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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.12**

(MAY 2009)

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Attention: Mr. C K Au

Your reference:

Our reference: 05117/6/10/325159

Date: 11 June 2009

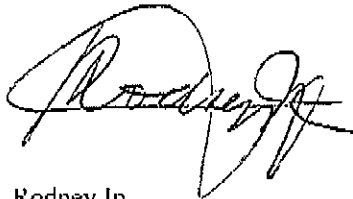
BY FAX ONLY

Dear Sir

Contract No. DC/2007/18
Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works
Monthly Impact Monitoring Report No. 12

I refer to the Environmental Permit (EP-281/2007) and the email from the environmental team, ETS-Testconsult Limited with the revised report, dated 11 June 2009. I do not have further comment and have verified the captioned report.

Yours faithfully
SCOTT WILSON CDM JOINT VENTURE



Rodney Ip

ANCP/ancp

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



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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.12 has been prepared by the ET of ETS-Testconsult Limited to document the impact monitoring works conducted for the Project in May 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): 4 Occasions at 4 designated locations;
- 24-hour TSP Monitoring: 5 Occasions at 4 designated locations;
- 1-hour TSP Monitoring: 15 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, 31.5 m³ Public Fill and 1.81 tonne of general refuse were generated and disposed to Sok Kwu Wan Refuse Transfer Station (SKWRTS) properly. Besides, 35 m³ inert C&D materials reused in the Contract were recorded in this reporting month.

Site Inspection

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

<u>Concerned Parties</u>	<u>Dates of Audit / Inspection</u>
ET	06, 12, 18 and 27 May 2009
RE / IEC / Kaden / ET	18 May 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	Stockpiles of filling materials at S81 were found without cover during weekly site inspection on 06/05/09.	The Contractor replied to cover the stockpiles or water them when in use.	During the subsequent weekly site inspection on 12/05/09, the stockpiles were found covered by using tarpaulin sheets.
2	Water	Follow up action to the outstanding finding in the previous month, stagnant water at S63 was drained and pesticide was also applied during weekly site inspection on 06/05/09.	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	Follow up action to the outstanding finding in the previous month, wooden plate was installed inside the sedimentation tank at S165 in order to enhance the silting capacity during the weekly site inspection on 12/05/09.	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.
4	Water	Wastewater was found leaked from a broken pipeline at S36 to the nearby environment during the weekly site inspection on 12/05/09.	The Contractor replied to repair the broken pipeline as soon as possible.	During the next weekly site inspection on 18/05/09, the broken pipeline was found repaired and no wastewater was observed leaked to the nearby environment.
5	Water	In the weekly site inspection on 18/05/09, a sedimentation tanks at S143 was found too small and hence did not provide sufficient retention time for the suspended solids to settle down under such large flow rate. As a result, wastewater was considered to be treated improperly before discharged	The Contractor replied to re-design the sedimentation tank in order to enhance the desilting capacity.	During the subsequent weekly site inspection on 27/05/06, the sedimentation tank at S143 was found not in use since no construction works was carried out.
6	Water	During the weekly site inspection on 18/05/09, the design of sedimentation tank at S63 was found improperly, such that the inlet pipe was found to be too long (lengthen to the middle part of the tank) and the tank located in a slope. These affected the capacity of the sedimentation tank.	The Contractor replied to re-construct the sedimentation tank, e.g. relocating the sedimentation tank in a horizontal position and shorten the inlet pipe.	During the last weekly site inspection on 27/05/09, the sedimentation tank has been relocated back to the ground level. However, the inlet pipe was still so long that lengthen to the middle part of the tank and hence it will be verified in the coming month.
7	Chemical	Several chemical tanks at storage area S147 were found without labels and drip trays during the weekly site inspection on 18/05/09.	The Contractor replied to provide appropriate labels and drip tray for all chemicals.	Since the finding was still observed during the last weekly site inspection in this reporting month, it will be verified in the coming month.
8	Site Practice	Construction waste was noted along the channel at S63 during the weekly site inspection on 06/05/09.	The Contractor replied to collect and treat the waste properly.	During the subsequent weekly site inspection on 12/05/09, the construction waste was collected.
9	Site Practice	An idle air compressor at S70 was found without drip tray during the weekly site inspection on 18/05/09	The Contractor replied to provide drip tray for all air compressors.	During the following weekly site inspection on 27/05/09, a drip tray was noted provided for the air compressor.



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 May 2009. This monthly EM&A report can be accessed on the web at <http://www.skwsewer.com>.

2.0 PROJECT INFORMATION

2.1 Background

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

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

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

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

2.2 Site Description

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

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

2.3 Construction Programme

The construction programme is shown in Appendix E.



2.4 Project Organization and Management Structure

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

2.5 Contact Details of Key Personnel

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

Table 2.1 Contact Details of Key Personnel

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

2.6 Construction Progress in this reporting month

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

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

3.0 IMPACT AIR QUALITY MONITORING

3.1 Monitoring Requirement

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

3.2 Monitoring Equipment

24-hour TSP Monitoring

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

Installation

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

Operation/Analytical Procedures

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

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

- For TSP sampling, fiberglass filters (GA-55) were used.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated 5 minutes to establish thermal equilibrium before placing any filter media at designated air monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.



- The filter was aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter. Then the filter holder frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The programmable timer will be set for a sampling period of 24 hours. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number.).
- After sampling, the filter was transferred from the filter holder of the HVS to a sealed plastic bag and sent to the laboratory for weighting. The elapsed time was also recorded.
- Before weighting, all filters were equilibrated in a desiccator for 24 hour with the temperature of $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and the relative humidity (RH) $<50\% \pm 5\%$.

Maintenance & Calibration

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

1-hour TSP Monitoring

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

Measuring Procedures

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

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

Maintenance & Calibration

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

3.3 Laboratory Measurement / Analysis

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

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

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

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



3.4 Monitoring Parameters, Frequency and Duration

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

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

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

3.5 Monitoring Locations

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

Table 3.2 Air monitoring stations

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

3.6 Action and Limit Levels

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

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

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

3.7 Event-Action Plans

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

3.8 Results

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

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*
06/05/09	09:20	166	X	09:23	157	X	13:00	192	X
06/05/09	10:20	147	X	10:23	142	X	14:00	214	X
06/05/09	11:20	153	X	11:23	135	X	15:00	203	X
12/05/09	09:15	185	X	09:18	171	X	13:00	226	X
12/05/09	10:15	163	X	10:18	151	X	14:00	213	X
12/05/09	11:15	148	X	11:18	141	X	15:00	220	X
18/05/09	09:12	187	X	09:15	156	X	13:00	166	X
18/05/09	10:12	219	X	10:15	175	X	14:00	193	X
18/05/09	11:12	161	X	11:15	149	X	15:00	203	X
22/05/09	09:13	178	X	09:16	178	X	13:00	168	X
22/05/09	10:13	209	X	10:16	208	X	14:00	216	X
22/05/09	11:13	193	X	11:16	188	X	15:00	197	X
27/05/09	09:13	193	X	09:16	180	X	13:00	167	X
27/05/09	10:13	214	X	10:16	202	X	14:00	201	X
27/05/09	11:13	183	X	11:16	172	X	15:00	191	X
Parameter	24-hr TSP Monitoring								
Station	AM1		AM2		AM3				
Date	Result	Exceed*	Result	Exceed*	Result	Exceed*			
06/05/09	69	X	69	X	82	X			
12/05/09	34	X	33	X	83	X			
18/05/09	28	X	24	X	25	X			
22/05/09	33	X	30	X	132	X			
27/05/09	42	X	37	X	52	X			

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

4.0 IMPACT NOISE MONITORING

4.1 Monitoring Requirements

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

4.2 Monitoring Equipment

Integrating Sound Level Meters used for impact noise monitoring were Type 1 sound level meters capable of giving a continuous readout of the noise level reading including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x). They complied with International Electro technical Commission Publications 651:1979 (Type1) and speed in m/s was used to monitor the wind speed. Table 4.1 summarized the noise monitoring equipment model used during the impact monitoring. Copies of calibration certificates and Calibration Summary for noise meters and calibrators used are attached in Appendix C1.

Table 4.1 Noise Monitoring Equipment

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



4.3 Monitoring Parameters, duration and Frequency

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

- Daytime: three sets of 30-minute noise level monitored between 0700-1900 hrs on normal weekdays;
 - Evening-time*: three sets of 5-minute noise level monitored between 1900-2300 hrs ;
 - Night-time*: three sets of 5-minute noise level monitored between 2300-0700 hrs of next day; and
 - Holiday*: three sets of 5-minute noise level monitored between 0700-1900 hrs on holiday.
- (*): Noise monitoring to be conducted only when there is construction work.

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

Table 4.2 Duration, Frequencies and Parameters of Noise Monitoring

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

4.4 Monitoring Locations

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

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

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

Table 4.3 Noise Monitoring Stations

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

4.5 Monitoring Methodology

Instrumentation

Integrating Sound Level Meters were employed for noise monitoring.

Operation/Analysis Procedures

- Sound Level Meter was set on a tripod at a height of 1.2m above the ground;
- For free field measurement, the meter was positioned away from any nearby reflective surfaces.
- The battery condition was checked to ensure the correct functioning of the meter:
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting : A
 - Time weighting : Fast
 - Time measurement : 5 mins



- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000HZ. If the difference in the calibration level before and after measurement was more than 1.0 dB(A), the measurement would be considered invalid and repeat measurement would be required after re-calibration or repair of the equipment;
- During the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet;
- Noise measurement may be paused during periods of high intrusive noise (e.g. dog barking directly towards the receiver of noise level meter). If noise measurement was paused during high intrusive noise, the noise level meter would be resumed and continued the noise measurement and the observations would also be recorded. Any pause intervals were not included in the measurement time; and
- Noise monitoring would be cancelled in the presence of fog, rain, storm, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator are cleaned with soft cloth at quarterly intervals; and
- The meters are sent to supplier or HOKLAS laboratory to check and calibrated at yearly intervals.

4.6 Actions and Limit Levels

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

Table 4.4 Action and Limit Levels for Noise Monitoring

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

4.7 Event-Action Plans

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

4.8 Results

Totally 4 occasions of Day-time noise monitoring were carried out at monitoring stations in this reporting month. No Evening-time, Night-time and Holiday noise monitoring were required since no construction works were processed during the night-time period.

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	06/05/09	67.3	X	69.0	X	66.4	X	63.7	X
	12/05/09	58.2	X	73.6	X	74.0	X	73.7	X
	18/05/09	61.9	X	65.1	X	70.0	X	52.1	X
	27/05/09	64.5	X	65.1	X	61.7	X	63.8	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 06, 12, 18 and 27 May 2009 by ET. Monthly joint site inspection at 18 May 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	Stockpiles of filling materials at S81 were found without cover during weekly site inspection on 06/05/09.	The Contractor replied to cover the stockpiles or water them when in use.	During the subsequent weekly site inspection on 12/05/09, the stockpiles were found covered by using tarpaulin sheets.
2	Water	Follow up action to the outstanding finding in the previous month, stagnant water at S63 was drained and pesticide was also applied during weekly site inspection on 06/05/09.	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	Follow up action to the outstanding finding in the previous month, wooden plate was installed inside the sedimentation tank at S165 in order to enhance the silting capacity during the weekly site inspection on 12/05/09.	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.
4	Water	Wastewater was found leaked from a broken pipeline at S36 to the nearby environment during the weekly site inspection on 12/05/09.	The Contractor replied to repair the broken pipeline as soon as possible.	During the next weekly site inspection on 18/05/09, the broken pipeline was found repaired and no wastewater was observed leaked to the nearby environment.
5	Water	In the weekly site inspection on 18/05/09, a sedimentation tanks at S143 was found too small and hence did not provide sufficient retention time for the suspended solids to settle down under such large flow rate. As a result, wastewater was considered to be treated improperly before discharged	The Contractor replied to re-design the sedimentation tank in order to enhance the desilting capacity.	During the subsequent weekly site inspection on 27/05/06, the sedimentation tank at S143 was found not in use since no construction works was carried out.



Item	Aspect	Finding	Action(s) to be taken by the Contractor	ET Verification
6	Water	During the weekly site inspection on 18/05/09, the design of sedimentation tank at S63 was found improperly, such that the inlet pipe was found to be too long (lengthen to the middle part of the tank) and the tank located in a slope. These affected the capacity of the sedimentation tank.	The Contractor replied to re-construct the sedimentation tank, e.g. relocating the sedimentation tank in a horizontal position and shorten the inlet pipe.	During the last weekly site inspection on 27/05/09, the sedimentation tank has been relocated back to the ground level. However, the inlet pipe was still so long that lengthen to the middle part of the tank and hence it will be verified in the coming month.
7	Chemical	Several chemical tanks at storage area S147 were found without labels and drip trays during the weekly site inspection on 18/05/09.	The Contractor replied to provide appropriate labels and drip tray for all chemicals.	Since the finding was still observed during the last weekly site inspection in this reporting month, it will be verified in the coming month.
8	Site Practice	Construction waste was noted along the channel at S63 during the weekly site inspection on 06/05/09.	The Contractor replied to collect and treat the waste properly.	During the subsequent weekly site inspection on 12/05/09, the construction waste was collected.
9	Site Practice	An idle air compressor at S70 was found without drip tray during the weekly site inspection on 18/05/09	The Contractor replied to provide drip tray for all air compressors.	During the following weekly site inspection on 27/05/09, a drip tray was noted provided for the air compressor.

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)	0.0665		0.4183
	Broken Concrete (in '000m ³)	0.0083	SKWRTS	0.0208
	Reused in the Contract (in '000m ³)	0.035	For Stockpile / Reuse	0.16
	Reused in other Projects (in '000m ³)	0	N/A	0.09
	Disposal as Public Fill (in '000m ³)	0.0315	SKWRTS	0.1683
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)	1.81	SKWRTS	3.74

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 *Celtis timorensis* plants were identified at certain locations at Chung Mei. It was agreed that a full vegetation survey (in addition to the previous tree survey) should be conducted to identify the immature uncommon species.

Kaden had employed a 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.

No sewerage works have been taken place in the concerned areas as yet. A temporary access road is proposed to be built near the concerned areas and the temporary access plan is attached in Appendix H. The Contractor has used plastic rails to fence off the plants from the construction works and notices have been posted for warning the site personnel of the presence of the uncommon tree species. Photos attached in Appendix I 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

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

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

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

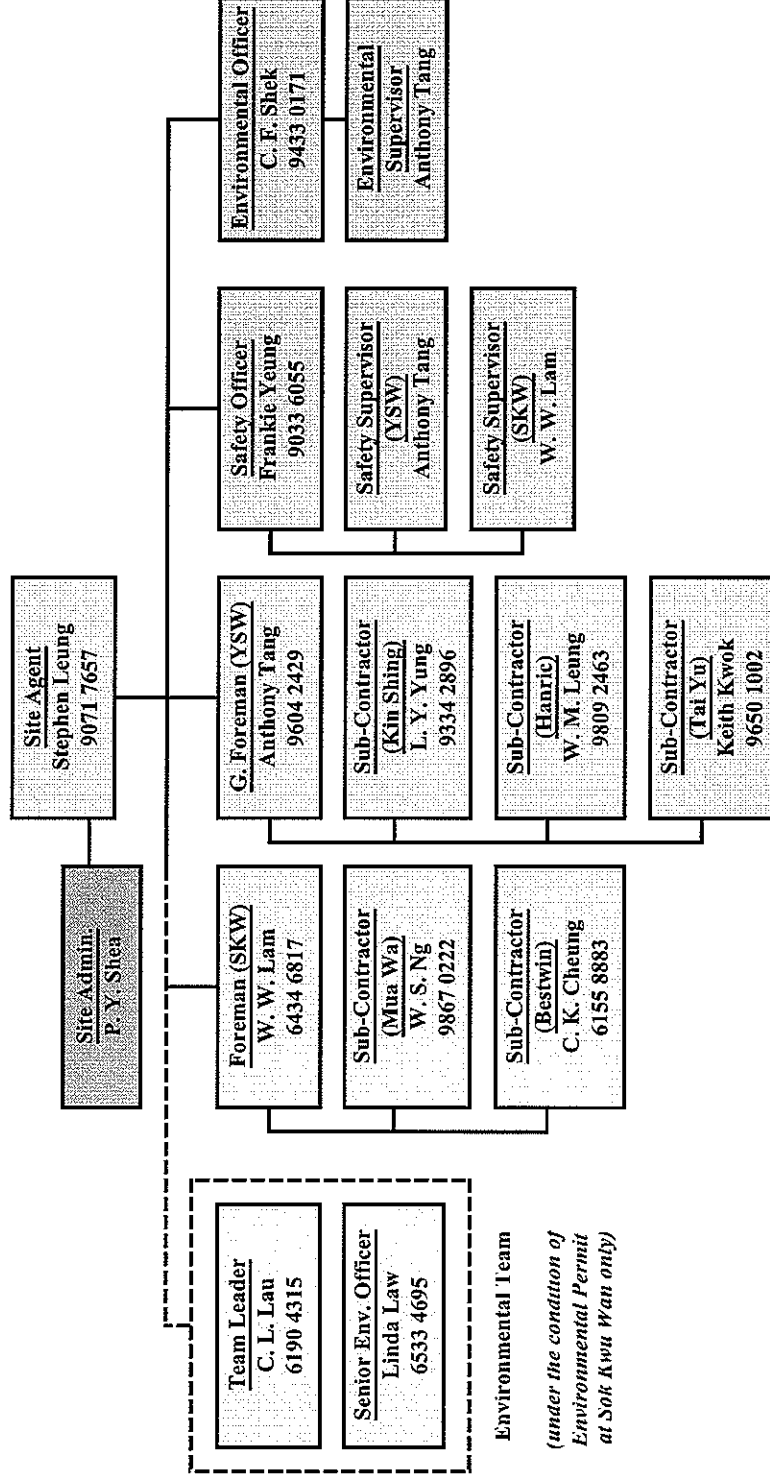
Organization Chart and Lines of Communication

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. 14.00)

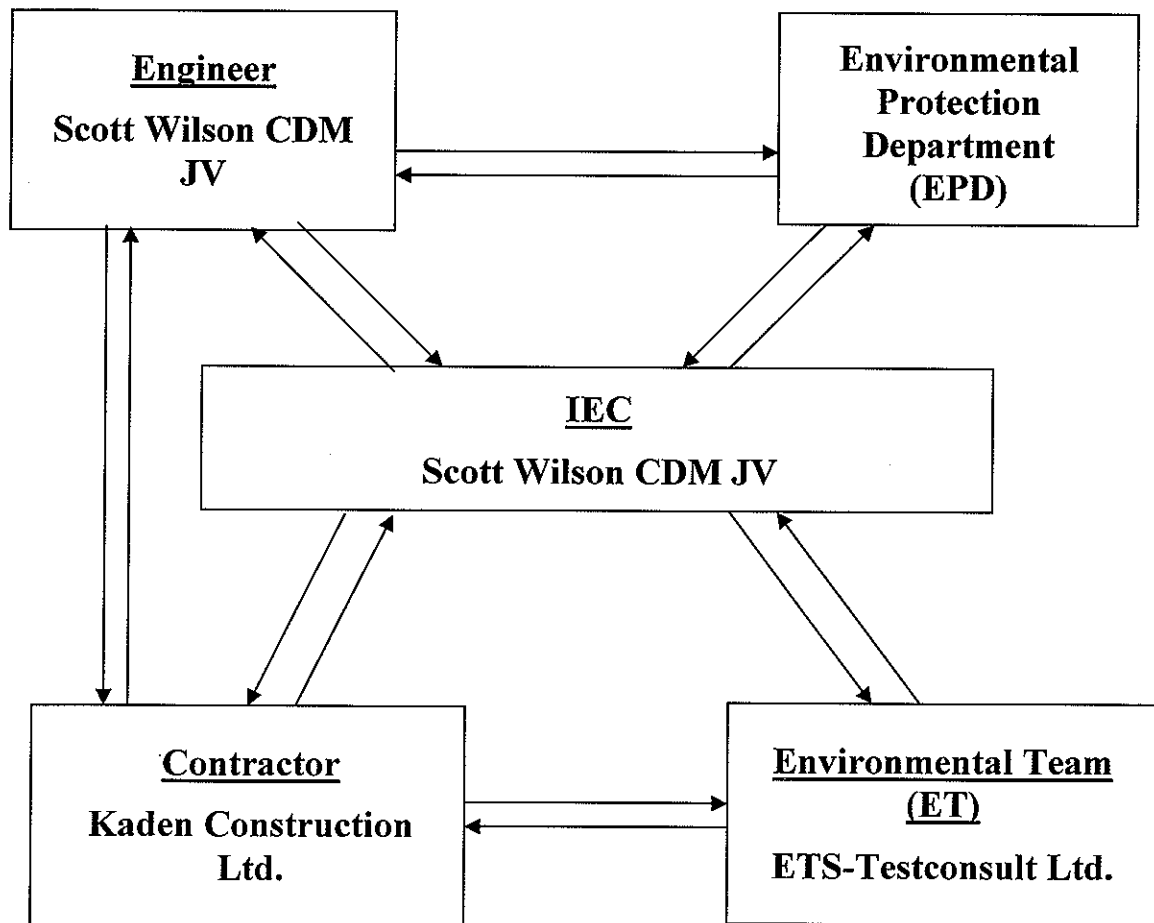


Team Leader
C. L. Lau
6190 4315

Senior Env. Officer
Linda Law
6533 4695

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

Lines of Communication





Appendix B1

Calibration Certificates for Impact Air Quality Monitoring Equipments



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

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

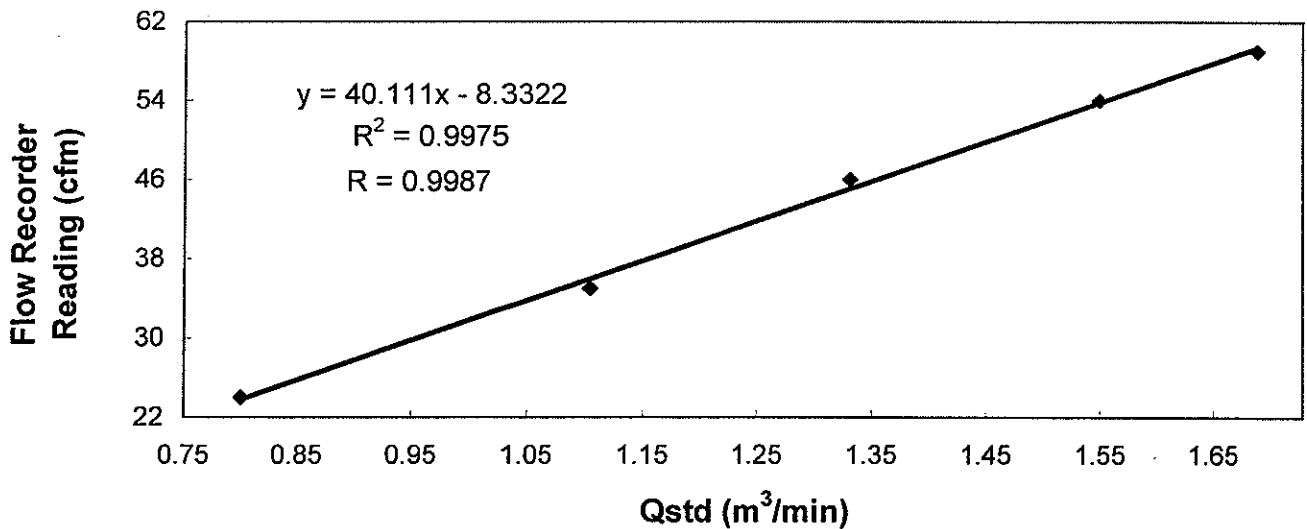
TEST REPORT

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

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

TEST REPORT

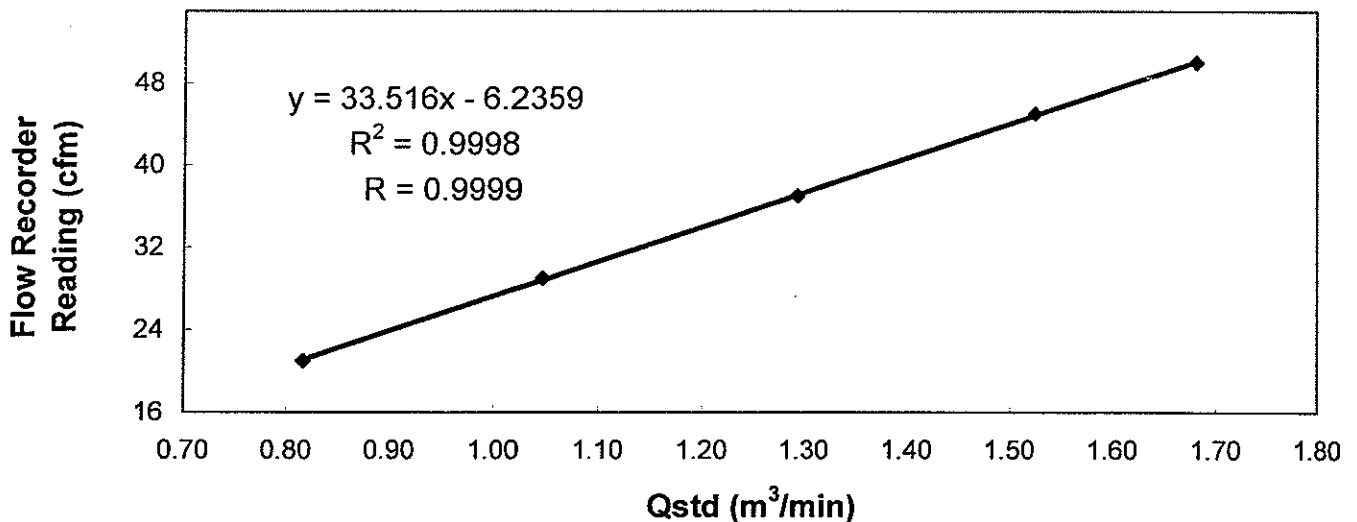
Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 20 April 2009
Serial No. : 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)

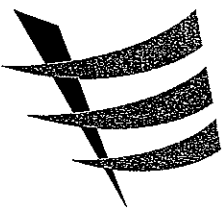


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

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
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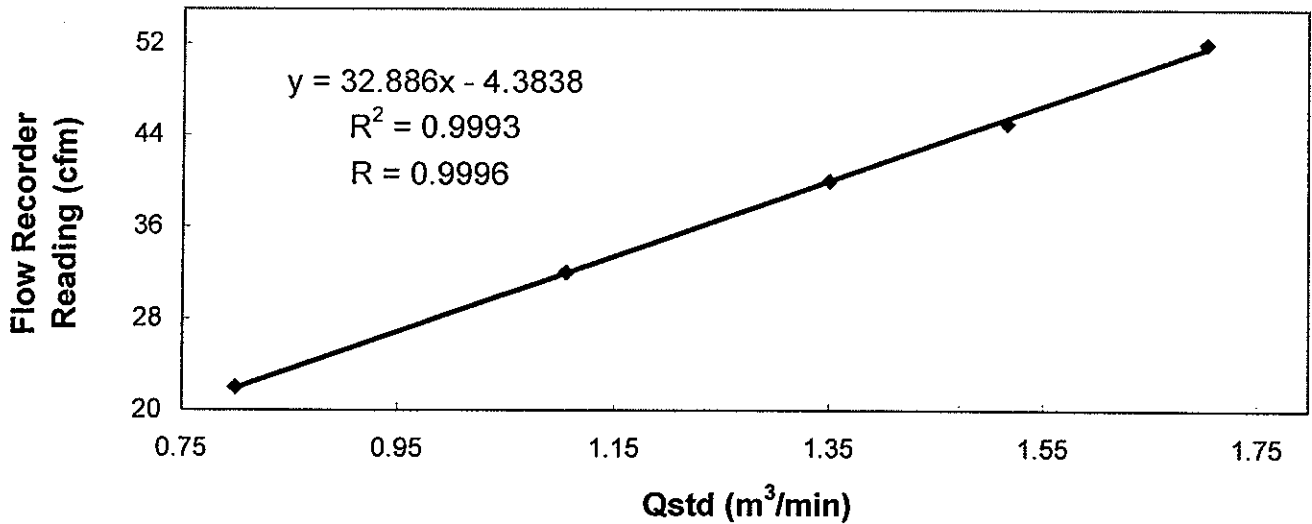
TEST REPORT

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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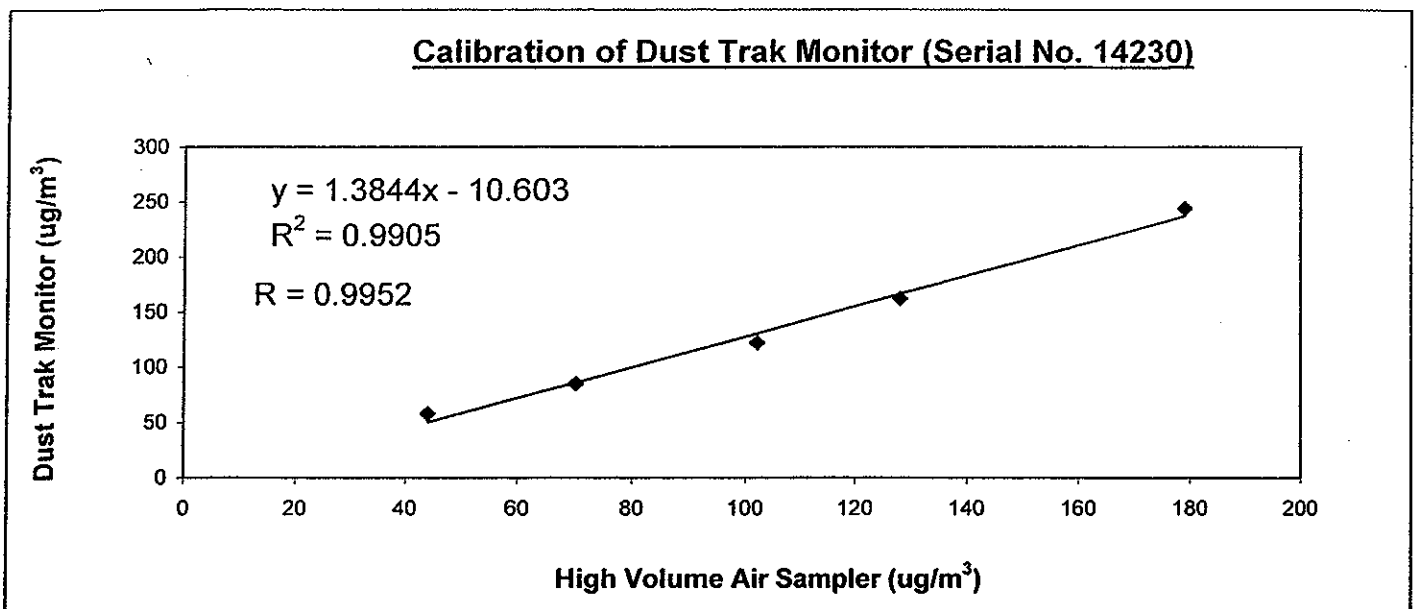
TEST REPORT

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



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

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

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

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



東業德勤測試顧問有限公司
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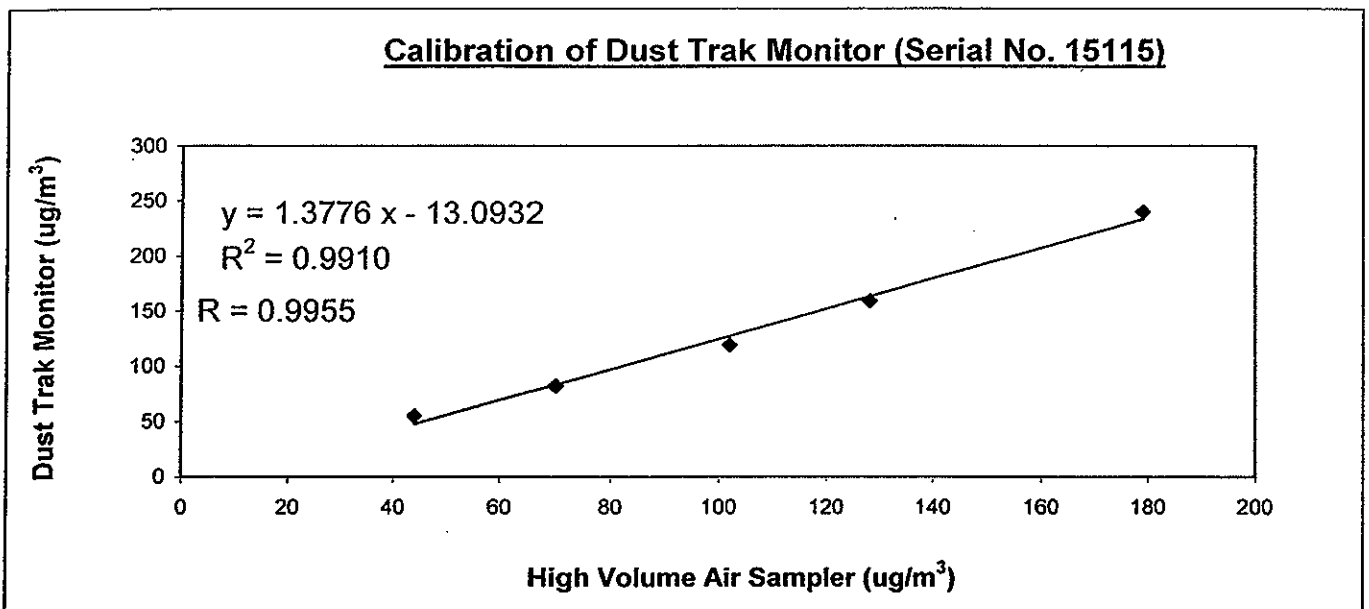
TEST REPORT

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 Sampler together under the same environmental condition

Results :

Dust Trak Monitor ($\mu\text{g}/\text{m}^3$)	55	82	119	159	240
High Volume Air Sampler ($\mu\text{g}/\text{m}^3$)	44	70	102	128	179
Serial No of High Volume Air Sampler : 1178			Calibration Date: 01 March 2009		



Acceptance Criteria :

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

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

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

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



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 43002
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 877.263.7610 TOLL FREE
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 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

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

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.3800	3.1	2.00
2	NA	NA	1.00	0.9650	6.3	4.00
3	NA	NA	1.00	0.8630	7.9	5.00
4	NA	NA	1.00	0.8230	8.6	5.50
5	NA	NA	1.00	0.6770	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9935	0.7199	1.4125	0.9958	0.7216	0.8866
0.9893	1.0252	1.9976	0.9916	1.0276	1.2538
0.9870	1.1437	2.2334	0.9894	1.1464	1.4018
0.9862	1.1983	2.3424	0.9885	1.2011	1.4703
0.9807	1.4486	2.8251	0.9830	1.4521	1.7732
Qstd slope (m) = 1.94106			Qa slope (m) = 1.21546		
intercept (b) = 0.01311			intercept (b) = 0.00823		
coefficient (r) = 0.99996			coefficient (r) = 0.99996		

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

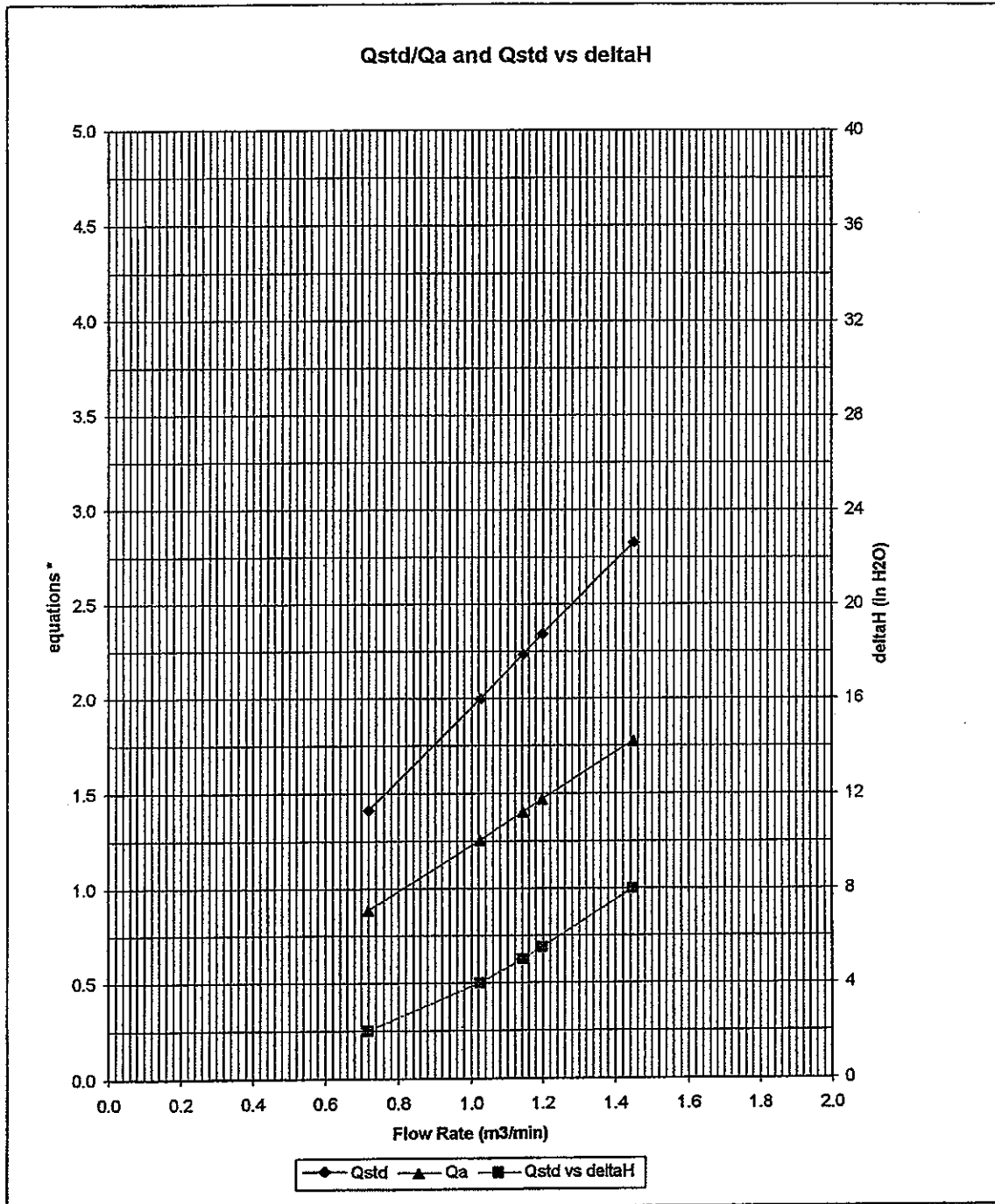
For subsequent flow rate calculations:

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



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AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

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

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

1172



Appendix B2

Impact Air Quality Monitoring Results

Summary of 24-hr TSP Monitoring Results

Monitoring Station : AM1

Start Date	Start Time	Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)		Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
		Date	Time	Initial	Final		Initial	Final	Initial	Final	Initial	Final		
06/05/09	09:49	07/05/09	09:49	14111.24	14135.24	24.00	1.0554	1.0554	1.0554	1.0554	2.7975	2.9020	69	Sunny
12/05/09	09:18	13/05/09	09:18	14135.24	14159.24	24.00	1.0554	1.0554	1.0554	1.0554	2.7336	2.7855	34	Sunny
18/05/09	12:26	19/05/09	12:26	14159.24	14183.24	24.00	1.0304	1.0304	1.0304	1.0304	2.7908	2.8324	28	Sunny
22/05/09	10:33	23/05/09	10:33	14183.24	14207.24	24.00	1.0554	1.0554	1.0554	1.0554	2.8653	2.9161	33	Cloudy
27/05/09	09:20	28/05/09	09:21	14207.24	14231.25	24.01	1.1052	1.1052	1.1052	1.1052	2.8399	2.9067	42	Cloudy

Monitoring Station : AM2

Start Date	Start Time	Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)		Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
		Date	Time	Initial	Final		Initial	Final	Initial	Final	Initial	Final		
06/05/09	10:00	07/05/09	10:00	18147.24	18171.24	24.00	1.3198	1.3198	1.3198	1.3198	2.7979	2.9296	69	Sunny
12/05/09	09:24	13/05/09	09:24	18171.24	18195.24	24.00	1.3198	1.3198	1.3198	1.3198	2.8019	2.8649	33	Sunny
18/05/09	12:30	19/05/09	12:30	18195.24	19219.24	24.00	1.2005	1.2005	1.2005	1.2005	2.7853	2.8269	24	Sunny
22/05/09	10:36	23/05/09	10:36	18219.24	19243.24	24.00	1.2900	1.2900	1.2900	1.2900	2.8838	2.9395	30	Cloudy
27/05/09	09:31	28/05/09	09:31	18243.24	18267.24	24.00	1.2602	1.2602	1.2602	1.2602	2.8020	2.8689	37	Cloudy

Monitoring Station : AM3

Start Date	Start Time	Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)		Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
		Date	Time	Initial	Final		Initial	Final	Initial	Final	Initial	Final		
06/05/09	13:26	07/05/09	13:26	2207.51	2231.51	24.00	1.2584	1.2584	1.2584	1.2584	2.8123	2.9592	82	Sunny
12/05/09	12:54	13/05/09	12:54	2231.51	2255.51	24.00	1.1064	1.1064	1.1064	1.1064	2.7644	2.8966	83	Sunny
18/05/09	13:05	19/05/09	13:05	2255.51	2279.51	24.00	1.2584	1.2584	1.2584	1.2584	2.7869	2.8320	25	Sunny
22/05/09	10:08	23/05/09	10:08	2279.51	2303.51	24.00	1.1976	1.1976	1.1976	1.1976	2.8383	3.0665	132	Cloudy
27/05/09	13:00	28/05/09	13:00	2303.51	2327.51	24.00	1.1976	1.1976	1.1976	1.1976	2.8238	2.9134	52	Cloudy



Summary of 1-hr TSP Monitoring Results

Monitoring Station : AM1

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
06/05/09	09:20	10:20	102	479	166	Fine
06/05/09	10:20	11:20	98	507	147	Fine
06/05/09	11:20	12:20	90	426	153	Fine
12/05/09	09:15	10:15	107	543	185	Sunny
12/05/09	10:15	11:15	98	569	163	Sunny
12/05/09	11:15	12:15	115	412	148	Sunny
18/05/09	09:12	10:12	106	516	187	Sunny
18/05/09	10:12	11:12	95	549	219	Sunny
18/05/09	11:12	12:12	100	502	161	Sunny
22/05/09	09:13	10:13	96	412	178	Cloudy
22/05/09	10:13	11:13	109	467	209	Cloudy
22/05/09	11:13	12:13	99	406	193	Cloudy
27/05/09	09:13	10:13	102	412	193	Cloudy
27/05/09	10:13	11:13	98	436	214	Cloudy
27/05/09	11:13	12:13	100	406	183	Cloudy

Monitoring Station : AM2

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
06/05/09	09:23	10:23	111	490	157	Fine
06/05/09	10:23	11:23	107	526	142	Fine
06/05/09	11:23	12:23	98	441	135	Fine
12/05/09	09:18	10:18	122	521	171	Sunny
12/05/09	10:18	11:18	106	578	151	Sunny
12/05/09	11:18	12:18	118	406	141	Sunny
18/05/09	09:15	10:15	110	537	156	Sunny
18/05/09	10:15	11:15	107	569	175	Sunny
18/05/09	11:15	12:15	100	524	149	Sunny
22/05/09	09:16	10:16	95	430	178	Cloudy
22/05/09	10:16	11:16	110	492	208	Cloudy
22/05/09	11:16	12:16	102	420	188	Cloudy
27/05/09	09:16	10:16	97	438	180	Cloudy
27/05/09	10:16	11:16	106	451	202	Cloudy
27/05/09	11:16	12:16	112	440	172	Cloudy

Summary of 1-hr TSP Monitoring Results

Monitoring Station : AM3

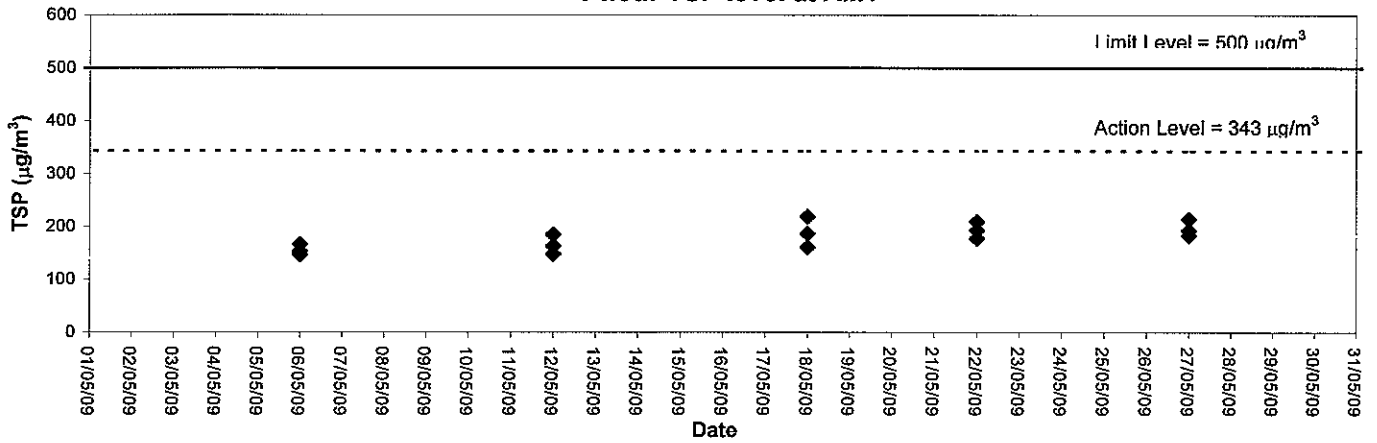
Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
06/05/09	13:00	14:00	109	552	192	Fine
06/05/09	14:00	15:00	112	569	214	Fine
06/05/09	15:00	16:00	97	520	203	Fine
12/05/09	13:00	14:00	111	549	226	Sunny
12/05/09	14:00	15:00	106	498	213	Sunny
12/05/09	15:00	16:00	98	507	220	Sunny
18/05/09	13:00	14:00	99	509	166	Sunny
18/05/09	14:00	15:00	113	537	193	Sunny
18/05/09	15:00	16:00	88	488	203	Sunny
22/05/09	13:00	14:00	106	422	168	Cloudy
22/05/09	14:00	15:00	98	476	216	Cloudy
22/05/09	15:00	16:00	89	417	197	Cloudy
27/05/09	13:00	14:00	106	397	167	Cloudy
27/05/09	14:00	15:00	121	422	201	Cloudy
27/05/09	15:00	16:00	100	415	191	Cloudy

Appendix C3

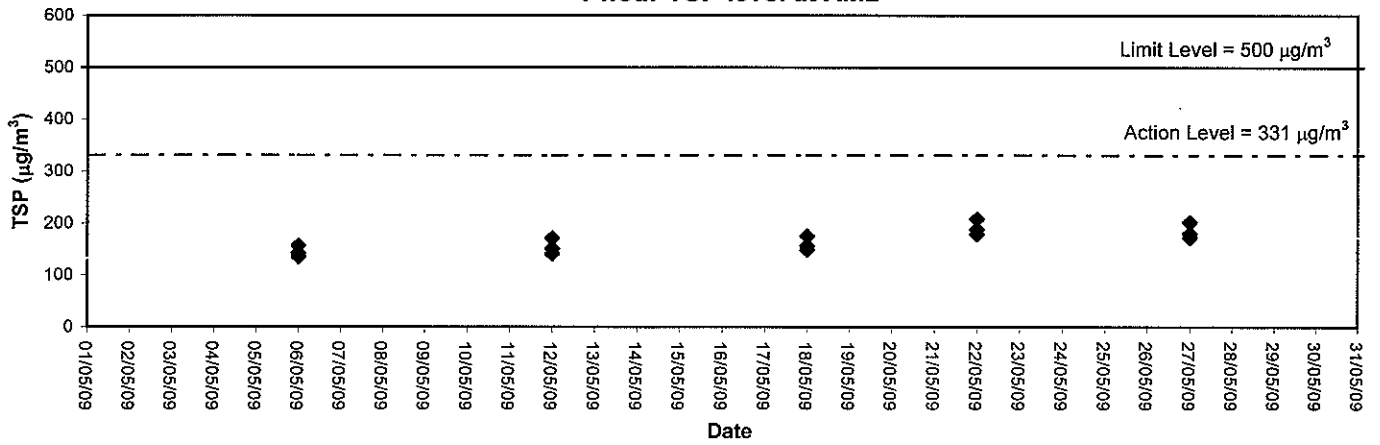
Graphical Plots of Impact Air Quality Monitoring Data



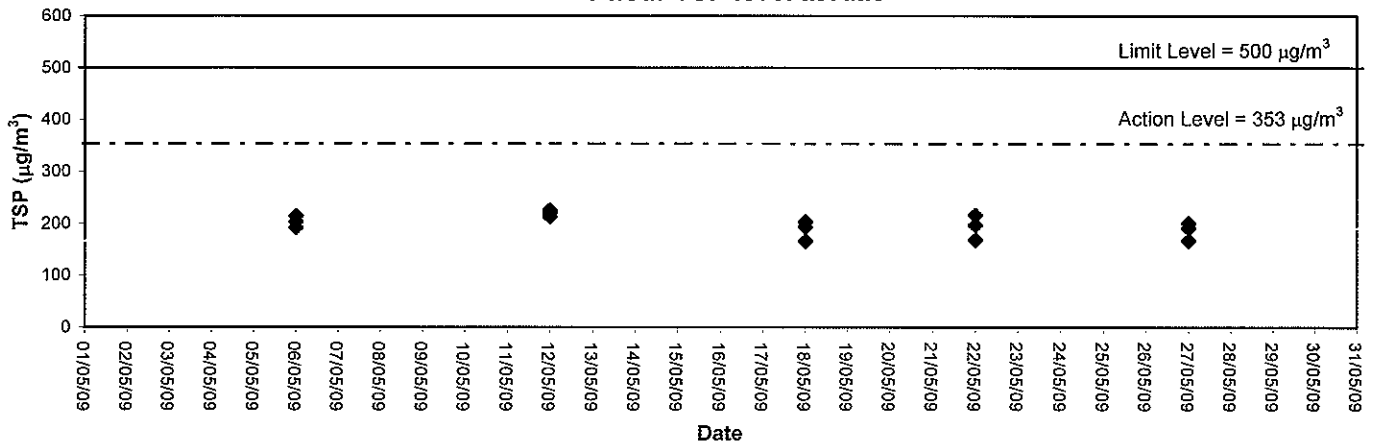
1-hour TSP level at AM1

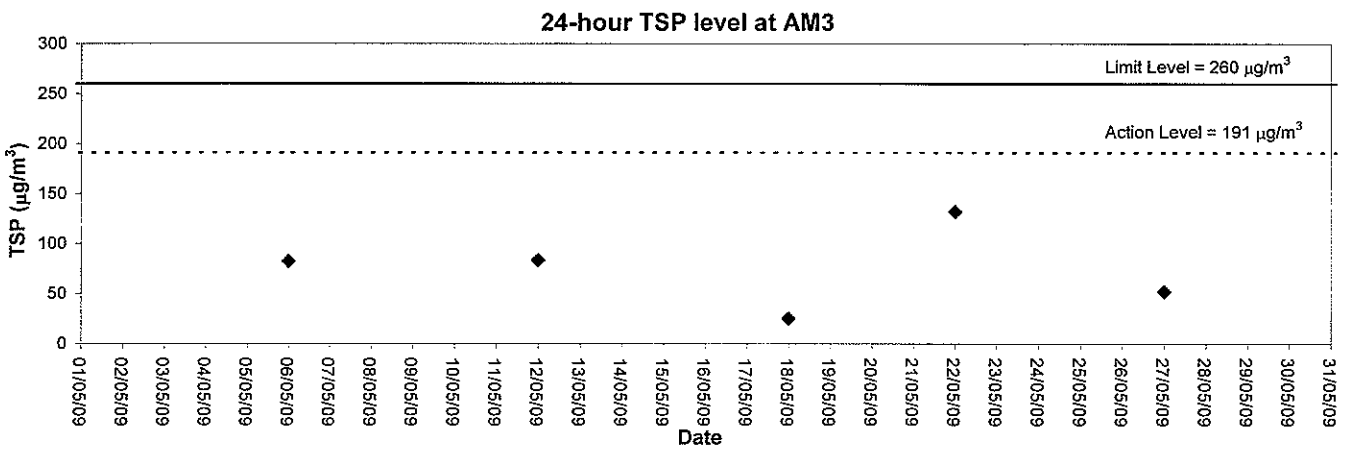
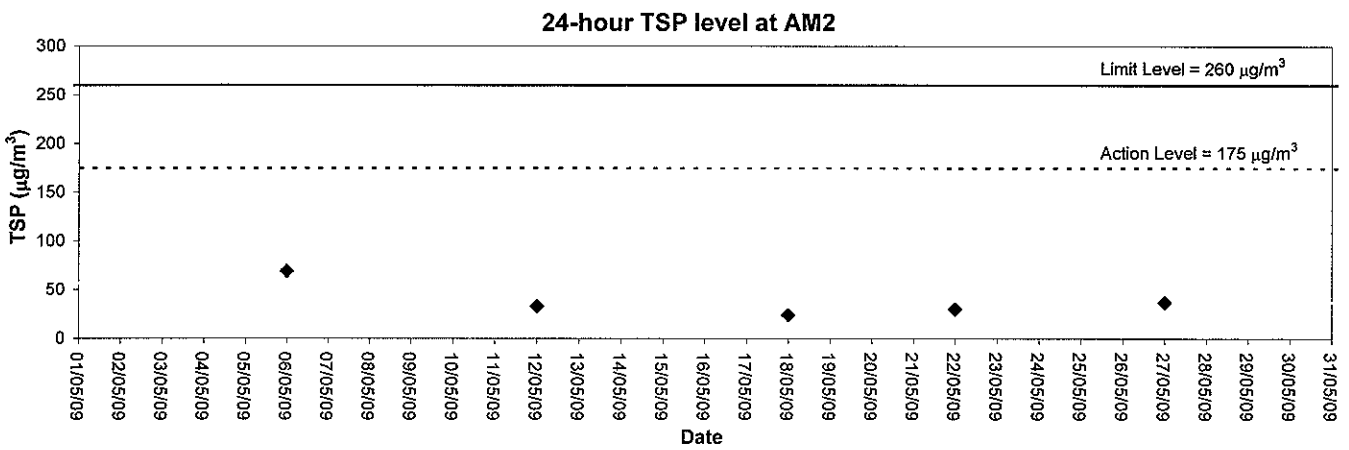
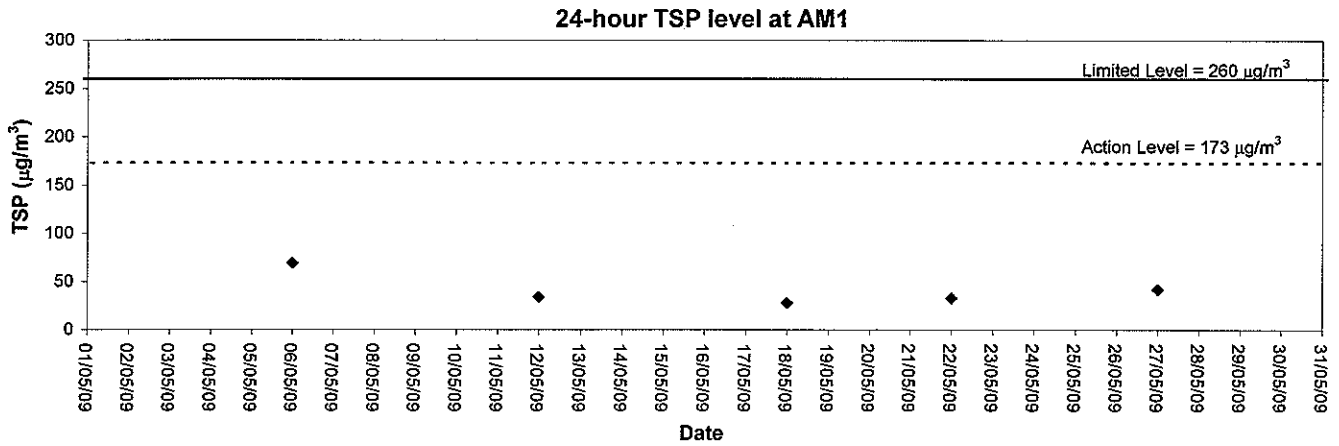


1-hour TSP level at AM2



1-hour TSP level at AM3







Appendix C1

Calibration Certificates for Impact Noise Monitoring Equipments



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:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
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

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Calibration Certificate

Certificate No. 91495

Page 2 of 4 Pages

Results :

1. SPL Accuracy

UUT Setting			Applied Value (dB)	UUT Reading (dB)	
Level Range (dB)	Weight	Response			
20 - 100	L _A	Fast	94.03	93.7	
		Slow		93.7	
	L _C	Fast		93.7	
		L _p		Fast	93.7
		L _p		Fast	93.7
30 - 120	L _A	Fast	94.03	93.6	
		Slow		93.6	
	L _C	Fast		93.6	
	L _p	Fast		93.6	
	L _p	Fast		93.6	
30 - 120	L _A	Fast	113.97	113.6	
		Slow		113.6	
	L _C	Fast		113.6	
	L _p	Fast		113.6	
	L _p	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

Certificate No. 91495

Page 3 of 4 Pages

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

Certificate No. 91495

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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 6B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

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Calibration Certificate

Certificate No. 91496

Page 2 of 2 Pages

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	
06/05/09	Fine	10:00	10:30	67.3	68.4	47.6	0.5
12/05/09	Sunny	09:30	10:00	58.2	59.7	49.5	0.5
18/05/09	Sunny	14:50	15:20	61.9	63.0	58.1	0.5
27/05/09	Cloudy	09:40	10:10	64.5	67.3	51.6	0.1

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	
06/05/09	Fine	10:35	11:05	69.0	70.8	57.3	0.6
12/05/09	Sunny	10:05	10:35	73.6	74.8	66.1	0.4
18/05/09	Sunny	11:10	11:40	65.1	66.1	58.0	0.6
27/05/09	Cloudy	10:15	10:45	65.1	66.1	54.8	0.0

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	
06/05/09	Fine	13:33	14:03	66.4	69.3	55.1	0.2
12/05/09	Sunny	13:20	13:50	74.0	75.2	68.2	0.2
18/05/09	Sunny	13:05	13:35	70.0	71.1	60.3	0.4
27/05/09	Cloudy	14:15	14:45	61.7	62.9	54.7	0.4

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	
06/05/09	Fine	14:30	15:00	63.7	65.8	42.7	0.3
12/05/09	Sunny	14:30	15:00	73.7	74.6	65.6	0.3
18/05/09	Sunny	13:45	14:15	52.1	53.8	43.0	0.4
27/05/09	Cloudy	13:15	13:45	63.8	66.8	43.3	0.3



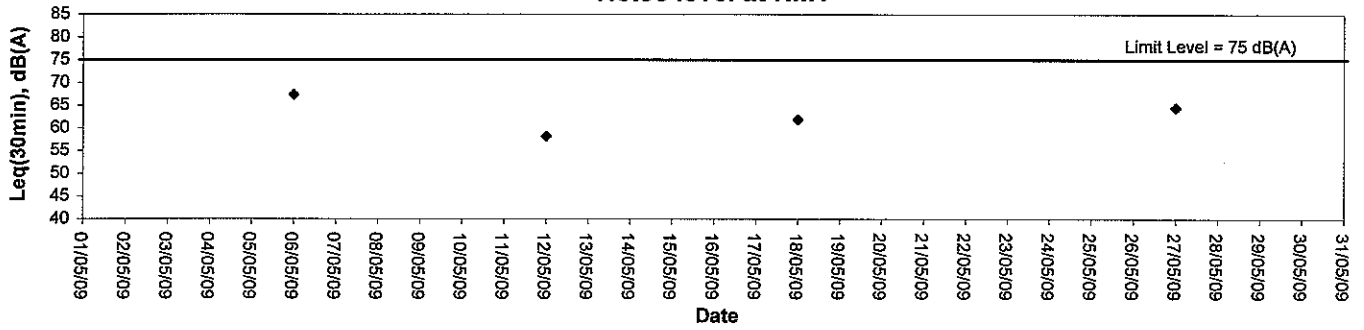
Appendix C3

Graphical Plots of Impact Noise Monitoring Data

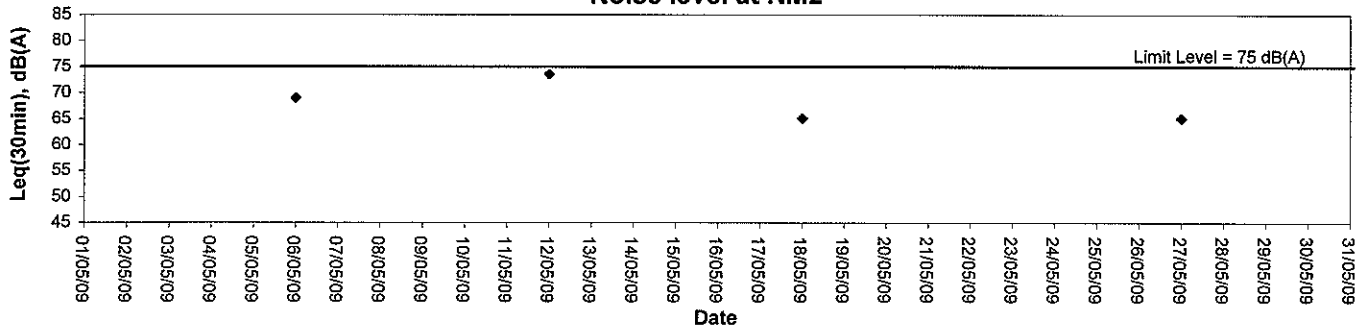


Noise Monitoring (Day-time)

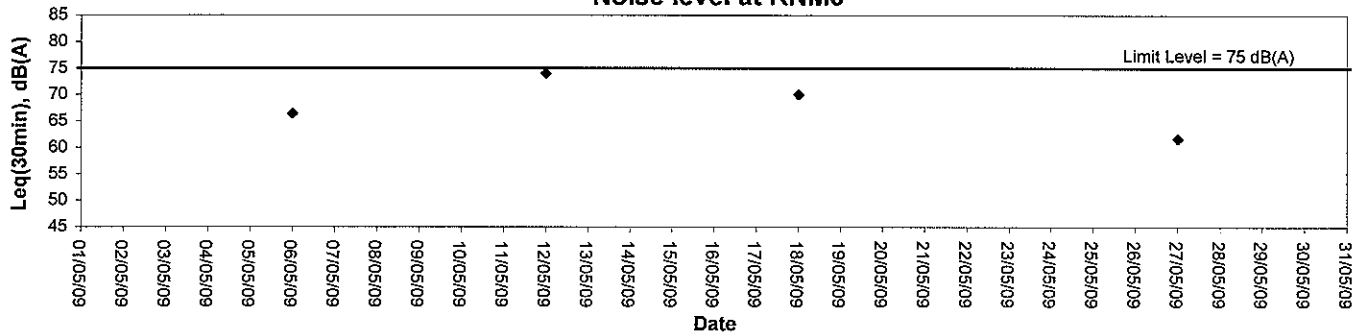
Noise level at NM1



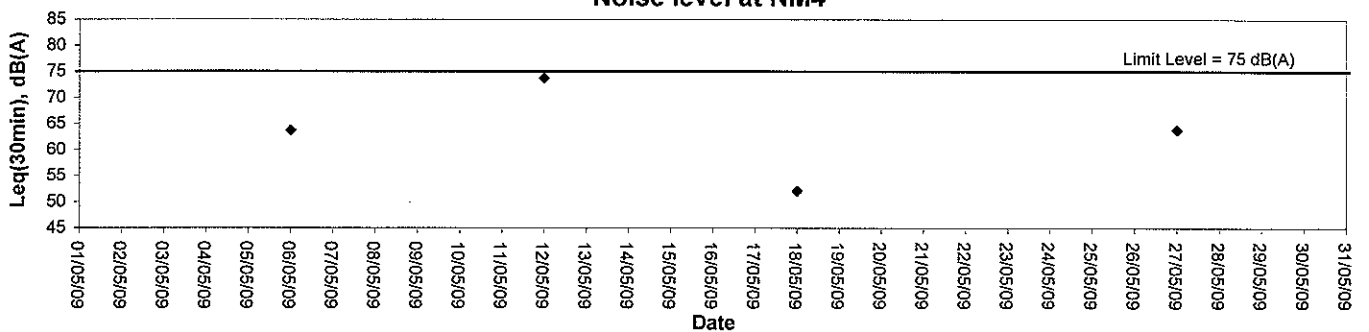
Noise level at NM2



Noise level at RNM3



Noise level at NM4





Appendix D

Event-Action Plans

Event / Action Plan for Air Quality

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

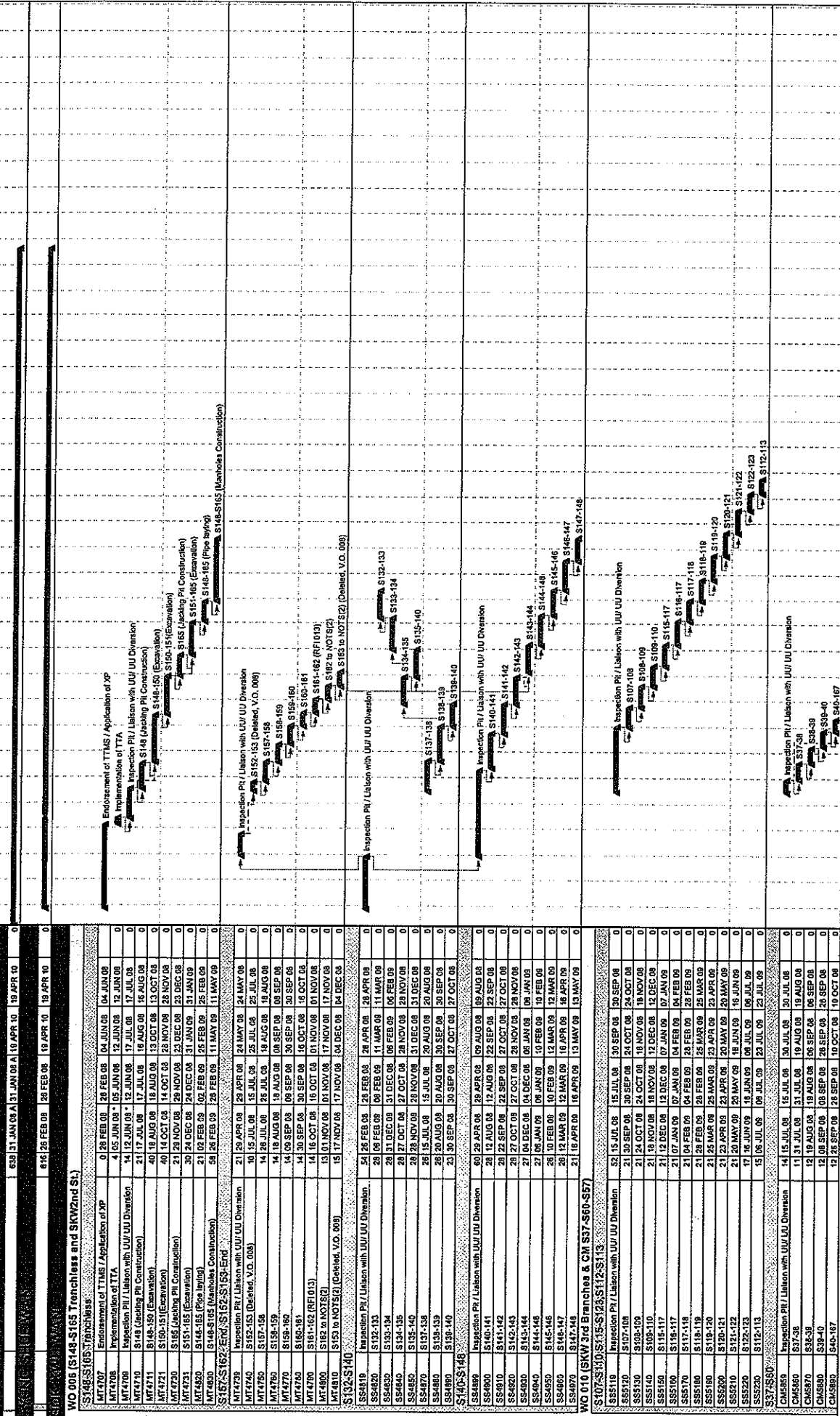
Event / Action Plan for Construction Noise

EVENT	ACTION				CONTRACTOR
	ET	IC(E)	ER	CONTRACTOR	
Action level	<ol style="list-style-type: none"> 1. Notify IC(E) and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IC(E), ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures ; 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review and investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure proper implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposal to IC(E); 2. Implement noise mitigation proposals. 	
Limit level	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IC(E), ER, EPD and Contractor; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IC(E), ER and EPD the causes and actions taken for the exceedances; 7. Assess the effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions to ensure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Same as above; 2. If exceedances continue, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E); 3. Implement the agreed proposals; 4. Resubmit proposals if problem still out of control; 5. Stop the relevant portion of works as determined by ER, until the exceedance is abated. 	



Appendix E

Construction Programme



Act ID	Activity Description	Rem Dur	Early Start	Late Start	Early Finish	Late Finish	Free Float														
639	S148-S165 Trenchless and SKW2nd(S1)		31 JAN 08 A	31 JAN 08 A	19 APR 10	19 APR 10	0														
616			26 FEB 08	26 FEB 08	19 APR 10	19 APR 10	0														
<table border="0"> <tr> <td>△</td> <td>Early start point</td> </tr> <tr> <td>▽</td> <td>Early finish point</td> </tr> <tr> <td>■</td> <td>Summary bar</td> </tr> <tr> <td>▬</td> <td>Progress bar</td> </tr> <tr> <td>◆</td> <td>Critical bar</td> </tr> <tr> <td>◆</td> <td>Critical bar</td> </tr> <tr> <td>◆</td> <td>Summary bar</td> </tr> </table>								△	Early start point	▽	Early finish point	■	Summary bar	▬	Progress bar	◆	Critical bar	◆	Critical bar	◆	Summary bar
△	Early start point																				
▽	Early finish point																				
■	Summary bar																				
▬	Progress bar																				
◆	Critical bar																				
◆	Critical bar																				
◆	Summary bar																				

Start Date 31 JAN 08
 Finish Date 19 APR 10
 Page : 1A
 Approved
 Checked
 Revision
 Date
 Revision 2
 Revision 3
 Revision 4
 Revision 5
 Approved
 KYS
 KYS
 KYS
 KYS
 KYS

Act ID	Activity Description	2008		2009		2010												2011															
		Rem Dur	Early Start	Late Start	Early Finish	Late Finish	Free Float	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN		
CM488	Excavation RI / Lagoon with UU / UU Overlain	48	02 MAR 09	02 MAR 09	30 APR 09	30 APR 09	0																										
CM489	S1-2	21	04 MAY 09	04 MAY 09	27 MAY 09	27 MAY 09	0																										
CM490	S3-3	21	20 MAY 09	20 MAY 09	23 JUN 09	23 JUN 09	0																										
CM491	S3-4	21	24 JUN 09	24 JUN 09	17 JUL 09	17 JUL 09	0																										
CM492	S4-5	21	19 JUL 09	18 JUL 09	11 AUG 09	11 AUG 09	0																										
CM493	S5-4	21	05 SEP 09	05 SEP 09	04 SEP 09	04 SEP 09	0																										
CM494	S5-7	21	30 SEP 09	30 SEP 09	29 SEP 09	29 SEP 09	0																										
CM495	S7-8	14	28 OCT 09	28 OCT 09	27 OCT 09	27 OCT 09	0																										
CM496	S8-9	14	12 NOV 09	13 NOV 09	12 NOV 09	12 NOV 09	0																										
CM497	S10-11	14	30 NOV 09	30 NOV 09	15 DEC 09	15 DEC 09	0																										
CM498	S11-12	14	18 DEC 09	18 DEC 09	02 JAN 10	02 JAN 10	0																										
CM499	S12-13	14	04 JAN 10	04 JAN 10	19 JAN 10	19 JAN 10	0																										
CM500	S13-14	14	20 JAN 10	20 JAN 10	04 FEB 10	04 FEB 10	0																										
CM501	S14-15	14	05 FEB 10	05 FEB 10	20 FEB 10	20 FEB 10	0																										
CM502	S15-16	14	22 FEB 10	22 FEB 10	09 MAR 10	09 MAR 10	0																										
CM503	S70-S75 (60Choles)																																
CM504	S70-S75	87	15 OCT 08	15 OCT 08	27 JAN 10	27 JAN 10	0																										
CM505	S72-S75	70	26 JAN 10	26 JAN 10	19 APR 10	19 APR 10	0																										



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

Start Date	31 JAN 08
Finish Date	19 APR 10

Page : 4A

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

Progress point
Critical point
Start milestone point
Finish milestone point

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



Appendix F

Summary of Implementation Status

of

Mitigation Measures during Site Inspection

Environmental Mitigation Implementation Schedule

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

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 from site.	All areas	√			
• Good site practices should be adopted to clean the rubbish and litter on a regular basis so as to prevent the rubbish and litter from dropping into the nearby environment.	All areas	√			
• Records of the quantities of waste generated, recycled and disposed should be kept and maintained.	All areas	√			
• Different types of waste should be segregated and stored in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal.	All areas	√			
Chemical Wastes					
• After use, chemical waste should be handled according to the Code of Practice on the Package, Labelling and Storage of Chemical Wastes.	All areas		√		
• Any unused chemicals or those with remaining functional capacity should be recycled.	All areas	√			
• Waste should be properly stored on site within suitably designed containers and should be collected by an approved licensed waste collectors for disposal at the Chemical Waste Treatment Facility or other licensed facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordinance.	All areas	√			
• Any service shop and minor maintenance facilities should be located on hard standing within a bunded area, and sumps and oil interceptors should be provided.	All areas	√			
• Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the designated areas equipped control these discharges.	All areas		√		
Construction and Demolition (C&D) Wastes					
• C&D waste should be separated on site before disposal.	All areas	√			
• Inert material, such as concrete and rubble, should be re-used on site.	All areas	√			
• Steel and other metals should be separated for re-use and / or recycling prior to disposal of C&D material.	All areas	√			
Ecological Impact					
• Labelling and fencing of the uncommon tree species.	All areas	√			
• Avoidance of use of woodland habitats as Works Area, in particular where trees located.	All areas	√			

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

Appendix G

Vegetation Survey Report

Your Ref.: DC200718/R05/600/O00941 & DC/200718/M45/200/O012
Our Ref.: K0801/01.01.00.00/1876/L
Date: 2 June 2009



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
ETS Attn: Mr. C. L. Lau
Kaden – CFS/JC/IS

(By Fax only: 2428 9922)
(By Fax only: 2695 3944)

Kaden Construction Limited

Units 1001 - 1015, 10/F Grand Central Plaza, Tower 1, 138 Sha Tin 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.
Units 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 Sewerage, Stage I 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.


Che Ping Hin
Assistant Contracts Manager
HC





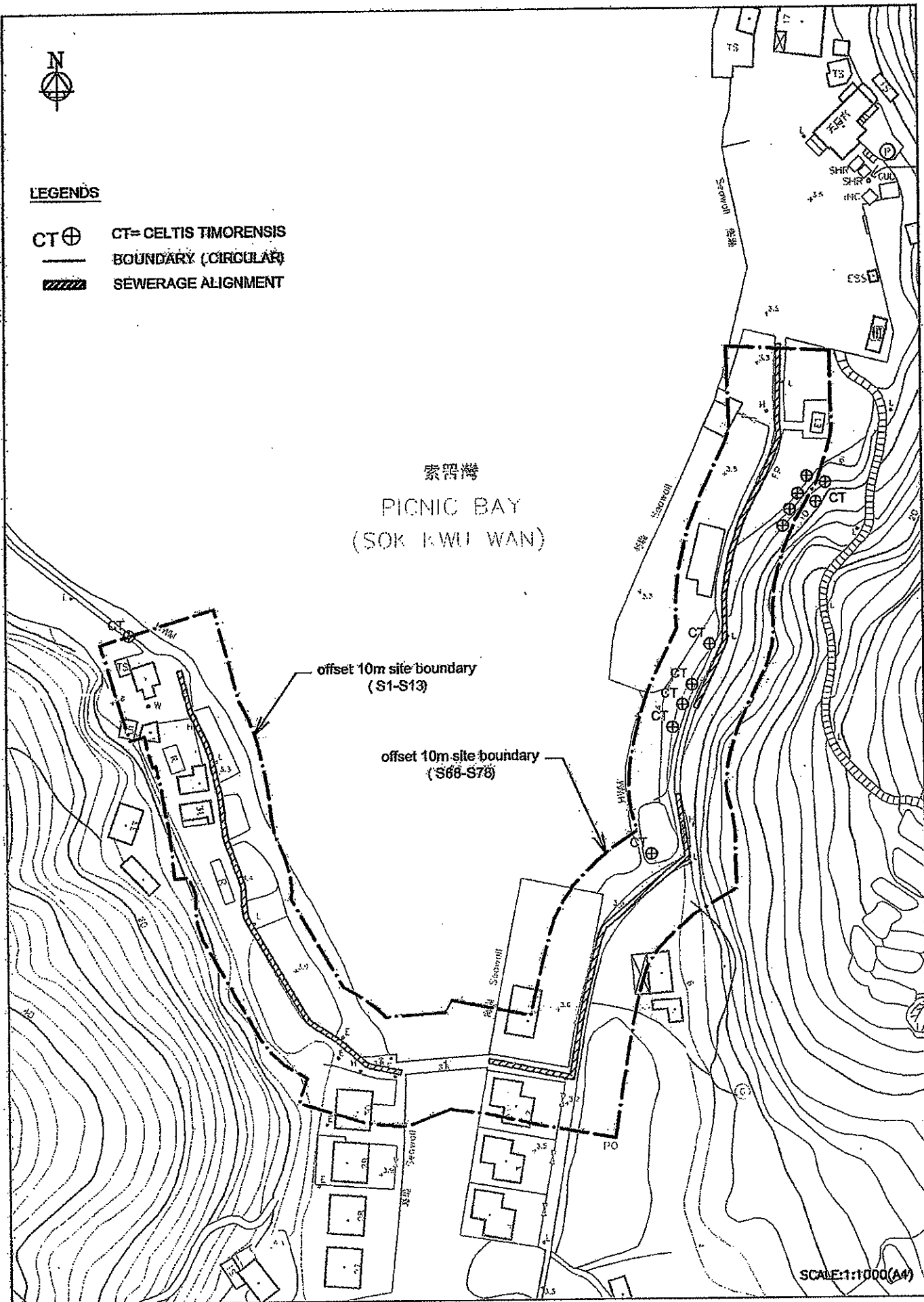
LEGENDS

- CT ⊕ CT= CELTIS TIMORENSIS
- BOUNDARY (CIRCULAR)
- ▨ SEWERAGE ALIGNMENT

索罟灣
PICNIC BAY
(SOK KWU WAN)

offset 10m site boundary
(S1-S13)

offset 10m site boundary
(S68-S78)



SCALE:1:1000(A4)

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



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

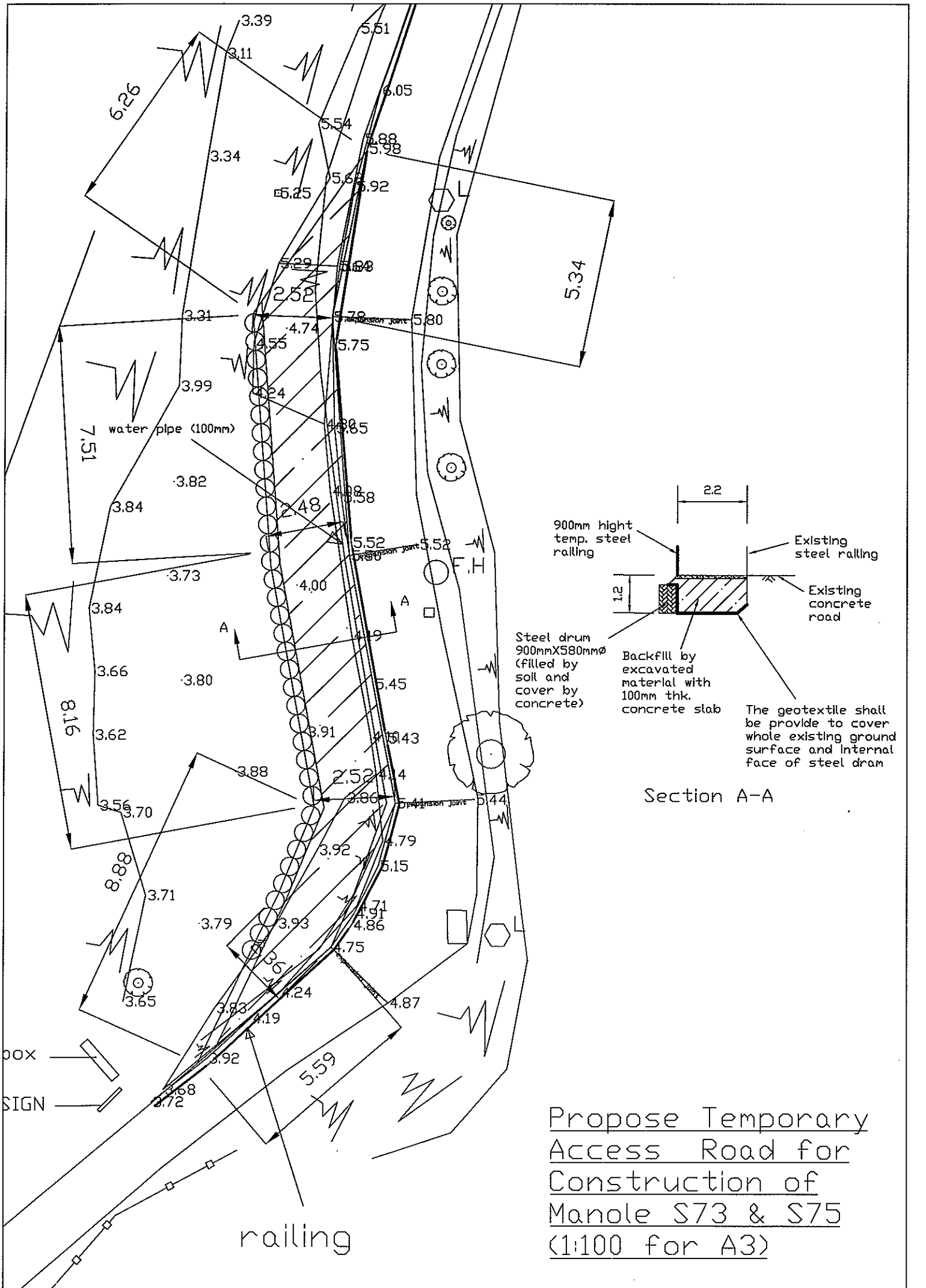


V.O. No. 16 – Vegetation and Plant Species Survey



Appendix H

Plan of Temporary Access



Section A-A

Propose Temporary Access Road for Construction of Manole S73 & S75 (1:100 for A3)

Appendix I

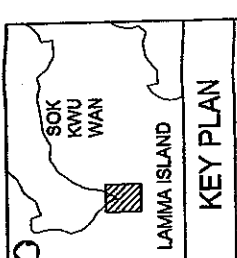
Photographic Records of the Uncommon Tree Species

Photos of Uncommon Tree Species





Figures



NOTES

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 2005/CI/2001.

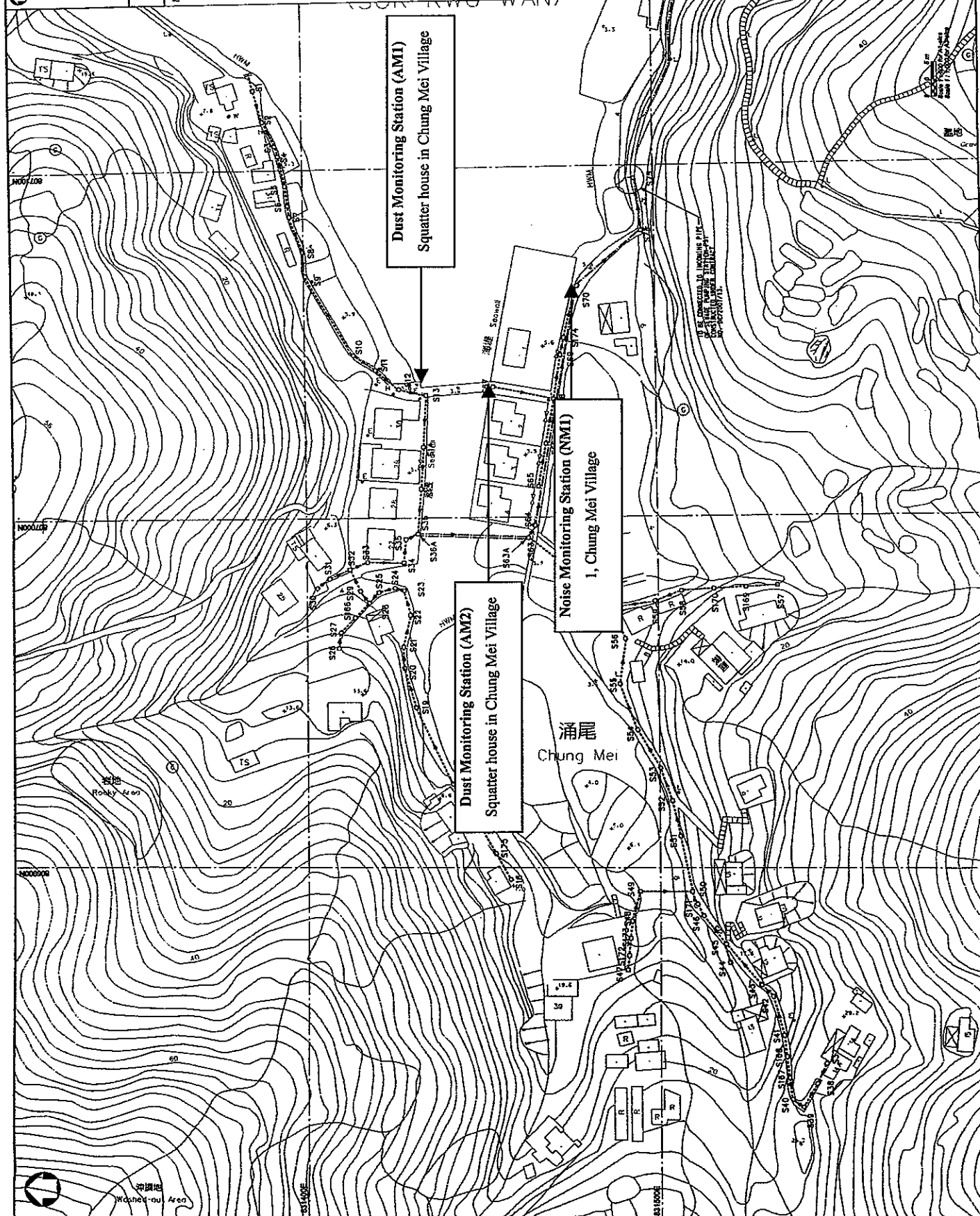
NO.	DATE	DESCRIPTION	BY	CHKD.
1	11/09/2005	ISSUE FOR PRELIMINARY WORK	AS	AS
2	11/09/2005	ISSUE FOR PRELIMINARY WORK	AS	AS
3	11/09/2005	ISSUE FOR PRELIMINARY WORK	AS	AS
4	11/09/2005	ISSUE FOR PRELIMINARY WORK	AS	AS

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

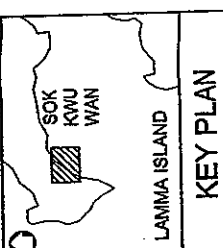
CONTRACT NO. DC/2001/18
 YUNG SHUE WAN AND SOK KWU WAN
 VILLAGE SEWERAGE, STAGE 1 WORKS

VILLAGE SEWERAGE LAYOUT
 PLANS - SOK KWU WAN
 (SHEET 1 OF 3)

DATE: 2005/CI/2004
 DRAWN BY: AS
 CHECKED BY: AS
 SCALE: 1:500
 PROJECT NO.: DC/2001/18



SOK KWU WAN



KEY PLAN

LAMINA ISLAND

NOTES 1

- 1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. DS2/01/2006.
- 2. THE CONTRACTOR IS RESPONSIBLE FOR LIAISE WITH THE AGENCIES CONCERNED FOR THE PROTECTION OF THE AIR WORKS.

Noise Monitoring Station (NM4)
2-storey village house at Ta Shui Wan

TO BE CONSIDERED IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE AIR WORKS.

Dust Monitoring Station (AM3)
Football Court

Noise Monitoring Station (RNM3)
Sok Kwu Wan Sitting-out Area

DATE	DESCRIPTION	BY	CHK
02/01/2006	ISSUED FOR CONSTRUCTION
02/01/2006	REVISION

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

CONTRACT NO. DC2001/18
YUNG SHUE WAN AND SOK KWU WAN
VILLAGE SEWERAGE, STAGE 1 WORKS

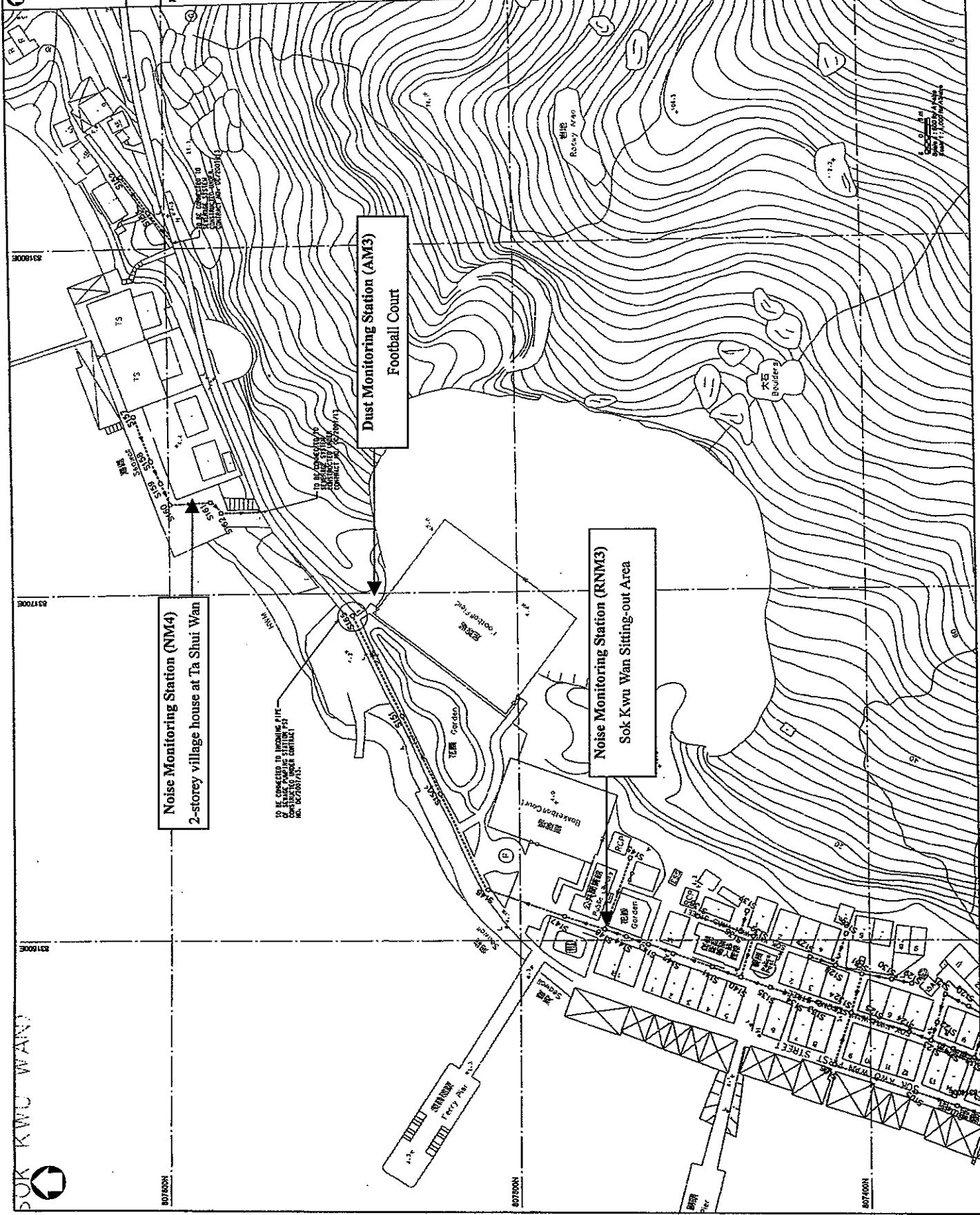
VILLAGE SEWERAGE LAYOUT
PLANS - SOK KWU WAN
(SHEET 3 OF 3)

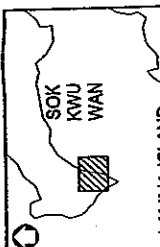
DATE: 2005/01/2006

SCALE: AS SHOWN

PROJECT NO: DC2001/18

CDM
Scott Wilson
SCOTT WILSON CONSULTANTS

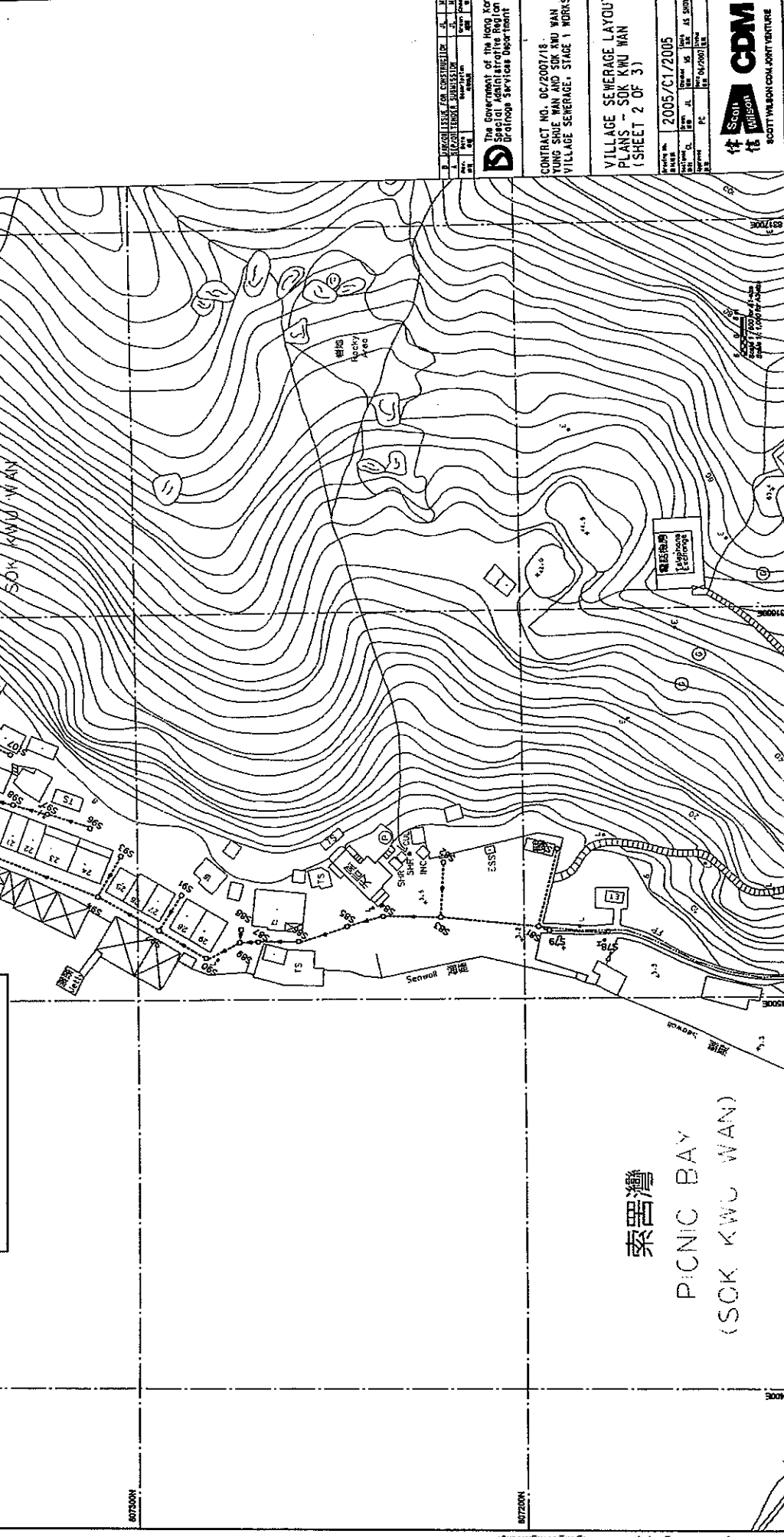




KEY PLAN

NOTES :
1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 205/C1/2005.

Noise Monitoring Station (NM2)
20, Sok Kwu Wan



DATE FOR CONSTRUCTION	11/05/05
DATE FOR SUBMISSION	11/05/05
DATE FOR REVIEW	11/05/05
DATE FOR APPROVAL	11/05/05

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

CONTRACT NO. 06/2007/18
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

Scale 1:500

CDM

SCOTT WILSON CDM JOINT VENTURE

