Issue No.	:	1
Issue Date	:	November 2008
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JOINT USER COMPLEX AND WHOLESALE FISH MARKET AT AREA 44, TUEN MUN

ENVIRONMENTAL MONITORING & AUDIT REPORT (AUGUST 2008 – OCTOBER 2008)

Prepared By:

ALLIED ENVIRONMENTAL CONSULTANTS LTD.

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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 was commenced on 31st July 2008. This report is the first quarterly EM&A report, which summarizes the environmental monitoring and audit results recorded during the period from 31st July 2008 to 31st October 2008.

Based on the monitoring results, the air quality and construction noise level complied with the environmental requirements in EM&A Manual. There were no environmental complaints received in this quarter. No notification of summons or prosecution was received.

Construction activities undertaken from August 2008 to October 2008 included jack piling, pre-boring, drainage diversion, and some internal finishing. Potential environmental impacts include dust generation from stockpiles of dusty materials, the drainage diversion work, and pre-boring; noise from operation of the equipments and jack piling; runoff from drainage diversion works, and pre-boring; 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, 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 and dragon boat racing spectator stand for public use. The proposed development is a 3-storey complex to accommodate the wholesale fish market at the ground floor, a community hall on the first and second floors, and an extensive 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 7140	2314 2866
Environmental Permit Holder	Architecture Services Department	Mr. S.W. Chow Ms. Susana Chan	2867 3716 2867 6706	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. Tim Wong	9630 7404 6478 4623	8343-9188
Environmental Team Leader	Allied Environmental Consultants Ltd.	Ms. Grace Kwok	2815 7028	2815 5399
Independent Environmental Checker	Cinotech Consultants Ltd.	Mr. Alex Ngai	2151 2083	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, namely 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. 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. Leq(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 2. 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 3.

Table 2 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 3 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]

Time Period	*Action Level*	*Limit Level*
1900-2300 on any day and 0700-2300 on Sunday and general holidays, for use of PME[2]	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 EM&A Manual. A summarized general Event Action Plan is given in Table 4. Details should be referred to the Event Action Plan in the EM&A Manual.

Table4 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

4. MONITORING METHODOLOGY

4.1 Monitoring Programme

Air quality monitoring and noise monitoring were conducted at Block 15, Yuet Wu Villa. 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 at the junction of Wu Sau Street and Wu On Street as given in Figure 2 and 3. Figure 4 and 5 show photos taken during monitoring at the two locations.

A construction site for the proposed Junior Police Officers' Married Quarters is located at 110m away from the monitoring location, which is also a potential major source of the TSP generation. Figure 6 shows the photos of the construction site.

4.2 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 A. 24-hour TSP samples were taken every six days. 1-hour TSP samples were taken three times a day between 0700-1900 hours.

4.3 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 5 and the Calibration Certificate for the sound level meter and calibrator is given in Appendix B.

Table 5 Noise Monitoring Equipment

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

Noise levels measurements were recorded in terms of thirty minutes A-weighted equivalent continuous sound pressure level (Leq(30min)) on a weekly 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.

5. RESULTS

5.1. Air Quality

No exceedance was recorded in this quarter. Summary and graphical plots of air quality monitoring record of 1-hour TSP levels and 24-hour TSP levels are provided in Appendices C and D.

5.2. Noise

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

No exceedance was recorded in this quarter. Summary of noise monitoring record is provided in Appendix E.

5.3. 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 6 summarizes the wind data during the monitoring dates. Wind record from HKO will be shown in Appendix F.

Table 6 Summary of Weather Conditions during the Monitoring Period

Date	Weather	Prevailing Wind Direction	Daily Average Wind Speed (m/s)
1 Aug 2008	Cloudy	SSE	2.71
7 Aug 2008	Cloudy	SSE	4.47
13 Aug 2008	Sunny	SW	1.96
19 Aug 2008	Sunny	SSE	2.68
25 Aug 2008	Sunny	SSE	3.54
30 Aug 2008	Sunny	SW	1.94
5 Sept 2008	Sunny	S	1.78
11 Sept 2008	Sunny	NW	1.78
17 Sept 2008	Sunny	SE	2.03
23 Sept 2008	Cloudy	N	3.51
29 Sept 2008	Sunny	NE	4.14
4 Oct 2008	Sunny	SE	4.42

10 Oct 2008	Sunny	N	1.87
16 Oct 2008	Sunny	NE	1.45
22 Oct 2008	Sunny	S	2.07
28 Oct 2008	Sunny	SE	2.67

6. SITE INSPECTION & AUDIT

Weekly site inspections were carried out by representatives of the ET. Sixteen site inspections were conducted on 5th, 12th, 19th, and 26th August; 5th, 12th, 17th, 23rd, and 30th September; and 2nd, 10th, 17th, 23rd, and 31st October. The major findings are summarized in Table 7.

The mitigation measures undertaken by the Contractor are effective in minimizing the environmental impact; however, the Contractor should implement these mitigation measures more effectively in order to prevent causing further significant impact to the environment.

Table 7 Summary of Site Inspections

Date	**Observations**	**Action taken by contractor**	**Outcome**
5/8/2008	Some stagnant water observed on site after raining	To clean up the stagnant water immediately	The situation is rectified immediately
12/8/2008	Some stagnant water observed on site after raining	To clean up the stagnant water immediately	The situation is rectified immediately
19/8/2008	Construction waste and debris on site.	To be removed, collected, and send to appropriate destinations.	The situation is rectified immediately.
26/8/2008	Some stagnant water observed on site.	To clean up the stagnant water immediately	The situation is rectified immediately
5/9/2008	Stagnant water observed on site.	Stagnant water is cleaned up immediately.	The situation is rectified immediately.
12/9/2008	Rubbish found on site.	Rubbish was cleared immediately.	The situation is rectified immediately.
17/9/2008	Two oil drums were placed on bare land. Rubbish found on site	Drip tray is placed immediately. Rubbish was cleared immediately.	The situation is rectified immediately.
23/9/2008	Most fuel drums were placed on bare land. Exposed surface was not properly covered by tarpaulin sheet.	Drip tray is placed immediately. Exposed surface is covered immediately.	The situation is rectified immediately.

30/9/2008	An oil drum was placed on bare land. Exposed surface was not properly covered by tarpaulin sheet.	Drip tray is placed immediately. Exposed surface is covered immediately.	The situation is rectified immediately.
2/10/2008	No outstanding observations during inspection.	Contractor is required to keep with the mitigation measures.	
10/10/2008	Exposed surface was not properly covered.	Exposed surface was properly covered.	The situation is retified on 15 Oct.
17/10/2008	No outstanding observations during inspection.	Contractor is required to keep up with the mitigation measures.	
23/10/2008	No outstanding observations during inspection.	Contractor is required to keep up with the mitigation measures.	
31/10/2008	Oil drums were placed on bare land.	Contractor is required to keep up with the mitigation measures.	The situation is rectified immediately.

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 G.

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

In this quarter, no complaints, inspection notices, and notifications of summons or prosecution were received.

8. OTHERS

941.6 tonnes of inert C&D waste was disposed at public fill. 13.48 tonnes of waste was disposed to landfill. No chemical waste was transported off site in this quarter.

9. RECOMMENDATIONS AND CONCLUSIONS

9.1. Recommendations

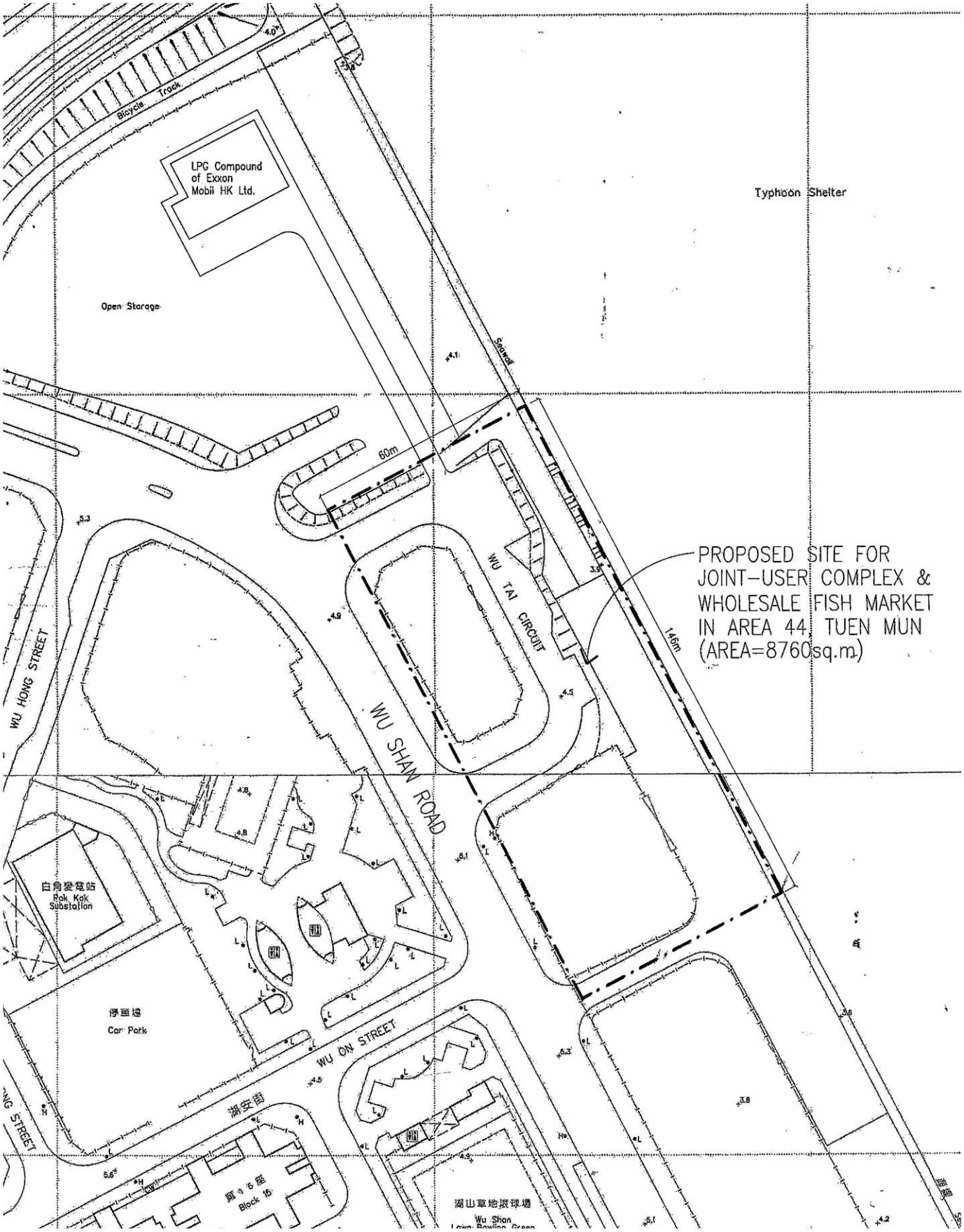
In accordance with the environmental site audits undertaken during the report quarter, the following recommendations are made:

- Drip trays should be used for storing the fuel drum and it should be clean up regularly to prevent any leakage;
- Stagnant water should be cleared immediately;
- Exposed surface should be compacted or covered at all times; and
- Rubbish should be put in the rubbish bin and should not be found anywhere else within the Site.

The ET will keep tract on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

9.2. Conclusions

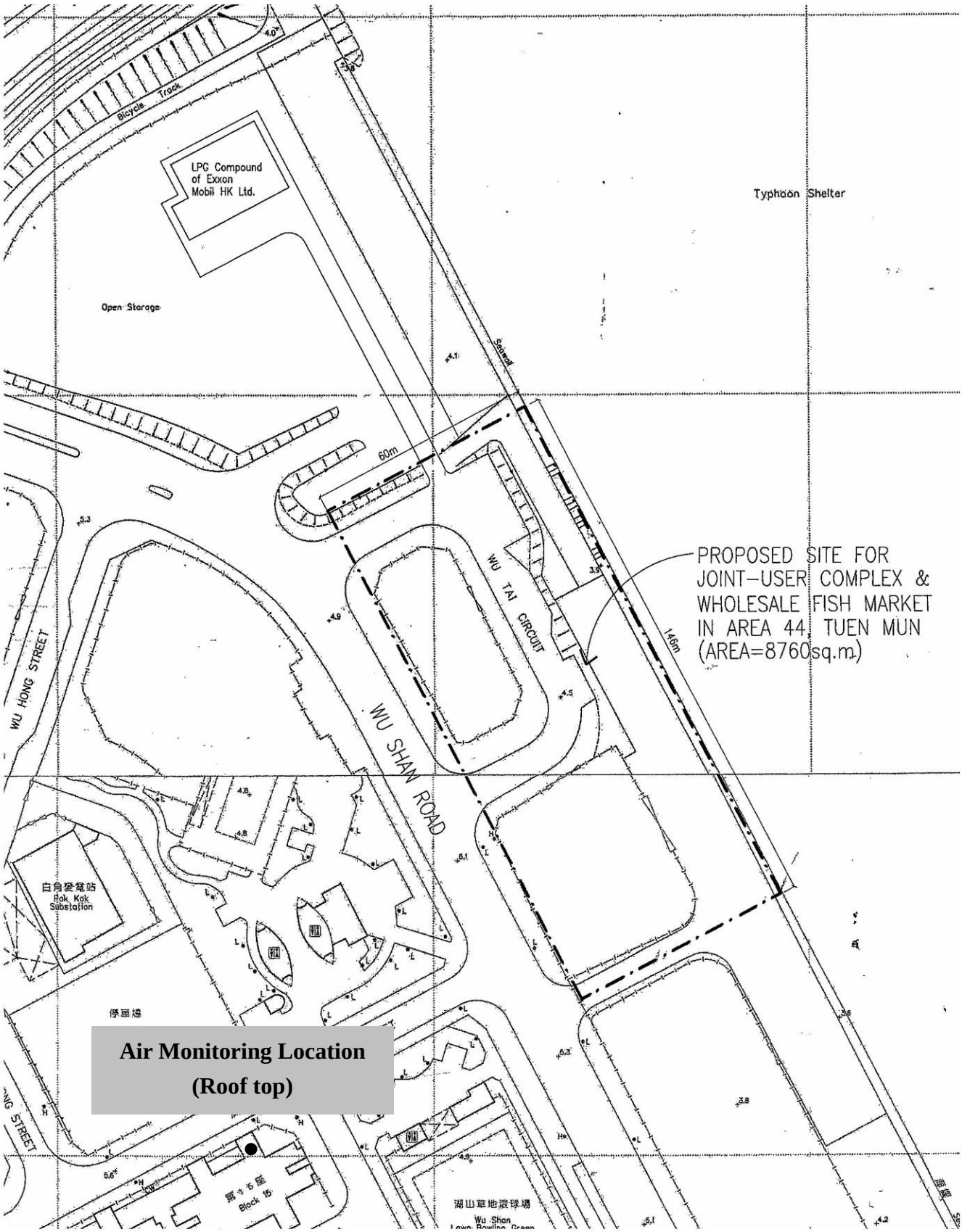
Environmental monitoring has been carried out for the proposed Joint User Complex and Wholesale Fish Market at Area 44, Tuen Mun. 1-hour and 24-hour TSP air quality monitoring and noise monitoring was conducted at Block 15, Yuet Wu Villa during the period from 31st July 2008 to 31st October 2008, in accordance with EM&A Manual and the requirement under Environmental Permit (No. EP-296/2007). All monitoring results were checked and reviewed. 48 sets of 1-hour TSP level monitoring, 16 sets of 24-hour TSP level monitoring, and 16 sets of noise monitoring were carried out during the reporting period. No exceedance of any of the monitoring data was recorded. No environmental complaints and notification of summons or prosecution were received during the reporting period.



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

SITE LOCATION PLAN

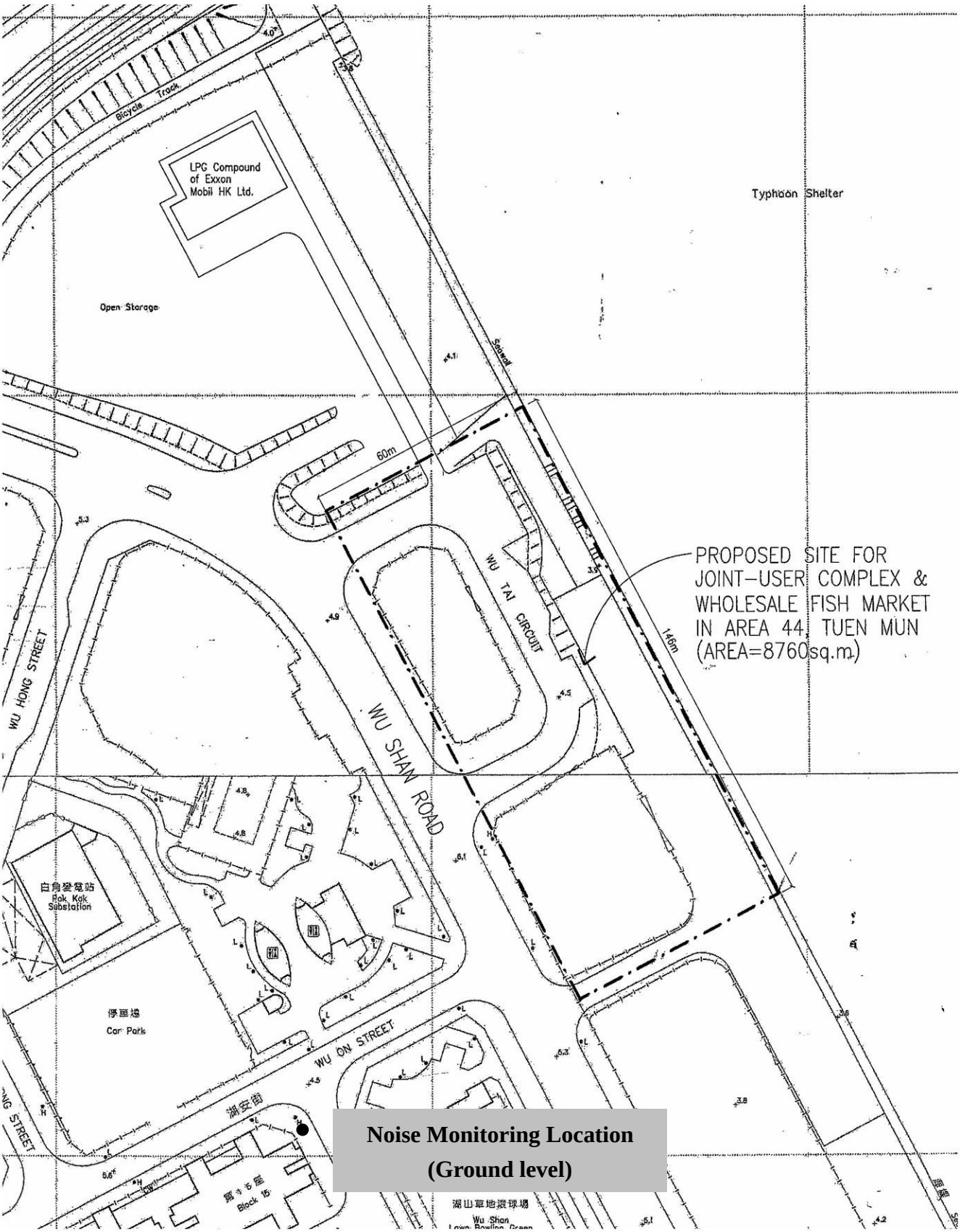
Figure No.	Rev.:
1	0
Scale	Date
NTS	11/08



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	11/08



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

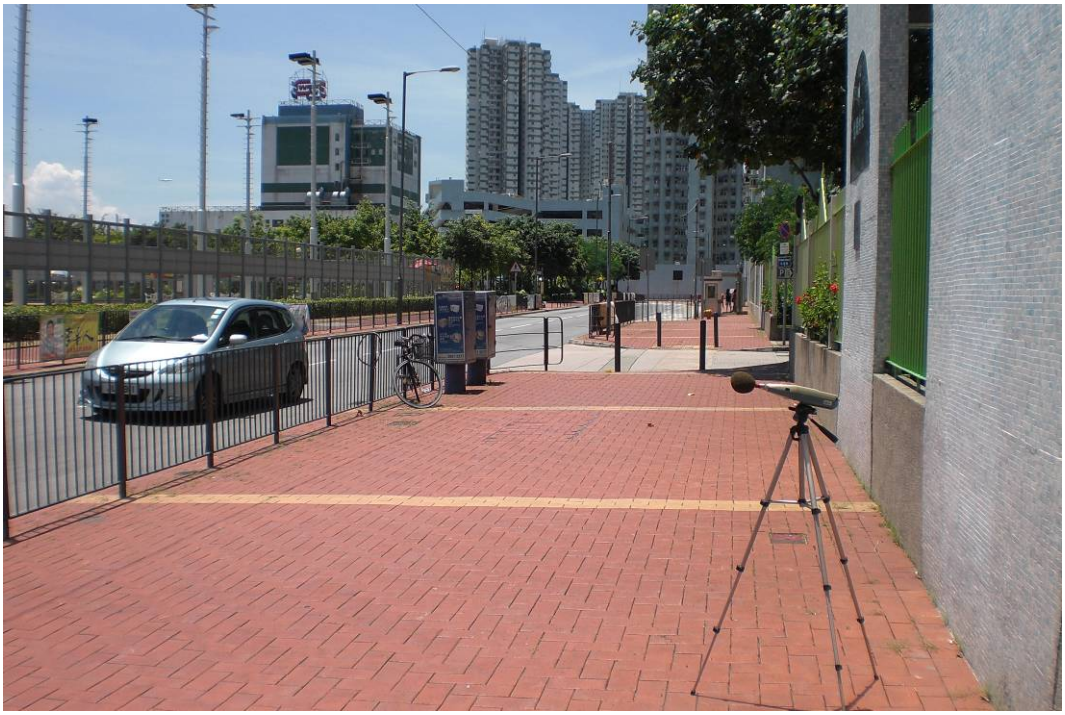
LOCATION OF NOISE MONITORING STATION

Figure No.	Rev.:
3	0
Scale: NTS	Date: 11/08

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 11/08	



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 11/08	

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

PHOTO OF CONSTRUCTION SITE FOR JUNIOR POLICE OFFICERS' MARRIED QUARTERS

Figure No.	Rev.:
6	0
Scale	Date
NTS	11/08

AEC

Appendix A

Calibration Record of High-Volume TSP Sampler

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	A1, Yuet Wu Villa (1- hr Monitoring)
Calibrated by	:	P.F.Yeung
Date	:	4/7/08

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 8790

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	CM-AIR-43
Service Date	:	2 July 2007
Slope (m)	:	0.057452
Intercept (b)	:	-0.026137
Correlation Coefficient(r)	:	0.999910

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1012
Ta(K)	:	302

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	10.9	3.287	1.663	46	45.7
2	13 holes	8.9	2.970	1.504	40	39.8
3	10 holes	6.7	2.577	1.308	37	36.8
4	7 holes	4.3	2.064	1.052	26	25.9
5	5 holes	2.1	1.443	0.741	18	17.9

Sampler Calibration Relationship

Slope(m): 35.953 Intercept(b): -9.528 Correlation Coefficient(r): 0.9989

Checked by: Magnum Fan Date: 5/07/08

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	A1, Yuet Wu Villa (24 hr Monitoring)
Calibrated by	:	P.F.Yeung
Date	:	4/07/08

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	CM-AIR-43
Service Date	:	2 July 2007
Slope (m)	:	0.057452
Intercept (b)	:	-0.026137
Correlation Coefficient(r)	:	0.999910

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1012
Ta(K)	:	302

Zero Erro of Sampler Flow Rate Indication

IO : 0.0

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (indicated flow)	Y
1	18 holes	9.3	3.104	1.512	54	55.0
2	13 holes	7.5	2.788	1.359	49	49.9
3	10 holes	5.7	2.430	1.186	42	42.8
4	7 holes	3.6	1.931	0.945	34	34.6
5	5 holes	2.1	1.475	0.724	26	26.5

Sampler Calibration Relationship

Slope(m): 36.327 Intercept(b): 0.1381 Correlation Coefficient(r): 0.9965

Checked by: Magnum Fan Date: 5/07/08

High-Volume TSP Sampler
1-Point Calibration Record

Location	:	**A1**
Calibrated by	:	**P.F.Yeung**
Date	:	**4/9/08**

Sampler

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

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	**CM-AIR-43**
Service Date	:	**10 July 2008**
Slope (m)	:	**0.056389**
Intercept (b)	:	**-0.025123**
Correlation Coefficient(r)	:	**0.999909**

Standard Condition

Pstd (hpa)	:	**1013**
Tstd (K)	:	**298.18**

Calibration Condition

Pa (hpa)	:	**1012**
Ta(K)	:	**300**

IC (Indicated flow) : **42 cfm**

Actual flow : **1.15 m^3/min**

Checked by: Magnum Fan **Date: 16/09/08**

Appendix B

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. : C081909

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00410224

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C081909.

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 : 14 April 2008

Certified by : K C Lee

Calibration and Testing Laboratory of Sun Creation Engineering Limited
6/F., Tsing Sum Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8086 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. : C083194

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. C083194.

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 : 25 June 2008

Certified by : K C Lee

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 8 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 C

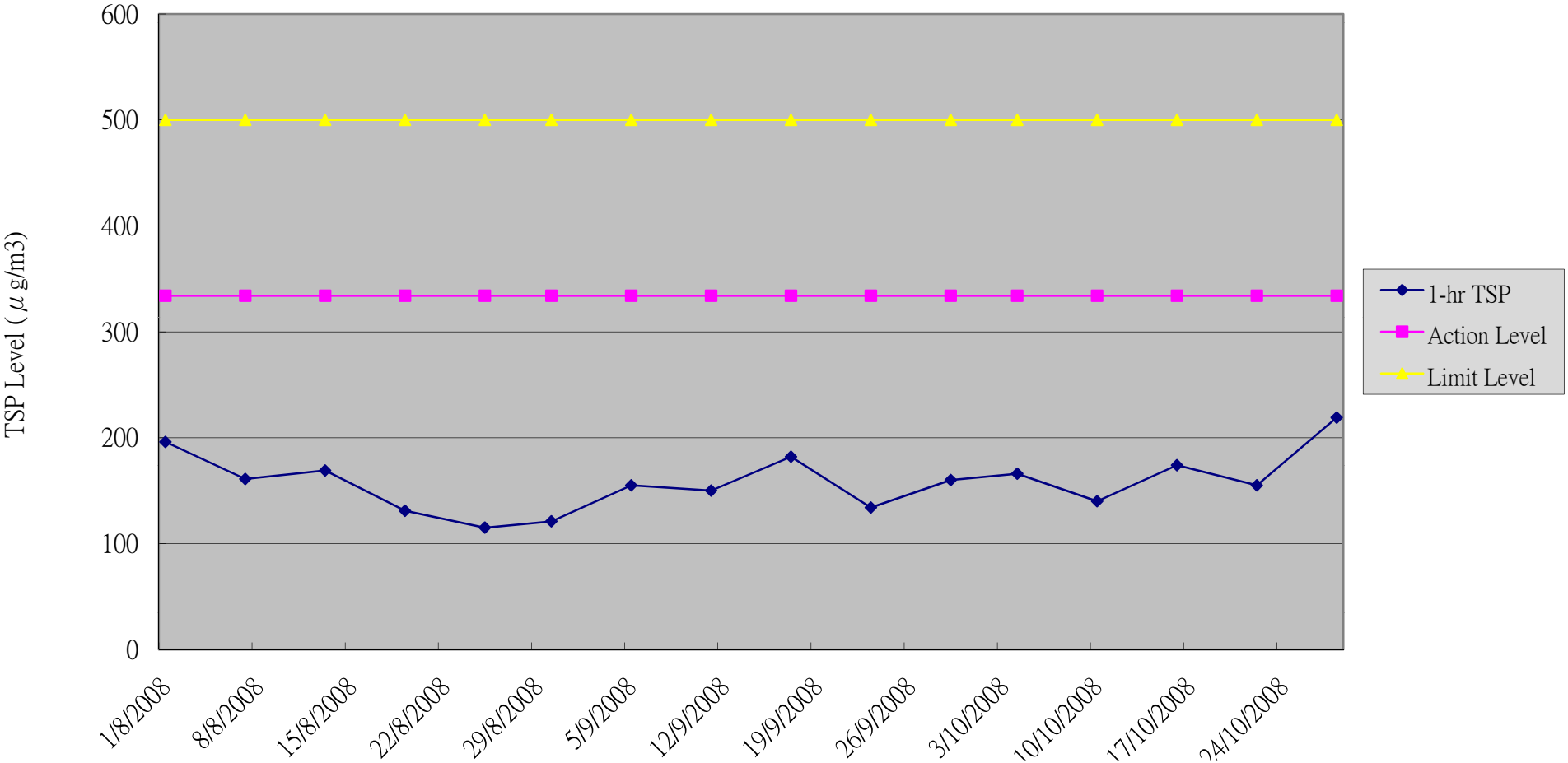
Summary and Graphical Plot of 1-Hour TSP Monitoring Record

Impact Monitoring for Fish Market Project in Tuen Mun
Air Quality Monitoring: 1-hour TSP
Quarter: August 2008 - October 2008

Date	Time	1-hr TSP (μg/m3)	Average
1-Aug-08	14:05 - 15:05	178	196
	15:07 - 16:07	204	
	16:09 - 17:09	206	
7-Aug-08	09:00 - 10:00	159	161
	10:02 - 11:02	170	
	11:04 - 12:04	155	
13-Aug-08	08:20 - 09:20	180	169
	09:22 - 10:22	177	
	10:24 - 11:24	149	
19-Aug-08	12:50 - 13:50	135	131
	13;52 - 14;52	129	
	14:54 - 15:54	128	
25-Aug-08	13:00 - 14:00	128	115
	14:40 - 15:40	107	
	15:42 - 16:42	109	
30-Aug-08	13:00 - 14:00	123	121
	15:05 - 16:05	123	
	16:07 - 17:07	117	
5-Sep-08	08:35 - 09:35	152	155
	09:37 - 10:37	177	
	10:39 - 11:39	136	
11-Sep-08	08:00 - 09:00	133	150
	09:02 - 10:02	181	
	10:04 - 11:04	136	
17-Sep-08	08:05 - 09:05	213	182
	09:07 - 10:07	116	
	10:09 - 11:09	217	
23-Sep-08	13:10 - 14:10	129	134
	14:12 - 15:12	132	
	15:14 - 16:14	142	
29-Sep-08	08:00 - 09:00	174	160
	09:02 - 10:02	146	
	10:04 - 11:04	159	
4-Oct-08	08:00 - 09:00	154	166
	09:02 - 10:02	171	
	10:04 - 11:04	172	
10-Oct-08	09:00 - 10:00	146	140
	10:02 - 11:02	145	
	11:04 - 12:04	130	
16-Oct-08	08:00 - 09:00	171	174
	09:02 - 10:02	168	

	10:04 - 11:04	183	
22-Oct-08	08:35 - 09:35	145	155
	09:37 - 10:37	149	
	10:39 - 11:39	172	
28-Oct-08	08:25 - 09:25	209	219
	09:27 - 10:27	226	
	10:29 - 11:29	222	

1-hr TSP Levels (August 2008 - October 2008)



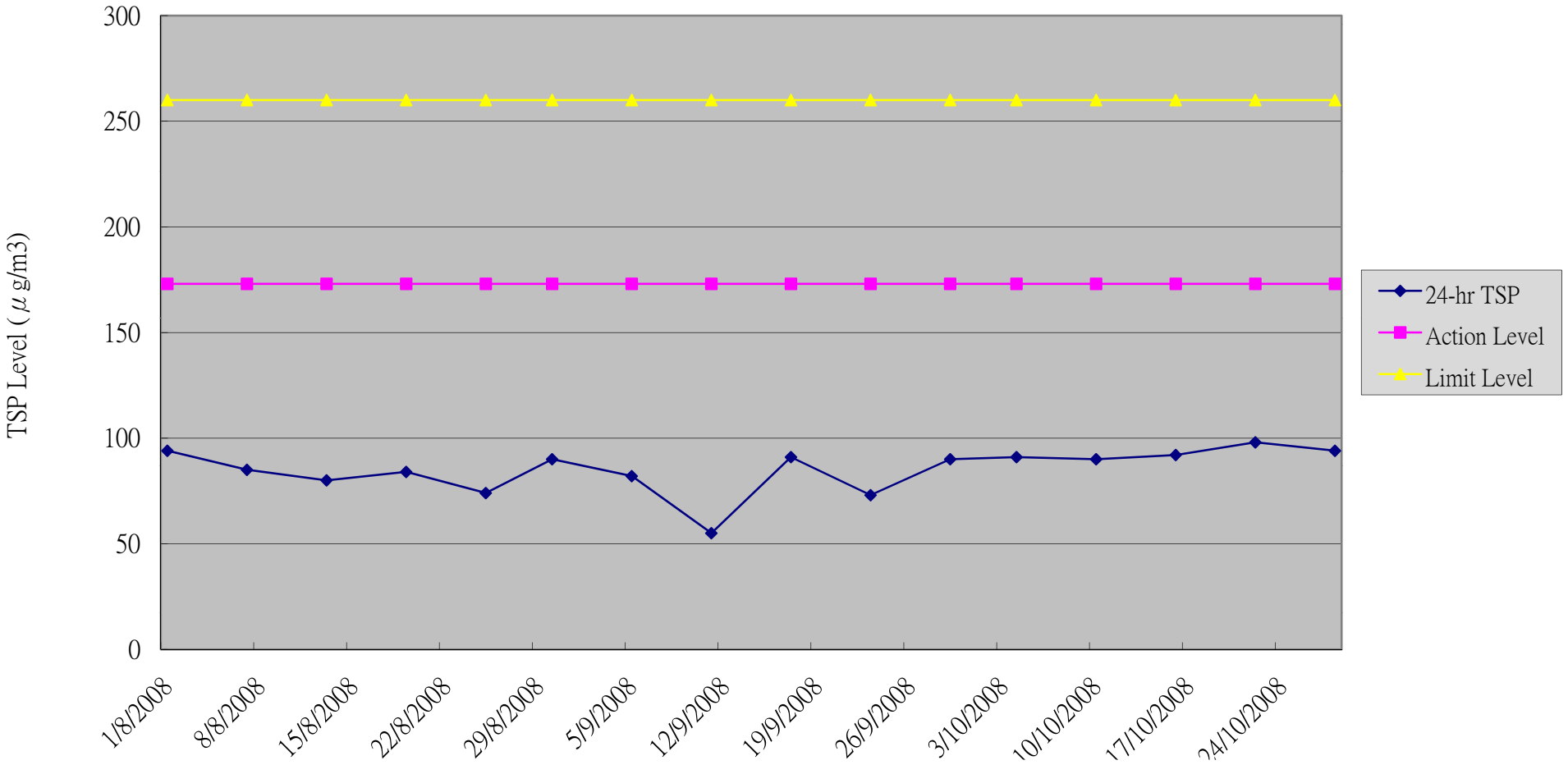
Appendix D

Summary and Graphical Plot of 24-Hour TSP Monitoring Record

Impact Monitoring for Fish Market Project in Tuen M
Air Quality Monitoring: 24-hour TSP
Quarter: August 2008 - October 2008

Date	Time	24-hr TSP ($\mu g/m^3$)
1-Aug-08	17:11	94
7-Aug-08	12:06	85
13-Aug-08	11:26	80
19-Aug-08	15:56	84
25-Aug-08	16:44	74
30-Aug-08	17:09	90
5-Sep-08	11:41	82
11-Sep-08	11:06	55
17-Sep-08	11:11	91
23-Sep-08	16:16	73
29-Sep-08	11:06	90
4-Oct-08	11:06	91
10-Oct-08	12:06	90
16-Oct-08	11:06	92
22-Oct-08	11:41	98
28-Oct-08	11:31	94

24-hour TSP Levels (August 2008 - October 2008)



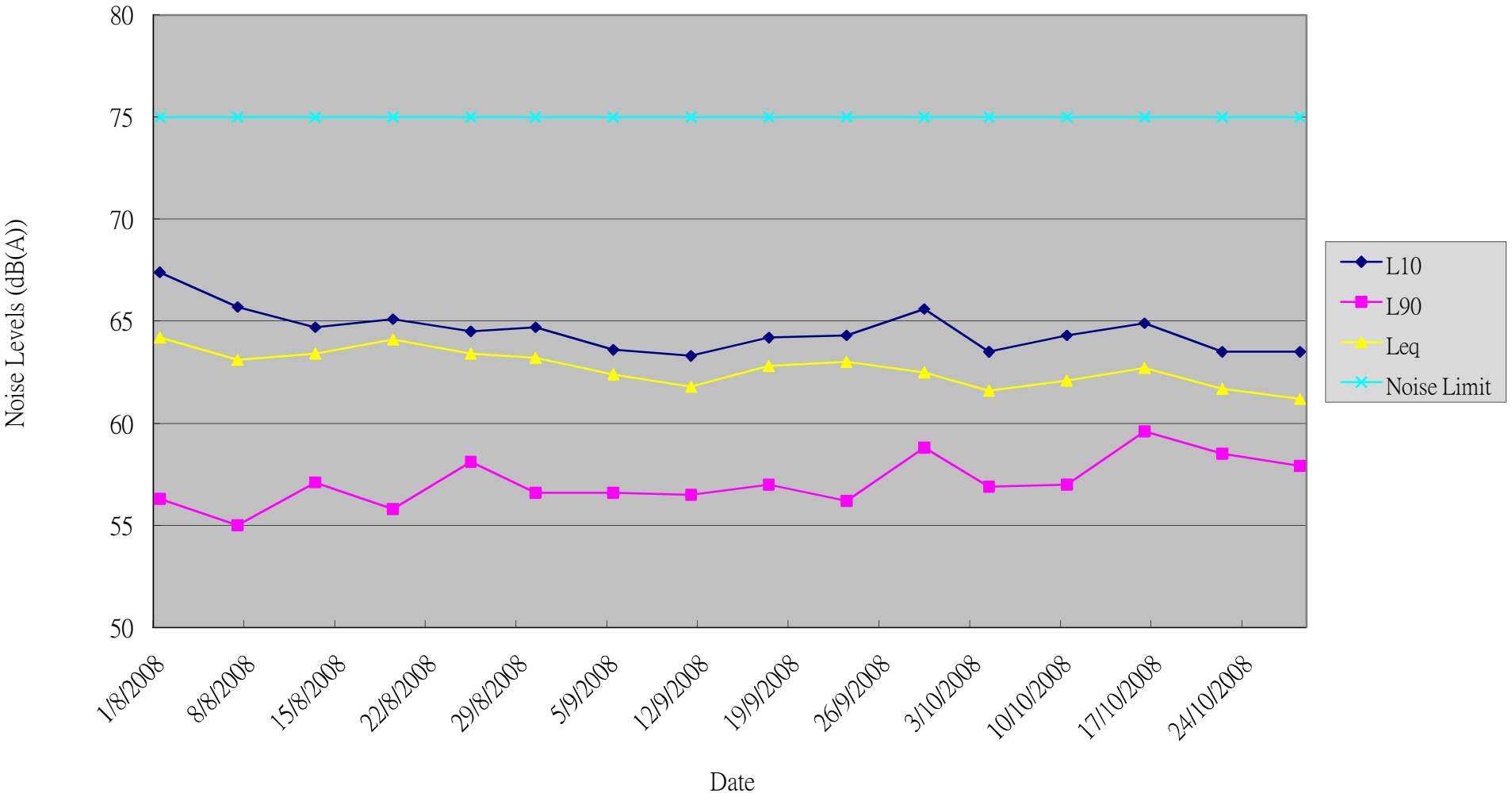
Appendix E

Summary and Graphical Plot of Noise Monitoring Record

Impact Monitoring for Fish Market Project in Tuen Mun
Noise Monitoring
Quarter: August 2008 - October 2008

Date	Time	L10(30mins) (dB(A))	L90(30mins) (dB(A))	Leq(30mins) (dB(A))
1-Aug-08	14:12 - 14:42	67.4	56.3	64.2
7-Aug-08	11:10 - 11:40	65.7	55.0	63.1
13-Aug-08	09:50 - 10:20	64.7	57.1	63.4
19-Aug-08	14:00 - 14:30	65.1	55.8	64.1
25-Aug-08	14:55 - 15:25	64.5	58.1	63.4
30-Aug-08	16:15 - 16: 45	64.7	56.6	63.2
5-Sep-08	10:55 - 11:25	63.6	56.6	62.4
11-Sep-08	09:10 - 09:40	63.3	56.5	61.8
17-Sep-08	09:15 - 0945	64.2	57.0	62.8
23-Sep-08	13:15 - 13:45	64.3	56.2	63.0
29-Sep-08	09:40 - 10:10	65.6	58.8	62.5
4-Oct-08	09:25 - 09:55	63.5	56.9	61.6
10-Oct-08	11:10 - 11:40	64.3	57.0	62.1
16-Oct-08	09:17 - 09:47	64.9	59.6	62.7
22-Oct-08	09:00 - 09:30	63.5	58.5	61.7
28-Oct-08	09:35 - 10:05	63.5	57.9	61.2

Noise Monitoring Record (August 2008 - October 2008)

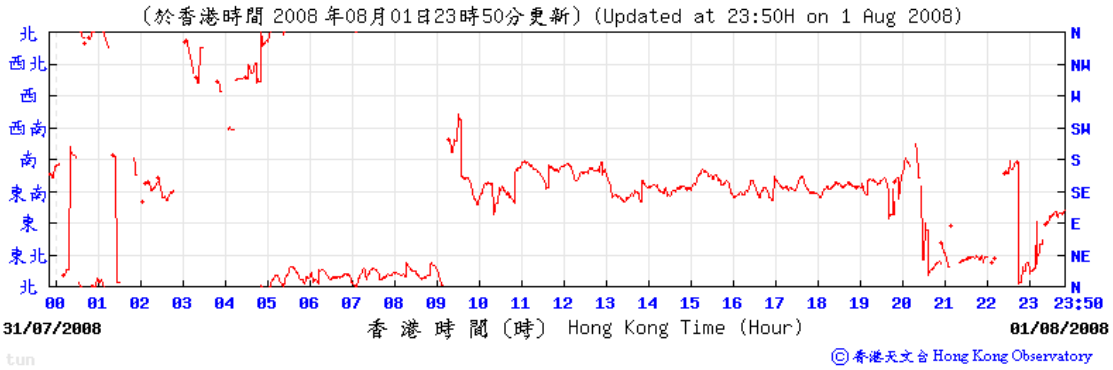


Appendix F

Wind Record from Hong Kong Observatory

Wind direction at Hong Kong Observatory Tuen Mun Automatic Weather Station

1/8/2008



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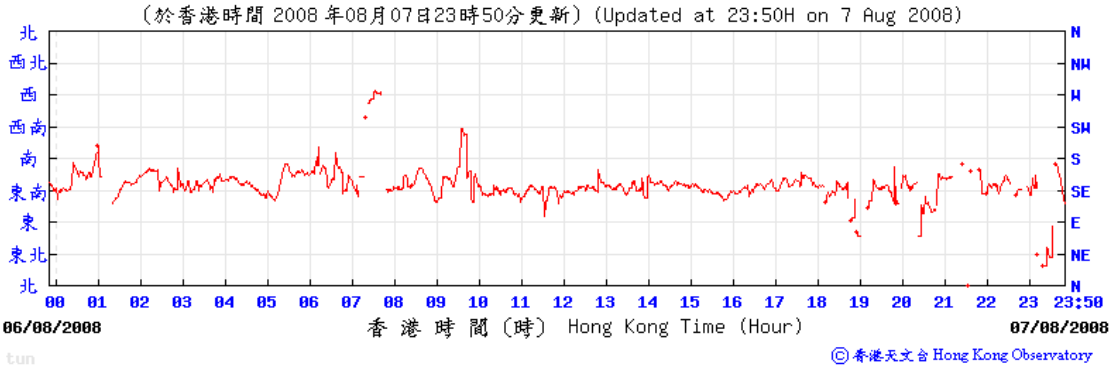

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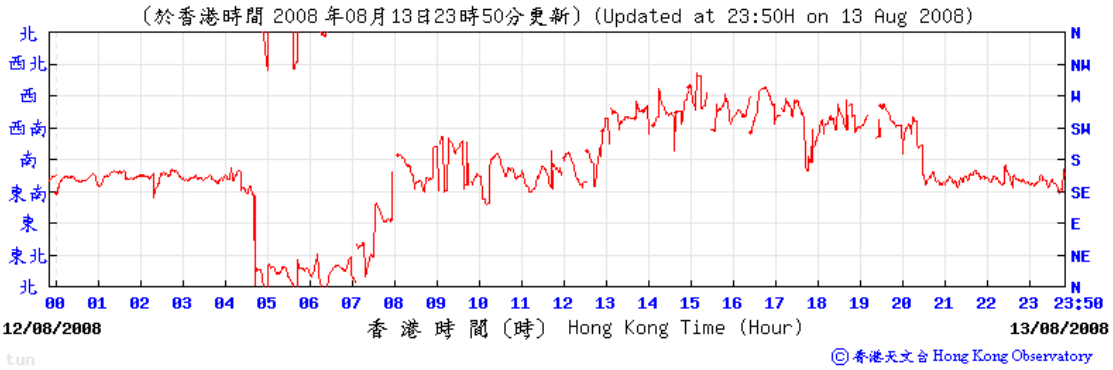

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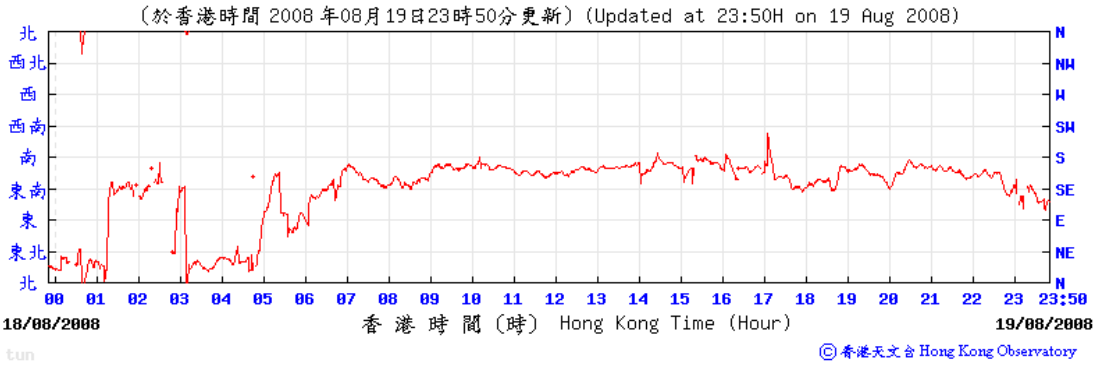

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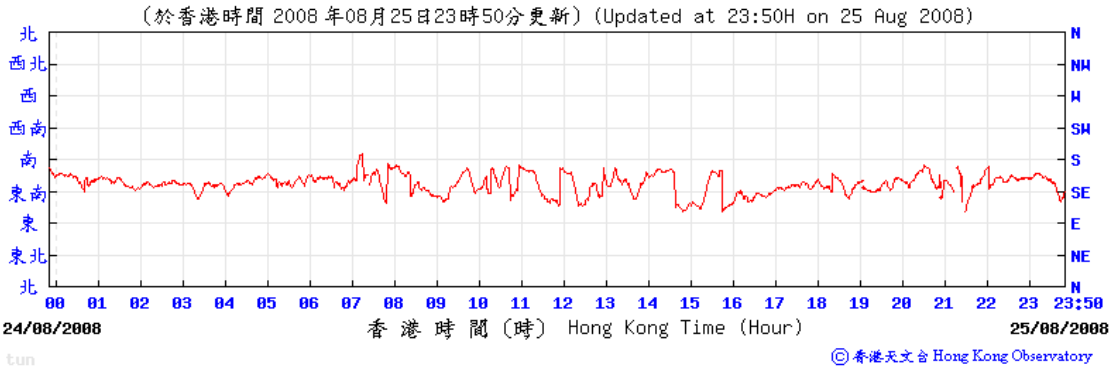

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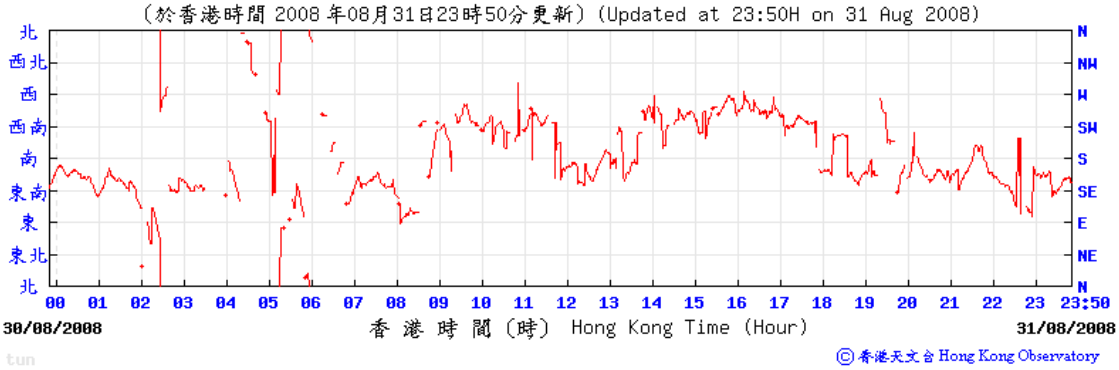

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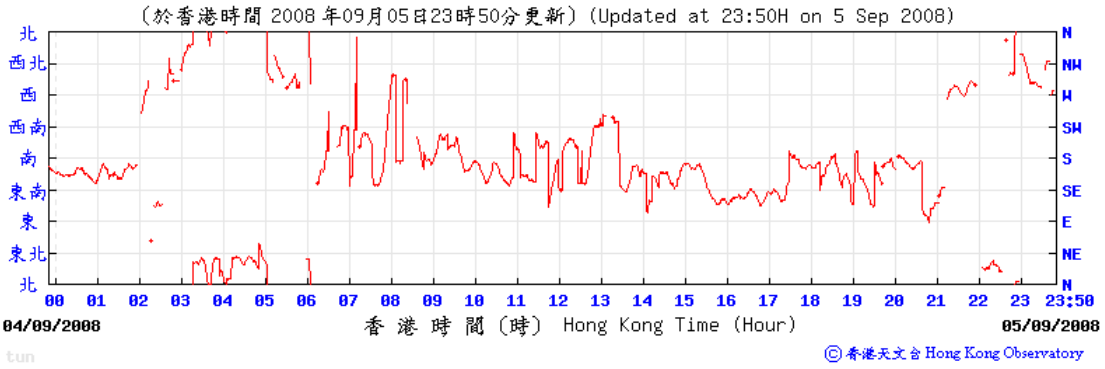

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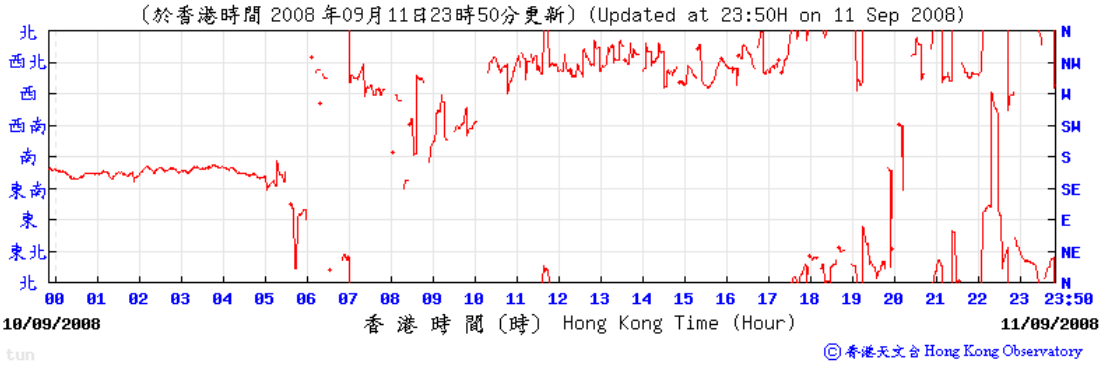

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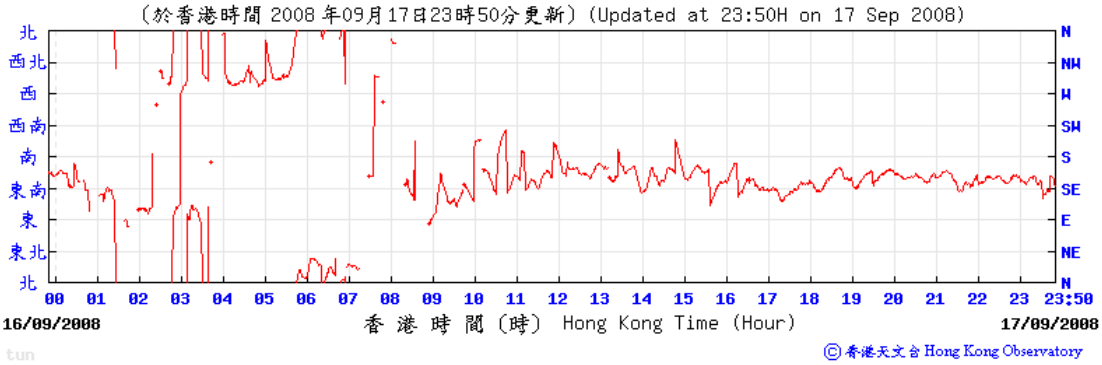

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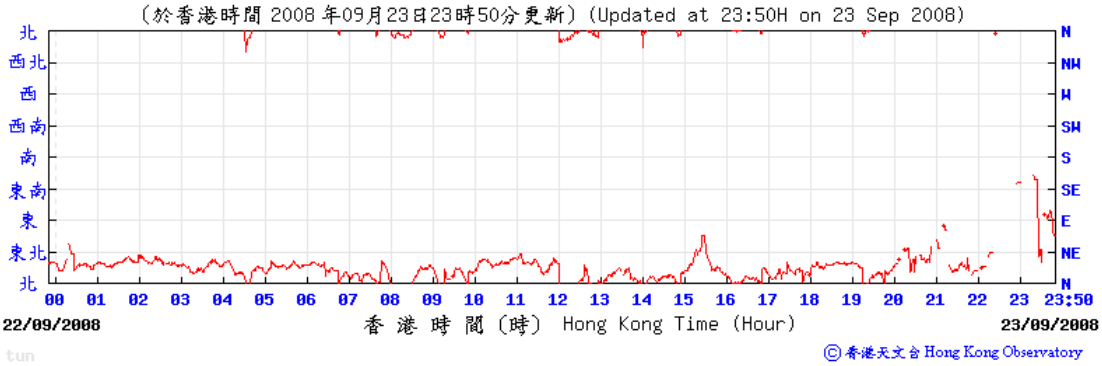

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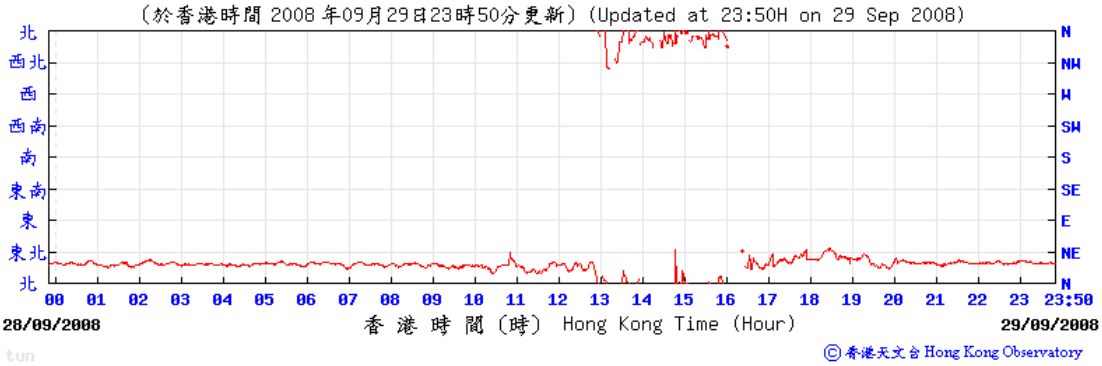

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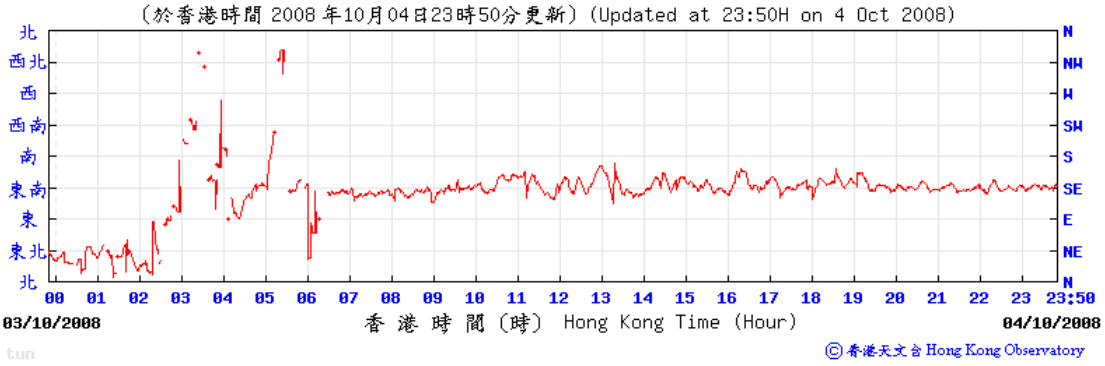

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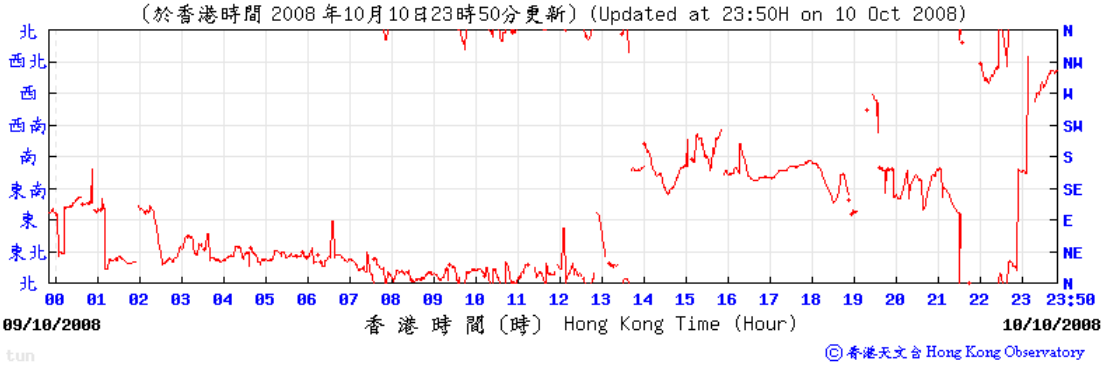

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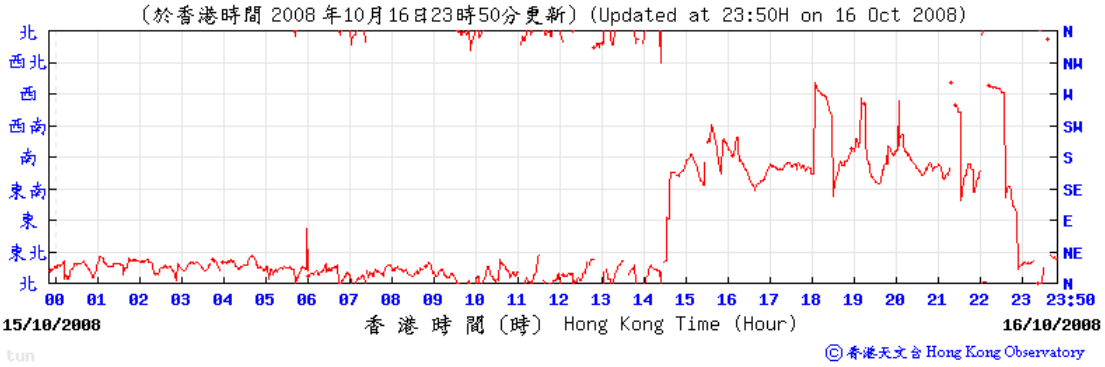

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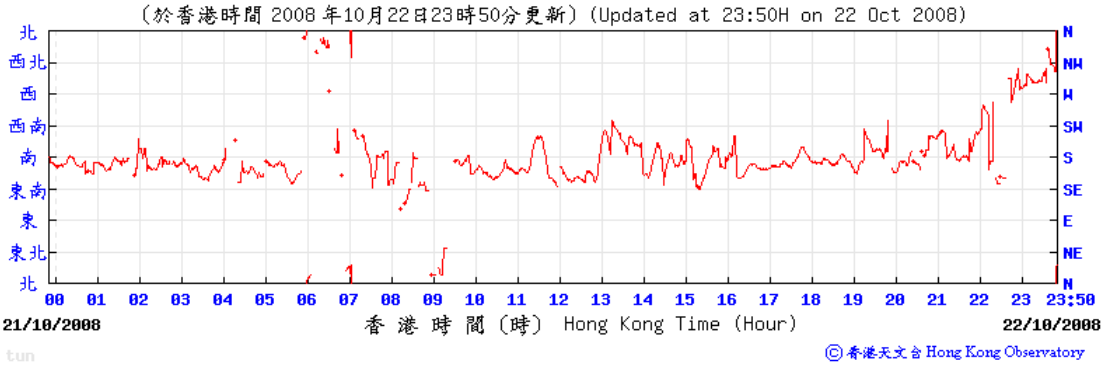

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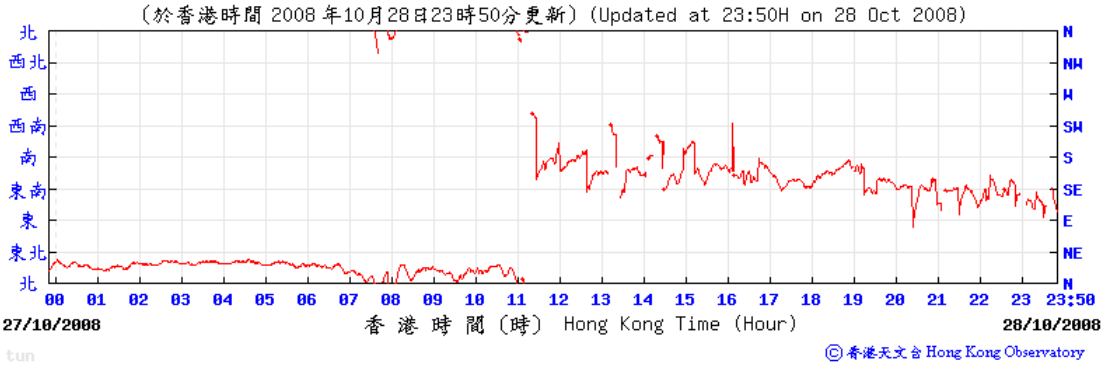

Wind speed at Hong Kong Observatory Tuen Mun Automatic Weather Station

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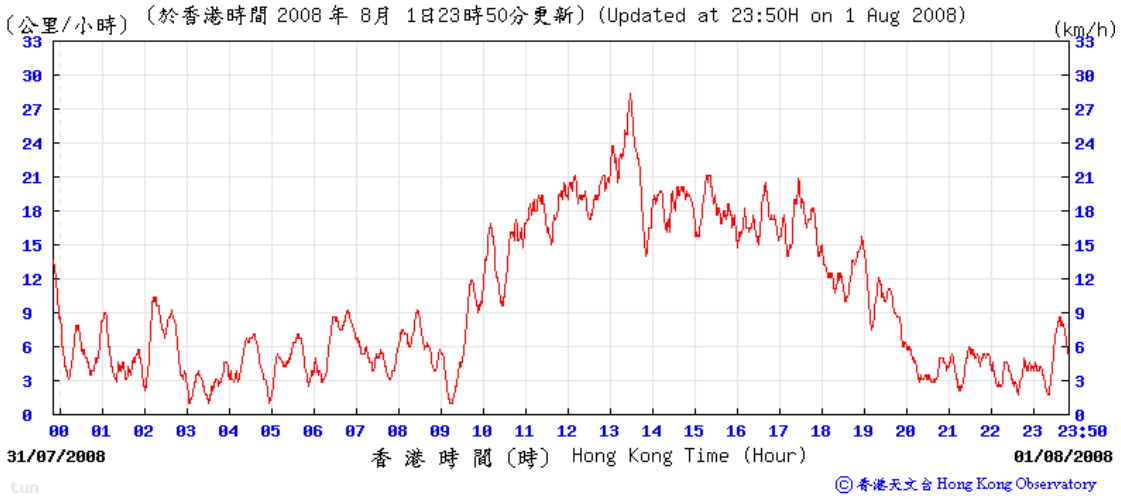

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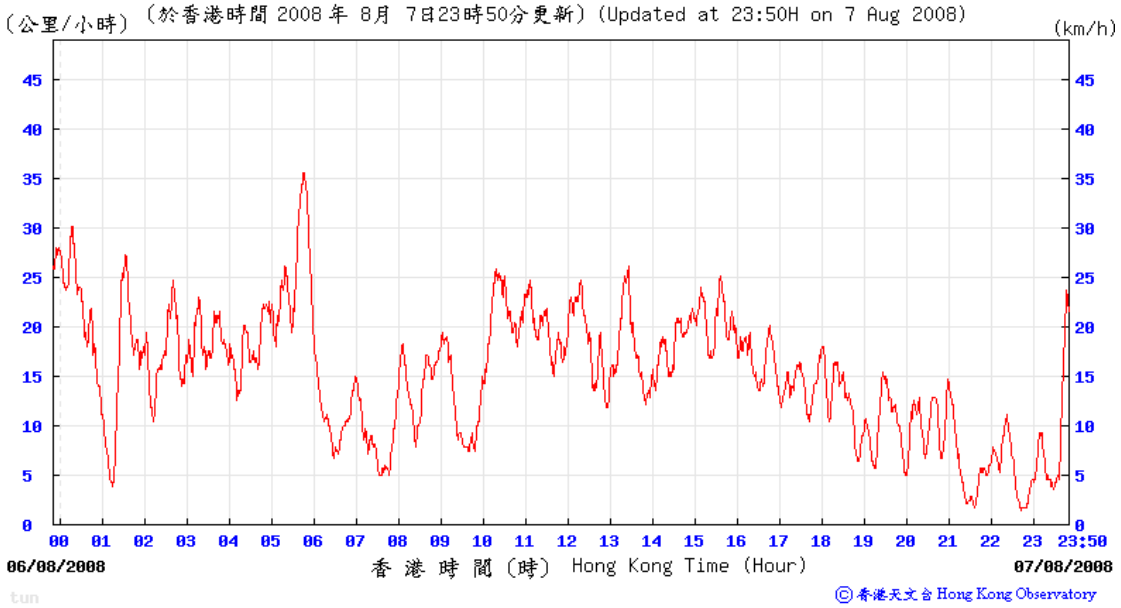

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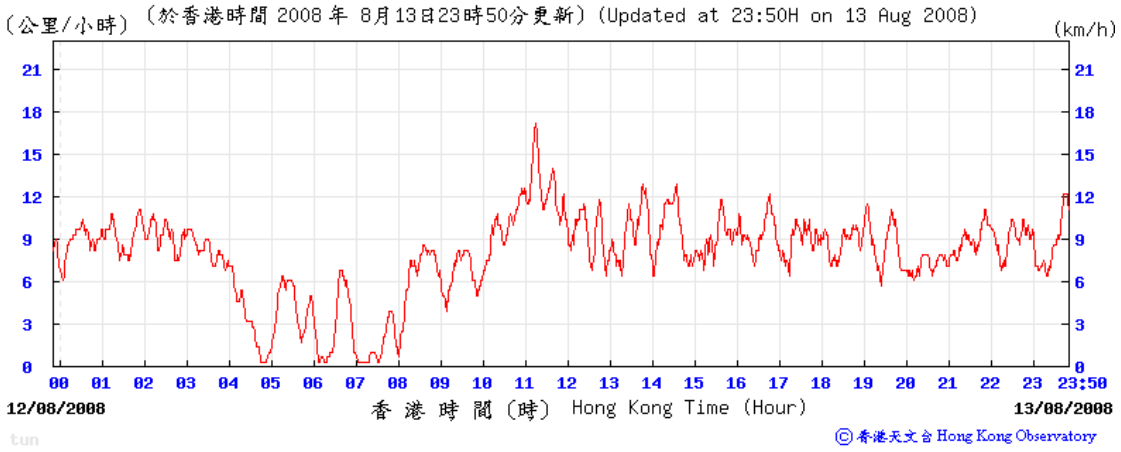

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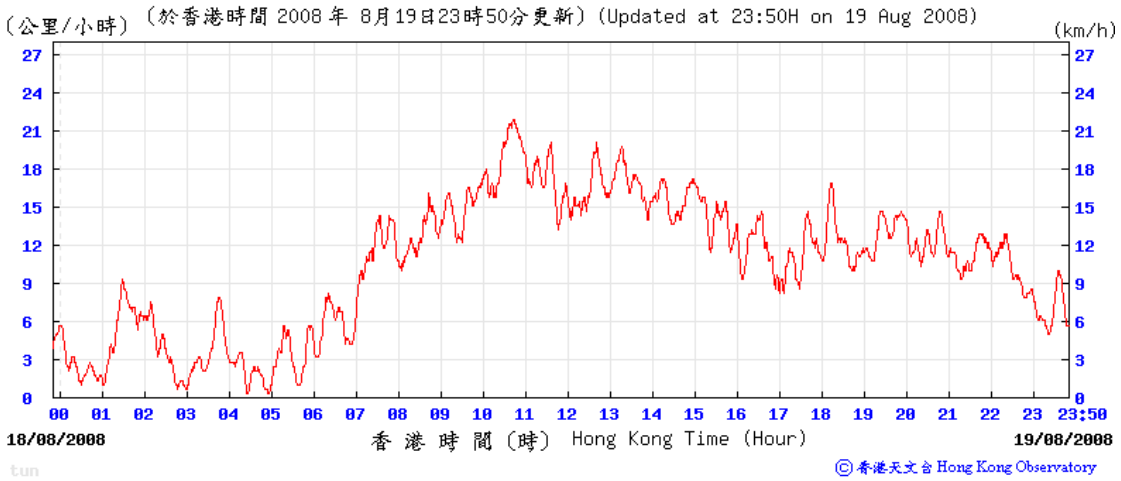

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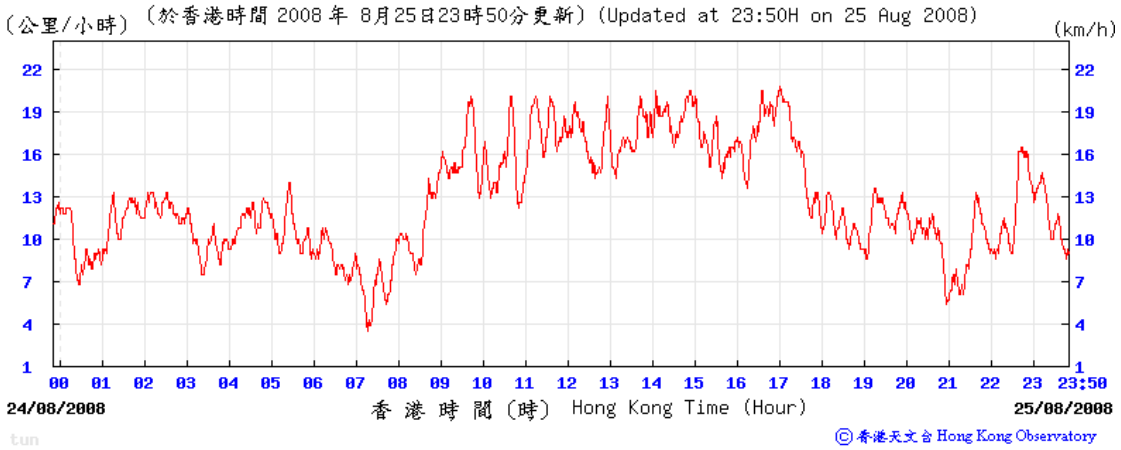

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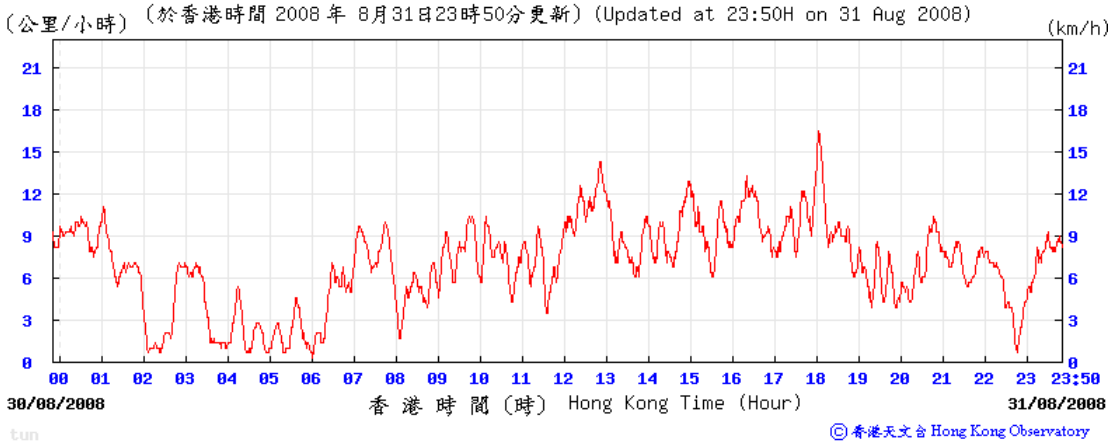

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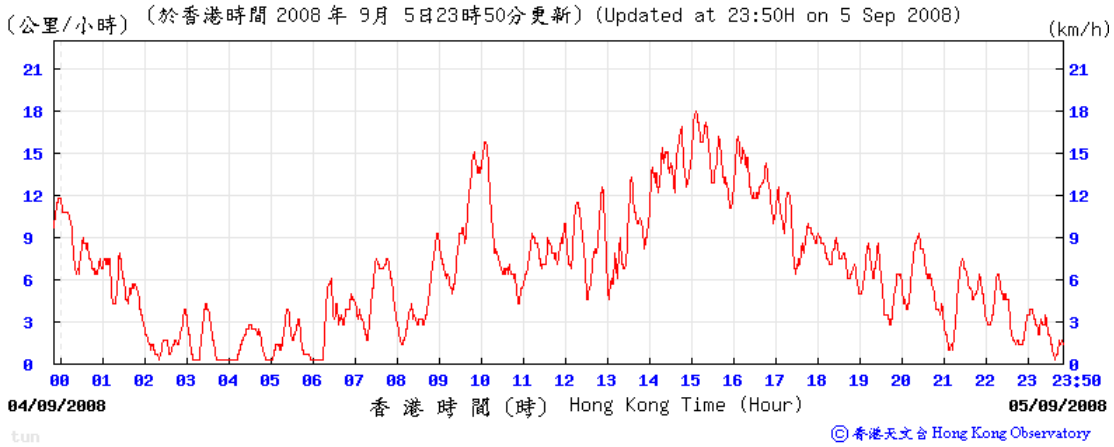

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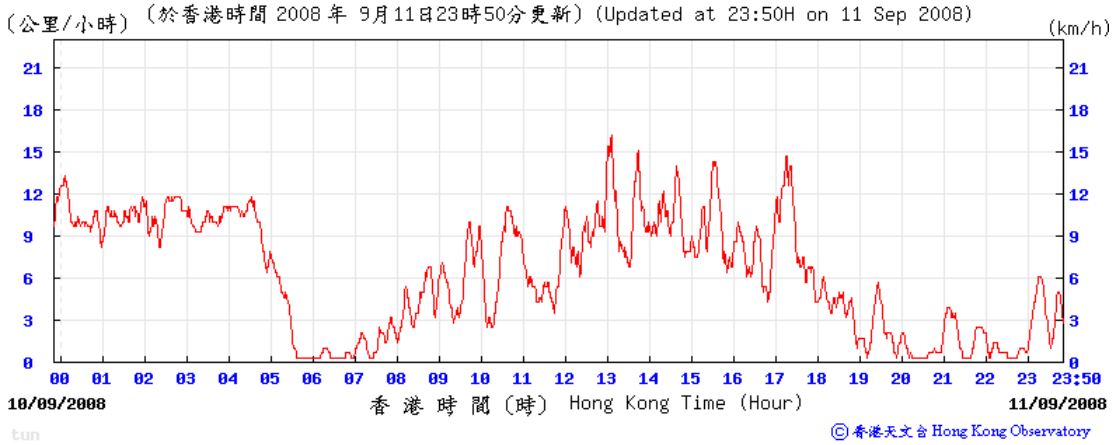

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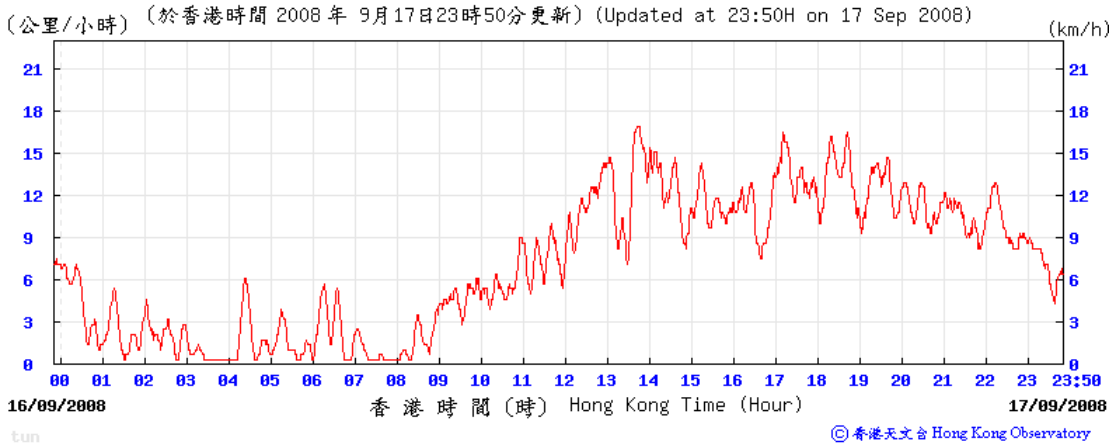

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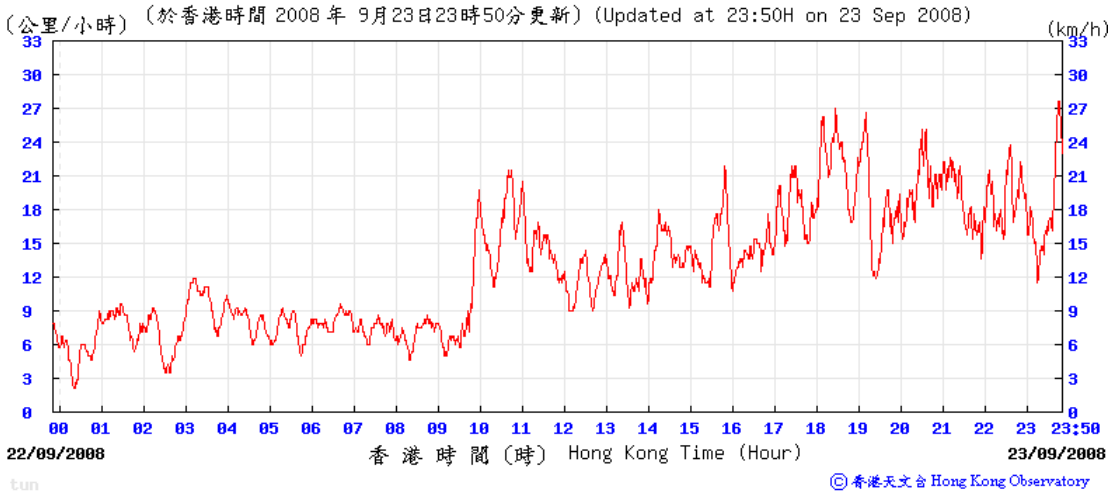

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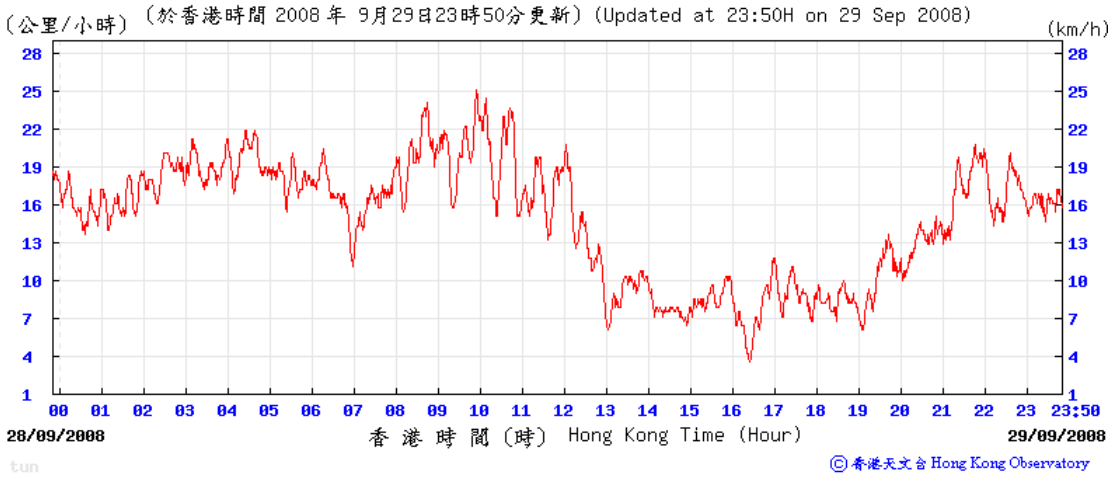

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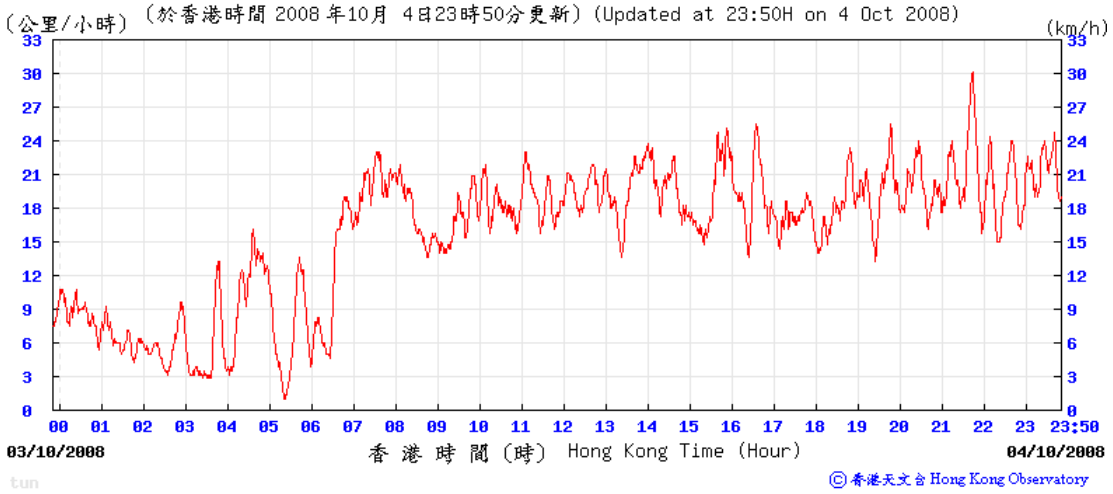

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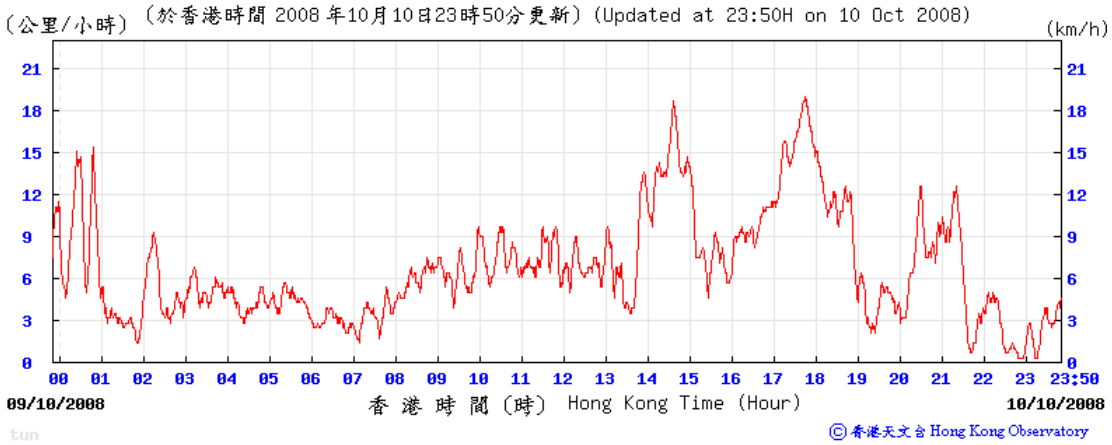

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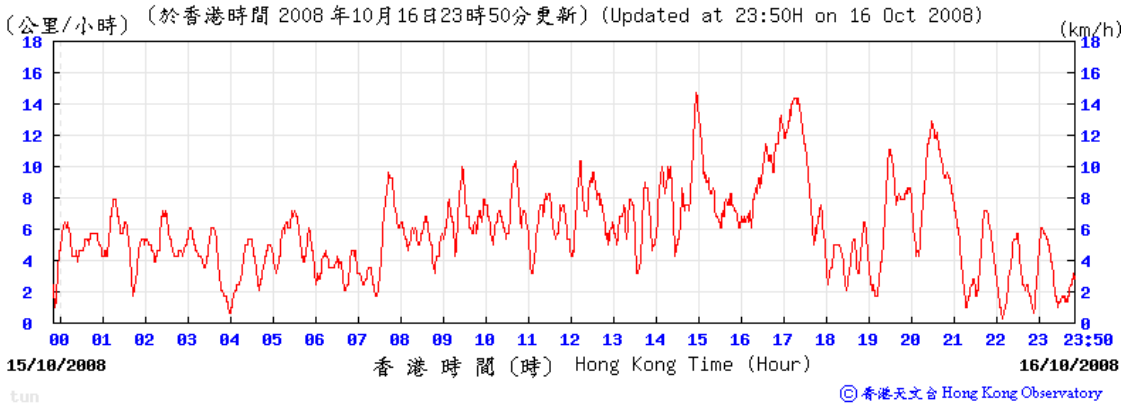

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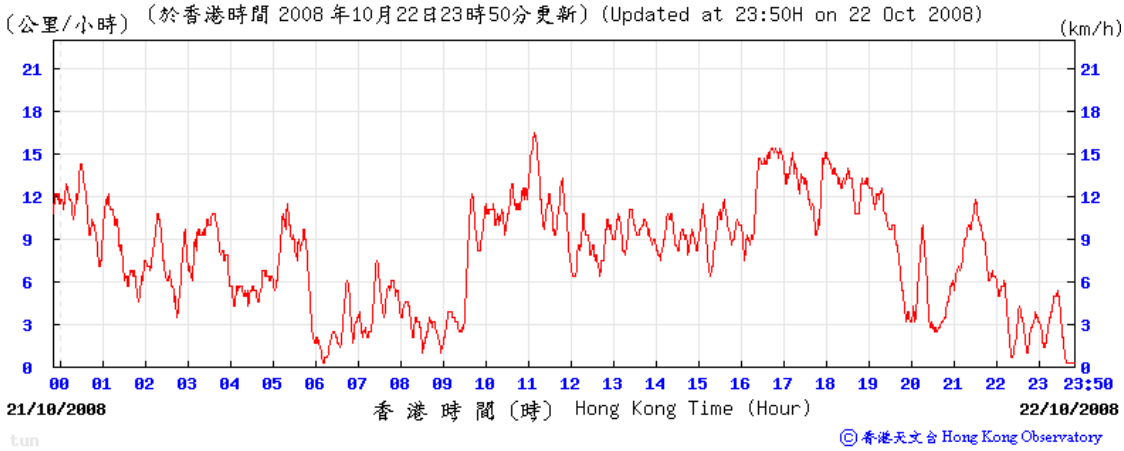

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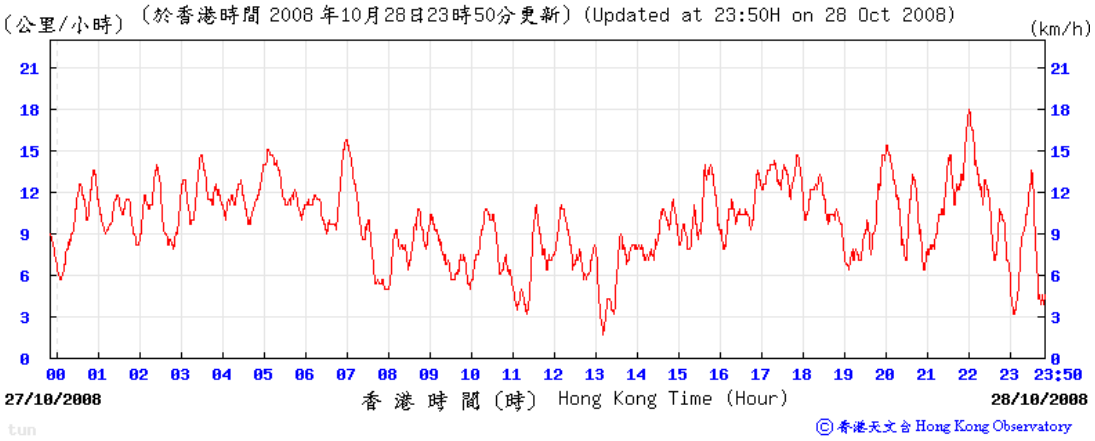
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香 港 時 間 (時) Hong Kong Time (Hour)
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Appendix G

Mitigation Measures Implementation Schedule for Construction Stage

MITIGATION MEASURES IMPLEMENTATION SCHEDULE FOR CONSTRUCTION STAGE

EIA Ref. Section	EM&A Ref. Section	Environmental Protection Measures	Location/Duration of Measures/ Timing of completion measures	Relevant Legislation & Guidelines
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	Construction site of the proposed WFM/ Throughout the construction period	APCO/EIA Study
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	Construction site of the proposed WFM throughout the	NCO/EIA Study

EIA Ref. Section	EM&A Ref. Section	Environmental Protection Measures	Location/Duration of Measures/ Timing of completion measures	Relevant Legislation & Guidelines
		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	construction period	
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 • 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 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	Construction site of the proposed WFM Throughout the construction period	WPCO/EIA Study

EIA Ref. Section	EM&A Ref. Section	Environmental Protection Measures	Location/Duration of Measures/ Timing of completion measures	Relevant Legislation & Guidelines
		• 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	Construction site of the proposed WFM Throughout the construction period	WDO/EIA Study WBTC No.5/99
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	Construction site of the proposed WFM Throughout the construction period	

EIA Ref. Section	EM&A Ref. Section	Environmental Protection Measures	Location/Duration of Measures/ Timing of completion measures	Relevant Legislation & Guidelines
		• 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 workers at the site and users of the WFM		