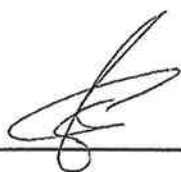


Highways Department

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

Baseline Monitoring
Report



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



Verified by Independent Environmental Checker
Antony Wong
Hyder Consulting Limited

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Executive Summary

In accordance with the EM&A Manual of the Project, environmental baseline monitoring prior to construction work of the Project should be carried out at 3 locations. However, representative of Lakeshore Building rejected the access on installation of monitoring equipment and no other alternative locations could be identified to replace it. The baseline monitoring was therefore undertaken at the Kwong Choi Market and The CCC Tam Lee Lai Fun Memorial Secondary School. The monitoring was started on 17th and completed on 30th July 2008 to cover a period of 2 weeks.

Air quality was recorded in terms of 1-hr TSP and 24-hour TSP, and noise was measured in terms of L_{eq} dB(A) with L_{10} and L_{90} measurements as reference. **Tables E1** and **E2** summarise the air quality and noise monitoring results respectively with the Action and Limit Levels.

Table E1 Air quality monitoring results as well as Action and Limit level

Location	Measurement Result ($\mu\text{g}/\text{m}^3$)		Action Level ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-hour	24-hour	1-hour	24-hour	1-hour	24-hour
Kwong Choi Market	10 to 544	27 to 140	323	161	500	260
The CCC Tam Lee Lai Fun Memorial Secondary School	15 to 554	27 to 216	305	168	500	260

Table E2 Noise monitoring results as well as Action and Limit level at The Church of Christ in China Tam Lee Lai Fun Memorial Secondary School

Parameter	Monitoring Result	Action Level	Limit Level
Day-time, $L_{Aeq(30 \text{ min})}$ (0700-1900 hours)	66 – 77 dB(A)	When one documented complaint is received	70 / 65 dB(A) (Note 1)
Evening-time, $L_{Aeq(5 \text{ min})}$ (1900-2300 hours)	66 – 82 dB(A)		70 dB(A) (Note 2)
Night-time, $L_{Aeq(5 \text{ min})}$ (2300-0700 hours)	59 – 75 dB(A)		55 dB(A) (Note 2)

Notes: (1) For normal day-time period, noise criteria are 70 and 65 dB(A) for normal teaching & examination periods respectively.

(2) During restricted hours, conditions stipulated in CNP issued by the Noise Control Authority have to be followed.

Regarding the landscape and visual baseline condition, no significant change in terms of landscape resource, landscape character area and view from visual sensitive receivers in respect of the EIA Report was recorded. Hence, no revision of landscape and visual mitigation measures is considered required for both construction phase and operation phase proposed in Section 10.7 of the EIA Report.

1 Background Information

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. The major construction period of the Project is planned to be commenced from August 2008 to December 2009.

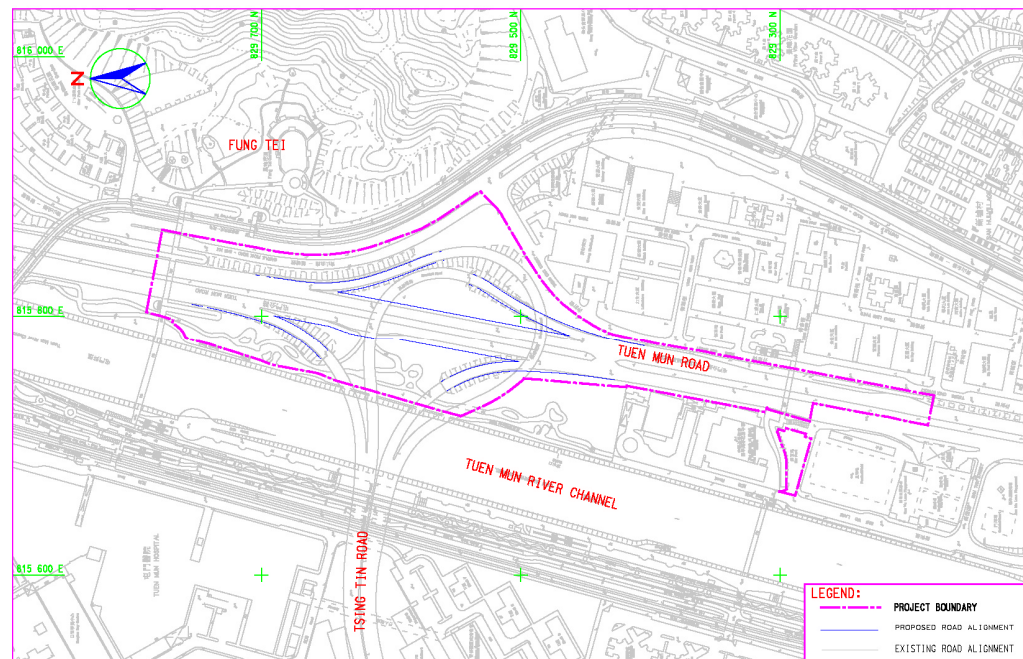
1.1 Project background

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 Baseline EM&A Requirement

The baseline environmental monitoring included the following works prior to the commencement of any construction activities:

- (i) Air quality monitoring (both 1-hour and 24-hour TSP);
- (ii) Noise monitoring; and
- (iii) Landscape and visual monitoring.

Air quality of 24-hour TSP should be carried out at least 14 consecutive days, while 1-hour TSP sampling should be sampled at least 3 times per day.

Noise monitoring should be carried out daily for a period of at least 14 consecutive days at a minimum logging interval 30 minutes (as 6 consecutive L_{Aeq} , 5min readings) for daytime and 5 minutes (L_{Aeq} , 5min readings) for evening time and night time. The L_{eq} , L_{10} and L_{90} should be recorded at the specified interval.

Baseline Landscape and visual review in terms of landscape resource, landscape character area and view from visual sensitive receivers in respect of the EIA Report should be conducted.

1.3 Purpose of the Report

The purpose of the baseline environmental monitoring, as described in Section 10.2 of the EM&A Manual, is to establish ambient conditions prior to the commencement of the works and to demonstrate the suitability of the monitoring stations.

2 Monitoring Methodology

The baseline monitoring was conducted from 17th to 30th July 2008 for a period of 14 consecutive days prior to the commencement of any construction works, while details of the monitoring schedule are attached in **Annex A1**. Following sections describe the methodology adopted for the monitoring.

2.1 Air Quality

2.1.1 Monitoring Parameters and Frequency

Baseline air quality monitoring for 24-hour Total Suspended Particulates (TSP) was undertaken during the monitoring period. 1-hour TSP measurement was carried out 3 times per day during the same period.

General meteorological conditions including temperature, wind speed, wind direction and precipitation were recorded throughout the baseline monitoring period.

2.1.2 Monitoring Equipment

High Volume Sampler (HVS) was used to monitor the 24-hour and 1-hour TSP. **Table 2.1** shows the equipment used for baseline air quality monitoring.

Table 2.1: Air quality equipment list for baseline 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		112
HVS Calibration Kit	GMW-2535		1

2.1.3 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 **Annex B**.

2.1.4 Monitoring Procedures

Specifications of the HVS are as follows:

- 0.6 – 1.7 m³/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 cm² (63in²);
- 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)) with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments, to handle the 1-hr and 24-h 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-hr and 24-hr 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 a readout down to 0.1 mg. All the collected samples shall be kept in a good condition for 6 months before disposal.

2.1.5 Monitoring Location

In accordance with the EM&A Manual, three air quality monitoring locations were required for the 1-hour and 24-hour monitoring, namely:

- (i) Kwong Choi Market at 2 Tsing Min Path (AM1);
- (ii) Lakeshore Building at 7 Tseng Choi Street (AM2); and
- (iii) The Church of Christ in Chan Tam Lee Lai Fun Memorial School at 10 San Wo Lane (AM3).

Liaisons with the representative or owner of the above premises were conducted. Representative of Kwong Choi Market (AM1) and The Church of Christ in Chan Tam Lee Lai Fun Memorial School (AM3) agreed to allow access and installation of monitoring equipment, of which the locations were slightly relocated within the premises due to physical site constraint. However, representative of Lakeshore Building (AM2) rejected the request of access and installation of the monitoring so liaisons to the premises which are in the vicinity of Lakeshore Building included Kam Fat Building, Tan Oi Building, Nam Kwong Building, Kam Men Mansion, Florence Mansion, Ka Hay Building, Fung Tei Park, Victory Building, Kam Bo Building and Rich Building were undertaken, they all rejected the same requested. Since there was no replacement of Lakeshore Building could be found, baseline and impact air quality monitoring at Lakeshore Building is proposed to be deleted. **Table 2.2** summarizes the liaison results and recommendations, while the new proposed air quality baseline and impact monitoring programme is given in **Table 2.3**. **Photos 2.1** and **2.2** show the original monitoring location of AM1 and AM3 respectively described in the EM&A manual while **Photos 2.3** and **2.4** show the installed HVS at proposed baseline monitoring locations for AM1(a) and AM3(a) respectively. Drawing to show the original and proposed monitoring locations is shown in **Annex A3**. Details of the monitoring proposal can be referred to **Annex A2**.

Table 2.2: Summary of air quality baseline monitoring liaison results and recommendations

ID	Premise	Findings	Recommendation / Justification
AM1	Kwong Choi Market at 2 Tsing Min Path	AM1 is situated at the entrance of the market. Since it is a public place and lacking of proper electricity supply for the HVS, it is not suitable.	Relocate to the roof of the market as agreed by the market representative. New designation: AM1(a)
AM2	Lakeshore Building at 7 Tseng Choi Street	Representative of management office rejected the placement of the HVS since the building will carry out facade renovation work soon until 2009. Endeavour was made to other buildings which are in vicinity of the Lakeshore Building included Kam Fat Building, Tan Oi Building, Nam Kwong Building, Kam Men Mansion, Florence Mansion, Ka Hay Building, Fung Tei Park, Victory Building, Kam Bo Building and Rich Building, they all rejected the placement of the HVS.	Propose to delete the air quality baseline and impact monitoring at this location. In fact, due to the vicinity of the Kwong Choi Market, monitoring results obtained from the market can be referenced to the Lakeshore Building.
AM3	The Church of Christ in Chan Tam Lee Lai Fun Memorial School at 10 San Wo Lane	AM3 is situated at the roof top of the school hall, but access was denied by the school principal.	Relocate to the school garden as agreed by the school principal. New designation: AM3(a)

Table 2.3: Summary of proposed new air quality baseline and impact monitoring programme

ID	Premise	Address	Monitoring Location Detail
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

Remark:

Symbol '(a)' is denoted for the relocated location IDs to differentiate from the designated locations for ease of reference.

Photo 2.1: Original EM&A proposed monitoring location at Kwong Choi Market (AM1)



Photo 2.2: Original EM&A proposed monitoring location at The CCC Tam Lee Lai Fun Memorial School (AM3)



Photo 2.3: HVS installed at Kwong Choi Market (AM1(a))



Photo 2.4: HVS installed at The CCC Tam Lee Lai Fun Memorial School (AM3(a))



2.2 Noise

2.2.1 Monitoring Parameters and Frequency

Baseline noise monitoring for daytime (0700-1900) was undertaken continuously during the monitoring period. The measurement parameters were $L_{Aeq(30mins)}$ (as 6 consecutive $L_{Aeq(5mins)}$ readings), L_{10} and L_{90} . Monitoring at restricted hours (i.e. 1900-2300, 2300-0700 and Sundays) was taken in 5-minute intervals during each respective period. The measurement parameters were $L_{Aeq(5mins)}$, L_{10} and L_{90} . Details of the monitoring proposal can be referred to **Annex A2**.

2.2.2 Monitoring Equipments

Baseline 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 2.4** shows the equipment list of the baseline noise monitoring.

Table 2.4: Noise equipment list for baseline noise monitoring

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

2.2.3 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 **Annex C**.

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 annually in-house using Brüel & Kjær (B&K) calibrator model no 4226. The calibrator is annually calibrated by the National Physical Laboratory in Teddington, London, which is accredited by National Measurement Accreditation Service (NAMAS). 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 **Annex C**.

2.2.4 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 agree to within 1.0 dB.

2.2.5 Monitoring Location

In accordance with the EM&A Manual, two noise monitoring locations were required, namely:

- (i) Lakeshore Building at 7 Tseng Choi Street (LB1); and
- (ii) The Church of Christ in Chan Tam Lee Lai Fun Memorial School at 10 San Wo Lane (TLLF).

Liaisons with the representative/owner of the above premises were conducted. The Church of Christ in Chan Tam Lee Lai Fun Memorial School (TLLF) agreed to allow access and installation of monitoring equipment, of which the location was slightly relocated within the premises due to teaching activities of the school. However, representative of Lakeshore Building rejected the request of access and installation of the monitoring so liaison to other premises which are in the vicinity of Lakeshore Building included Kam Fat Building, Tan Oi Building, Nam Kwong Building, Kam Men Mansion, Florence Mansion, Ka Hay Building, Fung Tei Park, Victory Building, Kam Bo Building and Rich Building, they all rejected the same requested. Since there was no replacement of Lakeshore Building could be found, baseline and impact noise monitoring at Lakeshore Building is proposed to be deleted.

Table 2.5 summarizes the liaison results and recommendations, while the new proposed

noise baseline and impact monitoring programme is given in **Table 2.6**. **Photos 2.5** and **2.6** show the original monitoring location described in the EM&A manual and the installed noise meter at proposed baseline monitoring location respectively. Drawing to show the original and proposed monitoring locations is shown in **Annex A3**. Details of the monitoring proposal can be referred to **Annex A2**.

Table 2.5: Summary of noise baseline monitoring liaison results and recommendations

ID	Premise	Findings	Recommendation / Justification
LB1	Lakeshore Building at 7 Tseng Choi Street	Representative of management office rejected the placement of the noise meter since the building will carry out facade renovation work soon until 2009. Endeavour was made to other buildings which are in vicinity of the Lakeshore Building included Kam Fat Building, Tan Oi Building, Nam Kwong Building, Kam Men Mansion, Florence Mansion, Ka Hay Building, Fung Tei Park, Victory Building, Kam Bo Building and Rich Building, they all rejected the placement of the noise meter.	Propose to delete the noise baseline and impact monitoring at this location.
TLLF	The Church of Christ in Chan Tam Lee Lai Fun Memorial School at 10 San Wo Lane	TLLF is situated at the roof top of the school academic building, but school students will always go there for academic purposes.	Relocate to the car park of the school (line of sight between the noise meter and car park area was avoided but direct line of sight between the noise meter and construction site was maintained). New designation: TLLF(a)

Table 2.6: Summary of proposed new noise baseline and impact monitoring programme

ID	Premise	Address	Monitoring Location Detail
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.

Photo 2.5: Original EM&A proposed monitoring location at The CCC Tam Lee Lai Fun Memorial School (TLLF)



Photo 2.6: Noise meter installed at The CCC Tam Lee Lai Fun Memorial School (TLLF(a))



2.3 Landscape and Visual Impact

2.3.1 Monitoring Parameters

Baseline site survey was undertaken on 17 and 18 June 2008 to review the landscape and visual conditions of the site and its vicinity with regard to parameters assessed in the EIA

Report, including landscape resource, landscape character area (LCA) and view condition of visual sensitive receiver (VSR). The components of each assessed parameter of landscape resource, LCA and VSR are summarised below:

Landscape Resource

- Roadside planting at Tsing Tin Interchange (LR1); and
- Castle Peak Road (San Hui) Park (LR2).

Landscape Character Area (LCA)

- Transportation Corridor LCA (LCA1);
- Park Urban LCA (LCA2);
- Tuen Mun Urban LCA (LCA3); and
- Tuen Mun River Channel LCA (LCA4).

Visual Sensitive Receiver (VSR)

- Lakeshore Building, Rich Building, Victory Building, Kim Po Building & Common Bond Building (R1);
- Kam Fat Building, Yan Oi Building, Lam Kwong Building & Kam Men Building (R2A);
- Florence Mansion, Ka Hay Building & Hip Pont Building (R2B);
- Dorboa Building, Elite Garden, Tung Wai Court, Wah Hing Mansion, Wah Lee Building, Sai Po Building, Look Yuen, Cheung Lung Building, On Lai Building & Man Cheong Building (R3);
- Brilliant Garden (R4);
- Tuen Mun Fire Services (R&F) Married Quarters (R5);
- Tsing Chung Koon Road Government Quarters (R6);
- Affluence Garden (R7);
- Chelsea Heights (R8);
- Siu Hong Court (R9);
- Prime View Garden (R10A);
- Kingston Terrace (R10B);
- Grandeur Garden & Elegance Garden (R11);
- Parkview Court (R12);
- Eldo Court & Hong Lai Garden (R13);
- CCC Tam Lee Lai Fun Memorial Secondary School (GIC1);
- Mung Yan Primary School (GIC2);
- Tuen Mun Hospital and Ambulatory Care Centre (GIC3);
- Kwong Choi Market (GIC4);
- Tuen Mun Government Primary School (GIC5);
- Tuen Mun Church, Tseng Choi Street Joint-user Complex & Electric Substation (GIC6);
- Castle Peak Road (San Hui) Park (O1);
- Tuen Mun Riverside Park (O2);

- Fung Tei Garden (O3);
- San Wo Lane Playground (O4);
- Travellers along Tuen Mun Road (T1); and
- Users of Light Rail (T2).

2.3.2 Monitoring Procedures and Locations

In accordance with the EM&A Manual, site survey was conducted by a landscape auditor to check and record any changes of the landscape and visual baseline conditions in respect of the EIA Report. The monitoring procedures and criteria as described in the EIA Report were adopted for the baseline landscape and visual assessment.

Landscape resources, as the individually tagged trees, were checked against the "Tree Assessment Schedule (for Trees under jurisdiction of LCSD)" in Appendix 10.1 of the EIA Report. The present baseline condition of LCAs, as well as VSRs within the zone of visual influence, were checked against Section 10.6 of the EIA Report through desktop study followed by on site verification.

The location of monitored landscape resources, LCAs and VSRs are shown in drawing no. Annexes D1-D3 in **Annex D**.

3 Baseline Monitoring Results

3.1 Weather conditions

The weather was mostly sunny throughout the entire baseline monitoring period. Drizzle was observed on 22 and 27 July 2008. Meteorological data including wind speed, direction and precipitation was recorded and attached in **Annex E**.

3.2 Air Quality Monitoring Results

During the monitoring period, it was observed that the major activities surrounding the monitoring location were mainly road traffic along the Tuen Mun Road and shoppers at the Kwong Choi Market. There was no school teaching activities since the time was the school summer vacation.

The baseline air monitoring results of 1-hour TSP and 24-hour TSP are summarised in **Table 3.1** and **Table 3.2** respectively and the details are attached in **Annex E**. Graphical presentations of 1-hour TSP and 24-hour TSP at Kwong Choi Market (AM1(a)) and The Church of Christ in Chan Tam Lee Lai Fun Memorial School (AM3(a)) are shown in **Figures 3.1** to **3.4** respectively.

Table 3.1: Baseline 1-hour TSP monitoring results

Air Monitoring Station	Mean, $\mu\text{g}/\text{m}^3$	Minimum, $\mu\text{g}/\text{m}^3$ (date)	Maximum, $\mu\text{g}/\text{m}^3$ (date)
AM1(a)	112	10 (18 July 08)	544 (28 Jul 08)
AM3(a)	84	15 (25 Jul 08)	554 (18 Jul 08)

Table 3.2: Baseline 24-hour TSP monitoring results

Air Monitoring Station	Mean ($\mu\text{g}/\text{m}^3$)	Minimum, $\mu\text{g}/\text{m}^3$ (date)	Maximum, $\mu\text{g}/\text{m}^3$ (date)
AM1(a)	47	23 (23 Jul 08)	97 (28 Jul 08)
AM3(a)	58	21 (22 Jul 08)	206 (29 Jul 08)

Figure 3.1: Baseline 1-hour TSP monitoring at air monitoring station AM1(a)

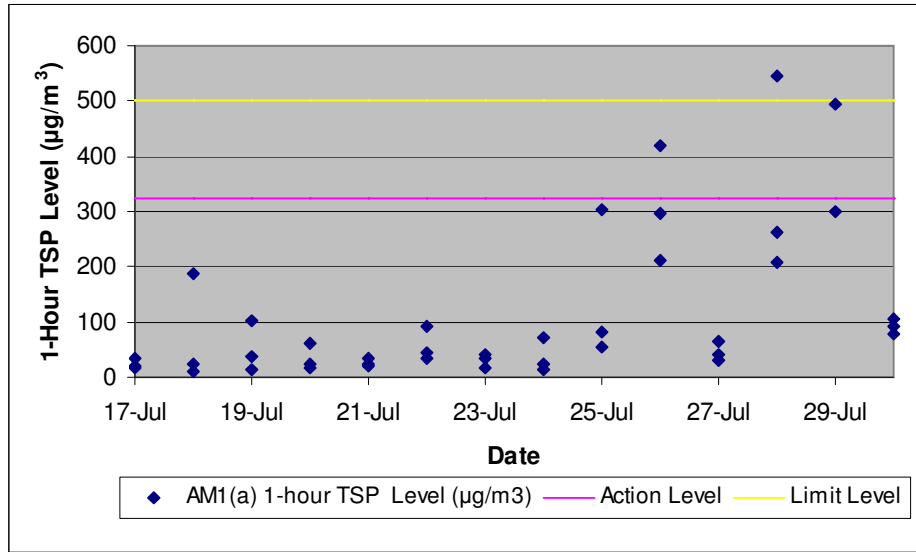


Figure 3.2: Baseline 24-hour TSP monitoring at air monitoring station AM1(a)

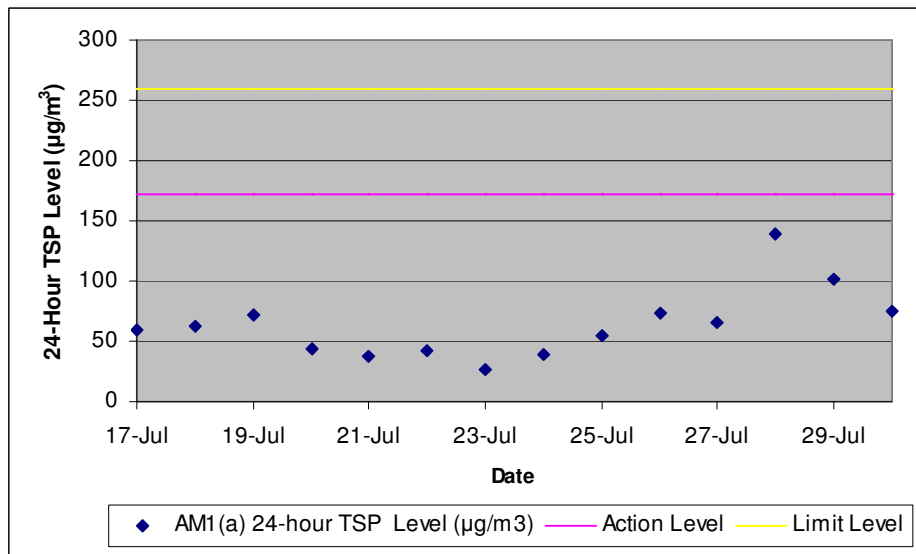


Figure 3.3: Baseline 1-hour TSP monitoring at air monitoring station AM3(a)

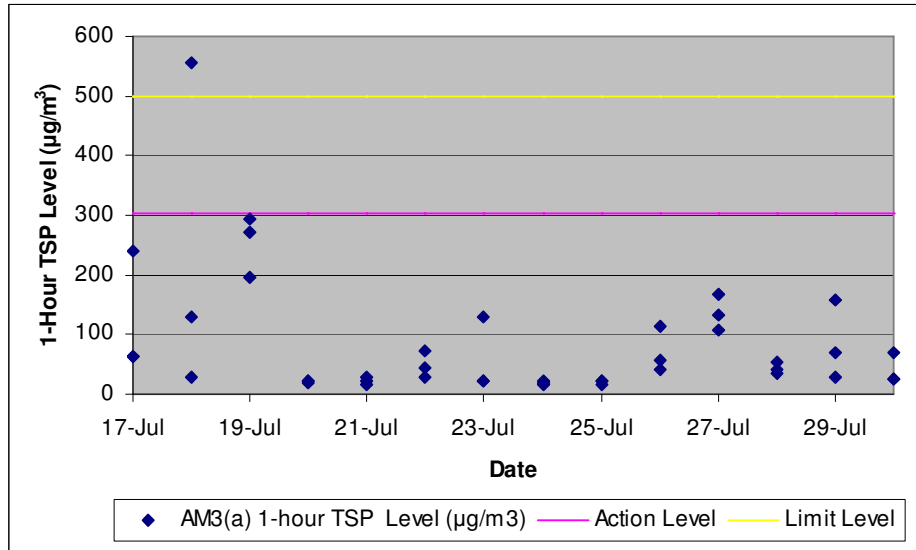
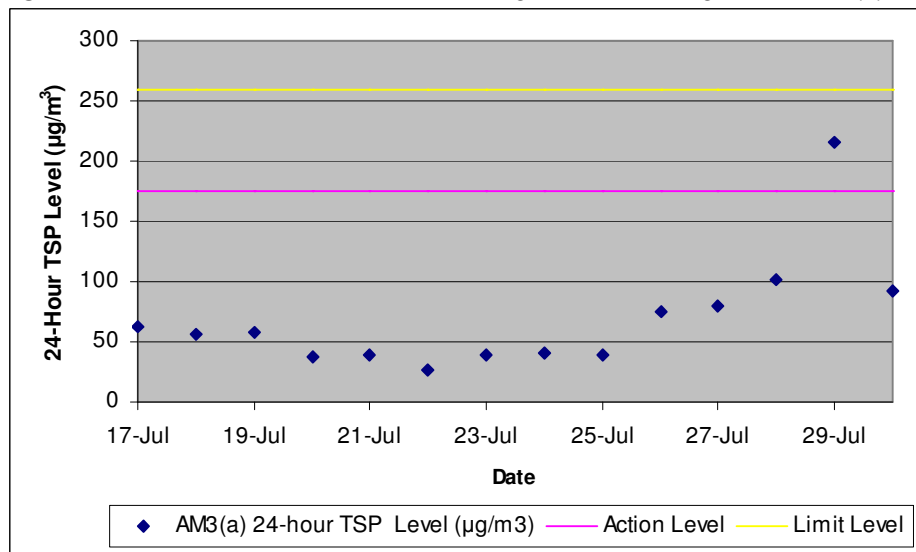


Figure 3.4: Baseline 24-hour TSP monitoring at air monitoring station AM3(a)



3.3 Noise Monitoring Results

During the monitoring period, it was observed that the major activity surrounding the monitoring location were mainly road traffic along the Tuen Mun Road and recreation activities at the football field near to the Tam Lee Lai Fun School. There was no school teaching activities since the time was the school summer vacation.

The baseline noise monitoring results in respect of day-time (0700-1900), evening-time (1900-2300) and night-time (2300-0700) are summarised in **Table 3.3**, while details of the results are attached in **Annex F**. A facade correction of +3dB(A) has been added to the results due to the free field measurements at the noise monitoring station. Graphical presentations are shown in **Figures 3.5 to 3.7**.

Table 3.3: Baseline noise monitoring results

Time Interval	$L_{eq(30min)} / L_{eq(5min)}$, dB(A) Mean (Range) ^(Note 1)	$L_{10(5min)}$, dB(A) Mean (Range)	$L_{90(5min)}$, dB(A) Mean (Range)
Day-time	71 (66 – 77)	73 (67 – 86)	67 (58 – 74)
Evening-time	69 (66 – 82)	71 (69 – 82)	64 (60 – 75)
Night-time	66 (59 – 75)	69 (63 – 77)	59 (49 – 70)

Note:

(1) $L_{eq(30min)}$ was measured at day-time while $L_{eq(5min)}$ was measured at evening- and night-time

Figure 3.5: Baseline day-time average noise monitoring results (0700 – 1900 hours)

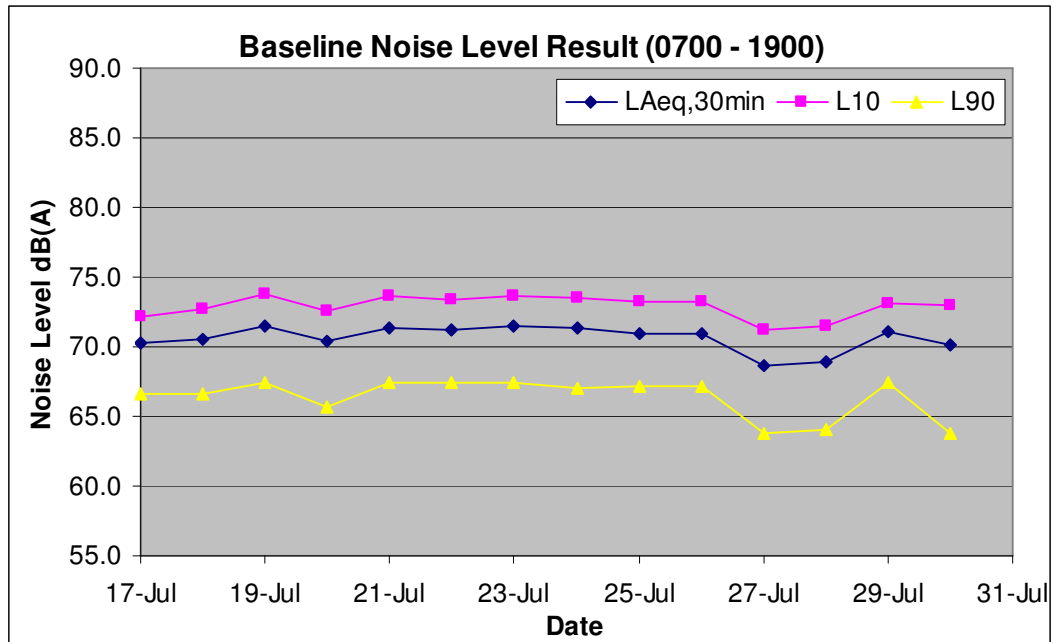


Figure 3.6: Baseline evening-time average noise monitoring results (19:00 – 23:00 hours)

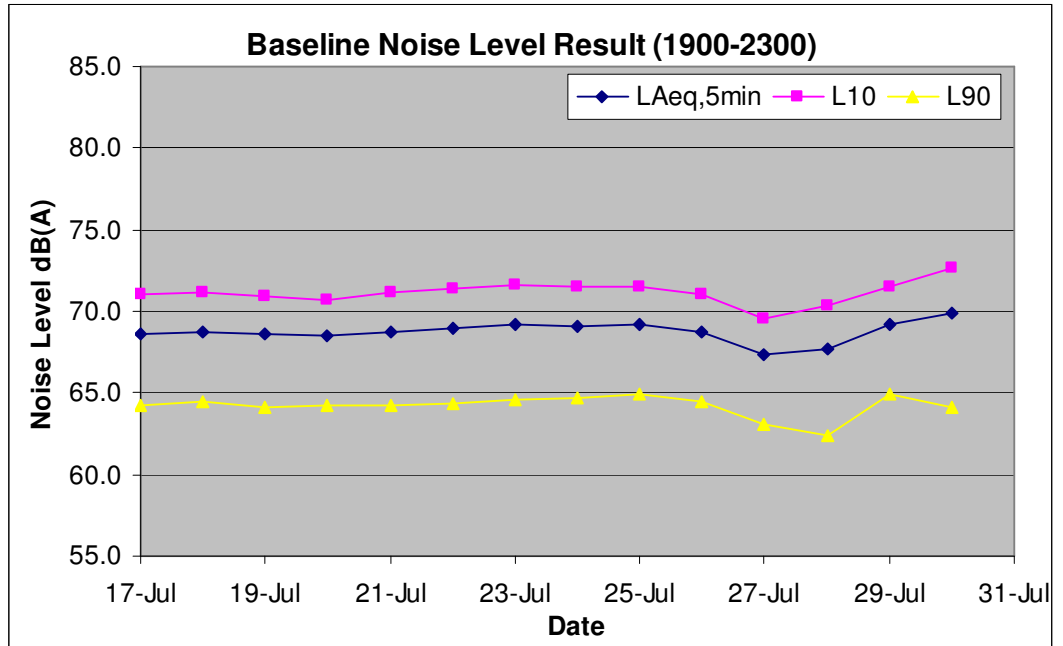
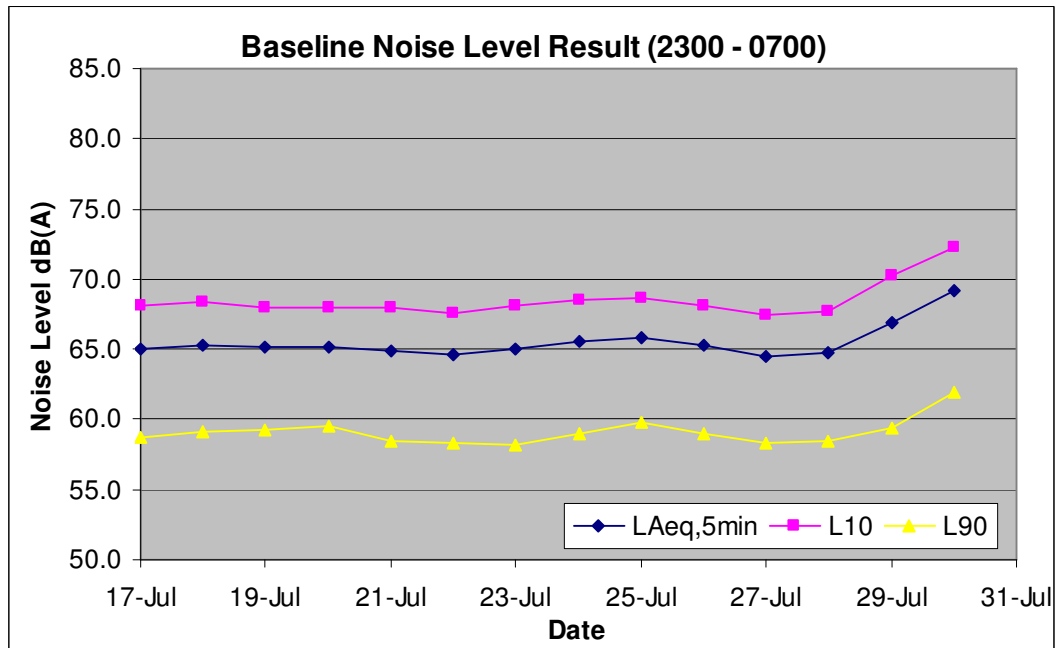


Figure 3.7: Baseline night-time average noise monitoring results (2300 – 0700 hours of next day)



3.4 Landscape and Visual Results

3.4.1 Landscape Resource

Baseline review of landscape resource on roadside planting at Tsing Tin Interchange (LR1) found that 5 out of 179 trees recorded in the EIA Report were felled, which accounted for some 2.8% of the trees. The total number of trees at LR1 was therefore updated as 174 as shown in **Table 3.4**. Except the few felled ones, the health, form and amenity value of trees, including those marked for future transplant, were similar to that described in the Tree Assessment Schedule. No significant change in landscape resource at LR1 was noted.

For Castle Peak Road (San Hui) Park (LR2), 4 out of 185 trees recorded in the EIA Report were felled, while 1 tagged but previously unrecorded tree was identified. The total number of trees at LR2 was updated as 182, with some 1.6% decrease from the original as shown in **Table 3.6**. Except the few felled and additional ones, the health, form and amenity value of trees, inclusive of those marked for future transplant, were similar to that described in the Tree Assessment Schedule. No significant change in landscape resource at LR2 was noted.

Location maps showing trees with changed status are given in Drawing no. Annex D4 and D5 in **Annex D**.

Table 3.4: Landscape resources with changed status

Landscape resource	Tree no.	Current status
LR1	030	Felled
	033	Felled
	047	Felled
	055	Felled
	353	Felled
	Total number of trees = 179 (original) – 5 (felled) = 174 trees	
LR2	375	Felled
	409	Felled
	439	Felled
	602	Felled
	624	Newly recorded
	Total number of trees = 185 (original) – 4 (felled) + 1 (newly recorded) = 182 trees	

A summary of the baseline condition of landscape resources recorded in the recent review and the EIA Report is given in **Table 3.5**.

Table 3.5: Baseline condition of landscape resources

Landscape resource	Recent review	EIA report
LR1	Roadside planting at Tsing Tin Interchange with 5 felled trees, i.e. a total of 174 trees.	Roadside planting at Tsing Tin Interchange with 179 trees.
LR2	Castle Peak Road (San Hui) Park with 4 felled trees and 1 newly recorded tree, i.e. a total of 182 trees.	Castle Peak Road (San Hui) Park with 185 trees.

3.4.2 Landscape Character Area (LCA)

Based on the survey findings, no substantial change in the baseline condition of LCA was noted. A summary of the baseline condition of LCA recorded in the recent review and EIA Report is given in **Table 3.6**.

Table 3.6: Baseline condition of LCA

LCA	Recent review	EIA report
LCA1	Same as the EIA report	Transportation Corridor LCA
LCA2	Same as the EIA report	Park Urban LCA
LCA3	Same as the EIA report	Tuen Mun Urban LCA
LCA4	Same as the EIA report	Tuen Mun River Channel LCA

3.4.3 Visual Sensitive Receiver (VSR)

Based on the survey findings, no substantial change in the baseline condition of VSR was recorded, except a few updates of basic information for VSR. Block 2 of Noble Place, a residential building, was included in R11 within the zone of visual impact, while not literally listed in the EIA Report. Noble Place is located immediate north next to Elegance Garden and Grandeur Garden, its sensitivity to visual impact is comparable to these residential premises, i.e. medium, and is considered appropriate to be maintained under R11.

Although the number of trees in LR1 and LR2 were slightly changed as described in Section 3.4.1, no substantial change in the view from each VSR was noted as compared to that in the EIA Report. A summary of updated information for VSR is given in **Table 3.6** while details are given in drawing no. Annex D6 to D8 in **Annex D**.

Table 3.6: Updated information for VSR

No.	VSR
R2A	NAM Kwong Building, Kam Fat Building, Yan Oi Building & Kam Men Mansion
R3	DOR BOA Building, Elite Garden, Tung Wai Court, Wah Hing Mansion, Wah Lee Building, Sai Po Building, Look Yuen, Cheung Lung Building, On Lai Building & Man Cheong Building
R11	NOBLE PLACE, Grandeur Garden & Elegance Garden
GIC2	SKH Mung Yan Primary School
GIC6	Tuen Mun CHINESE CHRISTIAN Church, Tseng Choi Street GOVERNMENT SERVICE Complex & CLP TUEN MUN DEPOT AND SAN HUI Substation

Note:

Changes made in CAPITAL LETTERS

4 Derivation of Action and Limit Level

The Action and Limit (A/L) Levels are defined levels of impact recorded by the environmental monitoring activities. They represent levels at which a prescribed response will be required. These levels are quantitatively defined in the subsequent sections of this Report and in the contract under Sections 2.7 and 3.7 of EM&A Manual.

Action Level

The levels beyond which there is an indication of a deteriorating ambient environmental quality. Appropriate remedial actions may be necessary to prevent the environmental quality from going beyond the limit levels, which would be unacceptable.

Limit Level

The levels stipulated in relevant pollution control ordinances, Hong Kong Planning Standards and Guidelines (HKPSG), or Environmental Quality Objectives established by EPD. If these are exceeded, works shall not proceed without appropriate remedial action, including a critical review of plant and work methods.

4.1 Air Quality Event and Action Plan

The baseline monitoring results form the basis for the derivation of the A/L Levels for the air quality impact monitoring. **Table 4.1** shows the criteria to be used and **Table 4.2** shows the derived A/L Level for the Project. If the air quality monitoring criteria are breached, the Event and Action Plan as shown in **Table 4.3** should be followed immediately.

Table 4.1: Criteria of Action and Limit Level for air quality monitoring

Parameters	Action	Limit
1-hour TSP Level, $\mu\text{g}/\text{m}^3$	<ul style="list-style-type: none"> For Baseline Level $\leq 384\mu\text{g}/\text{m}^3$, Action Level = (Baseline * 1.3 + Limit Level) / 2; For Baseline Level $> 384\mu\text{g}/\text{m}^3$, Action Level = Limit Level 	500
24-hour TSP Level, $\mu\text{g}/\text{m}^3$	<ul style="list-style-type: none"> For Baseline Level $\leq 200\mu\text{g}/\text{m}^3$, Action Level = (Baseline * 1.3 + Limit Level) / 2; For Baseline Level $> 200\mu\text{g}/\text{m}^3$, Action Level = Limit Level 	260

Table 4.2: Action and Limit Level for air quality monitoring

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

Table 4.3: Event and Action Plan for air quality monitoring (dust)

Event	Action			
	ET	IC(E)	ER	Contractor
Action Level				
Exceedance for one sample	<ol style="list-style-type: none"> Identify source and investigate the causes of exceedance; Inform Contractor, IC(E) and ER; Repeat measurement to confirm finding. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> Rectify any unacceptable practice; Amend working methods if appropriate.
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Identify source and investigate the causes of exceedance; Inform Contractor, IC(E) and ER; Increase monitoring frequency to daily; Discuss with IC(E) and Contractor on remedial actions required; Assess the effectiveness of Contractor's remedial actions; If exceedance continues, arrange meeting with IC(E) and ER; If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Notify Contractor; In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented; Supervise implementation of remedial measures; Conduct meeting with ET and IC(E) if exceedance continues. 	<ol style="list-style-type: none"> Discuss with ET and IC(E) on proper remedial actions; Submit proposals for remedial actions to ER and IC(E) within three working days of notification; Implement the agreed proposals; Amend proposal if appropriate..
Limit Level				
Exceedance for one sample	<ol style="list-style-type: none"> Identify source and investigate the causes of exceedance; Inform Contractor, IC(E), ER, and EPD; Repeat measurement to confirm finding; Assess effectiveness of Contractor's remedial actions and keep EPD, IC(E) and ER informed of the results. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Notify Contractor; In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented; Supervise implementation of remedial measures; Conduct meeting with ET and IC(E) if exceedance continues. 	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance; Discuss with ET and IC(E) on proper remedial actions; Submit proposals for remedial actions to ER and IC(E) within three working days of notification; Implement the agreed proposals.
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Notify IC(E), ER, Contractor and EPD; Repeat measurement to confirm findings; Carry out analysis of Contractor's working procedures to identify source and investigate the causes of exceedance; Increase monitoring frequency to daily; Arrange meeting with IC(E), ER and Contractor to discuss the remedial actions to be taken; 	<ol style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss amongst ER, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Notify Contractor; In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented; Supervise implementation of remedial measures; If exceedance continues, consider stopping the Contractor to continue working on that portion of 	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance; Discuss with ET, ER and IC(E) on proper remedial actions; Submit proposals for remedial actions to IC(E) within three working days of notification; Implement the agreed proposals; Submit further remedial actions if problem still not

Event	Action			
	ET	IC(E)	ER	Contractor
	6. Assess effectiveness of Contractor's remedial actions and keep EPD, IC(E) and ER informed of the results; 7. If exceedance stops, cease additional monitoring.		work which causes the exceedance until the exceedance is abated.	under control; 6. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

4.2 Construction Noise Event and Action Plan

The A/L levels for construction noise are defined in **Table 4.4**. If the noise monitoring criteria are breached, the Event and Action Plan as shown in **Table 4.5** should be followed immediately.

Table 4.4: Action and Limit Levels of 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 follows.

Table 4.5: Event and Action Plan for construction noise monitoring

Event	Action			
	Contractor	ET	ER	ER
Action Level being exceeded	<ol style="list-style-type: none"> 1. Notify ER, IC(E) and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IC(E), ER and Contractor; 4. Discuss with the IC(E) and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Submit noise mitigation; 2. proposals to ET and ER; 3. Implement noise mitigation proposals.
Limit Level being exceeded	<ol style="list-style-type: none"> 1. Inform IC(E), 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 IC(E), Contractor and ER on remedial measures required; 6. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IC(E), 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. 	<ol style="list-style-type: none"> 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.

4.3 Landscape and Visual Event and Action Plan

No significant change in baseline condition from the EIA Report was recorded for landscape resource, LCA and view from VSR. Hence, no revision of landscape and visual mitigation measures is considered required for both construction and operation phases proposed in Section 10.7 of the EIA Report.

Nevertheless, regular monitoring on monthly basis and any necessary liaison with LCSD in the construction phase and first year of the operation phase will be required to keep abreast of any tree felling event/plan such that corresponding mitigation measures can be designed and adopted in a timely manner to minimise impact.

Should non-compliance of the landscape and visual impacts occur, actions in accordance with the action plan stated in **Table 4.6** should be conducted.

Table 4.6: Event and Action Plan for landscape and visual impact - construction phase

Action Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 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) 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement

5 Landscape and Visual Mitigation Measures

No significant change in baseline condition from the EIA Report was recorded for landscape resource, LCA and view from VSR. Hence, no revision of landscape and visual mitigation measures is considered required for both construction phase and operation phase proposed in Section 10.7 of the EIA Report.

Nevertheless, regular monitoring on monthly basis and any necessary liaison with LCSD in the construction phase and first year of the operation phase will be required to keep abreast of any tree felling event/plan such that corresponding mitigation measures can be designed and adopted in a timely manner to minimise impact.

6 Conclusion

The environmental baseline monitoring was carried out between 17 and 30 July 2008. The Action and Limit Levels were derived based on the baseline monitoring results. Impact monitoring will be conducted, and the Event and Action Plan will be triggered based on the established A/L level.

Annex A1

**Baseline Monitoring
Schedule**

Baseline Monitoring Schedule

Baseline Monitoring Schedule				
Date		Air Quality - TSP		Noise
		1 Hour	24 Hours	
17-Jul-08	Thu	AM1(a) and AM3(a) At least 3 times per day while highest dust impact is expected	AM1(a) and AM3(a) Daily 24-Hours TSP	TLLF(a) $L_{Aeq(30\text{ mins})}$ by consecutive $L_{Aeq(5\text{ mins})}$ readings
18-Jul-08	Fri			
19-Jul-08	Sat			
20-Jul-08	Sun			
21-Jul-08	Mon			
22-Jul-08	Tue			
23-Jul-08	Wed			
24-Jul-08	Thu			
25-Jul-08	Fri			
26-Jul-08	Sat			
27-Jul-08	Sun			
28-Jul-08	Mon			
29-Jul-08	Tue			
30-Jul-08	Wed			

Annex A2

**Proposal for Changing
of Environmental
Monitoring Programme**

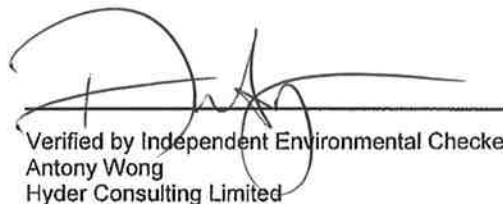
Highways Department

**Widening of Tuen Mun
Road at Tsing Tin
Interchange**

Proposal for Changing of
Environmental Monitoring
Station



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



Verified by Independent Environmental Checker
Antony Wong
Hyder Consulting Limited

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1 Background	1
2 Baseline Monitoring Requirements	2
3 Identification of Alternative Location	4
4 Recommendation	6

Appendix A – Correspondence with Lakeshore Building

Appendix B – Correspondence with Kam Fat Building, Yan Oi Building, Nam Kwong Building and Florence Mansion

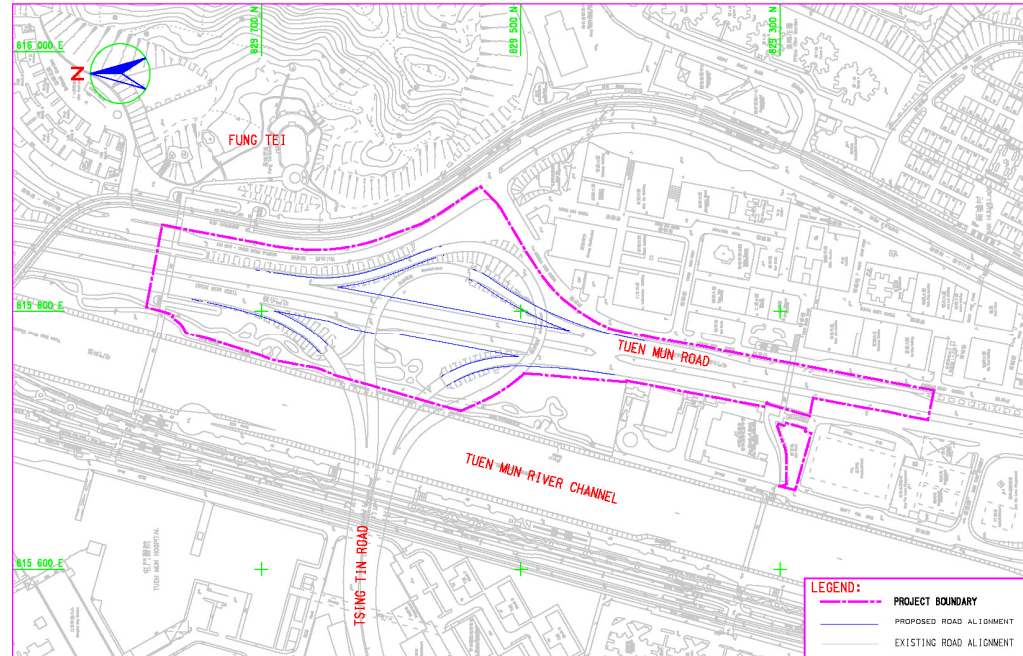
Appendix C – Correspondence with Kam Men Mansion and Ka Hay Building

Appendix D – Correspondence with Victory Building, Kim Bo Mansion and Rich Building

1 Background

The widening works for Tsing Tin Interchange (the Project) will be undertaken at the northern part of Town Centre Section of Tuen Mun Road near the Tuen Mun River Channel. The location of the works area is shown in **Figure 1.1**.

Figure 1.1: Site location plan



The Project is classified as Designated Project under the Environmental Impact Assessment (EIA) Ordinance. The EIA Report (Register No.: AEIAR-116/2008) was approved by EPD on 23rd January 2008 and an Environmental Permit (EP) (EP-302-2008/A) was granted to Highways Department (HyD) on 19th February 2008.

In accordance with the EP conditions 2.1 and 2.2, an Environmental Team (ET) and Independent Environmental Checker (IEC) shall be appointed for implementation the duties defined in the Environmental Monitoring and Audit (EM&A) Manual and the EP. Ove Arup & Partners Hong Kong Ltd (Arup) and Hyder Consulting Ltd (Hyder) are subsequently engaged as the ET and IEC by HyD respectively.

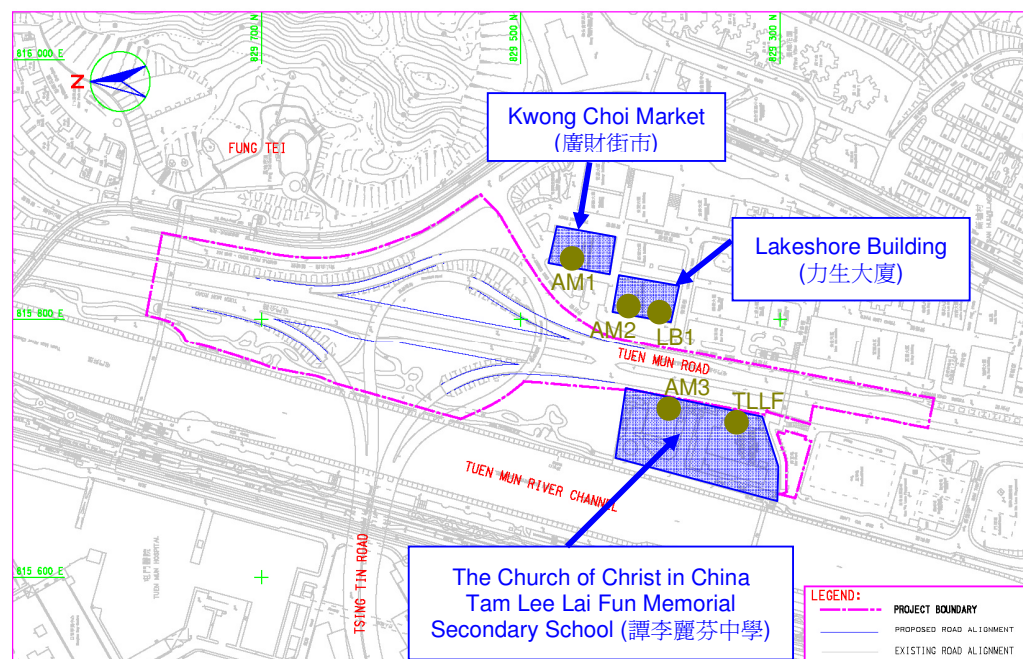
2 Baseline Monitoring Requirements

Based on the EM&A Manual, baseline environmental monitoring should be carried out prior to commencement of construction works. **Table 1.1** summarises the monitoring premises and **Figure 2.1** shows the locations.

Table 1.1 Baseline monitoring requirements

Aspect	Premises	Designation	Location
Air Quality	Kwong Choi Market (廣財街市)	AM1	Tsing Min Path
	Lakeshore Building (力生大廈)	AM2	7 Tseng Choi Street
	The Church of Christ in Chan Tam Lee Lai Fun Memorial School (譚李麗芬中學)	AM3	10 San Wo Lane
Noise	Lakeshore Building (力生大廈)	LB1	7 Tseng Choi Street
	The Church of Christ in Chan Tam Lee Lai Fun Memorial School (譚李麗芬中學)	TLLF	10 San Wo Lane

Figure 2.1: Monitoring locations



Discussions were conducted with the management office/representative of the premises as shown in Table 1.1, access and installation of monitoring equipment at AM1, AM3 and TLLF were accepted by the management office and representative of Kwong Choi Market and The Church of Christ in Chan Tam Lee Lai Fun Memorial School respectively. The baseline monitoring at these locations are therefore conducted in accordance with the requirements stipulated in the EM&A manual.

However, the access and installation of the monitoring equipment at AM2 and LB1 at Lakeshore Building were denied by its management office as renovation work of the building facade will be carried out very soon and the work will last until 2009. Relevant correspondence is enclosed in **Appendix A**. According to the sections 2.4 and 3.4 of the

EM&A manual, identification of alternative location to replace Lakeshore Building is required.

This proposal is prepared to present the findings of the identification work and summarise the conclusion.

3 Identification of Alternative Location

In accordance with the clauses 2.4.3 and 3.4.2 of the EM&A manual, the following criteria shall be followed when alternative monitoring location is proposed:

Air Quality Monitoring:

- At the site boundary or such locations close to the major dust emission source;
- Close to the air sensitive receivers (ASRs);
- Proper position/sitting and orientation of the monitoring equipment; and
- Take into account the prevailing meteorological conditions.

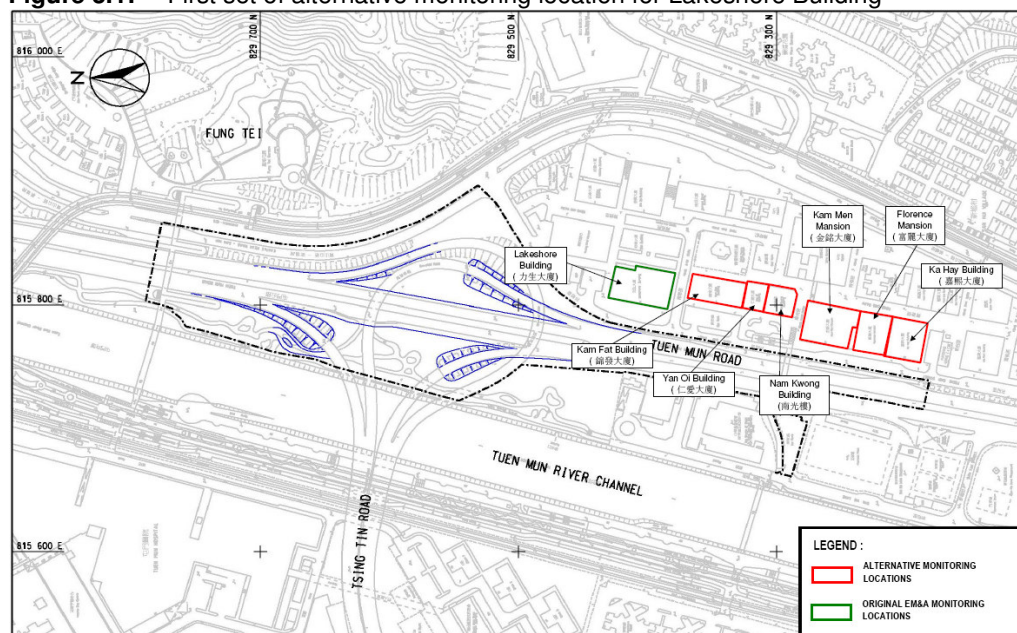
Noise monitoring:

- Monitoring at sensitive receivers close to the major site activities which are likely to have noise impacts;
- Monitoring at the noise sensitive receivers (NSRs) as defined in relevant Technical Memorandum; and
- Assurance of minimal disturbance to the occupants during monitoring.

Six premises along the construction boundary, as shown in **Figure 3.1**, had firstly been identified based on the afore-said criteria to replace Lakeshore Building, namely:

1. Kam Fat Building (錦發大廈);
2. Yan Oi Building (仁愛大廈);
3. Nam Kwong Building (南光樓);
4. Florence Mansion (富麗大廈);
5. Kam Men Mansion (金銘大廈); and
6. Ka Hay Building (嘉熙大廈).

Figure 3.1: First set of alternative monitoring location for Lakeshore Building



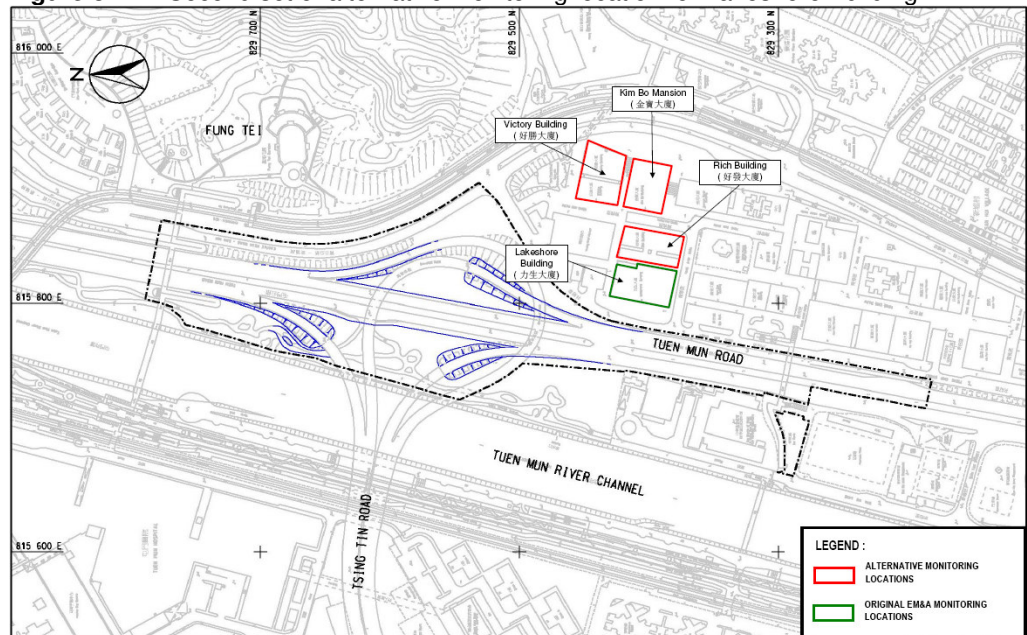
However, the access and installation of the monitoring equipment at Kam Fat Building, Yan Oi Building, Nam Kwong Building and Florence Mansion were denied by their management office. Relevant correspondence is enclosed in **Appendix B**.

Repeated liaisons included face-to-face meeting under the witness of HyD representative, letter of request, and telephone conversation with the management office of Kam Men Mansion and Ka Hay Building were carried out on 8th, 18th, 24th and 29th July. However, nil response was received so it was inevitably assumed that they rejected the request. Relevant correspondence is enclosed in **Appendix C**.

In order to ascertain all possible alternative monitoring locations to replace Lakeshore Building, another three premises had been identified although they are not fully satisfy the replacement criteria stated above. They included:

1. Victory Building (好勝大廈);
2. Kim Bo Mansion (金寶大廈); and
3. Rich Building (好發大廈).

Figure 3.2: Second set of alternative monitoring location for Lakeshore Building



However, the access and installation of the monitoring equipment at these three premises were all denied by their management office. Relevant correspondence is enclosed in **Appendix D**.

4 Recommendation

Since all possible alternative monitoring locations to replace Lakeshore Building have been exhausted. It is proposed to delete the baseline air quality and noise monitoring at Lakeshore Building. Given the reason of baseline monitoring results at Lakeshore Building will not be available and the impact monitoring at the same premises during the construction stage can not be carried out, it is also proposed to delete the impact air quality and noise monitoring at the premises during the construction stage.

However, it is considered that the monitoring results obtained from the Kwong Choi Market and The Church of Christ in Chan Tam Lee Lai Fun Memorial School would provide a good reference of air quality to Lakeshore Building due to their vicinity. To supplement the potential adverse air quality conditions, strengthened mitigation measures and good site practices would be implemented to minimize construction dust impact. The major practical measures are listed as follows:

- Skip hoist for material transport will be totally enclosed by impervious sheeting;
- Every vehicle will be washed to remove any dusty materials from its body and wheels before leaving the construction sites;
- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point will be paved with concrete, bituminous materials or hardcore;
- Where a site boundary adjoins a road, streets, or other areas accessible to the public, hoarding of not less than 2.4m high from ground level will be provided along the entire length except for a site entrance or exit;
- Every stock of more than 20 bags of cement will be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides;
- All dusty material will 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 will be controlled to a minimum practical height to limit fugitive dust generation from unloading;
- The load of dusty materials carried by vehicle leaving construction site will 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.

In respect of noise monitoring, it is proposed to carry out a reference noise monitoring at the front gate of Lakeshore Building for a period of five days to cover typical weekdays and weekend. It is anticipated that the noise monitoring results obtained from The Church of Christ in Chan Tam Lee Lai Fun Memorial School would complement the reference monitoring results at Lakeshore Building. If necessary, the reference noise monitoring would be extended. Nevertheless, to supplement the potential adverse noise conditions, strengthened mitigation measures and good site practices would be implemented to minimize construction noise impact. The major practical measures are listed as follows:

- Use of quiet powered mechanical equipment (PME). The recommended quiet PME are taken from the BS 5228: Part 1: 1997 and the PME are known to be available in Hong Kong;
- Use of removable noise barrier (3m high) for PMEs when the following construction activities undertaken in the vicinity of NSR TLLF and LB1. The barrier material will have

a surface mass of not less than 14 kg/m³ on skid footing with 25mm thick internal sound absorptive lining.

(1) Road marking and road paving

(2) Construction of noise barriers (movable barrier for excavator and compressor only);

- The work area of road marking will be located not less than 18m from NSR TLLF during examination period;
- Piling operation for construction of noise barrier will also be ceased during examination period of NSR TLLF.
- Scheduling of PMEs for road paving activity in the vicinity of NSR TLLF and LB1, only one PME (asphalt paver or vibratory roller) to be operated during normal teaching period;
- During examination period, cease operation of PMEs if work area of road paving less than 30m from NSR TLLF or only one PME (asphalt paver or vibratory roller) is allowed to be operated if the work area is not less than 22m from NSR TLLF; and
- Implementation of following good site practices:
 - (1) Only well-maintained plant will be operated on-site and plant will be services regulatory during the construction programme;
 - (2) Silencers or mufflers on construction equipment will be utilized and will be properly maintained during the construction programme;
 - (3) Mobile plant, if any, will be sited as far away from NSRs as possible;
 - (4) Machines and plant (such as trucks) that may be in intermittent use will be shut down between work periods or throttled down to a minimum;
 - (5) Plant known to emit noise strongly in one direction will, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and
 - (6) Material stockpiles and other structures will be effectively utilized, wherever practicable, in screening noise from on-site construction activities.

Appendix A
**Correspondence with
Lakeshore Building**

Ove Arup & Partners
奧雅納工程顧問

Curral 25933/L030/CN/cl

Date 6 July 2008

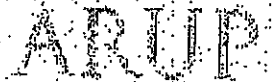
By Fax

香港屯門甘財街7號
力生大廈
業主立案法團

ARUP		Job No.:	
		File No.:	
Master Ref.:	Project Ref.:		
Repl. Ref.:	By:	Date	
Action Required:			
Received - 9 JUL 2008			
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Action			
Info.			
Copy			

Level 6, Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
Hong Kong
Tel +852 2468 3931
Fax +852 2468 3950
Direct Tel +852 2468 3997
asia@arup.com

www.arup.com



聯絡人: 羅先生 (港深管理有限公司)

敬 業主立案法團負責人:

HY/3007/14 路政署 - 屯門公路青田交匯處道路擴闊工程
環保監測工作 - 地方和電源的提供

本公司於 2008 年 6 月 6 日去信 貴址, 希望准許本公司在址天台安裝環保監測器, 關於至今仍未回覆, 現特函查詢 閣下意向。

由於工程即將展開, 敬希 閣下能於本月十日前填覆回條, 並傳真至 2268 3950, 如有任何查詢或疑問, 可致電 2268 3456 與梁仲賢先生聯絡。

請 貴業主立案法團盡量提供協助, 為工程的環保監測可順利進行, 敬祈回覆。謝謝!

奧雅納工程顧問

吳志輝 高級顧問
2008年7月6日

回條	本大廈 <input type="checkbox"/> 願意 <input checked="" type="checkbox"/> 不願意 原因: 本大廈將進行 外牆維修工程, 天台將開 作儲存物料及放置機器 不便提供地方 (請於適合空格填上☑號)	業主立案法團 / 管理處 負責人 (請刪除英文字)
	為工程的環保監測於上址提供地方安裝和電源供應。	簽名: [Signature] 姓名: [Name] 電話: 24602018 日期: 7-7-08

Appendix B

**Correspondence with
Kam Fat Building, Yan
Oi Building, Nam
Kwong Building and
Florence Mansion**

香港屯門井財街9號
錦發大廈
業主立案法團 / 管理處

聯絡人: 陳小姐 李生

ARUP

致 業主立案法團 / 管理處負責人：

**HY/2007/14 路政署 - 屯門公路青田交匯處段道路擴闊工程
環保監測工作 - 地方和電源的提供**

本公司於 2008 年 6 月 6 日去信 貴址，希望准許本公司在址天台安裝環保監測器。鑒於至今仍未回覆，現特函查詢 閣下意向。

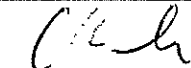
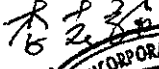


由於工程即將展開，敬希 閣下能於本月十日前填寫回條，並傳真至 2268 3950。如有任何查詢或疑問，可致電 2268 3456 與梁仲賢先生聯絡。

請 貴業主立案法團盡量提供協助，為工程的環保監測可順利進行。敬祈回覆。謝謝！

奧雅納工程顧問

吳志輝 高級顧問

2008 年 7 月 8 日

回條	本大廈 <input type="checkbox"/> 願意 <input checked="" type="checkbox"/> 不願意 原因: 基於大廈天台通風的衛生問題, 機器不便設置在天台上 (請於適合空格填上 <input checked="" type="checkbox"/> 號)	業主立案法團 / 管理處 負責人 (請刪除不適用者)
	為工程的環保監測於上址提供地方安裝和電源供應。	簽名:  姓名: 李杏玲 電話:  日期:  

Ove Arup & Partners
奧雅納工程顧問

Our ref 25333/I.037/CN/cl

Date 8 July 2008

By Fax

香港屯門井財街 11 號
仁愛大廈 1 樓
香港教會 (屯門區)

ARUP		Job No.	
Master Ref.:		File No.	
Reply Ref.:		Project Ref.:	
Action Required:		By :	Date
Received - 9 JUL 2008			
Ints.			
Action			
Info.			
Copy			

Level 5, Festival Walk
80 Tai Chee Avenue
Kowloon Tong, Kowloon
Hong Kong
Tel +852 2268 3031
Fax +852 2268 3950
Direct Tel +852 2268 3097
coleman.ng@arup.com
www.arup.com

ARUP

致 香港教會 (屯門區) 負責人：

HY/2007/14 路政署 - 屯門公路青田交匯處段道路擴闊工程
環保監測工作 - 地方和電源的提供

本公司於 2008 年 6 月 6 日去信 貴址，希望准許本公司在址平台安裝環保監測器。鑒於至今仍未回覆，現特函查詢 閣下意向。

由於工程即將展開，敬希 閣下能於本月十日前填寫回條，並傳真至 2268 3950。如有任何查詢或疑問，可致電 2268 3456 與梁仲賢先生聯絡。

請 貴業主立案法團盡量提供協助，為工程的環保監測可順利進行。敬請回覆 - 謝謝！

奧雅納工程顧問

吳志輝 高級顧問
2008 年 7 月 8 日

回條	本大廈	業主立案法團 / 管理處 負責人 (請刪除不適用者)
	<input type="checkbox"/> 願意 <input checked="" type="checkbox"/> 不願意 原因： <u>大廈進行大維修</u> (請於適合空格填上 <input checked="" type="checkbox"/> 號)	簽名： <u>[Signature]</u> 姓名： <u>梁啟漢</u> 電話： <u>2369 5106</u> 日期： <u>9-7-08</u>
為工程的環保監測於上址提供地方安裝和電源供應。		

Ove Arup & Partners
奧雅納工程顧問

Our ref 25333/L033/CN/cl

Date 8 July 2008

Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
Hong Kong
Tel +852 2528 3031
Fax +852 2288 3950
Direct Tel +852 2288 3097
coleman.ng@arup.com

www.arup.com

香港屯門井財街 11A 號
南光樓
業主立案法團 / 管理處

ARUP		Job No.
Master Ref. 25333/L033/CN/cl		File No.
Project Ref.:		Date
Reply Ref.:	By :	Date
Action Required:		
Received 11 JUL 2008		
Initials	ST CN	
Action	87 18	
Info.		
Copy		

ARUP

致 業主立案法團 / 管理處負責人：

HY/2007/14 路政署 - 屯門公路青田交匯處段道路擴闊工程
環保監測工作 - 地方和電源的提供

本公司於 2008 年 6 月 20 日去信 貴址，希望准許本公司在址天台安裝環保監測器。鑒於至今仍未回覆，現特函查詢 閣下意向。

由於工程即將展開，敬希 閣下能於本月十日前填寫回條，並傳真至 2268 3950。如有任何查詢或疑問，可致電 2268 3456 與梁仲賢先生聯絡。

請 貴業主立案法團盡量提供協助，為工程的環保監測可順利進行。敬祈回覆。謝謝！

奧雅納工程顧問

吳志輝 高級顧問

2008 年 7 月 8 日

回條	<p>本大廈</p> <p><input type="checkbox"/> 願意</p> <p><input checked="" type="checkbox"/> 不願意 原因：天台屬私人地方，不便之處敬請諒察</p> <p>(請於適合空格填上 <input checked="" type="checkbox"/> 號)</p> <p>為工程的環保監測於上址提供地方安裝和電源供應。</p>	<p>業主立案法團 / 管理處 負責人 (請刪除不適用者)</p> <p>簽名：吳志輝</p> <p>姓名：吳志輝</p> <p>電話：94633029</p> <p>日期：10-07-08</p>
----	---	---



Ove Arup & Partners
奧雅納工程顧問

Our ref: 25333/L036/CN/01

Date: 8 July 2008

香港屯門青洲徑 6 號
富麗大廈
業主立案法團/管理處

ARUP		Job No.	
Master Ref: 25333/L036		File No.	
Repl Ref: 41	By:	Date:	
Action Required:			
Received: 11 JUL 2008			
Init.	ST	CW	cy
Action			
Info.			
Copy			

Lloyd's Treasury
80, 7th Floor
Division Tower
15, Broad Street
London EC4A 3DF
Tel: +44 (0)20 7552 1000
Fax: +44 (0)20 7552 1050
Email: lloyd@lloyds.com

www.arup.com

致 業主立案法團/管理處負責人:

**HY/2007/14 路政署 - 屯門公路青田交匯處段道路擴闊工程
環保監測工作 - 地方和電源的提供**

本公司於 2008 年 6 月 6 日去信 貴址，希望准許本公司在址安裝與聯保的測器，關於此等初步
回覆，現特函查詢 閣下意向。

由於工程即將展開，敬希 閣下能於本月十日前填寫回條，並傳真至 2268 3050，如有任何查詢或
疑問，可致電 2268 3456 與梁志輝先生聯絡。

請 與業主立案法團盡量提供協助，為工程的環保監測可順利進行。敬祈 留意。

奧雅納工程師

梁志輝 和 梁國輝
2008 年 7 月 8 日

回條	本大廈	業主立案法團/管理處 負責人 (請刪條不備引者)
	<input type="checkbox"/> 願意 <input checked="" type="checkbox"/> 不願意 原因: <u>天台業權屬頂層業主所有。</u> (請於適合空格填上 <input checked="" type="checkbox"/> 號) 為工程的環保監測提供地方安裝和電源供應。	簽名: _____ 姓名: <u>梁志輝</u> 電話: <u>2268 3456</u> 日期: <u>10-7-08</u>



Appendix C

Correspondence with Kam Men Mansion and Ka Hay Building

By Post

www.arup.com

香港屯門井財街 15 號
金銘大廈
業主立案法團

ARUP

致 業主立案法團負責人：

**HY/2007/14 路政署 – 屯門公路青田交匯處段道路擴闊工程
環保監測工作 – 地方和電源的提供**

HY/2007/14 路政署 – 屯門公路青田交匯處段道路擴闊工程即將在屯門公路市中心路段以此開展擴闊屯門公路青田交匯處一段長約 240 米的路段，由雙線雙程行車改為三線雙程行車（見地圖一）。工程的施工難免產生環境影響。為確保施工過程對工地鄰近村落不產生過分的環境滋擾，本公司受聘對工程的施工進行環保監測和審核，根據已批核之環評報告及監察手冊已選擇了 貴大廈作為環保監測站，希望准許本公司在址天台安裝環保監測器。詳情如下：

- 所用環保監測儀器 – 室外空氣及噪音質量監儀器（見附件）
- 所需安裝地方 – 在址大廈天台室外約 1.6 x 1.6 米空曠平地（約 1.5 米高）（見附件）
- 所需電源 – 電壓：220 伏特 電流強度：13 安培（即一般家庭用電）
耗電量：所耗電費保證全部補償（見附件）
- 環保監測時間 – 2008 年 7 月中旬至 8 月上旬之間連續運作 14 天
約 8 月開始每 6 日運作一次（每次 24 小時，每月約 5 次），為期約 17 個月，直至約 2009 年尾工程完畢

請 貴業主立案法團盡量提供協助，為工程的環保監測可順利進行。敬祈回覆。謝謝！

聯絡人 梁仲賢先生 公司電話：2268-3456 公司傳真：2268-3950

奧雅納工程顧問

吳志輝/高級顧問

2008 年 6 月 20 日

附件：

1. 施工範圍（地圖一）
2. 室外空氣及噪音質量監儀器（圖片一及圖片二）
3. 建議所耗電費補償金額及其計算方法

回條	本業主立案法團 <input type="checkbox"/> 願意 / <input type="checkbox"/> 不願意 為工程的環保監測於上址提供 地方安裝和電源供應。	<input type="checkbox"/> 負責人(簽名/日期)
		姓名： _____ 簽名： _____ 電話： _____ 日期： _____

香港屯門井財街 15 號
金銘大廈
業主立案法團 / 管理處

ARUP

致 業主立案法團 / 管理處負責人：

HY/2007/14 路政署 – 屯門公路青田交匯處段道路擴闊工程
環保監測工作 – 地方和電源的提供

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奧雅納工程顧問



吳志輝 高級顧問

2008 年 7 月 8 日

回條	本大廈 <input type="checkbox"/> 願意 <input type="checkbox"/> 不願意 原因： _____ _____ _____ (請於適合空格填上 <input checked="" type="checkbox"/> 號)	業主立案法團 / 管理處 負責人 (請刪除不適用者)
	為工程的環保監測於上址提供地方安裝和電源供應。	簽名： 姓名： 電話： 日期：

By Post

香港屯門井財街 19 號
嘉熙大廈
業主立案法團

ARUP

致 業主立案法團負責人：

**HY/2007/14 路政署 – 屯門公路青田交匯處段道路擴闊工程
環保監測工作 – 地方和電源的提供**


HY/2007/14 路政署 – 屯門公路青田交匯處段道路擴闊工程即將在屯門公路市中心路段以此開展擴闊屯門公路青田交匯處一段長約 240 米的路段，由雙線雙程行車改為三線雙程行車（見地圖一）。工程的施工難免產生環境影響。為確保施工過程對工地鄰近村落不產生過分的環境滋擾，本公司受聘對工程的施工進行環保監測和審核，根據已批核之環評報告及監察手冊已選擇了 貴大廈作為環保監測站，希望准許本公司在址天台安裝環保監測器。詳情如下：

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- 所需安裝地方 – 在址大廈天台室外約 1.6 x 1.6 米空曠平地（約 1.5 米高）（見附件）
- 所需電源 – 電壓：220 伏特 電流強度：13 安培（即一般家庭用電）
耗電量：所耗電費保證全部補償（見附件）
- 環保監測時間 – 2008 年 7 月中旬至 8 月上旬之間連續運作 14 天
約 8 月開始每 6 日運作一次（每次 24 小時，每月約 5 次），為期約 17 個月，直至約 2009 年尾工程完畢

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聯絡人 梁仲賢先生 公司電話：2268-3456 公司傳真：2268-3950

奧雅納工程顧問


吳志輝 高級顧問
2008 年 6 月 20 日

附件：

1. 施工範圍（地圖一）
2. 室外空氣及噪音質量監儀器（圖片一及圖片二）
3. 建議所耗電費補償金額及其計算方法

回條	本業主立法團 <input type="checkbox"/> 願意 / <input type="checkbox"/> 不願意 為工程的環保監測於上址提供 地方安裝和電源供應。	<input type="checkbox"/> 負責人(簽名/日期)
		姓名： 電話： 日期：

香港屯門井財街 19 號
嘉熙大廈
業主立案法團 / 管理處

ARUP

致 業主立案法團 / 管理處負責人：


HY/2007/14 路政署 – 屯門公路青田交匯處段道路擴闊工程
環保監測工作 – 地方和電源的提供

本公司於 2008 年 6 月 20 日去信 貴址，希望准許本公司在址天台安裝環保監測器。鑒於至今仍未回覆，現特函查詢 閣下意向。

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請 貴業主立案法團盡量提供協助，為工程的環保監測可順利進行。敬祈回覆。謝謝！

奧雅納工程顧問


吳志輝 高級顧問
2008 年 7 月 6 日

回條	本大廈 <input type="checkbox"/> 願意 <input type="checkbox"/> 不願意 原因： _____ _____ _____ (請於適合空格填上 <input checked="" type="checkbox"/> 號)	業主立案法團 / 管理處 負責人 (請刪除不適用者)
	為工程的環保監測於上址提供地方安裝和電源供應。	簽名： 姓名： 電話： 日期：



**HIGHWAYS DEPARTMENT
MAJOR WORKS PROJECT MANAGEMENT OFFICE**

3, 5 & 6/F, HO MAN TIN GOVERNMENT OFFICES
88 CHUNG HAU STREET, HOMANTIN, KOWLOON, HONG KONG
Web site : <http://www.hyd.gov.hk>

路政署

主要工程管理處
香港九龍何文田忌街八十八號
何文田政府合署三、五及六樓
網址: <http://www.hyd.gov.hk>

本署檔案 Our Ref. : (72G2) in HMW (HY/2007/14)/M45/200
來函檔號 Your Ref. :
電 話 Tel. : 2762 3641
圖文傳真 Fax : 2714 5222

28 July 2008

Hyder Consulting Ltd.
47th Floor, Hopewell Centre,
183 Queen's Road East,
Wanchai, Hong Kong.
(Attn: Mr. Antony Wong)

Dear Sirs,

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

Environmental Baseline Monitoring

As you are aware, an Environmental Baseline Monitoring shall be carried out at three designated locations under the Environmental Permit of the above Contract, namely Tam Lee Lai Fun Memorial Secondary School, Tseng Choi Market and Lakeshore Building. However, our Environmental Team (ET) advised that they could not obtain the consent of the residents of the Lakeshore Building for installing the monitoring equipment. ET then explored other alternative locations as the replacement station, such as the buildings nearby Lakeshore Building, by dispatching questionnaires to the Owners' Committees of the buildings. During the process, our resident site staff, Mr. K. Y. Yu, was also involved in seeking the confirmations from those buildings.

Up till today, the Owners' Committees of all the concerned buildings, except three of them, had sent back to us their written rejections. Replies from the Owners' Committees of Yan Oil Building, Kam Men Mansion and Ka Hay Building are still outstanding. I have discussed the proposal with the representatives of the Owners' Committees of these 3 buildings. We are given the understanding that the representatives would reject the proposal.

Since the monitoring station cannot be set up at Lakeshore Building and that there are no other viable alternative locations, our ET proposed to delete this station. I write to confirm the above event and would like to seek your further action on our ET's proposal in the deletion of this monitoring station.

Yours faithfully,

(TAM Man-dy)

for Chief Engineer / Major Works 2-2
Major Works Project Management Office
Highways Department



ISO 9001 : 2000

ISO 14001 : 1996

c.c. Ove Arup & Partners HK Ltd. (Attn: Mr. Coleman Ng)

Appendix D

**Correspondence with
Victory Building, Kim
Bo Mansion and Rich
Building**

Ove Arup & Partners
奧雅納工程顧問

Our ref: 25333/L046/CN/el

Date: 1 Sept 2008

By Fax and Post

香港屯門
青棉徑 5 號
金寶大廈
業主立案法團 / 管理處

Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
Hong Kong
Tel +862 2528 3031
Fax +852 2268 3950
Direct Tel +862 2268 3087
coleman.ng@arup.com

www.arup.com

ARUP

致 業主立案法團 / 管理處負責人：

**HY/2007/14 路政署 - 屯門公路青田交匯處段道路擴闊工程
環保監測工作 - 地方和電源的提供**


HY/2007/14 路政署 - 屯門公路青田交匯處段道路擴闊工程即將在屯門公路市中心路段以此開展擴闊屯門公路青田交匯處一段長約 240 米的路段，由雙線雙程行車改為三線雙程行車（見地圖一）。工程的施工難免產生環境影響。為確保施工過程對工地鄰近樓宇不產生過分的環境滋擾，本公司受聘對工程施工進行環保監測和審核。鑑於 貴大廈鄰近工程範圍，現選擇 貴址作為環保監測站，希望 貴大廈准許本公司在址天台安裝室外空氣及噪音質量監測儀器。詳情如下：

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耗電量：所耗電費保證全部補償（見附件）
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聯絡人 梁仲賢先生 公司電話：2268-3456 公司傳真：2268-3950

奧雅納工程顧問


吳志超 / 高級顧問
2008 年 9 月 1 日

cc: HyD (Ms. Mandy Tam & Ms. Sally Yeung) - Fax: 2714 5222

附件：

1. 施工範圍（地圖一）
2. 室外空氣及噪音質量監測儀器（圖片一及圖片二）
3. 建議所耗電費補償金額及其計算方法

GA...ILETTERS/L046.DOC

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Ove Arup & Partners Hong Kong Ltd
Registered in England 1359088 at 13 Filzroy Street London W1T 4BQ
An Arup Group Company



HIGHWAYS DEPARTMENT
MAJOR WORKS PROJECT MANAGEMENT OFFICE
3 & 6/F, HO MAN TIN GOVERNMENT OFFICES
88 CHUNG HAU STREET, HONGKONG, HONG KONG
Web site : <http://www.hyd.gov.hk>

路政署
主要工程管理處
香港九龍何文田忠孝街八十八號
何文田政府合署三及六樓
網址: <http://www.hyd.gov.hk>

本署檔案 Our Ref. : (76EV) in HMW (HY/2007/14)/M45/200
來函編號 Your Ref. :
電話 Tel. : 2762 3641
圖文傳真 Fax : 2714 5289

香港屯門青棉徑5號
金寶大廈
業主立案法團 / 管理處

收信人:

合約編號 HY/2007/14
屯門公路青田交匯處段道路擴闊工程

有關安裝環境監測系統事宜

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路政署主要工程管理處 總工程師 2-2

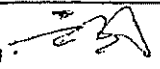
(譚文棣

代行)

附件: 顧問公司的諮詢信件

二零零八年九月一日



回條	<p>本大廈</p> <p><input type="checkbox"/> 願意</p> <p><input checked="" type="checkbox"/> 不願意 原因： _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>(請於適合空格填上☑號)</p> <p>為工程的環保監測於上址提供地方安裝和電源供應。</p>	<p>業主立案法團 / 管理處 負責人 (請刪除不適用者)</p>
		<p>簽名: </p> <p>姓名: 黃子明</p> <p>電話: 98367146</p> <p>日期: 02/09/2008</p>



**HIGHWAYS DEPARTMENT
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來函檔號 Your Ref. :
電話 Tel. : 2762 3641
圖文傳真 Fax : 2714 5289

香港屯門青棉徑3號
好勝大廈
業主立案法團 / 管理處

收信人：

合約編號 HY/2007/14
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路政署主要工程管理處 總工程師 2-2

(譚文棟

代行

附件：顧問公司的諮詢信件

二零零八年九月一日

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ISO 9001 : 2000
Certificate No.: CC 1381



ISO 14001 : 2004
Certificate No.: CC 2631

Ove Arup & Partners
奧雅納工程顧問

Our ref 25333/L045/CN/cl

Date 1 Sept 2008

By Fax and Post

香港屯門
青棉徑 3 號
好勝大廈
業主立案法團 / 管理處

Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
Hong Kong
Tel +852 2528 3031
Fax +852 2268 3950
Direct Tel +852 2268 3097
colem@arup.com

www.arup.com

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致 業主立案法團 / 管理處負責人：

**HY/2007/14 路政署 - 屯門公路青田交匯處段道路擴闊工程
環保監測工作 - 地方和電源的提供**

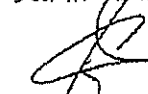
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奧雅納工程顧問



吳志輝 高級顧問
2008 年 9 月 1 日

cc: HyD (Ms. Mandy Tam & Ms. Sally Yeung) - Fax: 2714 5222

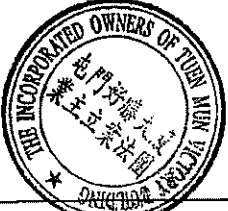
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回條	本大廈 <input type="checkbox"/> 願意 <input checked="" type="checkbox"/> 不願意 原因： _____ _____ _____ _____ (請於適合空格填上☑號)	業主立案法團/管理處 負責人 (請刪除不適用者)
	為工程的環保監測於上址提供地方安裝和電源供應。	簽名：譚國材 姓名： 電話： 日期： 



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路政署主要工程管理處 總工程師 2-2

(譚文棟

代行)

附件: 顧問公司的諮詢信件

二零零八年九月一日



Ove Arup & Partners
奧雅納工程顧問

Our ref 25333/L047/CN/cl

Date 1 Sept 2008

By Fax and Post

香港屯門
青棉徑 6 號
好發大廈
業主立案法團 / 管理處

Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
Hong Kong
Tel +852 2528 3031
Fax +852 2268 3950
Direct Tel +852 2268 3097
coleman.ng@arup.com

www.arup.com

ARUP

致 業主立案法團 / 管理處負責人：

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吳志輝 高級顧問

2008 年 9 月 1 日

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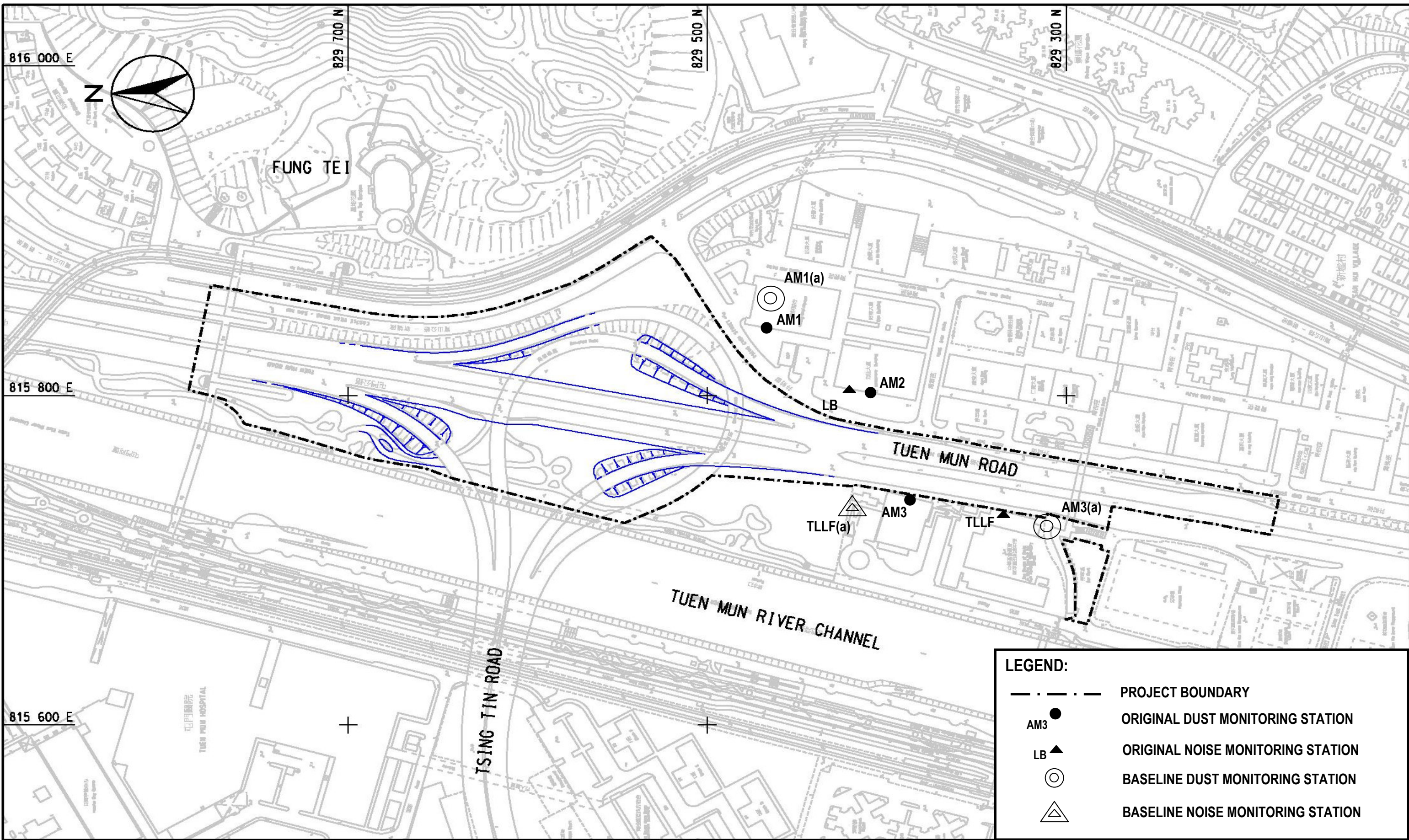
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	為工程的環保監測於上址提供地方安裝和電源供應。	簽名： <i>孔麗珍</i> 姓名： <i>孔麗珍</i> 電話： <i>24574028</i> 日期： <i>3-9-08</i>

Annex A3

**Drawing to show
Baseline Original and
Actual Monitoring
Locations**



LEGEND:

	PROJECT BOUNDARY
	ORIGINAL DUST MONITORING STATION
	ORIGINAL NOISE MONITORING STATION
	BASELINE DUST MONITORING STATION
	BASELINE NOISE MONITORING STATION



QUOTATION REF NO. HY/2007 / 14
 WIDENING OF TUEN MUN ROAD AT TSING TIN INTERCHANGE
 ENVIRONMENTAL BASELINE MONITORING LOCATIONS

SCALE		DATE	SEP. 2008
CHECK	CN	DRAWN	GK
JOB No.	25333	DRAWING No.	ANNEX A3
		REV	

Annex B

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



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 20, 2008 Roots-meter 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	ORFICE
					DIFF Hg (mm)	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 = $\text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$

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

CALCULATIONS

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

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

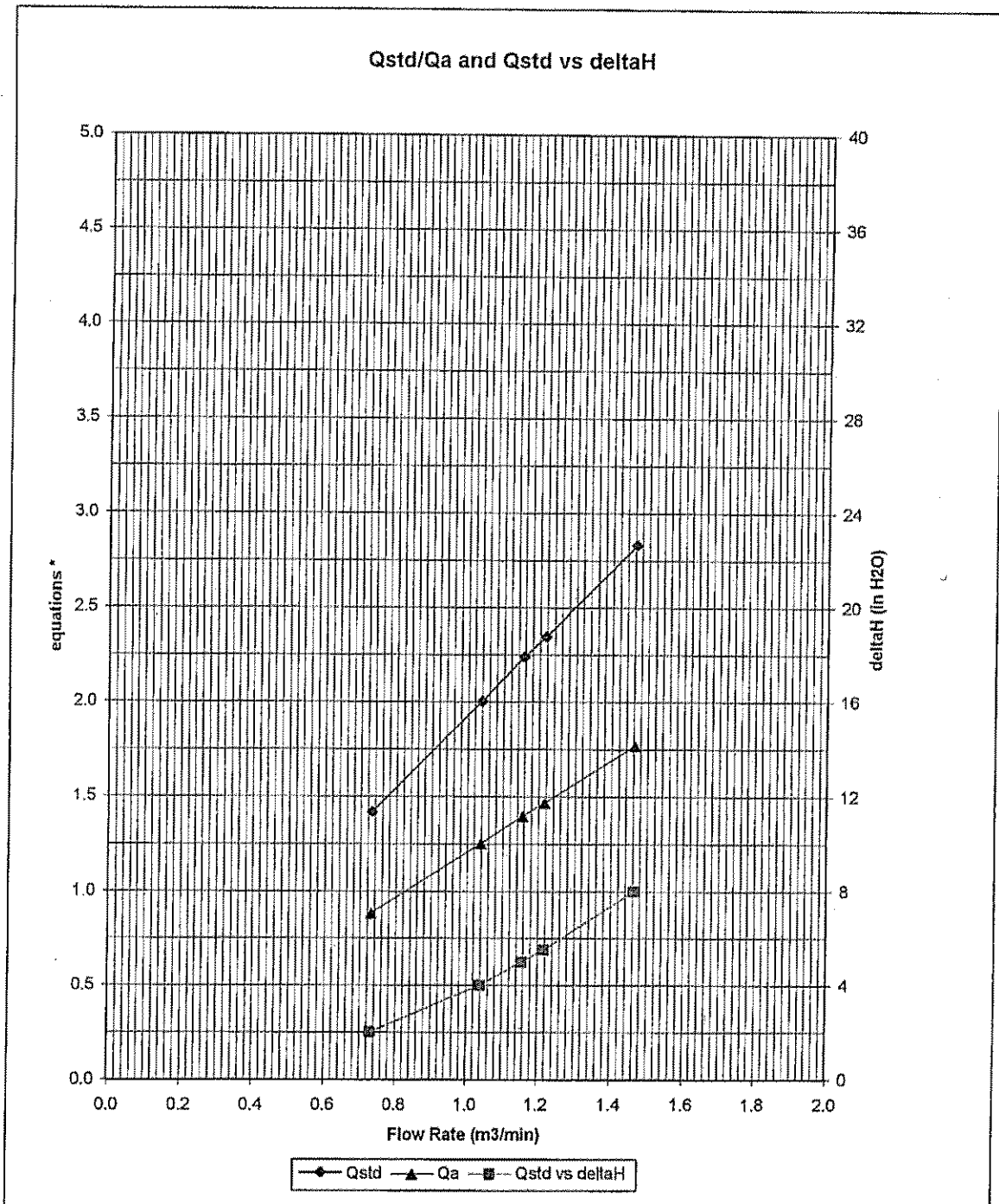
For subsequent flow rate calculations:

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



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AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

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

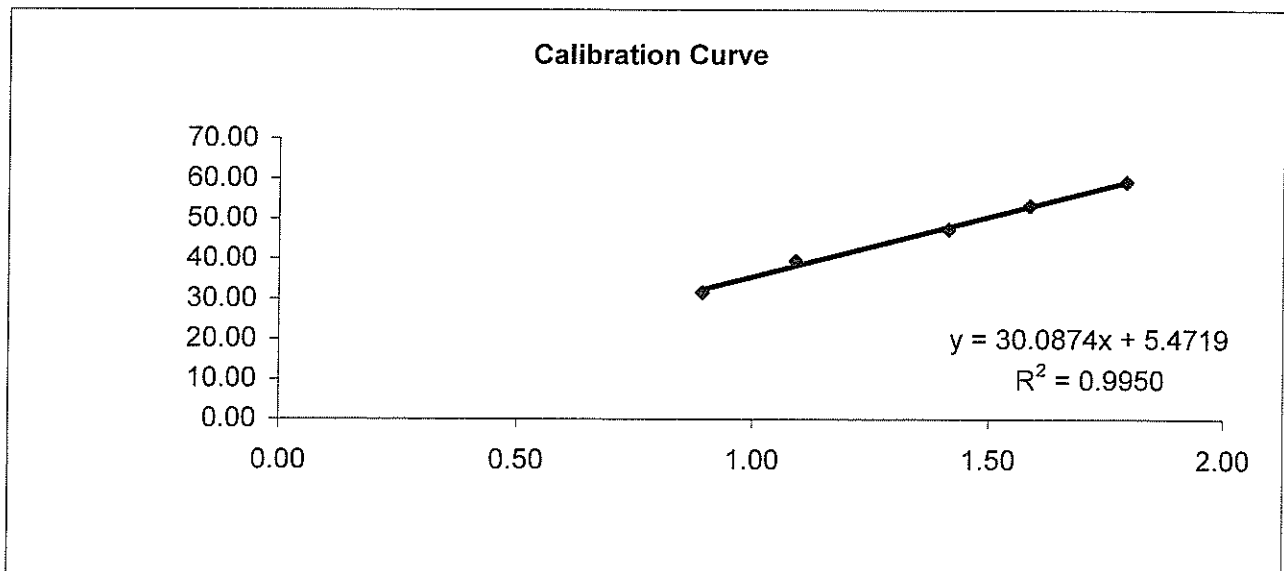
Qa series:
$$\sqrt{(\Delta H (T_a / P_a))}$$

Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	16-Jul-08	Barometric pressure	752 mm Hg
Calibration due date	14-Sep-08	Temperature (°C)	29 °C
Sampler location	TT2 - G/F Tam Lee Lai Fun Memorial School	Temperature (K)	302 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 ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.20	32.00	0.89	31.62
7	4.80	40.00	1.09	39.52
10	8.10	48.00	1.41	47.43
13	10.20	54.00	1.59	53.36
18	13.00	60.00	1.79	59.29



Linear Regression

Sampler slope (m) : **30.0874**
 Sampler intercept (b) : **5.4719**
 Correlation coefficient (R²) : **0.9950**

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

Performed by:
 Checked by: Kan

Date: 16/7/08
 Date: 16/7/08

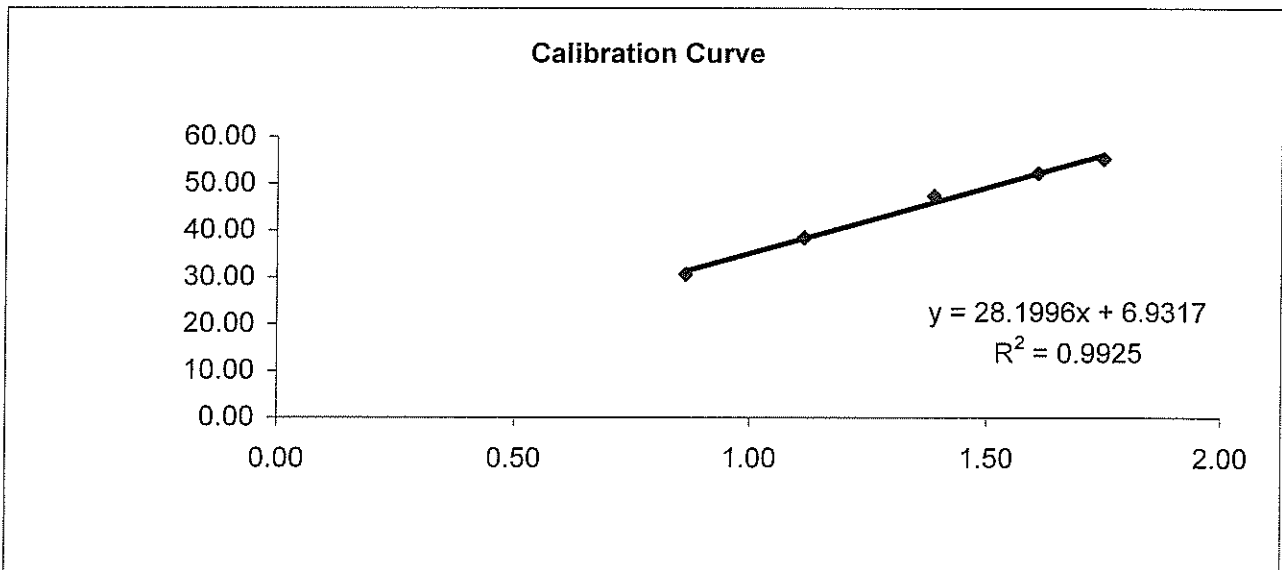
Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	16-Jul-08	Barometric pressure	752 mm Hg
Calibration due date	14-Sep-08	Temperature (°C)	29 °C
Sampler location	TT1-Roof,Kwong Choi Market	Temperature (K)	302 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 ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.00	31.00	0.87	30.63
7	5.00	39.00	1.11	38.54
10	7.80	48.00	1.39	47.43
13	10.50	53.00	1.61	52.37
18	12.40	56.00	1.75	55.33

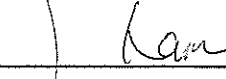


Linear Regression

Sampler slope (m) :	28.1996
Sampler intercept (b) :	6.9317
Correlation coefficient (R ²) :	0.9925

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

Performed by: 

Checked by: 

Date: 16/7/08

Date: 16/7/08

Annex C

**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



0174

Brüel & Kjær

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

Page 1 of 4 pages
Approved signatory
Name: A.M. HAMM
Signature:

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.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0174

Certificate Number

15784

Page 2 of 4 pages

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 20 μ Pa	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	3.957 k	0.7
8k	94.16	7.915 k	0.3
12.5k	94.08	12.66 k	0.2

CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0174

Certificate Number

15784

Page 3 of 4 pages

Expanded uncertainty of calibration:

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

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 ± 0.3 dB.

CERTIFICATE OF CALIBRATION

UKAS Accredited Calibration Laboratory No. 0174

Certificate Number

15784

Page 4 of 4 pages

Free Field and Random settings

Freq. Hz	Free Field Setting						Random	
	Microphone Group a		Microphone Group b		Microphone Group c		Microphone Group b	
	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 ± 0.2 dB.

Ambient conditions during calibration were:

Atmospheric Pressure 101.7 kPa

Temperature 23 °C

Relative Humidity 47 %

Checked by:



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

AAc Certificate No. 2007001

Fax: +852 2268 3950

Tel: +852 2268 3216

CERTIFICATE OF CONFORMITY

<u>Description of Test Instrument</u>	<u>Type No</u>	<u>Serial No</u>
Brüel & Kjaer 4231Acoustic Calibrator	4231	2314016

Date of Test: 01 September 2007

Carried out by: Raymond Liu

Approved by: William Ng

Signature: *Raymond*

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.

<u>Description of Reference Calibrator</u>	<u>Type No</u>	<u>Serial No</u>
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
 Date of Test: 1 September 2007

Calibrated By: RL
 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	1 st set of free field readings		<u>94</u> . <u>1</u> dB
* 4231 Under Test	1 st set of free field readings		<u>94</u> . <u>1</u> dB
* (before any required level adjustment made)			
Calibration Error of 4231	Within specification	YES/ NO	<u> </u> . <u> </u> dB
	Outside specification	YES /NO	<u> </u> . <u> </u> dB

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

SOUND PRESSURE LEVEL TEST – Part 2

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

SPECIFICATION TOLERANCE FOR THE 4231 SOUND LEVEL CALIBRATOR IS
 $\pm 0.3\text{dB}$ 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

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

AAc Certificate No. 2007006

Fax: +852 2268 3950

Tel: +852 2268 3216

CERTIFICATE OF CONFORMITY

<u>Description of Test Instrument</u>	<u>Type No</u>	<u>Serial No</u>
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

Approved by: William Ng

Signature: *Raymond*

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.

<u>Description of Reference Calibrator</u>	<u>Type No</u>	<u>Serial No</u>
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:

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_n"/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_n"/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“n”/L_{eq}/SLOW/RANDOM/RMS

	Actual Level
'A' Weighted	11.5
Linear Band	17.2

COMMENTS			
GENERAL CONDITION OKAY	<table border="1"><tr><td style="text-align: center;">YES</td><td style="text-align: center;">NO</td></tr></table>	YES	NO
YES	NO		

Annex D

**Baseline Landscape
and Visual Monitoring
Location and Results**



Photo from EIA Report



Photo from Baseline Survey

V1 View from northern part of San Hui Park

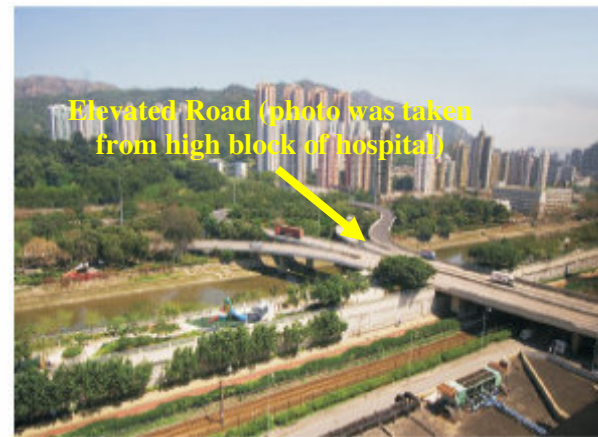


Photo from EIA Report



Photo from Baseline Survey

V2 View from Tuen Mun Hospital



Photo from EIA Report



Photo from Baseline Survey

V3 View from CCC Tam Lee Lai Fun Memorial Secondary School

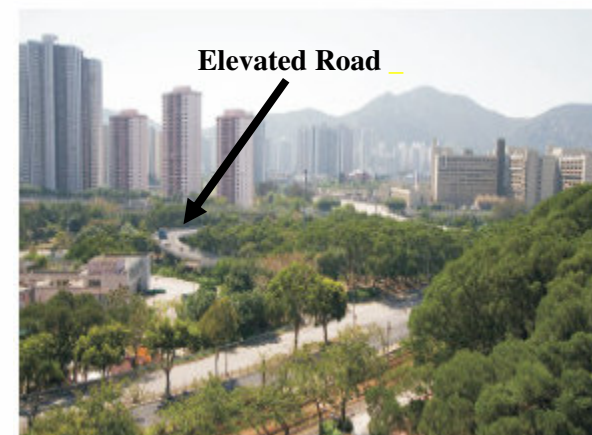


Photo from EIA Report



Photo from Baseline Survey

V4 View from Mung Yan Primary School



Photo from EIA Report



Photo from Baseline Survey

V5 View from Kwong Choi Market



Photo from EIA Report



Photo from Baseline Survey

V6 View from the children's playground near Kwong Choi Market

ARUP

QUOTATION REF NO. HY/2007/14
 WIDENING OF TUEN MUN ROAD AT TSING TIN INTERCHANGE
 KEY VSRs AND ZONE OF VISUAL INFLUENCE

SCALE		DATE	AUG. 2008
CHECK	CN	DRWN	ML
JOB No.	025333-00		Annex G6 REV



Photo from EIA Report



Photo from Baseline Survey

V7 View from Tuen Mun Road foot bridge (near Fung Tei Station)



Photo from EIA Report



Photo from Baseline Survey

V8 View from Tuen Mun Road foot bridge (near Lam Kwong Building)



Photo from EIA Report



Photo from Baseline Survey

V9 View from Fung Tei Garden

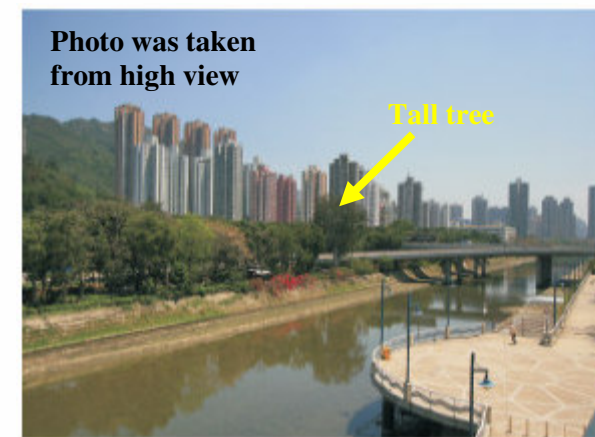


Photo was taken from high view

Tall tree

Photo from EIA Report

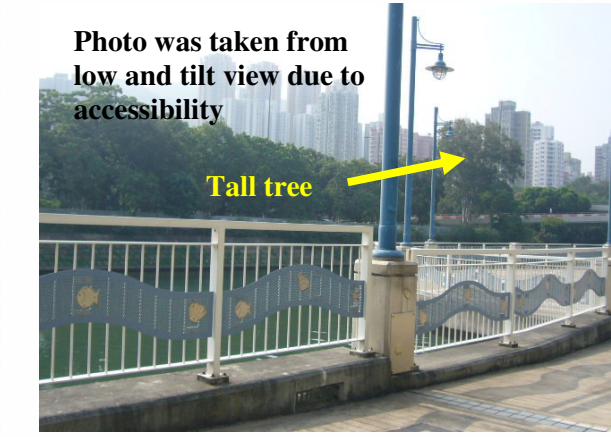


Photo was taken from low and tilt view due to accessibility

Tall tree

Photo from Baseline Survey

V10 View from the waterfront near Tuen Mun Hospital



Tall tree

Photo from EIA Report



Photo was taken from a zoom view due to accessibility

Tall tree

Photo from Baseline Survey

V11 View from waterfront near Tuen Mun Hospital



Photo from EIA Report



Photo was taken from a zoom view due to accessibility

Photo from Baseline Survey

V12 View from the waterfront near Tsing Chung Koon Road Government Quarters

ARUP

QUOTATION REF NO. HY/2007/14
 WIDENING OF TUEN MUN ROAD AT TSING TIN INTERCHANGE
 KEY VSRs AND ZONE OF VISUAL INFLUENCE

SCALE		DATE	AUG. 2008
CHECK	CH	DESIGN	M
JOB No.	025333-00	REV	Annex G7



Photo from EIA Report



Photo from Baseline Survey

V13 View from Tuen Mun Road foot bridge (near Tseng Choi Street)



Photo from EIA Report



Photo from Baseline Survey

V14 View from football field near Tam Lee Lai Fun School



Photo from EIA Report



Photo from Baseline Survey

V15 View from waterfront near Chelsea Heights



Photo from EIA Report



Photo from Baseline Survey

V16 View from roadside of northern Tuen Mun Road



Photo from EIA Report



Photo from Baseline Survey

V17 View from roadside of southern Tuen Mun Road

ARUP

QUOTATION REF NO. HY/2007/14
 WIDENING OF TUEN MUN ROAD AT TSING TIN INTERCHANGE
 KEY VSRs AND ZONE OF VISUAL INFLUENCE

SCALE		DATE	AUG. 2008
CHEK	CN	DRWING	ML
JOB No.	025333-00	REV	Annex G8

Annex E

**Meteorological Data
and Baseline Air
Quality Monitoring
Results**

Contract No. HY/2007/14 Widening of Tuen Mun Road at Tsing Tin Interchange
Meteorological Data Extracted from the Hong Kong Observatory Weather Station at Tuen Mun

Elevation of station : 63m above mean sea level

Elevation of anemometer : 69m above mean sea level

Date	Total Rainfall (mm)	Wind Speed (km/h)	Wind Direction
7/17/2008 Thu	0	6	S
7/18/2008 Fri	0	8	S - SE
7/19/2008 Sat	0	12	SW
7/20/2008 Sun	0	10	S
7/21/2008 Mon	2 - 5	11	S
7/22/2008 Tue	5 - 10	12	S
7/23/2008 Wed	0	13	S - SE
7/24/2008 Thu	0	9	S - SW
7/25/2008 Fri	0	7	S
7/26/2008 Sat	0	8	S
7/27/2008 Sun	10 - 20	8	S
7/28/2008 Mon	0	8	SW
7/29/2008 Tue	0	10	SW
7/30/2008 Wed	0	13	S - SE
7/31/2008 Thu	0.5 - 2	13	SE

**Contract No. HY/2007/14 Widening of Tuen Mun Road at Tsing Tin Interchange
Baseline Air Quality Monitoring Results at Kwong Choi Market AM1(a)**

Filter No.	Date	Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (°C)		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	Total vol. (m ³)	1-hour TSP Level	24-hour TSP Level
					Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish				
OP95	17-Jul-08	TT1-1	Sunny	Normal Operation	752.0	753.0	30.0	29.0	30.0	30.0	2.8218	2.8228	0.0010	0.8037	0.8061	0.8049	8122.73	8123.73	60.00	48.29	20.7	
OR89	17-Jul-08	TT1-2	Sunny	Normal Operation	752.0	753.0	30.0	29.0	30.0	30.0	2.8233	2.8250	0.0017	0.8037	0.8061	0.8049	8123.73	8124.73	60.00	48.29	35.2	
OR90	17-Jul-08	TT1-3	Sunny	Normal Operation	752.0	753.0	30.0	29.0	30.0	30.0	2.8172	2.8180	0.0008	0.8037	0.8061	0.8049	8124.73	8125.73	60.00	48.29	16.6	
OQ45	17-Jul-08	TT1-4	Sunny	Normal Operation	752.0	753.0	30.0	29.0	30.0	30.0	2.7961	2.8606	0.0645	0.8037	0.8061	0.8049	5012.89	5036.89	1440.00	1159.06		55.6
OR11	18-Jul-08	TT1-1	Fine	Normal Operation	754.0	753.0	30.0	30.0	30.0	30.0	2.8593	2.8683	0.0090	0.8050	0.8044	0.8047	8125.73	8126.73	60.00	48.28	186.4	
OR12	18-Jul-08	TT1-2	Fine	Normal Operation	754.0	753.0	30.0	30.0	30.0	30.0	2.8401	2.8406	0.0005	0.8050	0.8044	0.8047	8126.73	8127.73	60.00	48.28	10.4	
OR13	18-Jul-08	TT1-3	Fine	Normal Operation	754.0	753.0	30.0	30.0	30.0	30.0	2.8348	2.8359	0.0011	0.8050	0.8044	0.8047	8127.73	8128.73	60.00	48.28	22.8	
OR33	18-Jul-08	TT1-4	Fine	Normal Operation	754.0	753.0	30.0	30.0	30.0	30.0	2.7540	2.8152	0.0612	0.8050	0.8044	0.8047	5036.89	5060.89	1440.00	1158.77		52.8
OQ24	19-Jul-08	TT1-1	Fine	Normal Operation	754.0	755.0	29.0	28.0	30.0	30.0	2.7854	2.7861	0.0007	0.8068	0.8092	0.8080	8128.73	8129.73	60.00	48.48	14.4	
OQ26	19-Jul-08	TT1-2	Fine	Normal Operation	754.0	755.0	29.0	28.0	30.0	30.0	2.8158	2.8208	0.0050	0.8068	0.8092	0.8080	8129.73	8130.73	60.00	48.48	103.1	
OR20	19-Jul-08	TT1-3	Fine	Normal Operation	754.0	755.0	29.0	28.0	30.0	30.0	2.7792	2.7810	0.0018	0.8068	0.8092	0.8080	8130.73	8131.73	60.00	48.48	37.1	
OR23	19-Jul-08	TT1-4	Fine	Normal Operation	754.0	755.0	29.0	28.0	30.0	30.0	2.7783	2.8536	0.0753	0.8068	0.8092	0.8080	5060.89	5084.89	1440.00	1163.52		64.7
OS09	20-Jul-08	TT1-1	Fine	Normal Operation	756.0	756.0	30.0	29.0	30.0	30.0	2.7503	2.7533	0.0030	0.8064	0.8082	0.8073	8131.73	8132.73	60.00	48.44	61.9	
OS04	20-Jul-08	TT1-2	Fine	Normal Operation	756.0	756.0	30.0	29.0	30.0	30.0	2.7906	2.7915	0.0009	0.8064	0.8082	0.8073	8132.73	8133.73	60.00	48.44	18.6	
OQ78	20-Jul-08	TT1-3	Fine	Normal Operation	756.0	756.0	30.0	29.0	30.0	30.0	2.8256	2.8268	0.0012	0.8064	0.8082	0.8073	8133.73	8134.73	60.00	48.44	24.8	
OS08	20-Jul-08	TT1-4	Fine	Normal Operation	756.0	756.0	30.0	29.0	30.0	30.0	2.7585	2.8035	0.0450	0.8064	0.8082	0.8073	5084.89	5108.89	1440.00	1162.51		38.7
OQ68	21-Jul-08	TT1-1	Cloudy	Normal Operation	755.0	755.0	29.0	29.0	30.0	30.0	2.7982	2.7998	0.0016	0.8075	0.8075	0.8075	8134.73	8135.73	60.00	48.45	33.0	
OR01	21-Jul-08	TT1-2	Cloudy	Normal Operation	755.0	755.0	29.0	29.0	30.0	30.0	2.8124	2.8136	0.0012	0.8075	0.8075	0.8075	8135.73	8136.73	60.00	48.45	24.8	
OR02	21-Jul-08	TT1-3	Cloudy	Normal Operation	755.0	755.0	29.0	29.0	30.0	30.0	2.8181	2.8191	0.0010	0.8075	0.8075	0.8075	8136.73	8137.73	60.00	48.45	20.6	
OR99	21-Jul-08	TT1-4	Cloudy	Normal Operation	755.0	755.0	29.0	29.0	30.0	30.0	2.7485	2.7886	0.0401	0.8075	0.8075	0.8075	5108.89	5132.89	1440.00	1162.80		34.5
OR30	22-Jul-08	TT1-1	Drizzle	Normal Operation	754.0	753.0	31.0	29.0	30.0	30.0	2.7611	2.7655	0.0044	0.8033	0.8061	0.8047	8137.73	8138.73	60.00	48.28	91.1	
OP84	22-Jul-08	TT1-2	Drizzle	Normal Operation	754.0	753.0	31.0	29.0	30.0	30.0	2.7957	2.7979	0.0022	0.8033	0.8061	0.8047	8138.73	8139.73	60.00	48.28	45.6	
OP94	22-Jul-08	TT1-3	Drizzle	Normal Operation	754.0	753.0	31.0	29.0	30.0	30.0	2.8062	2.8078	0.0016	0.8033	0.8061	0.8047	8139.73	8140.73	60.00	48.28	33.1	
OQ99	22-Jul-08	TT1-4	Drizzle	Normal Operation	754.0	753.0	31.0	29.0	30.0	30.0	2.8106	2.8509	0.0403	0.8033	0.8061	0.8047	5132.89	5156.89	1440.00	1158.77		34.8
OQ57	23-Jul-08	TT1-1	Fine	Normal Operation	754.0	755.0	29.0	30.0	30.0	30.0	2.8294	2.8310	0.0016	0.8068	0.8057	0.8063	8140.73	8141.73	60.00	48.38	33.1	
OR92	23-Jul-08	TT1-2	Fine	Normal Operation	754.0	755.0	29.0	30.0	30.0	30.0	2.8390	2.8399	0.0009	0.8068	0.8057	0.8063	8141.73	8142.73	60.00	48.38	18.6	
OR93	23-Jul-08	TT1-3	Fine	Normal Operation	754.0	755.0	29.0	30.0	30.0	30.0	2.8012	2.8031	0.0019	0.8068	0.8057	0.8063	8142.73	8143.73	60.00	48.38	39.3	
OQ51	23-Jul-08	TT1-4	Fine	Normal Operation	754.0	755.0	29.0	30.0	30.0	30.0	2.8148	2.8414	0.0266	0.8068	0.8057	0.8063	5156.89	5180.89	1440.00	1161.00		22.9
OQ71	24-Jul-08	TT1-1	Sunny	Normal Operation	755.0	755.0	30.0	31.0	30.0	30.0	2.7992	2.7999	0.0007	0.8057	0.8040	0.8049	8143.73	8144.73	60.00	48.29	14.5	
OS03	24-Jul-08	TT1-2	Sunny	Normal Operation	755.0	755.0	30.0	31.0	30.0	30.0	2.7496	2.7507	0.0011	0.8057	0.8040	0.8049	8144.73	8145.73	60.00	48.29	22.8	
OS02	24-Jul-08	TT1-3	Sunny	Normal Operation	755.0	755.0	30.0	31.0	30.0	30.0	2.7472	2.7506	0.0034	0.8057	0.8040	0.8049	8145.73	8146.73	60.00	48.29	70.4	
OR97	24-Jul-08	TT1-4	Sunny	Normal Operation	755.0	755.0	30.0	31.0	30.0	30.0	2.7622	2.8031	0.0409	0.8057	0.8040	0.8049	5180.89	5204.89	1440.00	1158.98		35.3
OR91	25-Jul-08	TT1-1	Fine	Normal Operation	754.0	754.0	31.0	30.0	30.0	30.0	2.7312	2.7338	0.0026	0.8033	0.8050	0.8042	8146.73	8147.73	60.00	48.25	53.9	
OR89	25-Jul-08	TT1-2	Fine	Normal Operation	754.0	754.0	31.0	30.0	30.0	30.0	2.7471	2.7511	0.0040	0.8033	0.8050	0.8042	8147.73	8148.73	60.00	48.25	82.9	
OR90	25-Jul-08	TT1-3	Fine	Normal Operation	754.0	754.0	31.0	30.0	30.0	30.0	2.7394	2.7540	0.0146	0.8033	0.8050	0.8042	8148.73	8149.73	60.00	48.25	302.6	
OQ45	25-Jul-08	TT1-4	Fine	Normal Operation	754.0	754.0	31.0	30.0	30.0	30.0	2.8314	2.8740	0.0426	0.8033	0.8050	0.8042	5204.89	5228.89	1440.00	1157.98		36.8
OR16	26-Jul-08	TT1-1	Sunny	Normal Operation	753.0	754.0	30.0	30.0	30.0	30.0	2.8850	2.8952	0.0102	0.8044	0.8050	0.8047	8149.73	8150.73	60.00	48.28	211.3	
OP76	26-Jul-08	TT1-2	Sunny	Normal Operation	753.0	754.0	30.0	30.0	30.0	30.0	2.7695	2.7898	0.0203	0.8044	0.8050	0.8047	8150.73	8151.73	60.00	48.28	420.5	
OQ92	26-Jul-08	TT1-3	Sunny	Normal Operation	753.0	754.0	30.0	30.0	30.0	30.0	2.8883	2.9026	0.0143	0.8044	0.8050	0.8047	8151.73	8152.73	60.00	48.28	296.2	
OP77	26-Jul-08	TT1-4	Sunny	Normal Operation	753.0	754.0	30.0	30.0	30.0	30.0	2.7574	2.7977	0.0403	0.8044	0.8050	0.8047	5228.89	5252.89	1440.00	1158.77		34.8
OQ31	27-Jul-08	TT1-1	Drizzle	Normal Operation	752.0	753.0	30.0	31.0	30.0	30.0	2.8204	2.8235	0.0031	0.8037	0.8026	0.8032	8152.73	8153.73	60.00	48.19	64.3	
OQ35	27-Jul-08	TT1-2	Drizzle	Normal Operation	752.0	753.0	30.0	31.0	30.0	30.0	2.8157	2.8171	0.0014	0.8037	0.8026	0.8032	8153.73	8154.73	60.00	48.19	29.1	
OS07	27-Jul-08	TT1-3	Drizzle	Normal Operation	752.0	753.0	30.0	31.0	30.0	30.0	2.8377	2.8397	0.0020	0.8037	0.8026	0.8032	8154.73	8155.73	60.00	48.19	41.5	
OQ32	27-Jul-08	TT1-4	Drizzle	Normal Operation	752.0	753.0	30.0	31.0	30.0	30.0	2.8436	2.9132	0.0696	0.8037	0.8026	0.8032	5252.89	5276.89	1440.00	1156.54		60.2
OR21	28-Jul-08	TT1-1	Fine	Normal Operation	748.0	750.0	31.0	31.0	30.0	30.0	2.7935	2.8196	0.0261	0.7992	0.8005	0.7999	8155.73	8156.73	60.00	47.99	543.9	
OR22	28-Jul-08	TT1-2	Fine	Normal Operation	748.0	750.0	31.0	31.0	30.0	30.0	2.7880	2.8006	0.0126	0.7992	0.8005	0.7999	8156.73	8157.73	60.00	47.99	262.6	
OR24	28-Jul-08	TT1-3	Fine	Normal Operation	748.0	750.0	31.0	31.0	30.0	30.0	2.7906	2.8005	0.0099	0.7992	0.8005	0.7999	8157.73	8158.73	60.00	47.99	206.3	
OR28	28-Jul-08	TT1-4	Fine	Normal Operation	748.0	750.0	31.0	31.0	30.0	30.0	2.7790	2.8911	0.1121	0.7992	0.8005	0.7999	5276.89	5300.89	1440.00	1151.78		97.3
OS17	29-Jul-08	TT1-1	Fine	Normal Operation	748.0	748.0	31.0	30.0	30.0	30.0	2.8170	2.8314	0.0144	0.7992	0.8009	0.8001	8158.73	8159.73	60.00	48.00	300.0	
OS18	29-Jul-08	TT1-2	Fine	Normal Operation	748.0	748.0	31.0	30.0	30.0	30.0	2.7926	2.8410	0.0484	0.7992	0.8009	0.8001	8159.73	8160.73	60.00	48.00	1008.3	
OS19	29-Jul-08	TT1-3	Fine	Normal Operation	748.0	748.0	31.0	30.0	30.0	30.0	2.8053	2.8290	0.0237	0.7992	0.8009	0.8001	8160.73	8161.73	60.00	48.00	493.8	
OS01	29-Jul-08	TT1-4	Fine	Normal Operation	748.0	748.0	31.0	30.0	30.0	30.0	2.7694	2.8008	0.0314	0.7992	0.8009	0.8001	5300.89	5324.89	1440.00	1152.07		27.3
OQ80	30-Jul-08	TT1-1	Fine	Normal Operation	751.0	752																

**Contract No. HY/2007/14 Widening of Tuen Mun Road at Tsing Tin Interchange
Baseline Air Quality Monitoring Results at The Church of Christ in China Tam Lee Lai Fun Memorial Secondary School AM3(a)**

Filter No.	Month	Date	Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (°C)		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	Total vol. (m ³)	1-hour TSP Level	24-hour TSP Level
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish				
OP73	Jul-08	17-Jul-08	TT2-1	Sunny	Normal Operation	752.0	753.0	30.0	29.0	30.0	30.0	2.7562	2.7592	0.0030	0.8018	0.8041	0.8030	7716.66	7717.66	60.00	48.18	62.3	
OR18	Jul-08	17-Jul-08	TT2-2	Sunny	Normal Operation	752.0	753.0	30.0	29.0	30.0	30.0	2.7766	2.7797	0.0031	0.8018	0.8041	0.8030	7717.66	7718.66	60.00	48.18	64.3	
OQ84	Jul-08	17-Jul-08	TT2-3	Sunny	Normal Operation	752.0	753.0	30.0	29.0	30.0	30.0	2.8250	2.8366	0.0116	0.8018	0.8041	0.8030	7718.66	7719.66	60.00	48.18	240.8	
OQ14	Jul-08	17-Jul-08	TT2-4	Sunny	Normal Operation	752.0	753.0	30.0	29.0	30.0	30.0	2.7480	2.8028	0.0548	0.8018	0.8041	0.8030	4659.45	4683.45	1440.00	1156.25		47.4
OQ34	Jul-08	18-Jul-08	TT2-1	Fine	Normal Operation	754.0	753.0	30.0	30.0	30.0	30.0	2.8017	2.8030	0.0013	0.8031	0.8024	0.8028	7719.66	7720.66	60.00	48.17	27.0	
OQ36	Jul-08	18-Jul-08	TT2-2	Fine	Normal Operation	754.0	753.0	30.0	30.0	30.0	30.0	2.7765	2.7828	0.0063	0.8031	0.8024	0.8028	7720.66	7721.66	60.00	48.17	130.8	
OQ03	Jul-08	18-Jul-08	TT2-3	Fine	Normal Operation	754.0	753.0	30.0	30.0	30.0	30.0	2.7444	2.7711	0.0267	0.8031	0.8024	0.8028	7721.66	7722.66	60.00	48.17	554.3	
OQ28	Jul-08	18-Jul-08	TT2-4	Fine	Normal Operation	754.0	753.0	30.0	30.0	30.0	30.0	2.7966	2.8282	0.0316	0.8031	0.8024	0.8028	4683.45	4707.45	1440.00	1155.96		27.3
OP88	Jul-08	19-Jul-08	TT2-1	Fine	Normal Operation	754.0	755.0	29.0	28.0	30.0	30.0	2.7998	2.8092	0.0094	0.8047	0.8070	0.8059	7722.66	7723.66	60.00	48.35	194.4	
OP81	Jul-08	19-Jul-08	TT2-2	Fine	Normal Operation	754.0	755.0	29.0	28.0	30.0	30.0	2.8074	2.8216	0.0142	0.8047	0.8070	0.8059	7723.66	7724.66	60.00	48.35	293.7	
OP80	Jul-08	19-Jul-08	TT2-3	Fine	Normal Operation	754.0	755.0	29.0	28.0	30.0	30.0	2.7987	2.8119	0.0132	0.8047	0.8070	0.8059	7724.66	7725.66	60.00	48.35	273.0	
OP79	Jul-08	19-Jul-08	TT2-4	Fine	Normal Operation	754.0	755.0	29.0	28.0	30.0	30.0	2.8184	2.8480	0.0296	0.8047	0.8070	0.8059	4707.45	4731.45	1440.00	1160.42		25.5
OP98	Jul-08	20-Jul-08	TT2-1	Fine	Normal Operation	756.0	756.0	30.0	29.0	30.0	30.0	2.7588	2.7599	0.0011	0.8043	0.8060	0.8052	7725.66	7726.66	60.00	48.31	22.8	
OP97	Jul-08	20-Jul-08	TT2-2	Fine	Normal Operation	756.0	756.0	30.0	29.0	30.0	30.0	2.7279	2.7289	0.0010	0.8043	0.8060	0.8052	7726.66	7727.66	60.00	48.31	20.7	
OQ74	Jul-08	20-Jul-08	TT2-3	Fine	Normal Operation	756.0	756.0	30.0	29.0	30.0	30.0	2.7867	2.7876	0.0009	0.8043	0.8060	0.8052	7727.66	7728.66	60.00	48.31	18.6	
OP83	Jul-08	20-Jul-08	TT2-4	Fine	Normal Operation	756.0	756.0	30.0	29.0	30.0	30.0	2.8179	2.8579	0.0400	0.8043	0.8060	0.8052	4731.45	4755.45	1440.00	1159.42		34.5
OQ19	Jul-08	21-Jul-08	TT2-1	Cloudy	Normal Operation	755.0	755.0	29.0	29.0	30.0	30.0	2.8210	2.8218	0.0008	0.8054	0.8054	0.8054	7728.66	7729.66	60.00	48.32	16.6	
OQ20	Jul-08	21-Jul-08	TT2-2	Cloudy	Normal Operation	755.0	755.0	29.0	29.0	30.0	30.0	2.8181	2.8191	0.0010	0.8054	0.8054	0.8054	7729.66	7730.66	60.00	48.32	20.7	
OQ23	Jul-08	21-Jul-08	TT2-3	Cloudy	Normal Operation	755.0	755.0	29.0	29.0	30.0	30.0	2.8319	2.8332	0.0013	0.8054	0.8054	0.8054	7730.66	7731.66	60.00	48.32	26.9	
OQ21	Jul-08	21-Jul-08	TT2-4	Cloudy	Normal Operation	755.0	755.0	29.0	29.0	30.0	30.0	2.8527	2.8950	0.0423	0.8054	0.8054	0.8054	4755.45	4779.45	1440.00	1159.78		36.5
OQ57	Jul-08	22-Jul-08	TT2-1	Drizzle	Normal Operation	754.0	753.0	31.0	29.0	30.0	30.0	2.8171	2.8206	0.0035	0.8015	0.8041	0.8028	7731.66	7732.66	60.00	48.17	72.7	
OR92	Jul-08	22-Jul-08	TT2-2	Drizzle	Normal Operation	754.0	753.0	31.0	29.0	30.0	30.0	2.7035	2.7056	0.0021	0.8015	0.8041	0.8028	7732.66	7733.66	60.00	48.17	43.6	
OR93	Jul-08	22-Jul-08	TT2-3	Drizzle	Normal Operation	754.0	753.0	31.0	29.0	30.0	30.0	2.7683	2.7696	0.0013	0.8015	0.8041	0.8028	7733.66	7734.66	60.00	48.17	27.0	
OQ51	Jul-08	22-Jul-08	TT2-4	Drizzle	Normal Operation	754.0	753.0	31.0	29.0	30.0	30.0	2.8076	2.8319	0.0243	0.8015	0.8041	0.8028	4779.45	4803.45	1440.00	1156.03		21.0
OQ97	Jul-08	23-Jul-08	TT2-1	Fine	Normal Operation	754.0	755.0	29.0	30.0	30.0	30.0	2.8788	2.8798	0.0010	0.8047	0.8037	0.8042	7734.66	7735.66	60.00	48.25	20.7	
OQ96	Jul-08	23-Jul-08	TT2-2	Fine	Normal Operation	754.0	755.0	29.0	30.0	30.0	30.0	2.8256	2.8266	0.0010	0.8047	0.8037	0.8042	7735.66	7736.66	60.00	48.25	20.7	
OR29	Jul-08	23-Jul-08	TT2-3	Fine	Normal Operation	754.0	755.0	29.0	30.0	30.0	30.0	2.7979	2.8041	0.0062	0.8047	0.8037	0.8042	7736.66	7737.66	60.00	48.25	128.5	
OR94	Jul-08	23-Jul-08	TT2-4	Fine	Normal Operation	754.0	755.0	29.0	30.0	30.0	30.0	2.7448	2.7814	0.0366	0.8047	0.8037	0.8042	4803.45	4827.45	1440.00	1158.05		31.6
OQ77	Jul-08	24-Jul-08	TT2-1	Sunny	Normal Operation	755.0	755.0	30.0	31.0	30.0	30.0	2.7376	2.7384	0.0008	0.8037	0.8021	0.8029	7737.66	7738.66	60.00	48.17	16.6	
OQ94	Jul-08	24-Jul-08	TT2-2	Sunny	Normal Operation	755.0	755.0	30.0	31.0	30.0	30.0	2.8752	2.8761	0.0009	0.8037	0.8021	0.8029	7738.66	7739.66	60.00	48.17	18.7	
OQ95	Jul-08	24-Jul-08	TT2-3	Sunny	Normal Operation	755.0	755.0	30.0	31.0	30.0	30.0	2.8483	2.8493	0.0010	0.8037	0.8021	0.8029	7739.66	7740.66	60.00	48.17	20.8	
OQ04	Jul-08	24-Jul-08	TT2-4	Sunny	Normal Operation	755.0	755.0	30.0	31.0	30.0	30.0	2.7401	2.7835	0.0434	0.8037	0.8021	0.8029	4827.45	4851.45	1440.00	1156.18		37.5
OQ42	Jul-08	25-Jul-08	TT2-1	Fine	Normal Operation	754.0	754.0	31.0	30.0	30.0	30.0	2.8287	2.8298	0.0011	0.8015	0.8031	0.8023	7740.66	7741.66	60.00	48.14	22.9	
OQ43	Jul-08	25-Jul-08	TT2-2	Fine	Normal Operation	754.0	754.0	31.0	30.0	30.0	30.0	2.8139	2.8146	0.0007	0.8015	0.8031	0.8023	7741.66	7742.66	60.00	48.14	14.5	
OQ44	Jul-08	25-Jul-08	TT2-3	Fine	Normal Operation	754.0	754.0	31.0	30.0	30.0	30.0	2.8304	2.8315	0.0011	0.8015	0.8031	0.8023	7742.66	7743.66	60.00	48.14	22.9	
OQ37	Jul-08	25-Jul-08	TT2-4	Fine	Normal Operation	754.0	754.0	31.0	30.0	30.0	30.0	2.7574	2.7990	0.0416	0.8015	0.8031	0.8023	4851.45	4875.45	1440.00	1155.31		36.0
OS12	Jul-08	26-Jul-08	TT2-1	Sunny	Normal Operation	753.0	754.0	30.0	30.0	30.0	30.0	2.8160	2.8187	0.0027	0.8024	0.8031	0.8028	7743.66	7744.66	60.00	48.17	56.1	
OP81	Jul-08	26-Jul-08	TT2-2	Sunny	Normal Operation	753.0	754.0	30.0	30.0	30.0	30.0	2.8024	2.8044	0.0020	0.8024	0.8031	0.8028	7744.66	7745.66	60.00	48.17	41.5	
OR17	Jul-08	26-Jul-08	TT2-3	Sunny	Normal Operation	753.0	754.0	30.0	30.0	30.0	30.0	2.8105	2.8160	0.0055	0.8024	0.8031	0.8028	7745.66	7746.66	60.00	48.17	114.2	
OQ85	Jul-08	26-Jul-08	TT2-4	Sunny	Normal Operation	753.0	754.0	30.0	30.0	30.0	30.0	2.8315	2.9084	0.0769	0.8024	0.8031	0.8028	4875.45	4899.45	1440.00	1155.96		66.5
OR04	Jul-08	27-Jul-08	TT2-1	Drizzle	Normal Operation	752.0	753.0	30.0	31.0	30.0	30.0	2.8017	2.8068	0.0051	0.8018	0.8008	0.8013	7746.66	7747.66	60.00	48.08	106.1	
OR06	Jul-08	27-Jul-08	TT2-2	Drizzle	Normal Operation	752.0	753.0	30.0	31.0	30.0	30.0	2.8127	2.8191	0.0064	0.8018	0.8008	0.8013	7747.66	7748.66	60.00	48.08	133.1	
OQ82	Jul-08	27-Jul-08	TT2-3	Drizzle	Normal Operation	752.0	753.0	30.0	31.0	30.0	30.0	2.8243	2.8323	0.0080	0.8018	0.8008	0.8013	7748.66	7749.66	60.00	48.08	166.4	
OQ01	Jul-08	27-Jul-08	TT2-4	Drizzle	Normal Operation	752.0	753.0	30.0	31.0	30.0	30.0	2.7058	2.7780	0.0722	0.8018	0.8008	0.8013	4899.45	4923.45	1440.00	1153.87		62.6
OR19	Jul-08	28-Jul-08	TT2-1	Fine	Normal Operation	748.0	750.0	31.0	31.0	30.0	30.0	2.8020	2.8046	0.0026	0.7975	0.7988	0.7982	7749.66	7750.66	60.00	47.89	54.3	
OQ29	Jul-08	28-Jul-08	TT2-2	Fine	Normal Operation	748.0	750.0	31.0	31.0	30.0	30.0	2.8185	2.8202	0.0017	0.7975	0.7988	0.7982	7750.66	7751.66	60.00	47.89	35.5	
OQ30	Jul-08	28-Jul-08	TT2-3	Fine	Normal Operation	748.0	750.0	31.0	31.0	30.0	30.0	2.8024	2.8044	0.0020	0.7975	0.7988	0.7982	7751.66	7752.66	60.00	47.89	41.8	
OQ34	Jul-08	28-Jul-08	TT2-4	Fine	Normal Operation	748.0	750.0	31.0	31.0	30.0	30.0	2.8368	2.9476	0.1108	0.7975	0.7988	0.7982	4923.45	4947.45	1440.00	1149.34		96.4
OR07	Jul-08	29-Jul-08	TT2-1	Fine	Normal Operation	748.0	748.0	31.0	30.0	30.0	30.0	2.8019	2.8094	0.0075	0.7975	0.7991	0.7983	7752.66	7753.66	60.00	47.90	156.6	
OR08	Jul-08	29-Jul-08	TT2-2	Fine	Normal Operation	748.0	748.0	31.0	30.0	30.0	30.0	2.8279	2.8292	0.0013	0.7975	0.7991	0.7983	7753.66	7754.66	60.00	47.90	27.1	
OR09	Jul-08	29-Jul-08	TT2-3	Fine</																			

Annex F

**Baseline Noise
Monitoring Results**

**Contract No. HY/2007/14 Widening of Tuen Mun Road at Tsing Tin Interchange
Baseline Noise Monitoring Results at The Church of Christ in China Tam Lee Lai Fun Memorial Secondary School TLLF(a)**

Date	Day-time (0700-1900) Noise Level, dB(A)			Evening-time (1900-2300) Noise Level, dB(A)			Night-time (2300-0700 next day) Noise Level, dB(A)			Weather	Wind Direction
	L _{Aeq} 30min	L10	L90	L _{Aeq} 5min	L10	L90	L _{Aeq} 5min	L10	L90		
17-Jul-08 Thu	70.2	72.2	66.6	68.6	71.1	64.2	65.0	68.1	58.7	Sunny	S
18-Jul-08 Fri	70.6	72.7	66.6	68.8	71.1	64.5	65.4	68.3	59.1	Fine	S - SE
19-Jul-08 Sat	71.5	73.7	67.5	68.6	71.0	64.1	65.1	68.0	59.2	Fine	SW
20-Jul-08 Sun	70.4	72.6	65.7	68.5	70.7	64.2	65.1	68.0	59.5	Fine	S
21-Jul-08 Mon	71.3	73.7	67.4	68.8	71.2	64.3	64.9	67.9	58.5	Cloudy	S
22-Jul-08 Tue	71.2	73.4	67.4	68.9	71.3	64.4	64.6	67.6	58.3	Drizzle	S
23-Jul-08 Wed	71.4	73.6	67.5	69.1	71.6	64.6	65.0	68.1	58.2	Fine	S - SE
24-Jul-08 Thu	71.3	73.5	67.1	69.1	71.5	64.7	65.5	68.5	59.0	Sunny	S - SW
25-Jul-08 Fri	71.0	73.2	67.1	69.2	71.5	64.9	65.8	68.7	59.8	Fine	S
26-Jul-08 Sat	71.0	73.2	67.2	68.7	71.1	64.4	65.3	68.1	59.0	Sunny	S
27-Jul-08 Sun	68.6	71.2	63.8	67.4	69.6	63.1	64.4	67.4	58.3	Drizzle	S
28-Jul-08 Mon	68.9	71.4	64.0	67.7	70.4	62.4	64.7	67.8	58.4	Fine	SW
29-Jul-08 Tue	71.0	73.1	67.5	69.2	71.5	64.9	66.9	70.2	59.4	Fine	SW
30-Jul-08 Wed	70.1	73.0	63.8	69.9	72.6	64.1	69.1	72.2	62.0	Fine	S - SE
Maximum	71.5	73.7	67.5	69.9	72.6	64.9	69.1	72.2	62.0		
Minimum	68.6	71.2	63.8	67.4	69.6	62.4	64.4	67.4	58.2		
Average (including Sunday and Public Holidays)											
	70.7	73.0	66.6	68.8	71.2	64.2	65.7	68.7	59.2		
With façade correction	73.7	76.0	69.6	71.8	74.2	67.2	68.7	71.7	62.2		
Average (excluding Sunday and Public Holidays)											
	70.8	73.1	66.8	68.9	71.4	64.3	65.8	68.8	59.3		
With façade correction	73.8	76.1	69.8	71.9	74.4	67.3	68.8	71.8	62.3		