate of wastewater to the sedimentation tank at S165 was found too large during the weekly site inspection 24/06/09.*	*The Contractor replied to control the pump rate to an acceptable level.*	*During the next weekly site inspection on 30/06/09, the sedimentation tank at S165 was found not-in-use.*

Item	Aspect	Finding	Action(s) to be taken by the Contractor	ET Verification
8	Chemical	Follow up action to the outstanding finding in the previous month, drip tray and labels were found proved for the chemicals at storage area during the weekly site inspections on 02/06/09 and 08/06/09.	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.
9	Chemical	Some fuel drums at S64 were found without drip tray and cover during the weekly site inspections on 02/06/09 and 08/06/09.	The Contractor replied to provide appropriate drip tray and cover for all chemicals.	During the subsequent weekly site inspection on 18/06/09, some fuel drums were covered properly and other were relocated to an appropriate storage area.
10	Chemical	An air compressor and some oil drums were found without drip tray at S147 during the weekly inspection on 08/06/09.	The Contractor replied to provide the drip tray for all chemicals and air compressors.	During the next two weekly site inspections on 18/06/09 and 24/06/09, air compressor was removed and oil drums were covered properly.

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)	0.1900		0.6083
	Broken Concrete (in '000m^3)	0.0060	SKWRTS	0.0268
	Reused in the Contract (in '000m^3)	0.098	For Stockpile / Reuse	0.258
	Reused in other Projects (in '000m^3)	0.039	N/A	0.129
	Disposal as Public Fill (in '000m^3)	0.0529	SKWRTS	0.2212
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)	1.10	SKWRTS	4.84

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.

A joint visit amongst EPD. AFCD, Kaden, DSD and RE was subsequently held on 24 March 2009 and some immature Celtic 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 landscape subcontractor "Bluet" and carried out a vegetation survey on 17 April 2009. Some immature uncommon species had been identified at Chung Mei near the Works Area. The vegetation survey report prepared by "Bluet" is attached in Appendix G.

The uncommon plants have been labeled and fenced off with safety net and notices have been posted for warning the site personnel of the presence of the uncommon tree species. Photos attached in Appendix H present the fencing and protection provided for those uncommon species.

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
May 2009	0	1	0	0	0	0
June 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

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

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);*
- *Road reinstatement work; and*
- *Protection of uncommon tree species.*

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.*

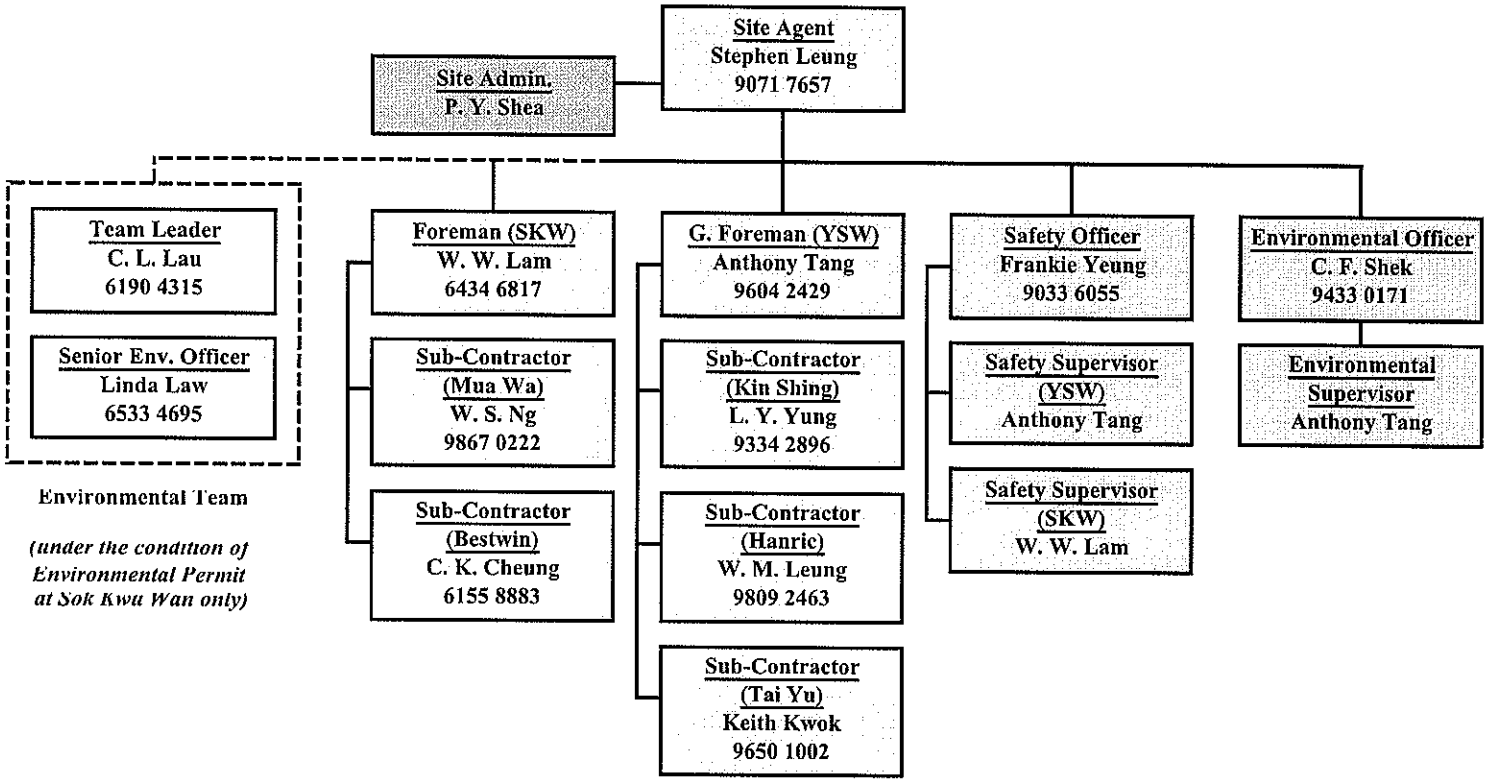
Appendix A

Organization Chart and Lines of Communication

Kaden Construction Limited

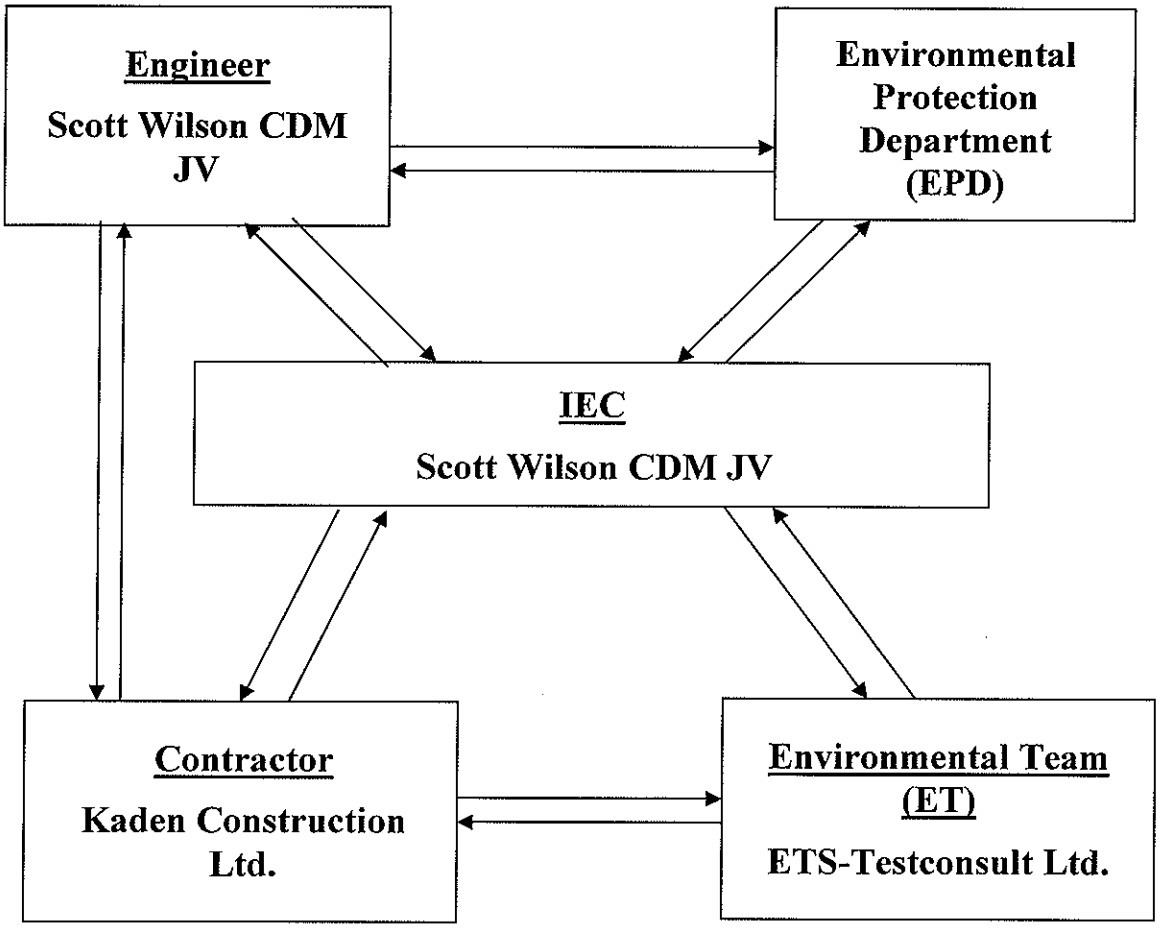
DSD Contract No. DC/2007/18
Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works

Organization Structure for Environmental Management (EMP Rev. 16.00)



Updated on 01/05/2009
Printed on 2009/7/4

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 : 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)

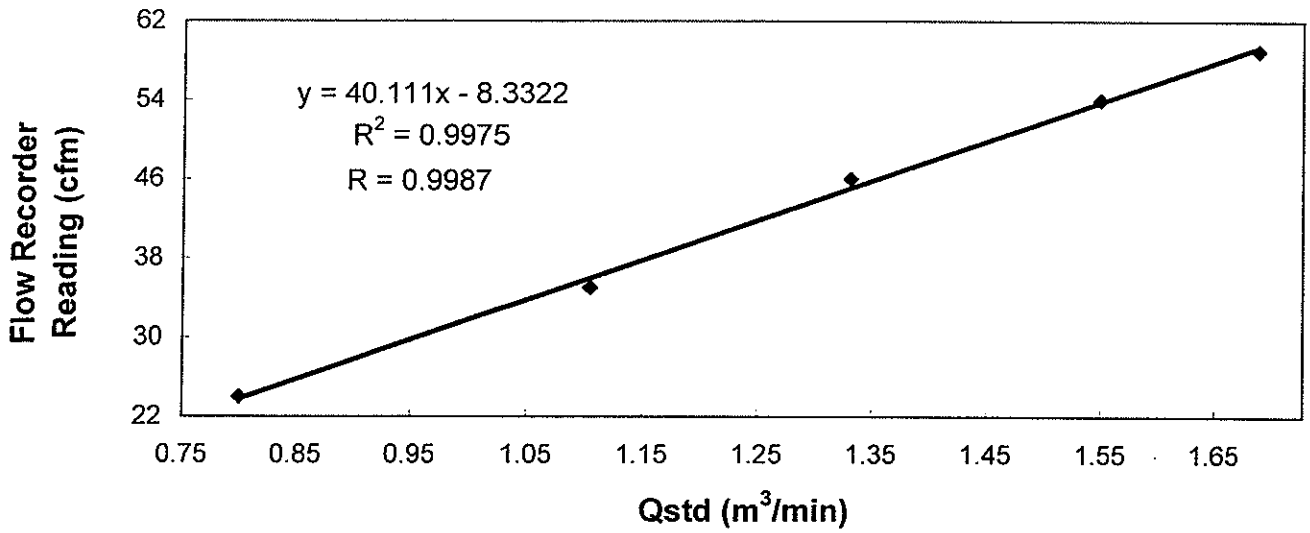
Calibration Due Date : 19 June 2009

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 : 18 June 2009

Serial No. : 1173 (ET / EA / 003 / 17)

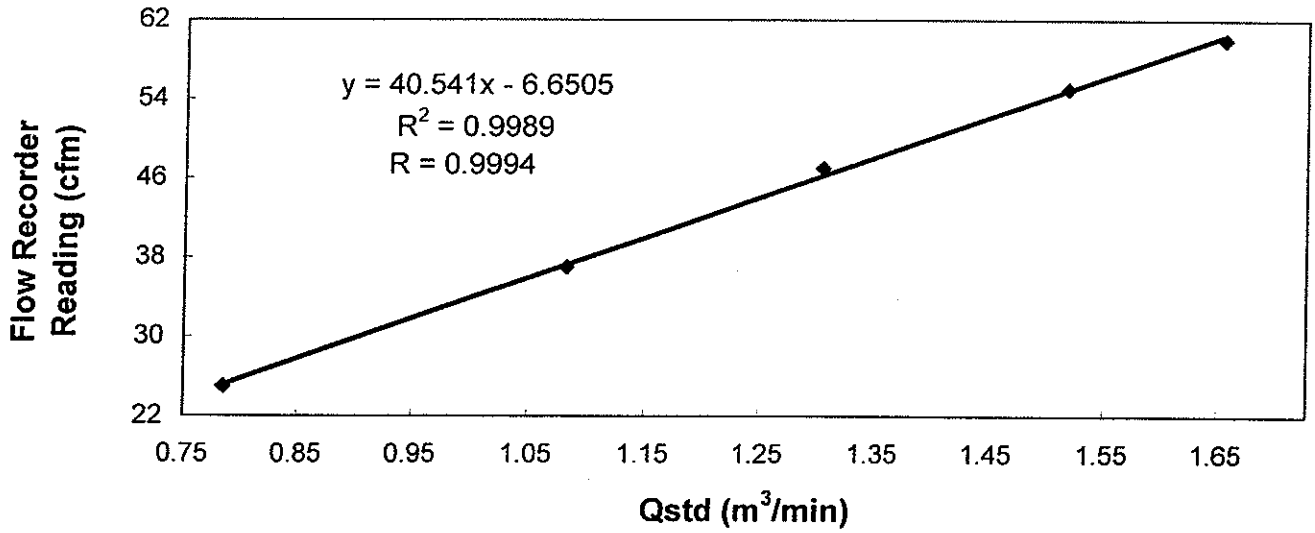
Calibration Due Date : 17 August 2009

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

Results :

Flow recorder reading (cfm)	60	55	47	37	25
Qstd (Actual flow rate, m^3/min)	1.65	1.52	1.31	1.08	0.78
Pressure : 753.06 mmHg		Temp. : 306 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 (Environmental 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

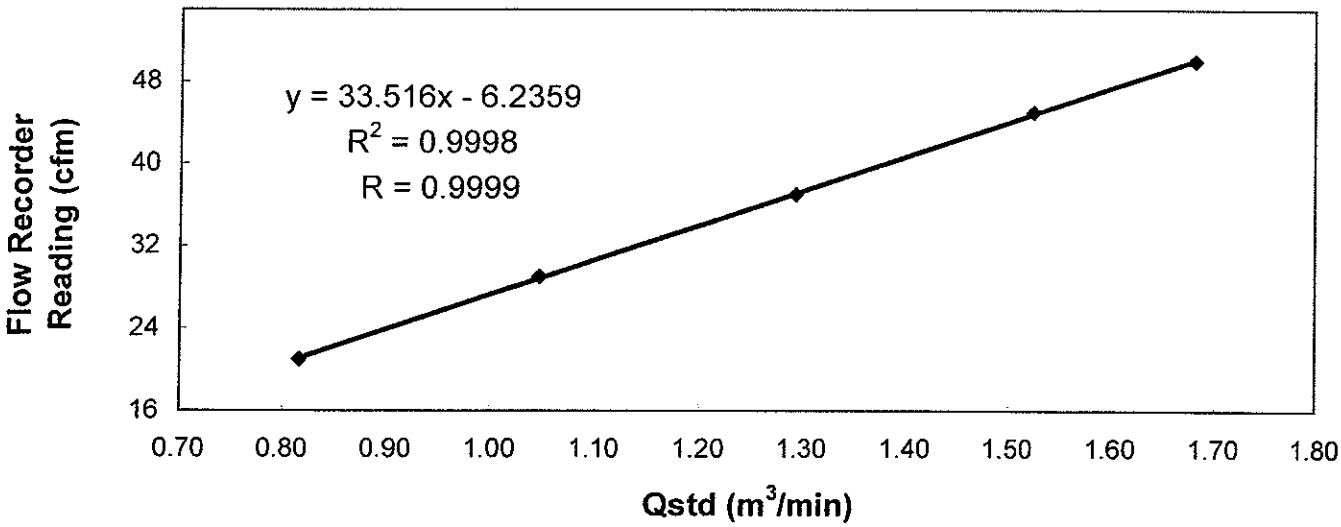
Serial No. : 9865 (ET / EA / 003 / 14) Calibration Due Date : 19 June 2009

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

TEST REPORT

Calibration Report of High Volume Air Sampler

Manufacturer : Graseby GMW

Date of Calibration : 18 June 2009

Serial No. : 9912 (ET / EA / 003 / 15)

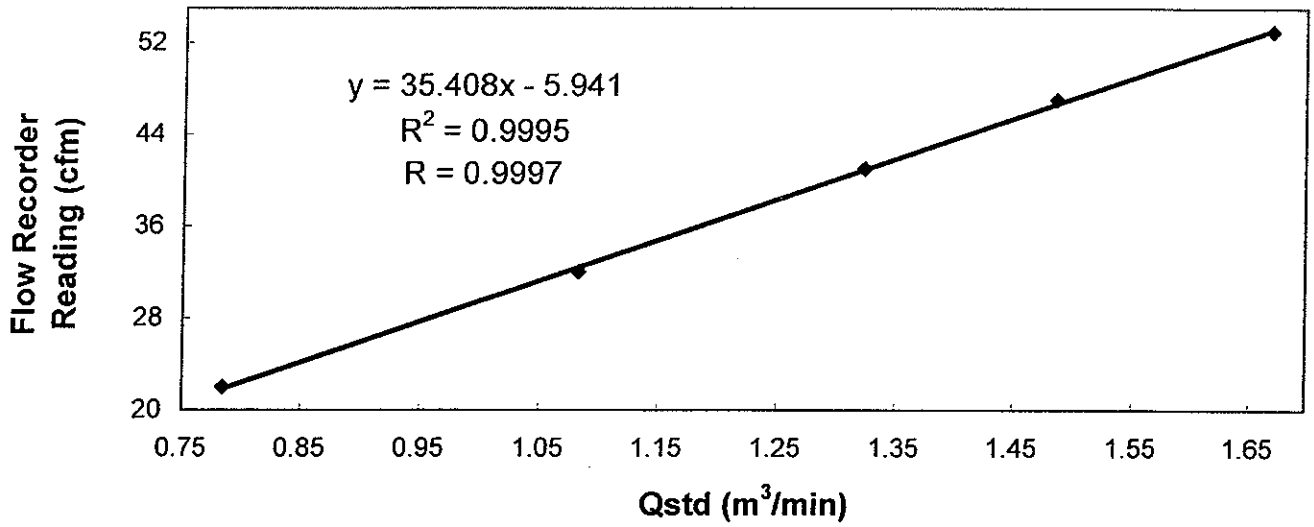
Calibration Due Date : 17 August 2009

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

Results :

Flow recorder reading (cfm)	53	47	41	32	22
Qstd (Actual flow rate, m^3/min)	1.67	1.49	1.32	1.08	0.78
Pressure : 753.06 mm Hg		Temp. : 306 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
(Environmental Technician)

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

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED
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Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

Calibration Report of High Volume Air Sampler

Manufacturer : Graseby GMW

Date of Calibration : 20 April 2009

Serial No. : 9912 (ET / EA / 003 / 15)

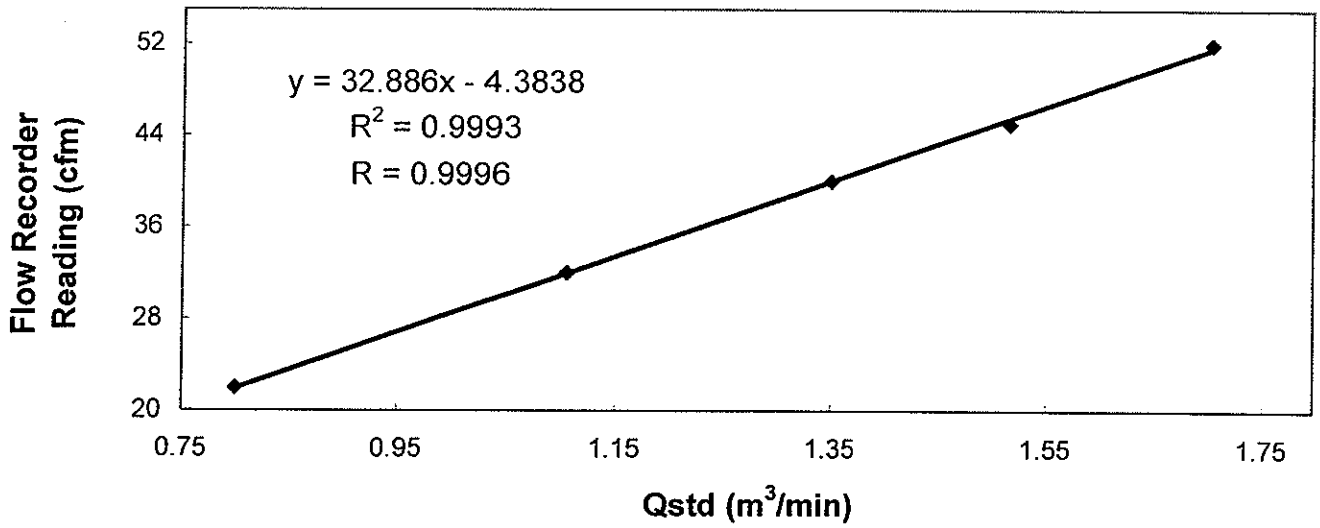
Calibration Due Date : 19 June 2009

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)

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

TEST REPORT

Calibration Report of High Volume Air Sampler

Manufacturer : Graseby GMW

Date of Calibration : 18 June 2009

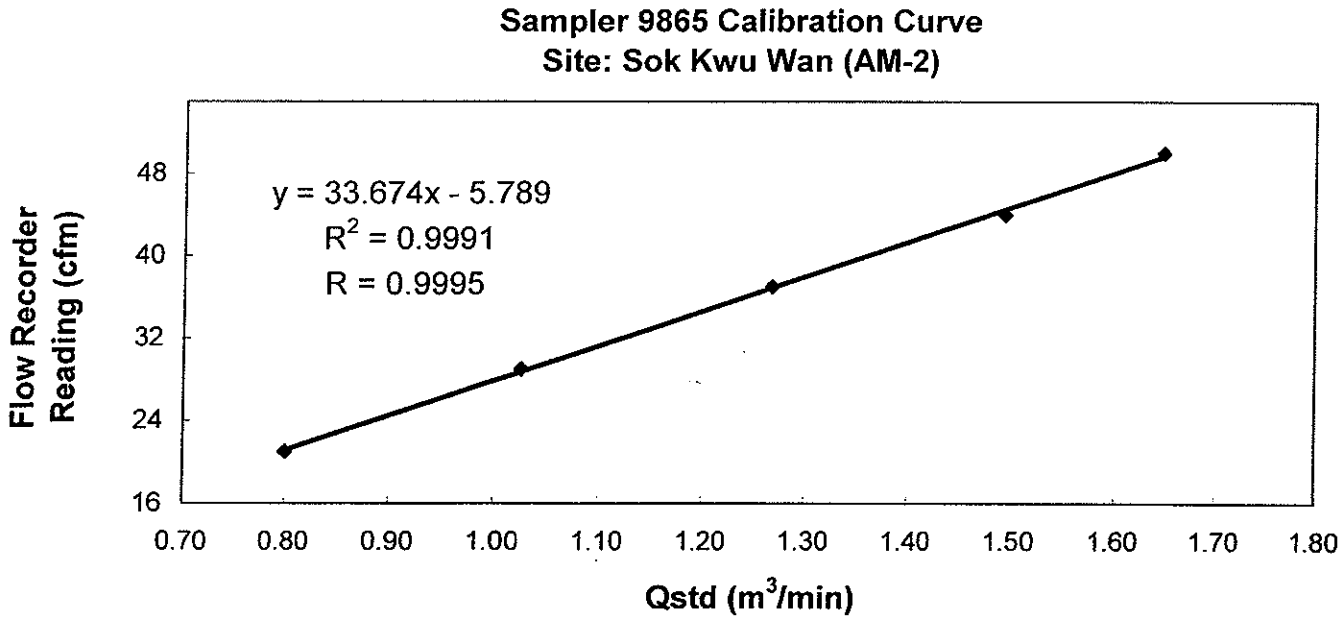
Serial No. : 9865 (ET / EA / 003 / 14)

Calibration Due Date : 17 August 2009

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

Results :

Flow recorder reading (cfm)	50	44	37	29	21
Qstd (Actual flow rate, m^3/min)	1.65	1.49	1.27	1.03	0.80
Pressure : 753.06 mm Hg		Temp. : 306 K			



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
(Environmental 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

Internal Calibration Report of Dust Trak Monitor

Manufacturer : TSI - 8520 Dust Trak

Date of Calibration : 13 January 2009

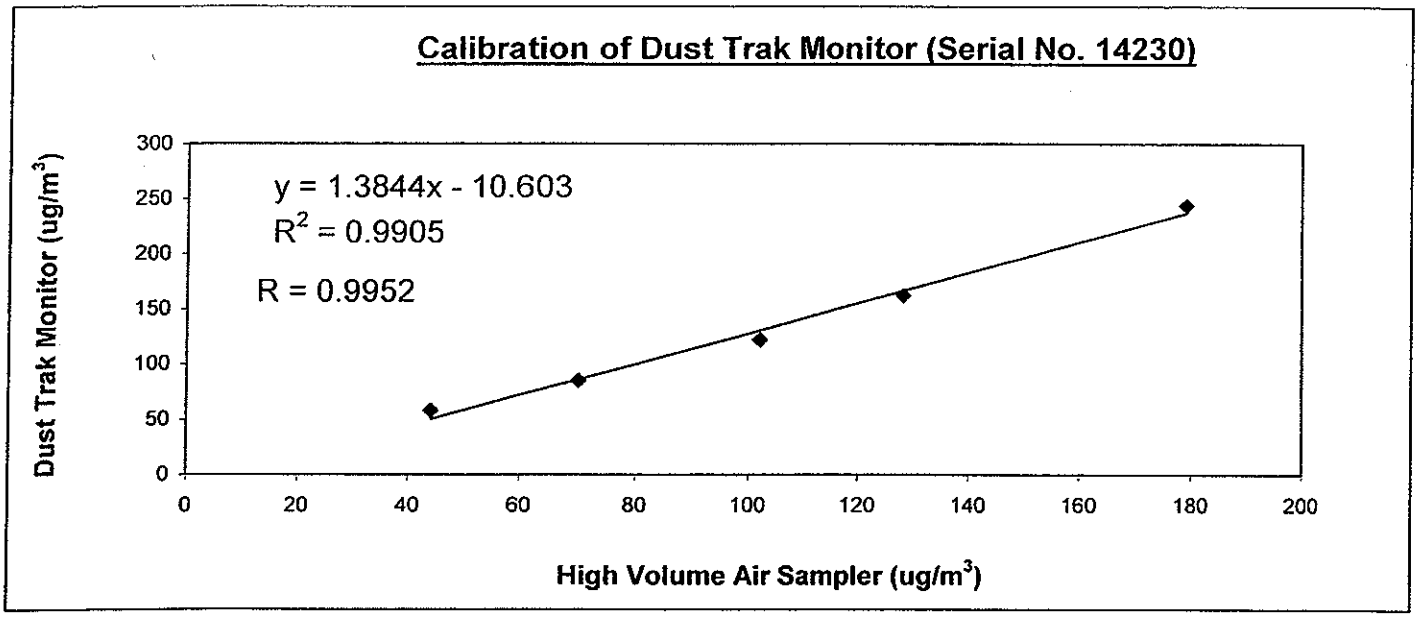
Serial No. : 14230 (ET/EA/001/04)

Due Date : 12 July 2009

Method : Parallel measurement (five-point calibration) by placing the Dust Trak Monitor and High Volume Air Samper together under the same environmental condition

Results :

Dust Trak Monitor (ug/m^3)	58	85	155	162	244
High Volume Air Sampler (ug/m^3)	44	70	102	128	179
High Volume Air Sampler Serail 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 : L de Law
LAW, Sau Yee
(Senior Environmental Officer)

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED
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TEST REPORT

Internal Calibration Report of Dust Trak Monitor

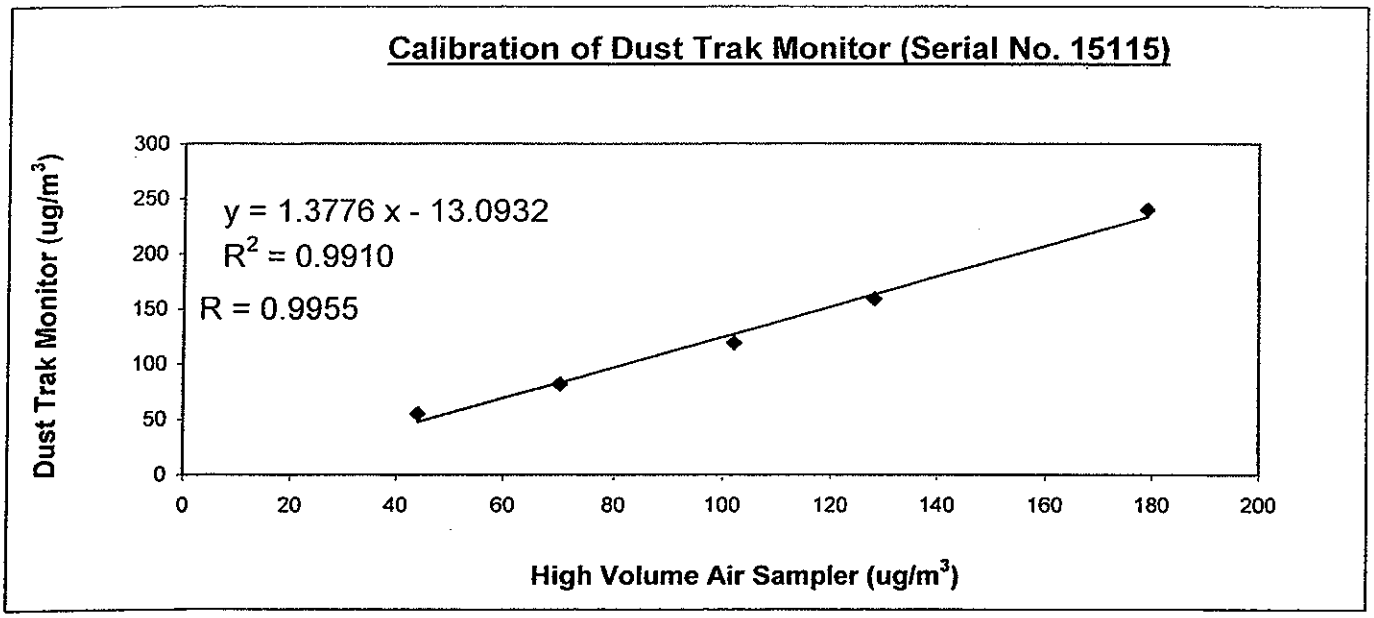
Manufacturer : TSI - 8520 Dust Trak Date of Calibration : 13 January 2009

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 (Senior Site Technician)

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

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, 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 18, 2009 Rootsmeter S/N 9833620 Ta (K) - 293
Operator Tisch Orifice I.D. - 1560 Pa (mm) - 765.81

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	1.4310	3.2	2.00
2	NA	NA	1.00	1.0060	6.3	4.00
3	NA	NA	1.00	0.8990	7.9	5.00
4	NA	NA	1.00	0.8580	8.7	5.50
5	NA	NA	1.00	0.7070	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0205	0.7132	1.4317		0.9958	0.6959	0.8748
1.0164	1.0104	2.0247		0.9918	0.9859	1.2371
1.0142	1.1281	2.2637		0.9896	1.1008	1.3831
1.0132	1.1809	2.3742		0.9886	1.1522	1.4506
1.0078	1.4255	2.8633		0.9834	1.3909	1.7495
Qstd slope (m) =		2.01170		Qa slope (m) =		1.25969
intercept (b) =		-0.00455		intercept (b) =		-0.00278
coefficient (r) =		0.99998		coefficient (r) =		0.99998
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

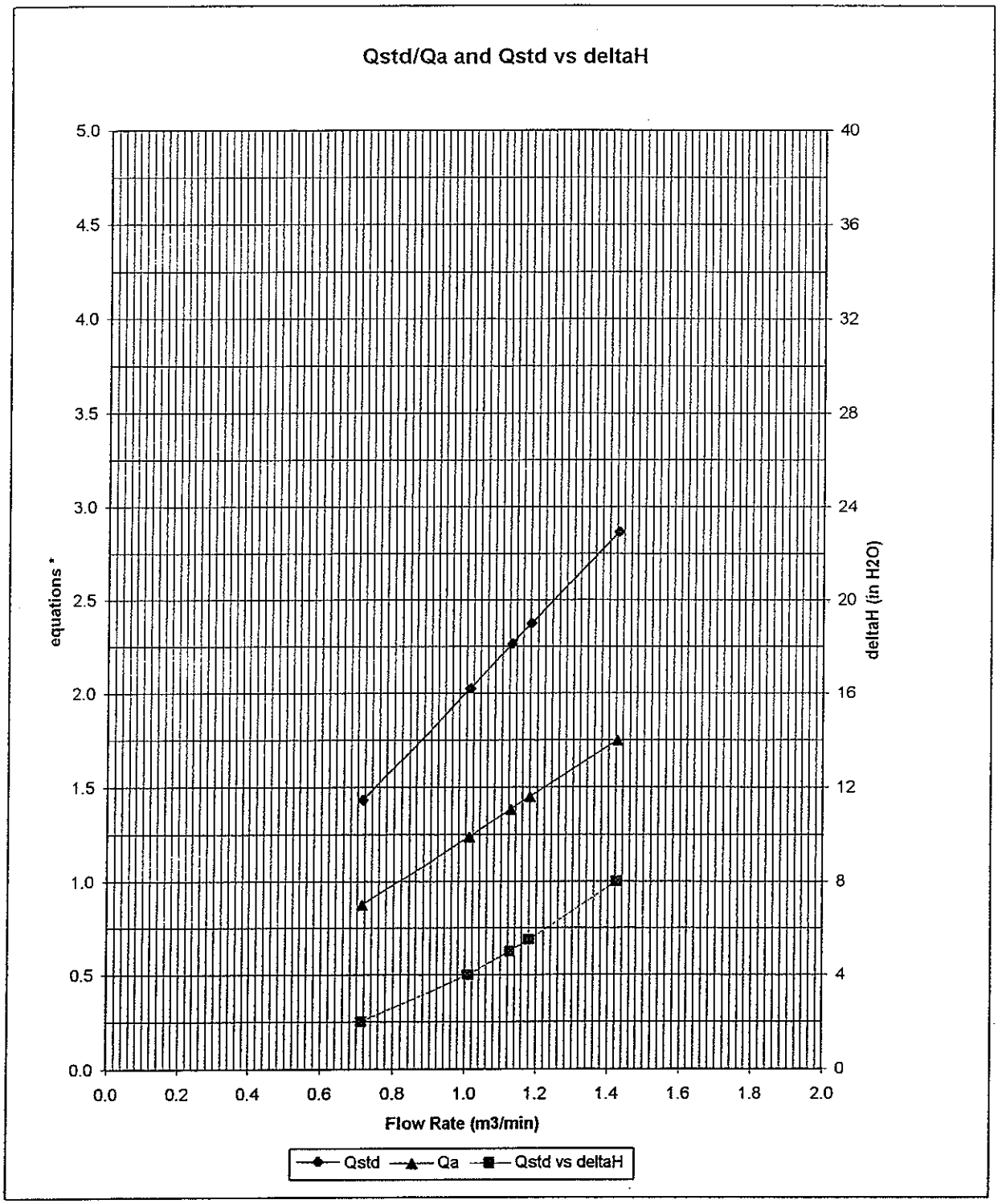
Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, 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: $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$

Qa series: $\sqrt{(\Delta H\ (Ta\ /\ Pa))}$

1560

Appendix B2

Impact Air Quality Monitoring Results

Summary of 24-hr TSP Monitoring Results

Monitoring Station : AM1

Start		Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m^3/min.)		Average (m^3/min.)	Filter Weight (g)		Conc. ($\mu g/m^3$)	Weather Condition
Date	Time	Date	Time	Initial	Final		Initial	Final		Initial	Final		
02/06/09	12:01	03/06/09	12:01	14231.25	14255.25	24.00	1.0304	1.0304	1.0304	2.8605	2.9334	49	Fine
08/06/09	12:10	09/06/09	12:10	14255.25	14279.25	24.00	1.0304	1.0304	1.0304	2.8781	2.9347	38	Cloudy
12/06/09	09:50	13/06/09	09:50	14279.25	14303.25	24.00	1.1052	1.1052	1.1052	2.9054	2.9593	34	Cloudy
18/06/09	10:19	19/06/09	10:25	14303.25	14327.35	24.10	0.9780	0.9780	0.9780	2.7511	2.8163	46	Sunny
24/06/09	12:00	25/06/09	12:00	14327.35	14351.35	24.00	0.9287	0.9287	0.9287	2.7442	2.7924	36	Fine
30/06/09	09:25	01/07/09	09:25	14351.35	14375.35	24.00	1.0274	1.0274	1.0274	2.8248	2.8675	29	Sunny

Monitoring Station : AM2

Start		Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m^3/min.)		Average (m^3/min.)	Filter Weight (g)		Conc. ($\mu g/m^3$)	Weather Condition
Date	Time	Date	Time	Initial	Final		Initial	Final		Initial	Final		
02/06/09	12:05	03/06/09	12:05	18267.24	18291.24	24.00	1.2005	1.2005	1.2005	2.8429	2.9204	45	Fine
08/06/09	12:15	09/06/09	12:15	18291.24	18315.24	24.00	1.2303	1.2303	1.2303	2.8832	2.9642	46	Cloudy
12/06/09	09:45	13/06/09	09:45	18315.24	18339.24	24.00	1.2602	1.2602	1.2602	2.8804	2.9305	28	Cloudy
18/06/09	10:28	19/06/09	10:28	18339.24	18363.24	24.00	1.2707	1.2707	1.2707	2.7576	2.8157	32	Sunny
24/06/09	12:10	25/06/09	12:10	18363.24	18387.24	24.00	1.1816	1.1816	1.1816	2.7428	2.7905	28	Fine
30/06/09	09:18	01/07/09	09:18	18387.24	18411.24	24.00	1.2113	1.2113	1.2113	2.7924	2.8357	25	Sunny

Monitoring Station : AM3

Start		Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m^3/min.)		Average (m^3/min.)	Filter Weight (g)		Conc. ($\mu g/m^3$)	Weather Condition
Date	Time	Date	Time	Initial	Final		Initial	Final		Initial	Final		
02/06/09	11:44	03/06/09	11:44	2327.51	2351.51	24.00	1.2888	1.2888	1.2888	2.8577	3.0380	97	Fine
08/06/09	13:00	09/06/09	13:00	2351.51	2375.51	24.00	1.1368	1.1368	1.1368	2.8721	2.9467	46	Cloudy
12/06/09	13:50	13/06/09	13:50	2375.51	2399.51	24.00	1.1368	1.1368	1.1368	2.8860	2.9496	39	Cloudy
18/06/09	10:49	19/06/09	10:49	2399.51	2423.51	24.00	1.0998	1.0998	1.0998	2.7624	2.8473	54	Sunny
24/06/09	14:45	25/06/09	14:45	2423.51	2447.51	24.00	1.1280	1.1280	1.1280	2.7498	2.8098	37	Fine
30/06/09	13:00	01/07/09	13:00	2447.51	2471.51	24.00	1.2127	1.2127	1.2127	2.8030	2.8468	25	Sunny

Summary of 1-hr TSP Monitoring Results

Monitoring Station : AM1

Date	Monitoring Period		1-hr TSP (μg/m³)			Weather
	Start	Finish	Minimum	Maximum	Average	
02/06/09	08:48	09:48	48	298	83	Fine
02/06/09	09:48	10:48	46	276	81	Fine
02/06/09	10:48	11:48	42	314	96	Fine
08/06/09	09:15	10:15	98	372	129	Cloudy
08/06/09	10:15	11:15	112	356	142	Cloudy
08/06/09	11:15	12:15	106	324	122	Cloudy
12/06/09	09:13	10:13	102	419	157	Cloudy
12/06/09	10:13	11:13	98	436	171	Cloudy
12/06/09	11:13	12:13	100	404	163	Cloudy
18/06/09	13:05	14:05	58	356	96	Sunny
18/06/09	14:05	15:05	56	409	101	Sunny
18/06/09	15:05	16:05	60	430	105	Sunny
24/06/09	13:00	14:00	106	372	172	Cloudy
24/06/09	14:00	15:00	97	416	159	Cloudy
24/06/09	15:00	16:00	95	407	166	Cloudy
30/06/09	09:20	10:20	67	416	171	Fine
30/06/09	10:20	11:20	72	472	211	Fine
30/06/09	11:20	12:20	88	361	175	Fine

Monitoring Station : AM2

Date	Monitoring Period		1-hr TSP (μg/m³)			Weather
	Start	Finish	Minimum	Maximum	Average	
02/06/09	09:05	10:05	53	308	85	Fine
02/06/09	10:05	11:05	60	329	94	Fine
02/06/09	11:05	12:05	55	340	97	Fine
08/06/09	09:18	10:18	102	391	128	Cloudy
08/06/09	10:18	11:18	97	360	141	Cloudy
08/06/09	11:18	12:18	106	317	121	Cloudy
12/06/09	09:16	10:16	104	440	156	Cloudy
12/06/09	10:16	11:16	95	422	171	Cloudy
12/06/09	11:16	12:16	90	385	159	Cloudy
18/06/09	13:12	14:12	55	417	86	Sunny
18/06/09	14:12	15:12	63	453	101	Sunny
18/06/09	15:12	16:12	57	500	109	Sunny
24/06/09	13:00	14:00	110	402	156	Cloudy
24/06/09	14:00	15:00	99	447	149	Cloudy
24/06/09	15:00	16:00	102	428	136	Cloudy
30/06/09	09:24	10:24	71	432	173	Fine
30/06/09	10:24	11:24	82	516	197	Fine
30/06/09	11:24	12:24	75	380	151	Fine

Summary of 1-hr TSP Monitoring Results

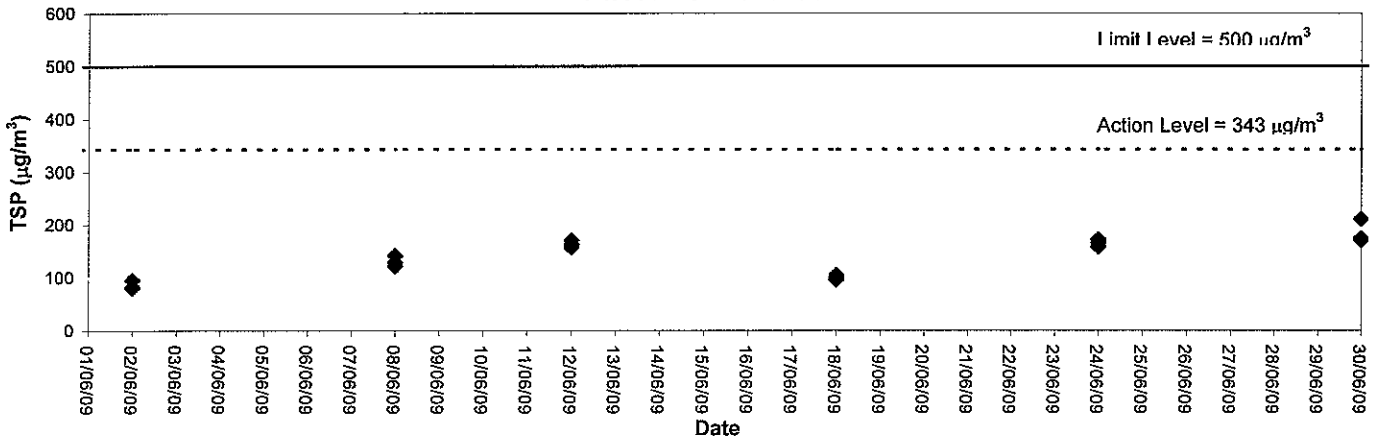
Monitoring Station : AM3

Date	Monitoring Period		1-hr TSP (μg/m³)			Weather
	Start	Finish	Minimum	Maximum	Average	
02/06/09	13:00	14:00	65	434	99	Fine
02/06/09	14:00	15:00	58	418	116	Fine
02/06/09	15:00	16:00	53	405	105	Fine
08/06/09	13:00	14:00	89	392	161	Cloudy
08/06/09	14:00	15:00	95	386	158	Cloudy
08/06/09	15:00	16:00	100	345	170	Cloudy
12/06/09	13:00	14:00	97	422	191	Cloudy
12/06/09	14:00	15:00	92	382	167	Cloudy
12/06/09	15:00	16:00	101	417	155	Cloudy
18/06/09	09:10	10:10	76	574	140	Sunny
18/06/09	10:10	11:10	72	603	145	Sunny
18/06/09	11:10	12:10	78	621	149	Sunny
24/06/09	09:16	10:16	98	398	171	Cloudy
24/06/09	10:16	11:16	112	412	169	Cloudy
24/06/09	11:16	12:16	105	405	160	Cloudy
30/06/09	13:00	14:00	86	414	163	Fine
30/06/09	14:00	15:00	79	432	184	Fine
30/06/09	15:00	16:00	72	376	146	Fine

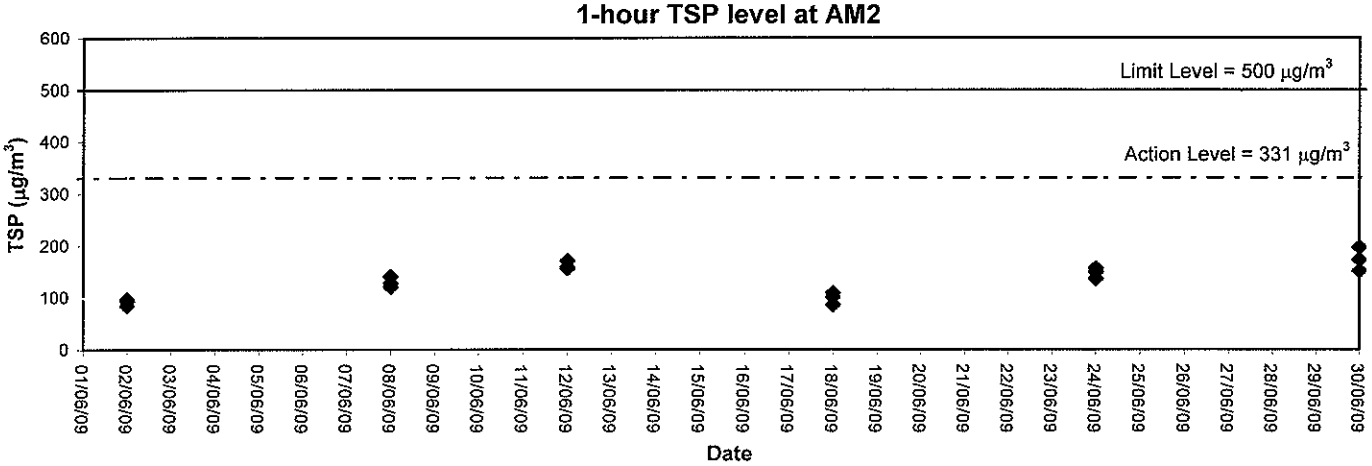
Appendix C3

Graphical Plots of Impact Air Quality Monitoring Data

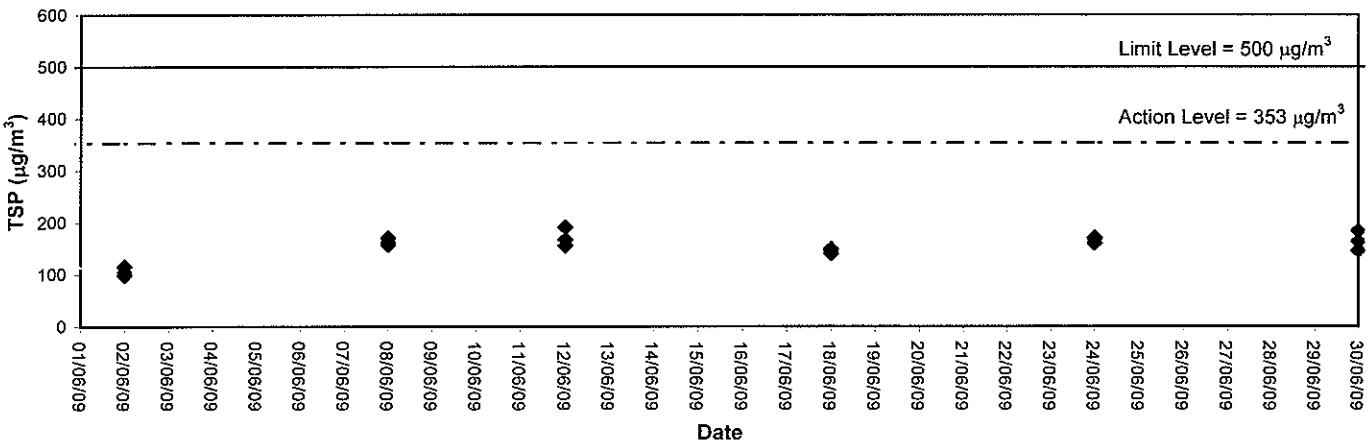
1-hour TSP level at AM1



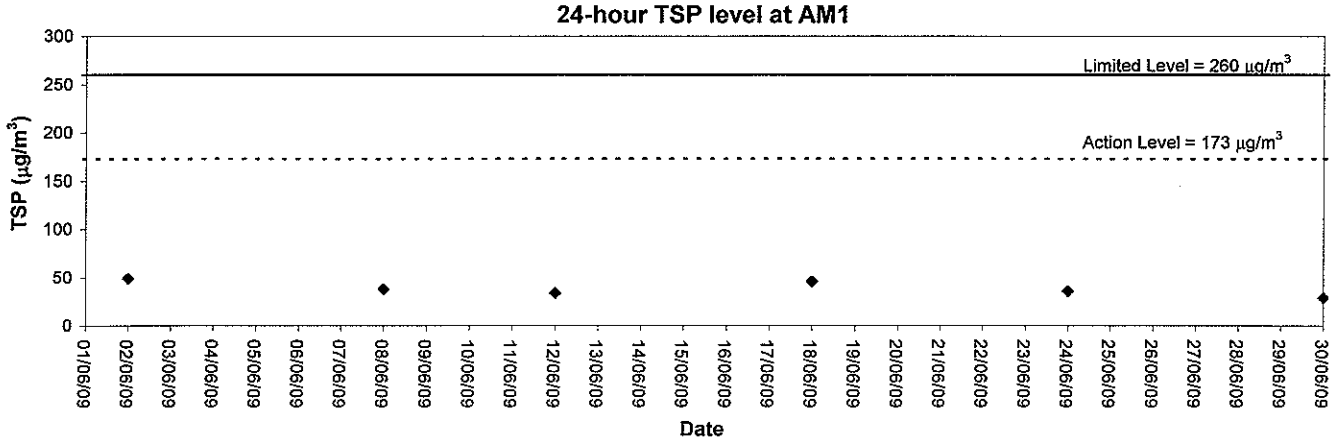
1-hour TSP level at AM2



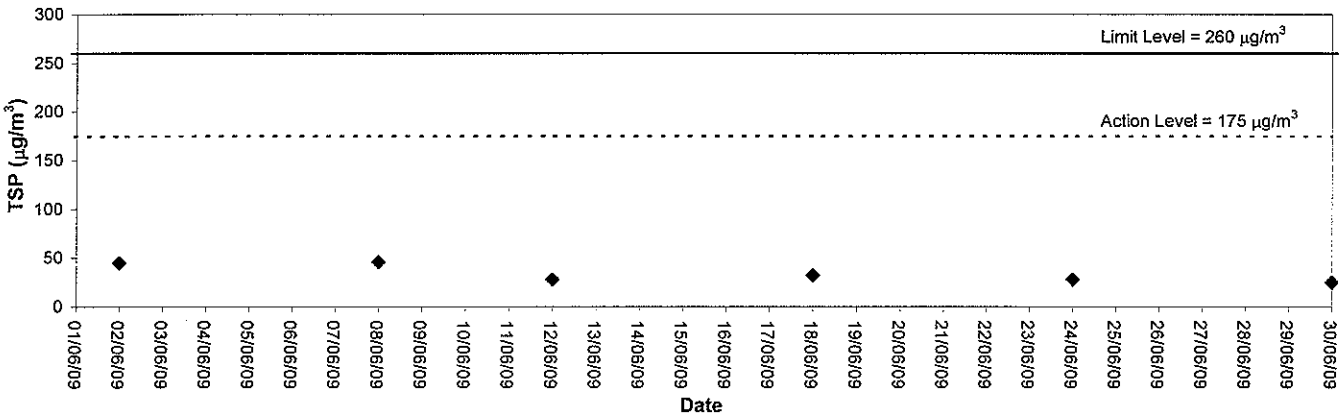
1-hour TSP level at AM3



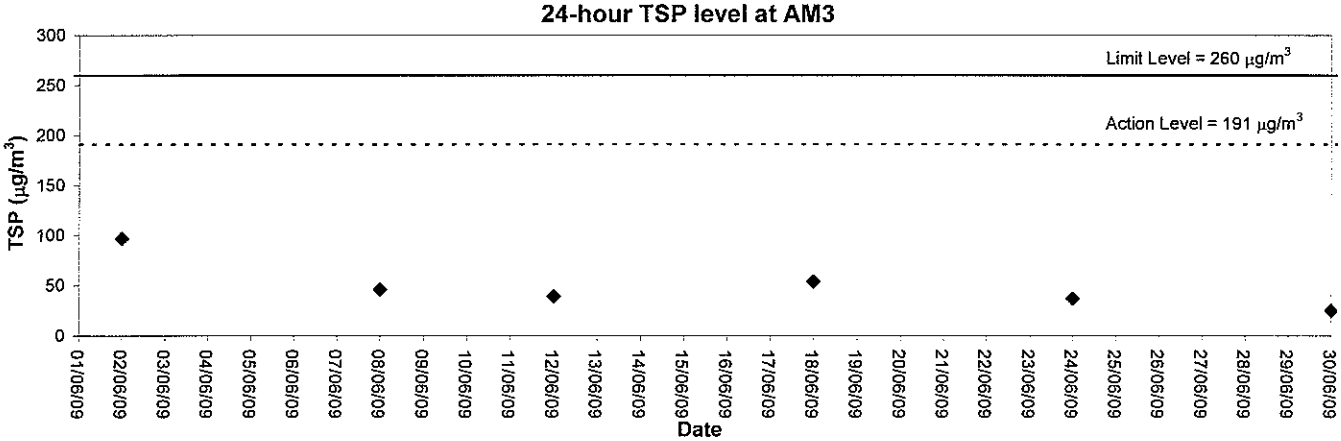
24-hour TSP level at AM1



24-hour TSP level at AM2



24-hour TSP level at AM3



Appendix C1

Calibration Certificates for

Impact Noise Monitoring Equipments

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 91495 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. : Q90663 **Date of receipt :** 1-Apr-09

Item Tested

Description : Precision Integrating Sound Level Meter

Manufacturer : Rion

Model : NL-31 **Serial No. :** 00110024

Test Conditions

Date of Test : 15-Apr-09 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/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:

Equipment No.	Description	Cert. No.	Due Date	Traceable to
S017A	Multi-Function Generator	86228	11-Dec-09	SCL-HKSAR
S024	Sound Level Calibrator	82926	16-Jul-09	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 : P.F. Wong

Approved by : for Dorothy Cheuk

Date: 16-Apr-09

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

Results :

1. SPL Accuracy

UUT Setting			Applied Value (dB)	UUT Reading (dB)
Level Range (dB)	Weight	Response		
20 – 100	L_A	Fast	94.03	93.7
		Slow		93.7
	L_C	Fast		93.7
	Lp	Fast		93.7
30 – 120	L_A	Fast	94.03	93.6
		Slow		93.6
	L_C	Fast		93.6
	Lp	Fast		93.6
30 – 120	L_A	Fast	113.97	113.6
		Slow		113.6
	L_C	Fast		113.6
	Lp	Fast		113.6

IEC 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

3. Linearity

3.1 Level Linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec. (Primary Indicator Range)
130	114.0	113.8	+0.2	± 0.7 dB
130	104.0	103.7	+0.1	
120	94.0	93.6 (Ref.)	- -	
110	84.0	83.6	0.0	
100	74.0	73.6	0.0	
90	64.0	63.7	+0.1	
80	54.0	53.8	+0.2	

Uncertainty : ± 0.1 dB

3.2 Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	83.7	+0.1	± 0.4 dB
	94.0	93.6 (Ref.)	- -	
	95.0	94.7	+0.1	± 0.2 dB
	104.0	103.6	0.0	± 0.3 dB
	105.0	104.6	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	-39.8	- 39.4 dB, ± 1.5 dB
63 Hz	-26.5	- 26.2 dB, ± 1.5 dB
125 Hz	-16.5	- 16.1 dB, ± 1 dB
250 Hz	-8.9	- 8.6 dB, ± 1 dB
500 Hz	-3.4	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref.)	0 dB, ± 1 dB
2 kHz	+1.5	+ 1.2 dB, ± 1 dB
4 kHz	+1.4	+ 1.0 dB ,± 1 dB
8 kHz	-0.8	- 1.1 dB, + 1.5 dB ~ - 3 dB
16 kHz	-6.4	- 6.6 dB, + 3 dB ~- ∞

Uncertainty : ± 0.1 dB

Calibration Certificate

5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	39.8	± 0.5 dB
$1/10^2$	40.0	39.8	
$1/10^3$	40.0	40.0	± 1.0 dB
$1/10^4$	40.0	40.3	

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 : 1 002 hPa.

---------- END ----------

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 91496 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. : Q90663 **Date of receipt :** 1-Apr-09

Item Tested

Description : Acoustic Calibrator

Manufacturer : Castle

Model : GA607 **Serial No. :** 038641

Test Conditions

Date of Test : 15-Apr-09 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure : F06, F20, Z02.

Test Results

All results were within the IEC 942 Class 1 specification.

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

Main Test equipment used:

Equipment No.	Description	Cert. No.	Due Date	Traceable to
S014	Spectrum Analyzer	83240	30-Jun-09	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	82926	16-Jul-09	NIM-PRC & SCL-HKSAR
S041	Universal Counter	84077	22-Aug-09	SCL-HKSAR
S206	Sound Level Meter	83964	13-Aug-09	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 : P.F. Wong

Approved by : Dorothy Cheuk

Date: 16-Apr-09

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

Results :

1. Level Accuracy (at 1 kHz)

UUT Setting (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	93.92	± 0.3 dB

Uncertainty : ± 0.1 dB

2. Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 942 Class 1 Spec.
1	1.001	± 2 %

Uncertainty : $\pm 3.6 \times 10^{-6}$

3. Level Stability : 0.0 dB
IEC 942 Class 1 Spec. : ± 0.1 dB
Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 2.8 %
IEC 942 Class 1 Spec. : < 3 %
Uncertainty : ± 2.3 % of rdg.

Remark : 1. UUT : Unit-Under-Test
2. The above measured values are the mean of 3 measurements.
3. The uncertainty claimed is for a confidence probability of not less than 95%.
4. Atmospheric Pressure : 1 002 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	
02/06/09	Fine	09:14	09:44	52.7	55.8	47.0	1.2
08/06/09	Cloudy	09:33	10:03	65.8	68.8	58.5	0.8
18/06/09	Sunny	13:25	13:55	53.6	58.9	50.2	1.0
24/06/09	Fine	11:25	11:55	55.2	57.1	46.5	0.2
30/06/09	Fine	09:34	10:04	73.8	77.6	70.4	0.5

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	
02/06/09	Fine	09:55	10:25	63.4	68.9	56.8	0.9
08/06/09	Cloudy	10:08	10:38	66.2	66.8	59.7	1.0
18/06/09	Sunny	10:10	10:40	57.8	65.9	55.2	0.8
24/06/09	Fine	13:40	14:10	64.1	65.9	60.1	0.2
30/06/09	Fine	10:08	10:38	67.5	69.3	58.0	0.7

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	
02/06/09	Fine	10:40	11:10	64.3	69.3	60.7	0.7
08/06/09	Cloudy	10:42	11:12	62.5	64.5	55.2	0.5
18/06/09	Sunny	10:50	11:20	63.6	70.5	59.1	1.2
24/06/09	Fine	13:06	13:36	66.8	67.9	57.9	0.4
30/06/09	Fine	11:26	11:56	62.3	63.5	59.7	0.3

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

Monitoring Station: NM4

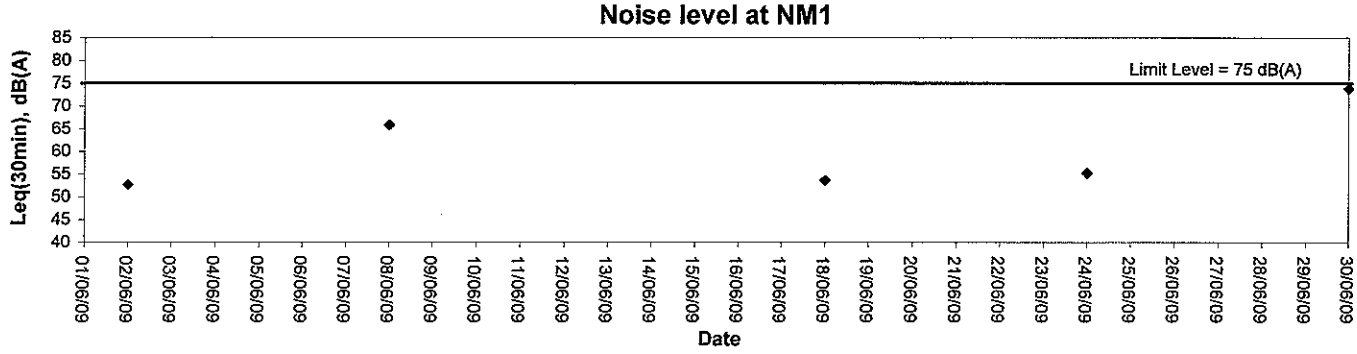
Date	Weather Condition	Start Time (hh:mm)	End Time (hh:mm)	Noise Level at the monitoring point, dB (A)			Wind Speed (m/s)
				Leq (30min)	L10	L90	
02/06/09	Fine	11:26	11:56	58.8	64.1	53.6	1.4
08/06/09	Cloudy	11:18	11:48	60.8	61.4	47.1	0.5
18/06/09	Sunny	11:30	12:00	53.9	56.8	49.5	1.6
24/06/09	Fine	14:18	14:48	53.3	58.0	40.2	0.3
30/06/09	Fine	10:48	11:18	59.2	61.1	55.7	0.5

Appendix C3

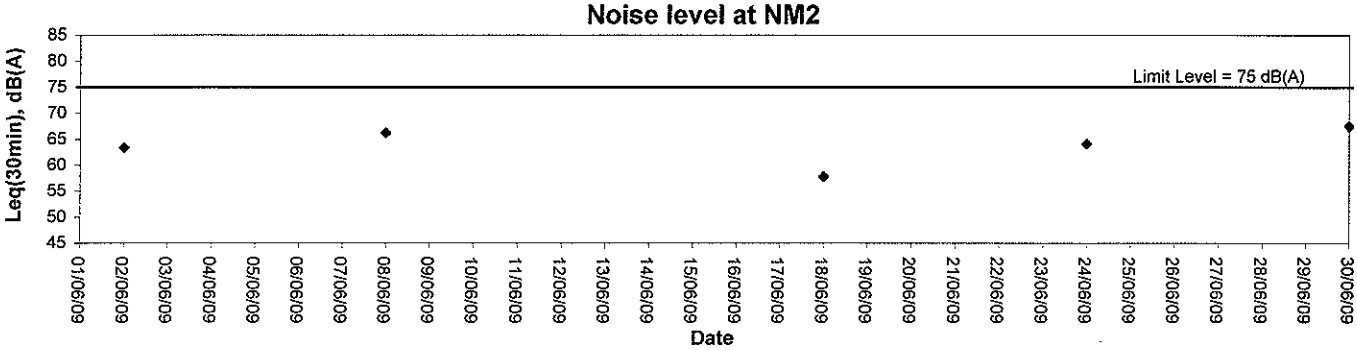
Graphical Plots of Impact Noise Monitoring Data

Noise Monitoring (Day-time)

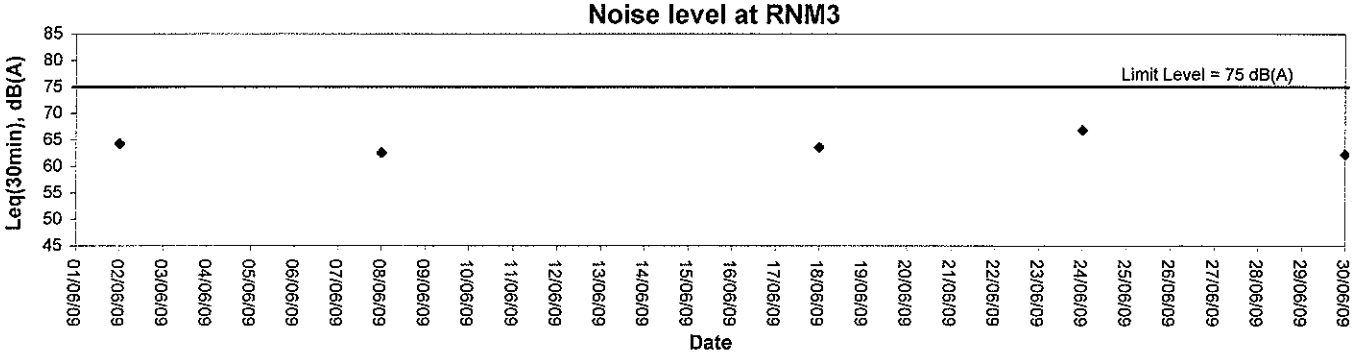
Noise level at NM1



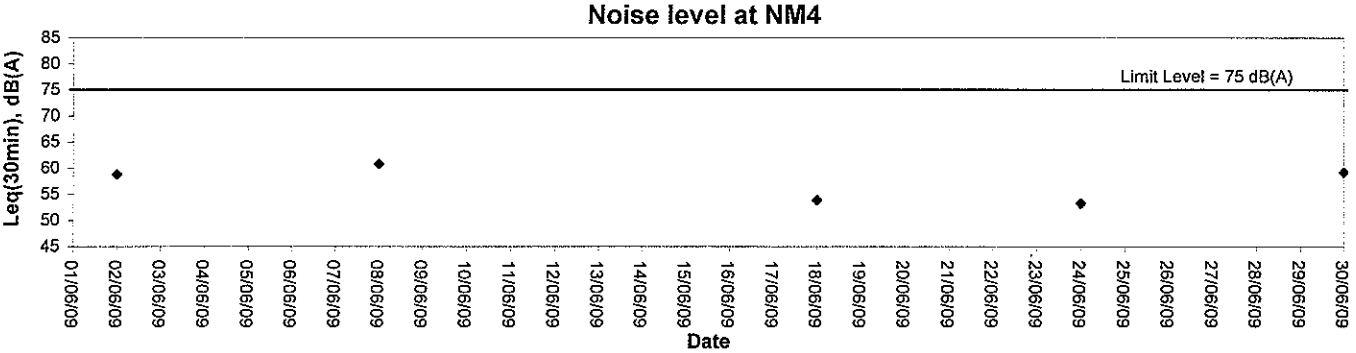
Noise level at NM2



Noise level at RNM3



Noise level at NM4



Appendix D

Event-Action Plans

Event / Action Plan for Air Quality

EVENT	ACTION			
	ET	IC(E)	ER	CONTRACTOR
Action Level				
Action Level being exceeded for one sample	1. Identify source, investigate the causes of Exceedance and propose remedial measures; 2. Inform IC(E) and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded for two or more consecutive samples	1. Same as the above; 2. Advise the ER on the effectiveness of te proposed remedial measures; 3. Discuss with IC(E) and Contractor on remedial actions required; 4. If exceedance continues, arrange meeting with IC(E) and ER; 5. If exceedance stops, cease additional monitoring.	1. Sane as the above; 2. Discuss with ET and Contractor on possible remedial measures; 3. Advise the ET on the effectiveness of the proposed remedial measures; 4. Supervise implementation of remedial measures.	1. Same as the above; 2. Confirm receipt of notification of failure in writing; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
Limit Level				
Limit Level being exceeded for one sample	1. Identify source; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results.	1. Checking monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on the possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial actions properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit Level being exceeded for two or more consecutive samples	1. Same as the above; 2. Carry our analysis of Contractor's working procedures to determine possible mitigation to be implemented; 3. Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken; 4. If exceedance stops, cease additional monitoring.	1. Discuss with ER, ET and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assume their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Same as the above; 2. In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented; 3. 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.	1. Same as the above; 2. Resubmit proposals if problem still not under control; 3. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

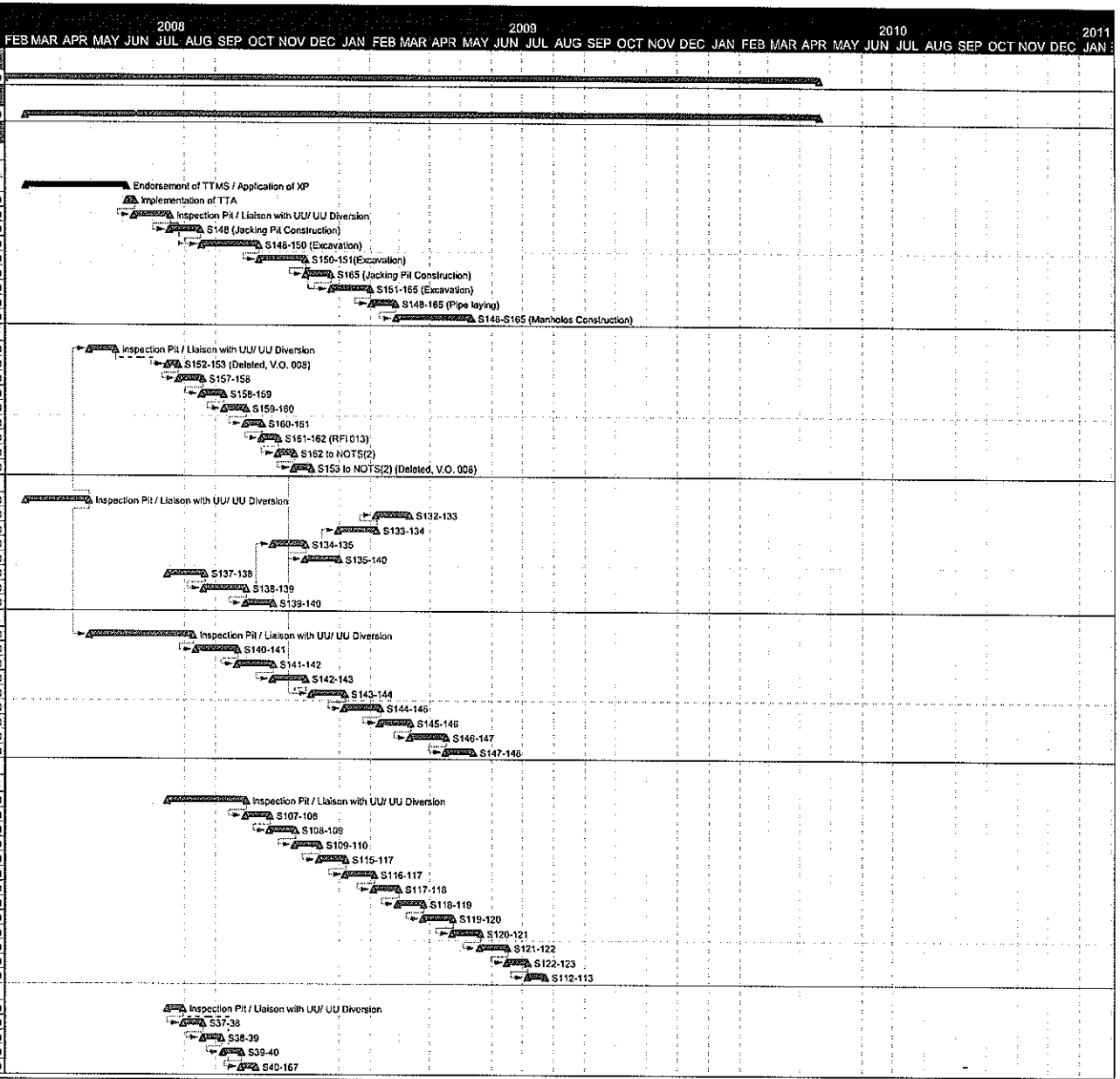
Event / Action Plan for Construction Noise

EVENT	ACTION			
	ET	IC(E)	ER	CONTRACTOR
Action level	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.	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.	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.	1. Submit noise mitigation proposal to IC(E); 2. Implement noise mitigation proposals.
Limit level	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.	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.	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.	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	Late Start	Early Finish	Late Finish	Free Float
Preliminary							
		638	31 JAN 08 A	31 JAN 08 A	19 APR 10	19 APR 10	0
YUNG SHUE WAN							
		616	26 FEB 08	26 FEB 08	19 APR 10	19 APR 10	0
SOK KWU WAN							
WO 006 (S148-S165 Trenchless and SKW2nd St.)							
S148-S165 Trenchless							
MT4707	Endorsement of TTMS / Application of XP	0	26 FEB 08	26 FEB 08	04 JUN 08	04 JUN 08	
MT4708	Implementation of TTA	4	05 JUN 08 *	05 JUN 08	12 JUN 08	12 JUN 08	0
MT4709	Inspection Pit / Liaison with UU/ UU Diversion	14	12 JUN 08 *	12 JUN 08	17 JUL 08	17 JUL 08	0
MT4710	S148 (Jacking Pit Construction)	21	17 JUL 08	17 JUL 08	16 AUG 08	16 AUG 08	0
MT4711	S148-150 (Excavation)	40	18 AUG 08	18 AUG 08	13 OCT 08	13 OCT 08	0
MT4721	S150-151(Excavation)	40	14 OCT 08	14 OCT 08	28 NOV 08	28 NOV 08	0
MT4730	S165 (Jacking Pit Construction)	21	29 NOV 08	29 NOV 08	23 DEC 08	23 DEC 08	0
MT4731	S151-165 (Excavation)	30	24 DEC 08	24 DEC 08	31 JAN 09	31 JAN 09	0
MT4820	S148-165 (Pipe laying)	21	02 FEB 09	02 FEB 09	25 FEB 09	25 FEB 09	0
MT4830	S148-S165 (Manholes Construction)	58	26 FEB 09	26 FEB 09	11 MAY 09	11 MAY 09	0
S157-S162- End, S152-S153-End							
MT4739	Inspection Pit / Liaison with UU/ UU Diversion	21	29 APR 08	29 APR 08	24 MAY 08	24 MAY 08	0
MT4740	S152-153 (Deleted, V.O. 008)	10	15 JUL 08	15 JUL 08	25 JUL 08	25 JUL 08	0
MT4750	S157-158	14	26 JUL 08	26 JUL 08	18 AUG 08	18 AUG 08	0
MT4760	S158-159	14	18 AUG 08	18 AUG 08	08 SEP 08	08 SEP 08	0
MT4770	S159-160	14	09 SEP 08	09 SEP 08	30 SEP 08	30 SEP 08	0
MT4780	S160-161	14	30 SEP 08	30 SEP 08	16 OCT 08	16 OCT 08	0
MT4790	S161-162 (RFI013)	14	16 OCT 08	16 OCT 08	01 NOV 08	01 NOV 08	0
MT4800	S162 to NOTS(2)	13	01 NOV 08	01 NOV 08	17 NOV 08	17 NOV 08	0
MT4810	S153 to NOTS(2) (Deleted, V.O. 008)	15	17 NOV 08	17 NOV 08	04 DEC 08	04 DEC 08	0
S132-S140							
SS4819	Inspection Pit / Liaison with UU/ UU Diversion	54	26 FEB 08	26 FEB 08	28 APR 08	28 APR 08	0
SS4820	S132-133	28	06 FEB 09	06 FEB 09	11 MAR 09	11 MAR 09	0
SS4830	S133-134	28	31 DEC 08	31 DEC 08	06 FEB 09	06 FEB 09	0
SS4840	S134-135	28	27 OCT 08	27 OCT 08	28 NOV 08	28 NOV 08	0
SS4850	S135-140	28	26 NOV 08	26 NOV 08	31 DEC 08	31 DEC 08	0
SS4870	S137-138	26	15 JUL 08	15 JUL 08	20 AUG 08	20 AUG 08	0
SS4880	S138-139	26	20 AUG 08	20 AUG 08	30 SEP 08	30 SEP 08	0
SS4890	S139-140	23	30 SEP 08	30 SEP 08	27 OCT 08	27 OCT 08	0
S140-S148							
SS4899	Inspection Pit / Liaison with UU/ UU Diversion	60	29 APR 08	29 APR 08	09 AUG 08	09 AUG 08	0
SS4900	S140-141	28	12 AUG 08	12 AUG 08	22 SEP 08	22 SEP 08	0
SS4910	S141-142	28	22 SEP 08	22 SEP 08	27 OCT 08	27 OCT 08	0
SS4920	S142-143	28	27 OCT 08	27 OCT 08	28 NOV 08	28 NOV 08	0
SS4930	S143-144	27	04 DEC 08	04 DEC 08	06 JAN 09	06 JAN 09	0
SS4940	S144-145	27	06 JAN 09	06 JAN 09	10 FEB 09	10 FEB 09	0
SS4950	S145-146	26	10 FEB 09	10 FEB 09	12 MAR 09	12 MAR 09	0
SS4960	S146-147	26	12 MAR 09	12 MAR 09	16 APR 09	16 APR 09	0
SS4970	S147-148	21	16 APR 09	16 APR 09	13 MAY 09	13 MAY 09	0
WO 010 (SKW 3rd Branches & CM S37-S60-S57)							
S107-S110,S115-S123,S112-S113							
SS5119	Inspection Pit / Liaison with UU/ UU Diversion	52	15 JUL 08	15 JUL 08	30 SEP 08	30 SEP 08	0
SS5120	S107-108	21	30 SEP 08	30 SEP 08	24 OCT 08	24 OCT 08	0
SS5130	S108-109	21	24 OCT 08	24 OCT 08	18 NOV 08	18 NOV 08	0
SS5140	S109-110	21	18 NOV 08	18 NOV 08	12 DEC 08	12 DEC 08	0
SS5150	S115-117	21	12 DEC 08	12 DEC 08	07 JAN 09	07 JAN 09	0
SS5160	S116-117	21	07 JAN 09	07 JAN 09	04 FEB 09	04 FEB 09	0
SS5170	S117-118	21	04 FEB 09	04 FEB 09	28 FEB 09	28 FEB 09	0
SS5180	S118-119	21	28 FEB 09	28 FEB 09	25 MAR 09	25 MAR 09	0
SS5190	S119-120	21	25 MAR 09	25 MAR 09	23 APR 09	23 APR 09	0
SS5200	S120-121	21	23 APR 09	23 APR 09	20 MAY 09	20 MAY 09	0
SS5210	S121-122	21	20 MAY 09	20 MAY 09	16 JUN 09	16 JUN 09	0
SS5220	S122-123	17	16 JUN 09	16 JUN 09	06 JUL 09	06 JUL 09	0
SS5230	S112-113	15	06 JUL 09	06 JUL 09	23 JUL 09	23 JUL 09	0
S37-S60							
CM5859	Inspection Pit / Liaison with UU/ UU Diversion	14	15 JUL 08	15 JUL 08	30 JUL 08	30 JUL 08	0
CM5860	S37-38	11	31 JUL 08	31 JUL 08	19 AUG 08	19 AUG 08	0
CM5870	S38-39	12	19 AUG 08	19 AUG 08	06 SEP 08	06 SEP 08	0
CM5880	S39-40	12	08 SEP 08	08 SEP 08	26 SEP 08	26 SEP 08	0
CM5890	S40-167	12	26 SEP 08	26 SEP 08	10 OCT 08	10 OCT 08	0



Start Date 31 JAN 08
Finish Date 19 APR 10

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△ Early start point
▽ Early finish point
Early bar
Progress bar
Critical bar
Summary bar

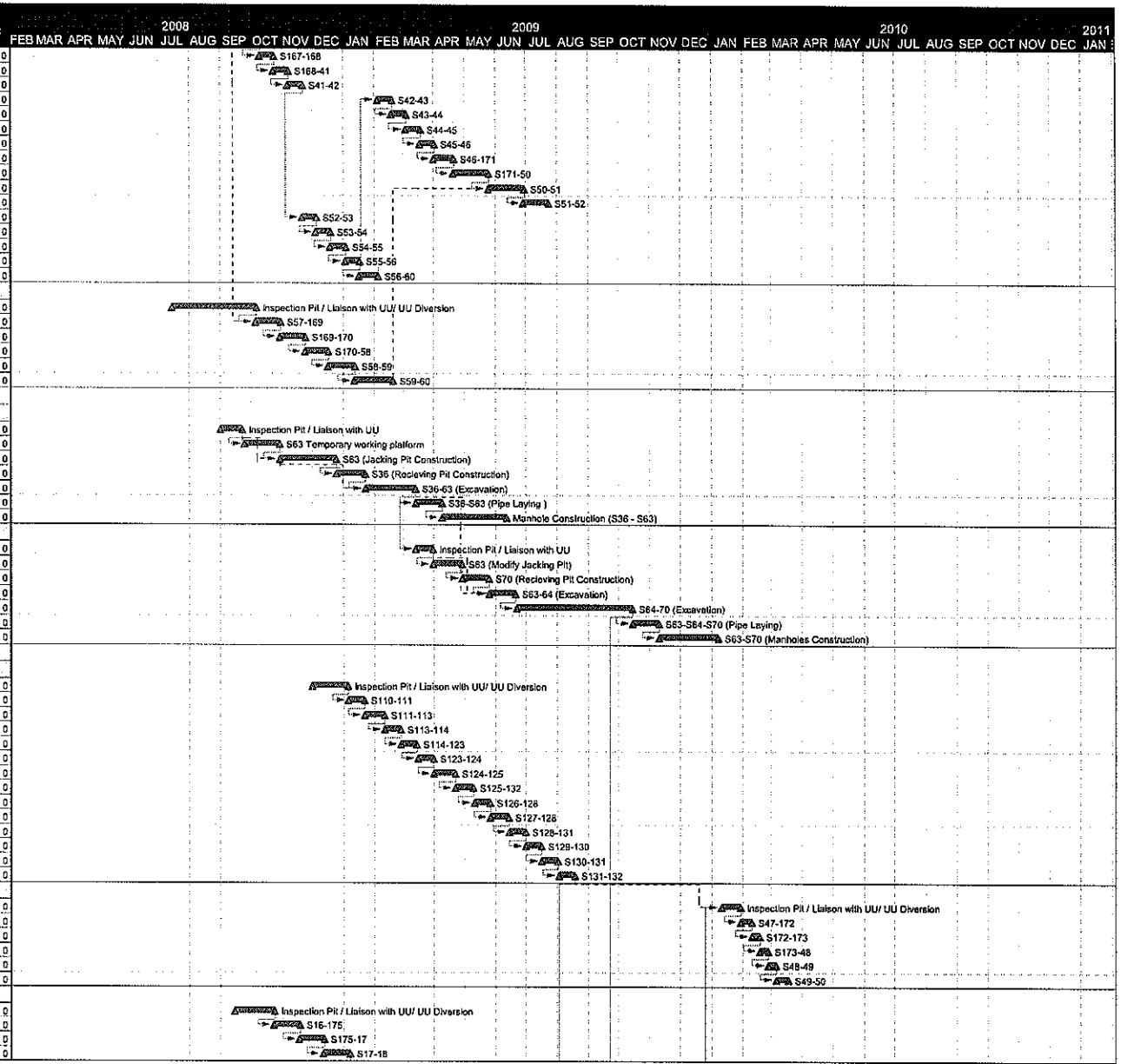
▲ Progress point
◬ Critical point
▽ Summary point
◇ Start milestone point
◈ Finish milestone point

DC/2007/18
Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works
Project Programme Rev. 5

Kaden

Date	Revision	Checked	Approved
16 JUN 08	Revision 2	SIL	KYS
03 SEP 08	Revision 3	SIL	KC
31 OCT 08	Revision 4	SIL	KYS
24 DEC 08	Revision 5	SIL	KYS

Act ID	Activity Description	Rem Dur	Early Start	Late Start	Early Finish	Late Finish	Free Float
CM5900	S167-168	12	10 OCT 08	10 OCT 08	24 OCT 08	24 OCT 08	0
CM5910	S168-41	12	24 OCT 08	24 OCT 08	07 NOV 08	07 NOV 08	0
CM5920	S41-42	12	07 NOV 08	07 NOV 08	21 NOV 08	21 NOV 08	0
CM5930	S42-43	12	04 FEB 09	04 FEB 09	18 FEB 09	18 FEB 09	0
CM5940	S43-44	12	18 FEB 09	18 FEB 09	04 MAR 09	04 MAR 09	0
CM5950	S44-45	12	04 MAR 09	04 MAR 09	18 MAR 09	18 MAR 09	0
CM5960	S45-46	12	18 MAR 09	18 MAR 09	01 APR 09	01 APR 09	0
CM5970	S46-171	12	01 APR 09	01 APR 09	20 APR 09	20 APR 09	0
CM5980	S171-50	26	20 APR 09	20 APR 09	25 MAY 09	25 MAY 09	0
CM5981	S50-51	28	25 MAY 09	25 MAY 09	29 JUN 09	29 JUN 09	0
CM5982	S51-52	21	29 JUN 09	29 JUN 09	23 JUL 09	23 JUL 09	0
CM5983	S52-53	12	21 NOV 08	21 NOV 08	05 DEC 08	05 DEC 08	0
CM5984	S53-54	12	05 DEC 08	05 DEC 08	19 DEC 08	19 DEC 08	0
CM5990	S54-55	12	19 DEC 08	19 DEC 08	03 JAN 09	03 JAN 09	0
CM6000	S55-56	12	03 JAN 09	03 JAN 09	17 JAN 09	17 JAN 09	0
CM6010	S56-60	12	17 JAN 09	17 JAN 09	04 FEB 09	04 FEB 09	0
S57-S60 & Clearance of Squattered Huts							
CM6069	Inspection Pit / Liaison with UU/ UU Diversion	57	15 JUL 08	15 JUL 08	06 OCT 08	06 OCT 08	0
CM6070	S57-169	21	06 OCT 08	06 OCT 08	30 OCT 08	30 OCT 08	0
CM6080	S169-170	21	30 OCT 08	30 OCT 08	24 NOV 08	24 NOV 08	0
CM6090	S170-58	20	24 NOV 08	24 NOV 08	17 DEC 08	17 DEC 08	0
CM6100	S58-59	21	17 DEC 08	17 DEC 08	12 JAN 09	12 JAN 09	0
CM6110	S59-60	30	12 JAN 09	12 JAN 09	19 FEB 09	19 FEB 09	0
WO 015 (Trenchless S36-S70)							
S36-S63 , S36A-S63A (Trenchless)							
CM6209	Inspection Pit / Liaison with UU	14	01 SEP 08	01 SEP 08	22 SEP 08	22 SEP 08	0
CM6210	S63 Temporary working platform	30	25 SEP 08	25 SEP 08	29 OCT 08	29 OCT 08	0
CM6212	S63 (Jacking Pit Construction)	48	30 OCT 08	30 OCT 08	24 DEC 08	24 DEC 08	0
CM6213	S36 (Recieving Pit Construction)	24	25 DEC 08	25 DEC 08	22 JAN 09	22 JAN 09	0
CM6220	S36-63 (Excavation)	40	23 JAN 09	23 JAN 09	13 MAR 09	13 MAR 09	0
CM6270	S36-S63 (Pipe Laying)	21	14 MAR 09	14 MAR 09	08 APR 09	08 APR 09	0
CM6280	Manhole Construction (S36 - S63)	48	09 APR 09	09 APR 09	11 JUN 09	11 JUN 09	0
S64-S70 (Trenchless)							
CM6229	Inspection Pit / Liaison with UU	14	14 MAR 09	14 MAR 09	30 MAR 09	30 MAR 09	0
CM6231	S63 (Modify Jacking Pit)	21	31 MAR 09	31 MAR 09	28 APR 09	28 APR 09	0
CM6232	S70 (Recieving Pit Construction)	21	29 APR 09	29 APR 09	25 MAY 09	25 MAY 09	0
CM6239	S63-64 (Excavation)	21	26 MAY 09	26 MAY 09	20 JUN 09	20 JUN 09	0
CM6240	S64-70 (Excavation)	97	22 JUN 09	22 JUN 09	14 OCT 09	14 OCT 09	0
CM6290	S63-S64-S70 (Pipe Laying)	21	15 OCT 09	15 OCT 09	09 NOV 09	09 NOV 09	0
CM6300	S63-S70 (Manholes Construction)	49	10 NOV 09	10 NOV 09	07 JAN 10	07 JAN 10	0
WO 017 (SKW2nd Branches to 3rd St & CM)							
S110-S132,S127-S132							
SS4979	Inspection Pit / Liaison with UU/ UU Diversion	30	01 DEC 08	01 DEC 08	05 JAN 09	05 JAN 09	0
SS4980	S110-111	14	06 JAN 09	06 JAN 09	21 JAN 09	21 JAN 09	0
SS4990	S111-113	14	22 JAN 09	22 JAN 09	10 FEB 09	10 FEB 09	0
SS5010	S113-114	14	11 FEB 09	11 FEB 09	26 FEB 09	26 FEB 09	0
SS5020	S114-123	14	27 FEB 09	27 FEB 09	14 MAR 09	14 MAR 09	0
SS5030	S123-124	14	16 MAR 09	16 MAR 09	31 MAR 09	31 MAR 09	0
SS5040	S124-125	14	01 APR 09	01 APR 09	21 APR 09	21 APR 09	0
SS5050	S125-132	14	22 APR 09	22 APR 09	09 MAY 09	09 MAY 09	0
SS5060	S126-128	14	11 MAY 09	11 MAY 09	26 MAY 09	26 MAY 09	0
SS5070	S127-128	14	27 MAY 09	27 MAY 09	13 JUN 09	13 JUN 09	0
SS5080	S128-131	14	15 JUN 09	15 JUN 09	30 JUN 09	30 JUN 09	0
SS5090	S129-130	14	01 JUL 09	01 JUL 09	16 JUL 09	16 JUL 09	0
SS5100	S130-131	14	17 JUL 09	17 JUL 09	01 AUG 09	01 AUG 09	0
SS5110	S131-132	14	03 AUG 09	03 AUG 09	18 AUG 09	18 AUG 09	0
S47-S50							
AW6269	Inspection Pit / Liaison with UU/ UU Diversion	17	11 JAN 10	11 JAN 10	29 JAN 10	29 JAN 10	0
AW6270	S47-172	9	30 JAN 10	30 JAN 10	09 FEB 10	09 FEB 10	0
AW6280	S172-173	7	10 FEB 10	10 FEB 10	17 FEB 10	17 FEB 10	0
AW6290	S173-48	7	18 FEB 10	18 FEB 10	25 FEB 10	25 FEB 10	0
AW6300	S48-49	7	26 FEB 10	26 FEB 10	05 MAR 10	05 MAR 10	0
AW6310	S49-50	10	06 MAR 10	06 MAR 10	17 MAR 10	17 MAR 10	0
S16-S36							
CM5630	Inspection Pit / Liaison with UU/ UU Diversion	30	15 SEP 08	15 SEP 08	24 OCT 08	24 OCT 08	0
CM5640	S16-175	21	24 OCT 08	24 OCT 08	18 NOV 08	18 NOV 08	0
CM5650	S175-17	21	18 NOV 08	18 NOV 08	12 DEC 08	12 DEC 08	0
CM5660	S17-18	21	12 DEC 08	12 DEC 08	07 JAN 09	07 JAN 09	0



Start Date 31 JAN 08
Finish Date 19 APR 10

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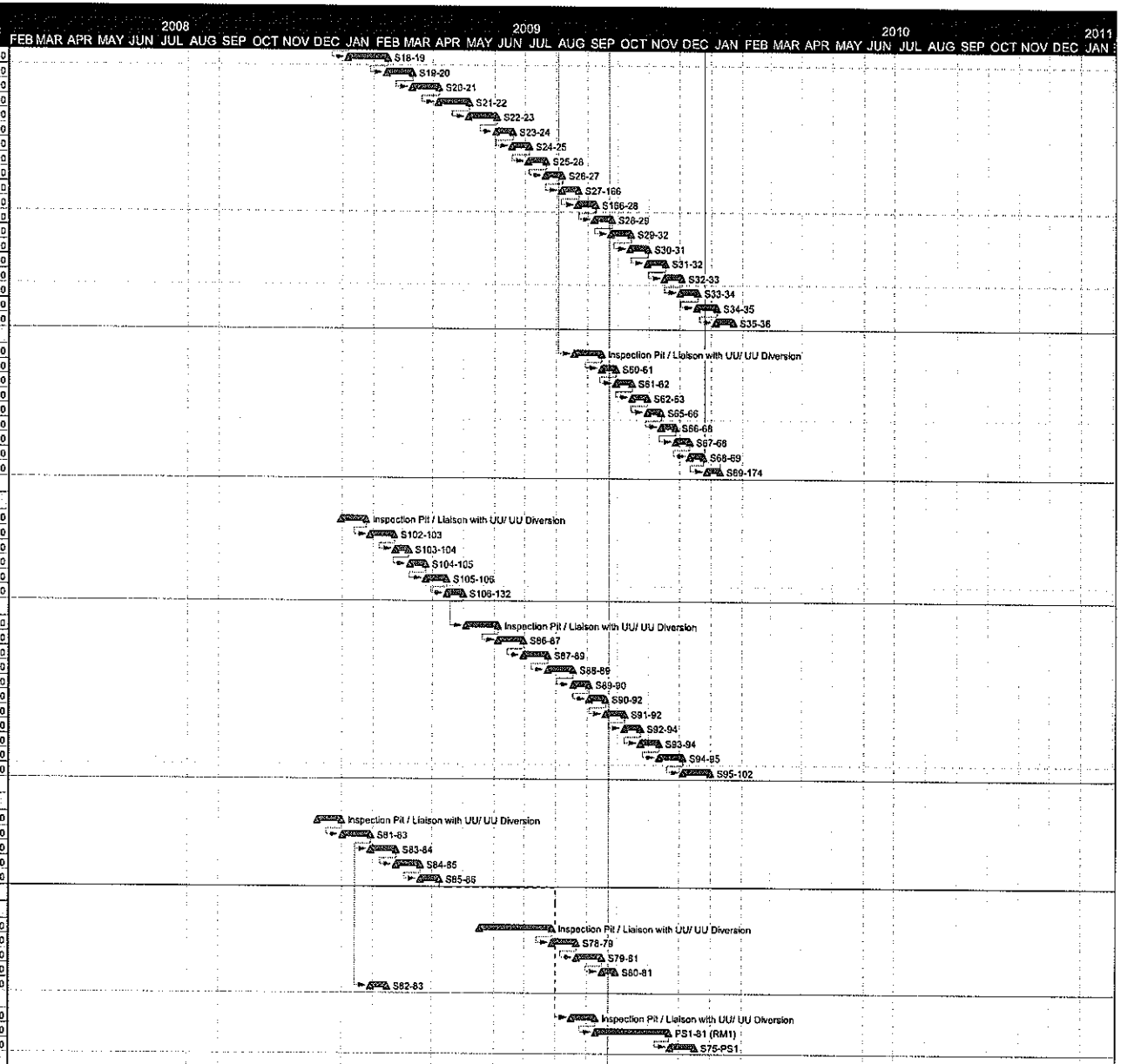
△	Early start point
▽	Early finish point
	Early bar
	Progress bar
	Critical bar
	Summary bar
▲	Progress point
◬	Critical point
▽	Summary point
◇	Start milestone point
◇	Finish milestone point

DC/2007/18
Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works
Project Programme Rev. 5

Kaden

Date	Revision	Checked	Approved
16 JUN 08	Revision 2	StL	KYS
03 SEP 08	Revision 3	StL	KC
31 OCT 08	Revision 4	StL	KYS
24 DEC 08	Revision 5	StL	KYS

Act ID	Activity Description	Rem Dur	Early Start	Late Start	Early Finish	Late Finish	Free Float
CM5670	S18-19	30	07 JAN 09	07 JAN 09	14 FEB 09	14 FEB 09	0
CM5680	S19-20	21	14 FEB 09	14 FEB 09	11 MAR 09	11 MAR 09	0
CM5690	S20-21	21	11 MAR 09	11 MAR 09	06 APR 09	06 APR 09	0
CM5700	S21-22	21	06 APR 09	06 APR 09	06 MAY 09	06 MAY 09	0
CM5710	S22-23	21	06 MAY 09	06 MAY 09	02 JUN 09	02 JUN 09	0
CM5720	S23-24	14	02 JUN 09	02 JUN 09	18 JUN 09	18 JUN 09	0
CM5730	S24-25	14	18 JUN 09	18 JUN 09	04 JUL 09	04 JUL 09	0
CM5740	S25-26	14	04 JUL 09	04 JUL 09	21 JUL 09	21 JUL 09	0
CM5750	S26-27	14	21 JUL 09	21 JUL 09	06 AUG 09	06 AUG 09	0
CM5760	S27-166	14	06 AUG 09	06 AUG 09	22 AUG 09	22 AUG 09	0
CM5770	S166-28	14	22 AUG 09	22 AUG 09	08 SEP 09	08 SEP 09	0
CM5780	S28-29	14	08 SEP 09	08 SEP 09	24 SEP 09	24 SEP 09	0
CM5790	S29-32	14	24 SEP 09	24 SEP 09	13 OCT 09	13 OCT 09	0
CM5800	S30-31	14	13 OCT 09	13 OCT 09	30 OCT 09	30 OCT 09	0
CM5810	S31-32	14	30 OCT 09	30 OCT 09	16 NOV 09	16 NOV 09	0
CM5820	S32-33	14	16 NOV 09	16 NOV 09	02 DEC 09	02 DEC 09	0
CM5830	S33-34	14	02 DEC 09	02 DEC 09	18 DEC 09	18 DEC 09	0
CM5840	S34-35	14	18 DEC 09	18 DEC 09	06 JAN 10	06 JAN 10	0
CM5850	S35-36	14	06 JAN 10	06 JAN 10	22 JAN 10	22 JAN 10 *	0
S60-S70, Incl remove AC at S67-S68							
CM6119	Inspection Pit / Liaison with UU/ UU Diversion	23	19 AUG 09	19 AUG 09	14 SEP 09	14 SEP 09	0
CM6120	S60-61	12	15 SEP 09 *	15 SEP 09	28 SEP 09	28 SEP 09	0
CM6130	S61-62	12	29 SEP 09	29 SEP 09	14 OCT 09	14 OCT 09	0
CM6140	S62-63	12	15 OCT 09	15 OCT 09	29 OCT 09	29 OCT 09	0
CM6150	S65-66	12	30 OCT 09	30 OCT 09	12 NOV 09	12 NOV 09	0
CM6160	S66-68	12	13 NOV 09	13 NOV 09	26 NOV 09	26 NOV 09	0
CM6170	S67-68	12	27 NOV 09	27 NOV 09	10 DEC 09	10 DEC 09	0
CM6180	S68-69	12	11 DEC 09	11 DEC 09	24 DEC 09	24 DEC 09	0
CM6190	S69-174	12	28 DEC 09	28 DEC 09	09 JAN 10	09 JAN 10	0
WO 020 (SKW 1st St. S86-S106 & Its Branches)							
S102-S108-S132 Incl remove AC							
SS5139	Inspection Pit / Liaison with UU/ UU Diversion	21	31 DEC 08	31 DEC 08	24 JAN 09	24 JAN 09	0
SS5240	S102-103	21	29 JAN 09	29 JAN 09	21 FEB 09	21 FEB 09	0
SS5250	S103-104	12	23 FEB 09	23 FEB 09	07 MAR 09	07 MAR 09	0
SS5260	S104-105	14	09 MAR 09	09 MAR 09	24 MAR 09	24 MAR 09	0
SS5270	S105-106	14	25 MAR 09	25 MAR 09	14 APR 09	14 APR 09	0
SS5280	S106-132	14	15 APR 09	15 APR 09	30 APR 09	30 APR 09 *	0
S86-S102, S96-S102 Incl remove AC							
SS5289	Inspection Pit / Liaison with UU/ UU Diversion	26	04 MAY 09	04 MAY 09	04 JUN 09	04 JUN 09	0
SS5290	S86-87	21	05 JUN 09	05 JUN 09	29 JUN 09	29 JUN 09	0
SS5300	S87-88	21	30 JUN 09	30 JUN 09	23 JUL 09	23 JUL 09	0
SS5310	S88-89	21	24 JUL 09	24 JUL 09	17 AUG 09	17 AUG 09	0
SS5320	S89-90	14	18 AUG 09	18 AUG 09	02 SEP 09	02 SEP 09	0
SS5330	S90-92	14	03 SEP 09	03 SEP 09	18 SEP 09	18 SEP 09	0
SS5340	S91-92	14	19 SEP 09	19 SEP 09	07 OCT 09	07 OCT 09	0
SS5350	S92-94	14	08 OCT 09	08 OCT 09	23 OCT 09	23 OCT 09	0
SS5360	S93-94	14	24 OCT 09	24 OCT 09	10 NOV 09	10 NOV 09	0
SS5370	S94-95	21	11 NOV 09	11 NOV 09	04 DEC 09	04 DEC 09	0
SS5380	S95-102	21	05 DEC 09	05 DEC 09	31 DEC 09	31 DEC 09	0
WO 023 SKW Tin Hau Temple							
S81-S86 Incl removal of AC Pipe							
TH5419	Inspection Pit / Liaison with UU/ UU Diversion	21	08 DEC 08	08 DEC 08	31 DEC 08	31 DEC 08	0
TH5420	S81-83	21	02 JAN 09	02 JAN 09	29 JAN 09	29 JAN 09	0
TH5440	S83-84	21	30 JAN 09	30 JAN 09	23 FEB 09	23 FEB 09	0
TH5450	S84-85	21	24 FEB 09	24 FEB 09	19 MAR 09	19 MAR 09	0
TH5460	S85-86	15	20 MAR 09	20 MAR 09	07 APR 09	07 APR 09	0
WO 026 (CM S1-S36, S70-S75, S78-S81, Rising Main							
S78-S79, S80.1, S82.1							
TH5389	Inspection Pit / Liaison with UU/ UU Diversion	60	18 MAY 09	18 MAY 09	28 JUL 09	28 JUL 09	0
TH5390	S78-79	21	29 JUL 09 *	29 JUL 09	21 AUG 09	21 AUG 09	0
TH5400	S79-81	21	22 AUG 09	22 AUG 09	15 SEP 09	15 SEP 09	0
TH5410	S80-81	12	16 SEP 09	16 SEP 09	29 SEP 09	29 SEP 09	0
TH5430	S82-83	14	30 JAN 09	30 JAN 09	14 FEB 09	14 FEB 09	0
Twin DN150 Rising Main							
TH5469	Inspection Pit / Liaison with UU/ UU Diversion	21	17 AUG 09	17 AUG 09	09 SEP 09	09 SEP 09	0
TH5470	PS1-81 (RM1)	60	10 SEP 09 *	10 SEP 09	21 NOV 09	21 NOV 09	0
TH5480	S75-PS1	21	23 NOV 09	23 NOV 09	16 DEC 09	16 DEC 09	0
S1-S15-S36 Incl removal of AC Pipe							



Start Date 31 JAN 08
Finish Date 19 APR 10

Page : 3A

△ Early start point
▽ Early finish point
Early bar
Progress bar
Critical bar
Summary bar

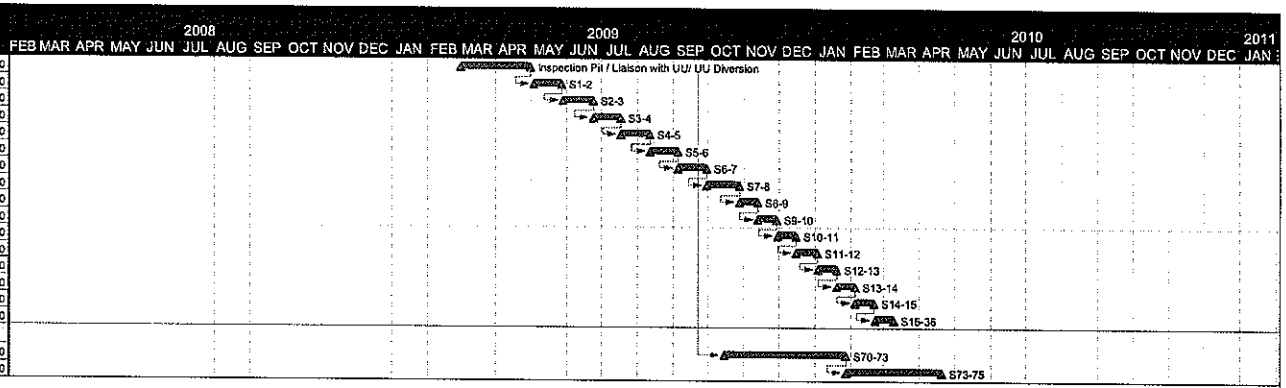
▲ Progress point
▲ Critical point
▽ Summary point
◇ Start milestone point
◇ Finish milestone point

DC/2007/18
Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works
Project Programme Rev. 5

Kaden

Date	Revision	Checked	Approved
16 JUN 08	Revision 2	StL	KYS
03 SEP 08	Revision 3	StL	KC
31 OCT 08	Revision 4	StL	KYS
24 DEC 08	Revision 5	StL	KYS

Act ID	Activity Description	Rem Dur	Early Start	Late Start	Early Finish	Late Finish	Free Float
CM5480	Inspection Pit / Liaison with UU/ UU Diversion	48	02 MAR 09	02 MAR 09	30 APR 09	30 APR 09	0
CM5490	S1-2	21	04 MAY 09	04 MAY 09	27 MAY 09	27 MAY 09	0
CM5500	S2-3	21	29 MAY 09	29 MAY 09	23 JUN 09	23 JUN 09	0
CM5510	S3-4	21	24 JUN 09	24 JUN 09	17 JUL 09	17 JUL 09	0
CM5520	S4-5	21	18 JUL 09	18 JUL 09	11 AUG 09	11 AUG 09	0
CM5530	S5-6	21	12 AUG 09	12 AUG 09	04 SEP 09	04 SEP 09	0
CM5540	S6-7	21	05 SEP 09	05 SEP 09	29 SEP 09	29 SEP 09	0
CM5550	S7-8	21	30 SEP 09	30 SEP 09	27 OCT 09	27 OCT 09	0
CM5560	S8-9	14	28 OCT 09	28 OCT 09	12 NOV 09	12 NOV 09	0
CM5570	S9-10	14	13 NOV 09	13 NOV 09	28 NOV 09	28 NOV 09	0
CM5580	S10-11	14	30 NOV 09	30 NOV 09	15 DEC 09	15 DEC 09	0
CM5590	S11-12	14	16 DEC 09	16 DEC 09	02 JAN 10	02 JAN 10	0
CM5600	S12-13	14	04 JAN 10	04 JAN 10	19 JAN 10	19 JAN 10	0
CM5610	S13-14	14	20 JAN 10	20 JAN 10	04 FEB 10	04 FEB 10	0
CM5620	S14-15	14	05 FEB 10	05 FEB 10	20 FEB 10	20 FEB 10	0
CM5630	S15-36	14	22 FEB 10	22 FEB 10	09 MAR 10	09 MAR 10	0
S70-S75 (Trenchless)							
CM6250	S70-73	87	15 OCT 09	15 OCT 09	27 JAN 10	27 JAN 10	0
CM6260	S73-75	70	28 JAN 10	28 JAN 10	19 APR 10	19 APR 10	0



Start Date 31 JAN 08
Finish Date 19 APR 10

Page : 4A

△ Early start point
▽ Early finish point
Early bar
Progress bar
Critical bar
Summary bar

▲ Progress point
▲ Critical point
▽ Summary point
◇ Start milestone point
◇ Finish milestone point

DC/2007/18
Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works
Project Programme Rev. 5

Kaden

Date	Revision	Checked	Approved
16 JUN 08	Revision 2	SIL	KYS
03 SEP 08	Revision 3	SIL	KC
31 OCT 08	Revision 4	SIL	KYS
24 DEC 08	Revision 5	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					
▪ Stockpiles of imported material kept on site should be contained within hoarding, dampened and / or covered during dry and windy weather.	All areas	√			
▪ Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses.	All areas	√			
▪ Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like.	All areas	√			
▪ 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.	All areas	√			
▪ Unpaved areas should be watered regularly to avoid dust generation.	Site Egress	√			
▪ The enclosures should be around the main dust-generating activities.	All areas	√			
▪ All plant and equipment should be well maintained e.g. without black smoke emission.	All areas	√			
▪ Open burning should be prohibited.	All areas	√			
Noise Impact					
▪ Quite powered mechanical equipment (PME) or method should be used.	All areas	√			
▪ The number plant should be restricted (1 item for each type of plant).	All areas	√			
▪ Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	All areas	√			
▪ Mobile plant, if any, should be sited as far away from NSRs as possible.	All areas	√			
▪ Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	All areas	√			
▪ Plant known to emit noise strongly should be orientated so that the noise is directed away from nearby NSRs.	All areas	√			
▪ The constructions works should be scheduled to minimize noise nuisance.	All areas	√			
▪ Air compressors and hand held breakers should have noise labels.	All areas				√
▪ Compressors and generators should operate with door closed.	All areas	√			
Water Quality					
General Construction Works					
▪ 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 areas	√			
▪ 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.	All areas		√		
▪ Open drainage channels and culverts near the works areas should be covered to block the entrance of large debris and refuse.	All areas	√			

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Waste Management					
General Site Wastes					
• 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 form 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 Ordnance.	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	√			

Appendix G

Vegetation Survey Report

Your Ref.: DC200718/R05/600/O00941 & DC/200718/M45/200/O0
Our Ref.: K0801/01.01.00.00/1876/L
Date: 2 June 2009

Kaden 基利

Scott Wilson CDM Joint Venture
38/F, Metroplaza Tower 1
223 Hing Fong Road
Kwai Fong, N.T.
Hong Kong

Attn: Ir. Ian J. Jones

By Hand

Dear Sir,

Drainage Services Department
Contract No. DC/2007/18
Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works
V.O. No. 016 – Vegetation and Plant Species Survey

We refer to your above referenced letters dated 27 March & 2 June 2009 and site discussions during Progress Meeting on 11 May 09 regarding the captioned. Please be informed that the vegetation survey has been carried out by our landscape sub-contractor "Bluet" on 17 April 09. Enclosed please find the vegetation report including the photographic records and as-built survey for the uncommon species "Celtis Timorensis (假玉桂)" found at Sok Kwu Wan with proposed protective measures for your reference.

On the other hand, the uncommon species nearby our working areas have also been fenced off with plastic barriers and identified on site as shown in the enclosed photos

Thank you for your kind attention.

Yours faithfully,
For and on behalf of
Kaden Construction Limited

Stephen Leung
Site Agent

StL/pys

Encl.

c.c. IEC Attn: Mr. Rodney Ip (By Fax only: 2428 9922)
ETS Attn: Mr. C. L. Lau (By Fax only: 2695 3944)
Kaden – CFS/JC/IS

Kaden Construction Limited
Units 1001 - 1015, 10/F Grand Central Plaza, Tower 1, 138 Shatin Rural Committee Road, Sha Tin, N.T., Hong Kong
Tel (852) 2272 3670 Fax (852) 2528 1751
A MEMBER OF BUILD KING HOLDINGS 利基控股集團成員

BLUET HYDROSEEDING LTD.

LOT 128, NINE MILESTONE, CLEAR WATER BAY ROAD, KOWLOON, HONG KONG.
TEL: (852) 2719 3935 FAX : (852) 2358 0192 EMAIL : bluet@netvigator.com

By Fax: 2370 3413
Tel: 2307 4629

Our ref.: BH7588/09
Date: 30 May, 2009

Kaden Construction Ltd.
Unites 1601-1605, 16/F
Grand Central Plaza Tower 2
138 Shatin Rural Committee Road
New Territories, Hong Kong

Attn: Mr. Ir Stephen Leung

Dear Sirs,

RE : Contract No. DC/2007/18
Yung Shue Wan and Sok Kwu Wan Village Swerage, Stage 1 Works
Re: Protection of Uncommon Plants

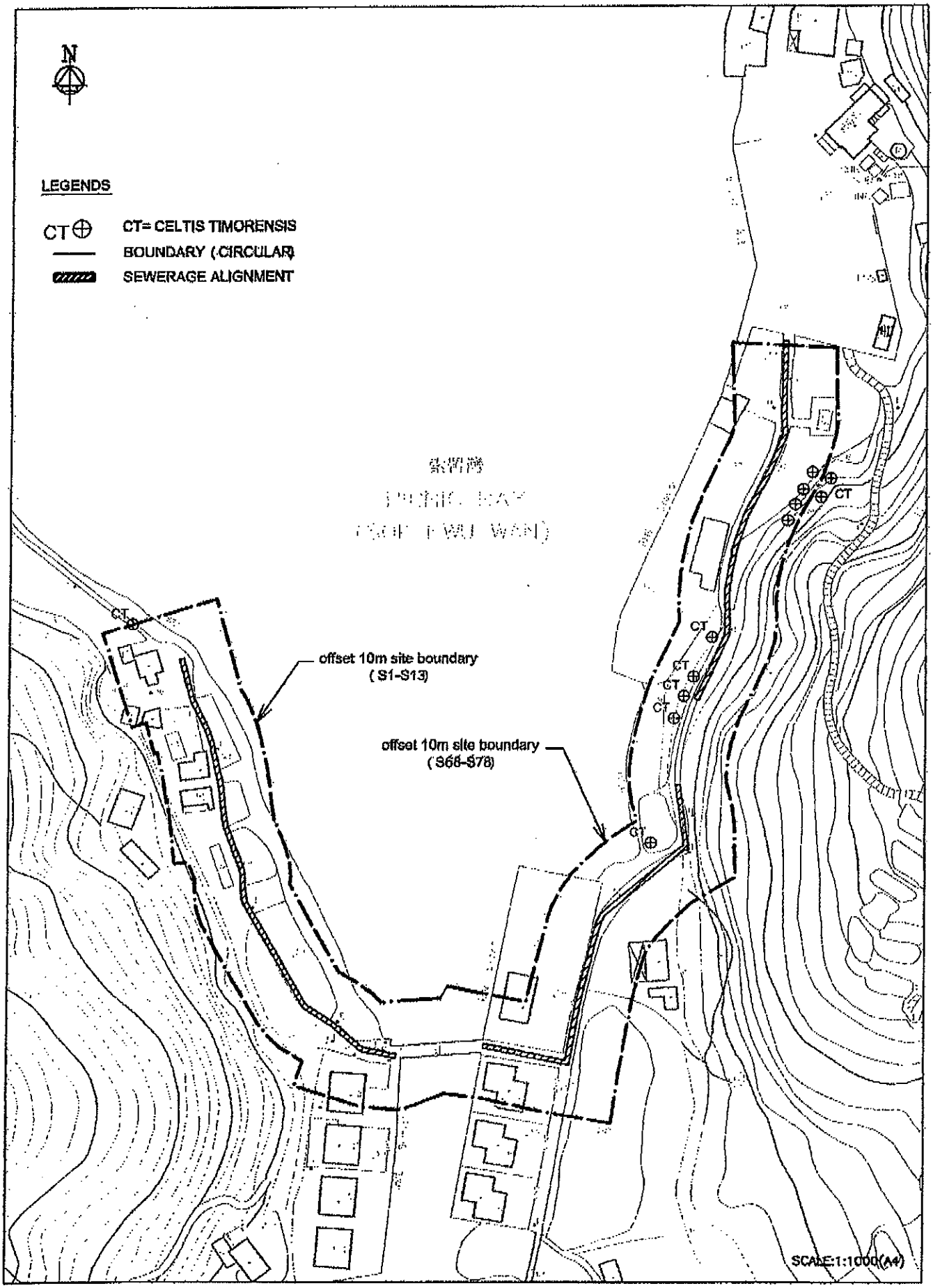
Further to our site visit on the captioned site, we would like to suggest the protection works for uncommon plants as follows:

1. Fence-off the area of uncommon plants and sufficient notice.
2. Provide training for workers about the identification of uncommon plants.

Thanks for your kind attention.

Yours truly
For and on behalf of
BLUET HYDROSEEDING LTD.

Chu Ping Hin
Assistant Contracts Manager
HC


N
LEGENDS
CT⊕ CT= CELTIS TIMORENSIS
BOUNDARY (CIRCULAR)
SEWERAGE ALIGNMENT
offset 10m site boundary
(S1-S13)
offset 10m site boundary
(S68-S78)
CT
SCALE:1:1000(A4)

V.O. No. 16 – Vegetation and Plant Species Survey

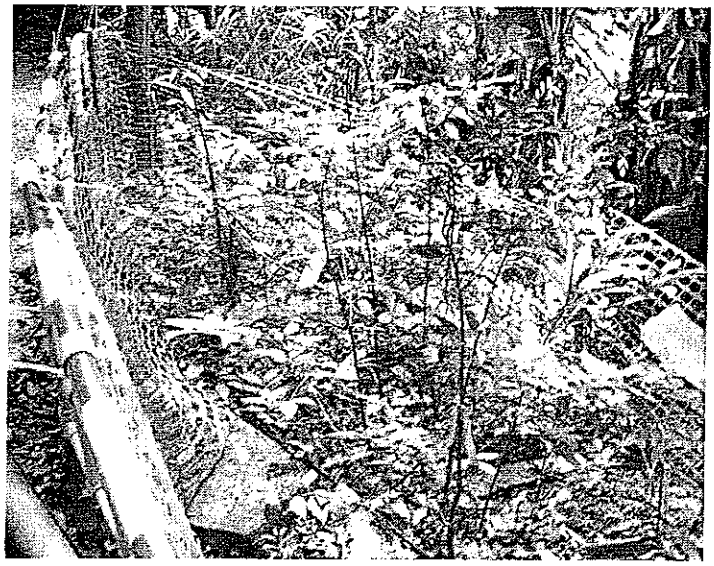
V.O. No. 16 – Vegetation and Plant Species Survey

V.O. No. 16 – Vegetation and Plant Species Survey

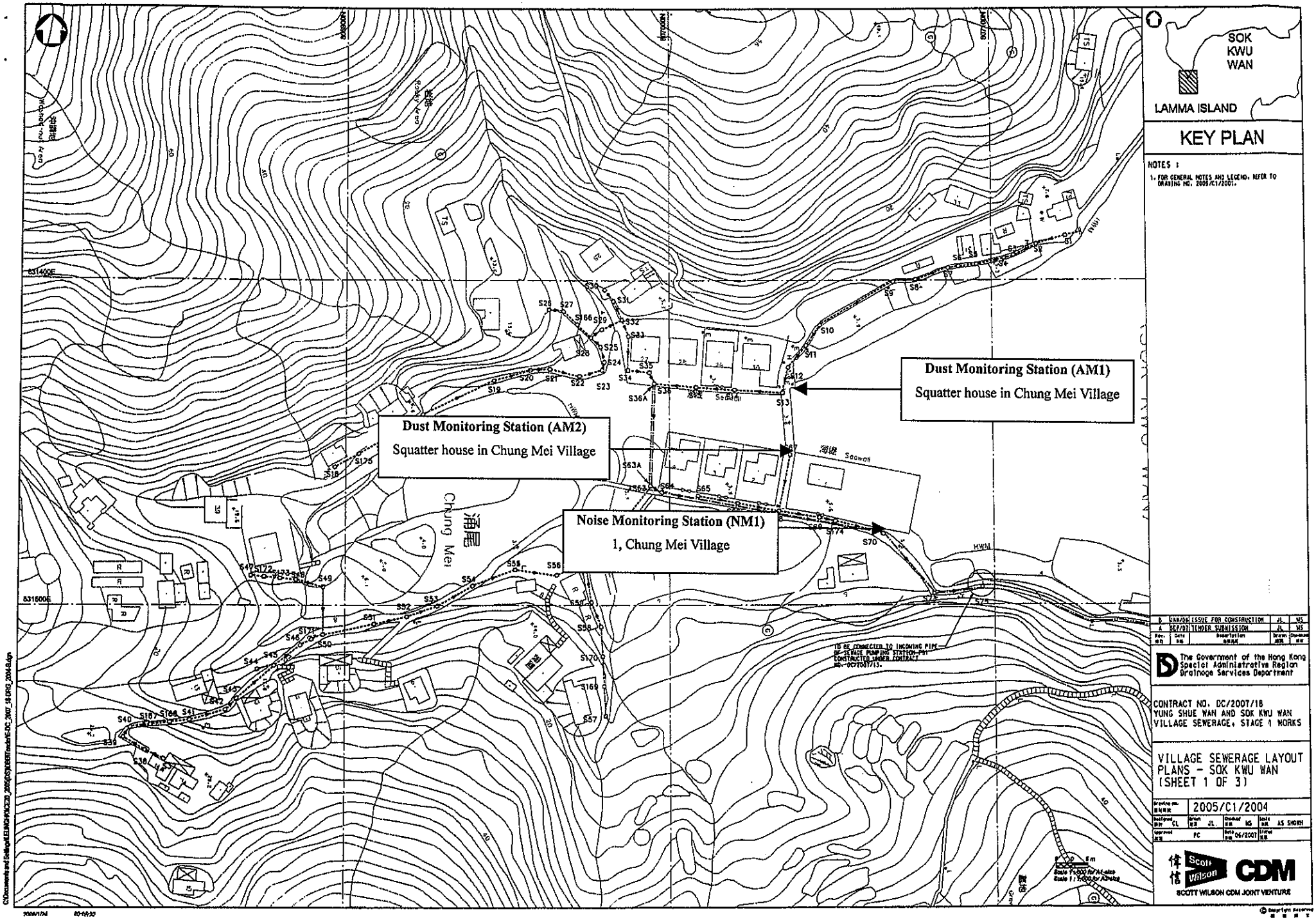
Appendix H

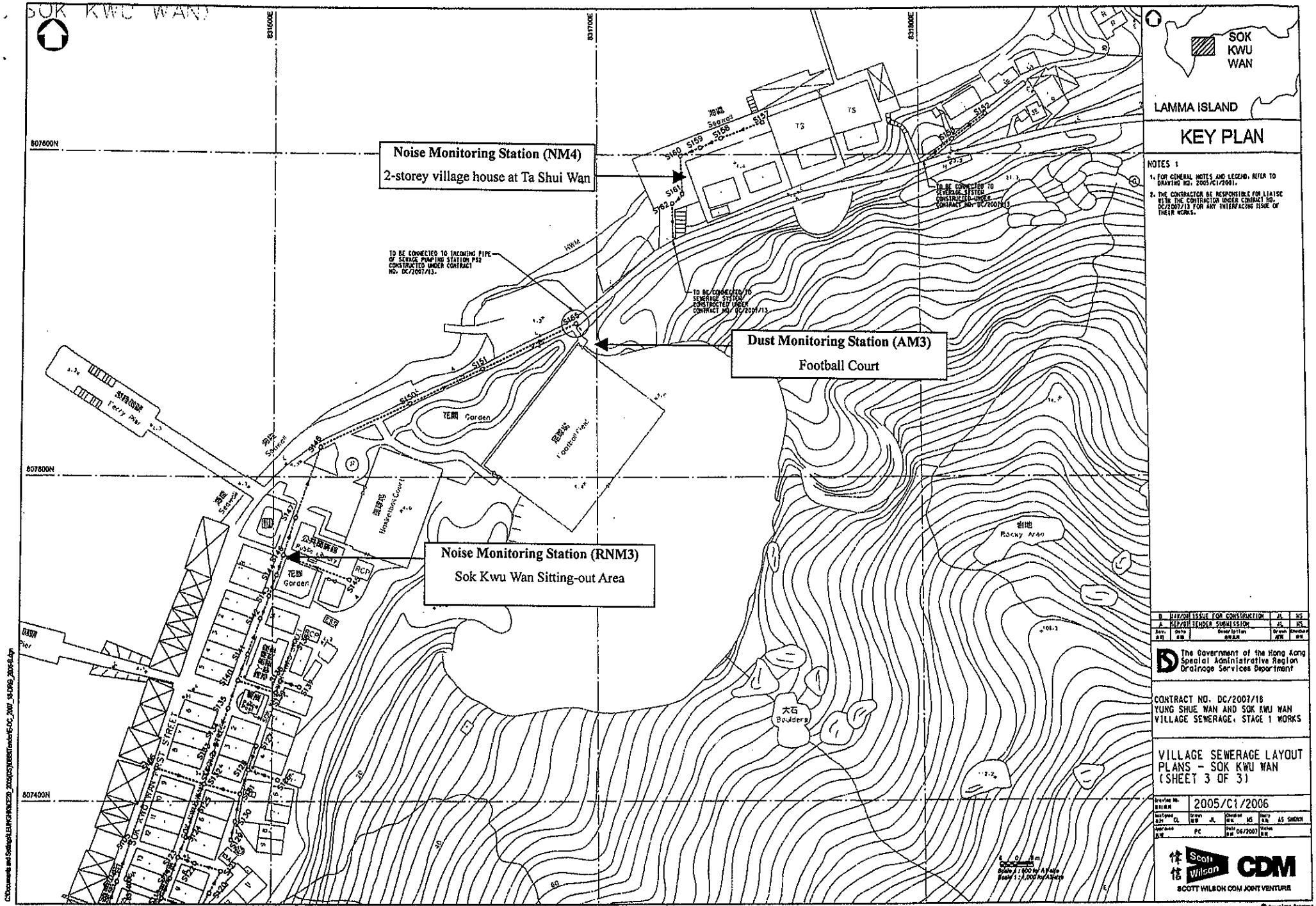
Photographic Records of the Uncommon Tree Species

Photos of Uncommon Tree Species



Figures


Dust Monitoring Station (AM1)
Squatter house in Chung Mei Village
Dust Monitoring Station (AM2)
Squatter house in Chung Mei Village
Noise Monitoring Station (NM1)
1, Chung Mei Village
Chung Mei
631400E
631600E
TO BE CONNECTED TO INCOMING PIPE OF SEWAGE PUMPING STATION-PS1 CONSTRUCTED UNDER CONTRACT NO.-DC/2007/15.
SOK KWU WAN
LAMMA ISLAND
KEY PLAN
NOTES :
1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 2005/C1/2007.
B 08/08/08 ISSUE FOR CONSTRUCTION JL MS
A 05/07/01 TENDER SUBMISSION JL MS
The Government of the Hong Kong Special Administrative Region
Drainage Services Department
CONTRACT NO. DC/2007/16
YUNG SHUE WAN AND SOK KWU WAN VILLAGE SEWERAGE, STAGE 1 WORKS
VILLAGE SEWERAGE LAYOUT PLANS - SOK KWU WAN (SHEET 1 OF 3)
2005/C1/2004
AS SHOWN
SCOTT WILSON CDM JOINT VENTURE



SOK KWU WAN

LAMMA ISLAND

KEY PLAN

NOTES :

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 2005/C1/2001.
2. THE CONTRACTOR BE RESPONSIBLE FOR LIAISE WITH THE CONTRACTOR UNDER CONTRACT NO. DC/2007/13 FOR ANY INTERFACING ISSUE OF THEIR WORKS.

B	04/08	ISSUE FOR CONSTRUCTION	JL	MS
A	SEP/07	TENDER SUBMISSION	JL	MS
Rev.	Date	Description	Drawn	Checked

The Government of the Hong Kong Special Administrative Region
Drainage Services Department

CONTRACT NO. DC/2007/18
YUNG SHUE WAN AND SOK KWU WAN VILLAGE SEWERAGE, STAGE 1 WORKS

VILLAGE SEWERAGE LAYOUT PLANS - SOK KWU WAN (SHEET 3 OF 3)

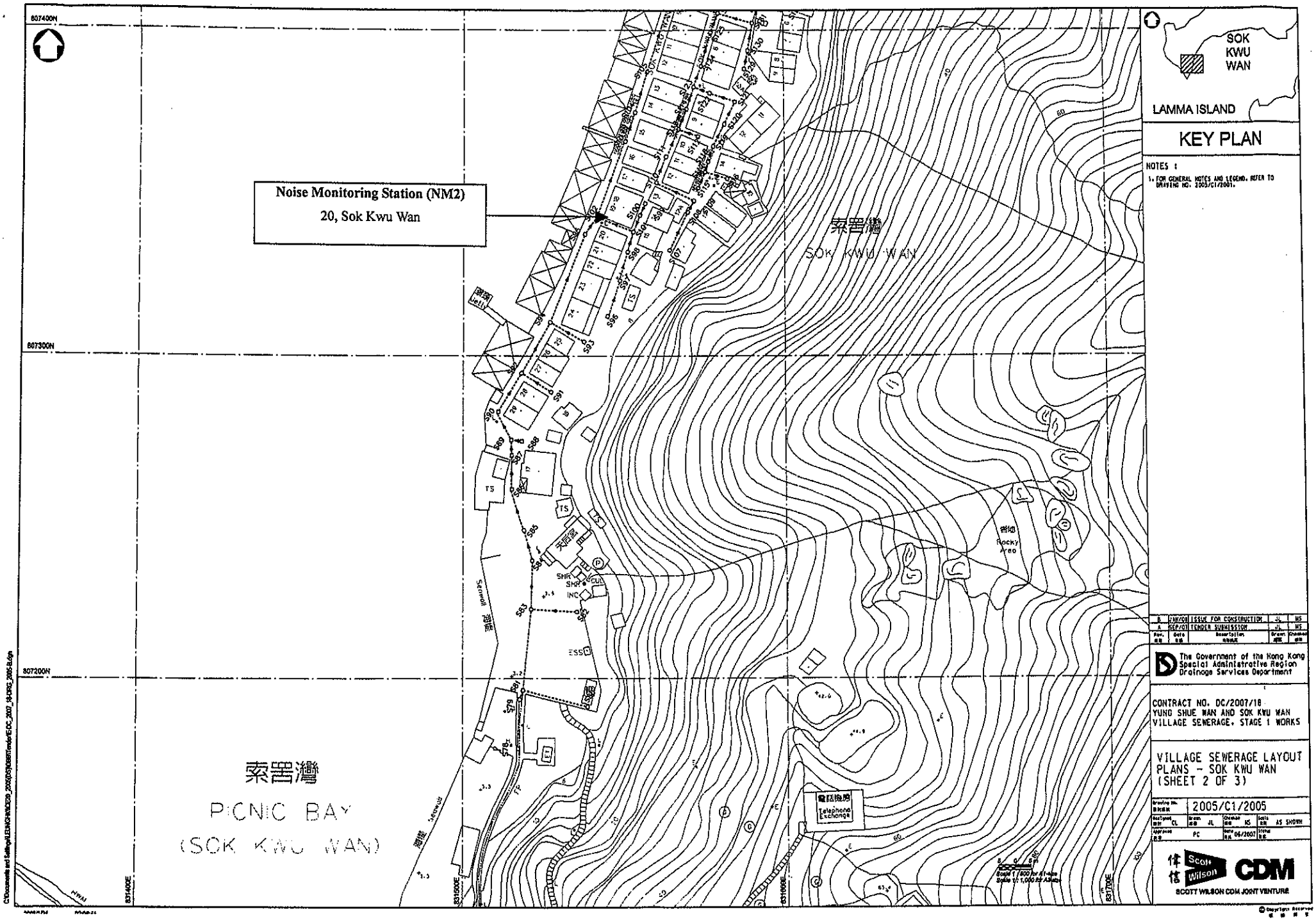
Drawing No. 2005/C1/2006

Designed G.L. | Drawn J.L. | Checked M.S. | Date AS SHOWN

Approved P.C. | Date 06/2007

Scott Wilson CDM

SCOTT WILSON CDM JOINT VENTURE


807400N
807300N
807200N
831400E
831500E
831600E
831700E
Noise Monitoring Station (NM2)
20, Sok Kwu Wan
索罟灣
SOK KWU WAN
索罟灣
PICNIC BAY
(SOK KWU WAN)
Telephone Exchange
Rocky Area
SOK KWU WAN
LAMMA ISLAND
KEY PLAN
NOTES :
1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 2005/C1/2001.
ISSUE FOR CONSTRUCTION
TENDER SUBMISSION
The Government of the Hong Kong Special Administrative Region
Drainage Services Department
CONTRACT NO. DC/2007/18
YUNG SHUE WAN AND SOK KWU WAN
VILLAGE SEWERAGE, STAGE 1 WORKS
VILLAGE SEWERAGE LAYOUT PLANS - SOK KWU WAN (SHEET 2 OF 3)
2005/C1/2005
SCOTT WILSON CDM JOINT VENTURE