Highways Department

Contract No. HY/2007/14 Widening of Tuen Mun Road at Tsing Tin Interchange

Impact Environmental and Audit Report - October 2008

Revision 2

Certified by Environmental Team Leader
Coleman Ng
Ove Arup & Partners Hong Kong Ltd

Verified by Independent Environmental Checker *
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* SUBJECT TO EXCLUSION OF NOISE MONITORING RESULTS - TO BE VERIFIED LATER BY IEC

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COI Number 126012

14 November 2008

BY POST and FAX

Major Works Office (2)
Major Works Project Management Office
Highways Department
3/F, Ho Man Tin Government Offices
88 Chung Hau Street
Homantin, Kowloon
Hong Kong
For the attention of: Ms. Mandy Tam

Your Ref:
Our Ref: EB00423-A/E08-35350

Dear Ms. Tam,

Agreement No. HMW 3/2008 (EP)
Widening of Tuen Mun Road at Tsing Tin Interchange –
Verification of Monthly EM&A Report (Version 2.0)

We refer to the electronic copy of the captioned report emailed by the ET Leader on 11 November 2008. We aware that some issues in the captioned report are still outstanding. However, we understand the captioned report should be submitted to EPD by today (14 November 2008) according to EP requirements.

Due to the time limit, the captioned report is verified subject to the following conditions:

1. Approved certificates or documents issued by the manufacturer (B&K) showing the calibration validity of monitoring equipment (Sound Level Meter Kit 2238 and Acoustic Calibrator 4231) as stipulated in the captioned report

2. Formal laboratory reports of all 1- hr and 24-hr TSP Monitoring Results issued by the laboratory (ALS Technichem (HK) Pty Ltd.)

By copy of this letter, would the ET please take necessary action for the above outstanding issues in due course.

If you have any question, please feel free to contact the undersigned at 2911 2744 or our Selina Leung at 2911 2733.

Yours sincerely,

Antony Wong
Independent Environmental Checker
HYDER CONSULTING LIMITED

cc Arup – Mr. Coleman Ng (coleman.ng@arup.com)
AW/SL/cw

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Executive Summary

This is the first monthly Environmental Monitoring and Audit (EM&A) report prepared by Ove Arup & Partners Hong Kong Limited (Arup), the designated Environmental Team (ET), for the Project "Widening of Tuen Mun Road at Tsing Tin Interchange". This report presents the results of EM&A works conducted in the month of October 2008 (2 to 31 October 2008).

In the reporting month, the following activities took place for the Project:

- Site clearance
- Provision of temporary footpath
- Sheet-piling for noise barrier footing
- Excavation for NB footing UU slewing
- Re-compaction of fill slope
- Construction of mini-pile
- Construction of noise barriers footing

Monitoring of 1-hour and 24-hour Total Suspended Particulates (TSP) and noise during non-restricted hours was performed and the results were checked and reviewed. Site audits were conducted on weekly basis. The implementation of the environmental mitigation measures, Event and Action Plans and environmental complaint handling procedures were checked.

Impact monitoring was carried out at three sensitive receivers including AM1(a), AM3(a) and TLLF(a) during the reporting month.

Environmental Monitoring Works – Breaches of Action and Limit Levels

Air Quality

All measured 1-hour and 24-hour TSP concentrations in the reporting month were below the Action and Limit (AL) Levels.

Noise

Four limit level exceedances for noise measurement during non-restricted hours were recorded on 3, 6 17 and 23 October 2008. Based on field observation, it was concluded that the exceedances were mainly caused by traffic vehicles along Tuen Mun Road. It was therefore concluded that the noise exceedance was not related to the construction activities. No further actions were applicable.

Landscape and Visual Audit

In accordance with the Clause 2.7 of the EP, seven numbers of trees within the site shall be transplanted to their designed transplanted locations prior to the operational phase of the Project. Four (tree no. 1, 16, 35 and 169) out of the seven trees were however fell prior to the commencement of the construction due to typhoon. One tree (tree no. 63) was transplanted to Siu Lang Shui Road. Interim transplant of one tree (tree no. 411) was completed and one tree (tree no. 69) was tagged and protected by a fence with radius of 7m.

In accordance with Tree Assessment Schedule in Appendix 10.1 of the EIA Report, forty-seven trees of LR1 and LR2, including the seven trees mentioned above, would be affected as a result of the construction works. In the reporting period, these forty trees have been removed. Twenty-eight of them were already felled. In order to minimize the quantities of felled trees, the remaining twelve trees were transplanted to Siu Lang Shui Road as agreed by LCSD and ER.

Twenty numbers of trees, which shall be retained in the site according to the Tree Assessment Schedule in Appendix 10.1 of the EIA Report, were seriously damaged due to the typhoons prior to the commencement of the construction.

The design, implementation and maintenance of landscape and mitigation measures, listed in Table 8.2 of the EM&A manual, were checked during the monthly site audit. No non-compliance has been triggered.

Waste Disposal

Inert C&D materials with estimated amount of 0.45m³ were generated in the reporting period and was disposed in public fill of WENT. It was advised from the Contractor that determination of the actual amount of wastes generation is still in progress so the relevant information will be presented on the next EM&A report.

Environmental Licensing and Permitting

Permits or licenses granted to the Project included the Environmental Permit of the Project (EP-302/2008, and EP-302/2008/A), Discharge License under WPCO(EP760/425/013454/I), Construction Noise Permit (GW-RW0386-08) and Chemical Waste Producer Registration (WPN5111-425-C1186-09).

Environmental Auditing

A total of 4 environmental site audits were conducted on a weekly basis in October 2008. No non-conformance to the environmental requirements was identified during the reporting period.

Complaint Log

No complaint in relation to the environmental issues was made against the Project in the reporting period.

Notifications of Summons and Successful Prosecutions

No summonses or prosecution related to the environmental issues were made against the Project in the reporting period.

Reporting Changes

There were no reporting changes in the reporting month.

Future Key Issues

Based on the noise monitoring results in the reporting month and due to the potential continued non-compliance, study will be carried out to determine whether the proposed Action and Limit levels in the Baseline Report should be revised in order to suit the existing environment. Discussion with the IEC, contractor and Project Proponent (i.e. Highways Department) will be conducted in due course, and a proposal (where necessary) will be submitted for EPD approval accordingly.

1 Project Information

1.1 Project Background

Ove Arup & Partners Hong Kong Limited (Arup) was appointed by Highways Department (HyD) as the Environmental Team (ET) for *Contract No. HY/2007/14 Widening of Tuen Mun Road at Tsing Tin Interchange* (the "Project"). Environmental parameters including air quality, noise and landscape and visual are required for baseline monitoring prior to the commencement of the Project. Construction of the Project was commenced on 2 October 2008.

Under the requirements of Section 3 of the Environmental Permit EP-302/2008/A, an EM&A programme as set out in the EM&A Manual is required to be implemented. In accordance with the EM&A Manual, environmental monitoring of air quality, noise and landscape and visual are required for the Project.

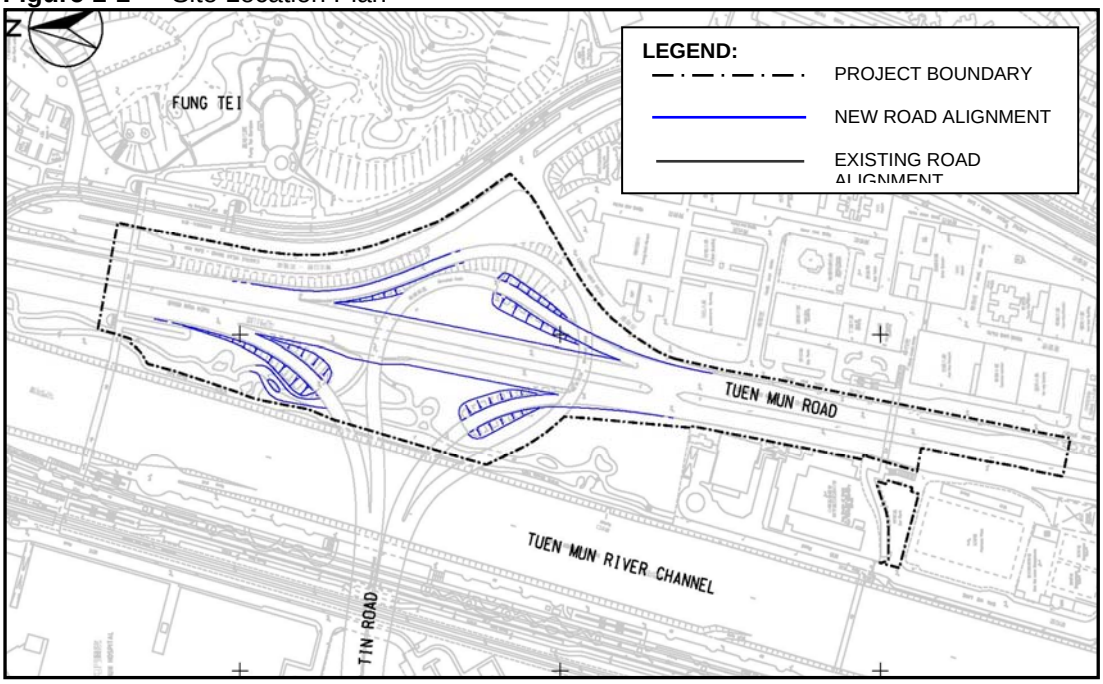
The Project will be undertaken at the northern part of Town Centre Section of Tuen Mun Road (TMR) near the Tuen Mun River Channel. The Project comprises the following works:

(1) Widening of the 240 metre-long dual 2-lane section of TMR at Tsing Tin Interchange to a 11m wide dual 3-lane carriageway; and

(2) Construction of associated slope works, geotechnical works, and works on the environmental mitigation, landscape, drainage, road lighting, water mains and traffic aids.

The location of the works area is indicated in **Figure 1-1**.

Figure 1-1 Site Location Plan



1.2 Project Organization

The structure of the project organisation in relation to the environmental management is shown in **Figure 1-2**. Contacts of key environmental staff of the Project are shown in **Table 1-1**.

Figure 1-2 Project Organization – Environmental Management

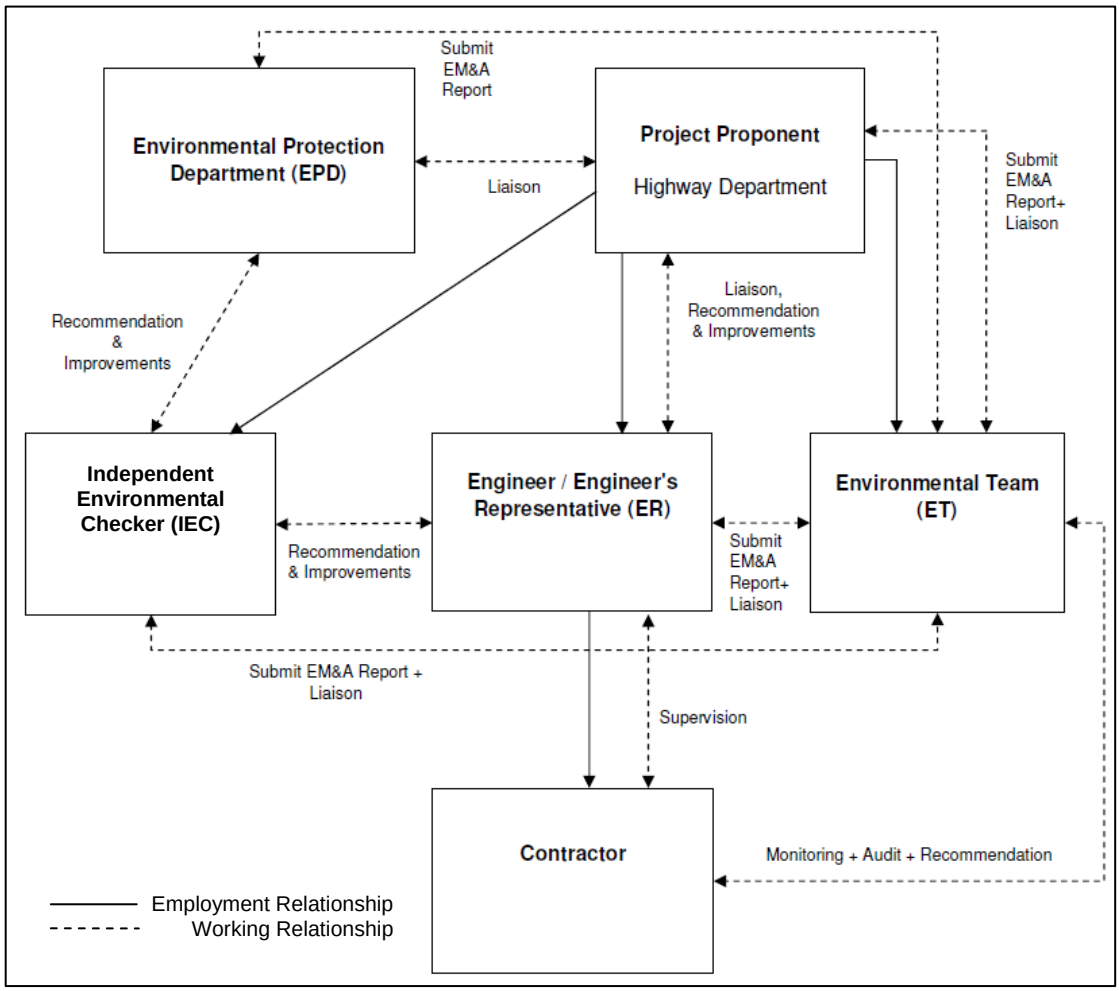


Table 1-1 Contacts of Key Environmental Staff

Organization	Name	Telephone
Environmental Protection Department		
Environmental Protection Officer (Strategic Assessment)22	Thomas To	2835 1103
Engineer's Representative		
Highways Department		
Senior Engineer	K.C. Lai	2762 4951
Independent Environmental Consultant		
Hyder Consulting Ltd		
Senior Environmental Consultant	Antony Wong	2911 2744
Environmental Team		
Ove Arup & Partners Hong Kong Ltd		
Environmental Team Leader	Coleman Ng	2268 3097
Contractor		
China Harbour Engineering Company Limited		
Project Manager	Eric Wu	9786 8630
Site Agent	Gordon Ng	9203 7503
Project Engineer	Jeffery Wong	6070 0143
Safety and Environmental Officer	Brian Cheung	6078 9042
Environmental Supervisor	W.P. Wong	9876 2132

1.3 Construction Programme

The captioned project has separated into three sections of Works. They are summarized as follows:

Section 1: All roadworks, drainage works, street furniture and traffic aids for the existing Tuen Mun Road and the foundations for noise barriers at Tsing Tin Interchange, of which the works have been carried/carrying out included:

- General site cleaning and maintenance works in the Park;
- Underground utilities detection ongoing within the Works Site. Trial pit excavation continued in locating the existing underground utilities, i.e. PCCW cable, CLPP cable, water main and the location of underground box culvert, etc.;
- Horticultural maintenance schedule in the Park implementation;
- TTA implementation for CeTV inspection to the existing drainage system and tree pruning along Tuen Mun Road north bound;
- Tree transplantation to Siu Lang Shui and reinstatement to the access point. Formal handover to LCSD was conducted on 30 October 2008;
- Construction of high mast lighting footing and CCTV footing;
- Establishment and maintenance of temporary drainage system along both sides of Tuen Mun Road
- Endorsement of ICE certificate in relation to high mast lighting design and method statement submission;
- Excavation of noise barrier footing started along Tuen Mun Road north bound; and

- CCTV inspection to the existing drainage system and drain pipes cleaning.

- Section 2: Landscaping softworks and the establishment works, but this section has not yet started.
- Section 3: All works except Sections 1 and 2 but this section has not yet started.

The construction work was commenced on 2 October 2008 while the proposed completion schedule of the sections 1 and 3 works is by the end of 2009 and the section 2 by the end of 2010 respectively.

An up-to-date 3-month rolling construction programme to December 2008 is attached in **Appendix A**.

1.4 Construction Activities undertaken during the Reporting Month

The major construction activities carried out by the Contractor in the reporting month included:

- Site clearance
- Provision of temporary footpath
- Sheet-piling for noise barrier footing
- Excavation for NB footing UU slewing
- Re-compaction of fill slope
- Construction of mini-pile
- Construction of noise barriers footing

1.5 Purpose of the Report

The purpose of the monthly EM&A report is to provide the information on monitoring methodology, monitoring results, environmental permit status, site audit findings, recommendations and conclusions for the scope of impact EM&A. This is the first monthly EM&A report summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the air quality, noise, landscape and visual monitoring and environmental site audit from 2 to 31 October 2008.

2 Environmental Status

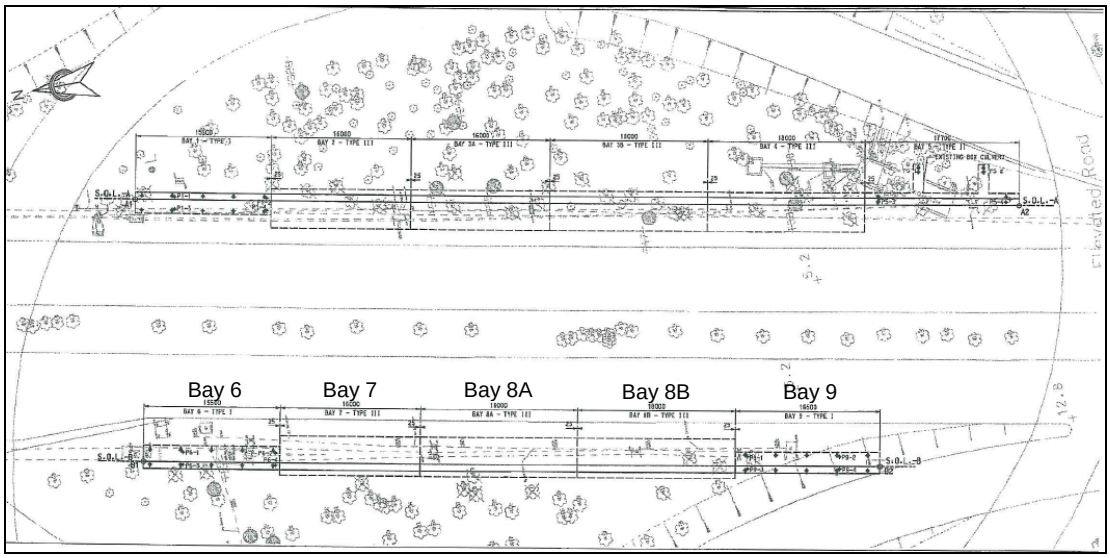
2.1 Work Done

The major construction activities carried out by the Contractor in the reporting month are summarised in **Table 2-1**. Locations of the construction activities are illustrated in **Figure 2-1**.

Table 2-1 Major Construction Activities in October 2008

Construction Activities	Location
Site Clearance	Whole Site Area
Provision of temporary footpath	Whole Site Area
Sheet-piling for noise barrier footing	Bay 6 to 9
Excavation for NB footing UU slewing	Bay 6 to 9
Re-compaction of fill slope	Bay 6 to 9
Construction of mini-pile	Bay 9
Construction of noise barriers footing	Bay 6 to 9

Figure 2-1 Locations of the Construction Activities



2.2 Project Area, Sensitive Receivers and Environmental Monitoring Locations

The project area is shown in **Figure 1-1**, while **Table 2-2** and **Figure 2-2** shows the names and location of the sensitive receivers and monitoring stations.

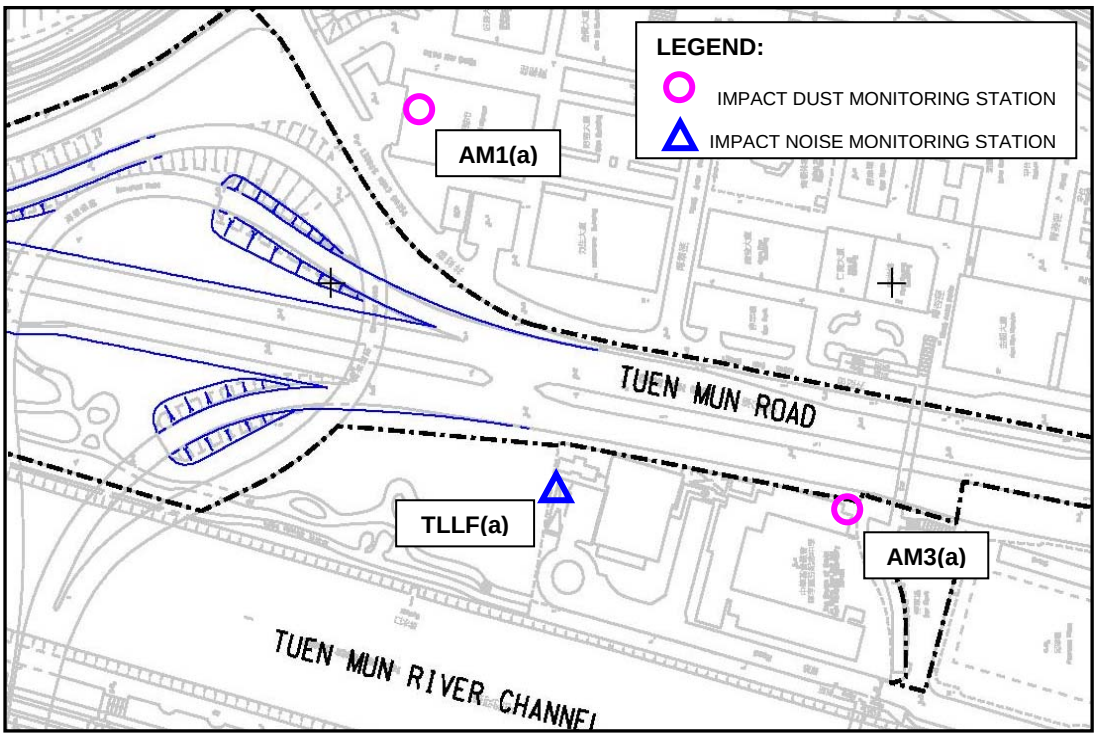
2.3 Impact Monitoring Schedule

Environmental monitoring and audit will be carried out in accordance with the requirements stipulated in the EM&A manual. Air, noise, landscape and visual monitoring as well as weekly site audit schedule for the reporting month with respect to the construction programme is shown in **Appendix B**.

Table 2-2 Summary of Impact Air Quality and Noise Monitoring Stations

ID	Premise	Address	Monitoring Location Detail
Air			
AM1(a)	Kwong Choi Market	2 Tsing Min Path	Roof-top of the market office at the market garden
AM3(a)	The Church of Christ in China Tam Lee Lai Fun Memorial Secondary School	10 San Wo Lane	Ground-floor garden at the corner of the school
Noise			
TLLF(a)	The Church of Christ in China Tam Lee Lai Fun Memorial Secondary School	10 San Wo Lane	Car park of the school, facing to the construction area.

Figure 2-2 Location of Environmental Sensitive Receivers and Monitoring Stations



3 EM&A Requirements

3.1 Monitoring Requirements

3.1.1 Air Quality

Monitoring Parameters

Air quality monitoring shall be measured in terms of the TSP levels for both 24-hour and 1-hour periods.

Monitoring Frequency

24-hour TSP and 1-hour TSP levels shall be monitored during the construction stage. The monitoring parameters and frequency are summarised in **Table 3-1**.

Table 3-1 TSP monitoring parameters and frequency

Parameters	Monitoring Frequency	Time Period	No. of Measurement at each Location
24-hour TSP	Once every six days	0000 – 2400	1
1-hour TSP	Three times every six days	0700 – 1900	1

Monitoring Locations

In accordance with the EM&A Manual and the subsequent Baseline Report, two air quality monitoring locations during construction stage are required, namely:

(i) Kwong Choi Market at 2 Tsing Min Path (AM1(a)); and

(ii) The Church of Christ in China Tam Lee Lai Fun Memorial Secondary School at 10 San Wo Lane (AM3(a)).

Wind Monitoring

Wind monitoring data including wind speed and wind directions shall be collected from Hong Kong Observatory – Tuen Mun Wind Monitoring Station.

3.1.2 Construction Noise

Monitoring Parameters

Construction noise shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). L_{10} and L_{90} shall also be recorded as supplementary reference information for data auditing.

Monitoring Frequency

Noise measurements shall be conducted on a weekly basis. The monitoring time periods, monitoring parameters and frequency are summarised in **Table 3-2**.

Table 3-2 Construction Noise Monitoring Parameters and Frequency

Time Period (when construction activity is found)	Parameters	Monitoring Frequency	No. of Measurement at each Location
Between 0700-1900 hours on normal weekdays	$L_{eq(30\ min)}$	Once per week	1
Between 1900-2300 hours on normal weekdays	$L_{eq(5\ min)}$*		3 (consecutive)
Between 2300-0700 hours of next day			
Between 0700-1900 hours on holidays			

* The $L_{eq(5\ min)}$ will only be measured if construction activities are conducted.

Monitoring Location

In accordance with the EM&A Manual and the subsequent Baseline Report, one noise monitoring location during construction stage is required, namely:

(i) The Church of Christ in China Tam Lee Lai Fun Memorial School at 10 San Wo Lane (TLLF(a)).

3.1.3 Landscape and Visual Impact

Monitoring Requirement

In accordance with the EM&A Manual, a landscape auditor, as a member of the ET, is responsible for conducting the baseline review and monitoring the implementation of the landscape and visual mitigation measures during construction phase in accordance with the EIA report. Purposes of the review are:

- to check the status of the landscape resources within, and immediately adjacent to, the construction sites and works areas;
- to determine whether any change has occurred to the status of the landscape resources since the EIA;
- to determine whether amendments in the design of the landscape and visual mitigation measures are required for those changes; and
- to recommend any necessary amendments to the design of the landscape and visual mitigation measures.

The design, implementation and maintenance of landscape and visual mitigation measures shall be checked monthly to ensure that they are fully required. Any potential conflicts between the proposed landscape measures and any other project works or operational requirements shall also be recorded for the Contractor to resolve in early stage, without compromising the intention of the mitigation measures.

Monitoring Parameters

The components of assessed parameter of landscape resource is summarised below:

- Landscape Resource along the roadside planting at Tsing Tin Interchange (LR1); and
- Landscape Resource at Castle Peak Road (San Hui) Park (LR2).

Audit Frequency

The landscape and visual monitoring and audit shall be undertaken once a month throughout the construction period and operational phase.

Audit Location

The landscape and visual monitoring and audit shall be conducted throughout the entire site area.

3.2 Environmental Quality Performance Limits

The monitoring results will be checked against the Action and Limit levels described in the Baseline Report, of which they are excerpted and summarised in **Tables 3-3** and **3-4**.

Table 3-3 Action and Limit Levels for Air Quality

Level	Air Monitoring Stations			
	AM1(a)		AM3(a)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
Action Level, $\mu g/m^3$	323	161	305	168
Limit Level, $\mu g/m^3$	500	260	500	260

Table 3-4 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level dB(A)
0700 - 1900 hours on normal weekdays	When one documented complaint is received	70 / 65 (Note 1)
0700 - 2300 hours on holiday; and 1900 – 2300 hours on all other days		70 (Note 2)
2300 – 0700 hours of next day		55 (Note 2)

Notes:

1. For normal day-time working hours, the noise criteria are 70 dB(A) and 65 dB(A) for normal reaching periods and examination period respectively.
2. If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

3.3 Event and Action Plans

The action required to be taken by different parties in case of occurrence of exceedance of A/L Levels are summarised in the Event and Action Plan in **Tables 3-5 to 3-7**.

Table 3-5 Event and Action Plan for Air Quality

Event	Action			
	ET	IEC	ER	Contractor
Action Level				
Exceedance for one sample	1. Identify source and investigate the causes of exceedance; 2. Inform Contactor, IEC and ER; 3. Repeat measurement to confirm finding.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Exceedance for two or more consecutive samples	1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC and ER; 3. Increase monitoring frequency to daily; 4. Discuss with IEC and Contractor on remedial. actions required; 5. Assess the effectiveness of Contractor's remedial actions; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures;	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues.	1. Discuss with ET and IEC on proper remedial actions; 2. Submit proposals for remedial actions to ER and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.

Event	Action			
	ET	IEC	ER	Contractor
Limit Level				
Exceedance for one sample	1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC, ER, and EPD; 3. Repeat measurement to confirm finding; 4. Assess effectiveness of Contractor's remedial actions and keep EPD, IEC and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues.	1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on proper remedial actions; 3. Submit proposals for remedial actions to ER and IEC within three working days of notification; 4. Implement the agreed proposals.
Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Carry out analysis of Contractor's working procedures to identify source and investigate the causes of exceedance; 4. Increase monitoring frequency to daily; 5. Arrange meeting with IEC, ER and Contractor to discuss the remedial actions to be taken; 6. Assess effectiveness of Contractor's remedial actions and keep EPD, IEC and ER informed of the results; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Discuss with ET, ER and IEC on proper remedial actions; 3. Submit proposals for remedial actions to IEC within three working days of notification; 4. Implement the agreed proposals; 5. Submit further remedial actions if problem still not under control; 6. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

Table 3-6 Event and Action Plan for Construction Noise

Event	Action			
	ET	IEC	ER	Contractor
Action Level being exceeded	1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures.	1. Submit noise mitigation proposals to ET and ER; 2. Implement noise mitigation proposals.
Limit Level being exceeded	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; Identify source and investigate the cause of exceedance; 4. Carry out analysis of Contractor's working procedures; 5. Discuss with the IEC, Contractor and ER on remedial measures required; 6. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 7. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to ET and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

Table 3-7 Event and Action plan for Landscape and Visual Impact

Action Level	ET	IEC	ER	Contractor
Non-conformity on one occasion	1. Identify source 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial action until rectification has been completed	1. Check report 2. Check the Contractor's working method 3. Discuss with the ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement
Repeated Non-conformity	1. Identify source 2. Inform the IEC and the ER 3. Increase monitoring (site audit) frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring (site audit)	1. Check report 2. Check the Contractor's working method 3. Discuss with the ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement

3.4 Environmental Mitigation Measures

The environmental mitigation measures carried out were basically followed the requirements described in the EIA report. Major mitigation measures during the construction phase in relation to the air quality, construction noise as well as landscape and visual are summarised as follows:

Air Quality (Dust) related

- Skip hoist for material transport should be totally enclosed by impervious sheeting;
- Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site;
- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;
- Where a site boundary adjoins a road, streets or other accessible to the public, hording of not less than 2.4m high from ground level should be provided along the entire length except for a site entrance or exit;
- Every stack of more than 20 bags of cement should be covered entirely by impervious sheeting places in an area sheltered on the top and the 3 sides;
- All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet;

- The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading;
- The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle; and
- Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.

Construction Noise related

- Use of quiet powered mechanical equipment
- Road paving - Adoption of quiet PMEs, movable noise barrier and scheduling of PMEs during normal teaching period, only one PME to be operated and the work area not less than 22m from NSR TLLF or cease operation of PMEs if work area less than 30m from NSR TLLF during examination period. The barrier material shall have a surface mass of not less than 14 kg/m² on skid footing with 25mm thick internal sound absorptive lining.
- Road marking - Adoption of quiet PMEs and movable noise barrier during normal teaching period and examination period. The work area should be located not less than 18m from NSR TLLF during examination period. The barrier material shall have a surface mass of not less than 14 kg/m2 on skid footing with 25mm thick internal sound absorptive lining.
- Construction of noise barrier - Adoption of quiet PMEs and movable noise barrier during examination period, piling operation for construction of noise barrier would also be ceased during examination period. The barrier material shall have a surface mass of not less than 14 kg/m² on skid footing with 25mm thick internal sound absorptive lining.
- Good Site Practice:
    - Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.
    - Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.
    - Mobile plant, if any, should be sited as far away from NSRs as possible.
    - Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.
    - Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.
    - Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.
    - Scheduling the noisy work to be conducted in non-school hours or long holiday such as summer vacation as possible.

Landscape and Visual related

- Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.
- Existing trees to be retained on site should be carefully protected during construction.
- Trees unavoidably affected by the works should be transplanted where practical.
- Compensatory tree planting should be provided to compensate for felled trees.

- Control of night-time lighting.
- Erection of decorative screen hoarding compatible with the surrounding setting.

3.5 Environmental Requirements in Contract Documents

Environmental requirements described in contract documents are mainly related to the compliance implementation in respect of the conditions stipulated in the Environmental Permit. Environmental requirements can be referred to Section 25 of Environmental Protection in the Particular Specification of the Project.

4 Implementation Status

4.1 Implementation Status of Mitigation Measures

During weekly site inspections, the following observations and recommendations were made.

Dust Mitigation Measures

- The Contractor was reminded to carry out water spray along the site to minimize dust emission.

Noise Mitigation Measures

- The Contractor was requested to provide at least 3 working days advanced notice to ET for any evening or night time work.

Water Quality Mitigation Measures

- The Contractor was requested to enhance the existing trench to avoid flooding.
- The Contractor was requested to replace the sedimentation tank with sufficient capacity and retention time.
- Sand bags shall be placed along the sheet piling area to avoid the surface runoff leaving the site without proper treatment.
- The Contractor was requested to provide calculation and effluent sampling results on sedimentation tanks in order to determine their treatment performance

Waste / Chemical Management

- The Contractor was requested to remove the wood plates which were currently placed in front of the chemical waste store in order to provide a clear access for the chemical waste transportation.
- The Contractor was requested to clear rubbish from a drip tray.
- Drip tray with sufficient capacity was recommended to provide for placing chemicals.
- The Contractor was requested to provide different types of waste bins for recyclable materials / wastes

4.2 Updated Implementation Schedule

According to the Environmental Permit, the mitigation measures detailed in the permits are required to be implemented. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in **Appendix C**.

5 Air Monitoring

5.1 Air Monitoring Methodology

5.1.1 Monitoring Equipment

High Volume Sampler (HVS) was used to monitor the 24-hour and 1-hour TSP. **Table 5-1** shows the equipment used for the air quality monitoring.

Table 5-1 Air Quality Equipment List for the Air Quality Monitoring

Equipment	Manufacturer & Model No	Measurement Parameter	Quantity
High Volume Sampler	GS-2310105 & TE-5170	1- hour and 24-hour TSP	2
Fibreglass Filter	G810		40
HVS Calibration Kit	GMW-2535		1

5.1.2 Maintenance and Calibration

The HVSs and their accessories were frequently checked and maintained in accordance with the manufacturer's operation and maintenance manual. The maintenance included checking of supporting screen and gasket, as well as routine replacement of motor carbon brushes for the blower motor. The power cords and power supply were checked each time before sampling to ensure proper operation.

The HVSs were calibrated at 2-month intervals using GMW-2535 calibration kit which is re-calibrated by the manufacturer after one year of use. The calibration spreadsheets of the HVS and calibration certificate of the calibration kit are provided in **Appendix D**.

5.1.3 Monitoring Procedures

Specifications of the HVS are as follows:

- 0.6 – 1.7 m^3/min (20 – 60SCFM);
- Equipped with a timing/control device with +/- 5 minutes accuracy for 24 hours operation;
- Installed with elapsed time meter with +/- 2 minutes accuracy for 24 hours operation;
- Capable of providing a minimum exposed area of 406 cm^2 (63in^2);
- Flow control accuracy: +/-2.5% deviation over 24-hr sampling period;
- Equipped with a shelter to protect the filter and sampler;
- Incorporated with an electronic mass flow rate controller or other equivalent devices;
- Equipped with a flow recorder for continuous monitoring;
- Provided with a peaked roof inlet;
- Incorporated with a manometer;
- Able to hold and seal the filter paper to the sampler housing at horizontal position;
- Easy to change the filter; and
- Capable of operating continuously for 24-hour period.

The HVSs were equipped with an electronic mass flow controller and calibrated against a traceable standard at regular intervals. All equipment, calibration kit and filter papers were clearly labelled.

The relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and other special phenomena observed and work progress of the concerned site were recorded.

A HOKLAS accredited laboratory (ALS Technichem (HK) Pty Ltd (HOKLAS no.: 066)), in accordance with their standard QA/QC procedures, with constant temperature and humidity control as well as equipped with necessary measuring and conditioning instruments to handle the 1-hour and 24-hour TSP samples was employed for sample analysis, and equipment calibration and maintenance. Filter papers of size 8"x10" were labelled before sampling. They were inspected clean with no pin holes and conditioned in a humidity controlled chamber for over 24-hr and be pre-weighed before use for the sampling.

After 1-hour and 24-hour sampling, the filter papers loaded with dust were kept in a clean and tightly sealed plastic bag, and then returned to the laboratory for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with readout down to 0.1 mg. All the collected samples were kept in a good condition for 6 months before disposal.

5.2 Monitoring Results and Observations

5.2.1 Weather Condition

No adverse weather conditions, in particular adverse wind speed & wind direction and fog & rain that may significantly affect or invalidate the collected monitoring data, were registered during the reporting period.

5.2.2 Air Quality Monitoring Results

Monitoring of 1-hour TSP was conducted at all monitoring stations on 6, 11, 17, 23 and 29 October 2008, while monitoring of 24-hour TSP was conducted on 8, 13, 18, 24 and 30 October 2008. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix E** and are summarised in **Table 5-2**. Wind data during the reporting period is presented in **Appendix F**.

Table 5-2: Summary of Impact Air Quality Monitoring Results for October 2008

Location	Average 1-hr TSP Concentration, μg/m^3 (Range)	Average 24-hr TSP Concentration, μg/m^3 (Range)
AM1(a)	85 (4.2 – 215.2)	87.4 (45.4 – 134.5)
AM3(a)	53.6 (2.2 – 135.3)	63.5 (43.7 – 84.4)

All 1-hour and 24-hours measurements during the reporting month were below the Action/Limit Level. No exceedance of action and limit level was found.

5.2.3 General Observations

Major construction works including sheetpile installation for noise barrier footing, excavation for NB footing UU slewing, fill slope re-compaction, mini-pile construction and noise barriers footing construction were implemented during the reporting month.

Observable dust generation from activities on-site, such as vehicular movements along unpaved area, excavation and demolition, had been noticed at the monitoring location during the air monitoring period.

6 Noise Monitoring

6.1 Noise Monitoring Methodology

6.1.1 Monitoring Equipments

Noise level was measured by a Sound Level Meter (SLM) in terms of A-weighted equivalent continuous sound pressure level. L_{eq}, L_{10} and L_{90} were recorded as supplementary information for data auditing. **Table 6-1** shows the equipment list of the noise monitoring.

Table 6-1 Noise equipment list for noise monitoring

Equipment	Manufacturer & Model No.	Precision Grade	Qty.
Integrated SLM	Brüel & Kjær 2238	IEC 651 Type 1 IEC 804 Type 1	1
½" free-field microphone	Brüel & Kjær 4188		1
Windshield	Brüel & Kjær UA0237		1
Acoustical calibrator	Brüel & Kjær 4231	IEC 942 Type 1	1

6.1.2 Maintenance and Calibration

The SLM and calibrator in compliance with the International Electrotechnical Commission (IEC) Publication 651:1979 (Type 1) specifications as referenced in the Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM) was used. The calibration certificates for the noise equipment are provided in **Appendix G**.

SLM complying with the standards of IEC 651 (Fast, Slow, Impulse rms detector tests) and IEC 804 (L_{eq} functions) and acoustical calibrator model no. 4231 complying with IEC 942 were adopted for the noise measurement. Both equipment are calibrated bi-annually in-house using Brüel & Kjær (B&K) calibrator model no 4226. The calibrator is annually calibrated by its manufacturer under the accreditation of United Kingdom Accreditation Service. All in-house calibrations that have been undertaken can be traced back to the National Physical Laboratory. The calibration certificates for the noise equipment are given in **Appendix G**.

6.1.3 Monitoring Procedures

- The SLM and battery were checked to ensure that they are in proper condition. The SLM was set on a tripod at 1.2m above ground and at least 1m from the exterior of the building façade;
- Before conducting the measurement, the SLM was calibrated by an acoustical calibrator;
- Measurement parameter was set to A-weighted sound pressure level. The time weighting was set in fast response and the time period of measurement at 30 minutes;
- Wind speed was checked during noise monitoring to ensure the steady wind speed does not exceed 5m/s, or wind with gusts does not exceed 10m/s;
- Any abnormal conditions that generated intrusive noise during the measurement was recorded on the field record sheet;
- After each measurement, the equivalent continuous sound pressure level (L_{eq}), L_{10} and L_{90} were recorded on the field record sheet;
- After conducting the measurement, the SLM was calibrated by an acoustical calibrator; and
- The SLM was re-calibrated by the acoustical calibrator to confirm that there is no significant drift of reading. Measurements shall be accepted as valid only if the calibration levels before and after the noise measurement agrees to within 1.0 dB.

6.2 Monitoring Results and Observations

6.2.1 Weather Condition

The weather condition was from sunny during the noise monitoring period in the reporting month.

6.2.2 Noise Monitoring Results

Monitoring of the construction noise level was conducted during non-restricted hours on 3, 6, 17, 23 and 29 October 2008 at TLLF(a). No construction work was carried out during restricted hours. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix H** and are summarised in **Table 6-2**.

Table 6-2 Summary of Impact Noise Monitoring in the Reporting Month

Date	Set	Start Time	End Time	Baseline* (Same period of the Day-time)	Impact Monitoring Result*	Impact Noise* after baseline correction	Limit Level
				Leq (30-min), dB(A)	Leq (30-min), dB(A)	Leq (30-min), dB(A)	dB(A)
3-Oct-08	First	16:00	16:30	74	73	/	70
3-Oct-08	Repeated	17:00	17:30	75	74	/	
6-Oct-08	First	13:15	13:45	74	74	/	
6-Oct-08	Repeated	14:00	14:30	74	73	/	
17-Oct-08	First	15:30	16:00	74	75	68	
17-Oct-08	Repeated	16:15	16:45	74	75	70	
23-Oct-08	First	11:45	12:15	74	73	/	
23-Oct-08	Repeated	13:15	13:45	74	74	/	
29-Oct-08	First	10:00	10:30	/	67	/	

Note(*): Façade correction was included.

6.2.3 Exceedance of Limit Levels for Construction Noise

Four limit level exceedances for noise measurement during non-restricted hours were recorded on 3, 6 17 and 23 October 2008. Based on field observation, it was concluded that the exceedances were mainly caused by traffic vehicles along Tuen Mun Road. No further actions were applicable.

On-site observations during the noise monitoring revealed that the noise source was mainly the traffic noise along Tuen Mun Road although it was also observed that the Contractor was undertaking preliminary works such as soil removal by excavator.

Based on the on-site observations and interpretation from the results, construction noise was considered insignificant and below the noise limits level. It was therefore concluded that the noise exceedance was not related to the construction activities.

No particular remedial work was required. It was however recommended that the Contractor shall maintain the existing practices stipulated in the EIA report in order to minimise the potential noise impact in future.

6.2.4 General Observations

The construction site had been under normal operation during the noise monitoring period and no unusual operation was observed. Traffic noise had been noticed at the monitoring location during the noise monitoring period.

7 Landscape and Visual Monitoring

7.1 Audit Results

In the reporting month, landscape and visual site audit in accordance with the requirements stipulated in the EM&A manual was conducted on 13 October 2008.

In accordance with the Clause 2.7 of the EP, seven numbers of trees (tree no. 1, 16, 35, 63, 69, 169 and 411) within the site shall be transplanted to their designed transplanted locations prior to the operational phase of the Project. Four (tree no. 1, 16, 35 and 169) out of the seven trees were however fell prior to the commencement of the construction due to typhoon. One tree (tree no. 63) was transplanted to Siu Lang Shui Road as agreed by LCSD and ER. All these seven trees will be compensated at their designated transplanting locations before the operational phase. One tree (tree no. 411) was transplanted to its interim location within the site and one tree (tree no. 69) was tagged and protected by a fence with radius of 7m. Status of the trees including their respective mitigation measures are summarised in **Table 7-1**. **Photos 7-1** and **7-2** show the status of the trees numbered 69 and 411 respectively. Their updated locations of are illustrated in **Figure 7-1**.

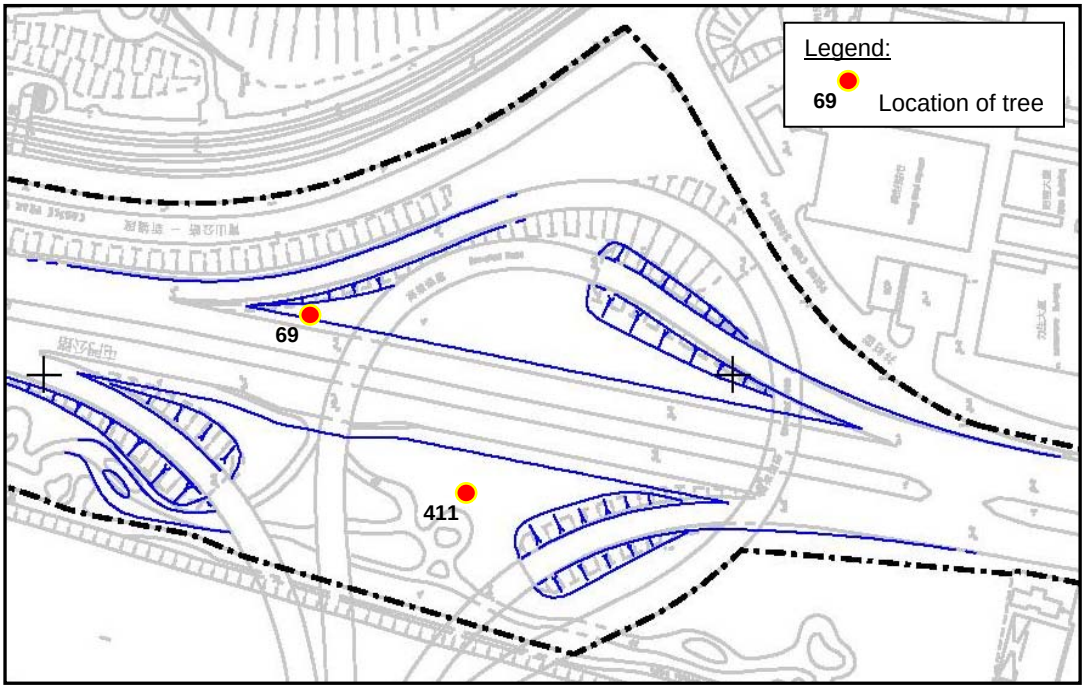
Table 7-1 Status of Tree Transplantation

Tree no.	Location	Botanical Name		Status	Measures
1	LR1	*Melaleuca quinquenervia*	白千層	Fell by Typhoon	To be compensated by a tree at designated location
16	LR1	*Melaleuca quinquenervia*	白千層	Fell by Typhoon	To be compensated by a tree at designated location
35	LR1	*Melaleuca quinquenervia*	白千層	Fell by Typhoon	To be compensated by a tree at designated location
63	LR1	*Gossampinus malabarica*	木棉	Transplanted to Siu Lang Shui Road as agreed by LCSD	To be compensated by a tree at designated location
69	LR1	*Melia azedarach*	森樹	Tagged and a fence with radius of 7m was erected to protect the tree	Not applicable
169	LR2	*Melaleuca quinquenervia*	白千層	Fell by Typhoon	To be compensated by a tree at designated location
411	LR2	*Melaleuca quinquenervia*	白千層	Completion of interim transplant within the site	To be transplanted at designated location

Photo 7-1 Tree Number 69 in LR1

Photo 7-2 Tree Number 411 in LR2

Figure 7-1 Location of Tree number 69 and 411



In accordance with Tree Assessment Schedule in Appendix 10.1 of the EIA Report, forty-seven trees of LR1 and LR2 would be affected as a result of the construction works. Seven of them, as described above, were proposed to be transplanted to their designated locations before operational phase, while the remaining forty trees were proposed to be felled during the construction phase.

In the reporting month, these forty trees have been removed. Twenty-eight of them were already felled. In order to minimize the quantities of felled trees, the remaining twelve trees were transplanted to Siu Lang Shui Road as agreed by LCSD and ER. This is considered as an improved mitigation measure compared with the original recommendation of tree felling in the EIA report.

Compensatory planting of forty-seven number of trees prior the operational phase, as required in the Clause 2.8 of the EP, will be carried out after the consultation by LCSD. Observations during the monthly inspection summarized in **Table 7-2**. Locations of these forty trees are illustrated in **Appendix I**.

In addition, twenty numbers of trees, which shall be retained in the site according to the Tree Assessment Schedule in Appendix 10.1 of the EIA Report, were seriously damaged due to the typhoons prior to the commencement of the construction. They have been removed off site. Twenty numbers of trees will be planted as compensatory in the end of 2009 prior to the consultation and agreement by LCSD.

Table 7-2 Status of Forty Trees to be affected during the Construction Stage

ID No.	Tree affected			Current Status
	No.	*Botanical Name*		
LR1	9	*Acacia confusa*	台灣相思	Transplanted to Siu Lang Shui Road
	10	*Acacia confusa*	台灣相思	Transplanted to Siu Lang Shui Road
	15	*Acacia confusa*	台灣相思	Transplanted to Siu Lang Shui Road
	17	*Acacia confusa*	台灣相思	Felled
	31	*Acacia confusa*	台灣相思	Felled

ID No.	Tree affected			Current Status
	No.	*Botanical Name*		
	32	*Acacia confusa*	台灣相思	Felled
	33	*Hibiscus tiliaceus*	黃槿	Felled
	34	*Hibiscus tiliaceus*	黃槿	Felled
	45	*Acacia confusa*	台灣相思	Felled
	46	*Thevetia peruviana*	黃花夾竹桃	Felled by Typhoon
	47	*Acacia confusa*	台灣相思	Felled
	48	*Hibiscus tiliaceus*	黃槿	Transplanted to Siu Lang Shui Road
	49	*Acacia confusa*	台灣相思	Felled
	50	*Hibiscus tiliaceus*	黃槿	Transplanted to Siu Lang Shui Road
	51	*Hibiscus tiliaceus*	黃槿	Transplanted to Siu Lang Shui Road
	52	*Hibiscus tiliaceus*	黃槿	Felled
	53	*Acacia confusa*	台灣相思	Transplanted to Siu Lang Shui Road
	54	*Hibiscus tiliaceus*	黃槿	Transplanted to Siu Lang Shui Road
	55	*Hibiscus tiliaceus*	黃槿	Felled
	56	*Hibiscus tiliaceus*	黃槿	Transplanted to Siu Lang Shui Road
	57	*Hibiscus tiliaceus*	黃槿	Transplanted to Siu Lang Shui Road
	58	*Acacia confusa*	台灣相思	Felled
	59	*Hibiscus tiliaceus*	黃槿	Transplanted to Siu Lang Shui Road
	60	*Acacia confusa*	台灣相思	Felled
	61	*Melaleuca quinquenervia*	白千層	Transplanted to Siu Lang Shui Road
	62	*Acacia confusa*	台灣相思	Felled
	64	*Hibiscus tiliaceus*	黃槿	Felled
	65	*Melia azedarach*	森樹	Felled
	293	*Hibiscus tiliaceus*	黃槿	Felled
LR2	155	*Acacia confusa*	台灣相思	Felled
	156	*Acacia confusa*	台灣相思	Felled
	163	*Melaleuca quinquenervia*	白千層	Felled
	165	*Acacia confusa*	台灣相思	Felled
	167	*Acacia confusa*	台灣相思	Felled
	168	*Acacia confusa*	台灣相思	Felled
	170	*Hibiscus tiliaceus*	黃槿	Felled
	171	*Hibiscus tiliaceus*	黃槿	Felled
	172	*Acacia confusa*	台灣相思	Felled
	173	*Acacia confusa*	台灣相思	Felled

ID No.	Tree affected			Current Status
	No.	*Botanical Name*		
	174	*Acacia confusa*	台灣相思	Felled

7.2 Implementation Status of Consultation Phase Landscape and Visual Mitigation Measures

The design, implementation and maintenance of landscape and mitigation measures, listed in Table 8.2 of the EM&A manual, were checked during the monthly site audit. No non-compliance has been triggered. Summary of the implementation status of Construction Phase Landscape and Visual Mitigation Measures are presented in the Environmental Mitigation Implementation Schedule (EMIS) in **Appendix C**.

7.3 Recommendations, Corrective Actions and Outstanding Issues

The recommendations, corrective actions or outstanding issues in relation with the landscape and visual monitoring are as follows:

- Tree Survey and Felling Plans and Tree Schedule should be revised in accordance with actual conditions on site, such as tree location and missing trees, for future monitoring;
- The Contractor was reminded to properly store, segregate and dispose of the felled trees;
- The Contractor was reminded to monitor the health condition of existing trees. Tree surgery works should be carried out to trees damaged;
- The Contractor was reminded to water and fertilise the trees regularly and submit the records of the works to RE;
- When retained trees were prone to be disturbed by nearby construction works, protective fencing should be erected around the trees before commencement of works;
- Where construction of protective fencing was impractical, the trunks of retained trees should be protected from abrasion by wrapping with hessian sacking, and strapping with pallet timbers secured with wire;
- Lost/damaged tag should be re-tagged; and
- Any debris and wood produced as a result of pruning, felling and cavity work performed on trees should be collected and removed from site properly.

8 Waste Disposal

The estimated amounts of different types of waste generated by the activities of the Project in the month are shown in **Table 8-1**. It was advised from the Contractor that determination of the actual amount of wastes generation is still in progress so the relevant information will be presented on the next EM&A report.

Table 8-1 Estimated Amounts of Waste Generated in Reporting Month

Waste Type	Estimated Amount (m^3)	Actual Amount (m^3)	Disposal Locations
Inert C&D Waste	0.415	To be presented in next month report	Disposal as public fill in WENT
Chemical Waste	0		N/A
General Refuse	0		N/A

9 Environmental Licensing and Permitting

All permits/licences inspected in the reporting month are summarised in **Table 9-1**. They are all properly kept by the contactor at their site office.

Table 9-1 Summary of Environmental Licensing and Permit Status

Types of Permits / Licenses	Reference No.	Valid from	Valid to
Environmental Permit	EP-302/2008 EP-302/2008/A	19 February 2008 25 March 2008	N/A N/A
Notification of Construction Work under APCO	001031161	N/A	N/A
Discharge Licence under WPCO	EP760/425/013454/I	1 August 2008	31 August 2013
Construction Noise Permit	GW-RW0386-08	15 August 2008	31 December 2008
Chemical Waste Producer Registration	WPN5111-425-C1186-09	17 July 2008	N/A

9.1 Environmental Site Inspection

Environmental site inspections were carried out on a weekly basis to monitor environmental issues on the construction sites to ensure that all mitigation measures were implemented timely and properly. A summary of the site inspections in the reporting month is presented in **Table 9-2**.

Table 9-2 Key Findings of Weekly Environmental Site Audit in the Reporting Month

Inspection Date	Key Observations and Recommendations	CT's Response / Environmental Outcome	Closed Date / Follow up Status
	Dust Mitigation Measures		
8 Oct 2008	The Contractor was reminded to carry out water spray along the site to minimize dust emission	Agreed with the ET's advice.	16 Oct 2008
	Noise Mitigation Measures		
8 Oct 2008	The Contractor was requested to provide at least 3 working days advanced notice to ET for any evening or night time work	Agreed with the ET's advice.	23 Oct 2008
	Water Quality Mitigation Measures		
8 Oct 2008	The Contractor was requested to enhance the existing trench to avoid flooding	Agreed with the ET's advice.	16 Oct 2008
8 and 16 Oct 2008	The Contractor was requested to replace the sedimentation tank with sufficient capacity and retention time	Agreed with the ET's advice.	16 Oct 2008
16 Oct 2008	Sand bags shall be placed along the sheet piling area to avoid the surface runoff leaving the site without proper treatment	Agreed with the ET's advice.	16 Oct 2008
16 Oct	The Contractor was requested to provide calculation and effluent sampling results on sedimentation tanks in order to determine their treatment performance	Agreed with the ET's advice and to be provided in a timely basis	N/A

Inspection Date	Key Observations and Recommendations	CT's Response / Environmental Outcome	Closed Date / Follow up Status
	Waste / Chemical Management		
8 Oct 2008	The Contractor was requested to remove the wood plates which were currently placed in front of the chemical waste store in order to provide a clear access for the chemical waste transportation	Agreed with the ET's advice.	23 Oct 2008
8 Oct 2008	The Contractor was requested to clear rubbish from a drip tray	Agreed with the ET's advice.	23 Oct 2008
8 Oct 2008	The Contractor was requested to provide different types of waste bins for recyclable materials / wastes	Agreed with the ET's advice.	23 Oct 2008
16 Oct 2008	Drip tray with sufficient capacity was recommended to provide for placing chemicals	Agreed with the ET's advice.	23 Oct 2008

9.2 Complaint Record

There was no environmental complaint received in the reporting month.

9.3 Notification of Summons and Successful Prosecution

No summons or prosecutions related to environmental issues were received or made against the Project in the reporting month.

9.4 Review of Reasons of Non-Compliance

There was no non-compliance identified during the reporting month so review of the non-compliance was not required.

10 Future Key Issues

10.1 Key Issues for the Coming Month

Key issues to be considered in the coming month include:

- Dust generation from activities on-site, such as vehicular movements along unpaved area, excavation and demolition;
- Noise impact from operating equipment and machinery on-site
- Uncontrolled water discharge into nearby water body
- Storage and using of chemicals/fuel and chemical waste/waste oil on site
- Disposal of construction waste
- Tree maintenance

10.2 Environmental Monitoring Program for the Coming Month

Environmental monitoring and audit will be carried out in accordance with the requirements stipulated in the EM&A manual. Tentative air, noise, landscape and visual monitoring as well as weekly site audit schedule for the coming month with respect to the construction programme is shown in **Appendix J**.

The construction programme for the coming three months is shown in **Table 10-1**.

Table 10-1 Tentative programme of construction works

Month	Details of Construction Works	
November 2008	▪ Site clearance ▪ Provision of temporary footpath ▪ Install sheetpile for noise barrier footing	▪ Excavation for NB footing UU slewing ▪ Fill slope re-compaction ▪ Mini-pile construction ▪ Noise barriers footing construction

11 Conclusions and Recommendations

11.1 Conclusions

The construction phase of the Project was commenced on 2 October 2008. The EM&A programme has been implemented since then, including air quality, noise, landscape and visual and environmental site audits.

Exceedances of noise monitoring were detected from the monitoring data, which triggered the Event and Action Plan for remedial action. Based on the on-site observations and interpretation from the results, noise exceedance was not related to the construction activities. No particular remedial work is required.

No complaint, summons or prosecution related to environmental issues was received during the reporting month.

Weekly environmental site audit was carried out during the reporting month. The major environmental concerns were related to air quality, water quality, waste management and handling of chemical waste.

11.2 Recommendations

Impact monitoring will be continued to carry out in the following month and followed by the requirement stipulated in the EM&A manual. Attention will be paid to environmental issues identified in EIA report and weekly site audit. Mitigation measures recommended in EIA report and Mitigation Measure Implementation Schedule will be fully implemented.

Construction dust will continue to become a key environmental issue on dry and windy days. The implemented construction dust mitigation measures should also be maintained and improved as necessary.

Based on the noise monitoring results in the reporting month and due to the potential continued non-compliance, study will be carried out to determine whether the proposed Action and Limit levels in the Baseline Report should be revised in order to suit the existing environment. Discussion with the IEC, contractor and Project Proponent (i.e. Highways Department) will be conducted in due course, and a proposal (where necessary) will be submitted for EPD approval accordingly.

12 Reference

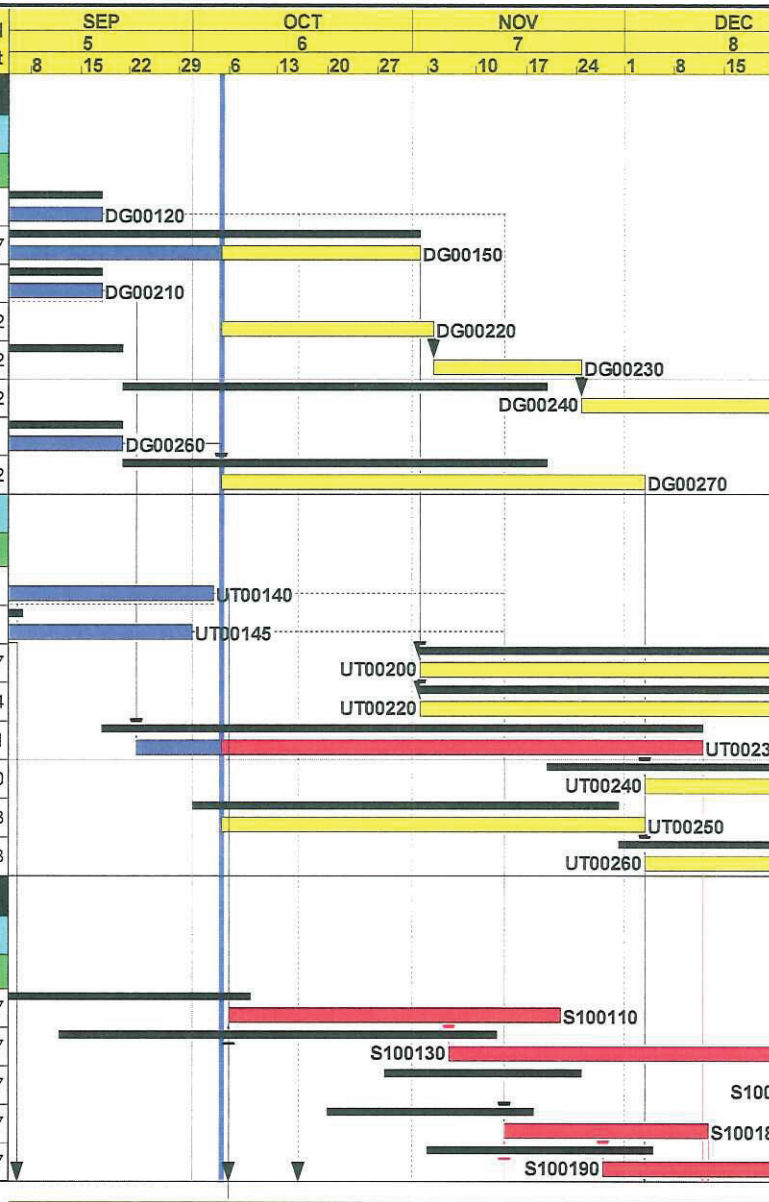
[1] Maunsell Consultants Asia Ltd. December 2007. Quotation Ref No. Hy(S)Q/026/2006 Widening of Tuen Mun Road at Tsing Tin Interchange – Environmental Monitoring & Audit Manual.

[2] Ove Arup & Partners Hong Kong Limited. September 2008. Contract No. HY/2007/14 Widening of Tsing Tin Interchange – Baseline Monitoring Report (Revision_6)

Appendix A

Construction Programme

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	ST01 Early Start	ST01 Early Finish	Total Float
General							
Permanent Works Design							
DG00120	Submit for the Engineer approval	60	20/07/08A	17/09/08A	20/07/08	17/09/08	
DG00150	Submit for the Engineer approval	60	03/09/08A	01/11/08	03/09/08	01/11/08	37
DG00210	Submit for the Engineer approval	60	20/07/08A	17/09/08A	20/07/08	17/09/08	
DG00220	Perpare irrigation system design	30	05/10/08	03/11/08	01/08/08*	30/08/08	122
DG00230	ICE check for irrigation system design	21	04/11/08	24/11/08	31/08/08	20/09/08	122
DG00240	Submit for the Engineer approval	60	25/11/08	23/01/09	21/09/08	19/11/08	122
DG00260	ICE check for gantry sign and foundation design	21	31/08/08A	20/09/08A	31/08/08	20/09/08	
DG00270	Submit for the Engineer approval	60	05/10/08	03/12/08	21/09/08	19/11/08	72
TTA & General Submission							
UT00140	Tree felling and transplant	21	20/08/08A	03/10/08A	17/07/08	09/08/08	
UT00145	Trial pit and site investigation	45	17/07/08A	30/09/08A	17/07/08	06/09/08	
UT00200	Fabrication noise barrier main frame	210	02/11/08	30/05/09	02/11/08	30/05/09	37
UT00220	NB panel order and delivery	240	02/11/08	29/06/09	02/11/08	29/06/09	84
UT00230	High mast lighting order and delivery	85	23/09/08A	11/12/08	18/09/08	11/12/08	1
UT00240	Sign gantry order and delivery	120	04/12/08	02/04/09	20/11/08	19/03/09	90
UT00250	Submit WWO 542	60	05/10/08*	03/12/08	01/10/08*	29/11/08	83
UT00260	Submit WWO 46	90	04/12/08	03/03/09	30/11/08	27/02/09	83
Section 1							
Tuen Mun Road Southbound							
Noise Barrier Foundation							
S100110	Install sheetpile for noise barrier footing (SB)	40	06/10/08	21/11/08	20/08/08	08/10/08	-37
S100130	Excavation and wailing for SB footing&UU slewing	50	06/11/08	06/01/09	12/09/08	12/11/08	-37
S100140	Temporary diversion and construct 900mm dia pipe	24	27/12/08	24/01/09	28/10/08	24/11/08	-37
S100180	Install mini pile for SB (20nos.)	25	14/11/08	12/12/08	20/10/08	17/11/08	-37
S100190	Pile testing	28	28/11/08	02/01/09	03/11/08	04/12/08	-37



Start Date 30/05/08
Finish Date 05/11/10
Data Date 05/10/08
Run Date 30/09/08 16:57

?Primavera Systems, Inc.

ST01 Planned Bar
Rolling Bar
Progress Bar
Critical Activity

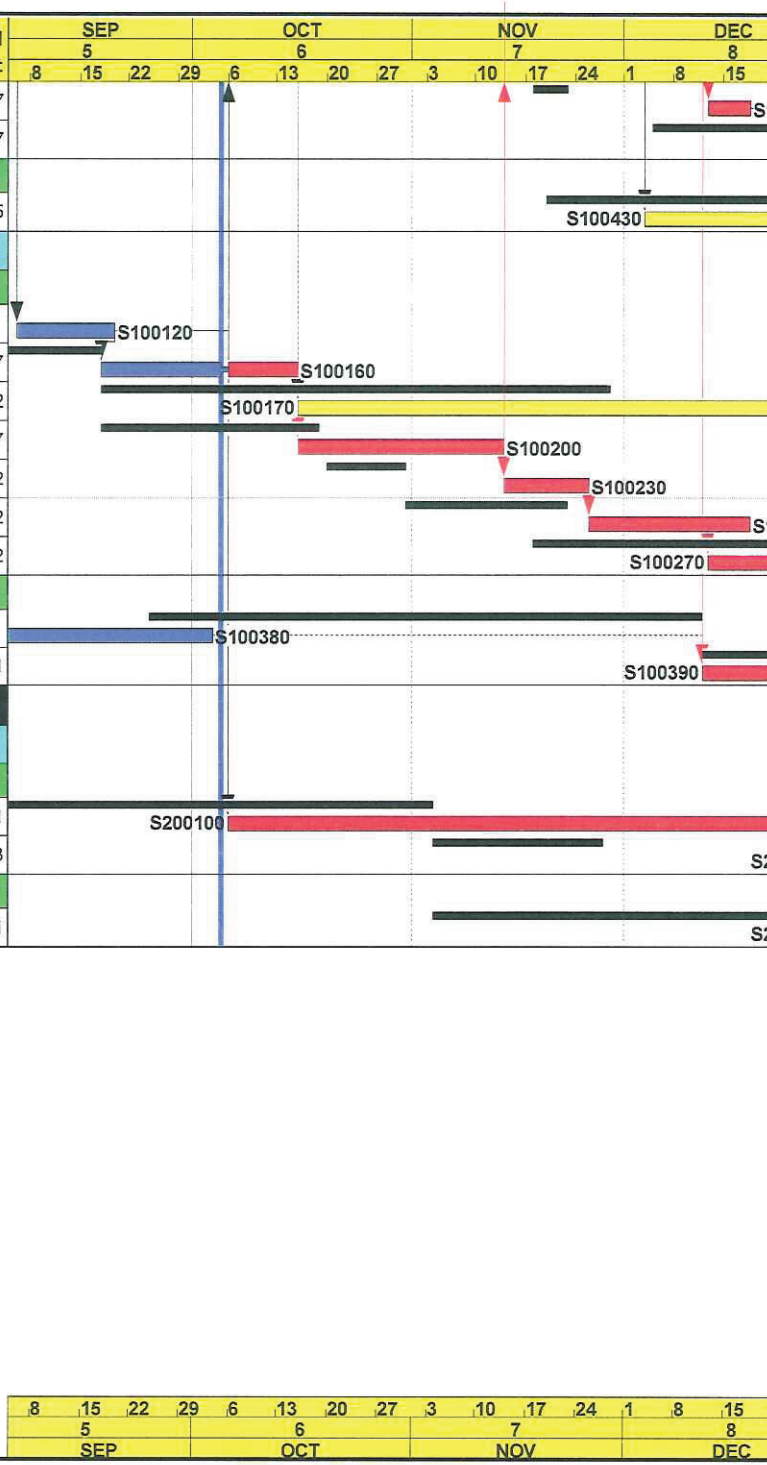
ST02

Sheet 1 of 2

China Harbour Engineering Co. Ltd
Contract No. HY/2007/14
Widening of Tuen Mun Road at Tsing Tin Interchange
3 Months Rolling Programme (Cutt off: 05-10-08)

Date	Revision	Checked	Ap
30/09/08	3 Month Rolling	Tim	

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	ST01 Early Start	ST01 Early Finish	Total Float
S100220	Install sheet pile for SB pile cap & UU slewing	5	13/12/08	18/12/08	18/11/08	22/11/08	-27
S100240	Excavation for SB pile cap	15	03/01/09	20/01/09	05/12/08	22/12/08	-37
Gantry Sign							
S100430	Construct eastern side gantry footing (SG1)	30	04/12/08	10/01/09	20/11/08	24/12/08	105
Tuen Mun Road Northbound							
Noise Barrier Foundation							
S100120	Install sheetpile for noise barrier footing (NB)	15	06/09/08A	19/09/08A	02/08/08	19/08/08	
S100160	Excavation for NB footing & UU slewing	24	18/09/08A	15/10/08	20/08/08	17/09/08	-37
S100170	Construct NB noise barrier footing	60	16/10/08	24/12/08	18/09/08	28/11/08	22
S100200	Install mini pile for NB (20nos.)	25	16/10/08	13/11/08	18/09/08	18/10/08	-37
S100230	Install sheet pile for NB pile cap & UU slewing	10	14/11/08	25/11/08	20/10/08	30/10/08	-22
S100250	Excavation for NB pile cap	20	26/11/08	18/12/08	31/10/08	22/11/08	-22
S100270	Construct SB pile cap	30	13/12/08	20/01/09	18/11/08	22/12/08	-22
High Mast Lighting & CCTV							
S100380	Construct high mast lighting footing	65	29/08/08A	03/10/08A	25/09/08	11/12/08	
S100390	Erect high mast lighting	21	12/12/08	08/01/09	12/12/08	08/01/09	1
Section 2							
Tuen Mun Road Southbound							
Slip Road D							
S200100	Fill slope recompaction (pit by pit)	70	06/10/08	29/12/08	11/08/08	03/11/08	-21
S200110	Road re-alignment stage 1	21	30/12/08	23/01/09	04/11/08	27/11/08	3
Slip Road C							
S200130	Fill slope recompaction (pit by pit)	70	30/12/08	26/03/09	04/11/08	30/01/09	-21



Appendix B

Environmental Monitoring Programme in the Reporting Month

Contract No. HY/2007/14 Widening of Tuen Mun Road at Tsing Tin Interchange
Impact Monitoring Schedule (October 2008) Revision 5

Date		Air Quality		Noise	Landscape & Visual	Weekly Site Inspection
		1-hour TSP	24-hours TSP	L_{Aeq}, 30 min		
2-Oct-08	Thu					
3-Oct-08	Fri			TLLF(a)		
4-Oct-08	Sat					
5-Oct-08	Sun					
6-Oct-08	Mon	AM1(a) & AM3(a)		TLLF(a)		
7-Oct-08	Tue					
8-Oct-08	Wed		AM1(a) & AM3(a)			
9-Oct-08	Thu					
10-Oct-08	Fri					
11-Oct-08	Sat	AM1(a) & AM3(a)				
12-Oct-08	Sun					
13-Oct-08	Mon		AM1(a) & AM3(a)		Monthly	
14-Oct-08	Tue					
15-Oct-08	Wed					
16-Oct-08	Thu					
17-Oct-08	Fri	AM1(a) & AM3(a)		TLLF(a)		
18-Oct-08	Sat		AM1(a) & AM3(a)			
19-Oct-08	Sun					
20-Oct-08	Mon					
21-Oct-08	Tue					
22-Oct-08	Wed					
23-Oct-08	Thu	AM1(a) & AM3(a)		TLLF(a)		
24-Oct-08	Fri		AM1(a) & AM3(a)			
25-Oct-08	Sat					
26-Oct-08	Sun					
27-Oct-08	Mon					
28-Oct-08	Tue					
29-Oct-08	Wed	AM1(a) & AM3(a)		TLLF(a)		
30-Oct-08	Thu		AM1(a) & AM3(a)			
31-Oct-08	Fri					

	Public Holiday
	Monitoring Day

Appendix C

Updated Summary of Environmental Mitigation Implementation Schedule

Summary of Environmental Mitigation Implementation Schedule

EIA Ref #	Mitigation Measures	Location / Timing	Status *
Air Quality Control			
S3.8.1	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. • skip hoist for material transport should be totally enclosed by impervious sheeting • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores • where a site boundary adjoins a road, streets or other accessible to the public, hording of not less than 2.4m high from ground level should be provided along the entire length except for a site entrance or exit • every stack of more than 20 bags of cement should be covered entirely by impervious sheeting places in an area sheltered on the top and the 3 sides • all dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet • the height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading • the load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle • instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise	Work site / during construction	 ✓ ✓ ✓ ✓ ✓ N/A N/A N/A
Noise Control			
S4.8.1	Use of quiet powered mechanical equipment	Work Sites / During Construction	N/A
S4.8.5 – S4.8.6	Road paving - Adoption of quiet PMEs, movable noise barrier and scheduling of PMEs during normal teaching period, only one PME to be operated and the work area not less than 22m from NSR TLLF or cease operation of PMEs if work area less than 30m from NSR TLLF during examination period. The barrier material shall have a surface mass of	Work Site for road paving, road marking and construction of noise barrier in the vicinity of	✓

Notes (*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	Mitigation Measures	Location / Timing	Status *
	not less than 14 kg/m^2 on skid footing with 25mm thick internal sound absorptive lining.	NSR TLFF (The Church of Christ in China Tam Lee Lai Fun Memorial Secondary School) / During Construction	
S4.8.5 & S4.8.7	Road marking - Adoption of quiet PMEs and movable noise barrier during normal teaching period and examination period. The work area should be located not less than 18m from NSR TLLF during examination period. The barrier material shall have a surface mass of not less than 14 kg/m^2 on skid footing with 25mm thick internal sound absorptive lining.	Work Site for road marking in the vicinity of NSR TLFF / During Construction	N/A
S4.8.5 & S4.8.8	Construction of noise barrier - Adoption of quiet PMEs and movable noise barrier during examination period, piling operation for construction of noise barrier would also be ceased during examination period. The barrier material shall have a surface mass of not less than 14 kg/m^2 on skid footing with 25mm thick internal sound absorptive lining.	Work Site for construction of noise barrier in the vicinity of NSR TLFF / During Construction	N/A
S4.9.2	*Good Site Practice:* • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. • Mobile plant, if any, should be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. • Scheduling the noisy work to be conducted in non-school hours or long holiday such as summer vacation as possible.	Work Sites / During Construction	✓ ✓ ✓ ✓ N/O N/A N/A
Water Quality Control			

Notes (*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	Mitigation Measures	Location / Timing	Status *
S5.7.2	*Measures for Tuen Mun River Channel*	Work site / During the construction period	
	• Site runoff would be directed towards regularly cleaned and maintained sand traps, silt traps and where appropriate.		✓
	• Oil/grease separators to minimise risk of sedimentation and pollution to the River Channel.		N/A
	• Debris and rubbish generated on-site would be collected, handled and disposed of properly.		✓
	• The stockpile or temporary storage area and chemical waste storage area shall be located at least 30m away from Tuen Mun River Channel.		✓
S5.7.3	*Construction Runoff and Drainage*	Work site / During the construction period	
	The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" shall be implemented including:		
	• Sand/silt removal facilities such as sand traps, silt traps or sediment basins shall be provided to remove sand/silt particles from runoff to meet the requirements of the Technical Memorandum standard under the Water Pollution Control Ordinance. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms.		✓
	• Water pumped out from foundation excavations should be discharged into silt removal facilities.		✓
	• Careful programming of the works to minimise surface excavations during the rainy season. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by a tarpaulin or other means. Other measures that need to be implemented before, during, and after rainstorms are summarized in ProPECC PN 1/94.		N/A
	• Exposed soil surface shall be protected by paving as soon as possible to reduce the potential of soil erosion.		N/A
	• Open stockpiles of construction materials on site shall be covered with tarpaulin or similar fabric during rainstorms.		✓

Notes (*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	Mitigation Measures	Location / Timing	Status *
S5.7.4 – S5.7.5	*Sewage from General Construction Activities* Debris and rubbish generated on-site shall be collected, handled and disposed of properly to avoid entering the nearby nullah and stormwater drains. Stockpiles of cement and other construction material should be kept covered when not being used. Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event.	Work site / During the construction period	✓ ✓
S5.7.6	*Sewage Effluent* Temporary sanitary facilities, such as portable toilets, shall be employed on-site. A licensed contractor would be responsible for appropriate disposal and maintenance of these facilities.	Work site and adjacent water / During the design and construction period.	✓
Waste Management			
S6.6.1	*Good Site Practices* Recommendations for good site practices during the construction activities include: • nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; • training of site personnel in proper waste management and chemical waste handling procedures; • provision of sufficient waste disposal points and regular collection for disposal; • appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	Work site / During the construction period	N/O ✓ ✓ ✓ ✓ ✓
S6.6.2	*Waste Reduction Measures* Waste reduction is best achieved at the planning and design stage, as well as by	Work site / During planning and design	

Notes (*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	Mitigation Measures	Location / Timing	Status *
	ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:	stage, and construction stage	
	• segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;		N/A
	• to encourage collection of aluminium cans, PET bottles and paper, separate labelled bins shall be provided to segregate these wastes from other general refuse generated by the work force;		N/O
	• any unused chemicals or those with remaining functional capacity shall be recycled;		N/O
	• use of reusable non-timber formwork to reduce the amount of C&D material.		N/O
	• prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;		N/O
	• proper storage and site practices to minimise the potential for damage or contamination of construction materials; and		N/O
	• plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.		N/O
S6.6.4	*General Refuse* General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material.	Work site / During the construction period	✓
	A collection area should be provided where wastes can be stored and loaded prior to removal from site. An enclosed and covered area is recommended to reduce the occurrence of 'wind blow' light material.		N/O
S6.6.5	*Chemical Wastes* After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Work site / During the construction period	✓

Notes (*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	Mitigation Measures	Location / Timing	Status *
S6.6.6 & 6.6.7	*Construction and Demolition Material* Excavated fill material shall be reused on-site as backfill material as far as possible. The material to be disposed at public fill reception facility shall be free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered to be unsuitable by the Filling Supervisor.	Work site / During the construction period	✓
Hazard to Life			
S8.8.4	• The number of workers on site during construction stage should be kept as the level as assessed in this report. • Emergency evacuation procedures should be formulated and Highways Department (HyD) should ensure all workers on site should be familiar with these procedures as well as the route to escape in case of gas release incident occur. Relevant Departments, such as Water Supplies Department and Fire Services Department, should be consulted during the development of Emergency procedures. Diagram showing the escape routes to a safe place should be posted in the site notice boards and at the entrance/exit of site. • The emergency procedures should specify means of providing a rapid and direct warning (e.g. Siren and Flashing Light) to construction workers in the event of chlorine gas release in the Tuen Mun Water Treatment Works (TMWTW). • The construction site officer of HyD should establish a communication channel with the TMWTW operation personnel during construction stage. In case of any hazardous incidents in the treatment works, operation personnel of TMWTW should advise the site officer to evacuate the construction workers.	Works area/ During construction phase	N/O N/O N/O
S8.8.5	Induction Training should be provided to any staff before working on site at the Tsing Tin Interchange work site.	Works area/During construction phase	N/O
S8.8.6	Periodic drills should be coordinated and conducted to ensure all construction staffs are familiar with the evacuation procedures. Upon completion of the drills, a review on every step taken should be conducted to identify area of improvement.	Works area/ During construction phase	N/O
Ecology			
S9.7.2	Construction activities would be confined to developed areas of low ecological value, and there would be no direct impact to other habitats within the Assessment Area.	Works area / During construction phase	✓
S9.7.4	To mitigate the noise impacts to habitats and associated wildlife within and adjacent to	Works area / During	✓

Notes (*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	Mitigation Measures	Location / Timing	Status *
	the proposed works area, quite mechanical plants and well-maintained plants should be used wherever possible. Noise-emitting construction plant should be installed away from the egretry as far as practical. Schedule of construction programme should be carefully planned to avoid noise-generating construction activities with high disturbance impact during the breeding seasons of the ardeids (i.e. mid-March to August).	construction phase	
S9.7.5	Noise barrier should also be implemented to mitigate the noise impact in operation phase. To minimize the bird collision impact, pprecautionary and bird-friendly approach to noise barrier design should be implemented: • The transparent materials of the noise barriers would be non-glaring and not light-reflective. • Noise barrier panels would be with either tinted materials, embedded opaque stripes or superimposed patterns of thin opaque stripes. • Noise barrier would be made visible to birds, such as putting falcon stickers on the transparent panels.	Works area / during construction phase	N/O N/O N/O
S9.7.7	Standard good site practice measures should be implemented throughout the construction phase. The measures should include: • Placement of equipment in designated works areas selected on existing disturbed land. • Construction activities should be restricted to the proposed works area that would be clearly demarcated. • The proposed works area should be reinstated immediately after completion of the works. • Open burning on proposed works sites is illegal, and should be strictly enforced. • Waste skips should be provided to collect general refuse and construction wastes. The wastes should be disposed of timely and properly off-site. • Any soil contamination with fuel leaked from construction plants should be removed off-site.	Works area / during construction phase	N/A ✓ N/O ✓ N/O ✓
S9.7.8	To minimize the construction dust impact to the vegetation within and in vicinity of the proposed works area, the following mitigation measures as listed below should be implemented:	Works area / During construction phase	

Notes (*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	Mitigation Measures	Location / Timing	Status *
	• Regular watering should be used during the construction stage. • Any aggregate or dusty material storage piles should be completely covered. • Minimum practical height for dropping of excavated material should be applied.		✓ N/O N/O
S9.7.9	To minimize the indirect impacts to the nearby Tuen Mun River Channel, the following measures should be implemented: • Any runoff and drainage water with high levels of suspended solids should be prevented from entering the nearby water-bodies. • Site runoff should be directed towards regularly cleaned and maintained silt traps and oil/grease separators to avoid and minimise the risk of sedimentation and pollution of the nearby stream courses and drainage culvert. • The silt and oil/grease separators should be appropriately designed for the local drainage and ground conditions. • Debris and rubbish generated on-site should be collected, handled and disposed of properly.	Works area / during construction phase	 ✓ ✓ N/O ✓
S9.7.10	Compensatory planting of a ratio not less than 1:1 ratio in terms of quality and quantity should be provided to compensate for the loss of roadside trees due to the construction works.	Works area / during construction phase	✓
Landscape and Visual			
Table 10.6	CM1 Topsoil, where identified and practical, should be stripped and stored for re-use in the construction of the soft landscape works.	Work site / During Construction Phase	N/O
Table 10.6	CM2 Existing trees to be retained on site should be carefully protected during construction.	Work site / During Construction Phase	✓
Table 10.6	CM3 Trees unavoidably affected by the works should be transplanted where practical.	Work site / During Construction Phase	✓
Table 10.6	CM4 Compensatory tree planting should be provided to compensate for felled trees.	Work site / During Construction Phase	✓
Table 10.6	CM5 Control of night-time lighting.	Work site / During Construction Phase	✓
Table 10.6	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	N/O

Notes (*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

Appendix D

Calibration Spreadsheets of the High Volume Samplers and Calibration Certificate of Calibration Kit

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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 20, 2008 Rootsmeter S/N 9833620 Ta (K) - 292
Operator Tisch Orifice I.D. - 1378 Pa (mm) - 746.76

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg- (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3650	3.2	2.00
2	NA	NA	1.00	0.9560	6.3	4.00
3	NA	NA	1.00	0.8580	7.8	5.00
4	NA	NA	1.00	0.8140	8.6	5.50
5	NA	NA	1.00	0.6730	12.5	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9985	0.7315	1.4162		0.9957	0.7294	0.8843
0.9943	1.0401	2.0028		0.9916	1.0372	1.2506
0.9922	1.1564	2.2392		0.9894	1.1532	1.3983
0.9912	1.2177	2.3485		0.9884	1.2143	1.4665
0.9859	1.4650	2.8323		0.9832	1.4609	1.7687
Qstd slope (m) =		1.93144		Qa slope (m) =		1.20944
intercept (b) =		0.00037		intercept (b) =		0.00023
coefficient (r) =		0.99991		coefficient (r) =		0.99991
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

TISCH ENVIROMENTAL, INC.
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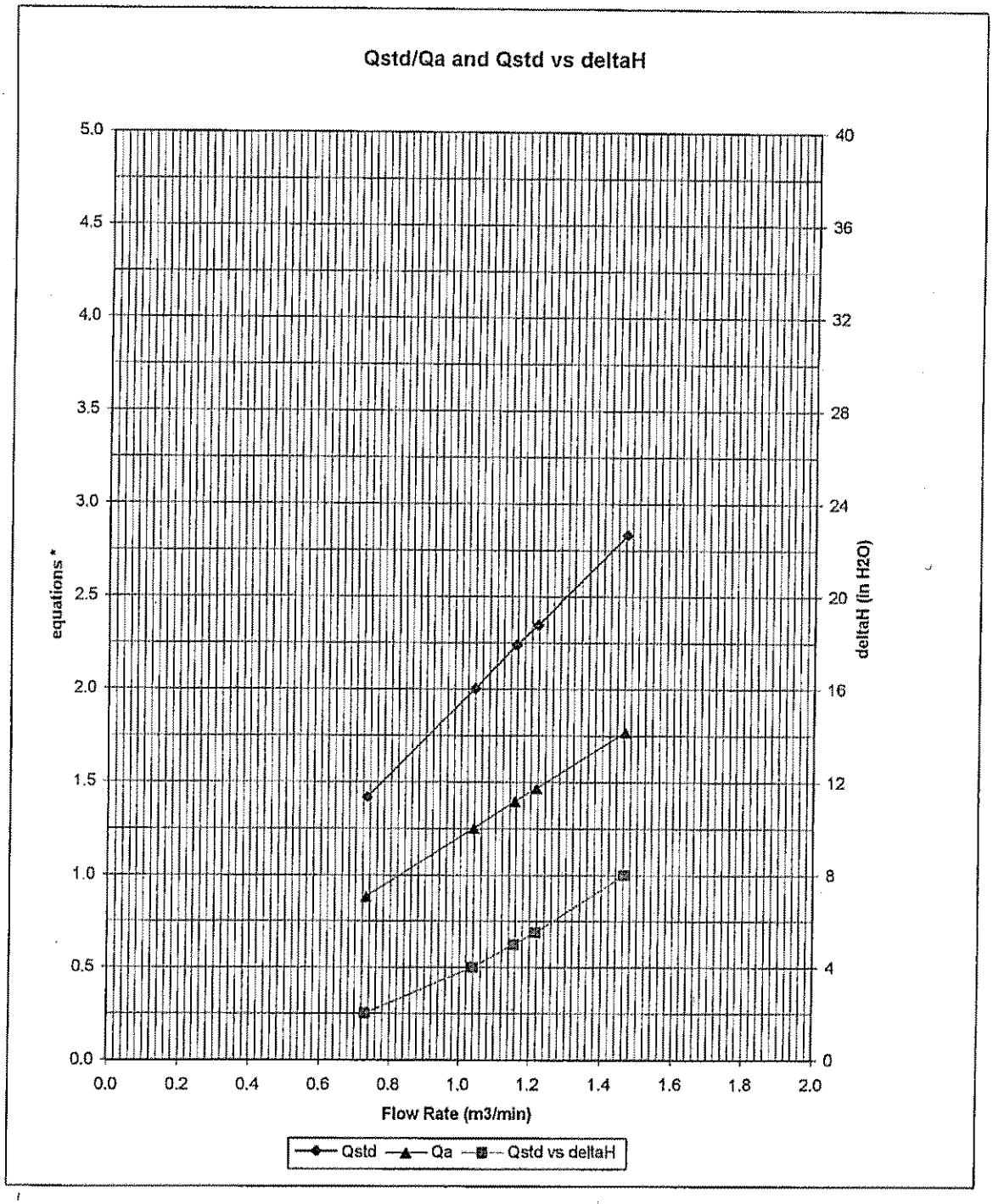
AIR POLLUTION MONITORING EQUIPMENT



*** y-axis equations:**

Qstd series: $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$

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

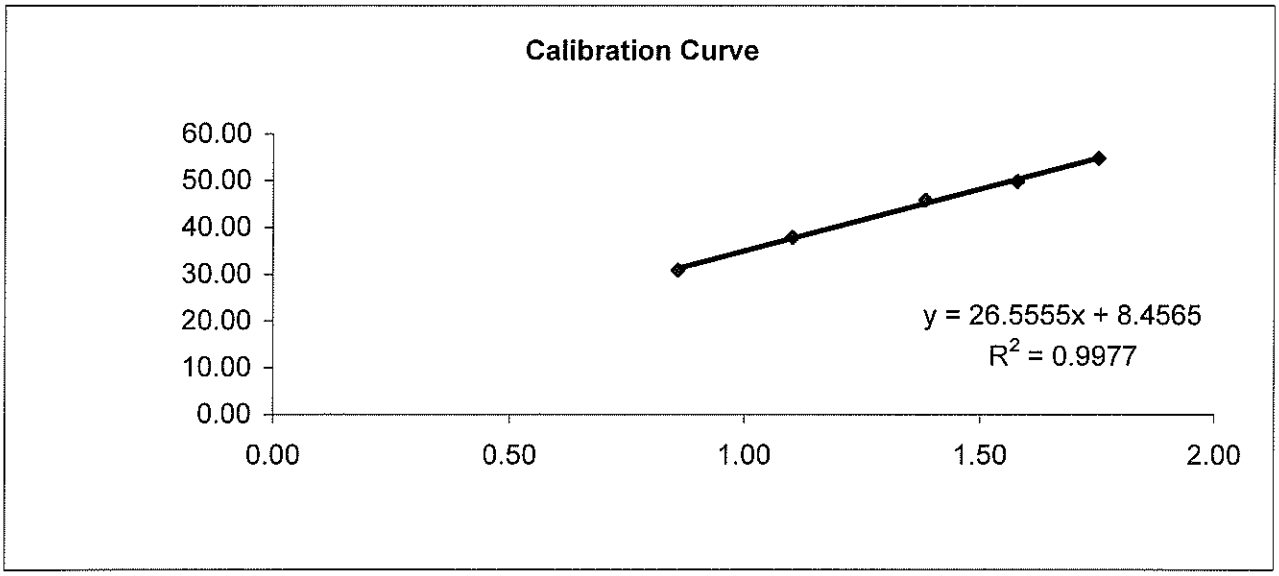
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	6-Oct-08	**Barometric pressure**	757 mm Hg
Calibration due date	5-Dec-08	**Tempature (°C)**	25 °C
Sampler location	TT1-Roof,Kwong Choi Market	**Tempature (K)**	298 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	0521	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	1378
Slope of the standard curve, m_s	2.00216
Intercept of the standard curve, b_s	-0.02053

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	2.90	31.00	0.86	30.94
7	4.80	38.00	1.10	37.92
10	7.60	46.00	1.38	45.91
13	9.90	50.00	1.58	49.90
18	12.20	55.00	1.75	54.89



Linear Regression

Sampler slope (m) : **26.5555**
Sampler intercept (b) : **8.4565**
Correlation coefficient (R^2) : **0.9977**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: Ok Date: 6/10/08

Checked by: J Kam Date: 6/10/08

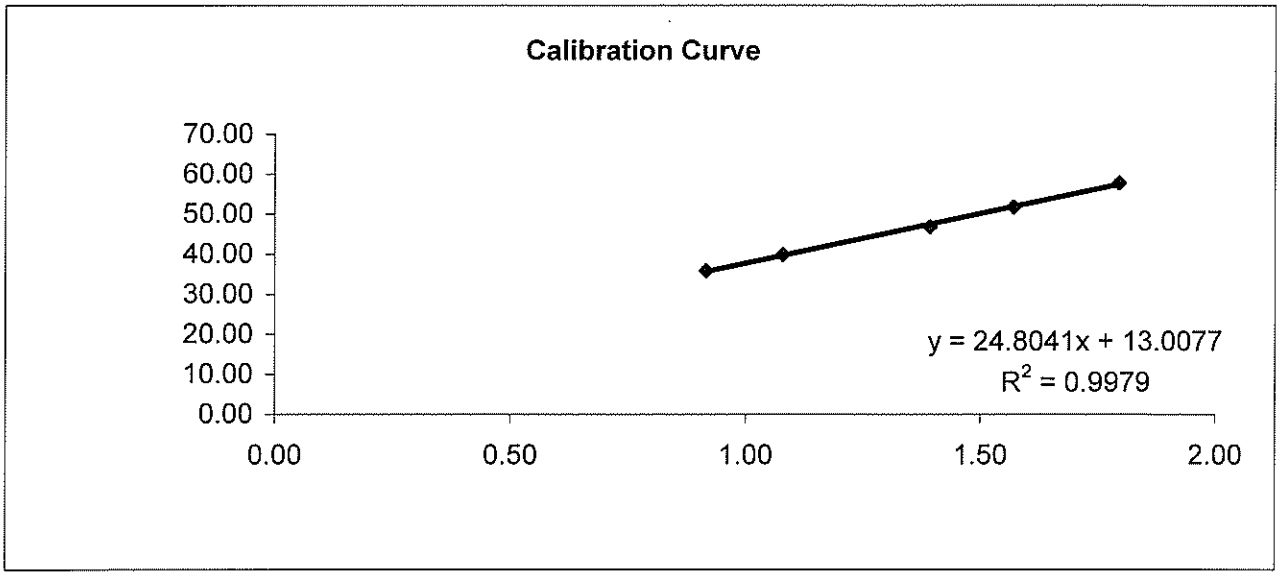
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	6-Oct-08	**Barometric pressure**	757 mm Hg
Calibration due date	5-Dec-08	**Tempature (°C)**	25 °C
Sampler location	TT2 - G/F Tam Lee Lai Fun Memorial School	**Tempature (K)**	298 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	0523	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	1378
Slope of the standard curve, m_s	2.00216
Intercept of the standard curve, b_s	-0.02053

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.30	36.00	0.92	35.93
7	4.60	40.00	1.08	39.92
10	7.70	47.00	1.39	46.91
13	9.80	52.00	1.57	51.90
18	12.80	58.00	1.79	57.89



Linear Regression

Sampler slope (m) :	**24.8041**
Sampler intercept (b) :	**13.0077**
Correlation coefficient (R^2) :	**0.9979**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: _____ Date: 6/10/08

Checked by: Kam Date: 6/10/08

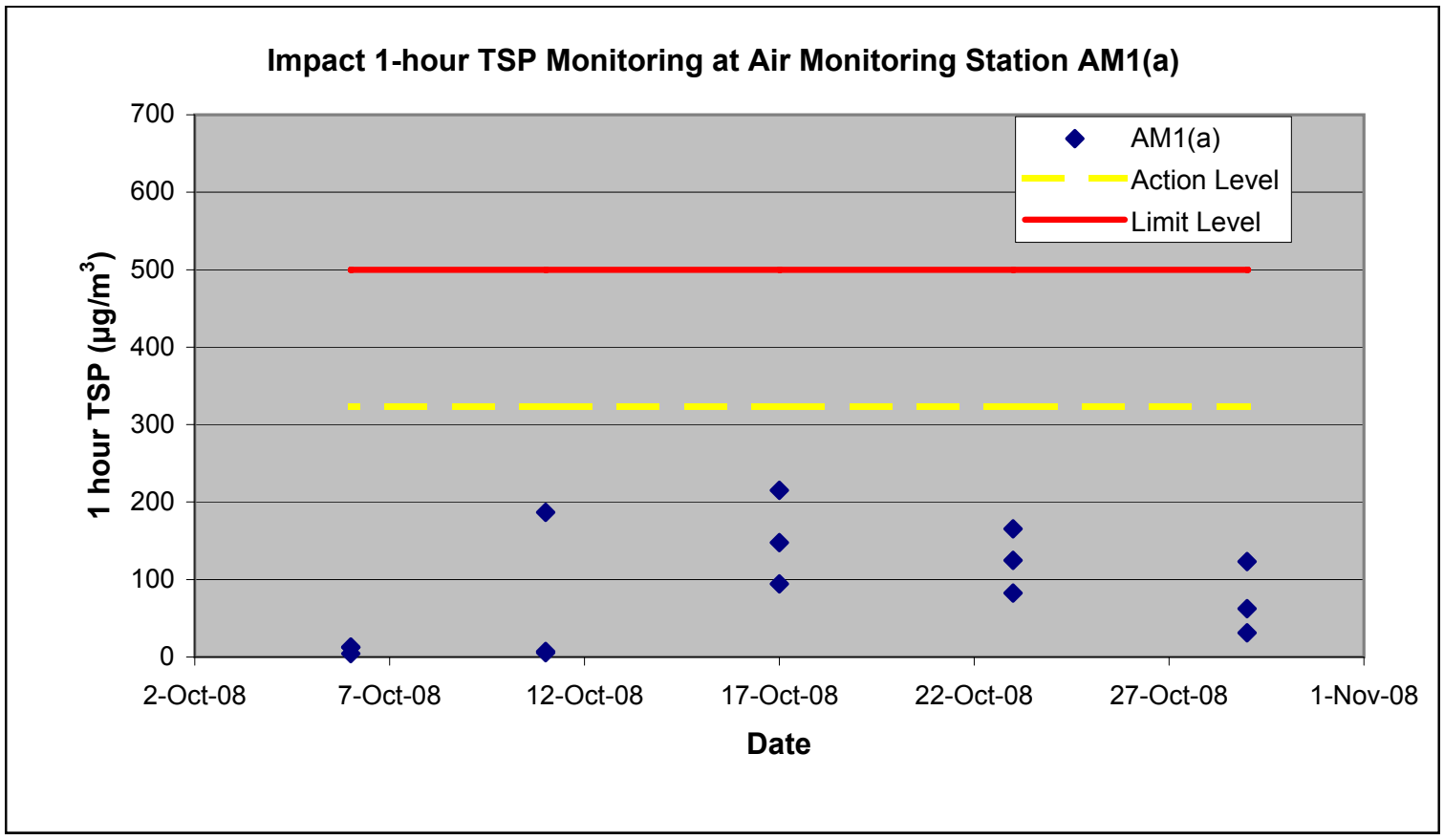
Appendix E

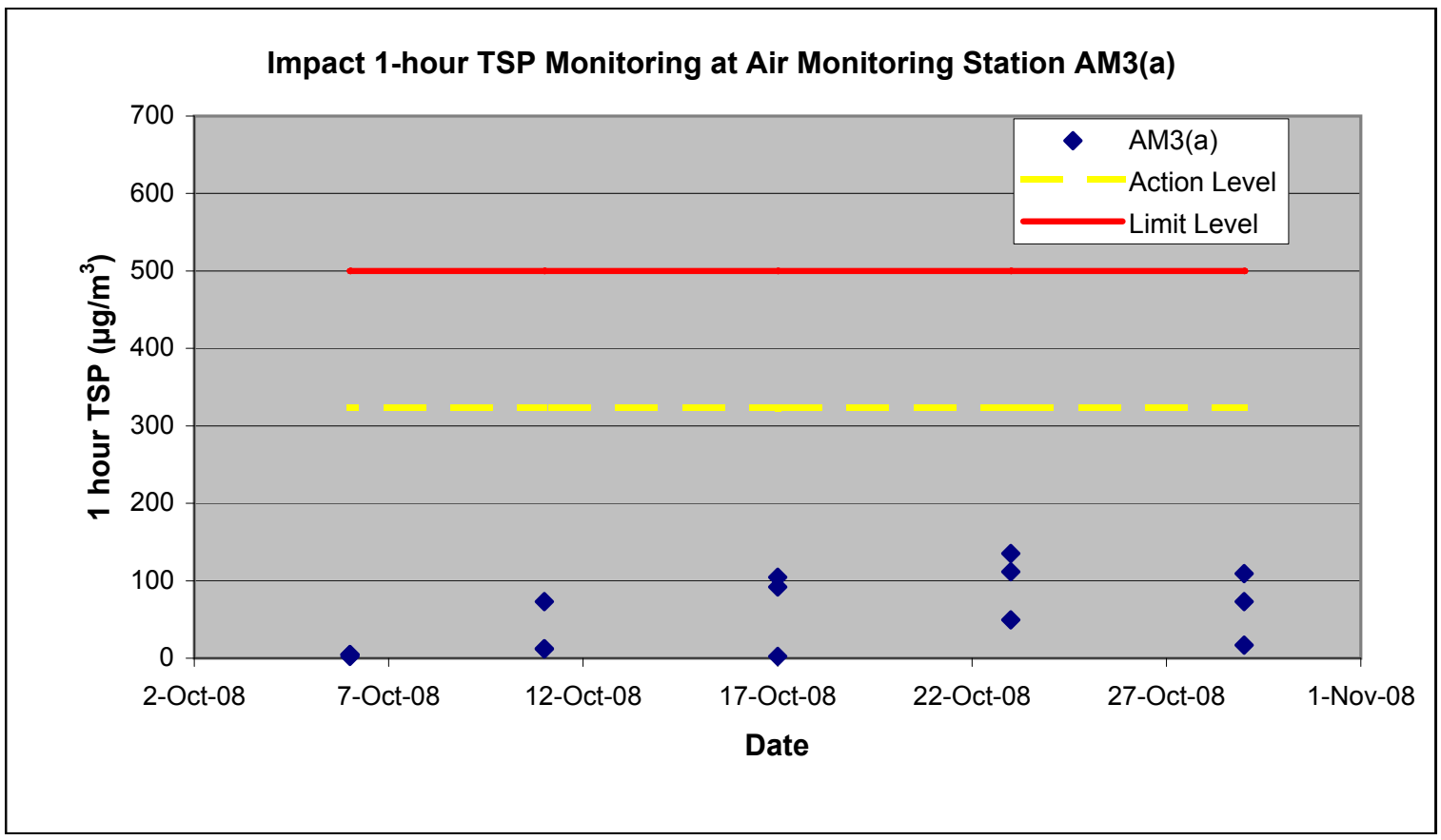
Impact Air Monitoring Results

Contract No. Hy/2007/14 - Widening of Tuen Mun Road at Tsing Tin Interchange
Impact Air Monitoring Result - 1 hour TSP

Filter No.	Month	Date	Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	AM1(a) 1-hour TSP ($\mu g/m^3$)	AM3(a 1-hour TSP ($\mu g/m^3$)
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish				
OS58	Oct-08	6-Oct-08	TT1-1	Cloudy	Normal Operation	757.0	757.0	26.0	26.0	40.0	40.0	2.8182	2.8185	0.0003	1.1824	1.1824	1.1824	8614.43	8615.43	60.00	70.94	4.2	
OS59	Oct-08	6-Oct-08	TT1-2	Cloudy	Normal Operation	757.0	757.0	26.0	26.0	40.0	40.0	2.7755	2.7764	0.0009	1.1824	1.1824	1.1824	8615.43	8616.43	60.00	70.94	12.7	
OS60	Oct-08	6-Oct-08	TT1-3	Cloudy	Normal Operation	757.0	757.0	26.0	26.0	40.0	40.0	2.7342	2.7351	0.0009	1.1824	1.1824	1.1824	8616.43	8617.43	60.00	70.94	12.7	
OS62	Oct-08	6-Oct-08	TT2-1	Cloudy	Normal Operation	757.0	757.0	26.0	26.0	30.0	30.0	2.7481	2.7483	0.0002	0.6807	0.6807	0.6807	8199.14	8200.14	60.00	40.84		4.9
OS63	Oct-08	6-Oct-08	TT2-2	Cloudy	Normal Operation	757.0	757.0	26.0	26.0	30.0	30.0	2.7329	2.7330	0.0001	0.6807	0.6807	0.6807	8200.14	8201.14	60.00	40.84		2.4
OS64	Oct-08	6-Oct-08	TT2-3	Cloudy	Normal Operation	757.0	757.0	26.0	26.0	30.0	30.0	2.6950	2.6952	0.0002	0.6807	0.6807	0.6807	8201.14	8202.14	60.00	40.84		4.9
OS68	Oct-08	11-Oct-08	TT1-1	Fine	Normal Operation	761.0	761.0	29.0	29.0	40.0	40.0	2.7571	2.7576	0.0005	1.1788	1.1788	1.1788	8641.43	8642.43	60.00	70.73	7.1	
OS69	Oct-08	11-Oct-08	TT1-2	Fine	Normal Operation	761.0	761.0	29.0	29.0	40.0	40.0	2.7322	2.7326	0.0004	1.1788	1.1788	1.1788	8642.43	8643.43	60.00	70.73	5.7	
OS70	Oct-08	11-Oct-08	TT1-3	Fine	Normal Operation	761.0	761.0	29.0	29.0	40.0	40.0	2.7672	2.7804	0.0132	1.1788	1.1788	1.1788	8643.43	8644.43	60.00	70.73	186.6	
OS72	Oct-08	11-Oct-08	TT2-1	Fine	Normal Operation	761.0	761.0	29.0	29.0	30.0	30.0	2.7820	2.7825	0.0005	0.6778	0.6778	0.6778	8226.14	8227.14	60.00	40.67		12.3
OS73	Oct-08	11-Oct-08	TT2-2	Fine	Normal Operation	761.0	761.0	29.0	29.0	30.0	30.0	2.7365	2.7370	0.0005	0.6778	0.6778	0.6778	8227.14	8228.14	60.00	40.67		12.3
OT23	Oct-08	11-Oct-08	TT2-3	Fine	Normal Operation	761.0	761.0	29.0	29.0	50.0	50.0	2.8484	2.8549	0.0065	1.4793	1.4793	1.4793	8228.14	8229.14	60.00	88.76		73.2
OT07	Oct-08	17-Oct-08	TT1-1	Cloudy	Normal Operation	759.0	759.0	27.0	27.0	50.0	50.0	2.8442	2.8643	0.0201	1.5569	1.5569	1.5569	8668.43	8669.43	60.00	93.41	215.2	
OT08	Oct-08	17-Oct-08	TT1-2	Cloudy	Normal Operation	759.0	759.0	27.0	27.0	50.0	50.0	2.8274	2.8412	0.0138	1.5569	1.5569	1.5569	8669.43	8670.43	60.00	93.41	147.7	
OT09	Oct-08	17-Oct-08	TT1-3	Cloudy	Normal Operation	759.0	759.0	27.0	27.0	50.0	50.0	2.8475	2.8563	0.0088	1.5569	1.5569	1.5569	8670.43	8671.43	60.00	93.41	94.2	
OT03	Oct-08	17-Oct-08	TT2-1	Cloudy	Normal Operation	759.0	759.0	27.0	27.0	50.0	50.0	2.8064	2.8146	0.0082	1.4833	1.4833	1.4833	8253.14	8254.14	60.00	89.00		92.1
OT04	Oct-08	17-Oct-08	TT2-2	Cloudy	Normal Operation	759.0	759.0	27.0	27.0	50.0	50.0	2.8230	2.8323	0.0093	1.4833	1.4833	1.4833	8254.14	8255.14	60.00	89.00		104.5
OT05	Oct-08	17-Oct-08	TT2-3	Cloudy	Normal Operation	759.0	759.0	27.0	27.0	50.0	50.0	2.8526	2.8528	0.0002	1.4833	1.4833	1.4833	8255.14	8256.14	60.00	89.00		2.2
OS91	Oct-08	23-Oct-08	TT1-1	Sunny	Normal Operation	760.0	760.0	29.0	29.0	50.0	50.0	2.7594	2.7748	0.0154	1.5519	1.5519	1.5519	8695.43	8696.43	60.00	93.11	165.4	
OS92	Oct-08	23-Oct-08	TT1-2	Sunny	Normal Operation	760.0	760.0	29.0	29.0	50.0	50.0	2.7541	2.7657	0.0116	1.5519	1.5519	1.5519	8696.43	8697.43	60.00	93.11	124.6	
OS93	Oct-08	23-Oct-08	TT1-3	Sunny	Normal Operation	760.0	760.0	29.0	29.0	50.0	50.0	2.7541	2.7618	0.0077	1.5519	1.5519	1.5519	8697.43	8698.43	60.00	93.11	82.7	
OS95	Oct-08	23-Oct-08	TT2-1	Sunny	Normal Operation	760.0	760.0	29.0	29.0	50.0	50.0	2.8233	2.8353	0.0120	1.4780	1.4780	1.4780	8280.14	8281.14	60.00	88.68		135.3
OS96	Oct-08	23-Oct-08	TT2-2	Sunny	Normal Operation	760.0	760.0	29.0	29.0	50.0	50.0	2.8413	2.8512	0.0099	1.4780	1.4780	1.4780	8281.14	8282.14	60.00	88.68		111.6
OS97	Oct-08	23-Oct-08	TT2-3	Sunny	Normal Operation	760.0	760.0	29.0	29.0	50.0	50.0	2.8302	2.8346	0.0044	1.4780	1.4780	1.4780	8282.14	8283.14	60.00	88.68		49.6
OS99	Oct-08	29-Oct-08	TT1-1	Sunny	Normal Operation	760.0	760.0	28.0	28.0	50.0	50.0	2.8632	2.8661	0.0029	1.5550	1.5550	1.5550	8722.43	8723.43	60.00	93.30	31.1	
OT01	Oct-08	29-Oct-08	TT1-2	Sunny	Normal Operation	760.0	760.0	28.0	28.0	50.0	50.0	2.8238	2.8296	0.0058	1.5550	1.5550	1.5550	8723.43	8724.43	60.00	93.30	62.2	
OT14	Oct-08	29-Oct-08	TT1-3	Sunny	Normal Operation	760.0	760.0	28.0	28.0	50.0	50.0	2.8034	2.8149	0.0115	1.5550	1.5550	1.5550	8724.43	8725.43	60.00	93.30	123.3	
OT16	Oct-08	29-Oct-08	TT2-1	Sunny	Normal Operation	760.0	760.0	28.0	28.0	50.0	50.0	2.8175	2.8272	0.0097	1.4813	1.4813	1.4813	8307.14	8308.14	60.00	88.88		109.1
OT19	Oct-08	29-Oct-08	TT2-2	Sunny	Normal Operation	760.0	760.0	28.0	28.0	50.0	50.0	2.8014	2.8029	0.0015	1.4813	1.4813	1.4813	8308.14	8309.14	60.00	88.88		16.9
OT18	Oct-08	29-Oct-08	TT2-3	Sunny	Normal Operation	760.0	760.0	28.0	28.0	50.0	50.0	2.8314	2.8379	0.0065	1.4813	1.4813	1.4813	8309.14	8310.14	60.00	88.88		73.1

Average	85.0	53.6
Max	215.2	135.3
Min	4.2	2.2

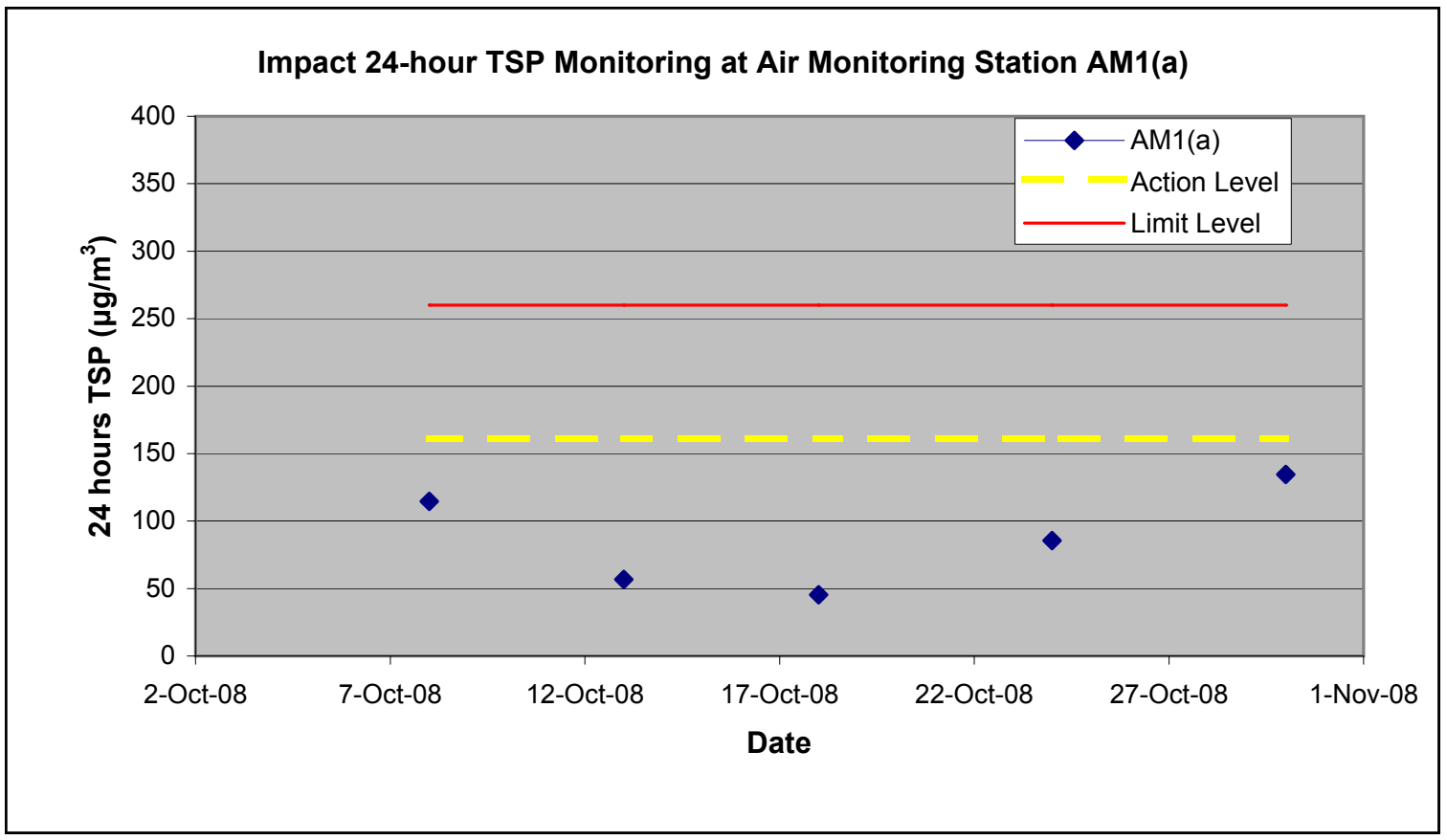

Impact 1-hour TSP Monitoring at Air Monitoring Station AM1(a)
1 hour TSP (µg/m3)
700
600
500
400
300
200
100
0
2-Oct-08
7-Oct-08
12-Oct-08
17-Oct-08
22-Oct-08
27-Oct-08
1-Nov-08
Date
AM1(a)
Action Level
Limit Level

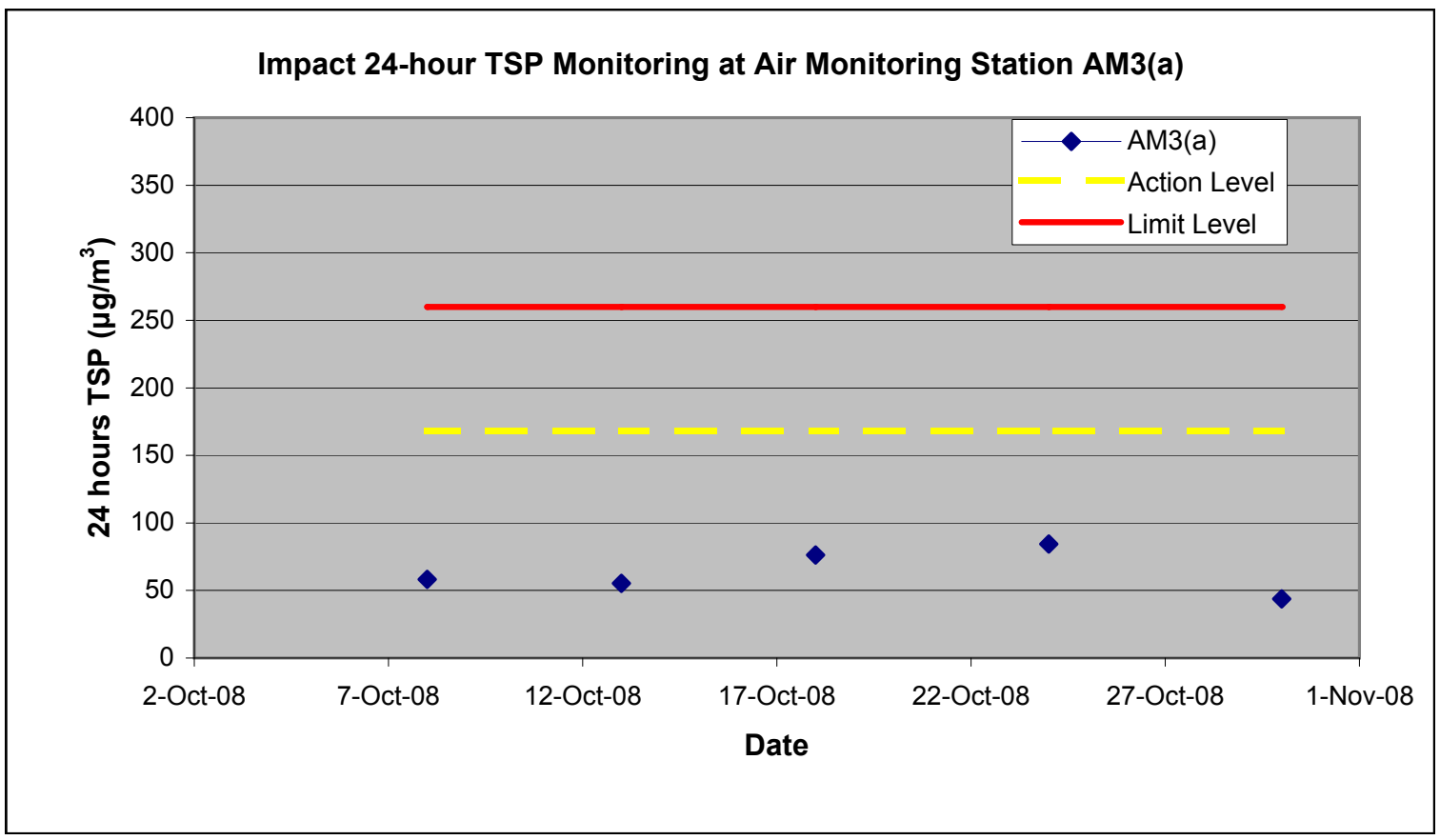

Impact 1-hour TSP Monitoring at Air Monitoring Station AM3(a)
1 hour TSP (µg/m3)
700
600
500
400
300
200
100
0
2-Oct-08
7-Oct-08
12-Oct-08
17-Oct-08
22-Oct-08
27-Oct-08
1-Nov-08
Date
AM3(a)
Action Level
Limit Level

Contract No. Hy/2007/14 - Widening of Tuen Mun Road at Tsing Tin Interchange
Impact Air Monitoring Result - 24 hours TSP

Filter No.	Month	Date	Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	AM1(a) 24-hrs TSP (µg/m^3)	AM3(a) 24-hrs TSP (µg/m^3)
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish				
OS54	Oct-08	8-Oct-08	TT1	Fine	Normal Operation	759.0	760.0	26.0	26.0	42.0	42.0	2.7430	2.9510	0.2080	1.2595	1.2605	1.2600	8617.43	8641.43	1440.00	1814.40	114.6	
OS61	Oct-08	8-Oct-08	TT2	Fine	Normal Operation	759.0	760.0	26.0	26.0	36.0	36.0	2.7951	2.8724	0.0773	0.9236	0.9246	0.9241	8202.14	8226.14	1440.00	1330.70		58.1
OT02	Oct-08	13-Oct-08	TT1	Cloudy	Normal Operation	760.0	761.0	25.0	25.0	40.0	40.0	2.8662	2.9634	0.0972	1.1878	1.1888	1.1883	8644.43	8668.43	1440.00	1711.15	56.8	
OS71	Oct-08	13-Oct-08	TT2	Cloudy	Normal Operation	760.0	761.0	25.0	25.0	36.0	36.0	2.7448	2.8185	0.0737	0.9270	0.9279	0.9275	8229.14	8253.14	1440.00	1335.53		55.2
OT10	Oct-08	18-Oct-08	TT1	Sunny	Normal Operation	760.0	761.0	30.0	29.0	40.0	40.0	2.7669	2.8439	0.0770	1.1754	1.1788	1.1771	8671.43	8695.43	1440.00	1695.02	45.4	
OT06	Oct-08	18-Oct-08	TT2	Sunny	Normal Operation	760.0	761.0	30.0	29.0	42.0	44.0	2.8611	2.9925	0.1314	1.1548	1.2389	1.1969	8256.14	8280.14	1440.00	1723.46		76.2
OS94	Oct-08	24-Oct-08	TT1	Fine	Normal Operation	761.0	762.0	26.0	27.0	50.0	50.0	2.8241	3.0165	0.1924	1.5625	1.5605	1.5615	8698.43	8722.43	1440.00	2248.56	85.6	
OS98	Oct-08	24-Oct-08	TT2	Fine	Normal Operation	761.0	762.0	26.0	27.0	50.0	50.0	2.8331	3.0139	0.1808	1.4894	1.4872	1.4883	8283.14	8307.14	1440.00	2143.15		84.4
OT22	Oct-08	30-Oct-08	TT1	Fine	Normal Operation	761.0	761.0	27.0	27.0	50.0	50.0	2.7858	3.0878	0.3020	1.5593	1.5593	1.5593	8725.43	8749.43	1440.00	2245.39	134.5	
OT17	Oct-08	30-Oct-08	TT2	Fine	Normal Operation	761.0	761.0	27.0	27.0	40.0	40.0	2.8010	2.8692	0.0682	1.0839	1.0839	1.0839	8310.14	8334.14	1440.00	1560.82		43.7

Average	87.4	63.5
Max	134.5	84.4
Min	45.4	43.7

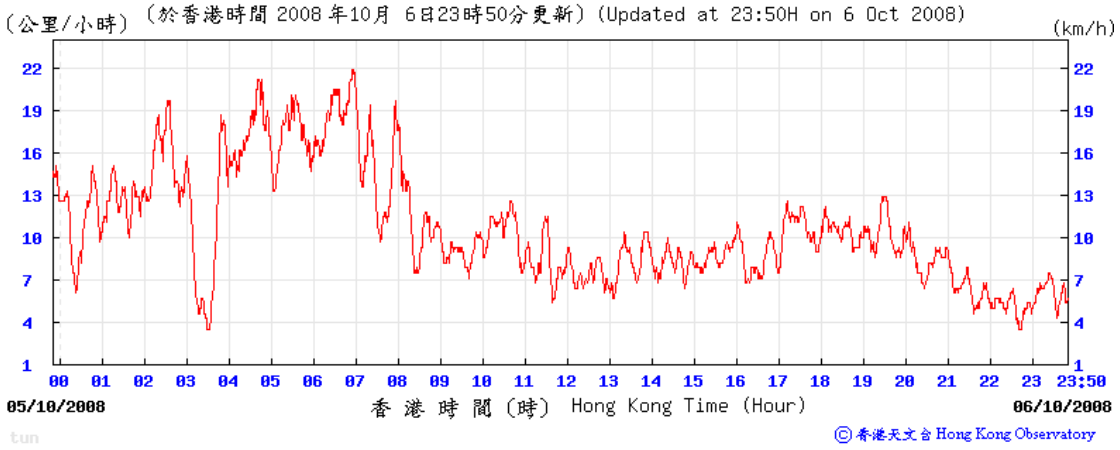

Impact 24-hour TSP Monitoring at Air Monitoring Station AM1(a)
24 hours TSP (µg/m3)
400
350
300
250
200
150
100
50
0
2-Oct-08
7-Oct-08
12-Oct-08
17-Oct-08
22-Oct-08
27-Oct-08
1-Nov-08
Date
AM1(a)
Action Level
Limit Level

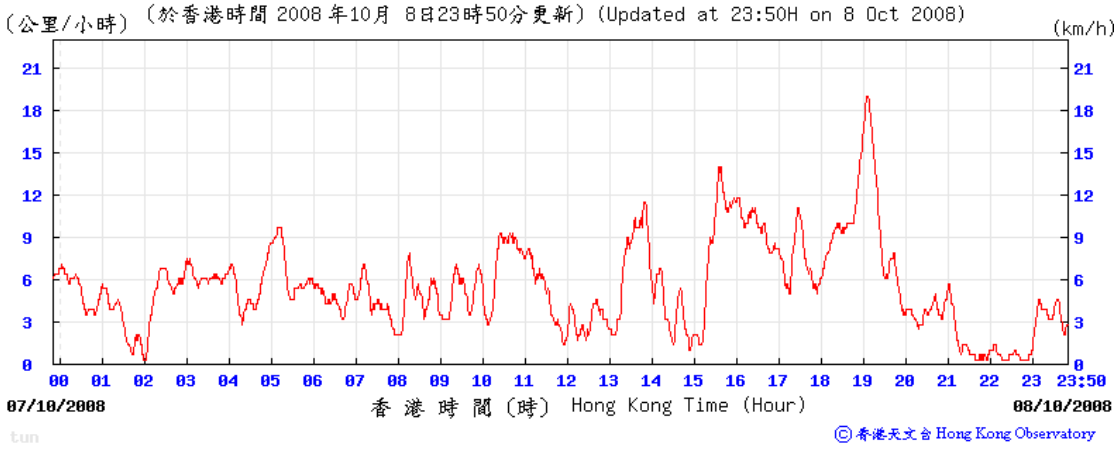

Impact 24-hour TSP Monitoring at Air Monitoring Station AM3(a)
24 hours TSP (µg/m3)
400
350
300
250
200
150
100
50
0
2-Oct-08
7-Oct-08
12-Oct-08
17-Oct-08
22-Oct-08
27-Oct-08
1-Nov-08
Date
AM3(a)
Action Level
Limit Level

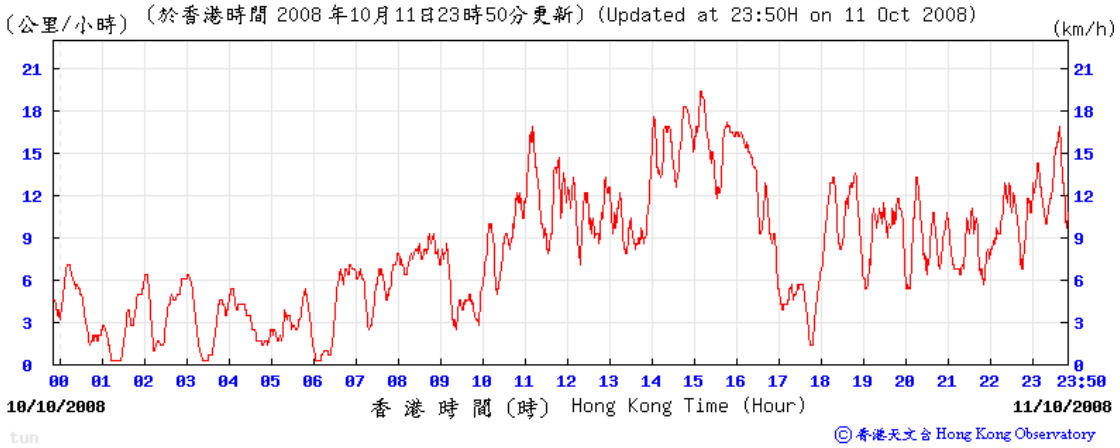
Appendix F

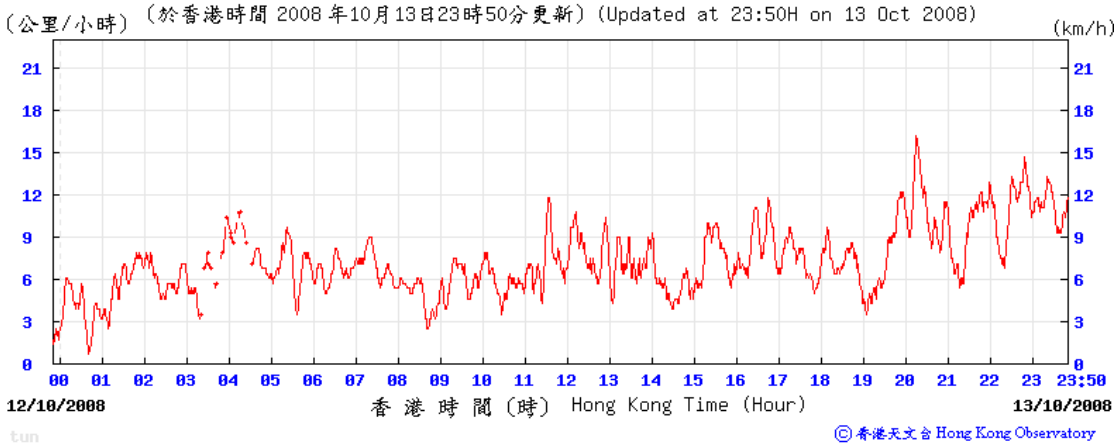
Wind Data

Wind Monitoring Data – Wind Speed during Air Quality Monitoring in October 2008








(公里/小時) (於香港時間 2008 年10月13日23時50分更新) (Updated at 23:50H on 13 Oct 2008)
(km/h)
12/10/2008
香 港 時 間 (時) Hong Kong Time (Hour)
13/10/2008
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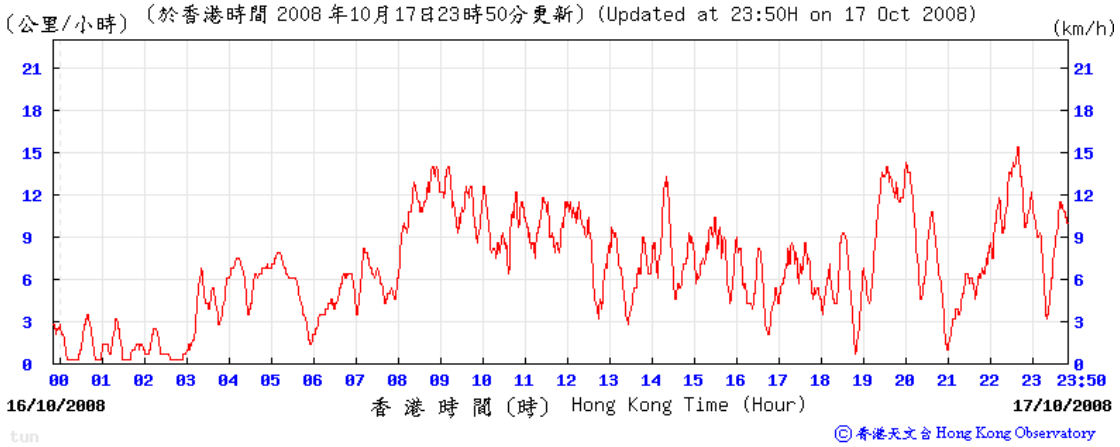
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(km/h)
16/10/2008
香 港 時 間 (時) Hong Kong Time (Hour)
17/10/2008
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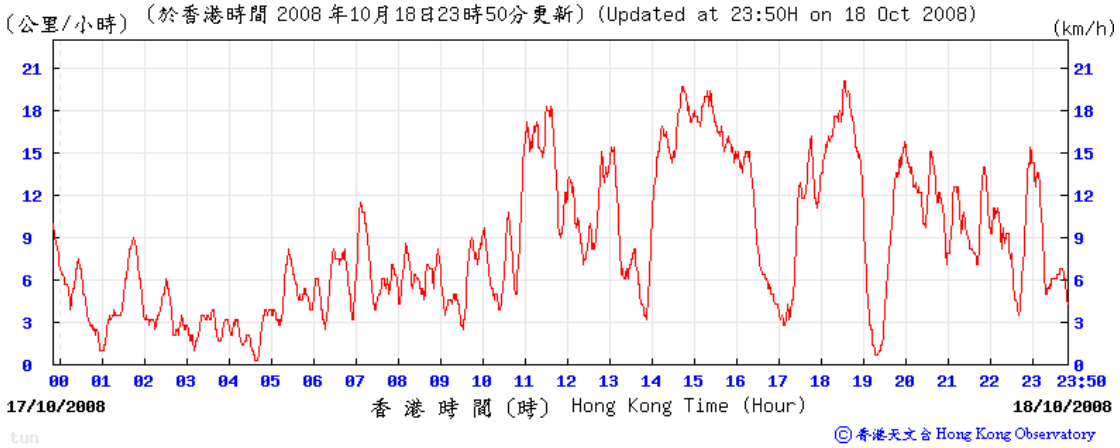
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(km/h)
17/10/2008
香 港 時 間 (時) Hong Kong Time (Hour)
18/10/2008
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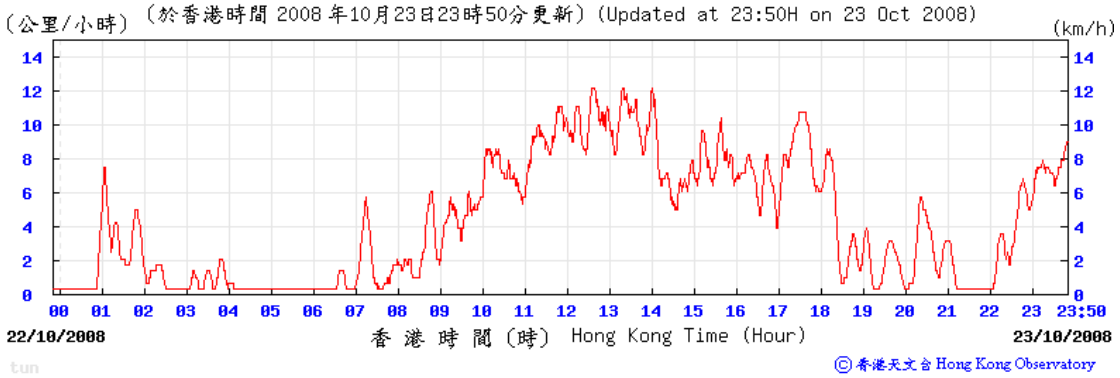
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(km/h)
22/10/2008
香 港 時 間 (時) Hong Kong Time (Hour)
23/10/2008
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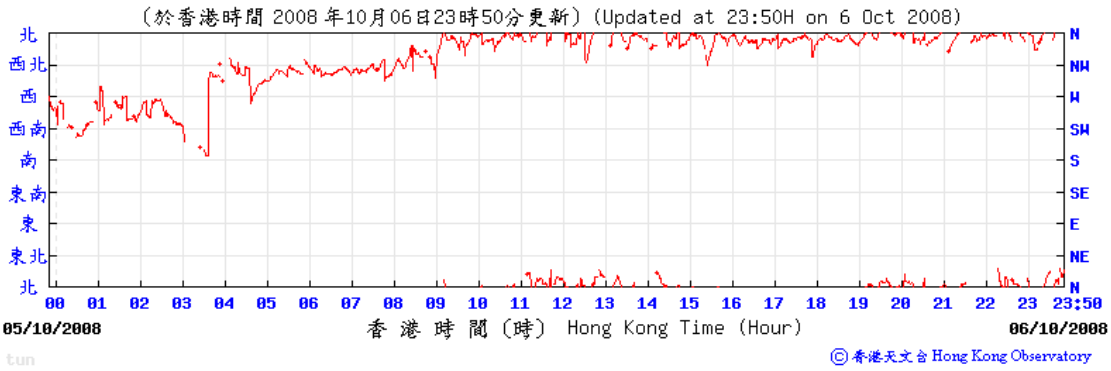
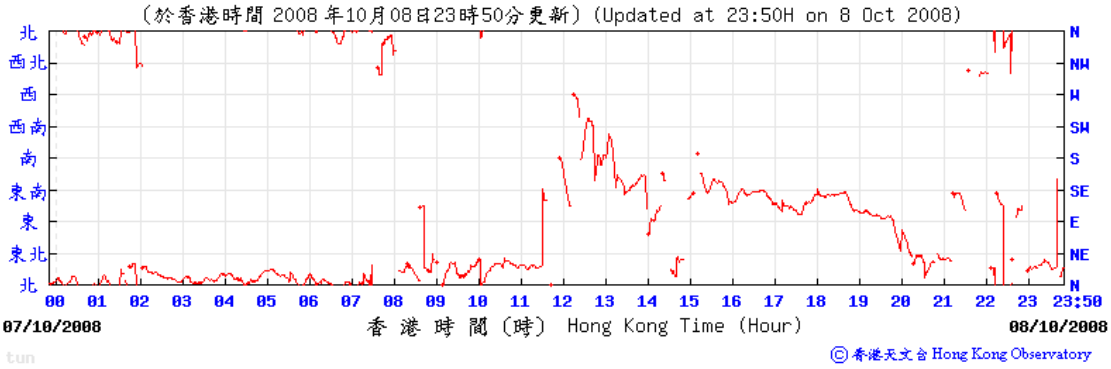
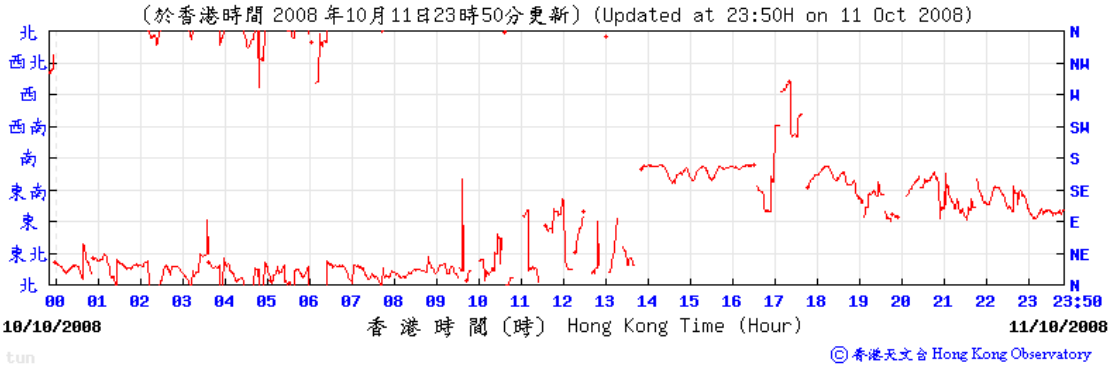
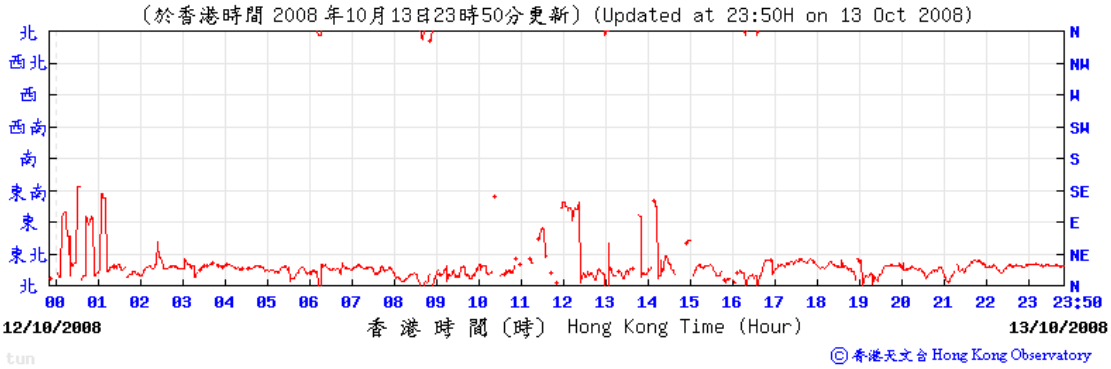
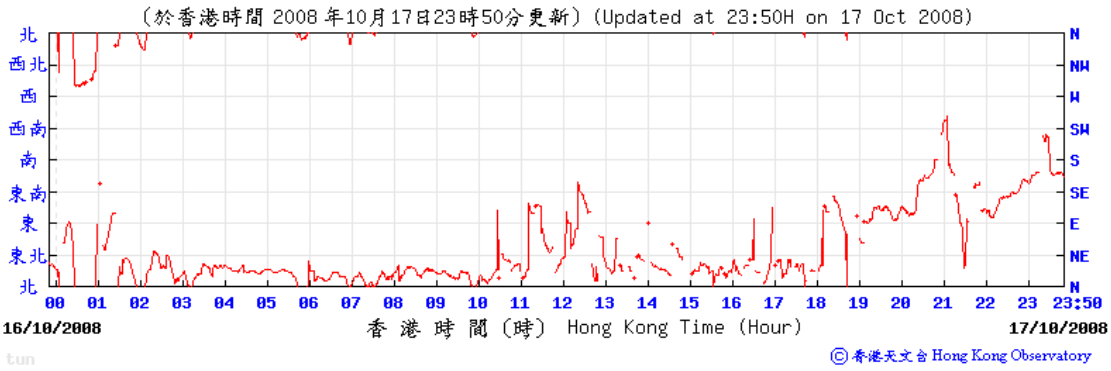
Wind Monitoring Data – Wind Direction during Air Quality Monitoring in October 2008







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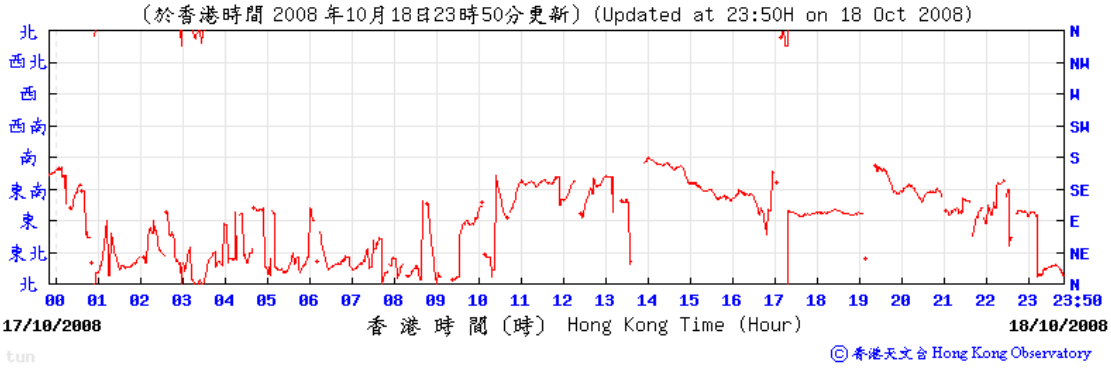
香 港 時 間 (時) Hong Kong Time (Hour)
17/10/2008
© 香港天文台 Hong Kong Observatory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17/10/2008
香 港 時 間 (時) Hong Kong Time (Hour)
18/10/2008
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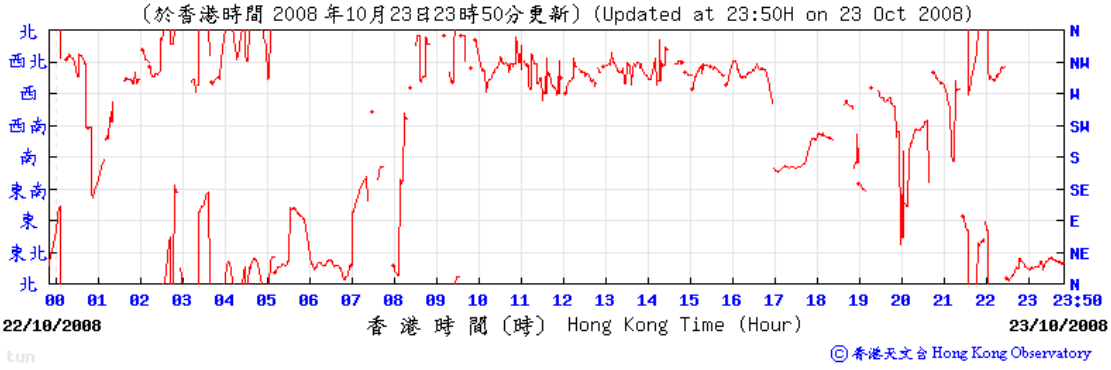
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香 港 時 間 (時) Hong Kong Time (Hour)
23/10/2008
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Appendix G

Calibration Certificate of Sound Level Meter and Acoustical Calibrator

CERTIFICATE OF CALIBRATION

Issued by: **Brüel & Kjær UK Ltd.**

Date of Issue: 01 FEB 2007 Certificate Number: 15784

UKAS CALIBRATION

0174

Brüel & Kjær

Bedford House, Rutherford Close, Stevenage.
Hertfordshire. SG1 2ND
Telephone: 01438 739100 Fax.: 01438 739199
E-Mail : ukservice@bksv.com

Approved signatory

Name: A.M. HAMM

Signature: A M Hamm

CALIBRATION OF MULTI FREQUENCY CALIBRATOR TYPE 4226

("Free Field and Random" version)

Client: ARUP ACOUSTICS
PARKIN HOUSE
8 ST. THOMAS STREET
WINCHESTER SO23 9HE

Calibrator Type 4226, S/No: 1531372

With Coupler UA0915, S/No: 1531372

Client Inventory Number: -

Manufacturer: Brüel & Kjær

Equipment Received on: 23 JAN 2007

Calibration Date: 01 FEB 2007

Brüel & Kjær Reference No: 1-97267724

Measurement Method

The Calibration was performed to Laboratory Procedure TWI-103.

Sound pressure level in the 1/2 inch coupler of the calibrator was measured with a laboratory grade condenser microphone Type 4180, used as a working standard, calibrated by the National Physical Laboratory.

CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0174

Certificate Number

15784

The measured sound pressure was compared with that generated in the coupler of a working standard pistonphone calibrated by the National Physical Laboratory whose output was cross checked against a reference standard pistonphone, also calibrated by the National Physical Laboratory, using the same microphone and at the same ambient conditions. Appropriate corrections for atmospheric pressure conditions during calibration and for the measurement frequency and level response were taken into account.

Sound pressure level results are the mean of 5 measurements.

Results apply directly to the following settings on the calibrator, pressure, linear, calibration, 94dB, microphone group a, b, c.

Results for frequency and distortion are the result of a single measurement.

Results for 104 and 114dB are only at 125Hz, 1kHz and 8kHz, compared with the output at 94dB.

Calibration results apply at ambient conditions during the process of calibration.

Calibrations marked (Not UKAS Accredited) in this certificate have been included for completeness.

CALIBRATION RESULTS

4226 Settings: Linear, Pressure, 94dB, Microphone Group c.

Frequency Setting Hz	Sound Pressure Level in dB re 20μPa	Frequency Hz (Not UKAS Accredited)	Distortion % (Not UKAS Accredited)
31.5	94.13	31.63	0.5
63	94.07	63.13	0.2
125	94.04	125.9	0.2
250	94.02	251.3	0.2
500	94.00	502.5	0.2
1k	94.04	1.005 k	0.2
2k	94.02	1.979 k	0.4
4k	94.07	3.957k	0.7
8k	94.16	7.915k	0.3
12.5k	94.08	12.66 k	0.2

CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0174

Certificate Number

15784

Expanded uncertainty of calibration:

Sound Pressure Level:	±0.15dB from 31.5Hz to 2kHz, ±0.20dB at 4kHz and 8kHz, ±0.25dB at 12.5kHz
Frequency:	±1 last significant digit reported.
Distortion:	±0.3% distortion.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor *k*=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

ADDITIONAL TESTS

Sound Pressure Levels at Settings of 94, 104 and 114 dB

Frequency	Difference 104-94dB	Difference 114-94dB
125 Hz	9.99	19.97
1kHz	10.00	19.98
8kHz	9.96	19.93

Result of a single measurement, expanded uncertainty ±0.15dB

Inverted "A" Weighting, Readings Relative to 1kHz in dB

Frequency Hz	31.5	63	125	250	500	1 k	2 k	4 k	8 k	12.5 k
Target Value	+39.4	+26.2	+16.1	+8.6	+3.2	0	-1.2	-1.0	+1.1	+4.3
Reading	39.6	26.2	16.1	8.6	3.2	0.0	-1.2	-1.0	1.2	4.3

Target values according to BS EN 60651 - 1994 - results of a single measurement, values rounded to 0.1 dB, expanded uncertainty ±0.3dB.

CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0174

Certificate Number

15784

Free Field and Random settings

	Free Field Setting						Random	
	Microphone Group a		Microphone Group b		Microphone Group c		Microphone Group b	
Freq. Hz	Target Value dB	Reading dB	Target Value dB	Reading dB	Target Value dB	Reading dB	Target Value dB	Reading dB
250	0	0.00	0	0.00	0	0.00	0	0.00
500	0	0.00	0	0.00	0	0.00	0	0.00
1k	+0.15	0.15	+0.20	0.19	+0.10	0.10	+0.05	0.03
2k	+0.50	0.49	+0.45	0.44	+0.35	0.34	+0.10	0.09
4k	+1.35	1.34	+1.05	1.04	+0.95	0.93	+0.15	0.13
8k	+4.50	4.47	+2.80	2.78	+2.60	2.58	+0.40	0.38
12.5k	+7.35	7.29	+5.60	5.54	+5.05	5.00	+1.50	1.48

Target values as specified in the manufacturer's manual, result of a single measurement, expanded uncertainty ±0.2dB.

Ambient conditions during calibration were:

Atmospheric Pressure ..... 101.7 .....kPa

Temperature ..... 23 .....° C

Relative Humidity ..... 47 .....%

Checked by:

ArupAcoustics

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG

Tel: +852 2268 3216

Fax: +852 2268 3950

AAc Certificate No. 2007001

CERTIFICATE OF CONFORMITY

Description of Test Instrument	Type No	Serial No
Bruel & Kjaer 4231Acoustic Calibrator	4231	2314016

Date of Test: 01 September 2007

Carried out by: Raymond Liu

Signature: Raymond

Approved by: William Ng

Signature: Wilh Ng

Ambient Conditions During Test	
Atmospheric Pressure:	1KPa
Air Temperature:	21°C
Relative Humidity:	58%

This document is to certify that the above Test Instrumentation did conform to the manufacturer's original specification on the date of the test. Any adjustments that were required to bring the instrumentation back into specification are duly noted in this document. The tests were carried out using the reference calibrator described below.

Description of Reference Calibrator	Type No	Serial No
Brüel & Kjær Multi Frequency Calibrator	4226	1531372
Brüel & Kjær Coupler	UA0915	1531372

Certificate of Calibration Serial No.	15784
By Brüel & Kjær (UK) Ltd Calibration Date:	01 February 2007
NAMAS Accredited Calibration Laboratory No.	0174

The reference calibrator, Type 4226, has traceable calibration back to National Measurement Standards. As such it is used as Arup Acoustics own 'Primary Standard' and is used only for controlled laboratory calibration tests on all sound measuring equipment owned by Arup Acoustics.

Footnote:

AAc IN-HOUSE SPECIFICATION TEST RESULTS

(for Brüel & Kjær 4231 Acoustic Calibrator)

4231 Serial No: 2314016 Calibrated By: RL

Date of Test: 1 September 2007 Checked By: WN

Atmospheric Pressure: 774.75 kPa approx

* Air Temperature: 21 °C approx (room temperature)

** Relative Humidity: 58 % approx

* and ** measured using Nagretti and Zambria Whirling Hygrometer or Radio Spares Temperature and Humidity Meter.

SOUND PRESSURE LEVEL TEST – Part 1

	4226 Primary Standard	1st set of free field readings		94 . 1 dB
*	4231 Under Test	1st set of free field readings		94 . 1 dB
*	(before any required level adjustment made)			
	Calibration Error of 4231	Within specification	YES/~~NO~~	___ . _ dB
		Outside specification	~~YES~~/NO	___ . _ dB

NOTE: Each set of readings comprises three individual readings, which are arithmetically averaged together

SOUND PRESSURE LEVEL TEST – Part 2

	4226 Primary Standard	2nd set of free field readings	94 . 1 dB
⊙	4231 Under Test	2nd set of free field readings	94 . 1 dB
⊙	(after corrective adjustment made)		

SPECIFICATION TOLERANCE FOR THE 4231 SOUND LEVEL CALIBRATOR IS
±0.3dB AT 23°C AND +0.5dB between 0 - 50°C

HARMONIC DISTORTION TEST

Maximum permitted harmonic distortion is 1% (53.8dB) of the SPL produced by the 4230 at 1kHz.

Measured Harmonic Distortion: 20.9 dB

0.04 %

CALIBRATION ACCURACY
THE ACCURACY OF THE AAc IN-HOUSE CALIBRATION SET UP FOR 4231 CALIBRATORS IS BETTER THAN: +0.43dB 95% CONFIDENCE LEVEL +0.3dB 80% CONFIDENCE LEVEL

ArupAcoustics

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
HONG KONG

Tel: +852 2268 3216

Fax: +852 2268 3950

AAc Certificate No. 2007006

CERTIFICATE OF CONFORMITY

Description of Test Instrument	Type No	Serial No
Brüel & Kjær Sound Level Meter Kit	2238	2320707
Brüel & Kjær ½ " Microphone Kit	4188	2179479

Date of Test: 01 September 2007

Carried out by: Raymond Liu

Signature: Raymond

Approved by: William Ng

Signature: William Ng

Ambient Conditions During Test	
Atmospheric Pressure:	1KPa
Air Temperature:	21°C
Relative Humidity:	58%

This document is to certify that the above Test Instrumentation did conform to the manufacturer's original specification on the date of the test. Any adjustments that were required to bring the instrumentation back into specification are duly noted in this document. The tests were carried out using the reference calibrator described below.

Description of Reference Calibrator	Type No	Serial No
Brüel & Kjær Multi Frequency Calibrator	4226	1531372
Brüel & Kjær Coupler	UA0915	1531372

Certificate of Calibration Serial No.	15784
By Brüel & Kjær (UK) Ltd Calibration Date:	01 February 2007
NAMAS Accredited Calibration Laboratory No.	0174

The reference calibrator, Type 4226, has traceable calibration back to National Measurement Standards. As such it is used as Arup Acoustics own 'Primary Standard' and is used only for controlled laboratory calibration tests on all sound measuring equipment owned by Arup Acoustics.

Footnote:

AAc SOUND LEVEL METER CALIBRATION DOCUMENT ARUP

INSTRUMENT UNDER TEST:

SLM Type No.:	2238	Date:	01 September 2007
Serial No.:	2320707	Calibrated by:	RL
Mic. Type No.:	4188	Checked by:	WN
Serial No.:	2179479	Applies to AAc Certificate No.:	2007001

AMBIENT CONDITIONS DURING TEST:

Temperature 22 °C

Relative Humidity: 60 %

NOTE: Before commencing calibration tests, check that SLM meter displays 94dB when set to internal 'REF'erence, and the Ko factor is set to 0.0dB. If adjustment is required, use the "adj" pot at the side of the meter casing, then apply a 'VOID IF BROKEN' calibration sticker over hole.

TEST 1: LINEAR FREQUENCY RESPONSE TEST @ 94dB (RANDOM)

SLM set to 120dB/"L_{Π}"/SPL/FAST/RANDOM/RMS

4226 set to Mic b/RANDOM/94dB/LIN/CAL

	Octave Band Centre Frequency, Hz										
	31.5	63	125	250	500	1k	2k	4k	8k	12.5kHz	
Target Values, dB	94.13	94.07	94.04	94.02	94.00	94.04	94.02	94.07	94.16	94.08	
Actual Values, dB	94.50	94.30	94.10	94.00	93.90	94.00	93.80	93.60	93.90	93.60	**PASS/~~FAIL~~**
Tolerance, ±dB	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	1.00	

TEST 2: LINEAR FREQUENCY RESPONSE TEST @ 94dB (FREE FIELD)

SLM set to 120dB/"L_{Π}"/SPL/FAST/FRONTAL/RMS

4226 SET TO Mic b/FREE FIELD/94dB/LIN/CAL

	Octave Band Centre Frequency, Hz										
	31.5	63	125	250	500	1k	2k	4k	8k	12.5kHz	
Target Values, dB	94.13	94.07	94.04	94.02	94.00	94.04	94.02	94.07	94.16	94.08	
Actual Values, dB	94.40	94.30	94.10	94.00	93.90	94.00	94.10	94.00	93.70	93.20	**PASS/~~FAIL~~**
Tolerance, ±dB	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	1.00	

TEST 3: SLM LINEARITY TEST

SLM set to 120dB/SPL/RANDOM/LINEAR NARROW/FAST/RMS

4226 set to Mic b/RANDOM/LIN/CAL

4226 SPL: 104dB	Octave Band Centre Frequency, Hz									
	31.5	63	125	250	500	1k	2k	4k	8k	
Target Values, dB	104.12	104.02	104.01	104.01	104.0	104.05	104.04	104.04	104.11	
Actual Values, dB	104.50	104.20	104.10	104.00	103.90	103.90	103.70	103.60	103.70	**PASS/~~FAIL~~**
Tolerance, ±dB	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	

4226 SPL: 114dB	Octave Band Centre Frequency, Hz									
	31.5	63	125	250	500	1k	2k	4k	8k	
Target Values, dB	114.12	114.02	114.01	114.01	114.0	114.05	114.04	114.04	114.11	
Actual Values, dB	113.90	113.90	113.90	113.80	113.80	113.80	113.70	113.70	113.70	**PASS/~~FAIL~~**
Tolerance, ±dB	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	

TEST 4: SLM 'A' WEIGHTING RESPONSE

SLM set to 120dB/RANDOM/'A'WEIGHTING/FAST/RMS

4426 set to Mic b/RANDOM/INV'A'/94dB/CAL

	Octave Band Centre Frequency, Hz										
	31.5	63	125	250	500	1k	2k	4k	8k	12.5kHz	
Target Values, dB	94.12	94.02	94.01	94.01	94.0	94.05	94.04	94.04	94.11	94.08	
Actual Values, dB	95.10	94.00	94.10	94.00	94.00	94.00	93.90	93.40	94.70	94.00	**PASS/~~FAIL~~**
Tolerance, ±dB	±1.50	±1.50	±1.00	±1.00	±1.00	±1.00	±1.00	±1.00	+1.5 -3.0	+3 -6	

TEST 5: SLM TIME WEIGHTING TESTS

SLM set to 100dB/SPL/RANDOM/LINEAR Narrow/FAST-SLOW/RMS

4226 set to Mic b/RANDOM/LIN/TIME WEIGHTING FAST-SLOW (2kHz) TEST LEVEL

Test level adjusted for 96dB before commencing test **PASS/~~FAIL~~**

Response	Target, dB	Actual, dB	TOLERANCE
FAST	95.0	94.6	±1.0
SLOW	91.9	91.4	±1.0

TEST 6: **CREST FACTOR (SLM set to FAST)**

Test level set for 96dB before commencing test

SLM READING: 96 dB TARGET: 96.0 dB TOLERANCE: 0.0 dB

TEST 7: **INTERNAL ELECTRICAL NOISE LEVELS (using 100pf glass capacitor across SLM input stage)**

SLM set to 60dB/L"⊓"/L_{eq}/SLOW/RANDOM/RMS

	Actual Level
'A' Weighted	11.5
Linear Band	17.2

COMMENTS

GENERAL CONDITION OKAY	**YES**	~~**NO**~~

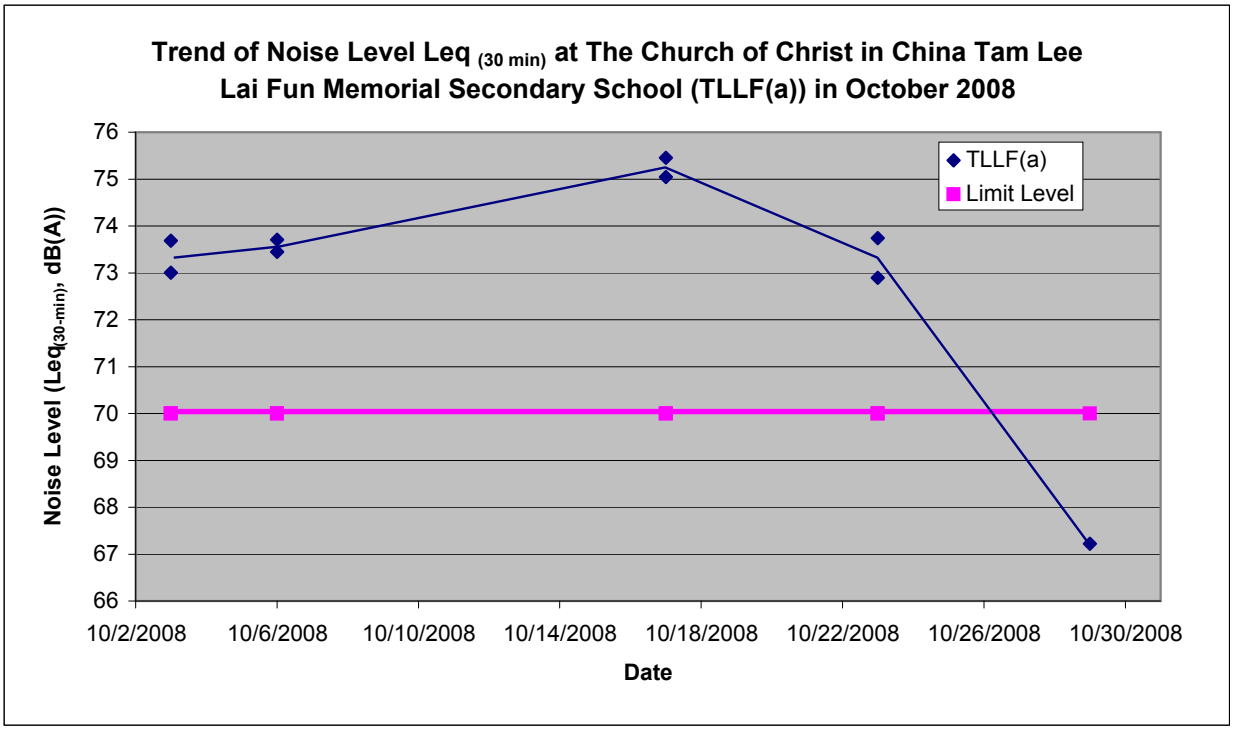
Appendix H

Impact Noise Monitoring Results

The Church of Christ in China Tam Lee Lai Fun Memorial Secondary School, TLLF(a)
Day-time Noise Monitoring Data

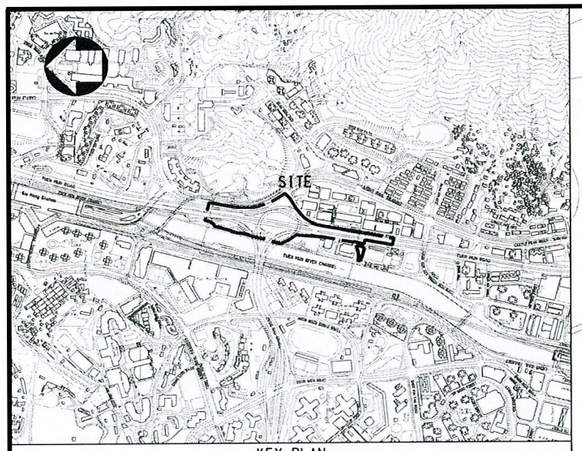
Note (*): Façade correction is included.

Date	Start Time	$L_{eq\ (5\text{-}min)}$, dB(A)	$L_{eq\ (30\text{-}min)}$, dB(A)*	$L10_{\ (5min)}$, dB(A)	$L10_{\ (5\text{-}min)}$, dB(A)*	$L_{90\ (5min)}$, dB(A)	$L_{90\ (5min)}$, dB(A)*
3-Oct-08	4:00 PM	70.6		73.0		66.5	
(Friday)	4:05 PM	69.8		72.0		66.0	
	4:10 PM	69.5	73.0	72.0	75.3	65.5	68.9
	4:15 PM	69.6		72.0		65.0	
	4:20 PM	70.0		72.5		66.0	
	4:25 PM	70.4		72.5		66.0	
	5:00 PM	70.5		72.5		67.5	
	5:05 PM	70.2		73.0		67.2	
	5:10 PM	70.1	73.7	72.6	75.9	67.5	70.4
	5:15 PM	70.9		73.0		67.0	
	5:20 PM	71.3		73.2		67.1	
	5:25 PM	71.0		73.1		68.0	
6-Oct-08	1:15 PM	71.1		73.5		67.0	
(Monday)	1:20 PM	70.6		72.5		66.5	
	1:25 PM	70.7	73.7	72.5	75.7	66.5	69.5
	1:30 PM	70.2		72.5		66.0	
	1:35 PM	70.8		72.5		66.5	
	1:40 PM	70.8		72.5		66.5	
	2:00 PM	69.9		72.5		66	
	2:05 PM	70.2		73		65	
	2:10 PM	70.4	73.4	73	76.0	64.5	68.8
	2:15 PM	70.9		73.5		66.5	
	2:20 PM	70.6		73		66	
	2:25 PM	70.6		73		66.5	
17-Oct-08	3:30 AM	71.3		73.5		67	
(Friday)	3:35 AM	71.6		74		68	
	3:40 AM	70.2	75.0	72.5	77.3	67.5	72.0
	3:45 AM	72.3		74.5		69.5	
	3:50 AM	71.4		73.5		68	
	3:55 AM	74.3		76.5		72	
	4:15 AM	72.1		74		69	
	4:20 AM	72.6		74.5		69	
	4:25 AM	72.3	75.5	74.5	77.4	69	72.3
	4:30 AM	72.8		75		69.5	
	4:35 AM	72.3		74.5		69	
	4:40 AM	72.6		74		70	
23-Oct-08	11:45 AM	68.6		70.5		65.5	
(Thrusday)	11:50 PM	69.2		71.5		66.0	
	11:55 AM	71.1	72.9	73.5	74.9	68.5	70.7
	12:00 AM	70.5		72.5		68.5	
	12:05 PM	70.0		71.5		69.0	
	12:10 AM	69.5		71.0		67.5	
	1:15 PM	70.4		73		64.5	
	1:20 PM	70.9		73.5		66.5	
	1:25 PM	70.6	73.7	73	76.2	66	69.3
	1:30 PM	70.6		73		66.5	
	1:35 PM	70.9		73		66.5	
	1:40 PM	71		73.5		67.5	
29-Oct-08	10:00 AM	64.2		67		62.5	
(Wednesday)	10:05 AM	64.3		66.5		63	
	10:10 AM	65.1	67.2	67	69.2	62.5	65.4
	10:15 AM	62.7		64.5		61.5	
	10:20 AM	63.7		65		60.5	
	10:25 AM	64.9		66.5		63.5	
Average			**73.6**		**75.8**		**70.1**
Minimum			67.2		69.2		65.4
Maximum			75.5		77.4		72.3


Trend of Noise Level Leq (30 min) at The Church of Christ in China Tam Lee Lai Fun Memorial Secondary School (TLLF(a)) in October 2008
Noise Level (Leq(30-min), dB(A))
76
75
74
73
72
71
70
69
68
67
66
10/2/2008
10/6/2008
10/10/2008
10/14/2008
10/18/2008
10/22/2008
10/26/2008
10/30/2008
Date
TLLF(a)
Limit Level

Appendix I

Locations of Forty Trees to be affected during the Construction Stage



KEY PLAN
SCALE 1:10000

NOTES :

1. ALL LEVELS AREA IN METRES ABOVE H.K.P.D.
2. CO-ORDINATES AREA OF HONG KONG 1980 GRID SYSTEM.

LEGEND :

- LIMIT OF WORKS AREA
- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE FELLED
- EXISTING TREE TO BE TRANSPLANTED
- PROPOSED EDGE OF VERGES
- PROPOSED NOISE BARRIER

Tree to be affected

CASTLE PEAK ROAD - SAN HUI

TUEN MUN ROAD

TUEN MUN RIVER CHANNEL

CASTLE PEAK ROAD (SAN HUI) PARK

TSENG CHOI STREET

Fung Tei Garden

LRT Stop-Fung Tei

Bicycle Track

Elevated Road

Light Rail Transit

Tsing Min Children's Playground

King Fung Children's Playground

Kwong Choi Market

815 900E

815 800E

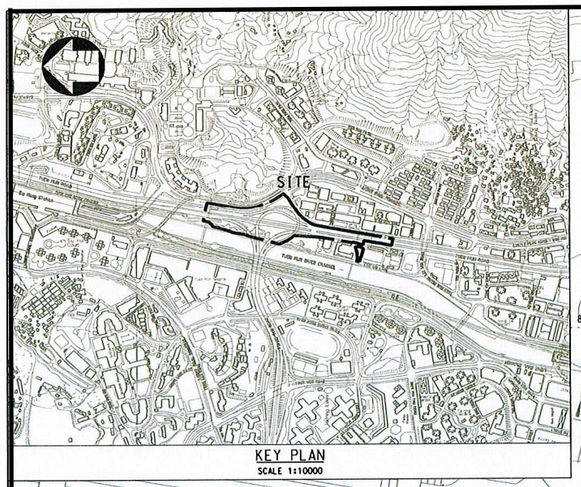
DRAWING NO. LA2003

ARUP

Contract No. HY/2007/14
WIDENING OF TSING TIN INTERCHANGE

TREE SURVEY PLAN ALONG THE ROADSIDE PLANTING AT TSING TIN INTERCHANGE (LR1)

SCALE		DATE	OCT 2008
CHECK	CN	DRAWN	CL
JOB No.	25333	DRAWING No.	REV



NOTES :

1. ALL LEVELS AREA IN METRES ABOVE H.K.P.D.
2. CO-ORDINATES AREA OF HONG KONG 1980 GRID SYSTEM.

LEGEND :

- LIMIT OF WORKS AREA
- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE FELLED
- EXISTING TREE TO BE TRANSPLANTED
- PROPOSED EDGE OF VERGES
- PROPOSED NOISE BARRIER

Tree to be affected

CASTLE PEAK ROAD - SAN HUI
TUEN MUN ROAD
TUEN MUN RIVER CHANNEL
TSING TIN ROAD
CASTLE PEAK ROAD (SAN HUI) PARK
TSENG CHOI STREET
TSING MIN PATH
Light Rail Transit
Elevated Road
Subway
Victory Building
Tsing Min Children's Playground
Kwong Choi Market
LRT Stop-Fung Tei
Bicycle Track
Ramp
RCP
815 900E
815 800E
815 700E

ARUP

Contract No. HY/2007/14
WIDENING OF TSING TIN INTERCHANGE

TREE SURVEY PLAN WITHIN CASTLE PEAK ROAD (SAN HUI) PARK (LR2)

SCALE		DATE	OCT 2008
CHECK	CN	DRAWN	CL
JOB No.	25333	DRAWING No.	REV

Appendix J

Environmental Monitoring Programme for the Coming Months

Contract No. HY/2007/14 Widening of Tuen Mun Road at Tsing Tin Interchange
Impact Monitoring Schedule (November 2008) Revision 1

Date		Air Quality		Noise	Landscape & Visual	Weekly Site Inspection
		1-hour TSP	24-hours TSP	L_{Aeq}, 30 min		
1-Nov-08	Sat					
2-Nov-08	Sun					
3-Nov-08	Mon					
4-Nov-08	Tue	AM1(a) & AM3(a)		TLLF(a)		
5-Nov-08	Wed		AM1(a) & AM3(a)			
6-Nov-08	Thu					
7-Nov-08	Fri					
8-Nov-08	Sat					
9-Nov-08	Sun					
10-Nov-08	Mon	AM1(a) & AM3(a)		TLLF(a)		
11-Nov-08	Tue		AM1(a) & AM3(a)			
12-Nov-08	Wed					
13-Nov-08	Thu					
14-Nov-08	Fri					
15-Nov-08	Sat	AM1(a) & AM3(a)		TLLF(a)		
16-Nov-08	Sun					
17-Nov-08	Mon		AM1(a) & AM3(a)			
18-Nov-08	Tue					
19-Nov-08	Wed					
20-Nov-08	Thu					
21-Nov-08	Fri	AM1(a) & AM3(a)		TLLF(a)	Monthly	
22-Nov-08	Sat		AM1(a) & AM3(a)			
23-Nov-08	Sun					
24-Nov-08	Mon					
25-Nov-08	Tue					
26-Nov-08	Wed					
27-Nov-08	Thu	AM1(a) & AM3(a)		TLLF(a)		
28-Nov-08	Fri		AM1(a) & AM3(a)			
29-Nov-08	Sat					
30-Nov-08	Sun					

	Public Holiday
	Monitoring Day

Contract No. HY/2007/14 Widening of Tuen Mun Road at Tsing Tin Interchange
Impact Monitoring Schedule (December 2008) Revision 1

Date		Air Quality		Noise	Landscape & Visual	Weekly Site Inspection
		1-hour TSP	24-hours TSP	L_{Aeq}, 30 min		
1-Dec-08	Mon					
2-Dec-08	Tue					
3-Dec-08	Wed	AM1(a) & AM3(a)		TLLF(a)		
4-Dec-08	Thu		AM1(a) & AM3(a)			
5-Dec-08	Fri					
6-Dec-08	Sat					
7-Dec-08	Sun					
8-Dec-08	Mon					
9-Dec-08	Tue	AM1(a) & AM3(a)		TLLF(a)		
10-Dec-08	Wed		AM1(a) & AM3(a)			
11-Dec-08	Thu					
12-Dec-08	Fri					
13-Dec-08	Sat					
14-Dec-08	Sun					
15-Dec-08	Mon	AM1(a) & AM3(a)		TLLF(a)		
16-Dec-08	Tue		AM1(a) & AM3(a)			
17-Dec-08	Wed					
18-Dec-08	Thu					
19-Dec-08	Fri					
20-Dec-08	Sat	AM1(a) & AM3(a)		TLLF(a)		
21-Dec-08	Sun					
22-Dec-08	Mon		AM1(a) & AM3(a)			
23-Dec-08	Tue					
24-Dec-08	Wed	AM1(a) & AM3(a)		TLLF(a)	Monthly	
25-Dec-08	Thu					
26-Dec-08	Fri					
27-Dec-08	Sat		AM1(a) & AM3(a)			
28-Dec-08	Sun					
29-Dec-08	Mon					
30-Dec-08	Tue	AM1(a) & AM3(a)		TLLF(a)		

	Public Holiday
	Monitoring Day