

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT

Highways Department

Route 8
Between Tsing Yi and Cheung Sha Wan
Phase 2b East Tsing Yi Viaduct

*Monthly Environmental
Monitoring & Audit Report
(29th January 2009 - 28th February 2009)*

EP – 085/2000/E
Route 8 Between Tsing Yi and Cheung Sha Wan
Phase 2b
East Tsing Yi Viaduct:

Monthly Environmental
Monitoring & Audit Report
(29th January 2009 – 28th February 2009)

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1 INTRODUCTION.....	1
1.1 Purpose of the Report	1
1.2 Structure of the Report.....	1
2 PROJECT INFORMATION	2
2.1 Background	2
2.2 Site Description.....	2
2.3 Project Organisation	2
2.4 Project Work Programme	2
3 ENVIRONMENTAL MONITORING REQUIREMENTS.....	3
3.1 Air Quality	3
3.2 Noise Quality	5
4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS.....	7
5 ENVIRONMENTAL LICENCES AND PERMITS	7
5.1 Status of Permits and Licenses	7
6 MONITORING RESULTS.....	7
6.1 Air Quality	7
6.2 Noise	8
7 AUDIT RESULTS.....	9
7.1 Air Quality	9
7.2 Noise	9
7.3 Water Quality.....	10
7.4 Waste Management.....	10
7.5 Site Audits / Inspections	11
7.6 Landscaping Works	12
8 ENVIRONMENTAL NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONSES AND PROSECUTIONS.....	12
8.1 Summary of Environmental Non-Compliance	12
8.2 Summary of Complaints	12
8.3 Summary of Notifications of Summonses and Prosecutions.....	13
9 ROUTE 8 – TRAFFIC CONTROL AND SURVEILLANCE SYSTEM (TCSS)	13
9.1 Key issues for the Construction Works of TCSS.....	13
9.2 Audit Results.....	13
10 FUTURE KEY ISSUES.....	13
10.1 Key Issues for the Coming Month.....	13
10.2 Monitoring Schedule for the Coming Three Months.....	14
11 RECOMMENDATIONS AND CONCLUSIONS.....	14
11.1 Conclusions.....	14
11.2 Recommendations.....	15

LIST OF TABLES

Table 2.1	Major Site Activities undertaken during the Reporting Period (Normal Hours)
Table 3.1	TSP Monitoring Parameter and Frequency
Table 3.2	TSP Monitoring Locations
Table 3.3	Air Quality Monitoring Equipment
Table 3.4	Noise Monitoring Frequency and Parameters
Table 3.5	Location of the Noise Monitoring Stations
Table 3.6	Noise Monitoring Equipment
Table 6.1	Summary of 1-hour TSP Impact Monitoring Results
Table 6.2	Summary of 24-hour TSP Impact Monitoring Results
Table 6.3	Summary of Corrected Impact Noise Levels for Normal Hour Monitoring
Table 7.1	Summary of Waste Disposal during the Reporting Period
Table 8.1	Summary of Non-Compliance for the Reporting Period
Table 8.2	Summary of Total Complaint Received

LIST OF APPENDICES

Appendix A	Site Location Plan
Appendix B	Project's Environmental Organization Chart and Contact Details
Appendix C	Planned Construction Activities
Appendix D1	Action/Limit Levels for Air Quality
Appendix D2	Action/Limit Levels for Noise
Appendix E	Environmental Monitoring Schedule for the Reporting Period
Appendix F	Locations of Monitoring Stations
Appendix G1	Calibration Certificates for HVS
Appendix G2	Not used
Appendix G3	Calibration Certificates for High Volume Orifice Calibrator
Appendix G4	Calibration Certificates for Sound Level Meter and Calibrator
Appendix G5	Certificate of HOKLAS Accredited Laboratory
Appendix H1	Event/Action Plan for Air Quality
Appendix H2	Event/Action Plan for Noise
Appendix I	Implementation Status of Environmental Protection Requirements
Appendix J	1-hour and 24-hour TSP Monitoring Results
Appendix K	Graphical Presentation of 1-hour and 24-hour TSP Monitoring Results
Appendix L	Weather Condition during Impact Monitoring
Appendix M	Noise Monitoring Results for Normal Hour
Appendix N1	Graphical Presentation of Noise Monitoring Results for Normal Hour
Appendix N2	Graphical Presentation of Noise Monitoring Results for Restricted Hour
Appendix O1	Environmental Complaint Log Book
Appendix O2	Cumulative Statistics for Environmental Complaint
Appendix P	Tentative Environmental Monitoring Schedule for the Next Three Months
Appendix Q	Photographic Records of Implemented Measures
Appendix R	Summary of Environmental Licensing, Notification and Permit Status

EXECUTIVE SUMMARY

- ES 1 An Environmental Permit (EP-085/2000/E) was granted to Highways Department by the Environmental Protection Department for the construction of Route 8 Project between Tsing Yi and Cheung Sha Wan. This EP covers four phases of the Route 8 Project namely Phase 1 – Ngong Shuen Chau Viaduct, Phase 2a – Nam Wan Tunnel and West Tsing Yi Viaduct, Phase 2b – East Tsing Yi Viaduct and Phase 3 – Stonecutters Bridge.
- ES 2 This is the 48th monthly Environmental Monitoring and Audit (EM&A) Report for the “Phase 2b – Route 8 East Tsing Yi Viaduct Contract (HY/2004/02)”. The construction commencement date of this Contract was on 22nd March 2005 and the substantial completion of the construction works was granted on 23rd October 2008. This report presents the results of the EM&A works conducted during the period between 29th January 2009 and 28th February 2009 in accordance with the EM&A Manual which forms part of the EIA Report (Register No. AEIAR-018/1999).
- ES 3 The major construction activities carried out during normal hours are as follows:-
- i. Slope works
 - ii. Reinstatement of temporary haul road
 - iii. Road works
 - iv. Viaduct E&M and finishing
 - v. Drainage installation
 - vi. Utilities and services diversion
 - vii. Noise Barrier construction and associated works
 - viii. Asphalt paving
- ES 4 Monitoring of Total Suspended Particulates (TSP) and Noise were carried out in accordance with the EM&A Manual. The Environmental Team (ET) site inspections were conducted on 5th, 12^h, 19th, and 26th February 2009 and the joint IEC monthly audit was conducted on 19th February 2009. No joint site inspections were carried out with EPD during the reporting period.

Air Quality

- ES 5 A total of 72 sets of 1-hour TSP and 24 sets of 24-hour TSP measurements were carried out at all monitoring locations during the reporting period and the results of all measurements taken were below the Action/Limit (AL) Levels.

Noise

- ES 6 In order to assess the construction noise impact effectively for all noise monitoring locations (NSR1 to NSR4) from this Contract, an adjustment approach was adopted since 29th March 2005 and had been consulted with EPD to audit merely the construction noise levels against the statutory noise limits. The measured noise levels were adjusted with the corresponding baseline levels in order to facilitate the interpretation of the construction noise levels and this in turn would determine the actual construction noise impact contributed solely by the Phase 2b construction activities.

Daytime Monitoring

- ES 7 A total of 20 sets of $L_{eq(30min)}$ measurement were undertaken during daytime (0700 to 1900 hours on normal weekdays) at all monitoring locations during the reporting period and no exceedances were recorded.

Restricted Hour Monitoring

- ES 8 During this reporting period, no construction works were carried out during evening, night-time and public holidays. Therefore no restricted hour noise monitoring was conducted.

Water Quality

- ES 9 An Effluent Discharge License (EP760/350/009539I) was granted by EPD to DCBJV on 21st April 2005. In accordance with the approved License conditions, water sampling is required on a monthly basis. Two water samples were taken by DCBJV in February 2009 for Total Suspended Solid (TSS) and analyzed by a HOKLAS accredited laboratory. The results indicated that they have fully complied with the Specific Condition as stipulated in the approved license.

Waste Management

- ES 10 The revised Waste Management Plan (Rev. M) was approved by EPD on 22nd June 2006 (EPD ref. (10) in Ax (3) to EP2/N3/A/28 PT.7).
- ES 11 Since April 2005, all non-inert C&D waste from the Phase 2b Contract had been disposed of at NENT and WENT Landfills. A total of 14m³ of general refuse were delivered to WENT Landfill and no non-inert C&D waste was disposed of at NENT landfill during the reporting period.
- ES 12 All inert C&D material had been disposed of to Tuen Mun Fill Bank. During this reporting period, 100m³ of public fill and 115m³ of broken concrete were delivered off site to Tuen Mun Fill Bank.
- ES 13 No chemical waste was disposed off site during the reporting period.

Site Audits / Inspections

- ES 14 ET weekly site inspections were carried out during the reporting period and the major issues identified are presented below:

Item	Findings	DCBJV's Corrective and Preventive measures	Effectiveness of measures
1.	DCBJV was reminded that the haul road at area P2-SA6E should be sprayed with sufficient water to maintain the entire surface moist in order to minimize the dust impact generated from vehicular movement.	Labour has been arranged on site to maintain the haul road in moist condition by water hose at area P2-SA6E.	Completed and closed. (Please refer to Appendix Q Photo 01).
2.	DCBJV was reminded to clean up and protect the existing gullies at area P2-SA6B (Tsing Yi Road) properly.	Geo-textile and sandbags have been deployed to protect the existing gullies in order to avoid loose materials entering into the drainage system. In addition, all runoff should be diverted to treatment facilities prior to discharge.	Completed and closed. (Please refer to Appendix Q Photo 02 to 04).
3.	Standalone oil / fuel buckets were found next to the air compressor at area P2-SA6B (along Tsing Yi Road).	The buckets and air compressor were removed from site immediately after site inspection.	Completed and closed. (Please refer to Appendix Q Photo 05).
4.	The waste skip at area P2-SA8 was full.	The waste skip had been cleaned after the site inspection.	Completed and closed. (Please refer to Appendix Q Photo 06).
5	Open stockpiles of dusty material were observed at area P2-SA6B (under C2/D2 Bridge). DCBJV was reminded that all open stockpiles should be entirely by covered by impervious sheeting or to be sprayed with sufficient water to maintain the entire surface moist.	Majority of open stockpiles had been backfilled and the remaining stockpiles have been sprayed with sufficient water in order to maintain the entire surface moist.	Completed and closed. (Please refer to Appendix Q Photo 07 & 08).

ES 15 The monthly IEC audit was carried out on 19th February 2009, two general reminders were recorded by IEC and they are presented as follows:-

Item	Findings	DCBJV's Corrective and Preventive measures	Effectiveness of measures
1.	DCBJV was reminded that the haul road at area P2-SA6E should be sprayed with sufficient water to maintain the entire surface moist in order to minimize the dust impact generated from vehicular movement.	Labour has been arranged on site to maintain the haul road in moist condition by water hose at area P2-SA6E.	Completed and closed. (Please refer to <i>Appendix Q</i> Photo 01).
2.	Open stockpiles of dusty material were observed at area P2-SA6B (under C2/D2 Bridge). DCBJV was reminded that all open stockpiles should be entirely by covered by impervious sheeting or to be sprayed with sufficient water to maintain the entire surface moist.	Majority of open stockpiles had been backfilled and the remaining stockpiles have been sprayed with sufficient water in order to maintain the entire surface moist.	Completed and closed. (Please refer to <i>Appendix Q</i> Photo 07 & 08).

EPD Site inspections

ES 16 No joint site inspections were carried out with EPD during the reporting period.

Environmental Licenses and Permits

ES 17 The following permits / licenses have been granted by EPD for the construction of the Phase 2b Contract and they are:-

- i. Environmental Permit (EP-085/2000/E)
- ii. Chemical Waste Producer Registration (5213-350-D2350-01)
- iii. Effluent Discharge Licence (EP760/350/009539I)

Environmental Complaints

ES 18 No environmental related complaints were received during the reporting period. A total of 10 environmental complaints had been received for Phase 2b Contract since the commencement of the construction.

Notifications of Summonses and Prosecutions

ES 19 Since the commencement of construction, no notifications of summonses or prosecutions were received on the environmental performance for Phase 2b Contract.

Future Key Issues

ES 20 The tentative program of major site activities and the impact prediction and control measures for the coming three months, i.e. March 2009 to May 2009 are summarized as follows:

Construction Works	Major Impact Prediction	Control Measures
Utilities Diversion; deck construction; soil works for cut slopes and soil fill slopes	Air impact (dust)	i) Frequent watering of haul road and unpaved/exposed areas; ii) Frequent watering or covering stockpiles with tarpaulin or similar means; iii) Watering of any earth moving activities and iv) Cover the exposed slope and open stockpiles of dusty materials.
	Water quality impact (surface run-off)	i) Diversion of the collected effluent to de-silting facilities for treatment prior to discharge to public storm water drains; ii) Provision of adequate de-silting facilities for treating surface run-off and other collected effluents prior to discharge; iii) Provision of perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and iv) Provision of measures to prevent discharge into the stream.
	Noise Impact	i) Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; ii) Controlling the number of plants use on site; iii) Regular maintenance of machines; and iv) Use of acoustic barriers if necessary.

Route 8 - Traffic Control and Surveillance System (TCSS)

- ES 21 The construction commencement date for “Route 8 – Traffic Control and Surveillance System Contract (HY/2003/05)” (TCSS) at Phase 2b Contract site area was on 20th April 2008 and the TCSS Contract was awarded to Delcan-Imtech-GECS-Joint Venture (DIGJV).
- ES 22 A joint site audit amongst IEC/ET/RSS/DIGJV was carried out on 19th February 2009. No adverse comments were raised by ET, IEC and RSS.

1 INTRODUCTION

An Environmental Permit (EP-085/2000/E) was granted to Highways Department by the Environmental Protection Department for the construction of Route 8 between Tsing Yi and Cheung Sha Wan Project. This EP covers four phases of the Route 8 Project namely Phase 1 – Ngong Shuen Chau Viaduct, Phase 2a – Nam Wan Tunnel and West Tsing Yi Viaduct, Phase 2b – East Tsing Yi Viaduct and Phase 3 – Stonecutters Bridge.

1.1 Purpose of the Report

This is the 48th monthly Environmental Monitoring and Audit (EM&A) report for the “Phase 2b – Route 8 East Tsing Yi Viaduct Contract (HY/2004/02)” (hereinafter called the “Phase 2b Contract”). This report presents the results of the EM&A programme conducted during the period between 29th January 2009 and 28th February 2009 in accordance with the Environmental Permit EP-085/2000/E and the EM&A Manual which forms part of the EIA Report (Register No. AEIAR-018/1999).

1.2 Structure of the Report

The structure of the report is as follows:

- Section 1: **INTRODUCTION** – details the scope and structure of the report.
- Section 2: **PROJECT INFORMATION** – summarizes the background and scope of the project, project organization, construction programme and the construction works undertaken during the reporting period.
- Section 3: **ENVIRONMENTAL MONITORING REQUIREMENTS** – summarizes the monitoring programmes, Action and Limit Levels, Event Action Plans, environmental mitigation measures as recommended in the EIA Report and relevant environmental requirements.
- Section 4: **IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS** – summarizes the implementation of environmental protection measures during the reporting period.
- Section 5: **ENVIRONMENTAL LICENCE AND PERMITTING REQUIREMENTS** – summarizes the environmental licences and permits obtained or being applied during the reporting period.
- Section 6: **MONITORING RESULTS** – reports the monitoring results obtained in the reporting period.
- Section 7: **AUDIT RESULTS** – summarizes the audit findings in the reporting period.
- Section 8: **COMPLAINTS, NOTIFICATIONS OF SUMMONS AND PROSECUTIONS DURING THE REPORTING PERIOD** – summarizes the complaints, notifications of summons and prosecutions recorded during the reporting period.
- Section 9: **ROUTE 8 – TRAFFIC CONTROL AND SURVEILLANCE SYSTEM (TCSS)**
- Section 10: **FUTURE KEY ISSUES** – summarizes the future key issues as reviewed from the works programme and work method statements.
- Section 11: **RECOMMENDATIONS AND CONCLUSIONS**

2 PROJECT INFORMATION

2.1 Background

- 2.1.1 Ove Arup and Partners Hong Kong Ltd (Arup) was awarded the Design and Construction Consultancy Assignment “Agreement No. CE72/98 R9T between Tsing Yi and Cheung Sha Wan”.
- 2.1.2 The construction of the Phase 2b Contract was awarded to Dragages – China Harbour Joint Venture (DCBJV) on 7th December 2004 and is scheduled to be substantially complete by end of October 2008. The construction commencement date of the Phase 2b Contract was on 22nd March 2005 and the substantial completion of the construction works were granted on 23rd October 2008.
- 2.1.3 The Works under the contract covers a 1.1 km dual 3 lane viaduct linking Stonecutters Bridge and Nam Wan Tunnel. It will form part of the Route 8 and provides linkage between the eastern part of the New Territories and the International Airport. The Works also include the construction of viaduct ramps linking the mainline and the road networks within the vicinity of Container Terminal No. 9.

2.2 Site Description

- 2.2.1 For the Phase 2b Contract, a total of four sensitive receivers have been identified in accordance with the EM&A Manual and the EIA; three residential areas and one school, all located on the east side of Tsing Yi Island. Two monitoring stations are located at the Tsing Yi Hong Kong Institute of Vocational Education (IVE) in the Main Education Building and Fok Ying Tung Hall of Residence, one at Mayfair Gardens and the other at Cheung Ching Estate. The site location plan and the monitoring locations are presented in *Appendix A* and *F* respectively.

2.3 Project Organisation

- 2.3.1 The Phase 2b Contract organization chart and contact details are shown in *Appendix B*.

2.4 Project Work Programme

- 2.4.1 The Phase 2b Contract’s planned activities for the remaining works is presented in *Appendix C*. The major site activities undertaken during normal hours and restricted hours in the reporting period are summarized in *Table 2.1* and *Table 2.2* respectively.

Table 2.1 Major Site Activities undertaken during the Reporting Period (Normal Hours)

Area	Details of Site Activities
P2-SA6B	Slope works, drainage installation, utilities diversions, asphalt paving and noise barrier construction and associated works.
P2-SA6E, SA6F, SA7, SA8, SA8B, SA8D, SA8E	Viaduct E&M and Finishing, drainage installation, booster pump house construction and slope works.
P2-SA6G	Road works and drainage installation.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Air Quality

Monitoring Requirements

- 3.1.1 In accordance with the EM&A Manual 1-hour and 24-hour Total Suspended Particulates (TSP) are required to be conducted to monitor the construction dust impact.
- 3.1.2 The Action/Limit Levels for the four air monitoring locations had been established since the commencement of the construction of Route 8 Phase 2a – Nam Wan Tunnel and West Tsing Yi Viaduct Contract on 21st August 2003. The established Action/Limit Levels for the environmental monitoring works are presented in *Appendix D1*.

Monitoring Frequency and Schedule

- 3.1.3 The monitoring parameters and frequency are summarized in *Table 3.1*. The monitoring schedule for the reporting period is presented in *Appendix E*.

Table 3.1 TSP Monitoring Parameter and Frequency

Parameters	Duration / hour	Frequency
24-hour TSP	24	Once Every Six Days
1-hour TSP	1	Three Times Every Six Days

Monitoring Locations

- 3.1.4 In accordance with the EM&A Manual, four air quality monitoring locations were selected for the Phase 2b Contract and they are listed in *Table 3.2* and presented in *Appendix F*.

Table 3.2 TSP Monitoring Locations

Location I.D.	Description
ASR1	HK Institute of Vocational Education-Tsing Yi Fok Ying Tung Hall of Residence
ASR2	HK Institute of Vocational Education-Tsing Yi 5 th Floor Block D of the Main Education Building
ASR3	Mayfair Gardens 1 st Floor adjacent to Swimming Pool
ASR4	Cheung Ching Estate At Roof of Ching Yung House (25/F)

- 3.1.5 All meteorological data was obtained from the Hong Kong Observatory website.

Monitoring Equipment

- 3.1.6 Continuous 24-hour and 1-hour TSP air quality monitoring was performed using a TE-5170 Tisch Environmental Inc. High Volume Sampler (HVS), which was installed at the monitoring stations. The sampler composed of a motor, filter holder, flow controller and a sampling inlet. Its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).
- 3.1.7 Details of the monitoring equipment are given in Table 3.3. A copy of the calibration certificate for the HVS is attached in *Appendix G1*.

Table 3.3 Air Quality Monitoring Equipment

Equipment	Model	Qty.
High Volume Sampler	TE-5170 Tisch Environmental Inc.	4
Calibrator	TE-5028A Tisch Environmental Inc.	1

Monitoring Procedures and Calibration Details

3.1.8 Calibration Procedures - Calibration procedures of HVS are as follows (calibration certificates are presented in ***Appendix G3***) :

- i. A certified orifice transfer standard with a calibration curve was used for the calibration.
- ii. The transfer standard was connected to the inlet of the sampler. The orifice manometer was then connected to the orifice pressure port. The manometer's connecting tubing was inspected to make sure that there are no leaks between the orifice unit and the sampler.
- iii. The motor was then disconnected from the flow controller and plugged directly to an AC power source.
- iv. A weather station has been setup at the Site Office to measure and record the ambient temperature, T_a (K) and the barometer pressure Pa (mmHg) during calculation.
- v. The sampler was allowed to run for at least 2 minutes to re-establish the run temperature conditions. The pressure drop across the orifice and the well-type manometer reading was recorded during calibration. The variable resistance was adjusted to repeat recording for four different flow rates.
- vi. The best fit straight line was determined by linear regression and the slope (m1), intercept (b1) and correlation coefficient (r) are then determined.

3.1.9 Operating/Analytical Procedure

- i. The flow rate of the high volume sampler was set to about $1.1 \text{ m}^3/\text{min}$ - $1.7 \text{ m}^3/\text{min}$ prior to commencement of the dust sampling in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
- ii. The samplers was located such that:
 - a. the filter was about 1.3 meters above ground.
 - b. it was greater than 20 meters away from trees.
 - c. it was separated from any obstacle by at least twice the height of the obstacle protruding above the sampler.
 - d. it has unrestricted airflow 270° around the sampler.
- iii. Fiberglass filters were used for TSP sampling (G810) [Note: these filters have a collection efficiency of $> 99\%$ for particles of 0.3 mm diameter.
- iv. All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment has a temperature setting between 25°C and 30°C and should not vary by more than $\pm 3^\circ\text{C}$; the relative humidity was $< 50\%$ and should not vary by more than $\pm 5\%$.
- v. A new filter was placed with stamped number upward on a supporting screen.
- vi. The filter was properly aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter.
- vii. Shelter lid closed and catch secured with the aluminum strip.
- viii. The sampler was then allowed to run for at least 5 minutes to establish run-temperature conditions.
- ix. The flow indicator reading was recorded and the sampler flow rate was determined.
- x. The programmable timer was set and the starting sampling time, weather condition and the filter number was recorded.
- xi. At the end of sampling, the filter was transferred from the filter holder of the HVS to a sealable plastic bag and sent to the HOKLAS accredited laboratory for weighing.

The elapsed time was also recorded. A copy of the HOKLAS certificate is attached in **Appendix G5**.

- xii. Before weighing, all filters were equilibrated in a desiccator for 24 hours with temperature of $25^{\circ}\text{C}\pm 3^{\circ}\text{C}$ and the relative humidity (RH) $50\%\pm 5\%$, preferably 40%.

3.1.10 Maintenance

- i. The high volume sampler and their accessories were maintained in good working conditions include replacing motor brushes routinely and checking electrical wiring to ensure continuous power supply.
- ii. The high volume samplers were calibrated at bi-monthly intervals using TE-5028A Tisch Environmental Inc. Calibration Kit throughout all stages of the air quality monitoring.

Event/Action Plan

- 3.1.11 The Event/Action Plan for Air Quality is presented in **Appendix H1**.

3.2 Noise Quality

Monitoring Requirements

- 3.2.1 According to the field study, the noise generated from the major roads (such as Tsing Yi Road) was noticeable at all noise monitoring stations and therefore the major roads were considered as an influencing factor of the noise sensitive receivers.

- 3.2.2 As the noise monitoring stations are located within urban area and directly affected by this Influencing Factor (IF), the Area Sensitivity Rating of the noise monitoring stations is considered to be “C” according to the Table 1 of the Technical Memorandum on Noise from Construction Work other than Percussive Piling under Noise Pollution Control Ordinance.

- 3.2.3 The Action/Limit Levels for the environmental monitoring works is established according to the EM&A manual and the Technical Memorandum under Noise Pollution Control Ordinance and is presented in **Appendix D2**.

Monitoring Frequency and Schedule

- 3.2.4 The monitoring schedule is presented in **Appendix E** and the frequency and parameters of noise measurement are summarized in **Table 3.4**.

Table 3.4 Noise Monitoring Frequency and Parameters

Time Period	Duration / min.	Parameters	Frequency
Daytime (0700 to 1900)	30 (6 consecutive $L_{eq}(5\text{min})$ in average)	Leq, L_{90} & L_{10}	Once per week
*Evening (1900 to 2300)	5	Leq, L_{90} & L_{10}	Six times per week
*Night (2300 to 0700 next day)	5	Leq, L_{90} & L_{10}	Four times per week
*Holiday (0700-1900 on holidays)	5	Leq, L_{90} & L_{10}	Six times per week

* Restricted hour noise monitoring: to be conducted only when there is construction work under valid CNP.

Monitoring Locations

- 3.2.5 In accordance with the EM&A Manual, four noise monitoring locations (as detailed in **Table 3.5** and presented in **Appendix F**) were selected for noise measurement.

Table 3.5 Location of the Noise Monitoring Stations

Location I.D.	Description	Type of measurement
NSR1	HK Institute of Vocational Education-Tsing Yi Fok Ying Tung Hall of Residence	Free Field
NSR2	HK Institute of Vocational Education-Tsing Yi 5 th Floor Block D of the Main Education Building	Free Field
NSR3	Mayfair Gardens 1 st Floor adjacent to Swimming Pool	Free Field
NSR4	Cheung Ching Estate At Roof of Ching Yung House (22/F)	Free Field

Monitoring Equipment

- 3.2.6 Integrating Sound Level Meters were used for noise monitoring which were Type 1 sound level meters capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x). They comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). Also, a portable electronic wind speed indicator capable of measuring wind speed in m/s was used to monitor the wind speed. Table 3.6 summarizes the noise monitoring equipment required.

Table 3.6 Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Type 2238, B&K & NL-31, Rion
Calibrator	Type 4231, B&K & NC-74, Rion
Portable Wind Speed Indicator	45118, Extech

Monitoring Procedures and Calibration Details

3.2.7 Field Monitoring

- i. The microphone of the Sound Level Meter (with weatherproof kit) was mounted on a tripod at a height of 2m above ground level.
- ii. For free field measurement, the meter was positioned away from any nearby reflective surfaces.
- iii. AC power supply was checked to ensure good functioning of the meter.
- iv. Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - a. frequency weighting : A
 - b. time weighting : Fast
 - c. time measurement : 30 minutes / 5 minutes
- v. Prior to and after each noise measurement, the meter was calibrated using the Calibrator for 94 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- vi. The wind speed was frequently checked with the portable wind meter.
- vii. At the end of the monitoring period, the L_{eq} , L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- viii. Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.

- ix. Noise monitoring was cancelled in the presence of fog, rain, and wind with steady speed exceeding 5 m/s, or wind with gusts exceeding 10m/s.
- 3.2.8 Maintenance and Calibration
- i. The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- ii. The meter was sent to the supplier to check and calibrate yearly.
- iii. Calibration certificates are presented in *Appendix G4*.
- 3.2.9 Event/Action Plan
- The Event/Action Plan for Noise impact is presented in *Appendix H2*.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

DCBJV has implemented a series of environmental mitigation measures to fulfill the requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarized in *Appendix I*.

5 ENVIRONMENTAL LICENCES AND PERMITS

5.1 Status of Permits and Licenses

- 5.1.1 The status of permits, licenses and EPD notifications for all relevant environmental issues of the Phase 2b Contract for the reporting period is presented in *Appendix R*.

6 MONITORING RESULTS

6.1 Air Quality

- 6.1.1 The 1-hour TSP monitoring was carried out at four monitoring stations during the reporting period. All monitoring data are presented in *Appendix J*. A summary of the measured 1-hour TSP levels is given in *Table 6.1*. Graphical presentations of the 1-hour TSP monitoring results for the reporting period and the trend of 1-hour TSP results are shown in *Appendix K*. Meteorological data such as atmospheric pressure and temperature used for the calculation of TSP values was obtained from the Hong Kong Observatory.

Table 6.1 Summary of 1-hour TSP Impact Monitoring Results

Location I.D.	1-hour TSP ($\mu\text{g}/\text{m}^3$)		Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
	Range	Mean		
ASR1	88.1 – 349.1	165.0	350	500
ASR2	71.5 – 252.0	153.3	350	500
ASR3	39.8 – 241.8	123.5	350	500
ASR4	31.4 – 217.0	110.4	350	500

- 6.1.2 The 24-hour TSP monitoring was carried out at four monitoring stations during the reporting period. All monitoring data are presented in *Appendix J*. A summary of the measured results is given in *Table 6.2*. Graphical presentations of the results for the reporting period and the trend of 24-hour TSP results are shown in *Appendix K*.

Table 6.2 Summary of 24-hour TSP Impact Monitoring Results

Location I.D.	24-hour TSP ($\mu\text{g}/\text{m}^3$)		Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
	Range	Mean		
ASR1	57.9 – 151.9	97.4	174.0	260
ASR2	54.6 – 137.0	91.1	185.5	260
ASR3	41.2 – 162.2	92.0	200.0	260
ASR4	50.3 – 130.6	83.2	192.0	260

- 6.1.3 No exceedances of the Action/Limit Levels of 1-hour and 24-hour TSP were recorded during the reporting period. The weather conditions recorded during the reporting period are summarized in *Appendix L*.

6.1.4 Observations

There were several significant dust sources identified during the reporting period and they were mainly contributed by the following activities:

- i. general / utilities / slope works;
- ii. stockpiling and excavation;
- iii. other construction activities nearby;
- iv. on-site traffic and local traffic network.

6.2 Noise

- 6.2.1 In accordance with the EM&A Manual all noise monitoring were carried out in the absence of fog, rain and wind with a steady speed exceeding 5m/s, or wind gust exceeding 10m/s. Furthermore, an additional 3dB(A) facade correction for free field measurements were made for all monitoring locations.

- 6.2.2 In order to assess the construction noise impact effectively for all noise monitoring locations (NSR1 to NSR4) from Phase 2b Contract, an adjustment approach was adopted since 29th March 2005 and had been consulted with EPD to audit merely the construction noise levels against the statutory noise limits. The measured noise levels were adjusted with the corresponding baseline levels in order to facilitate the interpretation of the construction noise levels and this in turn would determine the actual construction noise impact contributed solely by the Phase 2b construction activities. No adjustments will be made on the measured noise levels, if the measured noise levels were lowered or equal to the corresponding baseline levels.

6.2.3 Normal Hour Monitoring

Daytime noise monitoring was carried out at all the noise monitoring stations during the reporting period. All corrected noise levels are presented in *Appendix M*. A summary of the results is given in Table 6.3. Graphical presentation of the monitoring results for the reporting period is shown in *Appendix N*.

Table 6.3 Summary of Corrected Impact Noise Levels for Normal Hour Monitoring

Daytime 0700-1900 hrs on normal weekdays	Measured Noise Level ¹ ,dB(A), (Range)			Construction Noise Level, dB(A) (Range)	Limit Level dB(A)
	Leq(30min)	L ₁₀ (30min)	L ₉₀ (30min)	Leq(30min)	Leq(30min)
NSR1	61.0 – 69.5	62.9 – 72.3	58.9 – 64.4	65.1 – 66.4 ³	75
NSR2 ²	61.8 – 66.1	63.7 – 67.9	59.2 – 63.7	– ⁴	70
NSR3	63.7 – 66.0	65.2 – 68.0	61.4 – 63.3	– ⁴	75
NSR4	63.8 – 65.2	66.5 – 67.6	60.0 – 61.4	– ⁴	75

¹ Additional 3dB (A) façade correction was made to the Free-field measurements.

² Limit Level is reduced to 70dB(A) for schools and 65dB(A) during examination periods. No examinations were carried out during the reporting period.

³ No adjustments were made on some of the measured noise levels, since corresponding baseline level \geq measured noise level. The measured noise levels were mainly dominated by local traffic noise and the construction noise generated from the Phase 2b Contract was not noticeable at NSRs according to the field study record.

⁴ No adjustments were made on all the measured noise levels, since corresponding baseline level \geq measured noise level.

6.2.4 Observations

The major noise sources identified at the NSRs during the normal hour monitoring were dominated by local traffic noise (such as Tsing Yi Road), in particular container trucks.

6.2.5 Restricted Hour Monitoring

No construction works were carried out in restricted hour during the reporting period. Therefore, no restricted hour noise monitoring was carried out at four monitoring locations at Tsing Yi Island (NSR1 to NSR4) during the reporting period.

In addition, no evening and night-time noise monitoring was carried out since mid November of 2007. Graphical presentation of the public holiday noise monitoring results for the past four-month is shown in *Appendix N2*.

7 AUDIT RESULTS

7.1 Air Quality

7.1.1 For 1-hour TSP monitoring, a total of 72 sets of measurements were carried out during the reporting period and the results of all measurements taken were below the Action/ Limit (AL) Levels.

7.1.2 For 24-hour TSP monitoring, a total of 24 sets of measurements were carried out during the reporting period and the results of all measurements taken were below the Action/ Limit (AL) Levels.

7.2 Noise

7.2.1 A total of 20 sets of Leq(30min) measurement during daytime (i.e. 0700 to 1900 hours on normal weekdays) were carried out during the reporting period and no exceedances were recorded.

7.2.2 No restricted hour noise monitoring was carried out during the reporting period.

7.3 Water Quality

- 7.3.1 An Effluent Discharge License for the discharge of effluent arising from construction activities was granted by EPD to DCBJV on 26th April 2005.
- 7.3.2 In accordance with the approved License conditions, water sampling is required on a monthly basis. Two water samples were taken by DCBJV on 6th February 2009 for Total Suspended Solid (TSS) and analyzed by a HOKLAS accredited laboratory. The results indicated that they have fully complied with the Specific Condition as stipulated in the approved license.

7.4 Waste Management

- 7.4.1 The revised Waste Management Plan (Rev. M) was approved by EPD on 22nd June 2006 (EPD ref. (10) in Ax(3) to EP2/N3/A/28 PT.7).
- 7.4.2 Since April 2005, all non-inert C&D waste from the Phase 2b Contract had been disposed of at NENT and WENT Landfills. All inert C&D material had been disposed of to Tuen Mun Fill Bank.
- 7.4.3 On 28th July 2005, approval was granted by PFC, CEDD to deliver a maximum of 30,000m³ of inert material to HY/2002/23 – Deep Bay Link – Southern Section and HY/2002/24 – Deep Bay Link – Northern Section for re-usage purposes. A total of 2,640 m³ of inert material were delivered to HY/2002/23 site since July 2005.
- 7.4.4 On 21st December 2006, PFC, CEDD has no objection in principle to deliver a maximum of 1,000m³ of inert C&D material to HY/2003/04 – Design and Build of Improvement to Castle Peak Road between Ka Loon Tsuen and Siu Lam (CPRI). Since December 2006, a total of 528 m³ of inert material were delivered to HY/2003/04.
- 7.4.5 The quantities of different waste and their handling are summarized in Table 7.1.

Table 7.1 Summary of Waste Disposal during the Reporting Period

Material Type		Handling Method	Handling Quantities in the reporting period	Temporary Storage Locations On-site (if applicable)	
C&D material	Soft Public Fill	Tuen Mun Fill Bank (Tuen Mun Area 38)	100 m ³	P2-SA6B and P2-SA12	
	Broken concrete (including rock)	Tuen Mun Fill Bank (Tuen Mun Area 38)	115 m ³	N/A	
	Rock	Deliver to Lam Tei Quarry	N/A	P2-SA12	
	Public Fill	HY/2003/04 (CPRI)	N/A	P2-SA12	
	C&D Waste	To be recycled (paper)		110 kg	Contractor's Office
		To be reused and returned to supplier (timber and metal)		N/A	N/A
Collected by licensed collector for disposal to Landfill			14 m ³	N/A	
Chemical waste		Collected by licensed chemical waste collector	N/A	P2-SA8	

7.5 Site Audits / Inspections

Photographic records provided by DCBJV for their mitigation measures taken to rectify the deficiencies identified on site are presented in *Appendix Q*.

7.5.1 Environmental Team Site Inspections

Weekly site inspections were conducted by the ET during the reporting period and the major deficiencies and DCBJV's proposed / implemented corrective and preventive measures are summarized as follows:-

- i. DCBJV was reminded that the haul road at area P2-SA6E should be sprayed with sufficient water to maintain the entire surface moist in order to minimize the dust impact generated from vehicular movement.

Corrective and Preventive Actions – Labour has been arranged on site to maintain the haul road in moist condition by water hose at area P2-SA6E. Completed and closed. (Please refer to *Appendix Q* Photo 01).

- ii. DCBJV was reminded to clean up and protect the existing gullies at area P2-SA6B (Tsing Yi Road) properly.

Corrective and Preventive Actions – Geo-textile and sandbags have been deployed to protect the existing gullies in order to avoid loose materials entering into the drainage system. In addition, all runoff should be diverted to treatment facilities prior to discharge. Completed and closed. (Please refer to *Appendix Q* Photo 02 to 04).

- iii. Standalone oil / fuel buckets were found next to the air compressor at area P2-SA6B (along Tsing Yi Road).

Corrective and Preventive Actions – The buckets and air compressor were removed from site immediately after site inspection. Completed and closed. (Please refer to *Appendix Q* Photos 05).

- iv. The waste skip at area P2-SA8 was full.

Corrective and Preventive Actions – The waste skip had been cleaned after the site inspection. Completed and closed. (Please refer to *Appendix Q* Photo 06).

- v. Open stockpiles of dusty material were observed at area P2-SA6B (under C2/D2 Bridge). DCBJV was reminded that all open stockpiles should be entirely by covered by impervious sheeting or to be sprayed with sufficient water to maintain the entire surface moist.

Corrective and Preventive Actions – Majority of open stockpiles had been backfilled and the remaining stockpiles have been sprayed with sufficient water in order to maintain the entire surface moist. Completed and closed. (Please refer to *Appendix Q* Photo 07 & 08).

7.5.2 Independent Environmental Checker (IEC) Site Audits

The IEC monthly audit was conducted on 19th February 2009. Two general reminders were recorded and they are presented as follows:

- i. DCBJV was reminded that the haul road at area P2-SA6E should be sprayed with sufficient water to maintain the entire surface moist in order to minimize the dust impact generated from vehicular movement.

Corrective and Preventive Actions – Labour has been arranged on site to maintain the haul road in moist condition by water hose at area P2-SA6E. Completed and closed. (Please refer to *Appendix Q* Photo 01).

- ii. Open stockpiles of dusty material were observed at area P2-SA6B (under C2/D2 Bridge). DCBJV was reminded that all open stockpiles should be entirely by covered by impervious sheeting or to be sprayed with sufficient water to maintain the entire surface moist.

Corrective and Preventive Actions – Majority of open stockpiles had been backfilled and the remaining stockpiles have been sprayed with sufficient water in order to maintain the entire surface moist. Completed and closed. (Please refer to *Appendix Q* Photos 07 & 08).

7.5.3 Environmental Protection Department (EPD) Site Inspections

No joint inspections were carried out with EPD during the reporting month.

7.6 Landscaping Works

- 7.6.1 Under the Phase 2b Contract, approximate 1,000,000 nos. of seeding are required to be planted on site. The soft landscaping works was over 60% complete. DCBJV reported that all seedlings would be planted before substantial completion of the works.

8 ENVIRONMENTAL NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONSES AND PROSECUTIONS

8.1 Summary of Environmental Non-Compliance

- 8.1.1 No Action / Limit Level exceedances were recorded in this reporting period and they are summarized in *Table 8.1*.

Table 8.1 Summary of Non-Compliance for the Reporting Period

Media/ Nature	No. of Exceedance		Action Taken	Results of Action Taken	Remarks
	Action Level	Limit Level			
Air Quality	0	0	-	-	-
Noise	0	0	-	-	-

8.2 Summary of Complaints

- 8.2.1 No environmental related complaints were received during the reporting period.
- 8.2.2 The summary of all complaints received since the commencement of the Phase 2b Contract is presented in Table 8.2. The details of the complaint and statistics are attached in *Appendices O1* and *O2* respectively.

Table 8.2 Summary of Total Complaint Received

Total No. of Complaint Received	No. of complaint received during reporting period	No. of Active Complaint	No. of Inactive / Closed Complaint
11	0	0	11

8.3 Summary of Notifications of Summonses and Prosecutions

- 8.3.1 No notifications of summonses or prosecutions were received on the environmental performance for Phase 2b Contract since the commencement of construction.

9 ROUTE 8 – TRAFFIC CONTROL AND SURVEILLANCE SYSTEM (TCSS)

9.1 Key issues for the Construction Works of TCSS

- 9.1.1 The construction commencement date for “Route 8 – Traffic Control and Surveillance System Contract (HY/2003/05)” (TCSS) at Phase 2b Contract site area was on 20th April 2008 and the TCSS Contract was awarded to Delcan-Imtech-GECS-Joint Venture (DIGJV).

9.2 Audit Results

- 9.2.1 A joint site audit was carried out amongst IEC/ET/RSS/DIGJV on 19th February 2009. No adverse comments were raised by any parties.
- 9.2.2 DIGJV reported that no C&D materials were disposed off site to designated public filling area during the reporting period.

10 FUTURE KEY ISSUES

10.1 Key Issues for the Coming Month

- 10.1.1 Works to be taken for the coming monitoring period will be similar to the previous month as follows:

- i. Utilities and services diversion
- ii. Reinstatement for the temporary Haul Road
- iii. Slope works
- iv. Road works
- v. Viaduct E&M and Finishing
- vi. Noise barrier construction
- vii. Landscape works
- viii. Asphalt paving

- 10.1.2 Potential environmental impacts arising from the above construction activities are mainly associated with dust, noise, site runoff and waste. However, with the implementation of the following mitigation measures, potential impacts to the surrounding sensitive receivers could be minimized:

10.1.3 Construction Dust

- i. frequently watering of haul road and unpaved areas;
- ii. prohibition of any open burning on site;

- iii. investigation of other dust sources near air sensitive receivers;
- iv. regularly watering or covering of open areas and stockpiles with tarpaulin;
- v. hydroseeding or covering inactive sand fill areas with impervious sheeting if necessary;
- vi. switching off vehicles and equipment while not in use; and
- vii. regular maintenance of onsite machinery and vehicles.

10.1.4 Construction Noise

- i. Identification of noise sources arising within and outside work site; and
- ii. Provision of noise barriers as when necessary.

10.1.5 Construction Runoff

- i. identification of sources of run-off from site;
- ii. provision of sandbags/bunds/channels to direct run-off to silt/sand removal facilities;
- iii. avoidance of direct discharge of wastewater into storm water drainage; and
- iv. provision of treatment for wastewater and run-off prior to discharge.

10.1.6 Construction Waste Management

- i. avoidance of accumulation of construction waste materials and/or general refuse on site;
- ii. segregation of C&D waste;
- iii. collection of chemical waste or oil and disposal of as chemical waste in accordance with the relevant regulations; and
- iv. regularly removing of waste materials on site.

10.2 Monitoring Schedule for the Coming Months

The tentative schedules for dust and noise monitoring for the next three months are attached in *Appendix P*.

11 RECOMMENDATIONS AND CONCLUSIONS

11.1 Conclusions

- 11.1.1 This Environmental Monitoring and Audit (EM&A) report presents the EM&A works conducted from 29th January 2009 to 28th February 2009 in accordance with EM&A Manual which forms part of the EIA Report (Register No. AEIAR-018/1999).
- 11.1.2 A total of 72 sets of 1-hour TSP and 24 sets of 24-hour TSP measurements were carried out at all monitoring locations during the reporting period and the results of all measurements taken were below the Action/Limit (AL) Levels.
- 11.1.3 A total of 20 sets of Leq(30min) measurement during daytime (i.e. 0700 to 1900 hours) were carried out during the reporting period and no exceedances were recorded.
- 11.1.4 No environmental related complaints were received during the reporting period.
- 11.1.5 No notifications of summonses or prosecutions were received on the environmental performance for Phase 2b Contract since the commencement of construction.

- 11.1.6 ET and IEC audits were carried out in accordance with the EM&A Manual and major deficiencies identified were related to the provision of dust control measures for the haul road, covering of open stockpiles, maintenance and protection of drainage systems and handling of fuel / oil. DCBJV had carried out immediate corrective / mitigation measures to rectify these issues.
- 11.1.7 No joint site inspections were carried out with EPD during the reporting period.
- 11.1.8 The construction commencement date for TCSS at Phase 2b Contract was on 20th April 2008. A joint site audit was carried out amongst IEC/ET/RSS/DIGJV on 19th February 2009 and no adverse comments were raised by ET, IEC and RSS.

11.2 Recommendations

According to the environmental audits undertaken during the reporting period, the following recommendations have been made:

11.2.1 Construction Dust

- i. Site access road and exposed areas should be watered regularly to ensure the soil surface is moist;
- ii. Dusty areas should be watered frequently and extensively during dry weather;
- iii. All open stockpiles should be covered properly by tarpaulin or similar fabric; and
- iv. Watering of any earth moving activities or dust emission activities.

11.2.2 Construction Noise

- i. The numbers of powered mechanical plants operating should not exceed the allowable plant number for each construction activity stated in the Construction Noise Permits;
- ii. Regular maintenance of machinery; and
- iii. Noisy equipment should be located away from nearby NSRs.

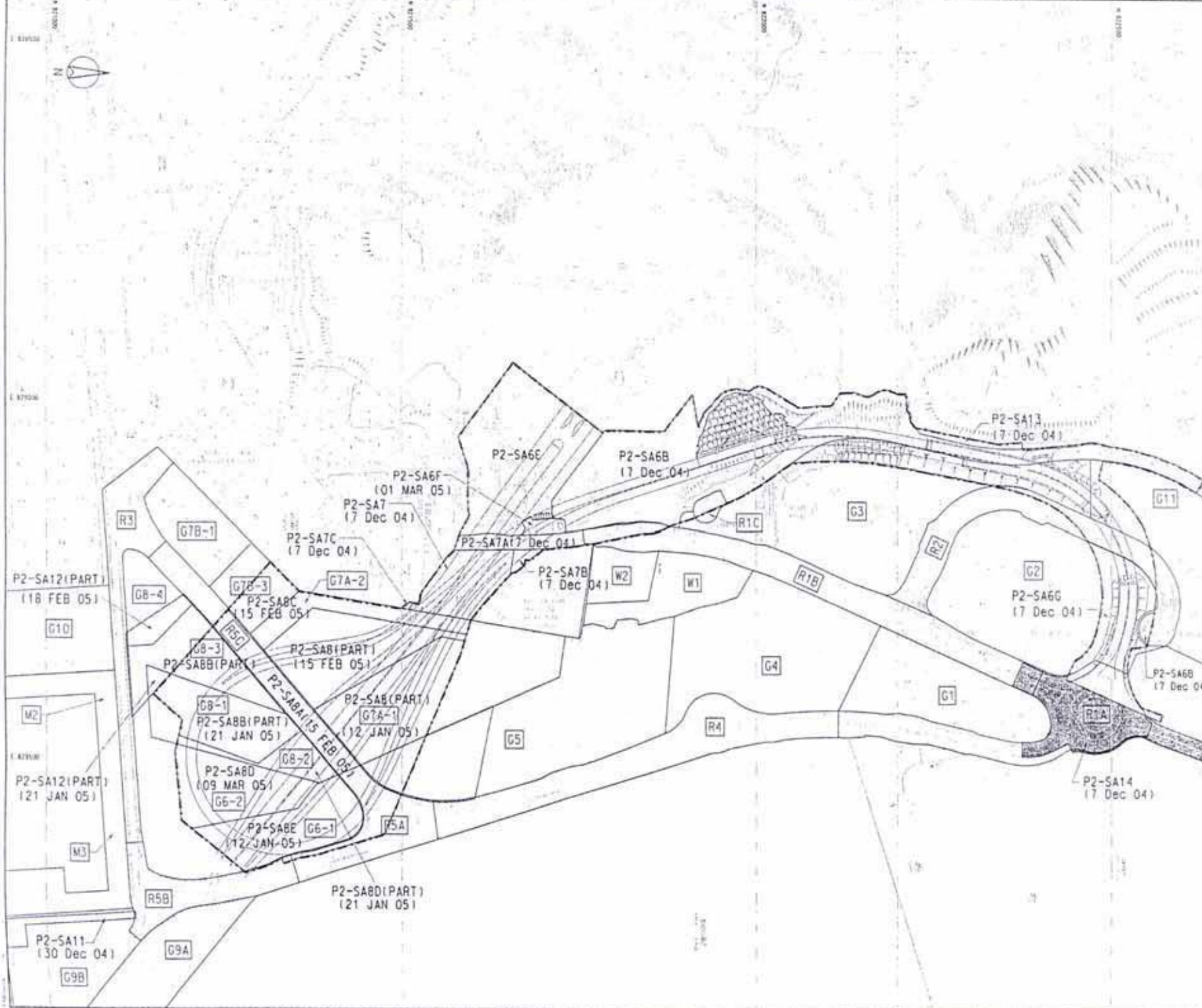
11.2.3 Water Quality

- i. All surface runoff/wastewater should be diverted to appropriate water treatment facilities before discharge;
- ii. Sedimentation tanks/basins should have adequate capacity for settling surface runoff;
- iii. Wheel washing facilities should be installed at all vehicular exits and used by all vehicles before leaving the construction site;
- iv. Vehicle and plant servicing area, wheel washing bay should be connected to storm drains via a petrol interceptor;
- v. Site hoarding should be tightly sealed at the bottom to prevent seepage of surface runoff from the site; and
- vi. Accumulation of water in drip trays and at chemical/fuel storage area should be avoided.

11.2.4 Waste Management

- i. Contaminated soil should be collected and disposed of as chemical waste;
- ii. All types of waste should be collected by licensed waste collectors; and
- iii. Good housekeeping should be implemented throughout the whole construction period.

Appendix A
Site Location Plan



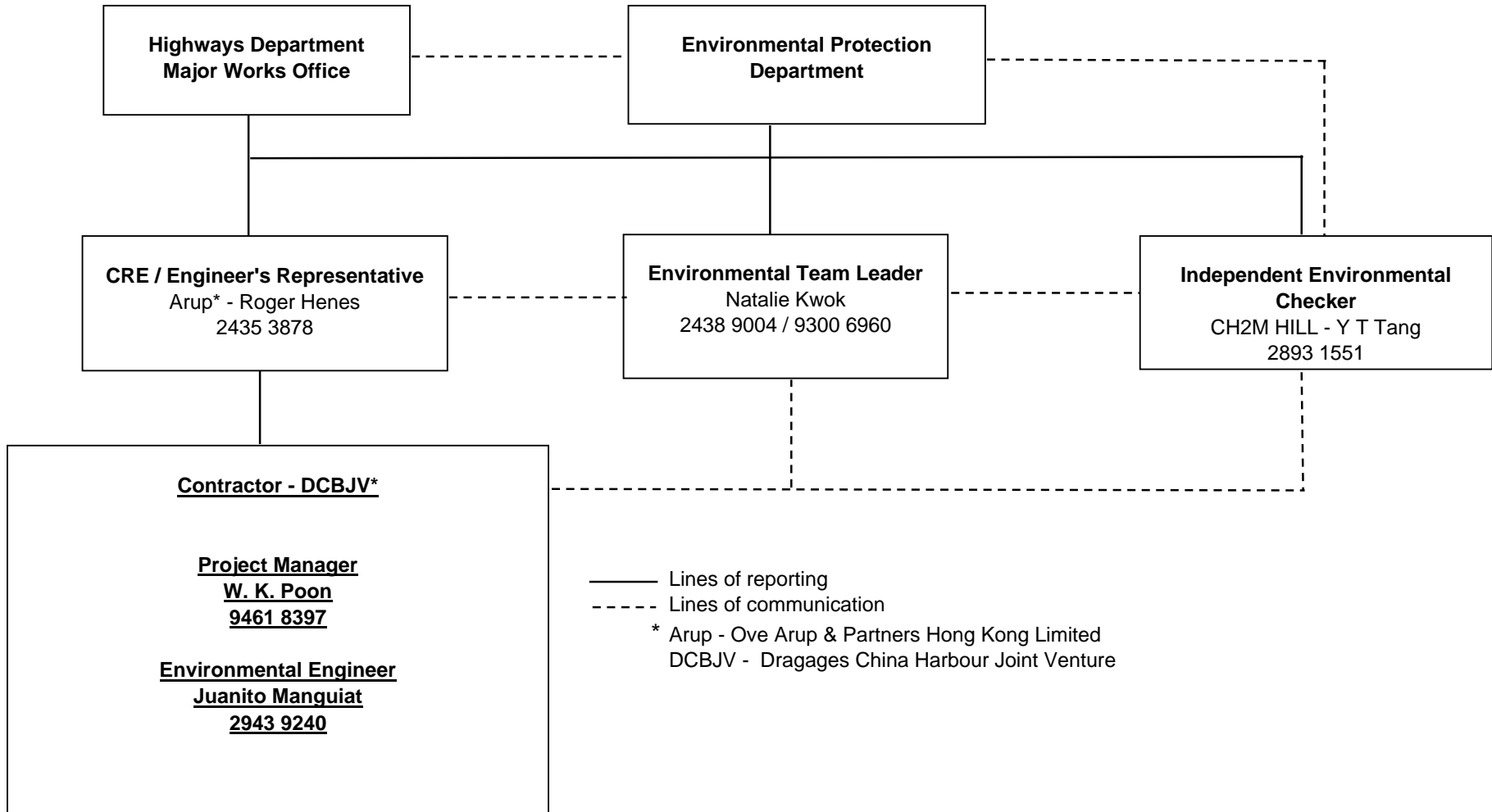
- NOTES:
- 1. COORDINATES ARE REFERRED TO GRID FROM WHICH THIS PLAN IS DRAWN.
- LEGEND:
- ROAD (SOLID)
 - ROAD (DOTTED)
 - PORTIONS OF SITE OWNED UNDER THE SCHEME (SHADOWN AREA)
 - PORTIONS OF SITE ON WHICH THE ESTABLISHMENT HAS THE RIGHTS THROUGHOUT DATE
 - PORTIONS OF SITE ON WHICH THE ESTABLISHMENT HAS NO POLLESTORY THROUGHOUT DATE

ARUP <small>INCORPORATED IN HONG KONG</small>	
Job No: HY/2004/02	
East Tsing Yi Viaduct	
Sheet No: SITE LOCATION PLAN	
Scale: 1:500	Sheet: 5
N. T. S.	
Drawn: KH	Checked: RL
Reviewed: N/A	Approved: N/A
Date: 17 Dec 04	

Appendix B

Project's Environmental Organization Chart and Contact Details

Appendix B: Project's Environmental Organisation Chart and Contact Details



Appendix C

Planned Construction Activities

Planning Activities for the Remaining Works

The Contractor has scheduled to:

- continue reinstatement of temporary cut slopes (drainage system construction and maintenance staircase construction and stone pitching installation);
- The rock filling works and drainage system construction at the lower portion of slope at P1-M5;
- The haul road reinstatement works at area P2-SA6E;
- continue the bridge deck surfacing;
- continue the MJ installation on bridge decks;
- continue construction of noise barrier (modification works of noise barrier steel post for RW2, RW5, NF1, and RW3; construction of Noise Barrier Footing; erection of steel posts and installation of panels)
- continue construction of at grade road drainage between Bridge C1/D1 and Bridge C2/D2; ;
- continue construction of storm drainage along Old Tsing Yi Road near Bridge D2;
- continue architectural works, pipe works, E&M works, testing and commissioning of various systems within the Booster Pump House compound.

Appendix D1

Action/Limit Levels for Air Quality

Appendix D1: Action /Limit Levels for Air Quality

ACTION AND LIMIT LEVELS FOR 24-HOUR TSP

Location	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
ASR1	174.0	260
ASR2	185.5	260
ASR3	200.0	260
ASR4	192.0	260

ACTION AND LIMIT LEVELS FOR 1-HOUR TSP

Location	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
ASR1	350.0	500
ASR2	350.0	500
ASR3	350.0	500
ASR4	350.0	500

Appendix D2

Action/Limit Levels for Noise

Appendix D2: Action/Limit Levels for Noise

Action and Limit Levels for Construction Noise

Time Period	Action	Limit
0700-1900 hrs on normal weekdays	When one documented complaint is received	75dB(A)*
0700-2300 hrs on holidays; and 1900-2300 hrs on all other days	When one documented complaint is received	70 dB(A)
2300-0700 hrs of next day	When one documented complaint is received	55 dB(A)

* Reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

Appendix E

Environmental Monitoring Schedule for the Reporting Period

Environmental Monitoring Schedule between 29 January 2008 and 28 February 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				24hrs-TSP	1hr-TSP	Noise Noise _{evening} Noise _{night}
Noise _{P.H.}		Noise Noise _{evening} Noise _{night}	24hrs-TSP	1hr-TSP		
Noise _{P.H.}	Noise Noise _{evening} Noise _{night}	24hrs-TSP	1hr-TSP			
Noise _{P.H.}	24hrs-TSP	1hr-TSP	Noise Noise _{evening} Noise _{night}			24hrs-TSP
Noise _{P.H.}	1hr-TSP	Noise Noise _{evening} Noise _{night}			24hrs-TSP	1hr-TSP

1hr-TSP 3 x 1 hour TSP monitoring at ASR1 to ASR4 during 0900~1800.

24hrs-TSP 24 hours TSP monitoring at ASR1 to ASR4

Noise Leq30 measurement at NSR1 to NSR4 during 0700~1900.

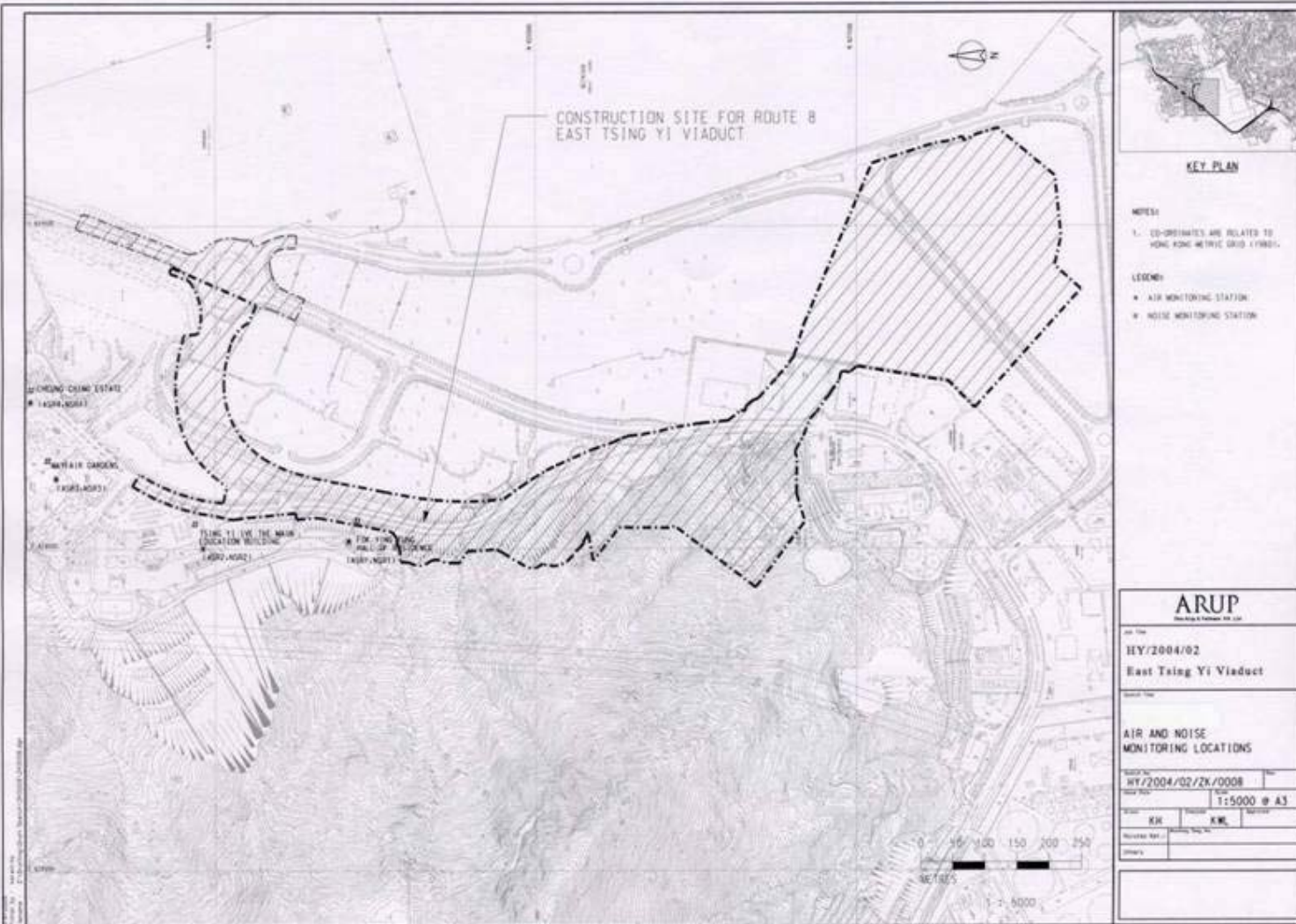
NoiseEvening 6 x Leq5 measurement at NSR1 to NSR4 during 1900~2300

NoiseNight 4 x Leq5 measurement at NSR1 to NSR4 during 2300~0700

NoiseP.H. 6 x Leq5 measurement at NSR1 to NSR4 during 0700~1900

Appendix F

Locations of Monitoring Stations



Appendix G1

Calibration Certificates for HVS

Calibration Date	1-Dec-08	Next Calibration Date	1-Feb-09
Station	H.K. Institute of Vocational Education-Tsing Yi (IVE) Fok Ying Tung Hall of Residence (ASR1)	Equipment no.	P2.HVS.04

Ambient Condition			
Temperature, Ta (K)	291.45	Pressure, Pa (mmHg)	766.42

Orifice Transfer Standard Information			
Equipment no.	P2.CAL.04	Intercept, co	-0.03299
Slope, mo	1.58686	Next Calibration Date	22-Oct-08
Last Calibration Date	22-Oct-07		
$mo \times Q_{std} + co = [\Delta O \times (Pa/760) \times (298/Ta)]^{1/2}$ $Q_{std} = \{[\Delta O \times (Pa/760) \times (298/Ta)]^{1/2} - co\} / mo$			

Calibration Point	Orifice Manometer Reading, ΔO (inch)	Orifice Q _{std} (CMM) x-axis	HVS Manometer Reading, ΔH (inch)	[ΔH x (Pa/760) x (298/Ta)] ^{1/2} y-axis
1	8.0	1.83	8.1	2.89
2	6.6	1.66	6.5	2.59
3	5.5	1.52	5.8	2.45
4	4.5	1.38	4.4	2.13
5	3.5	1.22	3.4	1.87

By Linear Regression of y on x
Slope, mh = 1.6499 Intercept, ch = -0.1268

*Correction Coefficient, R = 0.9958

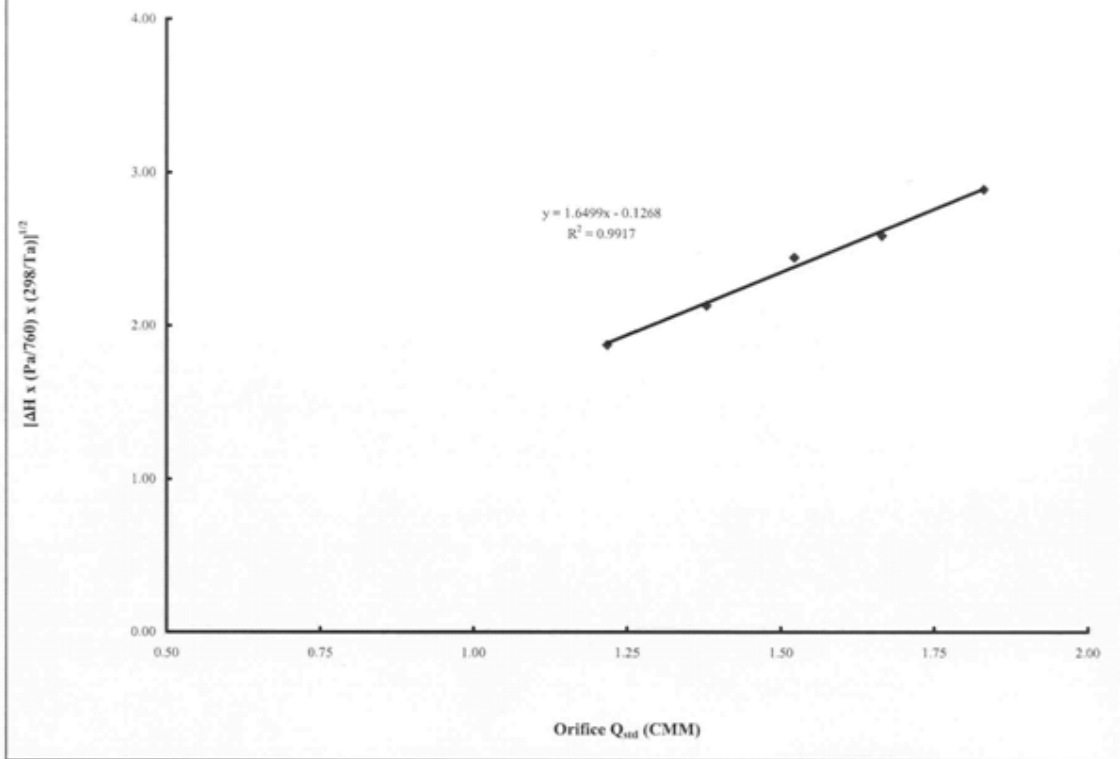
Calibration Result: ACCEPT

* If the Correlation Coefficient, R is < 0.9900. Checking and Recalibration are require.

Remark: Bi-monthly Calibration

Calibrated By: Ching Wang Date: 1 / Dec / 08
Checked By: [Signature] Date: 1 / Dec / 08

Calibration Curve



**TSP - Total Suspended Particulates High Volume Sampler
In-situ Calibration Report (ASR1)**

Calibration Date	31-Jan-09	Next Calibration Date	31-Mar-09
Station	H.K. Institute of Vocational Education-Tsing Yi (IVE) Fok Ying Tung Hall of Residence (ASR1)	Equipment no.	P2.HVS.04

Ambient Condition

Temperature, Ta (K)	289.85	Pressure, Pa (mmHg)	763.79
---------------------	--------	---------------------	--------

Orifice Transfer Standard Information

Equipment no.	P2.CAL.04	Intercept, co	-0.00705
Slope, mo	1.57672	Next Calibration Date	4-Nov-09
Last Calibration Date	4-Nov-08		
$mo \times Q_{std} + co = [\Delta O \times (Pa/760) \times (298/Ta)]^{1/2}$ $Q_{std} = \{[\Delta O \times (Pa/760) \times (298/Ta)]^{1/2} - co\} / mo$			

Calibration Point	Orifice Manometer Reading, ΔO (inch)	Orifice Q _{std} (CMM) x-axis	HVS Manometer Reading, ΔH (inch)	[ΔH x (Pa/760) x (298/Ta)] ^{1/2} y-axis
1	7.8	1.80	8.0	2.88
2	6.4	1.64	6.3	2.55
3	5.5	1.52	5.6	2.41
4	4.4	1.36	4.6	2.18
5	3.4	1.19	3.6	1.93

By Linear Regression of y on x

Slope, mh = 1.5101 Intercept, ch = 0.1209

*Correction Coefficient, R = 0.9976

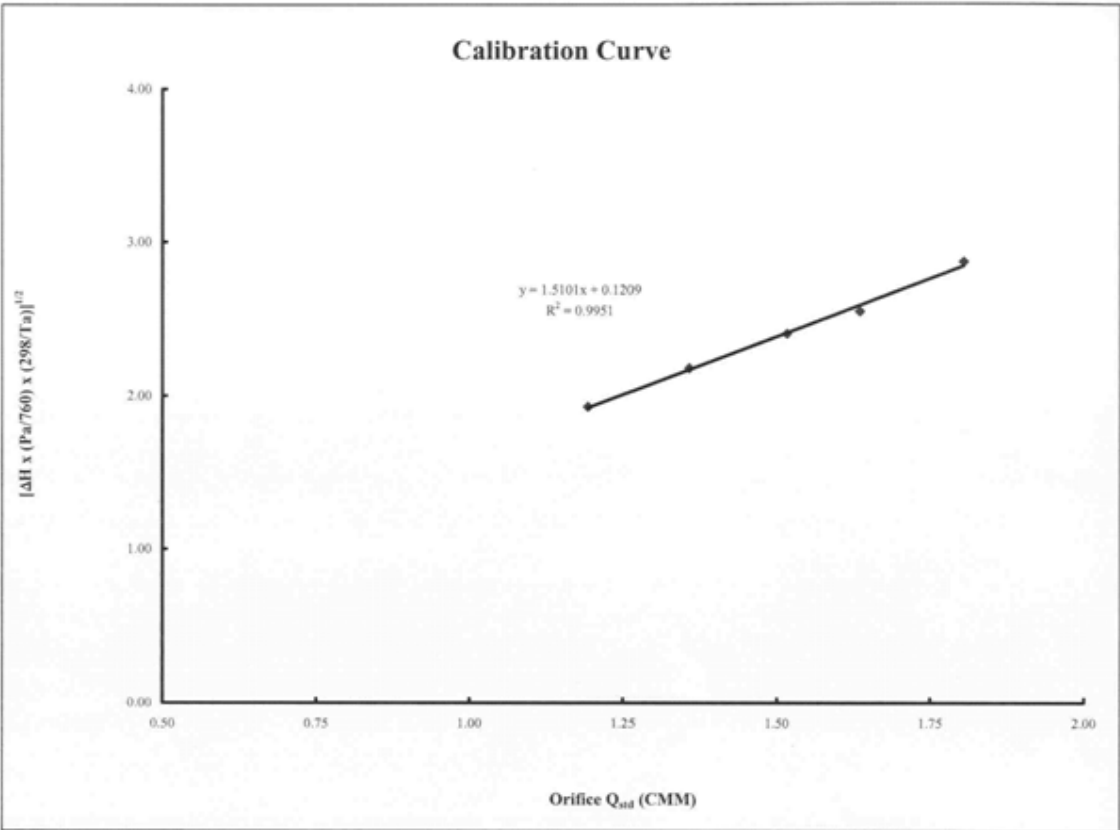
Calibration Result: **ACCEPT**

* If the Correlation Coefficient, R, is < 0.9900. Checking and Recalibration are require.

Remark: Bi-monthly Calibration

Calibrated By: *C.M. Wong* Date: 31/Jan 09
Checked By: *[Signature]* Date: 31/Jan 09

Calibration Curve



TSP - Total Suspended Particulates High Volume Sampler In-situ Calibration Report (ASR2)

Calibration Date	1-Dec-08	Next Calibration Date	1-Feb-09
Station	H.K. Institute of Vocational Education-Tsing Yi (IVE) 5th Floor Block D of the main Education Building (ASR2)	Equipment no.	P2.HVS.03

Ambient Condition			
Temperature, Ta (K)	291.45	Pressure, Pa (mmHg)	766.42

Orifice Transfer Standard Information			
Equipment no.	P2.CAL.04	Intercept, co	-0.03299
Slope, mo	1.58686	Next Calibration Date	22-Oct-08
Last Calibration Date	22-Oct-07		
$mo \times Q_{std} + co = [\Delta O \times (Pa/760) \times (298/Ta)]^{1/2}$ $Q_{std} = \{[\Delta O \times (Pa/760) \times (298/Ta)]^{1/2} - co\} / mo$			

Calibration Point	Orifice Manometer Reading, ΔO (inch)	Orifice Q _{std} (CMM) x-axis	HVS Manometer Reading, ΔH (inch)	[ΔH x (Pa/760) x (298/Ta)] ^{1/2} y-axis
1	8.0	1.83	7.9	2.85
2	6.6	1.66	6.8	2.65
3	5.3	1.49	5.2	2.32
4	4.4	1.36	4.8	2.22
5	3.5	1.22	3.6	1.93

By Linear Regression of y on x
 Slope, mh = 1.4944 Intercept, ch = 0.1312

*Correction Coefficient, R = 0.9932

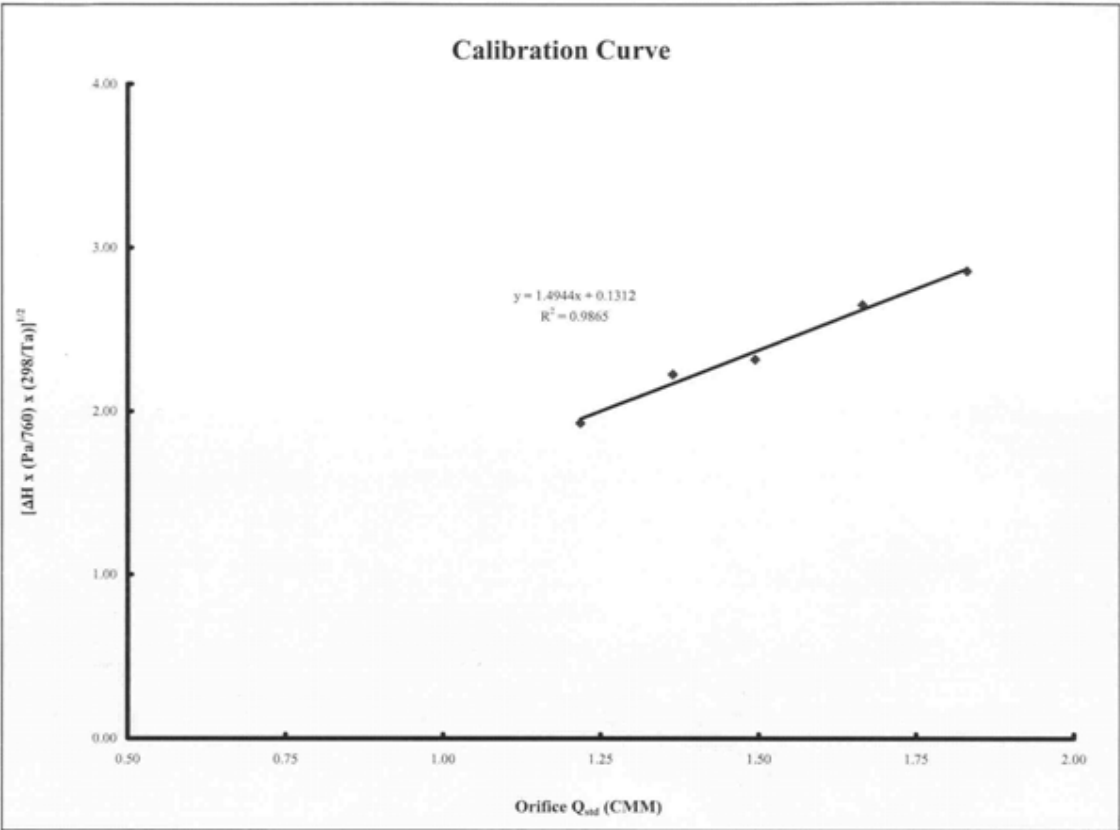
Calibration Result: ACCEPT

* If the Correlation Coefficient, R is < 0.9900. Checking and Recalibration are require.

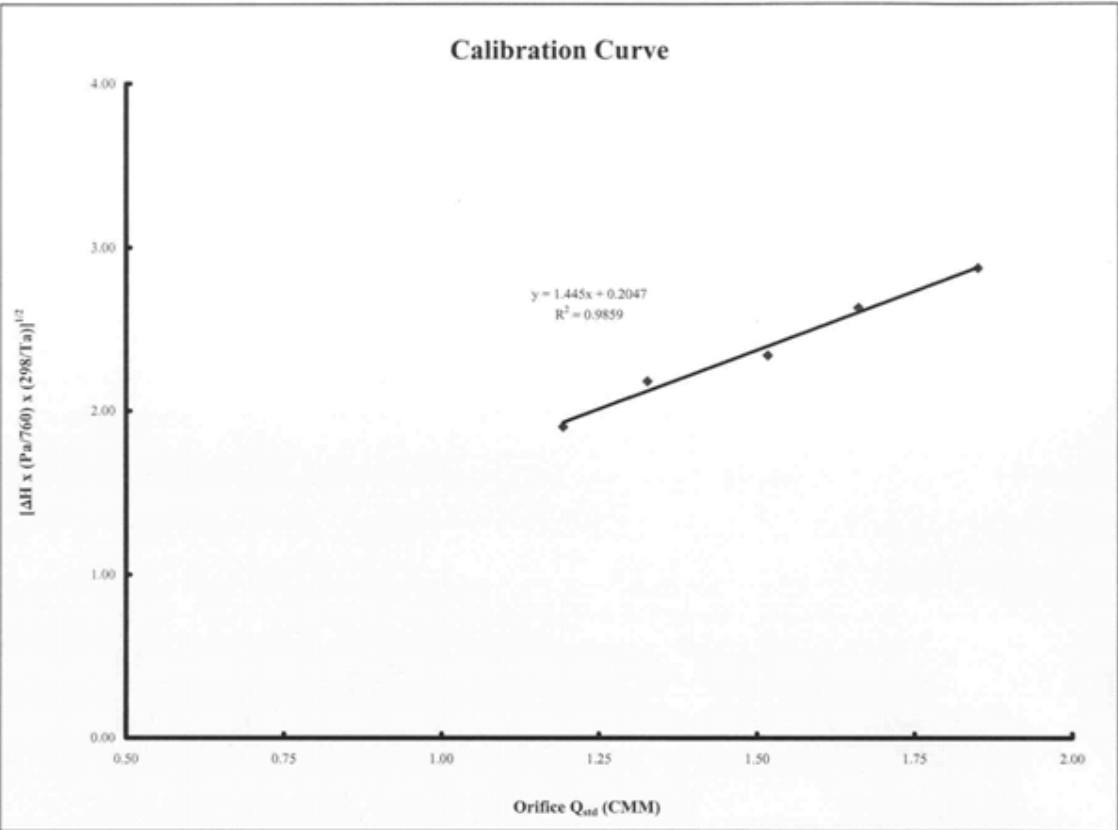
Remark: Bi-monthly Calibration

Calibrated By: cmf/long Date: 11 Dec 08
 Checked By: [Signature] Date: 11 Dec 08

Calibration Curve



Calibration Curve



Calibration Date	1-Dec-08	Next Calibration Date	1-Feb-09
Station	Mayfair Gardens 1st floor adjacent to swimming pool (ASR3)	Equipment no.	P2.HVS.01

Ambient Condition			
Temperature, Ta (K)	291.45	Pressure, Pa (mmHg)	766.42

Orifice Transfer Standard Information			
Equipment no.	P2.CAL.03		
Slope, mo	1.58181	Intercept, co	-0.01986
Last Calibration Date	22-Oct-07	Next Calibration Date	22-Oct-08

$$m_o \times Q_{std} + c_o = [\Delta O \times (Pa/760) \times (298/Ta)]^{1/2}$$
$$Q_{std} = \{[\Delta O \times (Pa/760) \times (298/Ta)]^{1/2} - c_o\} / m_o$$

Calibration Point	Orifice Manometer Reading, ΔO (inch)	Orifice Q_{std} (CMM) x-axis	HVS Manometer Reading, ΔH (inch)	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ y-axis
1	8.1	1.84	8.0	2.87
2	6.5	1.65	6.7	2.63
3	5.5	1.52	5.4	2.36
4	4.5	1.37	4.4	2.13
5	3.5	1.21	3.4	1.87

By Linear Regression of y on x

Slope, mh = 1.6299

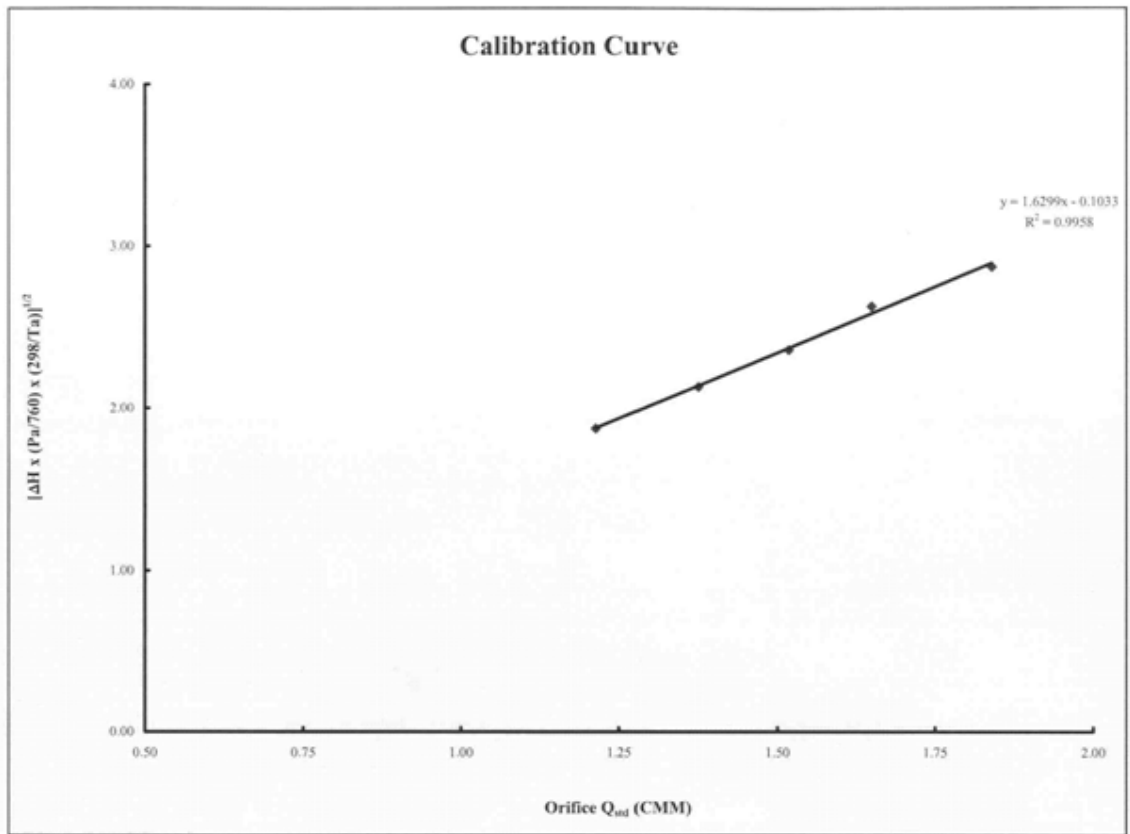
Intercept, ch = -0.1033

*Correction Coefficient, R = 0.9979

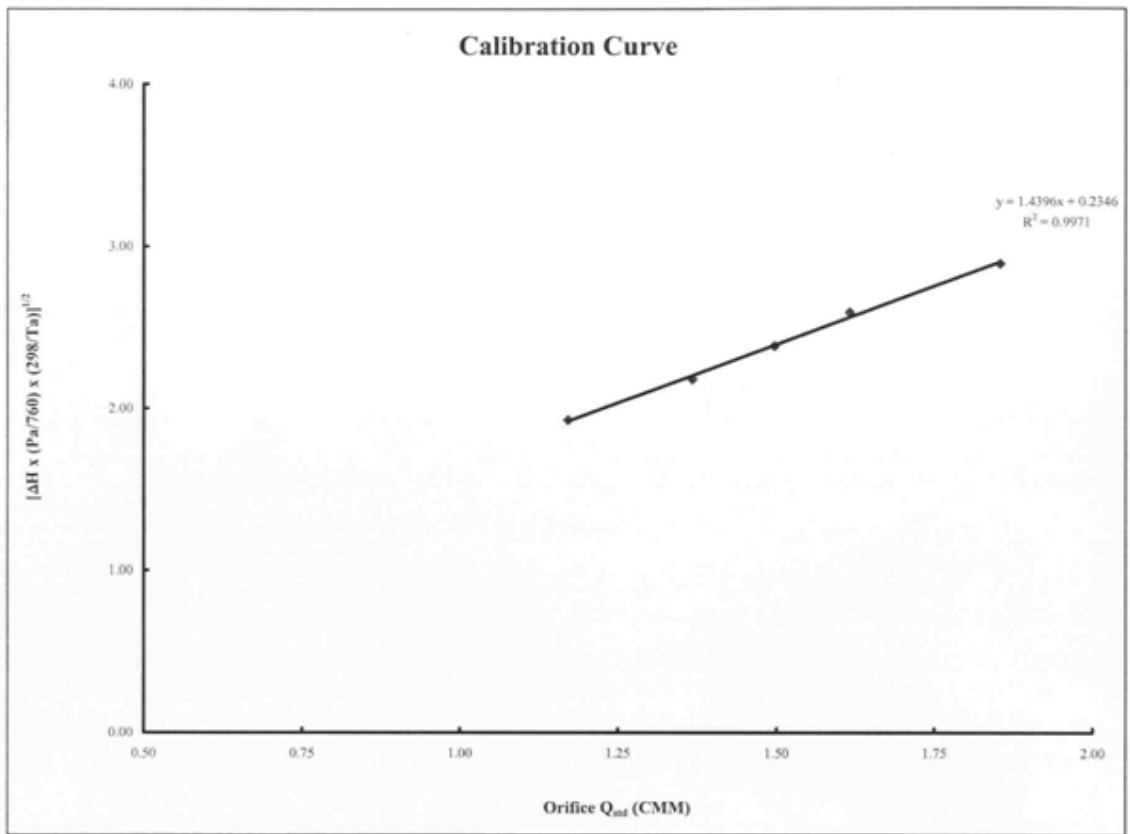
Calibration Result: ACCEPT

* If the Correlation Coefficient, R is < 0.9900. Checking and Recalibration are require.

Remark: Bi-monthly CalibrationCalibrated By:  Date: 1 / Dec / 08Checked By:  Date: 1 / Dec / 08



Calibration Curve



Calibration Date	1-Dec-08	Next Calibration Date	1-Feb-09
Station	Cheung Ching Estate At the roof of Ching Yung House (25/F)(ASR4)	Equipment no.	P2.HVS.02

Ambient Condition			
Temperature, Ta (K)	291.45	Pressure, Pa (mmHg)	766.42

Orifice Transfer Standard Information			
Equipment no.	P2.CAL.03	Intercept, co	-0.01986
Slope, mo	1.58181	Next Calibration Date	22-Oct-08
Last Calibration Date	22-Oct-07		
$mo \times Q_{std} + co = [\Delta O \times (Pa/760) \times (298/Ta)]^{1/2}$ $Q_{std} = \{[\Delta O \times (Pa/760) \times (298/Ta)]^{1/2} - co\} / mo$			

Calibration Point	Orifice Manometer Reading, ΔO (inch)	Orifice Q_{std} (CMM) x-axis	HVS Manometer Reading, ΔH (inch)	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ y-axis
1	8.0	1.83	7.8	2.84
2	6.6	1.66	6.8	2.65
3	5.7	1.55	5.4	2.36
4	4.4	1.36	4.2	2.08
5	3.4	1.20	3.5	1.90

By Linear Regression of y on x
Slope, mh = 1.5480 Intercept, ch = 0.0148

*Correction Coefficient, R = 0.9929

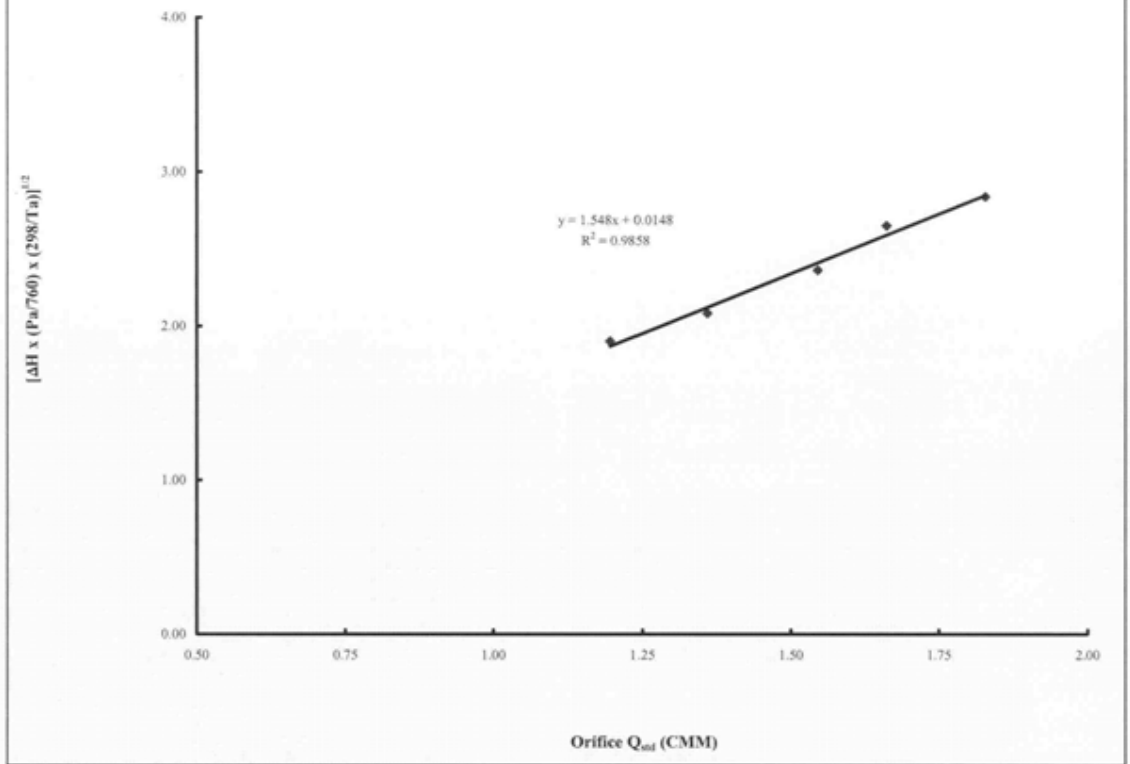
Calibration Result: ACCEPT

* If the Correlation Coefficient, R is < 0.9900. Checking and Recalibration are require.

Remark: Bi-monthly Calibration

Calibrated By: CHEUNG Date: 1 / Dec / 08
Checked By: MS Date: 1 / Dec / 08

Calibration Curve



TSP - Total Suspended Particulates High Volume Sampler In-situ Calibration Report (ASR4)

Calibration Date	31-Jan-09	Next Calibration Date	31-Mar-09
Station	Cheung Ching Estate At the roof of Ching Yung House (25/F)(ASR4)	Equipment no.	P2.HVS.02

Ambient Condition			
Temperature, Ta (K)	289.85	Pressure, Pa (mmHg)	763.79

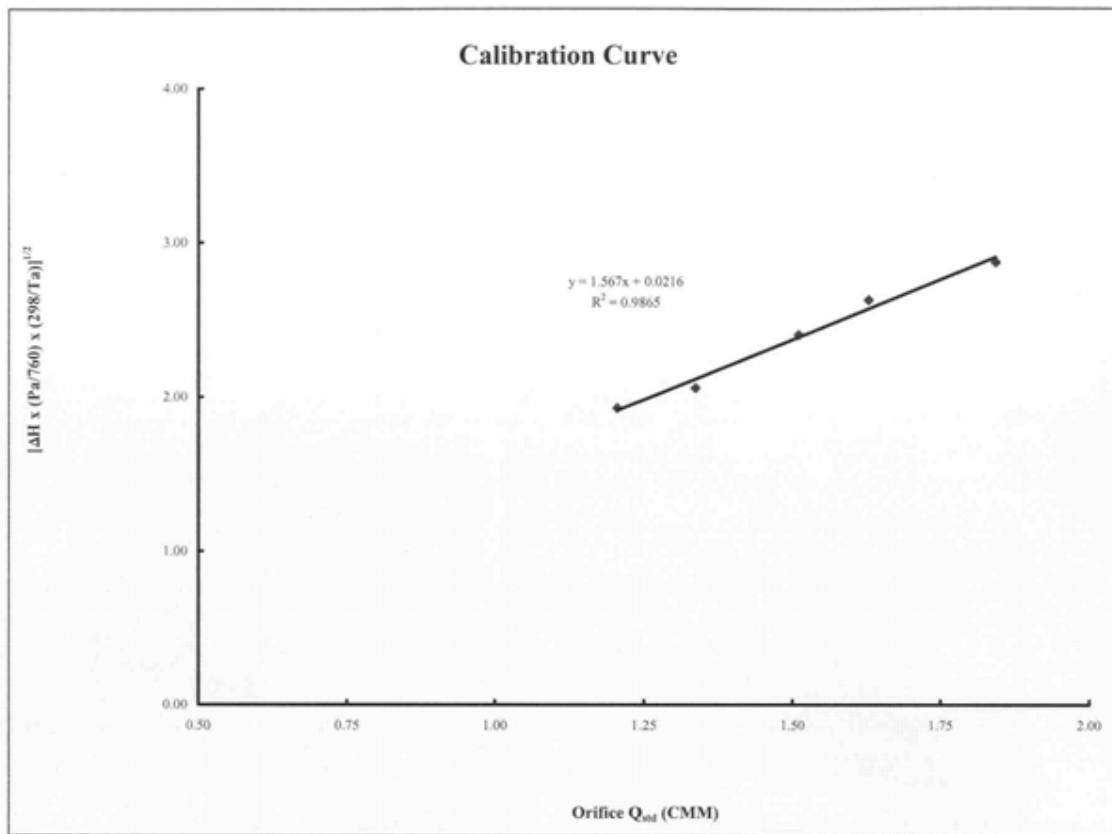
Orifice Transfer Standard Information			
Equipment no.	P2.CAL.03	Intercept, co	-0.00884
Slope, mo	1.5842	Next Calibration Date	4-Nov-09
Last Calibration Date	4-Nov-08		
$mo \times Q_{std} + co = [\Delta O \times (Pa/760) \times (298/Ta)]^{1/2}$ $Q_{std} = \{[\Delta O \times (Pa/760) \times (298/Ta)]^{1/2} - co\} / mo$			

Calibration Point	Orifice Manometer Reading, ΔO (inch)	Orifice Q _{std} (CMM) x-axis	HVS Manometer Reading, ΔH (inch)	[ΔH x (Pa/760) x (298/Ta)] ^{1/2} y-axis
1	8.2	1.84	8.0	2.88
2	6.4	1.63	6.7	2.63
3	5.5	1.51	5.6	2.41
4	4.3	1.34	4.1	2.06
5	3.5	1.21	3.6	1.93

By Linear Regression of y on x
 Slope, mh = 1.5670 Intercept, ch = 0.0216
 *Correction Coefficient, R = 0.9932
Calibration Result: ACCEPT
 * If the Correlation Coefficient, R is < 0.9900. Checking and Recalibration are require.

Remark: Bi-monthly Calibration

Calibrated By: cm King Date: 31/Jan/09
 Checked By: NS Date: 31/Jan/09



Appendix G2

Calibration Certificates for Weather Station

Appendix G2: Calibration Certificates for Weather Station

The weather Station was removed on 2nd April 2007 and therefore meteorological data was obtained from Hong Kong Observatory website.

Appendix G3

Calibration Certificates for High Volume Orifice Calibrator



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5028A

Date - Nov 04, 2008 Rootsmeter S/N 9833620 Ta (K) - 295
 Operator Tisch Orifice I.D. - 1272 Pa (mm) - 758.19

PLATE OR VDC #	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	1.2800	4.2	1.50
2	NA	NA	1.00	0.9910	7.1	2.50
3	NA	NA	1.00	0.9050	8.5	3.00
4	NA	NA	1.00	0.8350	9.9	3.50
5	NA	NA	1.00	0.6320	17.1	6.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0021	0.7829	1.2295	0.9944	0.7769	0.7640
0.9983	1.0073	1.5873	0.9906	0.9996	0.9863
0.9964	1.1010	1.7388	0.9887	1.0925	1.0804
0.9946	1.1911	1.8781	0.9869	1.1819	1.1670
0.9850	1.5586	2.4590	0.9774	1.5466	1.5279
Qstd slope (m) = 1.58420			Qa slope (m) = 0.99200		
intercept (b) = -0.00884			intercept (b) = -0.00549		
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

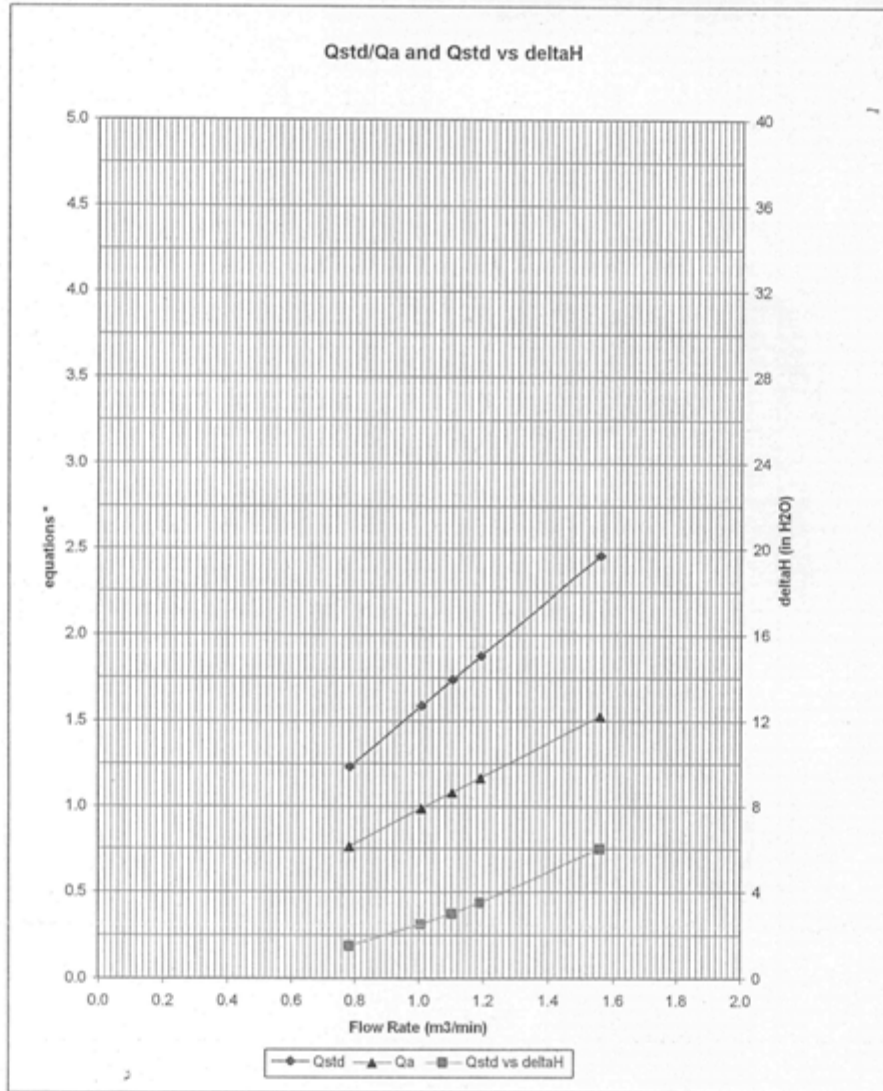
For subsequent flow rate calculations:

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



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

AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

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

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

#1272



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5028A

Date - Nov 04, 2008 Rootmeter S/N 9833620 Ta (K) - 295
 Operator Tisch Orifice I.D. - 1274 Pa (mm) - 758.19

PLATE OR VDC #	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	1.2760	4.2	1.50
2	NA	NA	1.00	0.9840	7.1	2.50
3	NA	NA	1.00	0.9030	8.4	3.00
4	NA	NA	1.00	0.8340	9.9	3.50
5	NA	NA	1.00	0.6290	17.1	6.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0021	0.7854	1.2295	0.9944	0.7793	0.7640
0.9983	1.0145	1.5873	0.9906	1.0067	0.9863
0.9965	1.1036	1.7388	0.9889	1.0951	1.0804
0.9946	1.1925	1.8781	0.9869	1.1833	1.1670
0.9850	1.5660	2.4590	0.9774	1.5539	1.5279
Qstd slope (m) = 1.57672			Qa slope (m) = 0.98732		
intercept (b) = -0.00705			intercept (b) = -0.00438		
coefficient (r) = 0.99988			coefficient (r) = 0.99988		
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

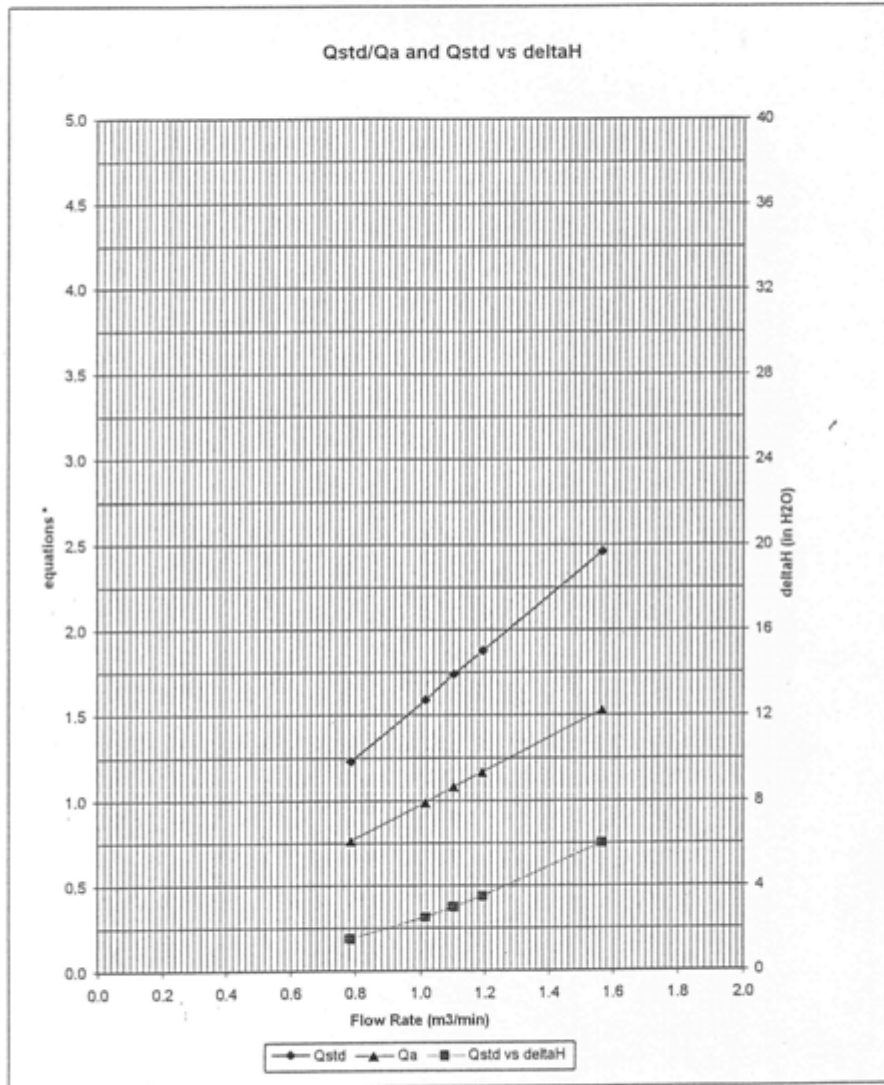
For subsequent flow rate calculations:

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



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 43002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX
 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

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

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

#1274

Appendix G4

Calibration Certificates for Sound Level Meter and Calibrator



綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.

G/F, 8/F, 12/F, 13/F & 20/F, Leader Centre 37 Wong Chuk Hong Road, Aberdeen, Hong Kong
愛德蘭打士道37號利達中心地下、9樓、12樓、13樓及20樓
E-mail: sme@sigsmec.com Website: www.sigsmec.com

Tel : (852) 2873 8860
Fax : (852) 2553 7333



CERTIFICATE OF CALIBRATION

Certificate No : 08CA0904 01-01B Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone
Manufacturer:	Pulsar, England	Pulsar, England
Type/Model No :	Model 30	MK228
Serial/Equipment No :	T220553	110453
Adaptors used:	-	-

Item submitted by

Customer Name: Meada-Hitachi-Yokogawa-Hsin Chong Joint Venture
Address of Customer: -
Request No.: PO/HY26/7192
Date of request: 01-09-2008

Date of test: 04-09-2008

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2388444	11-01-2009	CIGISMEC
Signal generator	DS 360	33873	12-06-2009	CEPREI
Signal generator	DS 360	61227	18-07-2009	CEPREI

Ambient conditions

Temperature: 23 ± 2 °C
Relative humidity: 50 ± 15 %
Air pressure: 1000 ± 15 hPa

Test specifications



- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTPO04-CA-152
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate

Actual Measurement data are documented on worksheets

Approved Signatory:  Date: 24-09-2008 Company Chop: 

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.

G/F, 9/F, 12/F, 13/F & 20/F, Leader Centre 37 Wong Chuk Hang Road, Aberdeen, Hong Kong
香港黃竹坑滙37號利達中心地下、9樓、12樓、13樓及20樓
E-mail: smec@sigamec.com Website: www.sigamec.com

Tel : (852) 2873 0800
Fax : (852) 2555 7533



CERTIFICATE OF CALIBRATION

Certificate No : 08CA0917 02A Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone
Manufacturer:	Pulsar, England	Pulsar, England
Type/Model No.:	Model 30	MK226
Serial/Equipment No.:	T220551	110452
Adaptors used:	-	-

Item submitted by

Customer Name: Meada-Hitachi-Yokogawa-Hsin Chong Joint Venture
Address of Customer: -
Request No.: PO/HY26/7192
Date of request: 12-09-2008

Date of test: 17-09-2008

Reference equipment used in the calibration

Description:	Model:	Serial No	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	11-01-2009	CHGSMC
Signal generator	DS 360	33873	12-06-2009	CEPREI
Signal generator	DS 360	61227	18-07-2009	CEPREI

Ambient conditions

Temperature: 23 ± 2 °C
Relative humidity: 50 ± 15 %
Air pressure: 1000 ± 10 hPa


Test specifications

- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTPO04-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responses of the Sound Level Meter.

Test results

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets

Approved Signatory:  Date: 24-09-2008 Company Chop:

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No : C085814

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00352013

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C085814.*

The equipment is supplied by

Co Name : Dragages China Harbour Joint Venture

Address : 22/F, China Harbour Bldg, 370-374 King's Rd, North Point, HK

Date of Issue : 10 November 2008

Certified by



K C Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report
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Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building 1 Hing On Lane, Tuen Mun, New Territories Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No C085815

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 01262850

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C085815.*

The equipment is supplied by

Co Name : Dragages China Harbour Joint Venture

Address : 22/F, China Harbour Bldg, 370-374 King's Rd, North Point, HK

Date of Issue : 10 November 2008

Certified by

K.C. Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report
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c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com



綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD

G/F, 4/F, 12/F, 13/F & 20/F, Leader Centre 37 Wong Chuk Hang Road, Aberdeen, Hong Kong
香港黃竹坑道37號利達中心地下、9樓、12樓、13樓及20樓
E-mail: smec@sigsmec.com Website: www.sigsmec.com

Tel : (852) 2873 6880
Fax : (852) 2555 7533



CERTIFICATE OF CALIBRATION

Certificate No.: 08CA004 01-02B Page: 1 of 2

Item tested

Description: Sound Calibrator (Class 1L)
Manufacturer: Pulsar England
Type/Model No: MODEL 100B
Serial/Equipment No: 035213
Adaptors used: Yes

Item submitted by

Customer: Meada-Hitachi-Yokogawa-Hain Chong Joint Venture
Address of Customer:
Request No: PO/HY26/7192
Date of request: 01-09-2008

Date of test: 04-09-2008

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	29-06-2009	SCL
Preamplifier	B&K 2673	2230857	12-12-2008	CEPREI
Measuring amplifier	B&K 2610	2340941	15-12-2008	CEPREI
Signal generator	DS 360	61227	18-07-2009	CEPREI
Digital multi-meter	34401A	US36087050	30-11-2008	CIGISMEC
Audio analyzer	8903B	0B41300350	06-12-2008	CEPREI
Universal counter	53132A	MY40003662	11-07-2009	CEPREI

Ambient conditions

Temperature: 24 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1000 ± 10 hPa

Test specifications

- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMT/004-CA-156
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:  Date: 24-09-2008 Company Chop:

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C085728

Certificate of Calibration

This is to certify that the equipment

Description : Sound Calibrator

Manufacturer : Rion

Model No. : NC-74

Serial No. : 34351581

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C085728.*

The equipment is supplied by

Co Name : Dragages China Harbour Joint Venture

Address : 22/F, China Harbour Bldg, 370-374 King's Rd, North Point, HK

Date of Issue : 5 November 2008

Certified by : 
C.F. Leung

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wai Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2600 Fax: 2741 8986 E-mail: callab@suncreation.com Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No C085729

Certificate of Calibration

This is to certify that the equipment

Description · Sound Calibrator

Manufacturer · Rion

Model No · NC-74

Serial No · 34973223

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C085729.*

The equipment is supplied by

Co Name · Dragages China Harbour Joint Venture

Address · 22/F, China Harbour Bldg, 370-374 King's Rd, North Point, HK

Date of Issue · 5 November 2008

Certified by


C F Leung

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Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

FUGRO TECHNICAL SERVICES LIMITED

MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.materiialab.com.hk / www.fugro.com



Report No : 041333CA82714(3)

Page 1 of 2

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : Maeda-Hitachi-Yokogawa-Hsin Chong JV
Address : PO Box No. 80330, Cheung Sha Wan Post Office
Project : Calibration Services

Calibration Item -

Description : Sound level meter
Model No : Bruel & Kjaer (Type 2238)
Serial No : 2565848 (Microphone), 2562752 (Sound level meter)
Next Calibration Due Date : 16/Dec/2009

Laboratory Information

Calibrating Equipment -

Description : B & K Acoustic Multifunction Calibrator 4226
Serial No : 2546175
Date of Calibration : 16/Dec/2008
Ambient Temperature : 20±2 °C
Specification Limit : EN 60651: 1994 Type 1

Calibration Results :

(1) Frequency response
(Reference SPL: 94dB & Range setting: 50 - 130dB at traditional free field)

Table 1: Summary of frequency response (A - weighting)

Frequency (Hz)	Measured Value (dB)	Specification Limit (dB)
31.5	-38.6	-40.9 to -37.9
63	-25.8	-27.7 to -24.7
125	-16.0	-17.1 to -15.1
250	-8.6	-9.6 to -7.6
500	-3.3	-4.2 to -2.2
1000(ref.)	0.0	-1.0 to 1.0
2000	1.2	0.2 to 2.2
4000	0.9	-2.0 to 2.5
8000	-2.0	-4.1 to 0.4
12500	-6.3	-10.3 to -1.3
16000	-9.8	-∞ to -3.6

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Report No. : 041333CA82714(3)

Page 2 of 2

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

(2) Level range control

(Reference SPL: 94dB, Reference frequency: 1kHz & Reference range setting : 50 - 130dB)

Table 2: Summary of level range control accuracy

Level range (dB)	Measured deviation (dB)	Specification limit (dB)
50-130 (Ref.)	NA	NA
20-100	0.0	± 0.5
30-110	0.0	± 0.5
40-120	0.0	± 0.5
60-140	0.0	± 0.5

(3) Differential level linearity

(Reference SPL: 94dB, Reference frequency: 1kHz & Primary indicator range: 50 - 130dB)

Table 3: Summary of differential level linearity

Sound pressure level (dB)	Measured deviation (dB)	Specification limit (dB)
94	NA	NA
104	0.0	± 0.4
114	0.0	± 0.4

(4) Crest factor

(C.F.: 3, Test frequency: 2kHz, Test range: 50 - 130dB & Test SPL: 106dB)

Table 4: Crest factor

Sound pressure level (dB)	Measured deviation (dB)	Specification limit (dB)
106	0.3	± 0.5

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The above calibration results does comply with the Type 1 specification requirement

Checked by :  Date : 18-12-08 Certified by :  Date : 18 Dec, 2008
C K So (Engineer)

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GEN1/0908

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Report No. : 041333CA82714(4)

Page 1 of 2

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : Maeda-Hitachi-Yokogawa-Hsin Chong JV
 Address : PO Box No 80330, Cheung Sha Wan Post Office
 Project : Calibration Services

Calibration Item -

Description : Sound level meter
 Model No : Bruel & Kjaer (Type 2238)
 Serial No : 2565853 (Microphone), 2562757 (Sound level meter)
 Next Calibration Due Date : 16/Dec/2009

Laboratory Information

Calibrating Equipment -

Description : B & K Acoustic Multifunction Calibrator 4226
 Serial No : 2546175
 Date of Calibration : 16/Dec/2008
 Ambient Temperature : 20±2 °C
 Specification Limit : EN 60651: 1994 Type 1

Calibration Results :

(1) Frequency response
 (Reference SPL: 94dB & Range setting: 50 - 130dB at traditional free field)

Table 1 Summary of frequency response (A - weighting)

Frequency (Hz)	Measured Value (dB)	Specification Limit (dB)
31.5	-38.8	-40.9 to -37.9
63	-26.0	-27.7 to -24.7
125	-16.1	-17.1 to -15.1
250	-8.7	-9.6 to -7.6
500	-3.4	-4.2 to -2.2
1000(ref.)	-0.1	-1.0 to 1.0
2000	1.1	0.2 to 2.2
4000	0.7	-2.0 to 2.5
8000	-2.4	-4.1 to 0.4
12500	-6.3	-10.3 to -1.3
16000	-9.2	∞ to -3.6

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Report No. : 041333CA82714(4)

Page 2 of 2

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

(2) Level range control

(Reference SPL: 94dB, Reference frequency: 1kHz & Reference range setting : 50 - 130dB)

Table 2: Summary of level range control accuracy

Level range (dB)	Measured deviation (dB)	Specification limit (dB)
50-130 (Ref.)	NA	NA
20-100	0.0	± 0.5
30-110	0.0	± 0.5
40-120	0.0	± 0.5
60-140	0.0	± 0.5

(3) Differential level linearity

(Reference SPL: 94dB, Reference frequency: 1kHz & Primary indicator range: 50 - 130dB)

Table 3: Summary of differential level linearity

Sound pressure level (dB)	Measured deviation (dB)	Specification limit (dB)
94	NA	NA
104	0.0	± 0.4
114	0.0	± 0.4

(4) Crest factor

(C.F. : 3, Test frequency: 2kHz, Test range: 50 - 130dB & Test SPL: 106dB)

Table 4: Crest factor

Sound pressure level (dB)	Measured deviation (dB)	Specification limit (dB)
106	0.2	± 0.5

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The above calibration results does comply with the Type 1 specification requirement

Checked by:  Date: 18-12-08 Certified by:  Date: 18 Dec. 2008
 C K So (Engineer)

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GEN01-0208

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Report No : 041333CA82714(5)

Page 1 of 1

CALIBRATION CERTIFICATE OF SOUND LEVEL CALIBRATOR**Client Supplied Information**

Client : Maeda-Hitachi-Yokogawa-Hsin Chong JV
Address : PO Box No. 80330, Cheung Sha Wan Post Office
Project : Calibration Services

Calibration Item -

Description : Bruel & Kjaer Sound Level Calibrator
Model No : Type 4231
Serial No. : 2605971
Next Calibration Due Date : 16-Dec-2009

Laboratory Information**Calibrating Equipment -**

Description : B & K Acoustic Multifunction Calibrator 4226
Serial No. : 2546175
Date of Calibration : 16-Dec-2008
Ambient Temperature : 20±2 °C
Specification Limit : ±0.5dB

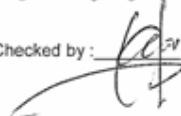

Calibration Result :

(1) At 94dB reading
Correction of UUT (at 94dB & 1kHz) : +0.0dB

(2) At 114dB reading
Correction of UUT (at 114dB & 1kHz) : +0.0dB

Remarks :

- 1 The equipment used in this calibration is traceable to recognized National Standards.
- 2 The above calibration results does comply with the specification requirement.
3. Serial number of sound level meter (microphone) used is 2562752 (2565848) Settings of SLM are 50-130dB range, A weighting and F response

Checked by :  Date : 18-12-08 Certified by :  Date : 18 Dec 2008
C K So (Engineer)

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GEN01/0003

Appendix G5

Certificate of HOKLAS Accredited Laboratory



Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

WELLAB LIMITED
匯力實驗室有限公司

Room 816 and 1516, Technology Park, 18 On Lai Street, Shatin, New Territories, Hong Kong
香港新界沙田安麗街18號達利廣場816及1516室

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
為香港認可處執行機關根據認可諮詢委員會建議而接受的

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO / IEC 17025 : 2005 – General requirements for the competence of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as listed in the HOKLAS Directory of Accredited Laboratories within the test category of
此實驗所符合ISO / IEC 17025 : 2005 - 《測試及校正實驗所能力的通用規定》所訂的要求，獲認可進行載於香港實驗所認可計劃《認可實驗所名冊》內下述測試類別中的指定
測試或校正工作

Environmental Testing
環境測試

This laboratory is accredited in accordance with the recognised International Standard ISO / IEC 17025 : 2005.
本實驗所乃根據公認的國際標準 ISO / IEC 17025 : 2005 獲得認可。

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF Communiqué dated 18 June 2005).
這項認可資格演示在指定範疇所需的技術能力及實驗所質量管理體系的運作
(見國際標準化組織、國際實驗所認可合作組織及國際認可論壇於二零零五年六月十八日的聯合公報)。

The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
香港認可處根據認可處執行機關的權限在此蓋上通用印章

CHAN Sing Sing, Terence, Executive Administrator
執行幹事 陳成城
Issue Date : 27 June 2008
簽發日期：二零零八年六月二十七日

Registration Number : **HOKLAS 083**
註冊號碼：

Date of First Registration : 29 May 1998
首次註冊日期：一九九八年五月二十九日



Appendix H1

Event/Action Plan for Air Quality

Appendix H1: Event/Action Plan for Air Quality

Event Level	Action		
	ET	ER	CONTRACTOR
Action Level			
Exceedance for one sample	<ul style="list-style-type: none"> • Identify source • Inform ER • Repeat Measurement to confirm finding • Increase monitoring frequency to daily 	<ul style="list-style-type: none"> • Notify Contractor • Check mortaring data and Contractor's working methods 	<ul style="list-style-type: none"> • Rectify any unacceptable practice • Amend working methods if appropriate
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source 2. Inform ER 3. Repeat measurements to confirm findings 4. Increase monitoring frequency to daily 5. Discuss with ER for remedial actions required 6. If exceedance continues arrange meeting with ER 7. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Check monitoring data and Contractor's working methods 4. Discuss with Environmental Team and Contractor on potential remedial actions 5. Ensure remedial actions properly implemented 	<ol style="list-style-type: none"> 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			
Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source 2. Inform ER and EPD 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily 5. Assess effectiveness of Contractor's remedial actions and keep EPD and ER informed of the results 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Check monitoring data and Contractor's working methods 4. Discuss with Environmental Team Leader and Contractor potential remedial actions 5. Ensure remedial actions properly implemented 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to ER within 3 working days of notification 3. Implements the agreed proposals 4. Amend proposal if appropriate
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source 2. Inform ER and EPD the causes & actions taken for the exceedances 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily 5. Investigate the causes of exceedance 6. Arrange meeting with EPD and ER to discuss the remedial actions to be taken 7. Assess effectiveness of Contractor's remedial actions and keep EPD and ER informed of the results & if exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 4. Discuss amongst Environmental Team Leader and the Contractor potential remedial actions 5. Review Contractor's remedial actions whenever necessary to assure their effectiveness 6. If exceedance continues consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Take immediate action avoid further exceedance 2. Submit proposals for remedial actions to ER within 3 working days of notification 3. Implements the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Appendix H2

Event/Action Plan for Noise

Appendix H2: Event/Action Plan for Construction Noise

Event	Action		
	ET Leader	ER	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify ER 2. Analyse investigation 3. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Notify Contractor 2. Require Contractor to propose measures* for the analysed noise problem 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to Environmental Team 2. Implement noise mitigation proposals*
Limit Level	<ol style="list-style-type: none"> 1. Notify ER 2. Notify EPD 	<ol style="list-style-type: none"> 1. Notify Contractor 2. Require contractor to implement mitigation measures* Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Implement mitigation measures 2. Prove to Environmental Team Leader ER effectiveness of measures applied
*	<p><i>Mitigation Measures may include:</i></p> <ul style="list-style-type: none"> • <i>Relocation of noise emitting plant</i> • <i>Use of silenced or super-silenced equipment</i> • <i>Use of acoustic sheds or screens</i> • <i>Limit quantity of plant operating</i> • <i>Change working technique</i> 		

Appendix I

Implementation Status of Environmental Protection Requirements

Appendix I: Implementation Status of Environmental Protection Requirement

Environmental Protection Measures		Timing	Implementation Stages*			
Activities			29/10/08 to 28/11/08	29/11/08 to 28/12/08	29/12/08 to 28/01/09	29/01/09 to 28/02/09
Landscape and visual	Erection, painting and maintenance of site hoardings around works and storage areas.	Throughout the construction period	N/A	N/A	N/A	N/A
	Restrictions on the height of material/spoil stockpiles.		√	√	√	√
	Prompt hydro-seeding of disturbed areas and cut/fill slopes prior to the permanent landscaping works.		√	√	√	√
	Avoidance of chunam or shotcreting slope treatments.		√	√	√	√
	Conservation of topsoil where practical.		√	√	√	√
	Site litter patrols and regular site waste collection.		√	√	√	√
	Maintenance of planting.		√	√	√	√
Ecological Impact	Minimise damage outside works areas		√	√	√	√
Material Storage	Covers for dusty stockpiles	Throughout the construction period	√	▲	▲	▲
Vehicle movement	Haul road watering, vehicle wheel wash prior to exit. Where practical, access roads should be protected with crushed gravel.		▲	▲	√	▲
Plant maintenance	All plant shall be maintained to prevent any undue air emissions.		√	√	√	√
All plant activity	Reference should be made the EM&A Manual Action Plan for measures for consideration when Noise Limit Levels are not met.	Throughout the construction period	√	√	√	√
Plant maintenance	All plant shall be maintained to prevent any undue noise nuisance.		√	√	√	√
Wheel wash	All wheel wash water shall be diverted to a sediment pit.		√	√	√	√
Concrete	All concrete trucks shall wash out into a lined pit.		√	√	√	√

- *
 N/A = Not Applicable
 ✓ = Implemented
 ▲ = Rectified
 # = Not Implemented

Environmental Protection Measures		Timing	Implementation Stages*			
Activities			29/10/08 to 28/11/08	29/11/08 to 28/12/08	29/12/08 to 28/01/09	29/01/09 to 28/02/09
Truck Washout		Throughout the construction period				
Surface water diversion	All clean surface water shall be diverted around the site.		√	√	√	√
Sediment control	Sediment removal facilities shall be provided and be maintained and excavated as necessary to prevent sedimentation of the channel. Perimeter channels shall be provided. Works shall be programmed for the dry season where feasible.		▲	▲	▲	▲
Fuel can storage	All fuel cans shall be placed within a bundled area. Any fuel spills shall be mopped up as necessary.		▲	√	√	√
Slope covers	Finished slopes and other slopes near drainage areas shall be covered prior to rains to reduce sedimentation of runoff. Slopes should be hydroseeded or shotcreted as early as possible to prevent erosion.		√	√	√	√
Excavation works	Excavation works shall avoid sensitive areas.	Throughout the excavation work period	√	√	√	√
Material, plant movement & fuel can refilling	Any fuel or oil spills shall be excavated and disposed.	Throughout the construction period	√	√	√	√
Generators	All generators shall be placed within a bundled area. Any fuel spills shall be mopped up as necessary.		√	√	√	√
Material containers	All empty bags and containers shall be collected for disposal.		√	√	√	√

- * N/A = Not Applicable
✓ = Implemented
▲ = Rectified
= Not Implemented

Environmental Protection Measures		Timing	Implementation Stages*			
Activities			29/10/08 to 28/11/08	29/11/08 to 28/12/08	29/12/08 to 28/01/09	29/01/09 to 28/02/09
Worker generated litter and Waste	Litter receptacles shall be placed around the site. Litter shall be taken regularly to the refuse collection points. Chemical toilets (or suitable equivalent) should be provided for workers. Any canteens should have grease-traps.	Throughout the construction period	√	√	√	√
Neighbourhood nuisance	All complaints regarding construction works shall be relayed to the Environmental Team.		√	√	√	√
Legal requirements	Different types of waste should be segregated, stored, transported and disposed of in accordance with the relevant legislative requirements and guidelines		√	√	√	√
On-site separation	On-site separation of municipal solid waste and construction/demolition wastes should be conducted as far as possible in order to minimize the amount of solid waste to be disposed to landfill.		√	√	√	√
Temporary storage area	Separated wastes should be stored in different containers, skips, or stockpiles to enhance reuse or recycling of materials and encourage their proper disposal.		√	√	√	√
Record of wastes	Records of quantities of wastes generated, recycled and disposed (with locations) should be properly kept.		√	√	√	√
Trip-ticket system	To monitor the disposal of waste at landfills and control fly-tipping, a "trip-ticket" system for all solid waste transfer/disposal operations should be implemented. The system should be included as a contractual requirement, and monitored by the Environmental Team and audited by the Independent Environmental Checker.		√	√	√	√

- * N/A = Not Applicable
✓ = Implemented
▲ = Rectified
= Not Implemented

Appendix J

1-hour and 24-hour TSP Monitoring Results

The Summary of 1-hr TSP Concentration ($\mu\text{g}/\text{m}^3$) at HKIVE Fok Ying Tung Hall of Residence (ASR 1)

Date	Sampling Time	Elapsed Time (min)	Initial Standard Flow Rate (m ³ /min)	Final Standard Flow Rate (m ³ /min)	Averaged Standard Flow Rate (m ³ /min)	Total Standard Volume (m ³)	Initial Filter Weight (g)	Final Filter Weight (g)	TSP Concentration $\mu\text{g}/\text{m}^3$
30-Jan-09	10:37	60.00	1.38	1.38	1.38	82.84	2.8656	2.8740	101.4
30-Jan-09	12:33	60.00	1.38	1.38	1.38	82.84	2.8494	2.8567	88.1
30-Jan-09	14:45	60.00	1.38	1.38	1.38	82.84	2.8872	2.8969	117.1
5-Feb-09	9:20	60.00	1.34	1.34	1.34	80.21	2.8423	2.8572	185.8
5-Feb-09	10:25	60.00	1.34	1.34	1.34	80.21	2.8568	2.8848	349.1
5-Feb-09	11:30	60.00	1.34	1.34	1.34	80.21	2.8489	2.8662	215.7
11-Feb-09	13:17	60.00	1.33	1.33	1.33	80.05	2.8298	2.8493	243.6
11-Feb-09	14:24	60.00	1.33	1.33	1.33	80.05	2.8428	2.8535	133.7
11-Feb-09	16:28	60.00	1.33	1.33	1.33	80.05	2.8710	2.8833	153.7
17-Feb-09	13:25	60.00	1.34	1.34	1.34	80.31	2.8447	2.8579	164.4
17-Feb-09	14:33	60.00	1.34	1.34	1.34	80.31	2.8929	2.9041	139.5
17-Feb-09	15:38	60.00	1.34	1.34	1.34	80.31	2.8849	2.8958	135.7
23-Feb-09	9:15	60.00	1.33	1.33	1.33	79.69	2.8599	2.8712	141.8
23-Feb-09	10:20	60.00	1.33	1.33	1.33	79.69	2.8924	2.9050	158.1
23-Feb-09	11:26	60.00	1.33	1.33	1.33	79.69	2.8672	2.8788	145.6
28-Feb-09	14:49	60.00	1.33	1.33	1.33	80.02	2.8789	2.8869	100.0
28-Feb-09	15:50	60.00	1.33	1.33	1.33	80.02	2.9029	2.9131	127.5
28-Feb-09	18:00	60.00	1.33	1.33	1.33	80.02	2.8762	2.8978	269.9

The Summary of 24-hrs TSP Concentration ($\mu\text{g}/\text{m}^3$) at HKIVE Fok Ying Tung Hall of Residence (ASR1)

Date	Sampling Time	Elapsed Time (min)	Initial Standard Flow Rate (m ³ /min)	Final Standard Flow Rate (m ³ /min)	Averaged Standard Flow Rate (m ³ /min)	Total Standard Volume (m ³)	Initial Filter Weight (g)	Final Filter Weight (g)	TSP Concentration $\mu\text{g}/\text{m}^3$
29-Jan-09	0:00	1440.00	1.38	1.38	1.38	1987.45	2.8862	3.0013	57.9
4-Feb-09	0:00	1440.00	1.34	1.34	1.34	1926.43	2.8856	3.0375	78.9
10-Feb-09	0:00	1439.40	1.34	1.33	1.34	1921.62	2.8608	3.1526	151.9
16-Feb-09	0:00	1440.60	1.34	1.34	1.34	1925.84	2.8629	3.0122	77.5
21-Feb-09	0:00	1440.60	1.34	1.33	1.33	1919.95	2.8567	3.1332	144.0
27-Feb-09	0:00	1440.00	1.33	1.33	1.33	1918.26	2.8686	3.0110	74.2

The Summary of 1-hr TSP Concentration ($\mu\text{g}/\text{m}^3$) at HKIVE 5th floor Block D of the Main Building (ASR 2)

Date	Sampling Time	Elapsed Time (min)	Initial Standard Flow Rate (m3/min)	Final Standard Flow Rate (m3/min)	Averaged Standard Flow Rate (m3/min)	Total Standard Volume (m3)	Initial Filter Weight (g)	Final Filter Weight (g)	TSP Concentration $\mu\text{g}/\text{m}^3$
30-Jan-09	10:25	60.00	1.35	1.35	1.35	81.10	2.8661	2.8725	78.9
30-Jan-09	12:20	60.00	1.35	1.35	1.35	81.10	2.8598	2.8656	71.5
30-Jan-09	15:15	60.00	1.35	1.35	1.35	81.10	2.8762	2.8873	136.9
5-Feb-09	8:45	60.00	1.34	1.34	1.34	80.34	2.8450	2.8602	189.2
5-Feb-09	9:50	60.00	1.34	1.34	1.34	80.34	2.8676	2.8821	180.5
5-Feb-09	11:08	60.00	1.34	1.34	1.34	80.34	2.8768	2.8940	214.1
11-Feb-09	13:02	60.00	1.34	1.34	1.34	80.18	2.8610	2.8782	214.5
11-Feb-09	15:00	60.00	1.34	1.34	1.34	80.18	2.8664	2.8768	129.7
11-Feb-09	16:07	60.00	1.34	1.34	1.34	80.18	2.8820	2.8950	162.1
17-Feb-09	13:12	60.00	1.34	1.34	1.34	80.45	2.8471	2.8618	182.7
17-Feb-09	14:20	60.00	1.34	1.34	1.34	80.45	2.8608	2.8725	145.4
17-Feb-09	15:24	60.00	1.34	1.34	1.34	80.45	2.8892	2.9012	149.2
23-Feb-09	9:26	60.00	1.33	1.33	1.33	79.80	2.8690	2.8783	116.5
23-Feb-09	10:34	60.00	1.33	1.33	1.33	79.80	2.8707	2.8850	179.2
23-Feb-09	11:40	60.00	1.33	1.33	1.33	79.80	2.8718	2.8848	162.9
28-Feb-09	14:33	60.00	1.34	1.34	1.34	80.15	2.8892	2.8975	103.6
28-Feb-09	15:40	60.00	1.34	1.34	1.34	80.15	2.8776	2.8849	91.1
28-Feb-09	17:32	60.00	1.34	1.34	1.34	80.15	2.8632	2.8834	252.0

The Summary of 24-hr TSP Concentration ($\mu\text{g}/\text{m}^3$) at HKIVE 5th floor Block D of the Main Building (ASR 2)

Date	Sampling Time	Elapsed Time (min)	Initial Standard Flow Rate (m3/min)	Final Standard Flow Rate (m3/min)	Averaged Standard Flow Rate (m3/min)	Total Standard Volume (m3)	Initial Filter Weight (g)	Final Filter Weight (g)	TSP Concentration $\mu\text{g}/\text{m}^3$
29-Jan-09	0:00	1440.00	1.35	1.35	1.35	1945.65	2.8704	2.9766	54.6
4-Feb-09	0:00	1440.00	1.34	1.34	1.34	1929.71	2.8966	3.0418	75.2
10-Feb-09	0:00	1440.00	1.34	1.34	1.34	1925.52	2.8619	3.1215	134.8
16-Feb-09	0:00	1440.00	1.34	1.34	1.34	1928.26	2.8745	3.0071	68.8
21-Feb-09	0:00	1440.00	1.34	1.33	1.33	1922.11	2.8721	3.1354	137.0
27-Feb-09	0:00	1440.00	1.33	1.34	1.33	1921.17	2.8637	3.0105	76.4

The Summary of 1-hr TSP Concentration ($\mu\text{g}/\text{m}^3$) at Mayfair Gardens 1st floor adjacent to swimming pool (ASR3)

Date	Sampling Time	Elapsed Time (min)	Initial Standard Flow Rate (m^3/min)	Final Standard Flow Rate (m^3/min)	Averaged Standard Flow Rate (m^3/min)	Total Standard Volume (m^3)	Initial Filter Weight (g)	Final Filter Weight (g)	TSP Concentration $\mu\text{g}/\text{m}^3$
30-Jan-09	10:10	60.00	1.38	1.38	1.38	82.99	2.8454	2.8509	66.3
30-Jan-09	11:19	60.00	1.38	1.38	1.38	82.99	2.9180	2.9231	61.5
30-Jan-09	13:10	60.00	1.38	1.38	1.38	82.99	2.8827	2.8860	39.8
5-Feb-09	9:33	60.00	1.32	1.32	1.32	79.40	2.8305	2.8447	178.8
5-Feb-09	10:39	60.00	1.32	1.32	1.32	79.40	2.8695	2.8851	196.5
5-Feb-09	11:42	60.00	1.32	1.32	1.32	79.40	2.8100	2.8292	241.8
11-Feb-09	12:48	60.00	1.32	1.32	1.32	79.23	2.8264	2.8323	74.5
11-Feb-09	13:55	60.00	1.32	1.32	1.32	79.23	2.8106	2.8223	147.7
11-Feb-09	15:40	60.00	1.32	1.32	1.32	79.23	2.8090	2.8163	92.1
17-Feb-09	13:40	60.00	1.33	1.33	1.33	79.51	2.8237	2.8369	166.0
17-Feb-09	14:48	60.00	1.33	1.33	1.33	79.51	2.8235	2.8343	135.8
17-Feb-09	15:53	60.00	1.33	1.33	1.33	79.51	2.8322	2.8431	137.1
23-Feb-09	9:58	60.00	1.31	1.31	1.31	78.86	2.8747	2.8815	86.2
23-Feb-09	11:01	60.00	1.31	1.31	1.31	78.86	2.8527	2.8606	100.2
23-Feb-09	12:07	60.00	1.31	1.01	1.16	69.73	2.8372	2.8460	126.2
28-Feb-09	14:06	60.00	1.32	1.32	1.32	79.20	2.8015	2.8085	88.4
28-Feb-09	15:10	60.00	1.32	1.32	1.32	79.20	2.8639	2.8709	88.4
28-Feb-09	17:00	60.00	1.32	1.01	1.17	70.04	2.8363	2.8500	195.6

The Summary of 24-hrs TSP Concentration ($\mu\text{g}/\text{m}^3$) at Mayfair Gardens 1st floor adjacent to swimming pool (ASR3)

Date	Sampling Time	Elapsed Time (min)	Initial Standard Flow Rate (m^3/min)	Final Standard Flow Rate (m^3/min)	Averaged Standard Flow Rate (m^3/min)	Total Standard Volume (m^3)	Initial Filter Weight (g)	Final Filter Weight (g)	TSP Concentration $\mu\text{g}/\text{m}^3$
29-Jan-09	0:00	1440.00	1.38	1.38	1.38	1991.08	2.8451	2.9576	56.5
4-Feb-09	0:00	1439.40	1.33	1.32	1.32	1906.25	2.8643	3.0117	77.3
10-Feb-09	0:00	1440.00	1.32	1.32	1.32	1902.83	2.8121	3.0901	146.1
16-Feb-09	0:00	1440.00	1.32	1.33	1.32	1905.58	2.8417	2.9203	41.2
21-Feb-09	0:00	1440.00	1.32	1.31	1.32	1899.41	2.8651	3.1732	162.2
27-Feb-09	0:00	1440.00	1.32	1.32	1.32	1898.47	2.8231	2.9536	68.7

The Summary of 1-hr TSP Concentration ($\mu\text{g}/\text{m}^3$) at Cheung Ching Estate at the roof of Ching Yung House (ASR4)

Date	Sampling Time	Elapsed Time (min)	Initial Standard Flow Rate (m^3/min)	Final Standard Flow Rate (m^3/min)	Averaged Standard Flow Rate (m^3/min)	Total Standard Volume (m^3)	Initial Filter Weight (g)	Final Filter Weight (g)	TSP Concentration $\mu\text{g}/\text{m}^3$
30-Jan-09	11:00	60.00	1.38	1.38	1.38	82.80	2.8590	2.8636	55.6
30-Jan-09	13:00	60.00	1.38	1.38	1.38	82.80	2.8666	2.8692	31.4
30-Jan-09	16:00	60.00	1.38	1.38	1.38	82.80	2.8601	2.8695	113.5
5-Feb-09	10:58	60.00	1.35	1.35	1.35	81.10	2.8247	2.8367	148.0
5-Feb-09	12:10	60.00	1.35	1.35	1.35	81.10	2.7958	2.8099	173.9
5-Feb-09	13:14	60.00	1.35	1.35	1.35	81.10	2.7992	2.8168	217.0
11-Feb-09	12:17	60.00	1.35	1.35	1.35	80.95	2.7944	2.8017	90.2
11-Feb-09	13:22	60.00	1.35	1.35	1.35	80.95	2.8472	2.8593	149.5
11-Feb-09	14:48	60.00	1.35	1.35	1.35	80.95	2.8291	2.8355	79.1
17-Feb-09	14:00	60.00	1.35	1.35	1.35	81.20	2.8134	2.8237	126.8
17-Feb-09	15:03	60.00	1.35	1.35	1.35	81.20	2.8289	2.8389	123.2
17-Feb-09	16:10	60.00	1.35	1.35	1.35	81.20	2.8355	2.8433	96.1
23-Feb-09	10:08	60.00	1.34	1.34	1.34	80.60	2.8187	2.8247	74.4
23-Feb-09	11:12	60.00	1.34	1.34	1.34	80.60	2.8364	2.8434	86.8
23-Feb-09	12:30	60.00	1.34	1.34	1.34	80.60	2.8582	2.8649	83.1
28-Feb-09	14:17	60.00	1.35	1.35	1.35	80.92	2.8165	2.8221	69.2
28-Feb-09	15:20	60.00	1.35	1.35	1.35	80.92	2.8163	2.8244	100.1
28-Feb-09	17:20	60.00	1.35	1.35	1.35	80.92	2.8367	2.8504	169.3

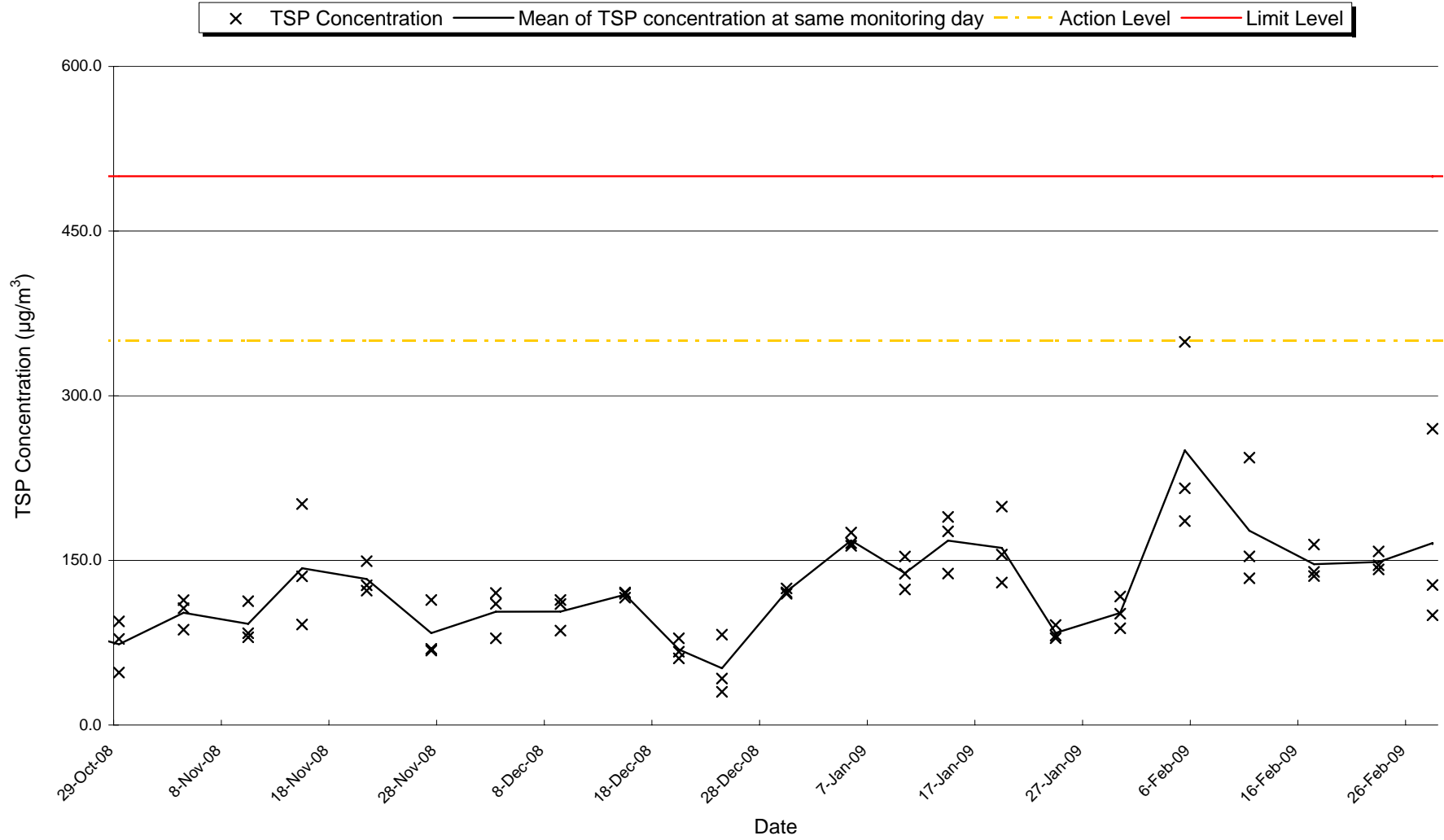
The Summary of 24-hrs TSP Concentration ($\mu\text{g}/\text{m}^3$) at Cheung Ching Estate at the roof of Ching Yung House (ASR4)

Date	Sampling Time	Elapsed Time (min)	Initial Standard Flow Rate (m^3/min)	Final Standard Flow Rate (m^3/min)	Averaged Standard Flow Rate (m^3/min)	Total Standard Volume (m^3)	Initial Filter Weight (g)	Final Filter Weight (g)	TSP Concentration $\mu\text{g}/\text{m}^3$
29-Jan-09	0:00	1440.00	1.38	1.38	1.38	1986.56	2.8639	2.9639	50.3
4-Feb-09	0:00	1440.00	1.35	1.35	1.35	1947.74	2.7879	2.9287	72.3
10-Feb-09	0:00	1440.00	1.35	1.35	1.35	1943.87	2.8088	3.0626	130.6
16-Feb-09	0:00	1440.00	1.35	1.35	1.35	1946.39	2.8377	2.9497	57.5
21-Feb-09	0:00	1439.40	1.35	1.34	1.35	1939.91	2.8291	3.0780	128.3
27-Feb-09	0:00	1440.00	1.35	1.35	1.35	1939.86	2.8337	2.9503	60.1

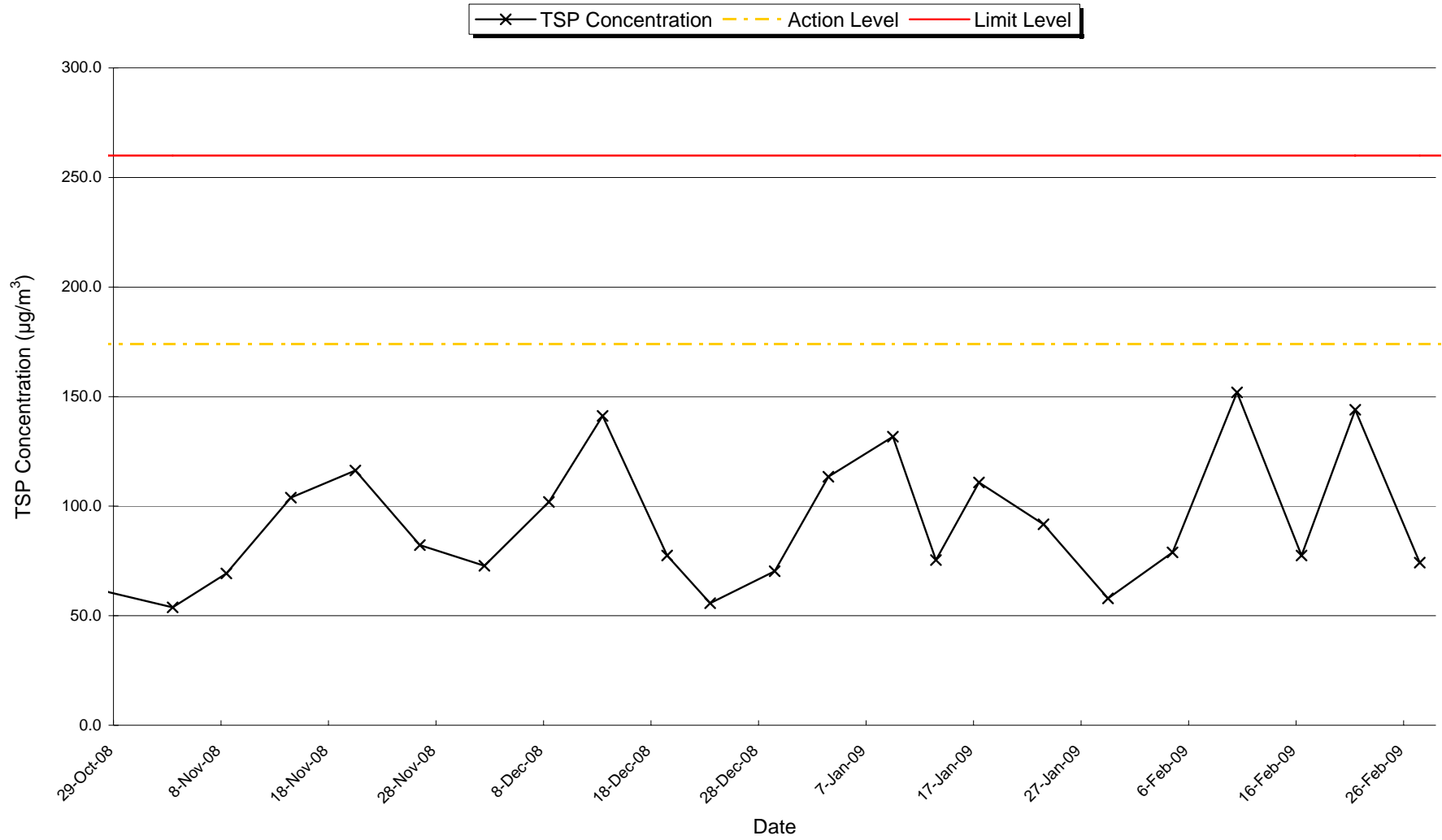
Appendix K

Graphical Presentation of 1-hour and 24-hour TSP Monitoring Result

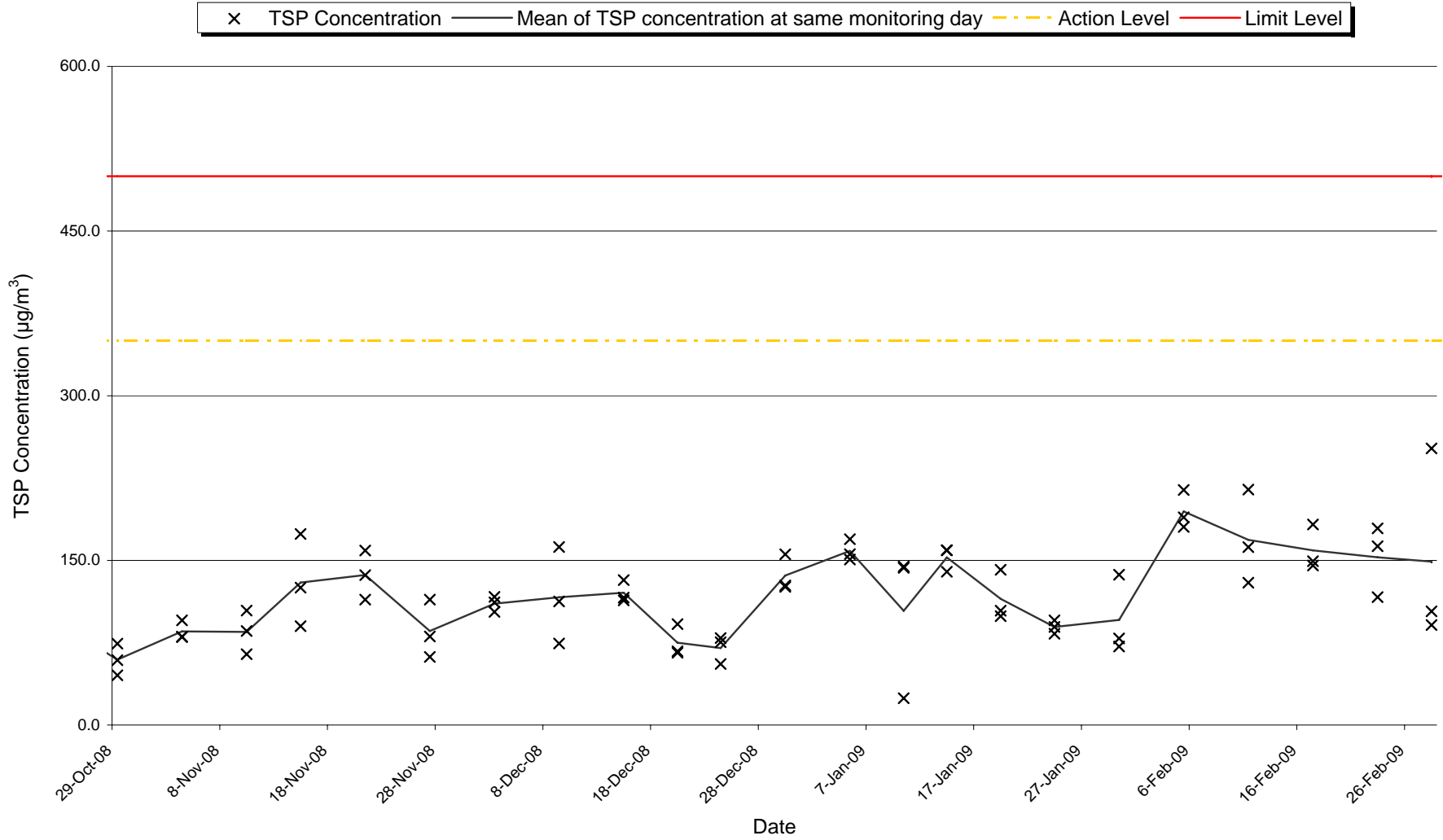
1 hr TSP Concentration ($\mu\text{g}/\text{m}^3$) at HKIVE Fok Ying Tung Hall of Residence (ASR1)



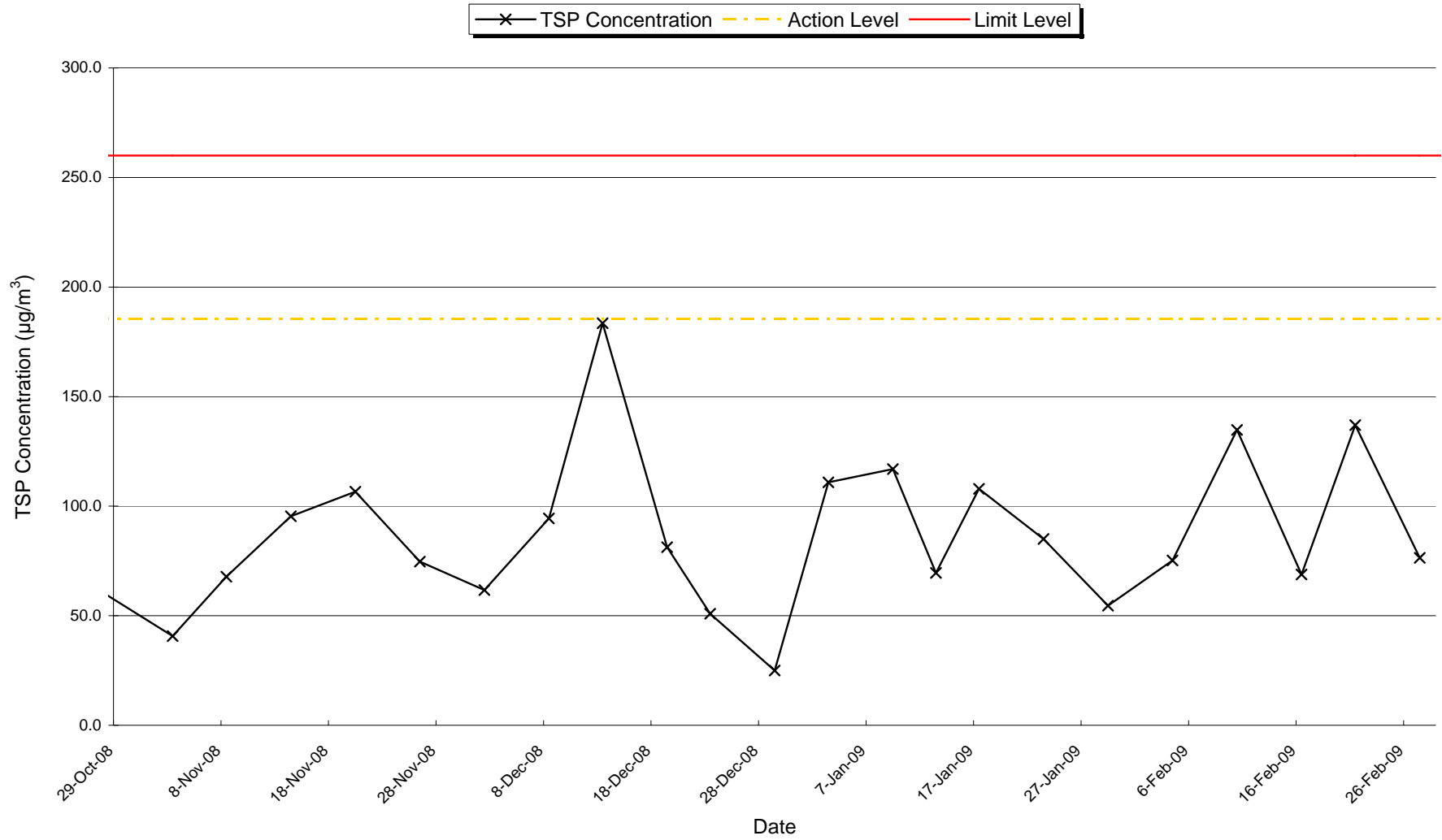
24 hrs TSP Concentration ($\mu\text{g}/\text{m}^3$) at HKIVE Fok Ying Tung Hall of Residence(ASR1)



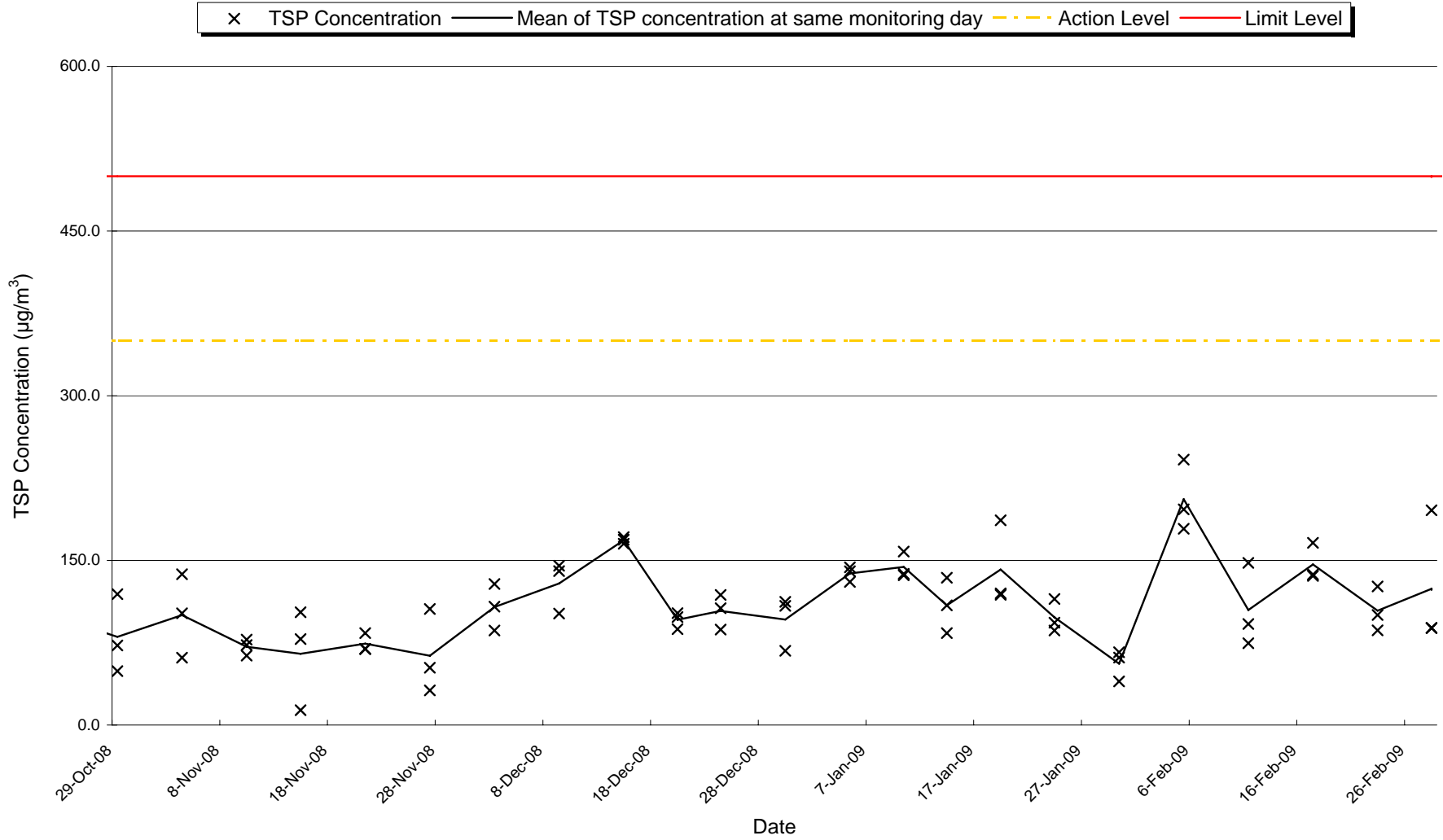
1 hr TSP Concentration ($\mu\text{g}/\text{m}^3$) at HKIVE 5th floor Block D of the main Building (ASR2)



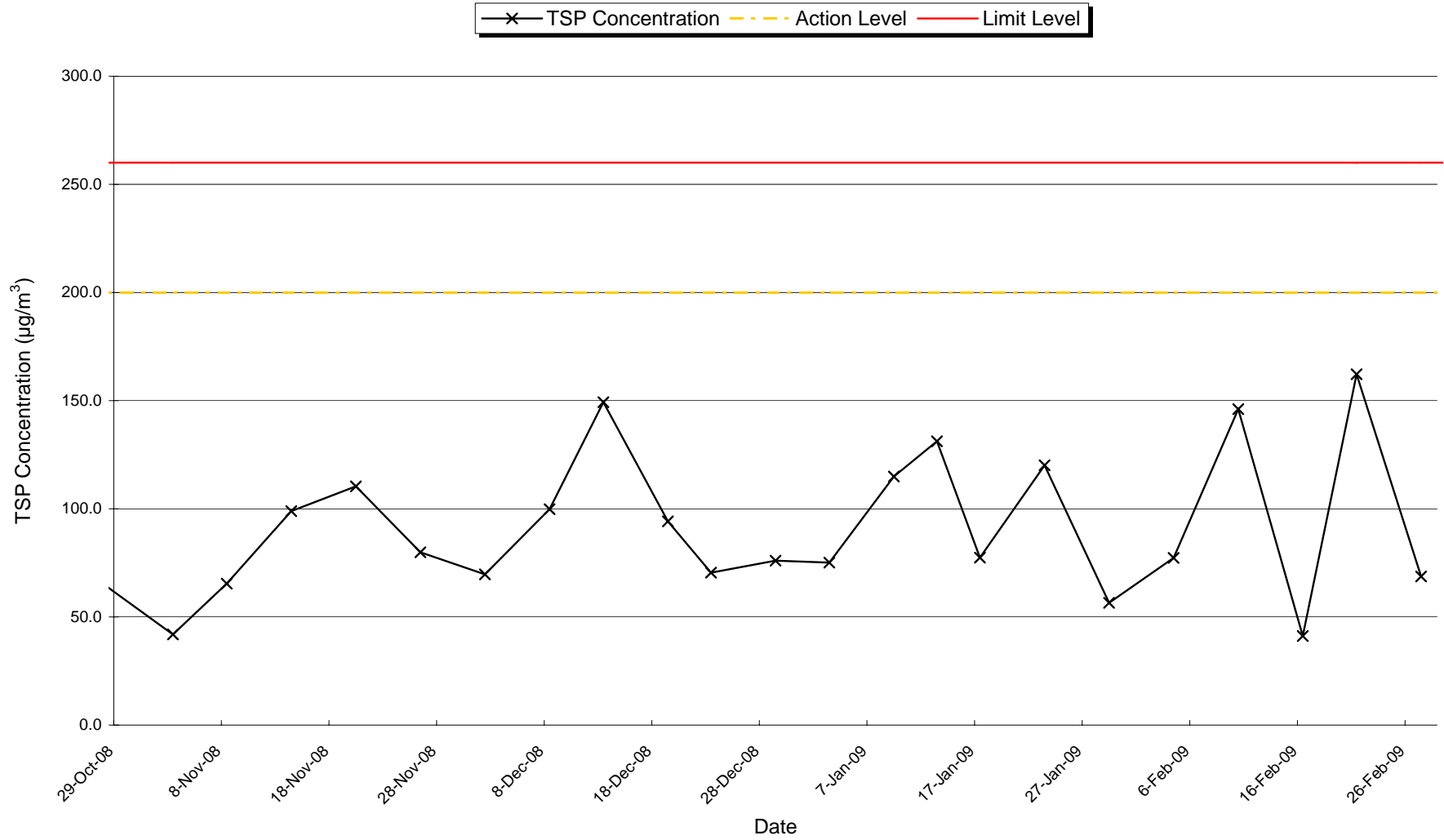
24 hrs TSP Concentration ($\mu\text{g}/\text{m}^3$) at HKIVE 5th floor Block D of the main Building (ASR2)



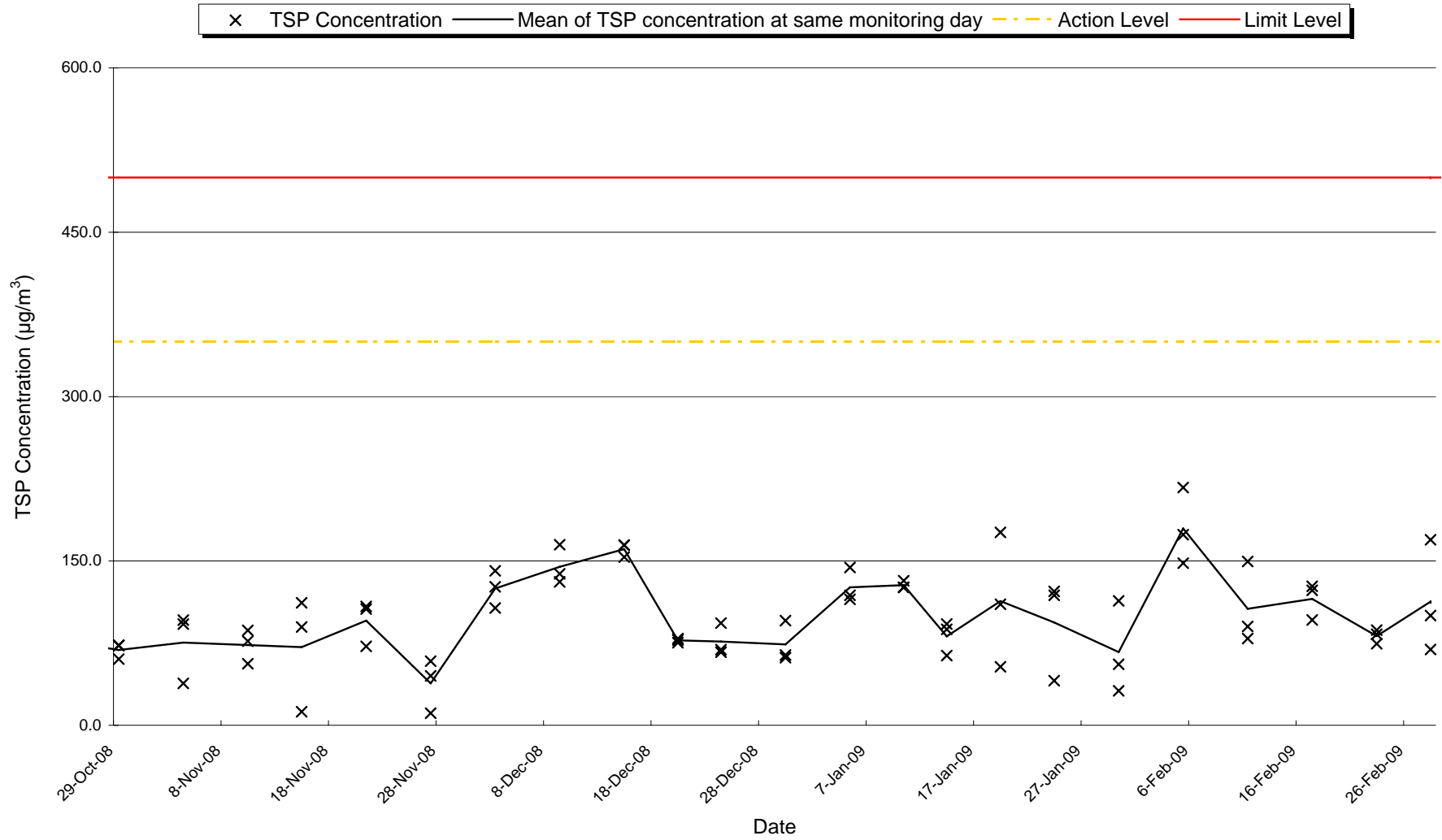
1 hr TSP Concentration ($\mu\text{g}/\text{m}^3$) at Mayfair Gardens 1st floor adjacent to swimming pool (ASR3)



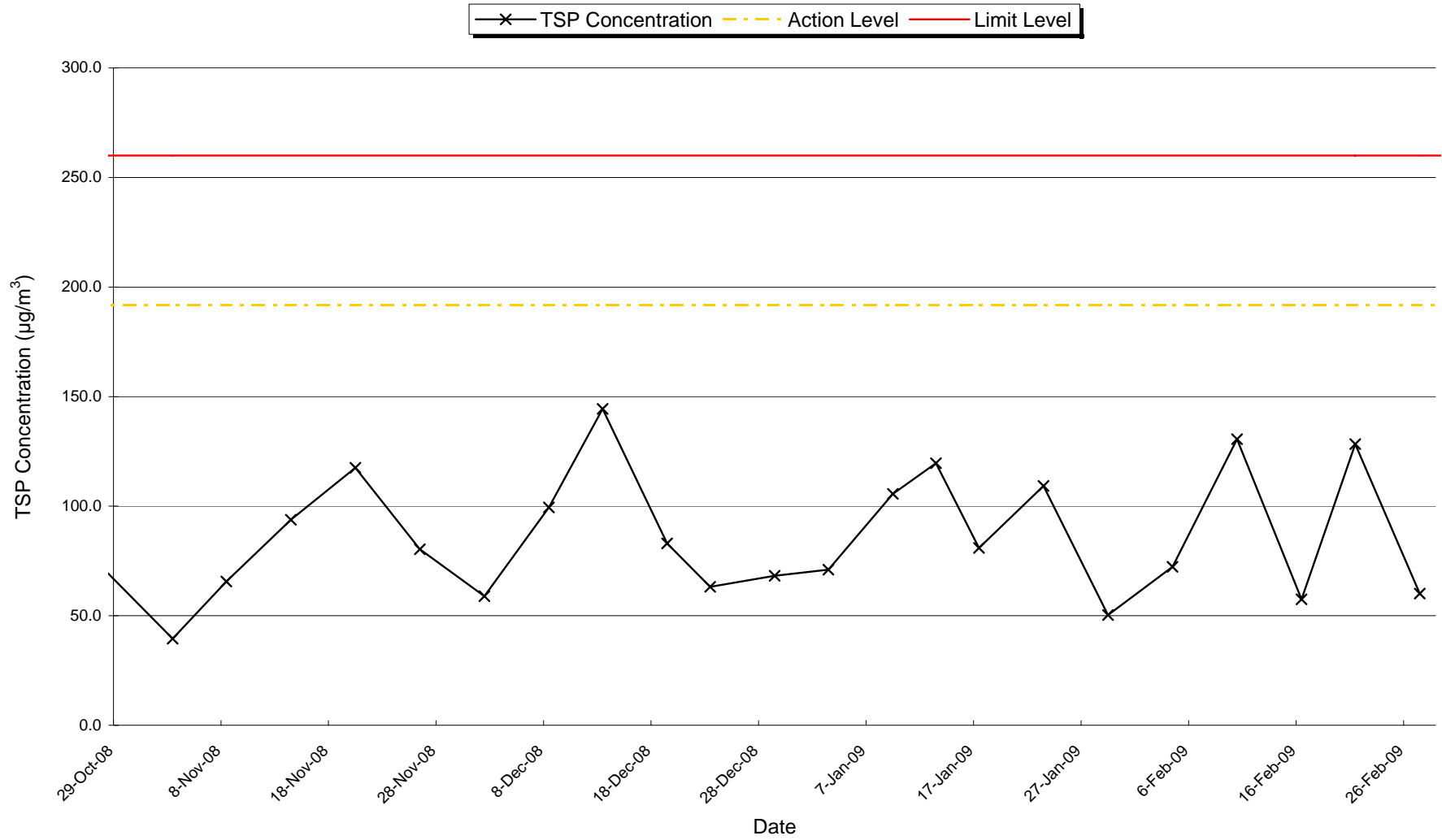
24 hrs TSP Concentration ($\mu\text{g}/\text{m}^3$) at Mayfair Gardens 1st floor adjacent to swimming pool (ASR3)



1 hrs TSP Concentration ($\mu\text{g}/\text{m}^3$) at Cheung Ching Estate at the roof of Ching Yung House(ASR4)



24 hrs TSP Concentration ($\mu\text{g}/\text{m}^3$) at Cheung Ching Estate at the roof of Ching Yung House(ASR4)



Appendix L

Weather Condition during Impact Monitoring

Appendix L: Weather Condition during Impact Monitoring

Date	Time	Weather	Ambient Pressure	Average Ambient Temperature		Relative Humidity	Wind	Wind Speed
		Condition	P (mmHg)	°C	K	%	Direction	m/s
29-Jan-09	00:00~24:00	Sunny	762.44	16.3	289.45	70~88	ENE	6.3
30-Jan-09	10:00~18:45	Sunny	761.99	16.0	289.15	62~86	N	4.2
4-Feb-09	00:00~24:00	Sunny	763.49	18.2	291.35	68~89	NE	6.8
5-Feb-09	08:15~18:00	Sunny	763.79	19.1	292.25	65~89	E	6.3
10-Feb-09	00:00~24:00	Sunny	762.82	19.4	292.55	70~91	ENE	3.9
11-Feb-09	11:00~19:00	Sunny	760.87	20.2	293.35	50~88	NNE	2.8
16-Feb-09	00:00~24:00	Fine	762.37	19.7	292.85	88~96	E	9.0
17-Feb-09	10:45~19:00	Fine	764.02	18.4	291.55	69~91	E	12.0
21-Feb-09	00:00~24:00	Fine	761.92	18.8	291.95	71~90	E	9.8
23-Feb-09	08:45~18:10	Cloudy	758.99	22.7	295.85	75~95	E	2.5
27-Feb-09	00:00~24:00	Fine	761.32	21.6	294.75	69~94	ENE	6.1
28-Feb-09	10:45~19:00	Cloudy	762.59	20.4	293.55	78~91	ENE	8.6

Meteorological data such as atmospheric pressure and temperature used for the calculation of TSP values was obtained from the Hong Kong Observatory

Appendix M

Noise Monitoring Results for Normal Hour

The Summary of Day-time Leq₃₀ Level at HKIVE Fok Ying Tung Hall of Residence (NSR 1)

Date	Monitoring Time	Duration min	Measured Noise Level ¹			Baseline Level ¹	Construction Noise Level	Limit Level dB(A)
			Leq dB(A)	L10 dB(A)	L90 dB(A)	Leq dB(A)	Leq dB(A)	
31-Jan-09	14:10	30	61.0	62.9	58.9	66.8	61.0*	75.0
3-Feb-09	9:35	30	63.3	64.8	61.2	66.9	63.3*	75.0
9-Feb-09	16:15	30	69.5	72.3	62.6	66.6	66.4	75.0
18-Feb-09	10:47	30	69.1	71.3	64.4	66.9	65.1	75.0
24-Feb-09	8:40	30	65.7	68.0	62.0	66.9	65.7*	75.0

NB: Bold - exceedance

¹ Additional 3dB (A) façade correction was made to the Free-field measurements

* No adjustment was made on the measured noise level, since corresponding baseline level \geq measured noise level. The measured noise level was mainly dominated by local traffic noise and the construction noise generated from the Project was not noticeable at NSR according to the field study record.

** No Construction works was carried out during the reporting period

The Summary of Day-time Leq₃₀ Level at HKIVE 5th Floor Block D of the Main Education Building (NSR 2)

Date	Monitoring Time	Duration min	Measured Noise Level ¹			Baseline Level ¹	Construction Noise Level	Limit Level dB(A)
			Leq dB(A)	L10 dB(A)	L90 dB(A)	Leq dB(A)	Leq dB(A)	
31-Jan-09	15:17	30	61.8	63.7	59.2	71.5	61.8*	70.0
3-Feb-09	9:12	30	65.6	66.7	63.1	71.7	65.6*	70.0
9-Feb-09	10:27	30	65.9	67.7	63.4	71.6	65.9*	70.0
18-Feb-09	11:14	30	65.1	66.2	63.2	71.5	65.1*	70.0
24-Feb-09	13:15	30	66.1	67.9	63.7	71.4	66.1*	70.0

NB: Bold - exceedance

¹ Additional 3dB (A) façade correction was made to the Free-field measurements

* No adjustment was made on the measured noise level, since corresponding baseline level \geq measured noise level. The measured noise level was mainly dominated by local traffic noise and the construction noise generated from the Project was not noticeable at NSR according to the field study record.

** No Construction works was carried out during the reporting period

The Summary of Day-time Leq₃₀ Level at Mayfair Gardens 1st floor adjacent to swimming pool (NSR 3)

Date	Monitoring Time	Duration min	Measured Noise Level ¹			Baseline Level ¹	Construction Noise Level	Limit Level dB(A)
			Leq dB(A)	L10 dB(A)	L90 dB(A)	Leq dB(A)	Leq dB(A)	
31-Jan-09	13:04	30	64.7	66.7	62.2	68.7	64.7*	75.0
3-Feb-09	8:33	30	63.7	65.2	61.4	69.6	63.7*	75.0
9-Feb-09	15:03	30	65.0	66.5	63.0	68.4	65.0*	75.0
18-Feb-09	10:08	30	65.6	67.5	63.2	69.8	65.6*	75.0
24-Feb-09	9:13	30	66.0	68.0	63.3	69.4	66.0*	75.0

NB: Bold - exceedance

¹ Additional 3dB (A) façade correction was made to the Free-field measurements

* No adjustment was made on the measured noise level, since corresponding baseline level \geq measured noise level. The measured noise level was mainly dominated by local traffic noise and the construction noise generated from the Project was not noticeable at NSR according to the field study record.

** No Construction works was carried out during the reporting period

The Summary of Day-time Leq₃₀ Level at Cheung Ching Estate at roof of Ching Yung House (NSR 4)

Date	Monitoring Time	Duration min	Measured Noise Level ¹			Baseline Level ¹	Construction Noise Level	Limit Level dB(A)
			Leq dB(A)	L10 dB(A)	L90 dB(A)	Leq dB(A)	Leq dB(A)	
31-Jan-09	13:48	30	63.8	66.5	60.0	69.5	63.8*	75.0
3-Feb-09	9:45	30	64.2	66.9	60.7	69.7	64.2*	75.0
9-Feb-09	10:20	30	64.7	67.2	60.9	70.3	64.7*	75.0
18-Feb-09	11:13	30	65.2	67.5	61.3	69.5	65.2*	75.0
24-Feb-09	13:12	30	65.2	67.6	61.4	69.2	65.2*	75.0

NB: Bold - exceedance

¹ Additional 3dB (A) façade correction was made to the Free-field measurements

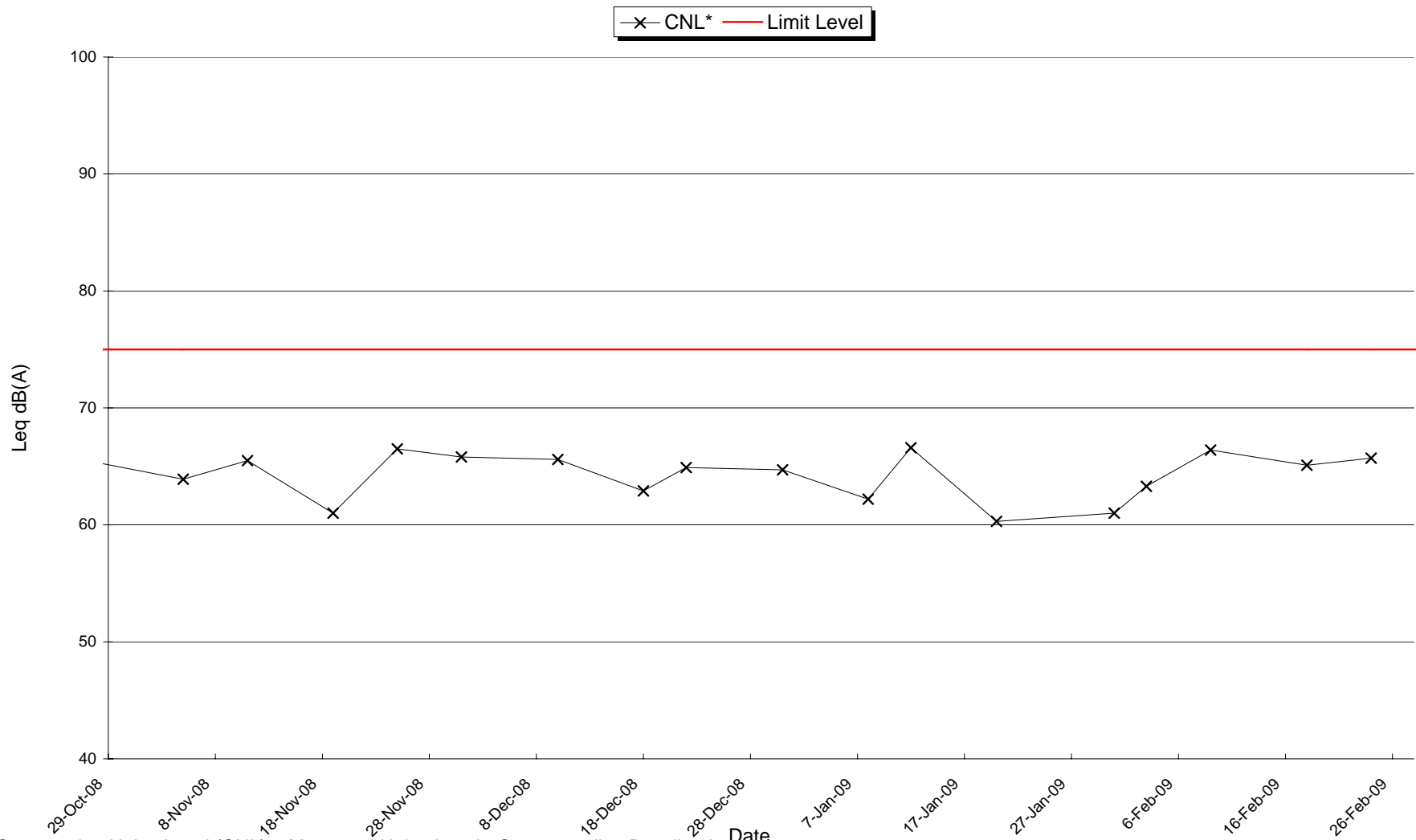
* No adjustment was made on the measured noise level, since corresponding baseline level \geq measured noise level. The measured noise level was mainly dominated by local traffic noise and the construction noise generated from the Project was not noticeable at NSR according to the field study record.

** No Construction works was carried out during the reporting period

Appendix N1

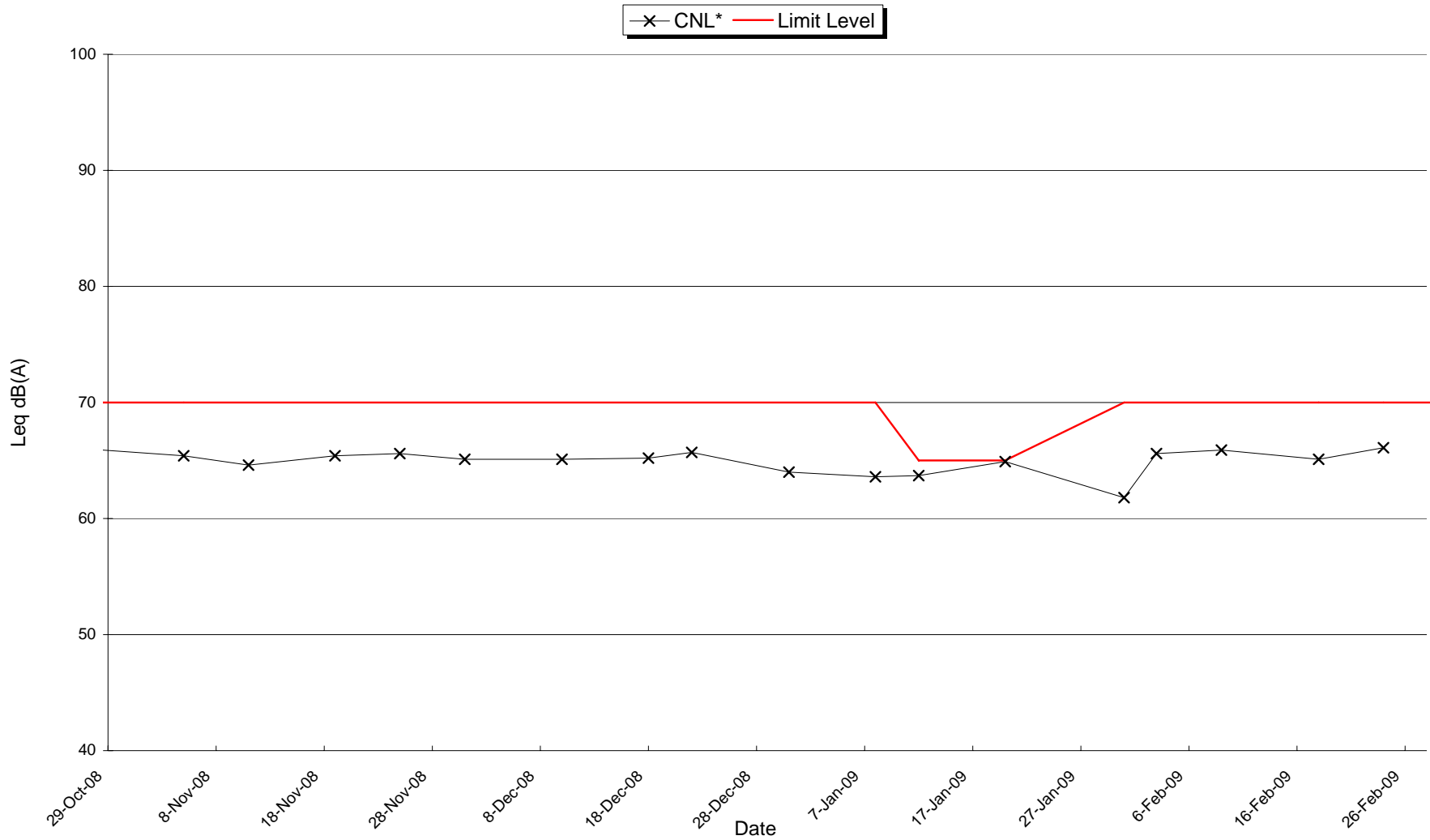
Graphical Presentation of Noise Monitoring Results for Normal Hour

Day-time Leq₃₀ (Construction Noise Level) at HKIVE Fok Ying Tung Hall of Residence (NSR1)



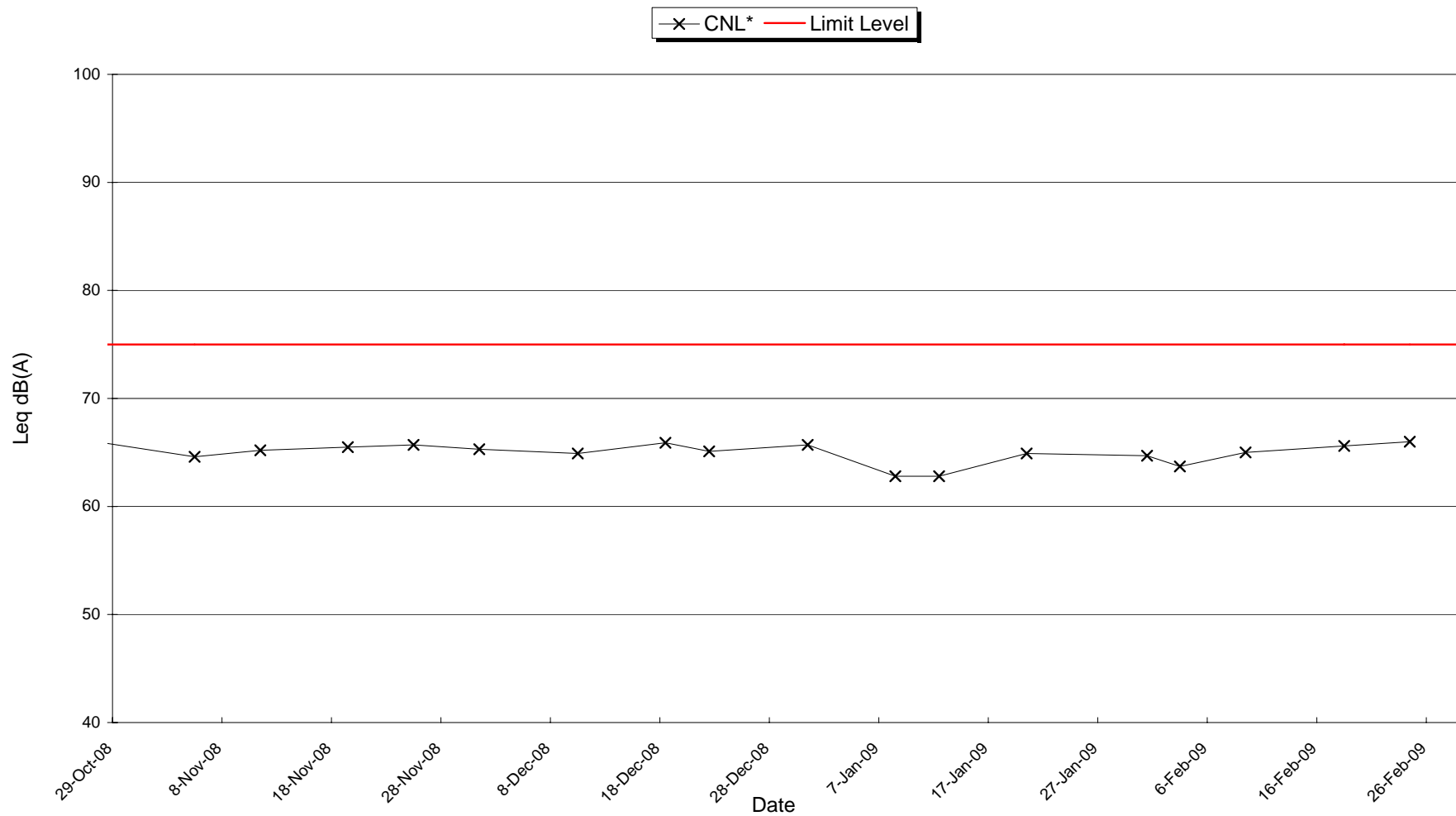
* Construction Noise Level (CNL) = Measured Noise Level - Corresponding Baseline Level
Please refer to Section 6.2 and Appendix M1 for more details.

Day-time Leq₃₀ (Construction Noise Level) at HKIVE 5th Floor Block D of the Main Education Building (NSR2)



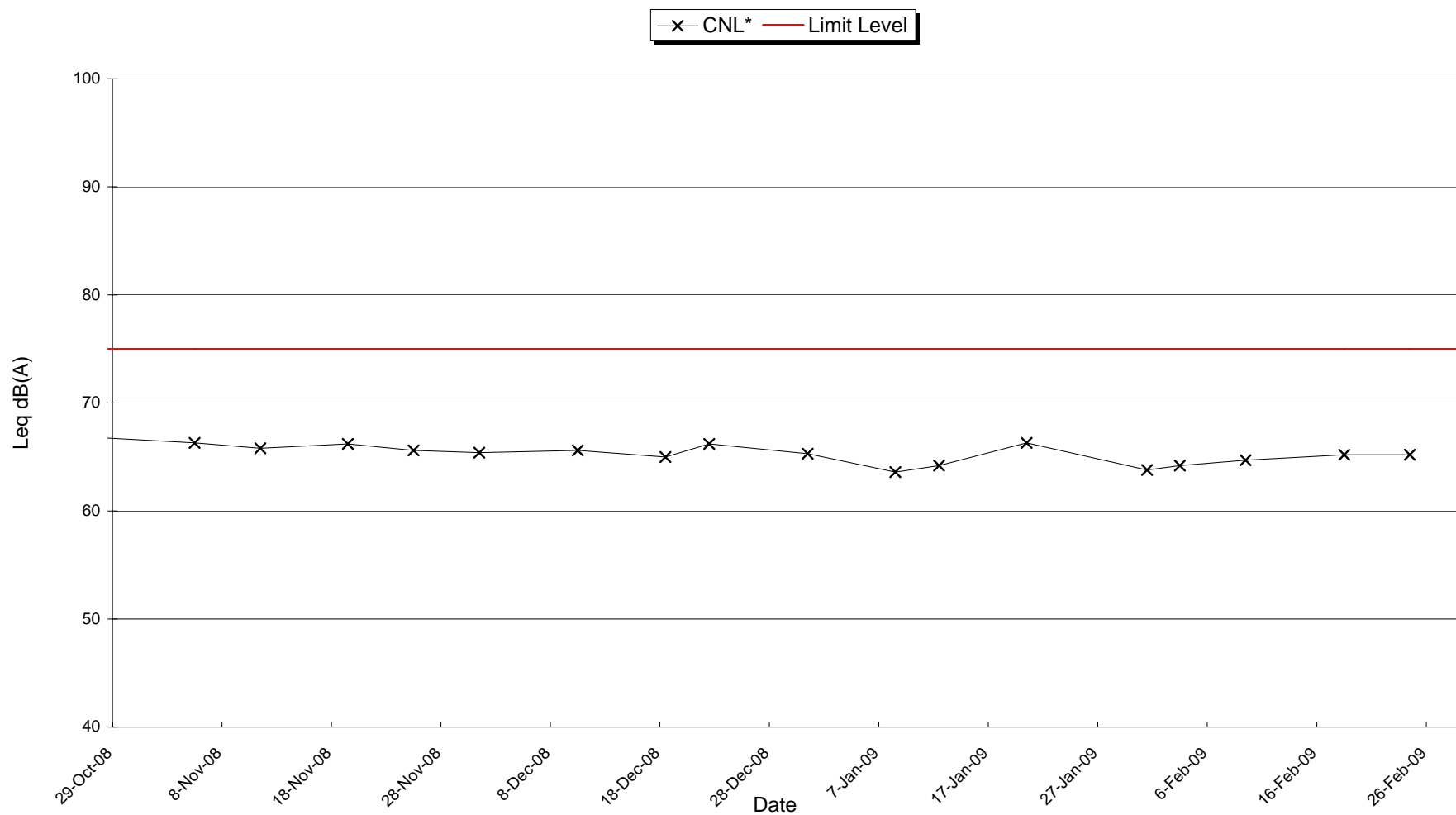
* Construction Noise Level (CNL) = Measured Noise Level - Corresponding Baseline Level
Please refer to Section 6.2 and Appendix M1 for more details.

Day-time Leq₃₀ (Construction Noise Level) at Mayfair Gardens 1st floor adjacent to swimming pool (NSR3)



* Construction Noise Level (CNL) = Measured Noise Level - Corresponding Baseline Level
Please refer to Section 6.2 and Appendix M1 for more details.

Day-time Leq₃₀ (Construction Noise Level) at Cheung Ching Estate at the Roof of Ching Yung House (NSR4)

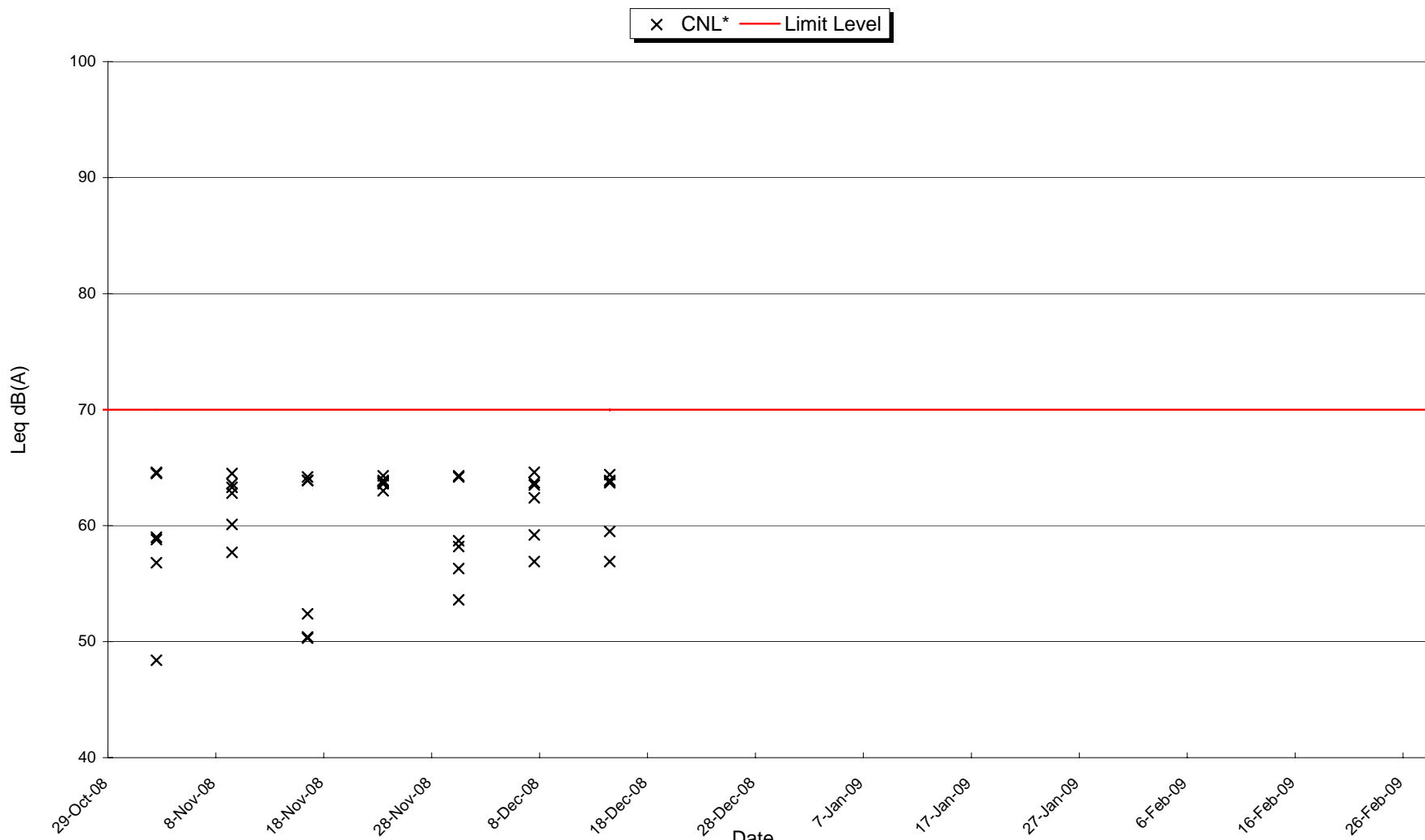


* Construction Noise Level (CNL) = Measured Noise Level - Corresponding Baseline Level
Please refer to Section 6.2 and Appendix M1 for more details.

Appendix N2

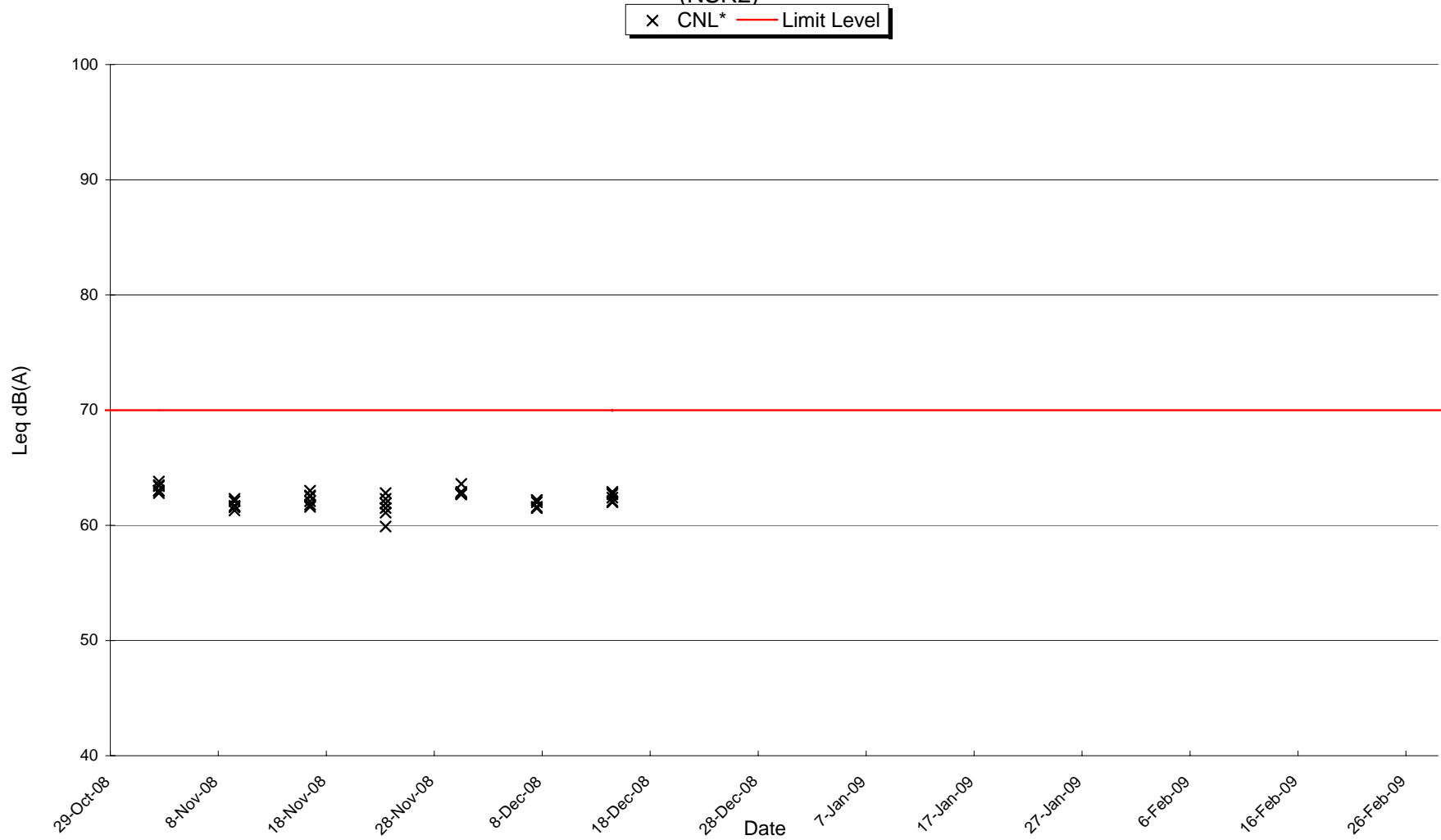
Graphical Presentation of Noise Monitoring Results for Restricted Hour

Public Holiday Leq₅ (Construction Noise Level) at HKIVE Fok Ying Tung Hall of Residence (NSR1)



* Construction Noise Level (CNL) = Measured Noise Level - Corresponding Baseline Level
 Please refer to Section 6.2 and Appendix M2 for more details.

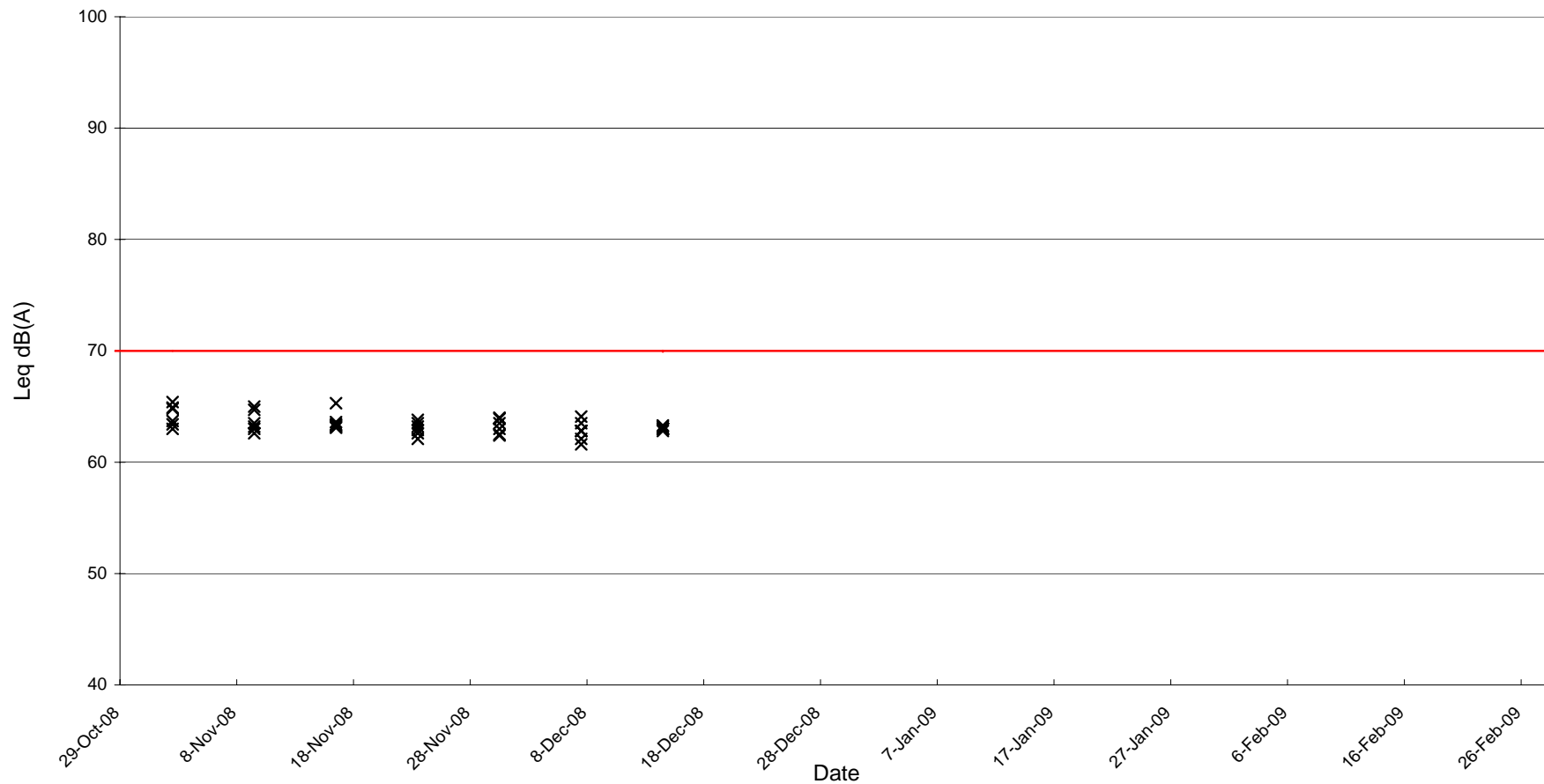
Public Holiday Leq₅ (Construction Noise Level) at HKIVE 5th Floor Block D of Main Education Building
(NSR2)



* Construction Noise Level (CNL) = Measured Noise Level - Corresponding Baseline Level
Please refer to Section 6.2 and Appendix M2 for more details.

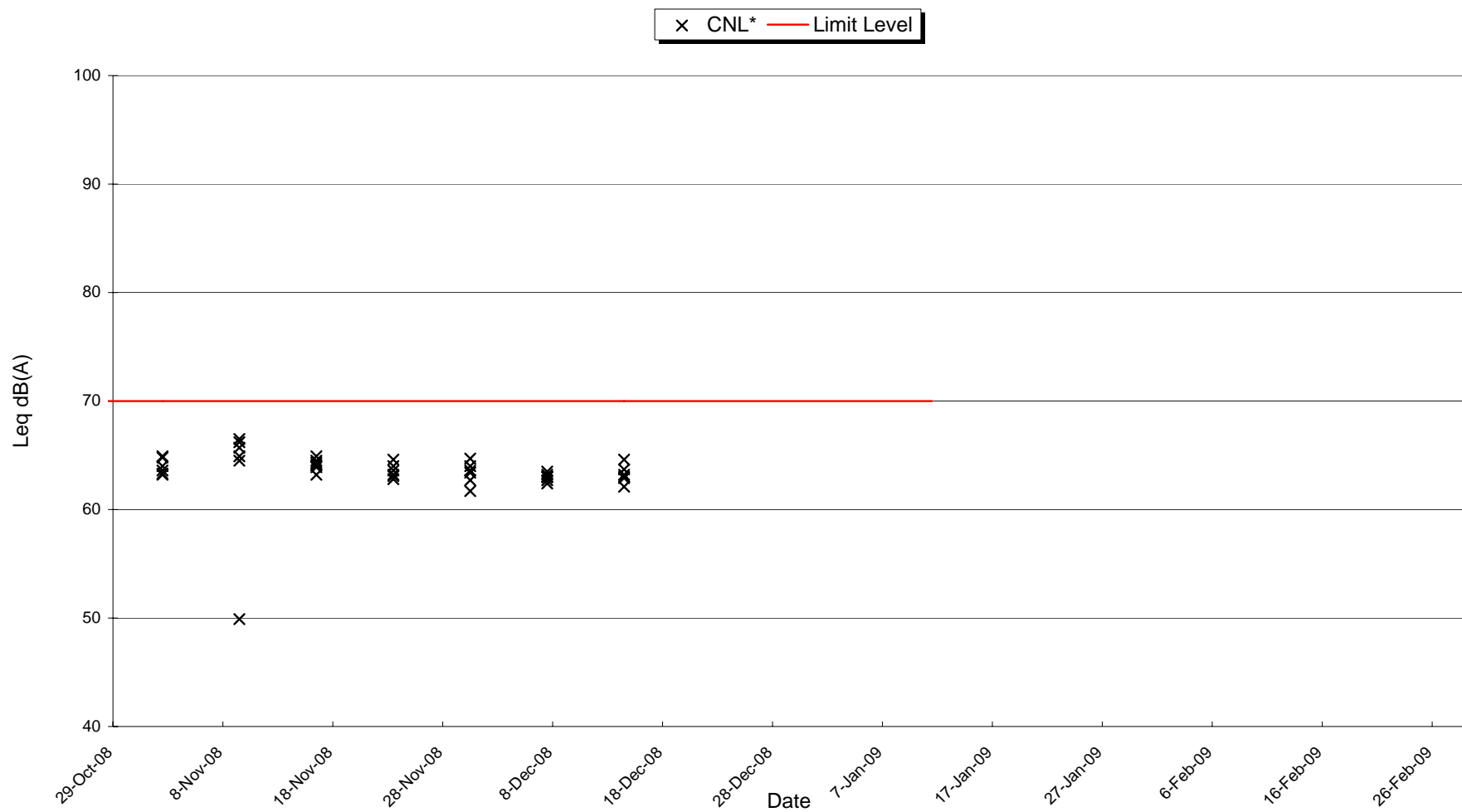
Public Holiday Leq₅ (Construction Noise Level) at Mayfair Gardens 1st Floor adjacent to swimming pool
(NSR3)

x CNL* — Limit Level



* Construction Noise Level (CNL) = Measured Noise Level - Corresponding Baseline Level
Please refer to Section 6.2 and Appendix M2 for more details.

Public Holiday Leq₅ (Construction Noise Level) at Cheung Ching Estate at roof of Ching Yung House (NSR4)



* Construction Noise Level (CNL) = Measured Noise Level - Corresponding Baseline Level
 Please refer to Section 6.2 and Appendix M2 for more details.

Appendix O1

Environmental Complaint Log Book

Appendix O1-Summary of Previous Complaints Details

Case No	Date of Received	Date of Complaint	Complainant's information	Detail's of complaint	Investigation	Follow-up Action / Recommended Mitigation Measures	Status/Remarks
EC01	Referred to ET on 21-Jul-05.	HyD received the complaint on 19-Jul-05. (ICC case: 1-61131774)	No complainant's details were available.	The complainant claimed that stones and sand were deposited on Tsing Hung Road which may cause potential hazard to the road user.	An investigation was carried out by ET and ER, followed by separate site inspections by RSS, HyD, DCBJV and ET, it was concluded that the nuisances was caused by vehicles leaving the temporary car park next to the site of Phase 2b Project in Tsing Hung Road.	The complaint case was subsequently referred to DLO/TW&KT on 22-Jul-05 by HyD for further investigation with the car park operator and therefore the complaint was considered closed on 22-Jul-05.	Closed.
EC02	Referred to ET on 20-Dec-05.	Wong Tai Sin District Office received the complaint on 20-Dec-05 and referred to EPD on 20-Dec-05 (ref. no. NO3/RW/00025167-05).	No complainant's details were available.	The complainant was concerned with the amount of dust generated from the site and in particular from the construction of soil nail.	A joint complaint investigation was carried out amongst EPD, ET, ER and DCBJV on 20-Dec-05 and it was concluded that dust mitigation measures were adopted / provided for the soil nail operation at P2-SA6B. However, further dust control measures should be considered to further improve the current site situation to minimize the extent of dust impacts from other construction activities. A follow up meeting was held amongst ET, ER and DCBJV on 21-Dec-05 and concluded that an additional 26 nos. water sprinklers within the site area (mainly at P2-SA6B) would be installed to further enhance the dust suppression measures on site and during this interim period (until these water sprinklers are installed), a total of 3 water bowsters would be deployed on site.	The installation of 26 numbers water sprinklers were completed on 28-Dec-05 at P2-SA6B, P2-SA6G (adjacent to Rambler Crest) and P2-SA13. Furthermore, DCBJV reported that two water bowsters would be deployed at these areas to reduce / eliminate the dust emission from their day-to-day operations and if deemed necessary, an additional water bowster would be available immediately to ensure the dust emission from the site activities would always keep to its minimum. A joint inspection was carried out on 28-Dec-05 and IEC / ET / ER were satisfied with the additional air mitigation measures provided by DCBJV. In total, there are currently 43 water sprinklers installed on site to reduce / eliminate the dust emission from our day-to-day operations.	A surprise inspection was carried out by the representative of EPD on 13-Jan-06 and EPD was in general satisfied with the remedial actions taken by DCBJV and the complaint was considered closed
EC03	HyD received a complaint on 24-Jan-06 and subsequently referred to ER on 24-Jan-06	23-Jan-06	Whampoa Property Management Limited (WPML) - Management Office of Rambler Crest	WPML claimed that dirty water was dripping from C1/D1 Bridge and droplets deposited onto vehicles passed under the bridge.	A detailed investigation by both ER and DCBJV and it was concluded that dirty water probably spilled down from the deck when it was raining heavily over the weekend of 21 and 22-Jan-06.	A layer of tarpaulin sheets was installed along the deck edges in question on 25-Jan-06 to avoid the reoccurrence of the same issue.	No dripping of dirty water was observed according to the subsequent site inspections and the complaint was considered "completed and closed" on 27-Jan-06.

Case No	Date of Received	Date of Complaint	Complainant's information	Detail's of complaint	Investigation	Follow-up Action / Recommended Mitigation Measures	Status/Remarks
EC04	EPD received a complaint on 16-Mar-06 and subsequently referred to ER and ETL on 16-Mar-06	16-Mar-06	No complainant's details were available.	The complainant was concerned with the night time construction noise generated from the construction activities at Tsing Hung Road adjacent to Rambler Crest and Mayfair Gardens during restricted hours from 23:00 to 01:00 hours on 15-Mar-06.	A detailed complaint investigation amongst RSS, ET and DCBJV was conducted and was able to confirm that only removal of temporary portal structures under Bridge C1/D1 at Tsing Hung Road was carried out by DCBJV after 23:00 hours on 15-Mar-06. The road closure and the removal of temporary portal structures under Bridge C1/D1 could only be conducted during restricted hours due to traffic conditions / restrictions and the removal of such temporary works were completed on 16-Mar-06 at 6:00am. A relevant CNP (GW-RW0124-06) was in place for the mentioned works and the number of plants / equipment deployed during restricted hours was fully complied with the approved CNP. In addition, a notification of restricted hours construction work for the removal of temporary Portal Structure at Tsing Hung Road was issued by DCBJV to EPD on 8-Mar-06 in accordance with the approved CNP condition.	DCBJV was reminded to adopt all appropriate noise mitigation measures to eliminate / limit the noise to be created during the execution of construction works in restricted hours.	The outcome of the investigation was conveyed to EPD on 17-Mar-06. On 20-Mar-06, a follow-up phone call was made to EPD and EPD was satisfied with the outcome of our investigation and confirmed that no further action was required for this particular complaint
EC05	EPD received a complaint and subsequently referred to ETL and RSS on 3-May-06	3-May-06	No complainant's details were available.	The complainant was concerned with the numbers of power mechanical equipment (PME) in operation during Sundays and public holidays exceeded the corresponding numbers allowed in the appropriate valid construction noise permit (CNP) at P2-SA6B and P2-SA6G. The complainant also claimed that the excessive use of PME was not a one-off incident, but happened throughout the month of April 2006.	A detailed complaint investigation amongst RSS, ET and DCBJV was conducted and able to confirm that no excessive PME was used during Sundays and public holidays throughout the month of April 2006. Three valid CNPs (GW-RW0134-06, GW-RW0764-05 and GW-RW0140-06) were in place to cover the construction work in April 2006 during Sundays and public holidays.	In order to ensure that no excessive PME would be deployed during restricted hours in the future, both RSS and DCBJV have further streamlined their supervision control and restricted hours working procedures respectively.	The outcome of the site investigation was conveyed to EPD on 12-May-06 and a formal reply was issued to EPD on 13-May-06.

Case No	Date of Received	Date of Complaint	Complainant's information	Detail's of complaint	Investigation	Follow-up Action / Recommended Mitigation Measures	Status/Remarks
EC06	HyD received a complaint on 22-Jun-06 and subsequently referred to ER and ET on 22-Jun-06	22-Jun-06	Hong Kong Institute of Vocational Education -Tsing Yi (IVE)	The complaint regarding a considerable amount of construction debris was found scattering around at IVE's landscaping area along old Tsing Yi Road next to area P2-SA6B.	A detailed investigation was conducted on 22-Jun-06 and it was confirmed that the construction debris was not generated or disposed off by this Contract.	DCBJV cleaned up the concerned area immediately for IVE as a goodwill gesture. A follow-up joint site inspection was conducted with the complainant on 23-Jun-06.	The complainant was satisfied with the cleaning work that DCBJV carried out and considered the current condition of the concerned area was satisfactory acceptable on 23-Jun-06.
EC07	EPD received a complaint on 10-Jul-06 and subsequently referred to ER and ET on 12-Jul-06	10-Jul-06	Hong Kong Institute of Vocational Education -Tsing Yi (IVE)	The complaint regarding the emission of smoke from a generator located at area P2-SA6B (Tsing Yi Road) adjacent to the Hong Kong Institute of Vocational Education – Tsing Yi (IVE)	According to the joint complaint investigation amongst EPD/ET/RSS/DCBJV on 12-Jul-06, the concerned generator was observed emitting white smoke at the time. Although the concerned generator was turned off immediately during the joint investigation, remedial action had to be arranged by the Contractor.	The concerned generator was replaced by a new generator on 13-Jul-06 and it was relocated to a new position further away from IVE on 14-Jul-06. In addition, a noise barrier was also deployed and placed next to the new generator in order to minimize the nuisance further. Thus, there would be no direct line of sight of the new generator from IVE in the future. Follow-up site inspections were carried out by ET and RSS on 14 and 15-Jul-06 and it was noted that the new generator was operating / functioning in good condition and no white smoke was emitting from the new generator.	The outcome of the site investigation was conveyed to EPD on 14-Jul-06 and a formal reply was issued to EPD on 17-Jul-06.

Case No	Date of Received	Date of Complaint	Complainant's information	Detail's of complaint	Investigation	Follow-up Action / Recommended Mitigation Measures	Status/Remarks
E08	29-Dec-06	Not known	The complaint was received by EPD and forwarded to ET/RSS on 29-Dec-06.	The complaint was originally lodged by CEDD regarding a significant amount of dump trucks were found uncovered or poorly covered when entering into Tuen Mun Area 38 (TMA38).	A set of records (from 30-Oct-06 to 26-Nov-06) of uncovered / poorly covered dump trucks was e-mail from CEDD to HyD and subsequently referred to ET and RSS on 7-Dec-06 for investigation. After reviewing the records, an alarming high percentage of dump trucks (64 out of 160) were found without covering when entering into Tuen Mun Area 38 (TMA38), a joint investigation was carried out amongst ET, RSS and DCBJV and was subsequently concluded that most of the recorded incidents (49 nos.) were related to the delivery of either broken concrete or broken rock. Without an ancillary working platform, the drivers have had to climb over the broken rock or concrete when covering or uncovering their loads and as this may entail a risk of injury, thus, the drivers have been apparently reluctant to take this risk.	This particular issue was discussed during the monthly environmental meeting on 7-Dec-06 and DCBJV agreed to provide proper covers for all dump trucks loaded with all types of C&D material before leaving the site. In order to ensure the covering would be secured and maintained throughout the journey to off-loading destinations, regular training has been provided for frontline staff and reminding notices have been given to all new dump truck drivers carrying C&D materials leaving the site. An ad-hoc meeting was held between DCBJV and their sub-contractors on 8-Dec-06. The sub-contractors were reminded once again that all loaded dump trucks should only be uncovered within TMA38 and DCBJV has already imposed a penalty system for any dump trucks uncovering outside TMA38 with effect from 2-Aug-06. Having reviewed the records from CEDD (from 30-Oct-06 to 26-Nov-06), 3 sub-contractors were penalized by DCBJV.	Since the implementation of the strengthened trip ticket system procedure on 11-Dec-06, no dump trucks have been found to be uncovered when leaving the site. A comprehensive report was prepared by ETL and issued to EPD on 2-Jan-07.

Case No	Date of Received	Date of Complaint	Complainant's information	Detail's of complaint	Investigation	Follow-up Action / Recommended Mitigation Measures	Status/Remarks
						In order to further strengthen the current trip ticket system procedure, reminding notices have been given to each and every dump truck driver carrying C&D materials leaving the site and photographic records have also been taken for all dump trucks leaving the site since 11-Dec-06. Furthermore, surprise checks by ET, RSS and DCBJV have also been carried out to ensure compliance of dump trucks delivering C&D materials to TMA38 at least once a week since 11-Dec-06 and these additional measures would ensure the rules of proper transportation in particular the covering of dump trucks have been followed by sub-contractors at TMA38.	
E09	30-Nov-07	Not Known	Residents of Rambler Crest	The complaint was originally lodged by the residents of Rambler Crest complaining that excessive noise was generated from breaking of hard surface on the ramp in area P2-SA6G (next to Rambler Crest).	A detailed investigation was conducted on 30-Nov-08 and it was confirmed that the mentioned work was carried out during normal working hours (0700 – 1900 hours) and no non-compliance was noted. In addition, no noise exceedances were recorded at the designated noise monitoring locations since the commencement of construction work for the Phase 2b Contract.	Investigation revealed no irregularities and no remedial action was therefore required.	The details of this complaint were forwarded to HyD 30-Nov-07.

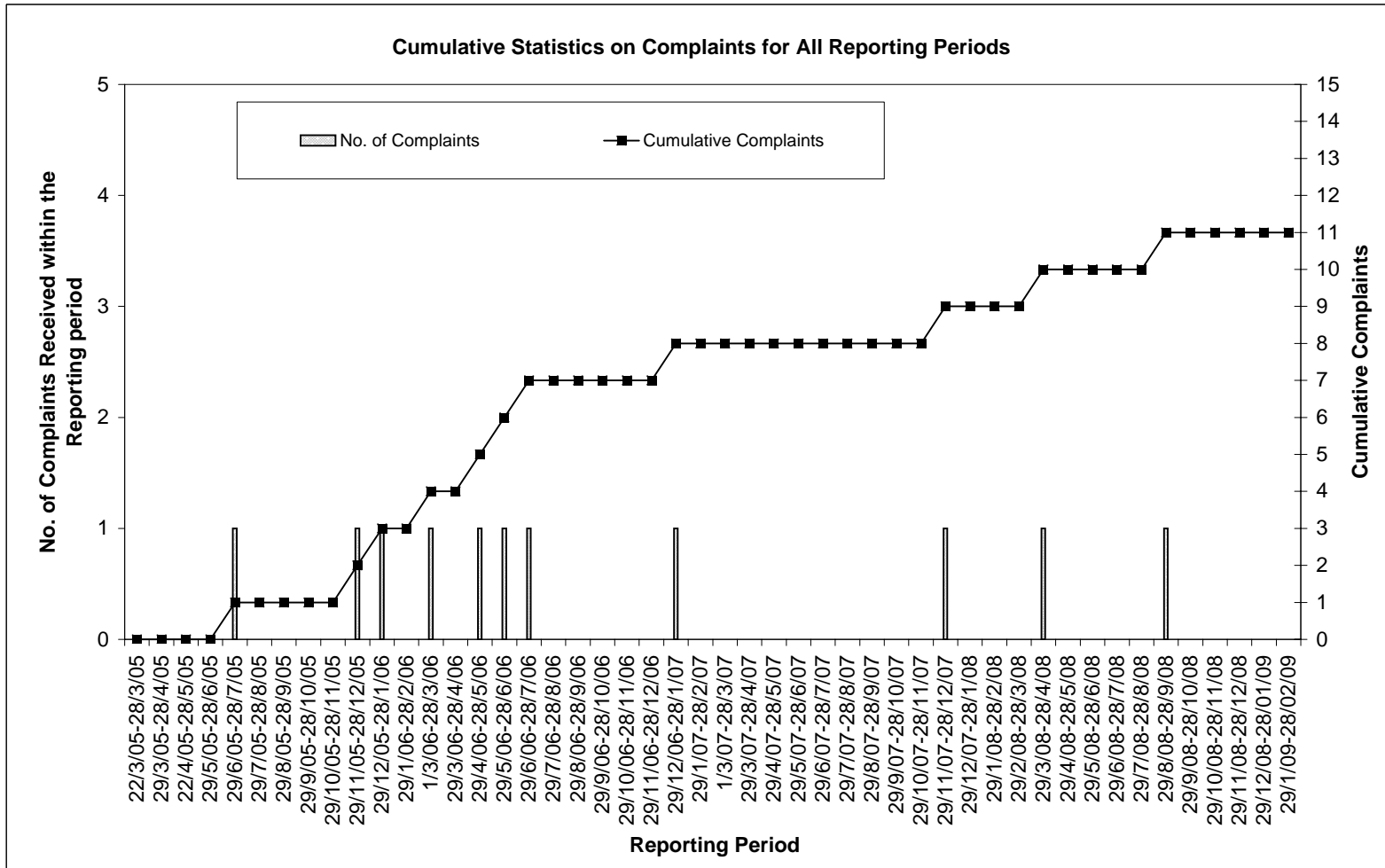
Case No	Date of Received	Date of Complaint	Complainant's information	Detail's of complaint	Investigation	Follow-up Action / Recommended Mitigation Measures	Status/Remarks
E10	29-Apr-08	28-Apr-08	Residents of Rambler Crest	The complaint was originally lodged by the residents of Rambler Crest complaining that the dust emission generated from the construction site (next to Rambler Crest).	A detailed investigation was conducted on 29-Apr-08 and it was found that the dust control measures provided on site should be further improved. Water sprinklers had been installed along the main haul road near the Rambler Crest and all open stockpiles had been covered entirely by impervious sheet on 30-Apr-08.	A follow-up phone call was made by RSS to the complainant on 2-May-08 regarding the outcome of the investigation and the remedial actions taken by DCBJV. The complainant was in general satisfied with the remedial actions.	An email regarding the details of the complaint was issued to HyD on 2-May-08. The complaint was considered "completed and closed" on 2-May-08.
E11	25-Sep-08	25-Sep-08	Residents of Rambler Crest	The complaint was originally lodged by the residents of Rambler Crest regarding the potential dust emission generated from the exposed surface within the construction site.	A detailed investigation was conducted on 25th September 2008 and it was found that the dust control measures provided on site should be further improved. Thus, additional water sprinklers had been installed along the main haul road near the Rambler Crest by DCBJV and the frequency of water spraying has been further increased to minimize the dust impact generated from site.	A follow-up phone call was made by RSS to the complainant on 25th September 2008 regarding the progress of the asphalt paving and soil fill slopes work near Rambler Crest (the asphalt paving of Ramp C/D would be completed within 1-2 months and all the soil fill slopes near Rambler Crest had been hydroseeded and planted with trees) ; and the dust mitigation measures deployed on site.	The complainant was satisfied with the outcome of the investigation. The complaint was considered completed and closed on 25th September 2008

Appendix O2

Cumulative Statistics for Environmental Complaint

Appendix O2 - Cumulative Statistics of Complaints

Route 8 East Tsing Yi Viaduct



Appendix P

Tentative Environmental Monitoring Schedule for the Next Three Months

Tentative Environmental Monitoring Schedule between 29 February 2009 and 28 March 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Noise _{P,H} 1-Mar	2-Mar	3-Mar	Noise Noise _{evening} Noise _{night} 4-Mar	24hrs-TSP 5-Mar	1hr-TSP 6-Mar	7-Mar
Noise _{P,H} 8-Mar	9-Mar	Noise Noise _{evening} Noise _{night} 10-Mar	24hrs-TSP 11-Mar	1hr-TSP 12-Mar	13-Mar	14-Mar
Noise _{P,H} 15-Mar	Noise Noise _{evening} Noise _{night} 16-Mar	24hrs-TSP 17-Mar	1hr-TSP 18-Mar	19-Mar	20-Mar	21-Mar
Noise _{P,H} 22-Mar	24hrs-TSP 23-Mar	1hr-TSP 24-Mar	Noise Noise _{evening} Noise _{night} 25-Mar	26-Mar	27-Mar	24hrs-TSP 28-Mar

- 1hr-TSP 3 x 1 hour TSP monitoring at ASR1 to ASR4 during 0900~1800.
- 24hrs-TSP 24 hours TSP monitoring at ASR1 to ASR4
- Noise Leq30 measurement at NSR1 to NSR4 during 0700~1900.
- Noise_{Evening} 6 x Leq5 will be measured at NSR1 to NSR4 during 1900~2300 (if construction activities are undertaken).
- Noise_{Night} 4 x Leq5 will be measured at NSR1 to NSR4 during 2300~0700 next day (if construction activities are undertaken).
- Noise_{P,H} 6 x Leq5 will be measured at NSR1 to NSR4 during 0700~1900 (if construction activities are undertaken).

Tentative Environmental Monitoring Schedule between 29 March 2009 and 28 April 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Noise _{P,H.} 29-Mar	1hr-TSP 30-Mar	Noise Noise _{evening} Noise _{night} 31-Mar		24hrs-TSP 1-Apr	1hr-TSP 2-Apr	
Noise _{P,H.} 5-Apr		Noise Noise _{evening} Noise _{night} 6-Apr	24hrs-TSP 7-Apr	1hr-TSP 8-Apr		
Noise _{P,H.} 12-Apr		24hrs-TSP 13-Apr	1hr-TSP 14-Apr	Noise Noise _{evening} Noise _{night} 15-Apr		
Noise _{P,H.} 19-Apr	24hrs-TSP 20-Apr	1hr-TSP 21-Apr	Noise Noise _{evening} Noise _{night} 22-Apr			
Noise _{P,H.} 26-Apr	1hr-TSP 27-Apr	Noise Noise _{evening} Noise _{night} 28-Apr				

1hr-TSP 3 x 1 hour TSP monitoring at ASR1 to ASR4 during 0900~1800.

24hrs-TSP 24 hours TSP monitoring at ASR1 to ASR4

Noise Leq30 measurement at NSR1 to NSR4 during 0700~1900.

Noise_{Evening} 6 x Leq5 will be measured at NSR1 to NSR4 during 1900~2300 (if construction activities are undertaken).

Noise_{Night} 4 x Leq5 will be measured at NSR1 to NSR4 during 2300~0700 next day (if construction activities are undertaken).

Noise_{P,H.} 6 x Leq5 will be measured at NSR1 to NSR4 during 0700~1900 (if construction activities are undertaken).

Tentative Environmental Monitoring Schedule between 29 April 2009 and 28 May 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			29-Apr 24hrs-TSP	30-Apr 1hr-TSP	1-May	2-May
3-May Noise _{P.H.}	4-May Noise Noise _{evening} Noise _{night}	5-May 24hrs-TSP	6-May 1hr-TSP	7-May	8-May	9-May
10-May Noise _{P.H.}	11-May 24hrs-TSP	12-May 1hr-TSP	13-May Noise Noise _{evening} Noise _{night}	14-May	15-May	16-May 24hrs-TSP
17-May Noise _{P.H.}	18-May 1hr-TSP	19-May	20-May	21-May Noise Noise _{evening} Noise _{night}	22-May 24hrs-TSP	23-May 1hr-TSP
24-May Noise _{P.H.}	25-May	26-May Noise Noise _{evening} Noise _{night}	27-May 24hrs-TSP	28-May		

- 1hr-TSP 3 x 1 hour TSP monitoring at ASR1 to ASR4 during 0900~1800.
- 24hrs-TSP 24 hours TSP monitoring at ASR1 to ASR4
- Noise Leq30 measurement at NSR1 to NSR4 during 0700~1900.
- Noise_{Evening} 6 x Leq5 will be measured at NSR1 to NSR4 during 1900~2300 (if construction activities are undertaken).
- Noise_{Night} 4 x Leq5 will be measured at NSR1 to NSR4 during 2300~0700 next day (if construction activities are undertaken).
- Noise_{P.H.} 6 x Leq5 will be measured at NSR1 to NSR4 during 0700~1900 (if construction activities are undertaken).

Appendix Q

Photographic Records of Implemented Measures

Appendix Q
Photographical Records of Implemented Measures

Photo 01 (area P2-SA6E)



Photo 02 (area P2-SA6B (Tsing Yi Road))



Photo 03 (area P2-SA6B (Tsing Yi Road))



Photo 04 (area P2-SA6B (Tsing Yi Road))



Photo 05 (area P2-SA6B (along Tsing Yi Road))



Photo 06 (area P2-SA8)



Photo 07 (area P2-SA6B (under C2/D2 Bridge))



Photo 08 (area P2-SA6B (under C2/D2 Bridge))



Appendix R

Summary of Environmental Licensing, Notification and Permit Status

Appendix R

Route 8
 Contract No. HY/2004/02 - East Tsing Yi Viaduct
 Summary of Licensing, Notification and Permit Status

Item	Nature of Permits/License	Date of issue of Permits/License	Permit/License No.	Remark
1	Environmental Permit	26/09/2002	EP-085/2000/E	Valid
2	Registration as a Waste Producer	3/16/2005 (EP760/350/0095391I)	WPN 5213-350-D2350-01	Valid
3	Effluent Discharge License	4/21/2005 ((18) in EP760/350/009839I)	EP760/269/009539I (until 30/04/2010)	For the whole site area
4	Construction Noise Permit			No Valid CNP during the reporting period.