Issue No.	:	1
Issue Date	:	August 2010
Project No.	:	768

JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44, TUEN MUN

ENVIRONMENTAL MONITORING & AUDIT REPORT (JULY 2010)

Prepared By:

ALLIED ENVIRONMENTAL CONSULTANTS LTD.

COMMERCIAL-IN-CONFIDENCE

Allied Environmental Consultants Limited
Acousticians & Environmental Engineers

19/F., Kwan Chart Tower, 6 Tonnochy Road, Wan Chai, Hong Kong
Tel: (852) 2815 7028 Fax: (852) 2815 5399 Email: info@aechk.com

AEC 沛然環境評估工程顧問有限公司

Issue No. : 1
Issue Date : August 2010
Project No. : 768

JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44, TUEN MUN

ENVIRONMENTAL MONITORING & AUDIT REPORT (JULY 2010)

Prepared By:

ALLIED ENVIRONMENTAL CONSULTANTS LTD.

COMMERCIAL-IN-CONFIDENCE

Author: Nic Lam
Nic H. H. Lam
BSc(Hons) AMHKIOA

Checked:
Adi Y. M. Lee
BEng(Hons) MEng MHKIEIA

Approved:
Grace M. H. Kwok
BEng(Hons) MHKIEIA MHKIOA
MISWA MIAIA MRAPA LEED AP

Table of Contents

List of Tables

List of Figures

List of Appendices

EXECUTIVE SUMMARY

Allied Environmental Consultants Limited (AEC) has been appointed to conduct an environmental monitoring and audit (EM&A) program for the proposed Joint User Complex and Wholesale Fish Market at Area 44, Tuen Mun. The construction works were commenced on 31st July 2008. This report is the twenty-fourth monthly EM&A report, which detailed the environmental monitoring and audit results recorded during the period from 1st July 2010 to 31st July 2010.

Impact environmental monitoring for the proposed Joint User Complex and Wholesale Fish Market at Area 44, Tuen Mun has been carried out on 2nd, 8th, 14th, 20th, 26th and 31st July 2010 at Block 15, Yuet Wu Villa. 1-hr TSP and noise monitoring were conducted within the period of 0700-1900 hours, where 24-hr TSP monitoring was conducted continuously for a 24-hour period.

1-hour TSP monitoring results at the monitoring location ranged from 75μg/m^3 to 122μg/m^3 with an average of 108μg/m^3. 24-hour TSP monitoring results ranged from 60μg/m^3 to 73μg/m^3 with an average of 63μg/m^3.

Noise monitoring results at the monitoring location ranged from 60.2dB(A) to 62.7dB(A) with an average of 61.4dB(A).

Based on the monitoring results, the air quality and construction noise level complied with the environmental requirements in EM&A Manual. There were no breaches of the action and limit levels.

In this reporting period, there was no follow-up action from EPD regarding the non-compliance recorded on 16th May 2010 during site inspection of the EPD.

No other complaint, inspection notice, notification of summons or prosecution was received.

Construction activities will be undertaken in August 2010 include internal and external finishing works, external landscape works, installation of Kalzip Roof, installation of metal works, installation of carpentery & joinery works, second and/ or final fixing of E&M works, last manhole connection works & reinstatement of pavement (XP works along Wu Shan Road), dismantling of hoarding and installation of Ice/ Cold Store.

Potential environmental impacts include dust generation from stockpiles of dusty materials, concrete works and the internal finishes; noise from operation of the equipments, runoff from concrete works, drainage works and the storage of various C&D and chemical wastes. The Contractor should properly implement the required environmental mitigation measures as per the implementation schedule in the EM&A manual to ensure no significant adverse environmental impacts to be arisen from the construction works. The Contractor was reminded to maintain good housekeeping throughout the construction phase.

1. PROJECT BACKGROUND

A Joint User Complex and Wholesale Fish Market (WFM Complex) at Area 44 in Tuen Mun is proposed to be designed and built by Architectural Services Department on behalf of Agriculture, Fisheries and Conservation Department, Marine Department, Home Affairs Department, and Food and Environmental Hygiene Department of the Hong Kong SAR. The WFM Complex is to provide a permanent site for the relocation of the existing temporary wholesale fish market at Tuen Mun Area 27 and to accommodate a community hall, a dragon boat racing spectator stand, and other community facilities for public use. The proposed development is a 3-storey complex to accommodate a wholesale fish market, a public toilet, a refuse collection point and a marine refuse collection point at the ground floor, a community hall on the first floor, and a dragon boat race spectator stand with landscaped deck on roof level. The proposed Wholesale Fish Market is categorized as a designated project under the Environmental Impact Assessment Ordinance (EIAO) and therefore a detailed Environmental Impact Assessment (EIA-085/2002) has been conducted in year 2002 and an Environmental Permit (EP-296/2007) was issued by Environmental Protection Department in December 2007.

The subject site is located at Castle Peak Bay of Tuen Mun given in Figure 1. The subject site is bounded to the north by a future local open space presently used as a temporary car park, to the east by Castle Peak Bay typhoon shelter, to the south by a future lorry park and to the west by Wu Shan Road. Yuet Wu Villa being the nearest residential establishment is located at around 85m from the site boundary.

1.1 Project Organization and Contact Personnel

Key personnel and contact particulars are summarized in Table 1.

Table 1 Contact Details of Key Personnel

Role	Department / Company	Names	Contact Number	Fax Number
Lead User Department	Agriculture, Fisheries, and Conservation Department	Mr. K.H. Chan Ms. Louise Li	2150 7092 2150 7104	2314 2866
Environmental Permit Holder	Architecture Services Department	Mr. S.W. Chow Ms. Susana Chan	2867 3716 2867 3706	2523 9622
Architect	P&T Architects and Engineers Ltd.	Ms. Sarah Ng Ms. Vivian Law	2835 3548 2832 3046	2891 3834
Main Contractor	W. Hing Construction Co. Ltd.	Mr. Andy Chan Mr. Jim Lee	9630 7404 6105 4076	8343 9188
Environmental Team Leader	Allied Environmental Consultants Ltd.	Ms. Grace Kwok	2815 7028	2815 5399
Independent Environmental Checker	Cinotech Consultants Ltd.	Dr. Priscilla Choy	2151 2089	3107 1388

2. SENSITIVE RECEIVERS

Air Sensitive Receivers (ASRs) within 500m include Yuet Wu Villa, lawn bowling field, tennis court, which are less than 100m away from the subject site. Tuen Mun Wu Hong Clinic is located to the west at about 100m to the site boundary. Two secondary schools, Ka Chi Secondary School and South Tuen Mun Government Secondary School, are approximately 300m to the south of the site boundary.

Noise Sensitive Receivers (NSRs) within 300m are Yuet Wu Villa, Siu Hei Court, Yan Chai Hospital Low Chan Chor Si Primary School and Wu King Estate. The nearest NSR will be Block 15 of Yuet Wu Villa.

3. CONSTRUCTION WORKS & PROGRAMME

The major works undertaken and/or completed during the monitoring period are listed below:

- Internal and external finishing works;
- External landscape works;
- Installation of Kalzip Roof;
- Installation of metal works;
- Installation of carpentery & joinery works;
- Second and/ or final fixing of E&M works;
- Last manhole connection works & reinstatement of pavement (XP works along Wu Shan Road);
- Installation of fender;
- Rebar fixing, erection of formwork & concreting to minor RC structure;
- Dismantling of hoarding;
- Dismantling of bamboo scaffolding;
- Installation of Spectator Stand seating;
- Installation of jib crane, and
- Installation of Ice/ Cold Store.

Table 2 shows the interrelationship between construction activities and environmental mitigation measures for the reporting month.

Table 2 Interrelationship between Construction Activities and Mitigation Measures

Construction Works	Major Environmental Impact	Mitigation Measures
Concrete works	Air, noise and water quality impacts	Well-maintained plants were used and waste water were reused when practicable, cement bags were properly covered and use indoors as practicable
E&M services	Water quality impacts	Waste water were reused when practicable
Internal & external finishes, dismantling works and Installation works	Noise impacts	Closely monitoring of noise impacts

4. SUMMARY OF EM&A REQUIREMENT

For regular impact monitoring, the sampling frequency of at least once in every six-days, shall be strictly observed at the monitoring station for 24-hr TSP monitoring. For 1-hr TSP monitoring, the sampling frequency of at least three times in every six-days should be undertaken when the highest dust impact occurs. For noise monitoring, one set of measurement between 0700-1900 hours on normal weekdays. $L_{eq\ (30\ min)}$ shall be used as the monitoring parameter.

From baseline monitoring results, the proposed Action and Limit Levels for air quality are summarized in Table 3. The average baseline 1-hr TSP value of 129μg/m^3 and 24-hr TSP value of 65μg/m^3 measured at Block 15, Yuet Wu Villa was used to determine the action and limit level for air quality impact monitoring. The proposed Action and Limit Levels for construction noise are summarized in Table 4.

Table 3 Action and Limit Level for Air Quality Impact Monitoring at Yuet Wu Villa

Parameters	Baseline Level (μg/m^3)	Action Level (μg/m^3)	Limit Level (μg/m^3)
24-Hour TSP Level	65	173	260
1-Hour TSP Level	129	334	500

Table 4 Action and Limit Levels for Construction Noise Impact Monitoring

Time Period	Action Level	Limit Level
Daytime (0700-1900 hours) on weekdays	When one documented compliant is received	Dwelling 75dB(A) [1] School 70dB(A) [1] (65dB(A) during examinations) [1]
1900-2300 on any day and 0700-2300 on Sunday and general holidays, for use of PME2	When one documented compliant is received	65dB(A) [3]
All days during the night-time (2300-0700 hours) [2]	When one documented compliant is received	50dB(A) [3]

Note: 1. Construction noise criteria stipulated in the TM-EIAO
2. A Construction Noise Permit (CNP) shall be required for the carrying out of the construction work during the restricted hours (1900-2300 on any day and 0700-2300 on Sunday and general holidays, for use of PME; and All days during the night-time (2300-0700 hours))
3. Area sensitivity rating of the monitoring location is "B".

Should non-compliance of the above Action and Limit levels occurs, the contractor shall undertake corresponding in accordance with the proposed Event Action Plan given in the EM&A Manual. A summarized general Event Action Plan is given in Table 5. Details should be referred to the Event Action Plan in the EM&A Manual.

Table 5 Event Action Plan

Level	Step 1	Step 2	Step 3
Action	● Identify source ● Check monitoring data and working methods	● Contact project manager to discuss and implement remedial action ● Rectify any unacceptable practice ● Amend working methods if appropriate ● If exceedance continues, commence additional monitoring	● Notify client/project manager following correct of the situation ● Cease additional monitoring if exceedance stops
Limit	● Identify source ● Notify client/project manager ● Check monitoring data and working methods ● Repeat measurement to confirm finding ● Commence additional monitoring	● Take immediate action to avoid further exceedance ● Submit proposal for remedial actions to client/project manager within 3 working days ● Implement the agreed proposal ● If exceedance continues, amend and resubmit the proposal	● Notify client/project manager following correction of the situation ● Cease additional monitoring if exceedance stops

5. MONITORING METHODOLOGY

5.1 Monitoring Programme

Air quality monitoring and noise monitoring were conducted at Block 15, Yuet Wu Villa on 2nd, 8th, 14th, 20th, 26th and 31st July 2010. The air quality monitoring and noise monitoring for August 2010 will be scheduled on 6th, 12th, 18th, 24th and 30th August 2010. Appendix A displayed the detail schedule of the monitoring programme. Air quality monitoring station was set up at the roof top of the residential block and noise monitoring was conducted at 1.2m above ground level in front of the residential block and at the junction of Wu Sau Street and Wu On Street as given in Figures 2 and 3. Figures 4 and 5 show photos taken during monitoring at the two locations.

5.2 Air Quality Monitoring

1-hour and 24-hour TSP air quality monitoring was conducted at the designated air quality monitoring location using a High Volume TSP Sampler (Model No: Anderson GMWS-2310 ACCU-VOL) at the designated location. The Calibration Record of the High-Volume TSP Sampler is given in Appendix B. 24-hour TSP samples were taken every six days. 1-hour TSP samples were taken three times a day between 0700-1900 hours. The weighing of the filter paper used in the monitoring was undertaken by ALS Laboratory Group Environmental Division. (HOKLAS Registration No.: 066)

5.3 Noise Monitoring

Noise monitoring was conducted at the designated noise monitoring location between 0700-1900 hours using a sound level meter which complies with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). Noise instrumentation details are given in Table 6 and the Calibration Certificate for the sound level meter and calibrator is given in Appendix C.

Table 6 Noise Monitoring Equipment

Manufacturer	Type/Model No.	Equipment
RION	Model NL 31	Precision Sound Level Analyser with windshield
RION	Model NC 73	Calibrator

Noise level measurements were recorded in terms of thirty minutes A-weighted equivalent continuous sound pressure level ($L_{eq(30min)}$) on a daily basis. The sound level meter was calibrated immediately prior to and following each noise measurement. The meter was mounted on a tripod at a height of 1.2m and the microphone was positioned at 1m away the building façade of the noise monitoring station facing the construction site.

Noise measurements were not made in the presence of fog, rain, and wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed was checked with a portable anemometer capable of measuring the wind speed in m/s.

6. RESULTS

6.1. Air Quality

1-hour and 24-hour TSP monitoring results are summarized in Tables 7 and 8 and serve as the basis for determining the action and limit levels. The minimum and maximum 1-hour TSP measured at Yuet Wu Villa was 75μg/m^3 and 122μg/m^3 respectively with an average of 108μg/m^3. The minimum and maximum 24-hour TSP measured was 60μg/m^3 and 73μg/m^3 respectively with an average of 63μg/m^3. Summary of air quality monitoring record is provided in Appendices D and E.

Table 7 1-Hour TSP Monitoring Results

Date	1-hr TSP (μg/m3)				Average (μg/m3)
	Reading 1	Reading 2	Reading 3	Average	
2nd July 2010	136	134	101	124	108
8th July 2010	92	106	109	102	
14th July 2010	117	112	98	109	
20th July 2010	115	85	75	92	
26th July 2010	117	122	114	118	
31st July 2010	91	112	109	104	

Table 8 24-Hour TSP Monitoring Results

Date	24-hr TSP (μg/m3)
2nd July 2010	73
8th July 2010	53
14th July 2010	61
20th July 2010	57
26th July 2010	75
31st July 2010	61
Average	63

6.2. Noise

Noise monitoring results in terms of $L_{eq(30min)}$, $L_{10(30min)}$ $L_{90(30min)}$ measured at the designated noise monitoring location are summarized in Table 9. $L_{10(30min)}$ and $L_{90(30min)}$ represent sound levels that are exceeded 10% and 90% of the time respectively. Normally, $L_{10(30min)}$ measurements can be considered as the average peak levels, whilst $L_{90(30min)}$ levels can be considered as the average background noise levels.

During the reporting month, the minimum and maximum noise level measured at Yuet Wu Villa was 60.2dB(A) $L_{eq(30min)}$ and 62.7dB(A) $L_{eq(30min)}$ respectively with an average of 61.4dB(A) $L_{eq(30min)}$. No exceedance was recorded in this reporting period. Summary of noise monitoring record will be provided in Appendix F.

Table 9 Noise Monitoring Results

Date	$L_{10(30mins)}$ (dB(A))	$L_{90(30mins)}$ (dB(A))	$L_{eq\ (30mins)}$ (dB(A))
2nd July 2010	62.7	59.6	61.7
8th July 2010	63.7	59.8	61.2
14th July 2010	63.7	59.7	61.2
20th July 2010	62.7	57.2	60.2
26th July 2010	63.9	60.2	62.7
31st July 2010	62.9	58.9	61.7
Average	63.4	59.2	61.4

6.3. Weather Conditions

Weather data of the monitoring station were obtained from the nearest Hong Kong Observatory (HKO) Tuen Mun automatic weather station located at Tuen Mun Town Park (63 mPD). Table 10 summarizes the wind data during the monitoring dates. Wind record from HKO is shown in Appendix G.

Table 10 Summary of Weather Conditions during the Monitoring Period

Date	Weather	Prevailing Wind direction	Daily Average Wind speed (m/s)
2nd July 2010	Sunny	S	2.13
8th July 2010	Sunny	S	2.97
14th July 2010	Sunny	SE	2.14
20th July 2010	Sunny	SE	2.74
26th July 2010	Sunny	SE	2.52
31st July 2010	Sunny	SE	3.45

7. SITE INSPECTION & AUDIT

4 site inspections were conducted by the Environmental Team (ET) in this reporting period. Major observations by the ET, actions by the Contractor and outcome are summarized in the Table 11.

Table 11 Summary of Site Inspections

Date	Observations	Action taken by Contractor	Outcome
2nd July 2010	Stockpiles of sand were not properly covered.	Contractor was requested to provide covering.	Covering was given to the stockpiles of sand.
9th July 2010	Haul road appeared dry.	Contractor was requested to increase the frequency of watering.	Sufficient water spraying was given to dry haul road.
16th July 2010	No observations during inspection.	Contractor was required to keep up with the mitigation measures.	Nil.
23rd July 2010	No observations during inspection.	Contractor was required to keep up with the mitigation measures.	Nil.
30th July 2010	No watering was provided during breaking of road pavement.	Contractor was requested to watering during the progress.	Sufficient water spraying was given.

During site inspections in the reporting month, no non-conformance of implementation of environmental mitigation measures was identified. All environmental mitigation measures for construction stages stated in approved EIA Report, EM&A Manual and Environmental Permit shall be carried out throughout the whole construction period as shown in Appendix H.

8. NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

In this reporting period, there was no follow-up action from EPD regarding the non-compliance recorded on 16th May 2010 during site inspection of the EPD.

No other complaint, inspection notice, notification of summons or prosecution was received.

9. OTHERS

A total of 1,094.7 tonnes of inert C&D material was disposed of at public fill. A total of 149.5 tonnes of waste including general refuse and non-inert C&D wastes such as timber and bamboo were disposed to landfill. No chemical waste was transported off site in this reporting period.

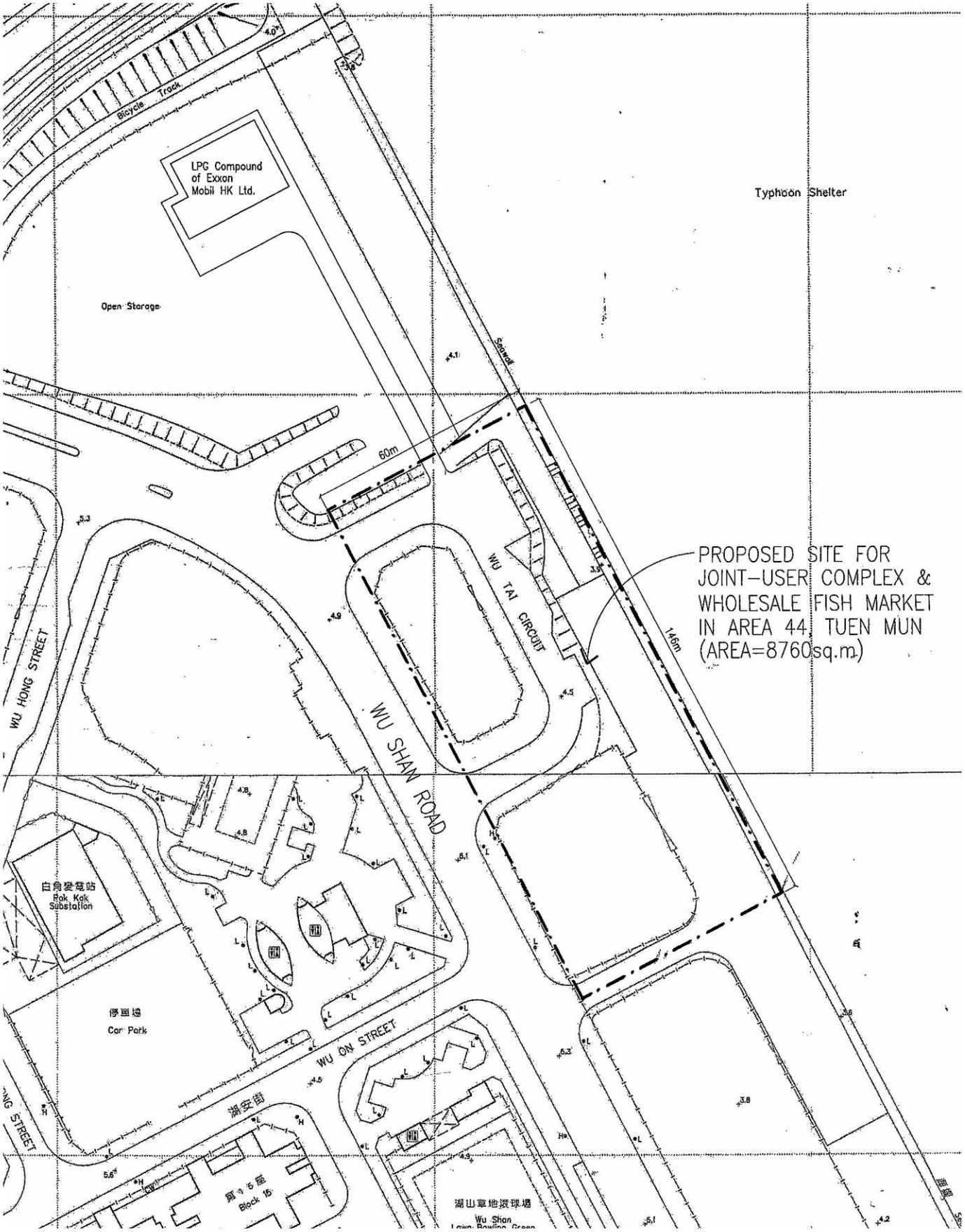
10. CONCLUSIONS

Environmental monitoring has been carried out for the proposed Joint User Complex and Wholesale Fish Market at Area 44, Tuen Mun. 1-hour and 24-hour TSP air quality monitoring and noise monitoring was conducted at Block 15, Yuet Wu Villa during the period from 1st July 2010 to 31st July 2010.

The average 1-hour TSP level is 108μg/m^3 and average 24-hour TSP level is 63μg/m^3. For impact noise monitoring, the average $L_{eq(30min)}$ is 61.4dB(A). All monitoring results complied with the relevant action and limit levels.

In this reporting period, there was no follow-up action from EPD regarding the non-compliance recorded on 16th May 2010 during site inspection of the EPD.

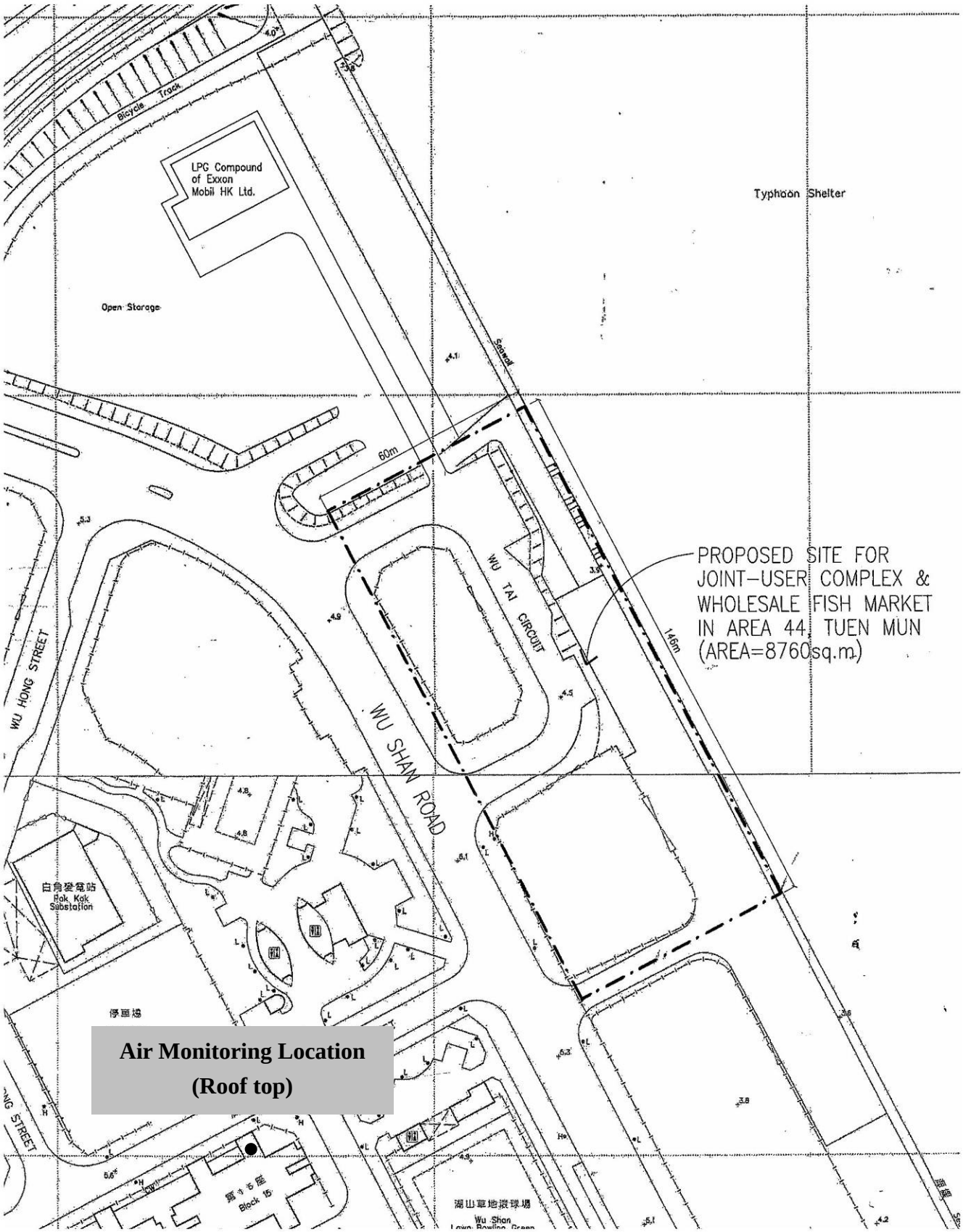
No other complaint, inspection notice, notification of summons or prosecution was received.



JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44, TUEN MUN

SITE LOCATION PLAN

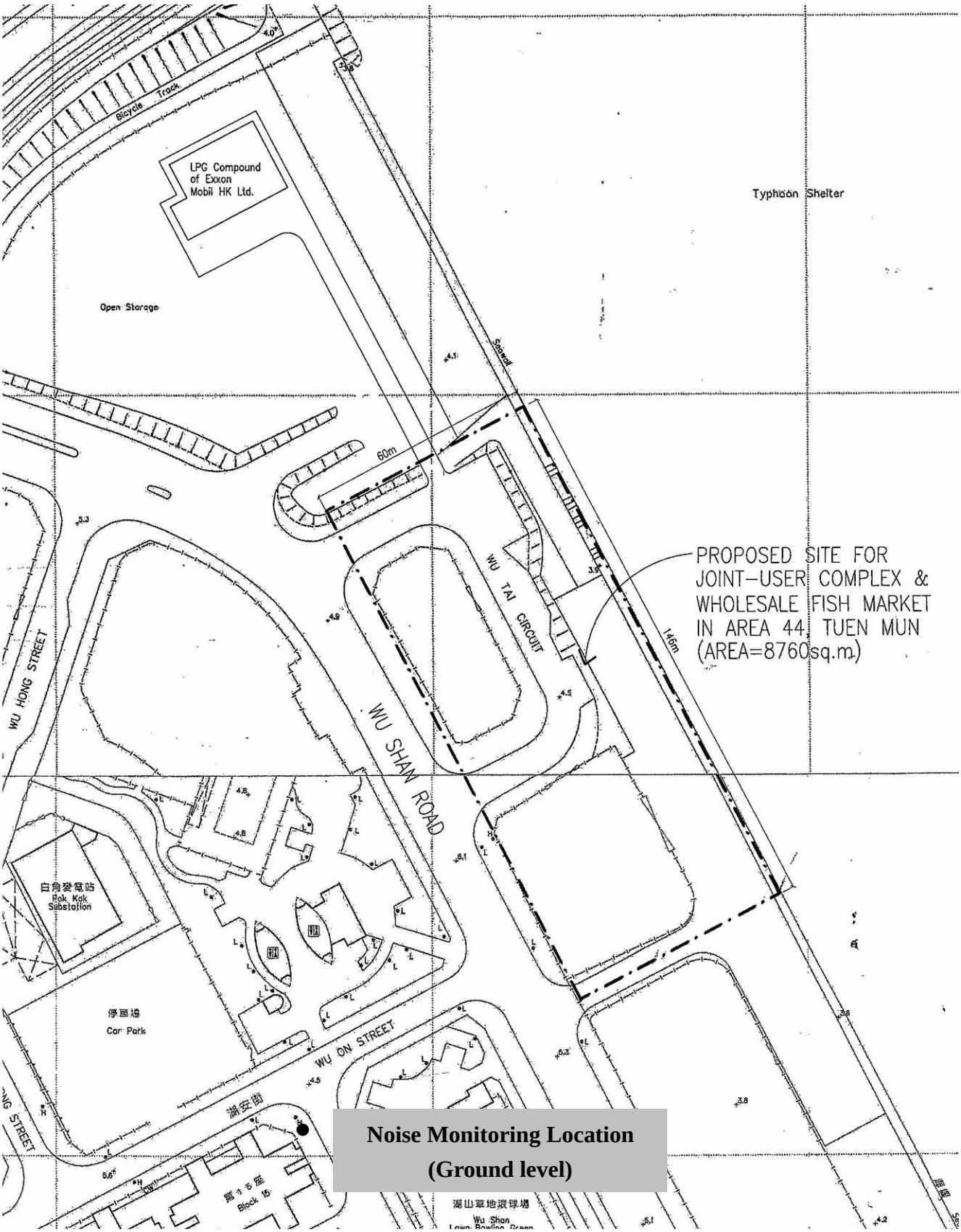
Figure No.	Rev.:
1	0
Scale	Date
NTS	8/10



JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44, TUEN MUN

LOCATION OF AIR QUALITY MONITORING STATION

Figure No.	Rev.:
2	0
Scale	Date
NTS	8/10

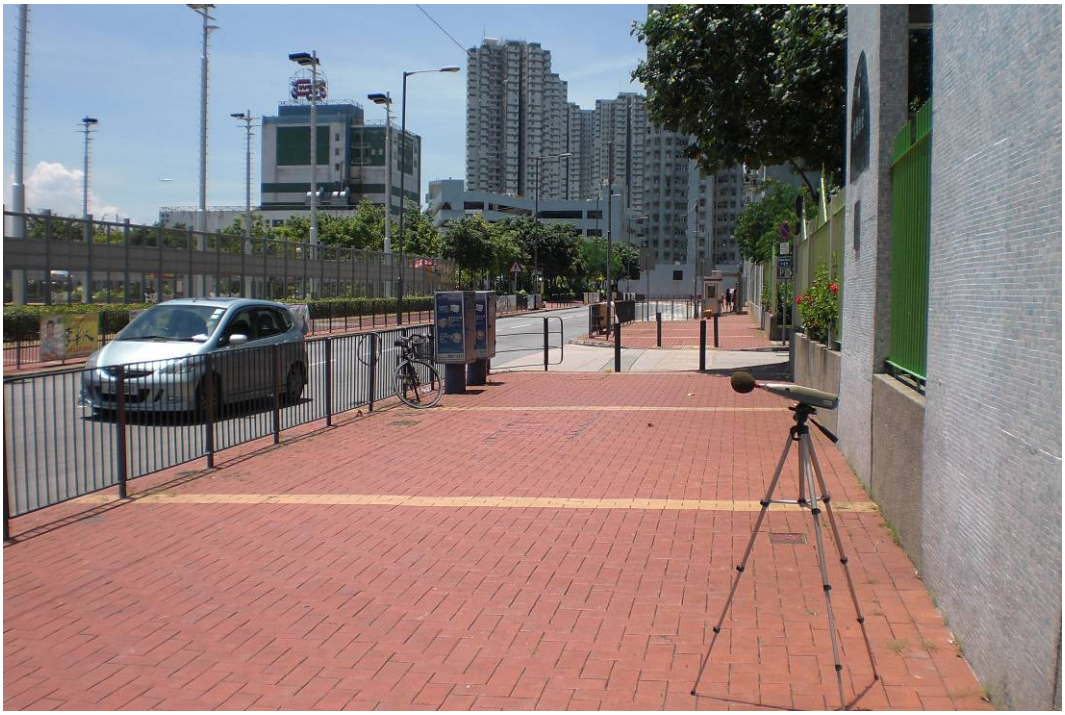


JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44, TUEN MUN **LOCATION OF NOISE MONITORING STATION**	Figure No. 3	Rev.: 0
	Scale NTS	Date 8/10

Roof top of Block 15, Yuet Wu Villa

High-Volume Dust Sampler

JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44, TUEN MUN **PHOTOS OF AIR QUALITY MONITORING STATION**	Figure No. 4	Rev.: 0	AEC
	Scale NTS	Date 8/10	



Noise monitoring station

View from the noise monitoring station

JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44, TUEN MUN **PHOTOS OF NOISE MONITORING STATION**	Figure No. 5	Rev.: 0	AEC
	Scale NTS	Date 8/10	

Appendix A

Detail Schedule of Monitoring Programme

Schedule for air and noise monitoring programme of Tuen Mun Wholesale Fish Market

Monitoring schedule for the reporting month

Date	Start Time
2nd July 2010	13:00
8th July 2010	13:00
14th July 2010	13:00
20th July 2010	13:00
26th July 2010	13:00
31st July 2010	13:00

Monitoring schedule of the coming month

Date	Time
6th August 2010	To be confirmed
12th August 2010	To be confirmed
18th August 2010	To be confirmed
24th August 2010	To be confirmed
30th August 2010	To be confirmed

Appendix B

Calibration Record of High-Volume TSP Sampler

High-Volume TSP Sampler
5-Point Calibration Record

Location : A1 (Tuen Mun)
Calibrated by : P.F.Yeung
Date : 5/5/2010

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0890

Calibration Orfice and Standard Calibration Relationship
Serial Number : 9833620
Service Date : 18 May 2009
Slope (m) : 1.97702
Intercept (b) : -0.00070
Correlation Coefficient(r) : 0.99992
Standard Condition
Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition
Pa (hpa) : 1010
Ta(K) : 296

Zero Erro of Sampler Flow Rate Indication
IO : 0.0

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.2	3.197	1.617	60	60.1
2	13 holes	8.0	2.831	1.432	52	52.1
3	10 holes	6.4	2.532	1.281	45	45.0
4	7 holes	4.0	2.002	1.013	33	33.0
5	5 holes	2.5	1.583	0.801	24	24.0

Sampler Calibration Relationship

Slope(m):44.366 Intercept(b): -11.683 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan Date: 10/5/2010

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM1
Calibrated by : K.T.Ho
Date : 5/07/2010

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0890

Calibration Orfice and Standard Calibration Relationship
Serial Number : 1785
Service Date : 10 May 2010
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

Standard Condition
Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition
Pa (hpa) : 1006
Ta(K) : 303

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.0	3.128	1.563	60	59.4
2	13 holes	7.6	2.727	1.364	51	50.5
3	10 holes	6.3	2.483	1.243	45	44.5
4	7 holes	3.8	1.928	0.968	32	31.7
5	5 holes	2.3	1.500	0.756	21	20.8

Sampler Calibration Relationship

Slope(m):47.749 Intercept(b): -14.929 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan Date: 23/07/2010

Appendix C

Calibration Certification of the Sound Level Meter and Calibrator

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C095683

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00983400

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C095683.

The equipment is supplied by

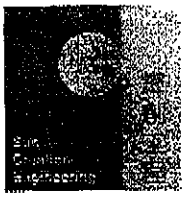
Co. Name : Envirotech Services Co.

Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

Date of Issue : 23 October 2009

Certified by : K C Lee

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



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C093598

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : Rion

Model No. : NC-73

Serial No. : 10786708

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C093598.

The equipment is supplied by

Co. Name : Envirotech Services Co.

Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

Date of Issue : 10 July 2009

Certified by : H C Chan

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: calib@suncreation.com Website: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C103765

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : Rion

Model No. : NC-73

Serial No. : 10997142

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C103765.

The equipment is supplied by

Co. Name : Envirotech Services Co.

Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

Date of Issue : 13 July 2010

Certified by : K C Lee

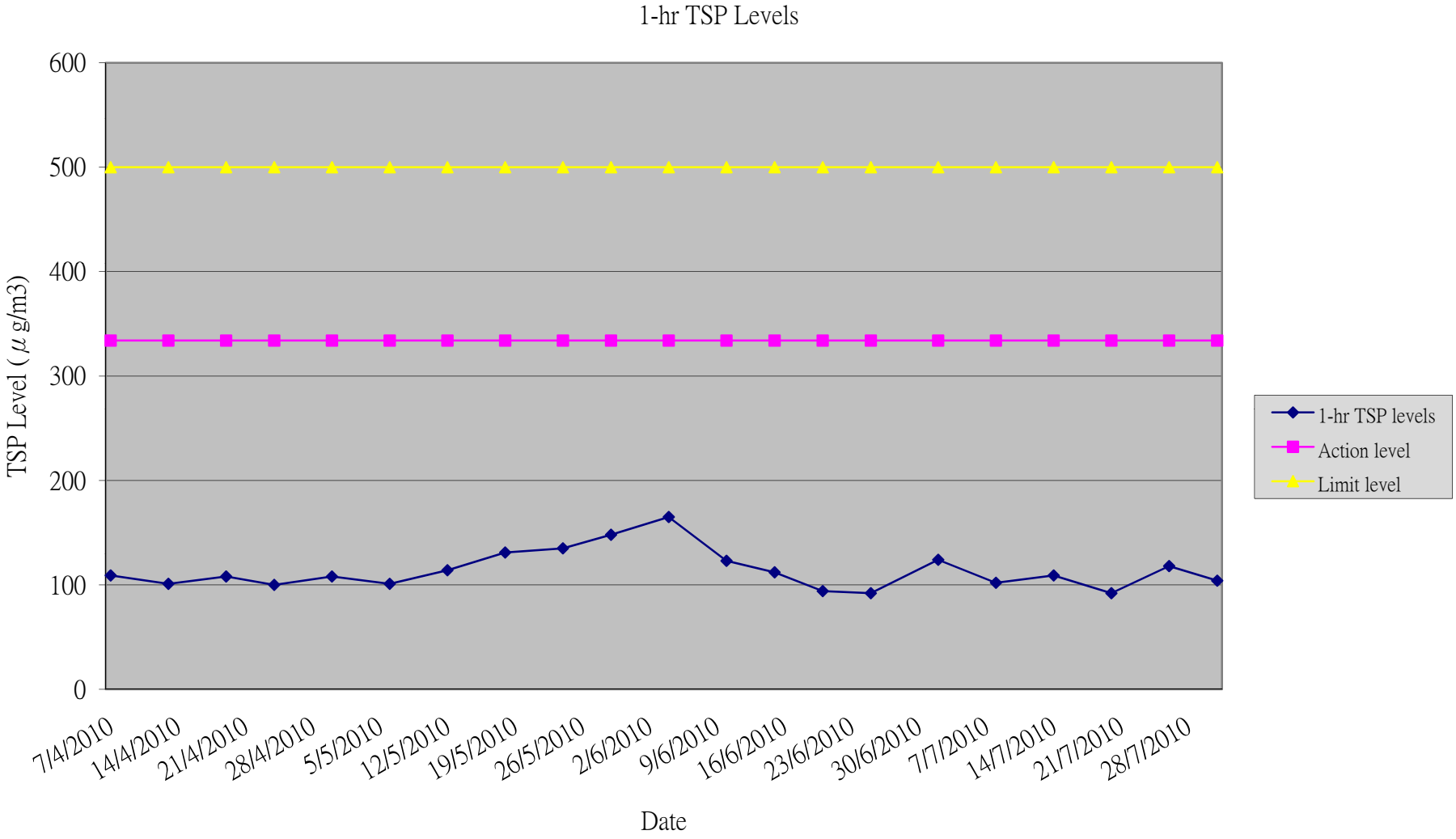
Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

Appendix D

Summary and Graphical Plot of 1-Hour TSP Monitoring Record

Impact Monitoring for Fish Market Project in Tuen Mun
Air Quality Monitoring: 1-hour TSP
Month: July 2010

Date	Time	1-hr TSP (μg/m3)	Average
2-Jul-10	13:00 - 14:00	136	124
	14:00 - 15:00	134	
	15:00 - 16:00	101	
8-Jul-10	13:00 - 14:00	92	102
	14:00 - 15:00	106	
	15:00 - 16:00	109	
14-Jul-10	13:00 - 14:00	117	109
	14:00 - 15:00	112	
	15:00 - 16:00	98	
20-Jul-10	13:00 - 14:00	115	92
	14:00 - 15:00	85	
	15:00 - 16:00	75	
26-Jul-10	13:00 - 14:00	117	118
	14:00 - 15:00	122	
	15:00 - 16:00	114	
31-Jul-10	13:00 - 14:00	91	104
	14:00 - 15:00	112	
	15:00 - 16:00	109	

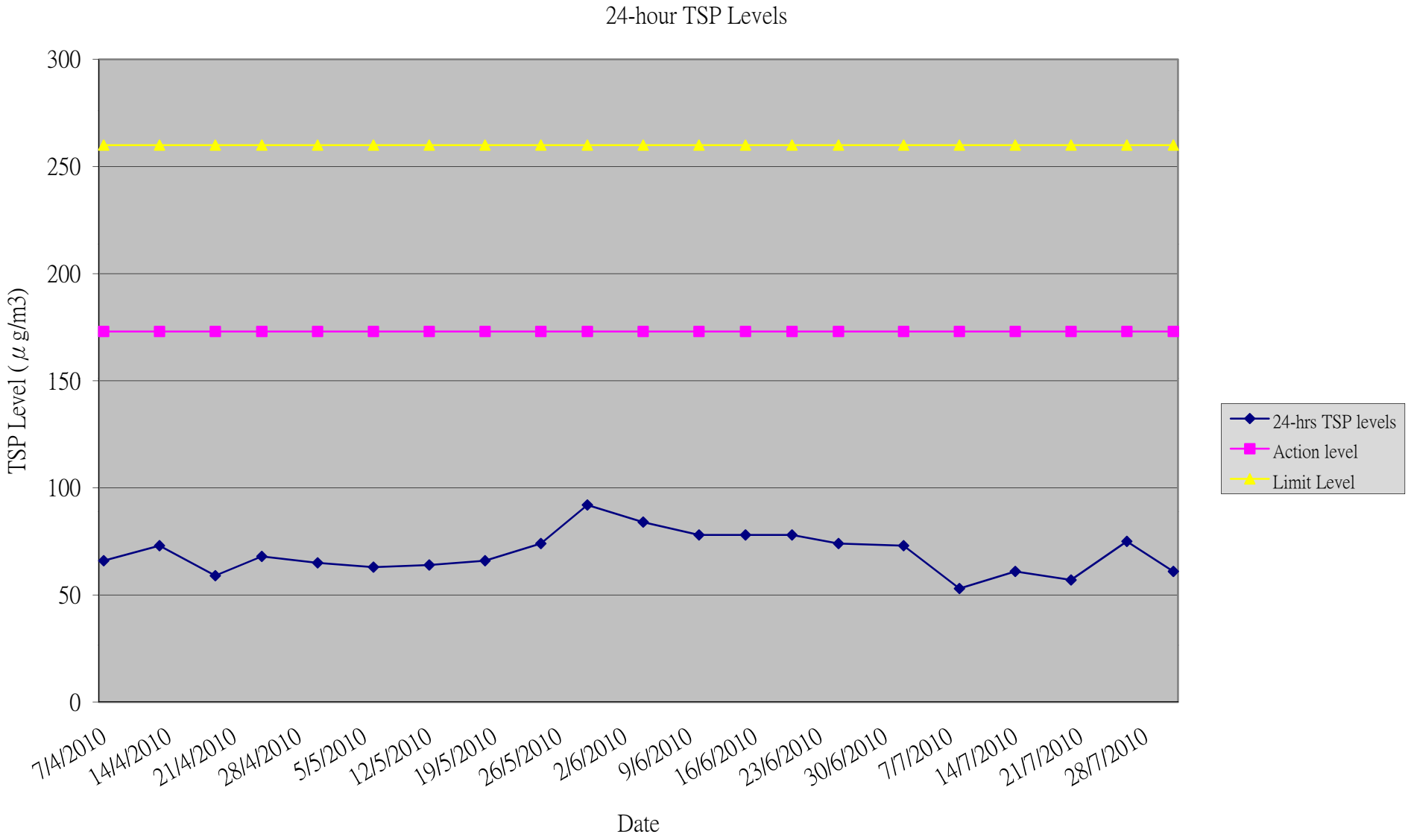

1-hr TSP Levels
600
500
400
300
200
100
0
TSP Level (μ g/m3)
7/4/2010
14/4/2010
21/4/2010
28/4/2010
5/5/2010
12/5/2010
19/5/2010
26/5/2010
2/6/2010
9/6/2010
16/6/2010
23/6/2010
30/6/2010
7/7/2010
14/7/2010
21/7/2010
28/7/2010
Date
1-hr TSP levels
Action level
Limit level

Appendix E

Summary and Graphical Plot of 24-Hour TSP Monitoring Record

Impact Monitoring for Fish Market Project in Tuen Mun
Air Quality Monitoring: 24-Hour TSP
Month: July 2010

Date	Start time	24-hr TSP ($\mu g/m^3$)
2-Jul-10	16:00	73
8-Jul-10	16:00	53
14-Jul-10	16:00	61
20-Jul-10	16:00	57
26-Jul-10	16:00	75
31-Jul-10	16:00	61
Average		63


24-hour TSP Levels
300
250
200
150
100
50
0
TSP Level (μ g/m3)
7/4/2010
14/4/2010
21/4/2010
28/4/2010
5/5/2010
12/5/2010
19/5/2010
26/5/2010
2/6/2010
9/6/2010
16/6/2010
23/6/2010
30/6/2010
7/7/2010
14/7/2010
21/7/2010
28/7/2010
Date
24-hrs TSP levels
Action level
Limit Level

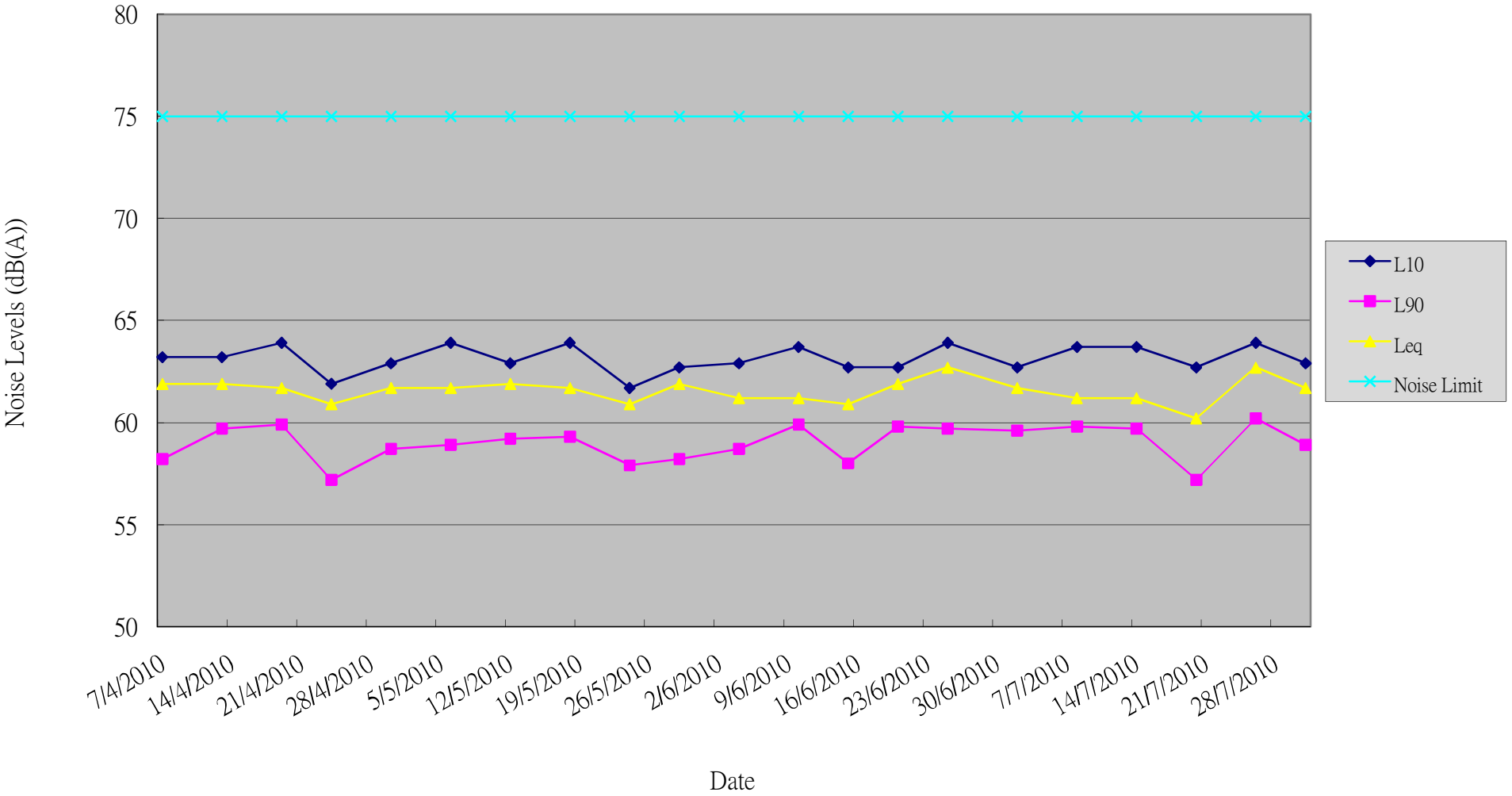
Appendix F

Summary and Graphical Plot of Noise Monitoring Record

Impact Monitoring for Fish Market Project in Tuen Mun
Noise Monitoring
Month: July 2010

Date	Time	L10(30mins) (dB(A))	L90(30mins) (dB(A))	Leq(30mins) (dB(A))
2-Jul-10	13:10 - 13:40	62.7	59.6	61.7
8-Jul-10	13:10 - 13:40	63.7	59.8	61.2
14-Jul-10	13:10 - 13:40	63.7	59.7	61.2
20-Jul-10	13:12 - 13:42	62.7	57.2	60.2
26-Jul-10	13:10 - 13:40	63.9	60.2	62.7
31-Jul-10	13:10 - 13:40	62.9	58.9	61.7
Average		63.4	59.2	61.4

Noise Monitoring Record

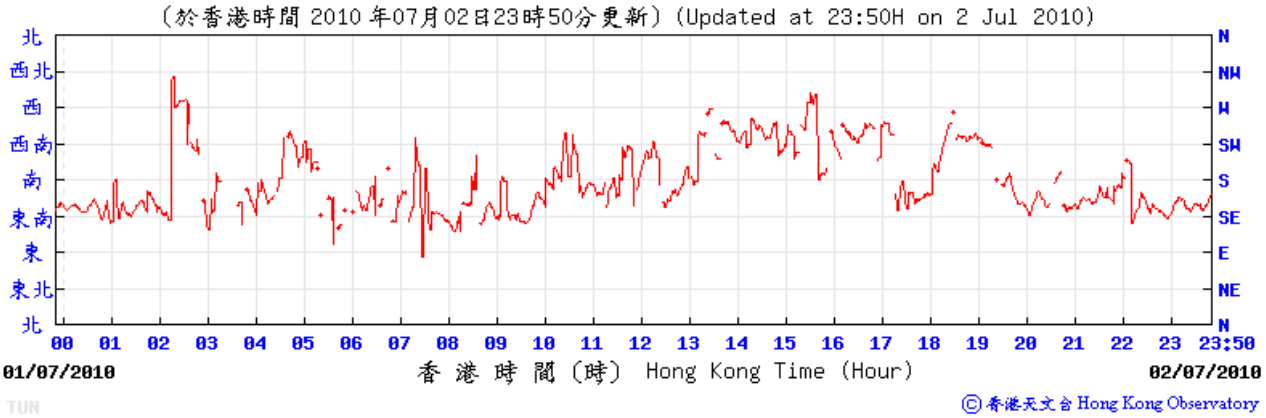


Appendix G

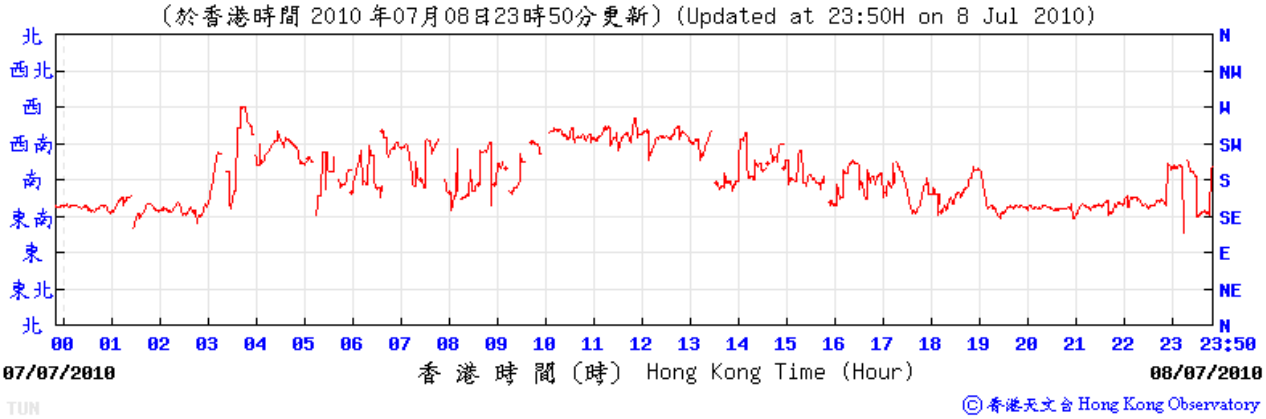
Wind Record from Hong Kong Observatory

Wind Direction at Hong Kong Observatory Tuen Mun Automatic Weather Station

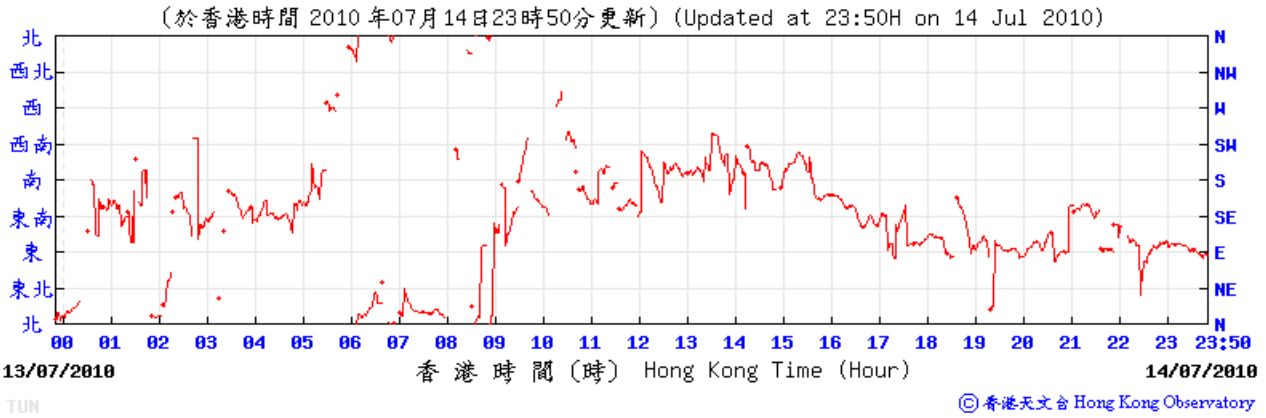
2/7/2010



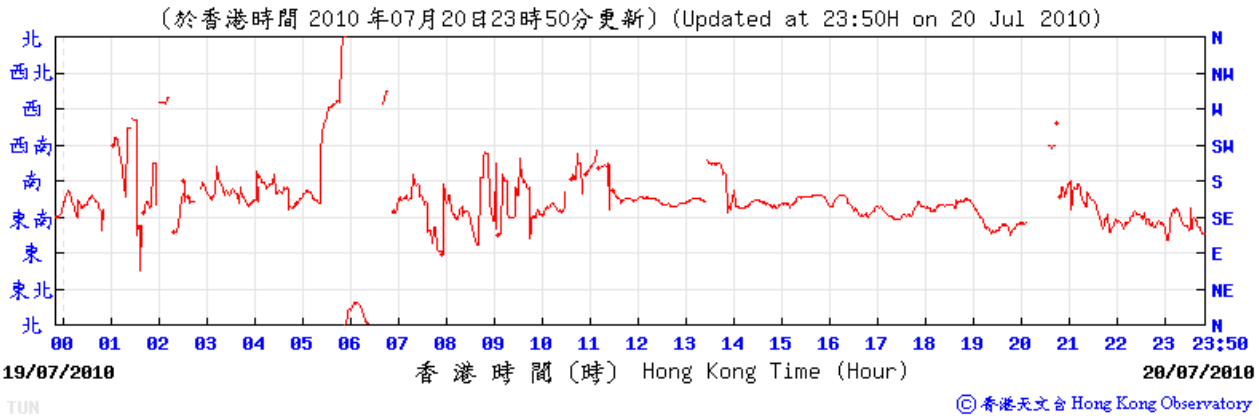
8/7/2010



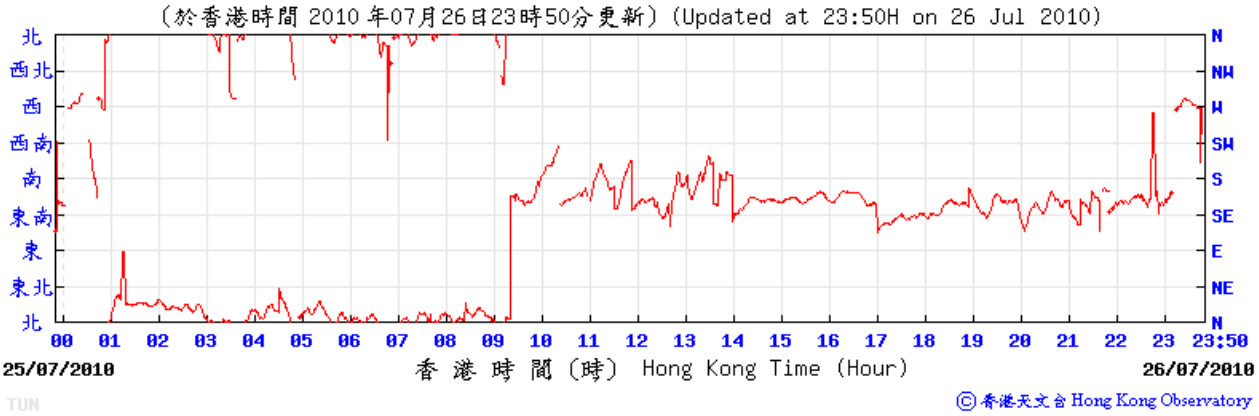
14/7/2010



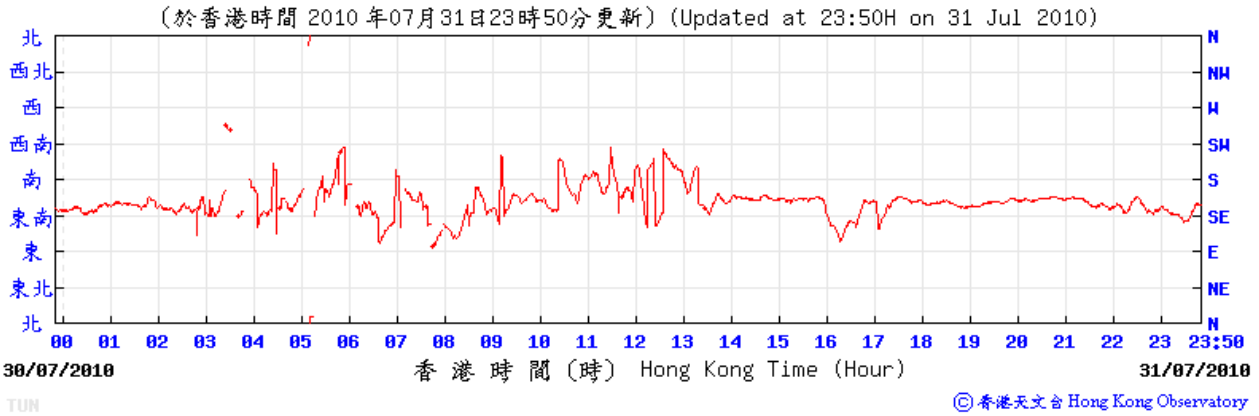
20/7/2010



26/7/2010

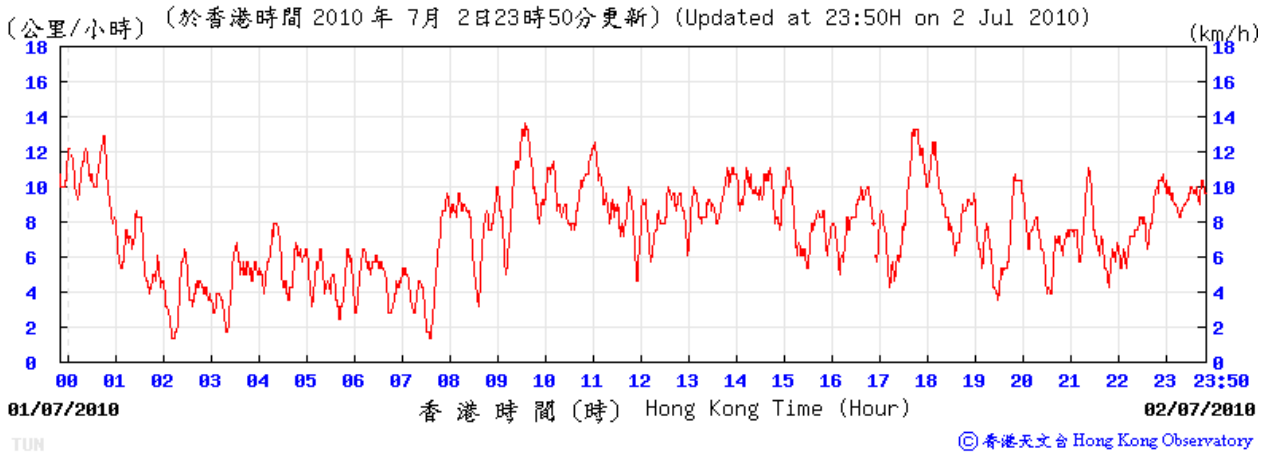


31/7/2010

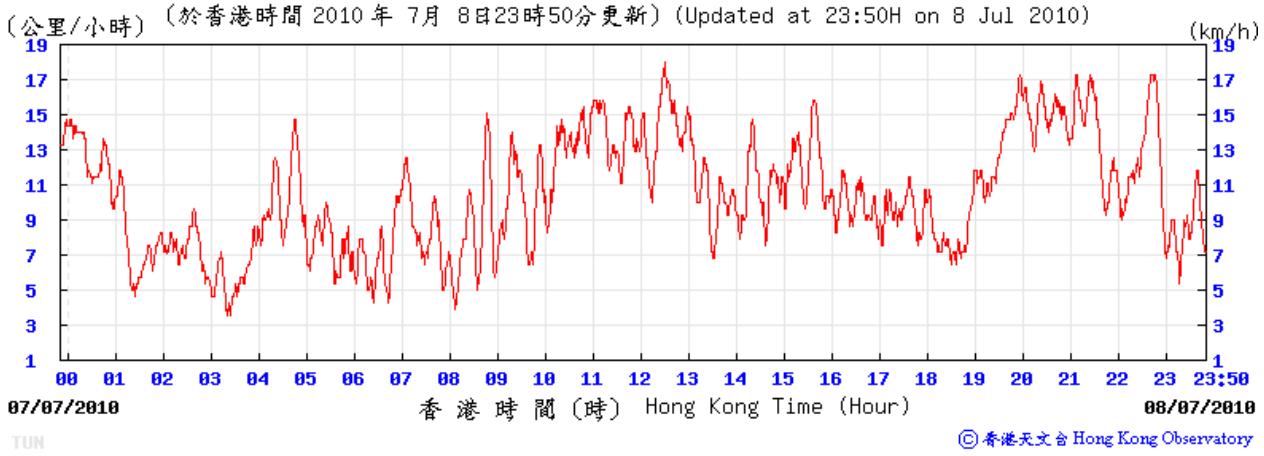


Wind Speed at Hong Kong Observatory Tuen Mun Automatic Weather Station

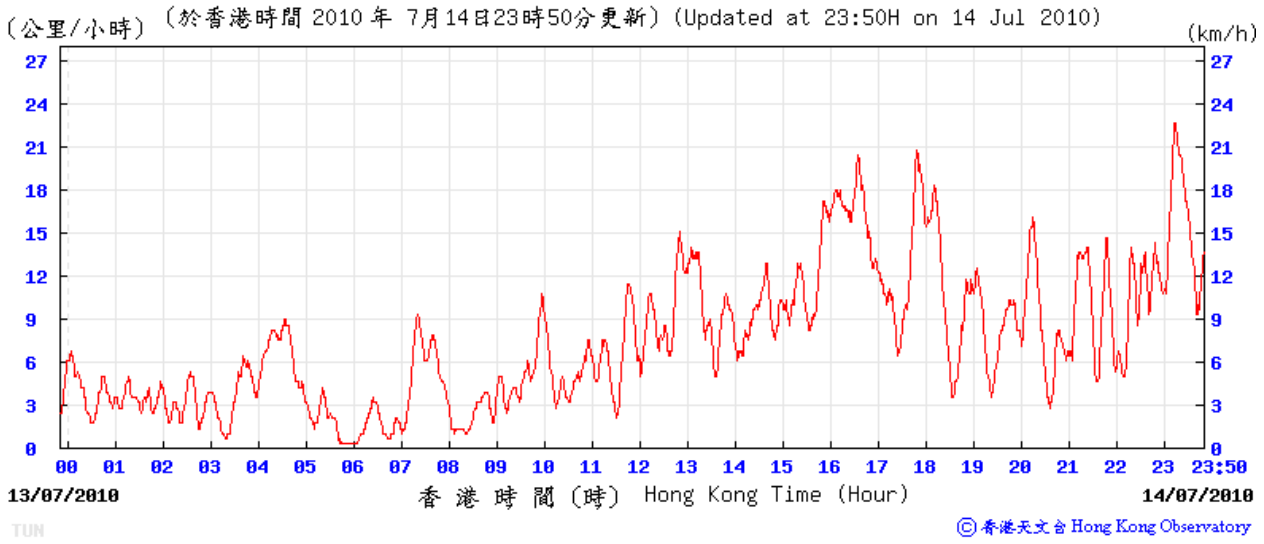
2/7/2010



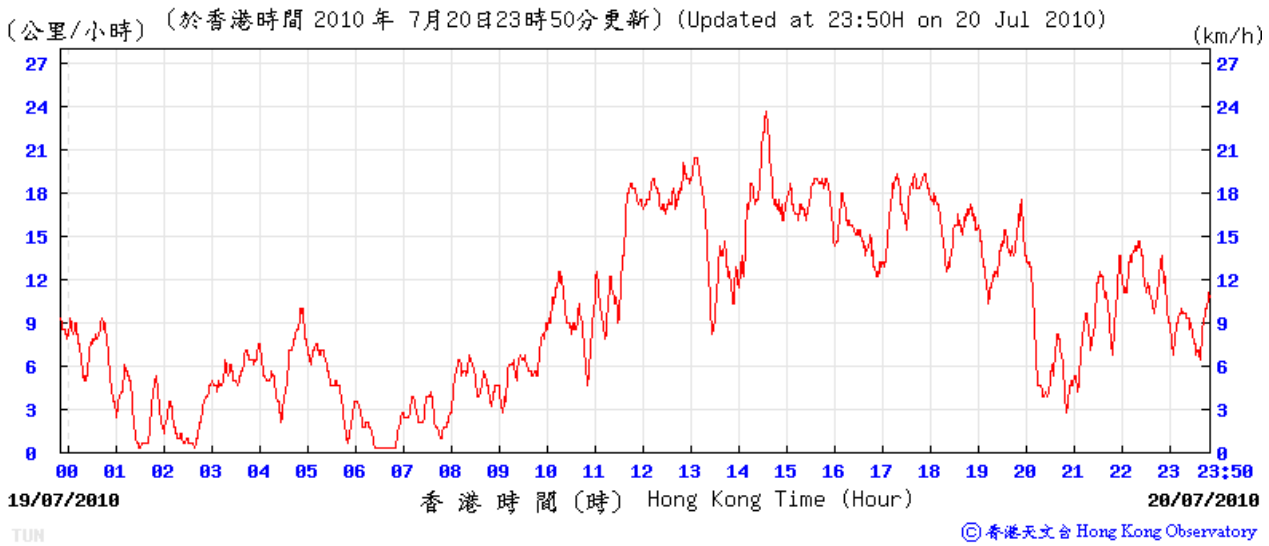
8/7/2010



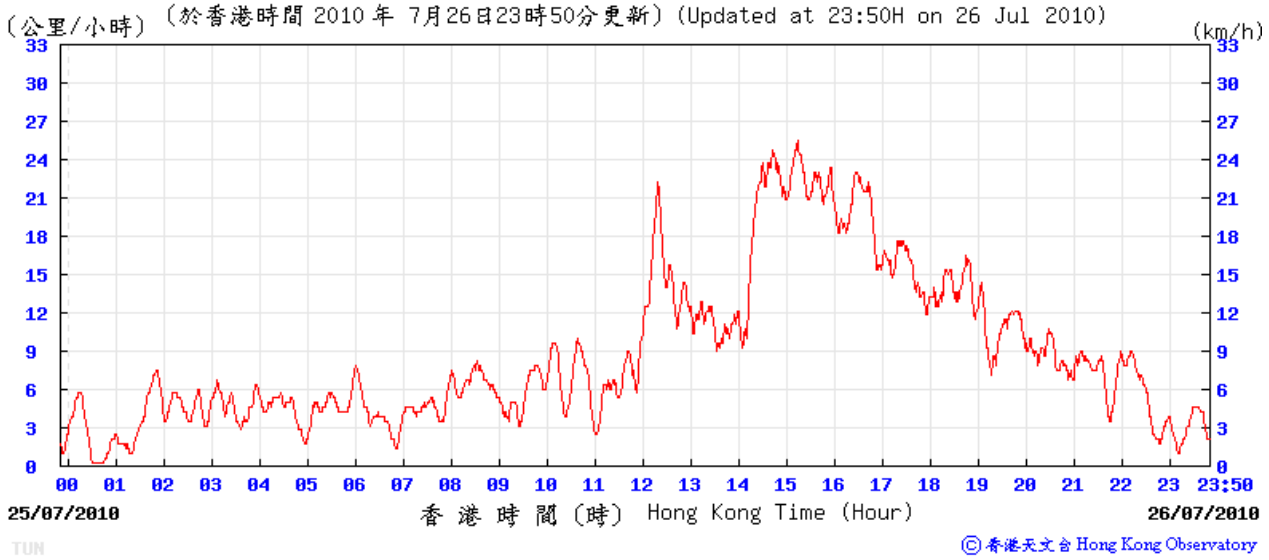
14/7/2010



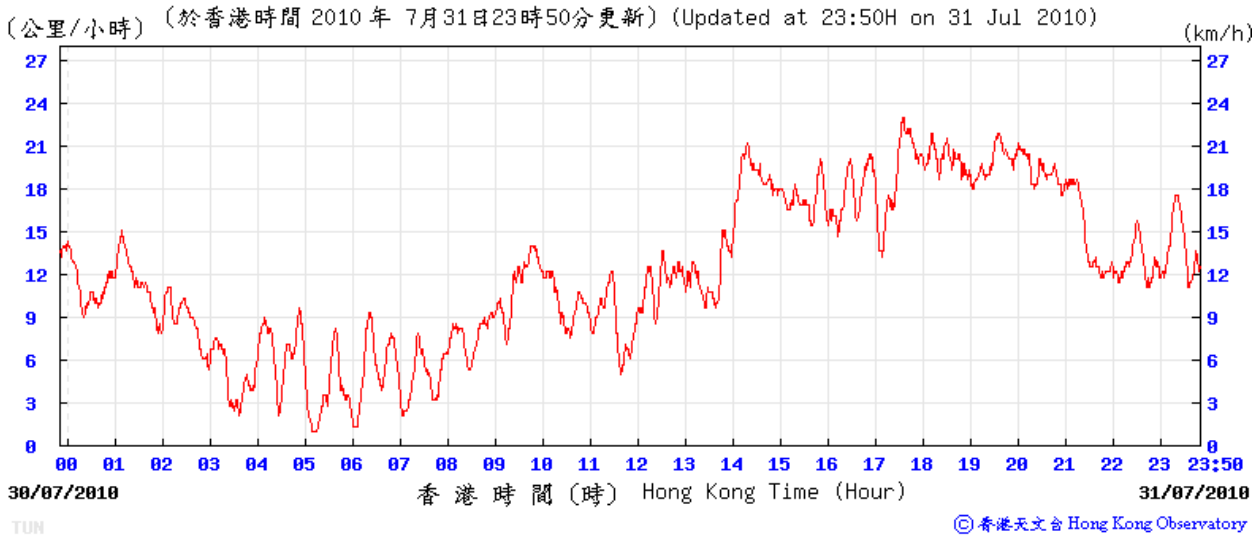
20/7/2010



26/7/2010



31/7/2010



Appendix H

Mitigation Measures Implementation Schedule for Construction Stage

EIA Ref. Section	EM&A Ref. Section	Environmental Protection Measures	Status
4.7	2.8	**Air Quality** • Hoarding of not less than 2.4m high shall be provided along the site boundary section adjoins a road, street, service land or other area accessible to the public • Spray water to where excavation to be taken place immediately prior to, during and after excavation • Any stockpile of dusty material shall be either: (a) covered entirely by impervious sheeting; (b) placed in an area sheltered on the top and the three sides; or (c) sprayed with water or a dust suppression chemical so as to maintain the entire surface wet • Cement bags or any other dusty materials collected during the work should be disposed of in totally enclosed containers • All dusty materials should be sprayed with water immediately prior to any loading, unloading or transfer operation so as to minimise the dusty materials wet • Any dusty material remaining after a stockpile of cement or other materials is removed should be wetted and removed from the surface of roads • Where a vehicle leaving the construction site is carrying a load of dusty materials, the load shall be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle • Conveyor belts shall be fitted with windboards, and conveyor transfer points and hopper discharge areas shall be enclosed and fitted with belt cleaners • Skip hoist for the transport of construction wastes should be properly enclosed • Vehicle washing facilities including a high pressure water jet shall be provided at the designated vehicle exit point and every vehicle immediately before leaving the construction site shall be washed to remove any dusty materials from its body and wheels • Every main haul road, vehicle washing areas and the section of road between the washing facilities and the exit point shall be paved with concrete, bituminous materials, hardcore or metal plates and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet • Debris from the construction of the WFM shall be covered entirely by impervious sheeting or stored in a sheltered debris collection area	^ ^ * ^ * ^ ^ N/A N/A ^ * N/A

Remarks: ^ Compliance of mitigation measure; X Non-compliance of mitigation measure;
N/A Not Applicable at this stage; * Not satisfactory but rectified by the contractor.

As updated on 13 August 2010

EIA Ref. Section	EM&A Ref. Section	Environmental Protection Measures	Status
5.7	3.7	**Noise**	
		• Use quiet construction equipment	^
		• Use silencers / mufflers, noise barriers / enclosure where practicable	^
		• The Contractor is required to determine the number and type of construction equipment taking into account the use of quiet plant while devising a feasible work programme	^
		• Only well-maintained plant shall be operated on-site and all equipment shall be routinely checked	^
		• Turn off or throttle down idle plant	^
		• Plants known to emit noise strongly shall be oriented away from NSRs	^
		• Mobile plants shall be sited as far away from NSRs as possible	^
		• Stockpiles and other structures shall be effectively utilised as practicable to screen noise from on-site construction activities	^
		• Obtain valid noise permits for construction work during restricted hours	^
6.7	4.1	**Water Quality**	
		• Site shall be kept clean and tidy to avoid construction materials and waste being washed off from site	^
		• Works shall be planned to avoid rainy season so as to minimize the runoff and reduce the amount of soil that can be carried offsite	^
		• Surface run-off from the construction site shall be directed to silt traps or sedimentation basin before reuse or discharge with help of channels, earth bunds or sand bag barriers for suspended solids removal prior to its being discharged to storm water drain. Silt trap design shall conform to the guidelines laid down in Appendix A1 of ProPECC PN 1/94	^
		• Wastewater likely to be contaminated with oil or grease should be passed through an oil separator or grease trap before entering the site drainage system	^
		• Hoarding gaps should be tightly sealed to avoid the seepage of wastewater to the nullah and outside the site	^
		• Perimeter channels shall be provide at site boundaries, where necessary, to intercept storm-water runoff from outside the site	N/A
		• Silt traps, sedimentation basins, channels and manholes shall be regularly cleaned to remove the deposited silt and grit	^
		• Temporarily exposed slope surfaces and construction material stockpiles shall be covered with tarpaulin or similar fabric to prevent erosion	^
		• Wastewater generated from bored-piling shall be re-circulated after sedimentation as practicable. The final discharge of the wastewater shall be via silt removal facilities.	^
		• All fuel tanks and chemical storage areas shall be surrounded by bunds with a capacity equal to 110% of the storage capacity	

Remarks: ^ Compliance of mitigation measure; X Non-compliance of mitigation measure;
N/A Not Applicable at this stage; * Not satisfactory but rectified by the contractor.

EIA Ref. Section	EM&A Ref. Section	Environmental Protection Measures	Status
		of the largest tank to prevent spilled oil, fuel and chemicals from reaching the receiving waters	^
		• Obtain valid discharge license for construction site discharges	^
		• Chemical toilets shall be provided on site	^
		• Monitor the quality of water discharge to ensure compliance of the license condition	^
		• Surface drainage channels of operational areas shall be easily cleaned and connected to foul sewerage	^
7.2	5.1	**Waste Management**	
		• Reuse of excavated soils for back-filling and landscaping purposes	^
		• All reusable and recyclable waste materials shall be segregated and stored in different containers, skips or stockpiled	^
		• Separate the inert and non-inert portions of construction material for disposal of public fill and landfill respectively	^
		• Employ approved licensed waste collectors to collect the inert construction materials to be disposed of at public fill	^
		• Provide a temporary storage areas for storing and stockpiling reusable and recyclable materials.	^
		• Contractor should register as chemical waste producer should chemical waste is produced.	^
		• Licensed waste collectors shall be employed for collecting chemical wastes for disposal.	^
		• Handling and Disposal of chemical waste shall be in accordance with the Code of Practice on the Practice on the Packaging, Labelling and Storage of Chemical Wastes issued under the Waste Disposal Ordinance..	^
		• Quantities of waste materials generated on site and disposal record (e.g. trip ticket) shall be kept on site for inspection	^
		• A Waste Management Plan (WMP) shall be prepared to set out waste handling and disposal strategy and submitted for the architect's approval	^
		• Material being temporary used for construction shall be recyclable as possible	^
		• Design and provide an area within the construction site to allow on-site sorting and segregation of waste materials	^
		• Training shall be provided to site staff on waste minimisation practices including waste reduction, reuse and recycling	^
		• Disposal of C&D material shall be monitored by Trip-Ticket System	^
		• In order to minimize the amount of waste disposal, durable and reusable containers should be used, where practicable, instead of plastic bags	^

Remarks: ^ Compliance of mitigation measure; X Non-compliance of mitigation measure;
N/A Not Applicable at this stage; * Not satisfactory but rectified by the contractor.

8.7	6.1	**Hazard to Life** • Cranes shall be located away from the LPG compound and its access as far as possible • Before excavation work is undertaken, the gas company should be contacted to obtain information (drawings, plans) of all gas pipes in the vicinity of the site. Suitable pipe locating devices must be used to locate underground pipes. Hand dug trial holes must then be used to confirm the position of underground pipes. Excavation must be carried out with extreme care following any advice given by the Gas Authority or Gas Company. • Sufficient guidance shall be given to all workers before carrying out excavation in the vicinity of pipelines • Manually operated warning siren shall be installed to instruct people to take timely shelter • Fire drill exercises shall be organized for the users of the WFM.	^ ^ ^ ^

Remarks: ^ Compliance of mitigation measure; X Non-compliance of mitigation measure;
N/A Not Applicable at this stage; * Not satisfactory but rectified by the contractor.